Understanding participation in water trading by irrigators in the Murray-Darling Basin

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Executive summary

This report examines the participation of Murray-Darling Basin (Basin) irrigators in water trading, and their views about water trading, using data collected in 2015, 2016 and 2018 as part of the University of Canberra's Regional Wellbeing Survey (RWS). In 2015, 833 Basin irrigators participated in the survey; 631 participated in 2016; and 412 in 2018.

The extent to which irrigators engaged in water trade, and their views about water trade, were analysed. Different groups of irrigators were compared, to enable an understanding of whether experiences differed depending on where an irrigators was located (e.g. Northern versus Southern Basin), the type and size of farm they managed, or their age or gender.

There are some limitations to the data presented. In particular, as the RWS includes irrigators but not other water market participants, the report examines only the participation of irrigators in the water market. Some types of trading were only undertaken by a relatively small proportion of irrigators. As the RWS had small numbers of respondents from these groups, only limited conclusions can be drawn from data about these specific groups.

Water market participation

The types of irrigators who were more and less likely to be engaging in water markets through buying and selling water allocation and/or water entitlements was examined.

In 2015, 55.0% of Basin irrigators engaged in some form of allocation trade (buying and/or selling), while 51.2% did in 2016 and 48.9% in 2018. Engagement in trade is higher when Basin irrigators who rely solely on groundwater are excluded, with between 55% and 65% of irrigators who use surface water sources engaging in buying and/or selling allocation in the three years examined. Entitlement trade was less common, being reported by 19.4% of Basin irrigators in 2015, 17.3% in 2016 and 12.7% in 2018. In 2016, 11.7% of Basin irrigators reported leasing water entitlements as part of sourcing water for their property, declining to 6.6% in 2018.

Overall, there was high consistency across the three years of data in terms of the types of irrigators who were more and less likely to engage in trading temporary allocation: those in the Northern Basin were less likely to trade allocation than those in the Southern Basin (or the Basin as a whole), as were those who use small volumes of water (less than 30 megalitres in the last year), and who had not modernised their on-farm irrigation infrastructure since 2008. Graziers (other than dairy farmers) were also to some extent less likely to engage in allocation trade, although this was not consistent across years. Those who had large farms in terms of both water use (applying 300 megalitres or more in the last year) and gross value of agricultural production (GVAP, those with turnover of $1 million or more) were more likely to engage in trading allocation, as were those who had modernised on-farm irrigation infrastructure since 2008. For example, in 2015 the mean megalitres applied by those who did not engage in allocation trade was 501 megalitres (ML), compared to 1,175 ML by those who did use allocation trade. In 2015, dairy farmers were more likely than other Basin irrigators to use allocation trade.

With relatively small proportions of irrigators engaging in entitlement trade or leasing entitlements in any year, there were few statistically significant differences between groups. Those who were operating farms with large GVAP ($1 million or more) were more likely to trade entitlements than others. In some years those who applied large volumes of water (1000 ML or more) and had modernised their on-farm irrigation infrastructure were also more likely to engage in entitlement trade. However, none of these things were consistently statistically significant across all three years of data. There were not significant differences in the types of irrigators reporting leasing entitlements, however this likely reflects the small

numbers of survey respondents who used this practice (it is likely that if a larger sample were available, it would be possible to identify statistically significant differences between groups).

The trends over time suggests lower overall participation in trade of allocation in 2018 compared to 2015 and 2016: this is likely to reflect overall water availability and prices. With drought affecting many parts of the Basin in 2017 and 2018, by the time data were collected in 2018 allocation prices were high and storage levels low. This was reflected in a widening gap between the proportion buying and selling allocation, with the proportion who sold allocation declining more than the proportion who bought, suggesting more irrigators were keeping and using allocation in what was for many a dry year, while some were also able to afford to buy on the market.

With most irrigators choosing to buy or sell strategically based on market conditions, understanding overall engagement in water trade is easier if irrigators who engage in *any* form of trade – whether buying or selling allocation or entitlements – are grouped together. Overall, when Basin irrigators using surface water are examined, in 2015 around 70% engaged in some form of trade, dropping to around 54% in 2018. The proportion engaging in both allocation and entitlement trade was lower in 2018 than in 2015. Northern Basin irrigators – who have smaller trading zones and fewer overall trading opportunities – report less engagement in water trade than Southern Basin irrigators. Dairy farmers were most likely to engage in both allocation and entitlement trade in 2015 and 2016, but in 2018 were less likely to trade entitlements, while remaining more likely than most other types of farmers to trade allocation. Crop growers (including rice and cotton growers) were more likely than most other types of farmers (except dairy farmers) to trade both allocation and entitlements.

The catchment in which the highest proportions of irrigators reported trading allocation were the Murray (NSW and Victoria), Campaspe and Goulburn catchments. Trading was less common amongst farms that used smaller volumes of water and had smaller gross value of agricultural production (GVAP), and more common amongst those using larger volumes of water and with larger GVAP.

Challenges to trading water

In the 2016 RWS, irrigators were asked the open-ended question 'What are the biggest challenges you face when trading water, if any?' Of the 631 Basin irrigators who participated in the survey in that year, 167 opted to answer this question. Most identified a single challenge to participating in water trade, while a smaller number identified two or three different challenges, with a total of 217 statements made about specific challenges across the 167 irrigators. In addition, a further 16 irrigators (almost all located in the Northern Basin) stated that they had no access to water trading opportunities.

The most common challenge identified was high prices for temporary water, identified by 45 irrigators. This was followed by concerns about the transparency and fairness of governance, particularly the participation of government water holders in trade while governments also regulated water trade. Lack of water availability, the effect of non-irrigator participants on the market, high costs such as fees/charges for trades, and complexity of regulation were the next most common. Seventeen expressed specific concerns about a lack of a 'level playing field' which had some commonalities with concerns expressed about non-irrigator participants in the water market. Sixteen found the often rapid changes in prices a challenge.

Water sourcing strategies

The choice to engage in differing forms of water trade is informed by an irrigator's water sourcing strategies. Almost all Basin irrigators source irrigator water from entitlements they

own - 95% or higher depending on the year examined. Between one third and 45% (depending on the year) of those who used surface water also sourced water for their farm by purchasing water on the temporary market. Use of water from leased entitlements was less common, ranging between 6% and 10% of irrigators in the two survey years that examined this practice. Carry over of water varied substantially year to year based on factors including whether any water was allocated to an entitlement (and therefore can be carried over), water prices and water availability, from a low in 2018 of 11.2% to a high of 62.5% in 2016.

Irrigators in the Northern Basin were much more likely to use water sourced solely from their own entitlements (around 80%) compared to Southern Basin irrigators (around 64% in 2018). Dairy farmers were the least likely to report using only water from their own entitlements, with only 29% relying solely on their own entitlements in 2015. However, this changed substantially between 2015 and 2018, with rapid growth in reliance on their own entitlements – in 2018, 54% of dairy farmers relied solely on water from their own entitlements. Crop growers were the next least likely to rely on water from their own entitlements only, with only 47% relying solely on this in 2015, rising to 59% in 2018. Those in horticulture mostly relied on water from their own entitlements (71% in 2015, rising to 84% in 2018).

Larger farmers (in terms of volume of water and GVAP) were more likely than smaller farmers to use water from both their own entitlements and from water purchased on the temporary markets. Non-portfolio watering – in which only water purchased on the temporary market or (in the Northern Basin) water from leased entitlements was used, and no water was sourced from a farmer's own entitlements – was more common amongst those in the Victorian Basin, dairy farmers, and younger farmers, but not significantly so. It was less common amongst grain growers, graziers, and those who had not modernised on-farm water infrastructure in recent years.

Use of surface and ground water

Some irrigators used only surface water, some only groundwater, and some a combination of both. Across the Basin, almost three quarters of irrigators relied on surface water only, (although this fell to around half in the Northern Basin), while 13% used both groundwater and surface water, and 15% relied solely on groundwater (11% of Southern Basin irrigators and 43% of Northern Basin irrigators). Overall, irrigators using groundwater only were more commonly located in the Northern Basin and used smaller volumes of water. Those located in the Murray and Goulburn catchments were most likely to rely solely on surface water. Those combining surface water and ground water use were more commonly dairy farmers and larger farmers (in terms of both volume of water used and GVAP), with those reporting a GVAP of $1 million or more, and using 1000ML of water or more, significantly more likely to report using both surface water and ground water compared to irrigators in the Basin as a whole.

Classifying irrigators into 'trade & water sourcing' groups

One way of categorising irrigators is to consider the type of engagement they have with the water market, with those who trade regularly and use diverse trading actions separated from those who trade only occasionally or in less diverse ways. Cluster analysis identified that irrigators could readily be grouped into two groups: those who engage in some form of water trade, and those who do no water trading of any kind. Exploratory analysis suggested that beyond this simple 'trade/no-trade' classification, it may be useful to classify those who engage in water trade into four groups:

- **Non-diverse allocation traders:** These traders use water from their own entitlements and also trade allocation through either buying or selling in a given year,

but do not both buy and sell allocation, and do not trade entitlements or lease entitlements. Ideally, allocation traders would be further divided into those who only occasionally trade allocation versus those who regularly trade allocation, however the datasets do not enable this type of classification. This is an important limitation of the dataset, as it is likely that views of those who trade more frequently are different to those who trade less frequently.

- **Non-diverse entitlement traders:** Traders who use water from their own entitlements and also may either buy or sell some entitlements in a given year, but do not trade allocation, and do not both buy and sell entitlements in a given year.

- **Diverse traders**: These traders engage in two or more forms of trade. This is defined as two or more of buying allocation, selling allocation, buying entitlement, selling entitlement or leasing in a single year. A person who both buys and sells allocation in a year is considered diverse, as is a person who both buys and sells entitlements, as engaging in both buying and selling indicates diversity of engagement with the water market.

- **Non-portfolio traders:** Those who lease entitlements or trade allocation but do not also own their own entitlements.

Views about water trading and water markets

In the 2015 and 2016 Regional Wellbeing Surveys, irrigators were asked their views about a number of aspects of water trading and water markets, including whether they felt water markets were fair, whether they found it easy or difficult to trade water, and whether they felt their water rights were secure. It is important to note that the data represent irrigator views as of 2015 and 2016 and hence findings are not necessarily representative of views held in 2020.

- Most irrigators found it easy to trade entitlements and temporary water if they wanted to: in 2015, 65% reported finding it easy to trade temporary water, increasing to 71% in 2016, a small but statistically significant increase.

- Just over half of Basin irrigators felt their rights to access water – when it was available - were secure (53.5% in 2015, 60.0% in 2016). In 2015, 33.1% did not feel their water rights were secure, and 23.6% did not feel their water rights were secure in 2016. There was a slight but statistically significant increase in the proportion reporting having secure between 2015 and 2016.

- Most irrigators found it easy to access information needed to make water trading decisions (53.2% in 2015 and 64.1% in 2016); however, some were unsure (14.0% in 2015, 8.9% in 2016), or found it difficult to access information (19.5% in 2015, 15.7% in 2016).

- Around half of Basin irrigators were confident to use water trading as part of their farm management (48.1% in 2015, 53.5% in 2016), while a quarter were not confident (27.6% in 2015, 25.2% in 2016), and the remainder unsure or neutral.

- Only 22% of Basin irrigators felt that changes to the rules for water trading in the years prior to 2015 had increased their confidence in the water market, while 47.8% disagreed

- Less than one in three Basin irrigators felt the water trade market was fair for all users (23.4% in 2015, 32.4% in 2016), while many felt it was not fair for all users (48.0% in 2015, 36.8% in 2016), and around 30% were unsure or neutral. There was a statistically significant increase between 2015 and 2016: however, despite this

increase, in both years more irrigators felt the market was not fair for all users than felt it was fair.

- Most irrigators either disagreed that water entitlements held by the government were subject to the same rules and charges as other water market participants (49.0% in 2015, 40.5% in 2016), or were unsure (31.6% in 2015, 25.8% in 2016). Relatively few agreed with this statement in either year (16.1% in 2015, 25.8% in 2016). While there was a statistically significant decrease in negative perceptions between 2015 and 2016, they remained negative overall.

In general, those who traded allocation were more likely to report finding it easy to trade water, being confident in their ability to trade water, and being able to access information about trading. Those who traded water and those who didn't trade were relatively similar in their views about whether the water markets was fair for all users and had stable rules.

A cluster analysis was undertaken to identify whether irrigator attitudes to water market trading clustered into interpretable categories that could then provide insight into the relationship between engagement in trade and attitudes to trading. Four classes of irrigators were identified from this exploratory analysis:

- Class 1: Low confidence in water trade. This group lack confidence both in their own ability to access information about trade, and in the settings of water trading systems. They do not feel their water rights are secure, find it difficult to trade water and to access information needed to trade, and do not believe the water market is fair for all users.

- Class 2: Moderate confidence in water trade. This group has moderate confidence in being able to trade, and some confidence that water trade systems are fair and appropriate to all. However, their confidence levels are not high for either and on the whole this group feel the water market is somewhat unfair, while being slightly but not highly confident in their ability to access information about the market and trade water.

- Class 3: Confident traders but sceptical of water trade. This group is very confident in their own ability to trade, being able to easily access information about water trade and engage in water trade. However, they hold concerns about the structure and fairness of the trading system, often believing that rules are not stable and holding concerns about the fairness of the market for all users.

- Class 4: Confident traders who trust the market. This group are very confident in their own ability to engage in water trade, finding it easy to access information and to trade. They have mostly high confidence in the water market system, finding it fair and stable.

Irrigators with low confidence in water trade (Class 1) made up 15.1% of Basin irrigators in 2015, dropping to 11.8% in 2016 (this change was not, however, statistically significant). Those with moderate confidence in water trade (Class 2) fell from 28.6% in 2015 to 20.1% in 2016. Those who were confident but sceptical of water trade (Class 3) grew from 29.2% in 2015 to 35.4% in 2016, while confident traders who trusted the market (Class 4) rose from 27.1% to 32.8%. While these changes suggest some increase in confidence (and possibly trust) in water trade, the differences were not statistically significant.

Those who traded allocation were significantly more likely to belong to Class 3 and 4 than to Class 1 or 2, across both years of data, suggesting that those engaging with the temporary market are commonly either confident but sceptical traders, or confident and trusting traders. Those who did not trade allocation were more likely to be in Classes 1 and 2 (low and moderate confidence in the water market) and less likely to be confident water traders (whether sceptical or trusting).

Understanding water market participation and attitudes

A range of factors were examined to identify whether they assisted in understanding water market participation and attitudes. These included:

- Water trading availability and water related barriers: Lack of engagement in trading was often associated with irrigators reporting lack of availability of water on local markets. Overall, dairy farmers and annual crop growers in the Victorian and NSW Southern Basin were most likely to report experiencing water price and availability related barriers to farm development. Those who engaged in water trade were more likely to report that issues such as high prices of water or lack of water on the market were barriers to their farm business compared to non-traders who are not attempting to trade on the water market.

- Farming conditions: A range of farming conditions have potential to be associated with changes in engagement in water trade. These include whether farming conditions are more challenging than usual, and cash flow on the farm. Overall, those engaging in trade of water allocation (but not entitlements) were more likely than non-traders to report experiencing more challenging conditions on the farm than usual: for example, in 2018 89.0% of non-diverse allocation traders reported experiencing more challenging farming conditions than usual, compared to 61.6% of non-traders. When farm cash flow was examined, non-portfolio traders reported poorer cash flow than other types of irrigators in all three years (50.0%, 45.5% and 60.0% in the three years), although the small sample meant that despite the large difference, they were not significantly different to the average.

- Future farming intentions: When intentions of farmers to retire, expand, downsize or intensify their farm enterprise in the next five years were analysed, there were few consistent differences between irrigators engaging in different forms of water trade.

- Farm planning and risk mitigation strategies: Farmers were asked whether they had a farm plan, whether their farm plan included planning for risks such as drought, and whether they monitored performance against the plan or regularly reviewed and updated their farm plan. There were very few differences in use of farm planning and risk mitigation strategies between those who engaged in water trade and those who didn't.

- Farming confidence and self-efficacy: In general, diverse traders were more likely to report feeling optimistic about their farming future, being able to achieve their farm business objectives, and being able to cope with most difficult conditions on the farm.

- Farmer health: While there were few statistically significant differences in the health of irrigators engaging in different forms of trade, one group did report consistently poorer health and in particular higher psychological distress: non-portfolio traders. Due to their low numbers, these differences were only sometimes statistically significant..

Recommendations for future work

The findings suggest several areas where additional data collection is needed to better understand how irrigators and other water market participants engage in and experience water trade. It is recommended that future work includes the following:

- Examines non-irrigator water market participants as well as irrigators

- Examines a greater diversity of market mechanisms

- Examines attitudes toward engaging in trade as well as recent trading history

- Captures larger samples of specific types of traders, particularly diverse and non-portfolio traders

- Is based on more regular data collection

- Examines the process and outcomes of trading in more detail

- Identifies the objectives irrigators have when engaging in water trading in more detail

Conclusions

The findings of this report highlight that irrigators have complex and often differing experiences of water trade, and use water trade in different ways. While farmers managing enterprises with greater turnover (GVAP) are overall more likely to engage in trade, including both buying and selling, those managing smaller farms are less likely to trade at all and, when they do, appear more likely to sell than buy allocation. The findings highlight that many irrigators hold concerns about the overall fairness and stability of the water trade market, despite a large proportion finding it relatively easy to trade on the market, and most finding it easy to access information on water trading. There are also many who view the market as relatively fair. Overall, the findings suggest that rapid change to rules and regulations governing trade can reduce perceptions of fairness of the market: stability of market rules is important to building confidence in the market. Also important is addressing concerns about whether the market involves a 'level playing field' between irrigators and other water market participants, and ensuring that irrigators can trade easily. With multiple irrigators highlighting that challenges to trade include issues such as high transaction costs, and rapid fluctuation in prices, as well as delays in processing of trades for some, investing in improving ability to trade easily and rapidly is likely to be an important part of building confidence in the water market.

1. Introduction

This report examines the participation of Murray-Darling Basin (Basin) irrigators in water trading, and their views about water trading, using data from the University of Canberra's Regional Wellbeing Survey. The Regional Wellbeing Survey (RWS) has asked irrigators a number of questions about their participation in the water trade market and their views of it since it was launched in 2013. This report examines data from three years of the survey – 2015, 2016 and 2018 – to provide some insight into how irrigators view and engage with the water market.

The next section (Section 2) describes the RWS and data collection methods Section 3 then identifies which types of Basin irrigators do and do not engage in different types of water trade, and the water sources used for irrigation on the farm. Section 4 examines irrigator views about water trading and water markets. Section 5 analyses whether participation in water trading varies depending on a range of characteristics and conditions being experienced by irrigators, from their own health to their future plans for staying in farming versus retiring.

The concluding section then make recommendations for further work needed to better understand how irrigators experience the water trade market.

2. Data source and methods

We used data from the RWS to analyse irrigator engagement in and views of the water trade market. The RWS is an 'omnibus survey', meaning it includes questions on a large number of topics. Questions related to irrigation water use and trade are only one part of a longer survey. The survey has between 9,000 and 13,000 participants each year, of which between 500 and 1,000 are irrigators. Each year, the survey examines how participants view the liveability of their communities, their own health and wellbeing, their social connections, and how they are experiencing a number of types of change or activities. A detailed description of the methods used to collect data in the RWS is provided in Schirmer et al. (2016), and further analysis of irrigators is provided in Schirmer (2017) and Schirmer (2019). Some parts of this section are replicated from Schirmer (2017) and Schirmer (2019) which also provide an overview of methods used in the RWS to survey Basin irrigators.

This report examines irrigators and water trade. In several parts, changes over time in experience are identified, drawing on data from three 'waves' of the survey that asked the same items. A 'wave' simply means data collected in a specific year: in this case, data collected in 2015, 2016 and 2018 were analysed where relevant. In these years the survey included a sample of 833, 631 and 412 irrigators living in the Basin respectively. The survey also collected data from between 200-450 irrigators living outside the Basin each year.

This chapter provides a brief overview of aspects of the methods relevant to understanding how data relating to participation in and views of water market trade, and the characteristics of irrigators and their farms, were collected and analysed.

2.1 Questionnaire design

Each year, survey questions are developed in a multiple step process that involves input from a number of organisations with an interest in water reform, including farming organisation representatives, and representatives of government agencies. The questions are tested in focus groups and revised, and formally pilot tested before launch of the survey (see Schirmer et al. 2016 for further detail).

2.2 Recruitment of survey participants

Survey participants are recruited through flyers and surveys sent to randomly selected households across rural and regional Australia, and promotion of the survey through social networks of a large number of rural and regional organisations. A stratified random sample is used, with irrigators specifically oversampled (see Schirmer et al. 2016 for further detail).

- A large sample of farmers was identified from the 'Farmbase' database, the largest available database of Australian farmers. Farmers who were likely to be irrigators were identified in this database based on a combination of farm type and region, and those living in irrigation districts located in the Murray-Darling Basin were directly sent paper surveys.

- Flyers encouraging participation in the survey were sent to all households in irrigation regions in the Murray-Darling Basin, as well as to several major irrigation districts outside the Basin.

- Emails were sent through multiple networks of irrigators by farming organisations representing irrigators.

This process resulted in a large sample of Basin irrigators, as well as a sample of irrigators outside the Basin, in each wave of the survey, as shown in Table 1. However, as also evident from Table 1, there was a decrease in the number of Basin irrigators participating in

the survey in 2016, and subsequently in 2018, compared to the previous years. This occurred due to:

- a reduction in funding available to sample irrigators in these two surveys compared to the other years

- extensive spring flooding in 2016 which affected irrigators in multiple districts within the Murray-Darling Basin, together with a severe storm that caused damage to many irrigation enterprises in parts of South Australia, north-west Victoria, south-west NSW and parts of Queensland in the same week surveys were mailed to most irrigators.

In 2018, a smaller sample of irrigators than previous years was expected due to lower funding, as well as some survey fatigue amongst irrigators. As many farmers were experiencing stress due to drought in 2018, repeat reminders were not sent regarding completing the survey, to reduce risk of creating undue survey burden for farmers experiencing significant stress due to drought. The survey was also delivered later in the year than usual in 2018: the survey was open from November 1st to December 14th. In other years, the survey has typically been open for two more weeks, from the start of October to the end of November. The delay in 2018 was due to requests from farming organisations, who requested the survey be delivered later than usual due to many farmers experiencing stress due to poor winter and early spring rain

Table 1 Sample of irrigators achieved in the Regional Wellbeing Survey, 2015, 2016 and 2018

Year	Sample of irrigators living in the Basin	Sample of irrigators living outside the Basin	Total sample of irrigators
2015	833	325	1,158
2016	631	484	1,115
2018	412	235	657[i]

[i]**For a small number of irrigators (10), their geographic location in or out of the Basin could not be identified based on information provided in their survey. This meaning the total number of irrigators adds up to more than the sum of those within and outside the Basin.**

2.3 Representativeness of irrigator sample

This report analyses the experiences of irrigators in the Murray-Darling Basin (MDB). The analysis for this report does not rely on the sample being precisely representative, as much of the analysis compares irrigators who have and have not engaged in water market trade.

In all three years of data examined, the sample of irrigators in the RWS was found to be reasonably representative when the distribution of irrigators was compared to a benchmark data set (see Schirmer 2017, 2019). There are limitations to this analysis: in particular, there is limited benchmark data available to compare the survey sample to, with a large standard error for much of the Australian Bureau of Statistics data on irrigating enterprises used as the best available benchmark (see Schirmer 2017, 2019 for discussion of this issue). This in turn limits ability to assess overall representativeness of the sample.

Figure 1 compares the 2015 RWS sample of Basin irrigators to known distribution of irrigating enterprises. It is replicated from Schirmer (2017) which provides details of the analysis undertaken.
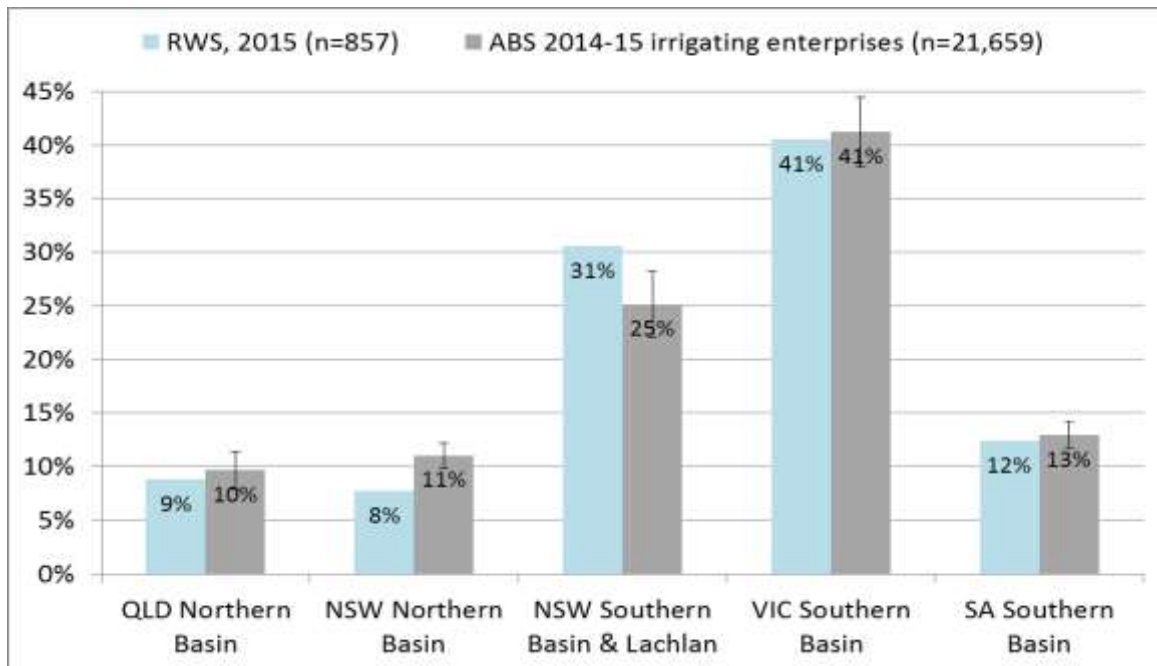
Figure 1 Assessing representativeness of the 2015 RWS sample of irrigators living within the MDB (replicated from Schirmer 2017)

Similarly, comparison of the 2018 RWS sample with ABS benchmark data, shown in Table 2, confirmed the RWS sample as being broadly representative of the geographic distribution of Basin irrigators based on available information, other than slight over-sampling of irrigators in the Victorian Basin.

Table 2 Representativeness of the RWS sample of irrigators living within the Murray-Darling Basin (replicated from Schirmer 2019)

	Proportion of 2018 RWS Basin irrigator respondents living in this region	% of ABS 2017-18 irrigating enterprises in this region of the Basin (data source: Australian Bureau of Statistics)
QLD Basin	6%	9% ±3%[a]
NSW Northern Basin	9%	8% ±3% [a]
NSW Southern Basin	27%	25% ±3% [a]
SA Basin	9%	12% ±3% [a]
VIC Basin	49%	45% ±4% [a]
Total	100%	100%
[a]Sampling error for the ABS data have been approximated based on taking the mid-point of the ABS' reported standard errors for different states and NRM regions (these should be considered indicative only of the actual standard error)		

Schirmer (2017, 2019) concluded that the small differences in sampling of irrigators from some parts of the Basin were as likely to result from sampling error in the benchmark data as from sampling variability in the Regional Wellbeing Survey; as such, no weighting of survey responses is used in this report as it could introduce more bias than it corrects if the source of the error is the benchmark data rather than the RWS sample.

2.4 Statistical significance

Throughout this report, the small sample sizes of some groups of irrigators limited ability to state with certainty that their water trading behaviour or views about water trading are different to those of others. In particular, where there is a sample of less than 100 people in a given group, the small sample size means that it is only possible to state their views are significantly different to those of others if there is a very large difference in views.

In many cases, sample sizes were relatively small for the groups being examined: this increases the likelihood of Type II errors, in which there is a 'false negative' – in other words, it is likely that in addition to the significant statistical associations identified in the report, other differences that are likely to be statistically significant are not identified as significant due to small sample size.

Throughout this report, where the analysis identifies high statistical confidence that the views of one group are significantly different to the Basin, or a significantly different proportion of irrigators engage in an activity compared to the proportion engaging in that action across the Basin, we state this by using the term 'significant' when describing results. Significance estimates are based on 95% confidence intervals unless otherwise stated, with statistical significance defined as there being a less than a 5% likelihood that the differences in views occurred by random chance, and was calculated using 95% confidence intervals.

Data for all confidence intervals is presented in tables in the main report and the Appendices. Tables of data in the Appendices provide 95% confidence intervals for all data presented. In the Appendices, cells have been shaded to indicate where a specific group of irrigators differed statistically significantly to Basin irrigators as a whole, when 95% confidence intervals were compared:

- Yellow shading of a cell in a table in the Appendices indicates a group was significantly *more likely* to hold a particular view, have a particular attribute or engage in the particular action being examined

- Red shading of a cell in a table in the Appendices indicates a group was significantly *less likely* to hold a particular view, have a particular attribute or engage in the particular action being examined.

It is important to note that as data were compared to the 'Basin average' (meaning the value for the Basin as a whole), some significant differences between groups are not highlighted in appendices. For example, it is possible that for a given variable, the youngest group of irrigators differ significantly to the older group of irrigators, but neither group differ significantly to the average value for the Basin as a whole.

Where data across the three years of survey data examined show consistently large differences between a group of irrigators and others, but this was not statistically significant due to the small sample size of that group, this is noted in the report. This may indicate that there is a likely difference between this group of irrigators and others, given the consistency of the finding over time.

2.5 Presentation of findings

Findings are presented in this report using tables and figures. When presenting findings:

- 'Average' scores are reported for some results in this report. In all cases, unless otherwise specified, the term 'average' refers to the mean score for the group of people being analysed (not to the median or mode). The number of responding irrigators who answered different questions is provided throughout. This varies to

some extent due to a small number of irrigators who did not answer all questions: because of this, for different topics examined there are often slightly different numbers of respondents. No imputation of missing data was undertaken, with all but a small number of survey questions typically answered by 96% or more of those irrigators eligible to answer it.

- To facilitate comparison of different groups of irrigators, many tables compare categories of irrigators. Table 3 explains the categories compared, and the survey data they were produced from.

- Several summary tables are presented that summarise whether specific groups of irrigators differed significantly to Basin irrigators as a whole. These summary tables summarise key findings of detailed tables provided in Appendices, and use shortened names for different categories to enable a large amount of information to be communicated in a smaller sized table. Table 3 defines the labels used.

Table 3 Groups of irrigators compared in this report

Variables	Categories	Short name given to category in summary tables
Trade typology	Diverse trade	Diverse
	Non-diverse allocation trader	Allocation
	Non-diverse entitlement trade	Entitlement
	Non-portfolio trade	Nonportfolio
	No trade	No trade
Water sourcing strategy	Used water from own entitlements only	Entitlement only
	Used water from own entitlements & allocation purchased on market	Entitlement & allocation
	Used water from allocation/leased entitlements only	Allocation/lease only
Water sources used	Used surface water only	Surface only
	Used both surface water and ground water	Surface & ground
	Used ground water only	Ground only
Basin	Northern Basin	North
	Southern Basin	South
Basin State	Queensland Basin	Qld
	NSW Northern Basin	NSW Nth
	NSW Southern Basin	NSW Sth
	Victorian Basin	Vic
	South Australian Basin	SA
Catchment	All survey respondents were geo-coded by the catchment they lived in, using the surface water sustainable diversion limits (SWSDL) GIS layer. As there was not sufficient sample of irrigators to report findings for some catchments, only a subset of those catchments with sufficient sample to enable reporting were reported. The catchment with sufficient sample to enable reporting vary by year and survey variable being analysed:	
	Campaspe	Campaspe
	Condamine-Balonne	Condamine-Balonne
	Goulburn, Broken (grouped to 'Goulburn-Broken' where insufficient sample to report separately)	Goulburn, Broken Goulburn-Broken
	Loddon	Loddon
	Macquarie-Castlereagh	Macquarie-Castlereagh
	Murrumbidgee	Murrumbidgee
	Namoi	Namoi
	New South Wales Murray & Victorian Murray (grouped into 'Murray' in years where there was insufficient sample to report separately	NSW Murray Vic Murray Murray
	South Australian Non-Prescribed Areas	SA Non-Prescribed Areas
Farm type	Dairy farmer	Dairy
	Crop grower (includes grains, oilseeds, rice, cotton, legumes)	Crop
	Horticulture	Horticulture
	Mixed cropping/grazing	Mixed crop/graze
	Fruit/nut grower (subset of horticulture)	Fruit/nut
	Winegrape grower (subset of horticulture)	Winegrape
GVAP (Gross value of agricultural production)	The original survey asked irrigators to report their GVAP for the past financial year by selecting which of 12 categories it fell into: Nil (no farm sales), <$5,000, $5,000-$49,999; $50,000-$99,999; $100,000-$199,999; $200,000-$299,999; $300,000-$399,999; $400,000-$499,999; $500,000-$749,999; $750,000-$999,999; $1 million to $1.99 million and $2 million or more. These 12 categories were grouped as follows for purposes of reporting in tables in this report, enabling	

Variables	Categories	Short name given to category in summary tables
	protection of privacy and confidentiality when reporting findings for sub-groups of irrigators: <$50,000 $50,000-$99,999 $100,000-$299,999 $300,000-$499,999 $500,000-$999,999 $1 million +	<$50,000 $50-$99,999 $100-$299,999 $300-$499,999 $500-$999,999 $1 million +
Megalitres used	The survey asked irrigators to report how many megalitres they used on their farm for irrigated agriculture in the last 12 months. This continuous data is reported in the following categories in tables in this report, with categories selected based on having sufficient sample in each, and having proved to be meaningfully different in past analyses of Basin irrigators (Schirmer 2017, 2019). <30 megalitres 30-99 megalitres 100-299 megalitres 300-999 megalitres 1000 megalitres or more	 <30ML 30-99ML 100-299ML 300-999ML 1000ML+
Modern-isation	Irrigators were asked if they had modernised irrigation infrastructure on their farm since 2008, and if they had, whether this was partly funded with a government grant, or wholly self-funded. This resulted in the following three categories: Modernised irrigation infrastructure with assistance from government grant Modernised irrigation infrastructure using self-funding Has not modernised irrigation infrastructure	 Modernised - grant Modernised – self-funded Has not modernised
Off-farm income	Irrigators were asked to identify what proportion (%) of their household income was earned off-farm over the previous 12 months. The continuous data provided was grouped into the following categories for purposes of summarising in table in this report: Earned 1-25% household income off-farm Earned 26-50% household income off-farm Earned 51-75% household income off-farm Earned 76-100% household income off-farm Earned all income on farm	 1-25% off-farm 26-50% off-farm 51-75% off-farm 76-99% off-farm No off-farm income
Self-reported farm profitability over last 3 years	Irrigators were asked to self report their farm profitability over the last 3 years from the following 7 categories: i) Making a large loss, ii) Making a moderate loss, iii) Making a small loss, iv) Breaking even, v) Making a small profit; vi) Making a moderate profit; vii) Making a large profit. These were grouped for purposes of reporting in tables in this report, to the following. Note that small profit was grouped with breaking even as evidence suggests many farmers may be slightly optimistic when reporting their farm return, meaning many reporting a small profit are likely to be actually breaking even. Making a loss (sum of categories i, ii, iii) Breaking even/small profit (sum of categories iv, v) Moderate/large profit (sum of categories v, vi, viii)	 Loss Break even Profit
Finance access	Irrigators were asked whether lack of access to affordable farm finance was a barrier to them developing their farm over the last 3	

Variables	Categories	Short name given to category in summary tables
	years. They were given eight response options: Not a barrier, Small barrier (1), 2, 3, 4, 5, 6, Big barrier (7). These were grouped as follows for purposes of tables in this report:	
	- Found it very difficult to access affordable farm finance (sum of responses 6,7)	Very difficult
	- Found it moderately difficult to access affordable farm finance (sum of responses 3,4,5)	Moderately difficult
	-Did not find it difficult to access farm finance (sum of 'Not a barrier', 1,2)	Not difficult
Age	All survey responses were asked to report their age in years. This continuous variable was grouped into the following categories for tables in this report. Note that the average age of farmers in 2018 was 58 (ABS 2020), with a skew to older farmers; hence the youngest category is 'aged under 45'.	
	Aged <45	Aged <45
	Aged 45-54	Aged 45-54
	Aged 55-64	Aged 55-64
	Aged 65-74	Aged 65-74
	Aged 75+	Aged 75+
Gender	Participants were asked if they identified as male, female, other, or if they preferred not to identify a gender. As less than 10 irrigators identified as non-binary, only two categories are reported:	
	Female	Female
	Male	Male
Education	Participants were asked to selected whether they had completed Year 12 or equivalent of high school, a university degree, a certificate/diploma, or none of these. These were grouped into 3 categories for reporting:	
	- Did not complete high school ('none of these' category)	No high school
	- Has high school or non-university post-school qualification (completed year 12 or equivalent of high school and/or a non-university certificate diploma)	Completed high school/cert/diploma
	- Completed tertiary qualification (reported completing a university degree)	Completed tertiary degree

2.5 Ethics

The Regional Wellbeing Survey was approved by the University of Canberra Human Research Ethics Committee, protocol number 12-186.

3. Water market participation and irrigation water sources

3.1 Introduction

This section examines engagement of Basin irrigators in water trade, identifying which types of irrigators are more and less likely to be engaging in water markets through buying and selling water allocation and/or water entitlements. The biggest challenges irrigators identified to trading water are briefly discussed, drawing on data from the 2016 RWS. It then identifies water use strategies – meaning the types of water irrigators are using to irrigate their farm. This information is then used to identify a 'typology' of common types of engagement in water markets and their relationship to water sourcing strategies, which is drawn on through the rest of this report.

There are some limitations to the data presented. Throughout this report, the focus is on how irrigators engage with the water market, as the Regional Wellbeing Survey does not examine other water market participants such as non-irrigator water market investors. This means that only irrigator participation can be examined, and not non-irrigators who are engaging with the water market.

Additionally, while data on trade in entitlements is presented, in a typical year only a relatively small proportion of irrigators buy or sell entitlements. This means there can be high variation in the dataset, and that it is not possible to identify whether year to year variation reflects variation in the sample or an actual trend of changing engagement in entitlement trade. With higher numbers of irrigators engaging in allocation trade, the sample provides a more robust insight into trade behaviours than it does for entitlement trade.

Additionally, while some data examine whether irrigators who sold entitlements sold to the government or to private buyers, this data has important limitations. In particular, some irrigators may have sold entitlements to water brokers (a private sale) who then on-sold the entitlement to the government. This type of transaction is reported as a private sale in this dataset, meaning the data may under-report sales of entitlements to the government.

Data are shown for the following periods:

- 2015: These data were collected at the end of 2015 and reflect the period from spring 2014 to spring 2015 (similar but not identical to the 2014-15 water year, but including the start of the 2015-16 water year),

- 2016: These data were collected at the end of 2016 and reflect the period from spring 2015 to spring 2016 (similar but not identical to the 2015-16 water year, but including the start of the 2016-17 water year), and

- 2018: These data were collected at the end of 2018 and reflect the period from spring 2017 to spring 2018 (similar but not identical to the 2017-18 water year, but including the start of the 2018-19 water year).

3.2 Water market participation

This section examines water market participation by irrigators: how many irrigators engage in buying and selling either water entitlements, or water allocation ('temporary' water)? It also examines how many reported carrying over water from one water year to the next.

Tables 4, 5 and 6 show how many Basin irrigators did and didn't engage in buying and selling (i) water allocation on the temporary market, (ii) permanent entitlements, in 2015,

2016 and 2018. For 2016 (Table 5) and 2018 (Table 6), the tables also show how many leased entitlements (information on leasing was not collected in the 2015 survey. Only a small number of groups of irrigators are compared in Table 4, to ensure key findings are summarised succinctly. More detailed information, including data for a wider range of types of irrigators, is provided in Tables A1, A2 and A3 in Appendix 1. Rows shaded yellow indicate that, based on 95% confidence intervals, irrigators in a particular category were significantly *more* likely to engage in a particular type of trade than irrigators across the Basin as a whole. Rows shaded red indicate irrigators in this category were significantly less likely to engage in this type of trade compared to irrigators across the Basin as a whole. Tables A1 to A3 in Appendix 1 provide the full data for the confidence intervals.

In 2015, 55.0% of Basin irrigators engaged in some form of allocation trade (buying and/or selling), while 51.2% did in 2016 and 48.9% in 2018. Entitlement trade was less common, being reported by 19.4% of Basin irrigators in 2015, 17.3% in 2016 and 12.7% in 2018. In 2016, 11.7% of Basin irrigators reported leasing water entitlements as part of sourcing water for their property, declining to 6.6% in 2018.

Overall, there was high consistency across the three years of data in terms of the types of irrigators who were more and less likely to engage in trading temporary allocation: those in the Northern Basin were less likely to trade allocation than those in the Southern Basin (or the Basin as a whole), as were those who use small volumes of water (less than 30 megalitres in the last year), and who had not modernised their on-farm irrigation infrastructure since 2008. Graziers (other than dairy farmers) were also to some extent less likely to engage in allocation trade, although this was not consistent across years. Those who had large farms in terms of both water use (applying 300 megalitres or more in the last year) and gross value of agricultural production (GVAP, those with turnover of $1 million or more) were more likely to engage in trading allocation, as were those who had modernised on-farm irrigation infrastructure since 2008. For example, in 2015 the mean megalitres applied by those who did not engage in allocation trade was 501 ML, compared to 1,175 ML by those who did use allocation trade. In 2015, dairy farmers were more likely than other Basin irrigators to use allocation trade.

With relatively small proportions of irrigators engaging in entitlement trade or leasing entitlements in any year, there were few statistically significant differences between groups. Those operating farms with large GVAP ($1 million or more) were more likely to trade entitlements than others, and in some years those who applied large volumes of water (1000 ML or more) and had modernised their on-farm irrigation infrastructure were also more likely to engage in entitlement trade. However, none of these things were consistent across all three years of data. There were not significant differences in the types of irrigators reporting leasing entitlements, however this likely reflects the small sample of irrigators obtained who use this practice (it is likely that if a larger sample were available, it would be possible to identify statistically significant differences between groups).

Table 4 Use of allocation trade and entitlement trade – Basin irrigators, 2015

Full data including confidence intervals provided in Appendix 1, Table A1

Rows shaded red indicate irrigators in this category were significantly less likely to engage in this type of trade compared to irrigators across the Basin as a whole. Table A3 in Appendix 1 provides the full data for the confidence intervals.		Engagement in water market trade in 12 months prior to spring 2015			
		Did not trade allocation (neither bought or sold)	Traded allocation (bought and/or sold)	Did not trade entitlements (neither bought or sold)	Traded entitlements (bought and/or sold)
Basin	Murray-Darling Basin (n=744)	45.0%	55.0%	80.6%	19.4%
Basin location	Northern Basin (n=113)	65.5%	34.5%	86.7%	13.3%
	Southern Basin (n=631)	41.4%	58.6%	79.6%	20.4%
	NSW Nth Basin (n=52)	55.8%	44.2%	82.7%	17.3%
	Qld Basin (n=61)	73.8%	26.2%	90.2%	9.8%
Basin State	NSW Sth Basin (n=229)	36.2%	63.8%	78.6%	21.4%
	SA Basin (n=93)	47.3%	52.7%	64.5%	35.5%
	Vic Basin (n=309)	43.4%	56.6%	84.8%	15.2%
	Dairy (n=92)	28.3%	71.7%	81.5%	18.5%
	Grain growing (n=131)	38.2%	61.8%	75.6%	24.4%
Farm type	Grazier (n=146)	56.8%	43.2%	89.0%	11.0%
	Horticulture (all) (n=203)	52.2%	47.8%	76.4%	23.6%
	Mixed cropping/grazing (n=75)	48.0%	52.0%	81.3%	18.7%
Horticulture farm type	Fruit/nut grower (n=90)	52.2%	47.8%	73.3%	26.7%
	Winegrape grower (n=97)	49.5%	50.5%	79.4%	20.6%
	<30ML (n=231)	64.1%	35.9%	85.7%	14.3%
Megalitres of water used in on-farm irrigation in last year	30-99ML (n=103)	46.6%	53.4%	85.4%	14.6%
	100-299ML (n=135)	43.0%	57.0%	81.5%	18.5%
	300ML (n=153)	32.0%	68.0%	83.0%	17.0%
	1000ML+ (n=120)	25.8%	74.2%	62.5%	37.5%
	ML applied on farm - mean ML (n=744)	501	1175	600	2001
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with government grant (n=147)	30.6%	69.4%	63.3%	36.7%
	Modernised using self-funding (n=241)	46.5%	53.5%	83.0%	17.0%
	Has not modernised infrastructure (n=261)	49.8%	50.2%	87.0%	13.0%
	<$50,000 (n=166)	55.4%	44.6%	81.9%	18.1%
	$50,000-$99,999 (n=71)	43.7%	56.3%	83.1%	16.9%
Gross value of agricultural production 2015-16	$100,000-$299,999 (n=144)	45.1%	54.9%	86.8%	13.2%
	$300,000-$499,999 (n=86)	48.8%	51.2%	82.6%	17.4%
	$500,000-$999,999 (n=121)	41.3%	58.7%	79.3%	20.7%
	$1 million + (n=121)	32.2%	67.8%	67.8%	32.2%
	Average GVAP (mean category) (n=744)	$100,000-$199,999	$200,000-$299,999	$100,000-$199,999	$200,000-$299,999
	Aged <45 (n=76)	35.5%	64.5%	80.3%	19.7%
	Aged 45-54 (n=174)	38.5%	61.5%	76.4%	23.6%
Age	Aged 55-64 (n=242)	49.2%	50.8%	80.2%	19.8%
	Aged 65-74 (n=173)	49.7%	50.3%	85.0%	15.0%
	Aged75+ (n=76)	46.1%	53.9%	81.6%	18.4%
	Average age (mean, years) (n=744)	61	59	60	58
Table A1 in Appendix data provides further information, including 95% confidence intervals, and data for the following groups of irrigators: those earning different amounts of income off-farm; male and female irrigators; those reporting different levels of farm profitability; those with differing access to farm finance; those with differing levels of formal education. These groups did not differ significantly to irrigators across the Basin as a whole.					

Table 5 – Use of allocation trade and entitlement trade/leasing – Basin irrigators, 2016

Full data including confidence intervals provided in Appendix 1, Table A2

Rows shaded red indicate irrigators in this category were significantly less likely to engage in this type of trade compared to irrigators across the Basin as a whole. Table A2 in Appendix 1 provides the full data for the confidence intervals.		Engagement in water market trade in 12 months prior to spring 2016					
		Did not trade allocation (neither bought or sold)	Traded allocation (bought and/or sold)	Did not trade entitle-ments (neither bought or sold)	Traded entitle-ments (bought and/or sold)	Did not lease entitle-ments	Leased entitle-ments
Basin irrigators	Murray-Darling Basin (n=595)	48.8%	51.2%	82.7%	17.3%	88.3%	11.7%
Basin location	Northern Basin (n=97)	77.3%	22.7%	86.6%	13.4%	92.9%	7.1%
	Southern Basin (n=484)	44.8%	55.2%	81.6%	18.4%	87.7%	12.3%
Basin State	NSW Nth Basin (n=61)	73.8%	26.2%	82.0%	18.0%	90.9%	9.1%
	Qld Basin (n=36)	83.3%	16.7%	94.4%	5.6%	96.6%	3.4%
	NSW Sth Basin (n=146)	43.8%	56.2%	79.5%	20.5%	89.6%	10.4%
	SA Basin (n=57)	56.1%	43.9%	75.4%	24.6%	81.3%	18.8%
	Vic Basin (n=280)	42.9%	57.1%	83.9%	16.1%	88.1%	11.9%
Farm type	Dairy (n=121)	32.2%	67.8%	77.7%	22.3%	83.5%	16.5%
	Grain growing (n=76)	39.5%	60.5%	73.7%	26.3%	81.4%	18.6%
	Grazier (n=143)	66.4%	33.6%	90.9%	9.1%	93.9%	6.1%
	Horticulture (all) (n=78)	51.3%	48.7%	84.6%	15.4%	85.1%	14.9%
	Mixed cropping/grazing (n=76)	51.3%	48.7%	86.8%	13.2%	91.1%	8.9%
Horticulture farm type	Fruit/nut grower (n=69)	49.3%	50.7%	82.6%	17.4%	83.9%	16.1%
	Winegrape grower (n=56)	64.3%	35.7%	71.4%	28.6%	92.2%	7.8%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=131)	65.6%	34.4%	80.9%	19.1%	90.0%	10.0%
	30-99ML (n=87)	50.6%	49.4%	85.1%	14.9%	93.5%	6.5%
	100-299ML (n=102)	50.0%	50.0%	85.3%	14.7%	92.6%	7.4%
	300ML (n=135)	32.6%	67.4%	82.2%	17.8%	84.7%	15.3%
	1000ML+ (n=62)	19.4%	80.6%	62.9%	37.1%	76.0%	24.0%
	ML applied on farm - mean ML (n=582)	241	575	373	624	433	714
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with government grant (n=108)	27.8%	72.2%	74.1%	25.9%	81.8%	18.2%
	Modernised using self-funding (n=200)	41.5%	58.5%	79.0%	21.0%	85.8%	14.2%
	Has not modernised iinfrastructure (n=230)	63.5%	36.5%	88.7%	11.3%	93.7%	6.3%
Gross value of	<$50,000 (n=125)	61.6%	38.4%	84.0%	16.0%	96.0%	4.0%

Rows shaded red indicate irrigators in this category were significantly less likely to engage in this type of trade compared to irrigators across the Basin as a whole. Table A2 in Appendix 1 provides the full data for the confidence intervals.		Engagement in water market trade in 12 months prior to spring 2016					
		Did not trade allocation (neither bought or sold)	Traded allocation (bought and/or sold)	Did not trade entitlements (neither bought or sold)	Traded entitlements (bought and/or sold)	Did not lease entitlements	Leased entitlements
agricultural production 2015-16	$50,000-$99,999 (n=73)	50.7%	49.3%	86.3%	13.7%	91.5%	8.5%
	$100,000-$299,999 (n=94)	56.4%	43.6%	83.0%	17.0%	88.8%	11.3%
	$300,000-$499,999 (n=65)	47.7%	52.3%	87.7%	12.3%	94.6%	5.4%
	$500,000-$999,999 (n=81)	38.3%	61.7%	77.8%	22.2%	84.8%	15.2%
	$1 million + (n=95)	37.9%	62.1%	76.8%	23.2%	76.4%	23.6%
	Average GVAP (mean category) (n=582)	$100,000-$199,999	$200,000-$299,999	$100,000-$199,999	$200,000-$299,999	$100,000-$199,999	$300,000-$399,999
Age	Aged <45 (n=53)	39.6%	60.4%	77.4%	22.6%	83.7%	16.3%
	Aged 45-54 (n=99)	54.5%	45.5%	81.8%	18.2%	80.9%	19.1%
	Aged 55-64 (n=188)	47.3%	52.7%	80.9%	19.1%	93.3%	6.7%
	Aged 65-74 (n=151)	53.0%	47.0%	84.1%	15.9%	90.8%	9.2%
	Aged75+ (n=74)	56.8%	43.2%	85.1%	14.9%	90.0%	10.0%
	Average age (5-year category) (n=582)	60-64	55-59	60-64	60-64	60-64	55-59
Table A2 in Appendix data provides further information, including 95% confidence intervals, and data for the following groups of irrigators: those earning different amounts of income off-farm; male and female irrigators; those reporting different levels of farm profitability; those with differing access to farm finance; those with differing levels of formal education. These groups did not differ significantly to irrigators across the Basin as a whole.							

Table 6 – Use of allocation trade and entitlement trade/leasing – Basin irrigators, 2018

Full data including confidence intervals provided in Appendix 1, Table A3

Rows shaded red indicate irrigators in this category were significantly less likely to engage in this type of trade compared to irrigators across the Basin as a whole. Table A3 in Appendix 1 provides the full data for the confidence intervals.		Engagement in water market trade in 12 months prior to spring 2018					
		Did not trade alloc-ation (neither bought or sold)	Traded alloca-tion (bought and/or sold)	Did not trade entitle-ments (neither bought or sold)	Traded entitle-ments (bought and/or sold)	Did not lease entitle-ments	Leased entitle-ments
Basin irrigators	Murray-Darling Basin (n=362)	51.1%	48.9%	87.3%	12.7%	93.4%	6.6%
Basin location	Northern Basin (n=63)	79.5%	20.5%	85.7%	14.3%	87.5%	12.5%
	Southern Basin (n=299)	45.7%	54.3%	87.6%	12.4%	94.3%	5.7%
Basin State	NSW Nth Basin (n=42)	73.5%	26.5%	83.3%	16.7%	88.0%	12.0%
	Qld Basin (n=21)	100.0%	0.0%	90.5%	9.5%	86.7%	13.3%
	NSW Sth Basin (n=87)	39.2%	60.8%	83.9%	16.1%	97.6%	2.4%
	SA Basin (n=33)	59.1%	40.9%	81.8%	18.2%	88.9%	11.1%
	Vic Basin (n=178)	46.7%	53.3%	90.4%	9.6%	93.4%	6.6%
Farm type	Dairy (n=52)	33.3%	66.7%	94.2%	5.8%	86.5%	13.5%
	Grain growing (n=36)	41.9%	58.1%	83.3%	16.7%	92.1%	7.9%

Rows shaded red indicate irrigators in this category were significantly less likely to engage in this type of trade compared to irrigators across the Basin as a whole. Table A3 in Appendix 1 provides the full data for the confidence intervals.		Engagement in water market trade in 12 months prior to spring 2018					
		Did not trade alloc-ation (neither bought or sold)	Traded alloca-tion (bought and/or sold)	Did not trade entitle-ments (neither bought or sold)	Traded entitle-ments (bought and/or sold)	Did not lease entitle-ments	Leased entitle-ments
	Grazier (n=118)	56.4%	43.6%	90.7%	9.3%	95.5%	4.5%
	Horticulture (all) (n=83)	61.8%	38.2%	78.3%	21.7%	96.2%	3.8%
	Mixed cropping/grazing (n=61)	38.8%	61.2%	88.5%	11.5%	92.9%	7.1%
Horticulture farm type	Fruit/nut grower (n=30)	75.0%	25.0%	80.0%	20.0%	92.9%	7.1%
	Winegrape grower (n=31)	66.7%	33.3%	80.6%	19.4%	96.7%	3.3%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=90)	72.7%	27.3%	91.1%	8.9%	97.3%	2.7%
	30-99ML (n=45)	54.5%	45.5%	84.4%	15.6%	96.4%	3.6%
	100-299ML (n=63)	34.8%	65.2%	81.0%	19.0%	92.8%	7.2%
	300ML (n=71)	21.2%	78.8%	83.1%	16.9%	90.9%	9.1%
	1000ML+ (n=38)	25.7%	74.3%	81.6%	18.4%	88.6%	11.4%
	ML applied on farm - mean ML (n=362)	1039	749	728	938	584	2383
Investment in modernis-ing on-farm irrigation infrastructure since 2008	Modernised with government grant (n=41)	32.4%	67.6%	87.8%	12.2%	89.8%	10.2%
	Modernised using self-funding (n=199)	41.3%	58.7%	81.4%	18.6%	93.0%	7.0%
	Has not modernised (n=104)	72.5%	27.5%	97.1%	2.9%	100.0%	0.0%
Gross value of agricultural production 2015-16	<$50,000 (n=58)	67.4%	32.6%	93.1%	6.9%	97.5%	2.5%
	$50,000-$99,999 (n=51)	54.1%	45.9%	90.2%	9.8%	95.7%	4.3%
	$100,000-$299,999 (n=85)	51.5%	48.5%	87.1%	12.9%	98.5%	1.5%
	$300,000-$499,999 (n=32)	42.9%	57.1%	84.4%	15.6%	93.8%	6.3%
	$500,000-$999,999 (n=45)	51.5%	48.5%	91.1%	8.9%	88.1%	11.9%
	$1 million + (n=51)	24.4%	75.6%	72.5%	27.5%	81.5%	18.5%
	Average GVAP (mean category) (n=362)	$50,000-$99,999	$200,000-$299,999	$100,000-$199,999	$200,000-$299,999	$100,000-$199,999	$400,000-$499,999
Age	Aged <45 (n=18)	37.5%	62.5%	72.2%	27.8%	81.8%	18.2%
	Aged 45-54 (n=53)	36.4%	63.6%	88.7%	11.3%	94.2%	5.8%
	Aged 55-64 (n=118)	51.6%	48.4%	87.3%	12.7%	94.0%	6.0%
	Aged 65-74 (n=123)	55.3%	44.7%	87.8%	12.2%	95.0%	5.0%
	Aged75+ (n=42)	67.7%	32.3%	88.1%	11.9%	95.0%	5.0%
	Average age (mean, years) (n=362)	64	60	63	61	62	57

Table A3 in Appendix data provides further information, including 95% confidence intervals, and data for the following groups of irrigators: those earning different amounts of income off-farm; male and female irrigators; those reporting different levels of farm profitability; those with differing access to farm finance; those with differing levels of formal education. These groups did not differ significantly to irrigators across the Basin as a whole.

Table 7 examines trading of allocation and of entitlements in more detail, identifying how many irrigators engaged in both buying and selling, versus only one of these, and also identifying differences between irrigators who rely on groundwater and surface water in more detail. Engagement in trade is higher when Basin irrigators who rely solely on groundwater are excluded, with between 55% and 65% of irrigators who use surface water sources engaging in buying and/or selling allocation in the three years examined. The trends over time suggests lower overall participation in trade of allocation in 2018 compared to 2015 and 2016: this is likely to reflect overall water availability and prices. The period examined in the 2015 survey coincided with rising storage levels but relatively high water prices with 'average' water price for temporary water trade averaging $277 per megalitre in November 2015. In 2016, prices declined and storages rose, with prices declining to $93 in November 2016. With drought affecting many parts of the Basin in 2017 and 2018, by November 2018 (the time of the third survey period), water prices were $398 per megalitre and storage levels very low (Goesch et al., 2020). The widening gap between the proportion buying and selling reflects this, with the proportion who sold allocation declining more than the proportion who bought, suggesting more irrigators were keeping and using allocation in what was for many a dry year, and some were also able to afford to buy on the market.

Table 7 Engagement in water entitlement and allocation trade - Basin irrigators

		All Basin irrigators (all surface water and ground water irrigators)			Basin irrigators using surface water (excludes those who rely solely on groundwater)		
		2015 (n=644)	2016 (n=517)	2018 (n=317)	2015 (n=523)	2016 (n=428)	2018 (n=275)
Trade of water allocation	**No trade of allocation**	45.0% ±3.5%	37.4% ±3.7%	46.8% ±4.9%	35.4% ±4.0%	31.2% ±3.6%	43.4% ±5.2%
	Bought allocation (did not sell any)	26.9% ±3.1%	23.5% ±3.2%	17.8% ±3.5%	33.3% ±3.9%	20.8% ±3.1%	20.1% ±4.0%
	Sold allocation (did not buy any)	25.8% ±3.1%	18.1% ±2.9%	11.8% ±2.9%	28.5% ±3.7%	15.0% ±2.7%	13.1% ±3.3%
	Bought and sold allocation	2.3% ±0.9%	2.5% ±1.0%	3.0% ±1.3%	2.9% ±1.2%	2.6% ±1.0%	3.5% ±1.6%
Trade of water entitlements	**No trade of entitlements**	80.6% ±3.0%	84.2% ±3.8%	88.5% ±4.7%	78.6% ±3.7%	86.8% ±3.9%	86.9% ±5.1%
	Bought entitlements	7.3% ±1.7%	7.4% ±1.8%	4.8% ±1.8%	7.5% ±2.0%	5.9% ±1.7%	5.5% ±2.1%
	Sold entitlements	10.1% ±2.0%	7.1% ±1.8%	6.3% ±2.1%	11.5% 2.5%	6.2% ±1.7%	7.0% ±2.3%
	Bought and sold entitlements	2.0% ±0.8%	1.3% ±0.7%	0.5% ±0.4%	2.5% ±1.1%	1.1% ±0.6%	0.6% ±0.5%

The data in Tables 4 to 7 vary year to year, and this will reflect many factors, including water prices, growing conditions, and the volume of water allocated to entitlements. Overall, the data suggest the proportion of irrigators reporting no allocation trade rose in 2018 – potentially reflecting lower allocations and high water prices which reduce volume available to sell and capacity to purchase water. The data also suggest a slight decline in both purchase and sale of water entitlements. Again, this may reflect that in periods of water scarcity fewer irrigators may be selling entitlements, and fewer have capacity to purchase, although further analysis would be required to confirm this.

With most irrigators choosing to buy or sell strategically based on market conditions, understanding overall engagement in water trade is easier if irrigators who engage in *any*

form of trade – whether buying or selling – are grouped together. This is done in Table 8, which identifies how many irrigators engaged in no trading of any kind (allocation or entitlement), traded both allocation and entitlements, or traded in one but not the other. Tables A4, A5 and A6 in Appendix 1 provide detailed information on engagement of different groups of irrigators in (i) trading both allocation and entitlements, (ii) trading allocation only, (iii) trading entitlements only and (iv) having no engagement in any type of trade.

Overall, when Basin irrigators using surface water are examined, in 2015 around 70% engaged in some form of trade, dropping to around 54% in 2018. The proportion engaging in both allocation and entitlement trade was lower in 2018 than in 2015.

Table 8 Types of trading engagement - Basin irrigators

See Tables A4, A5 and A6 in Appendix 1 for detailed data on engagement of different groups of irrigator in different combinations of water trading.		All Basin irrigators (all surface water and ground water irrigators)			Basin irrigators using surface water (excludes those who rely solely on groundwater)		
		2015 (n=644)	2016 (n= 517)	2018 (n=317)	2015 (n= 523)	2016 (n=428)	2018 (n=275)
Trade participant type	**Traded both allocation and entitlements**	13.6% ±2.3%	13.9% ±2.8%	7.3% ±2.5%	16.1% ±3.0%	13.6% ±2.8%	8.4% ±2.8%
	Traded allocation only (includes all buying and selling; most have entitlements and a small number rely solely on water from allocation purchased on the market)	41.4% ±3.5%	40.2% ±4.2%	33.8% ±5.0%	48.6% ±4.3%	41.6% ±4.6%	37.5% ±5.6%
	Traded entitlements only (includes all buying and selling)	5.4% ±1.7%	5.4% ±1.7%	7.3% ±2.5%	5.4% ±1.7%	5.4% ±1.8%	8.0% ±2.8%
	No trading of any kind (entitlements OR allocation)	39.2% ±3.5%	40.4% ±1.0%	51.7% ±5.5%	30.0% ±3.8%	39.5% ±4.5%	46.2% ±5.8%

As expected, Northern Basin irrigators – who have smaller trading zones and fewer overall trading opportunities – reported less engagement in water trade than Southern Basin irrigators (Table 9).

Table 9 Types of trading engagement – Northern and Southern Basin irrigators

See Tables A4, A5 and A6 in Appendix 1 for detailed data on engagement of different groups of irrigator in different combinations of water trading.		Southern Basin irrigators			Northern Basin irrigators		
		2015 (n=633)	2016 (n=446)	2018 (n=272)	2015 (n=112)	2016 (n=72)	2018 (n=45)
Trade participant type	Traded both allocation and entitlements	14.3% ±2.6%	13.6% ±2.8%	6.5% ±2.4%	9.7% ±4.5%	7.2% ±3.9%	4.7% ±3.3%
	Traded allocation only (includes all buying and selling)	44.4% ±3.8%	41.5% ±4.3%	34.7% ±5.2%	24.8% ±7.3%	15.5% ±6.1%	9.4% ±5.4%
	Traded entitlements only (includes all buying and selling)	6.2% ±1.7%	4.8% ±1.6%	5.5% ±2.1%	3.5% ±2.3%	6.2% ±3.6%	9.4% ±5.4%
	No trading of any kind (entitlements OR allocation)	35.2% ±3.7%	40.1% ±4.3%	53.2% ±5.6%	61.9% ±9.2%	71.1% ±9.5%	76.6% ±11.4%

When irrigators managing different types of farmers were examined (Table 10), dairy farmers were most likely to engage in both allocation and entitlement trade in 2015 and 2016, but in 2018 were less likely to trade entitlements, while remaining more likely than most other types of farmers to trade allocation. Crop (grain) growers (including rice and cotton growers) were more likely than most other types of farmers (except dairy farmers) to trade both allocation and entitlements.

In addition to examining differences between Northern and Southern Basin irrigators and irrigators managing different types of farms, other farm and socio-demographic characteristics of irrigators were compared to identify which types of irrigators were more and less likely to engage in different types of trade. As described earlier in Table 3 in the Methods section, this involved identifying whether irrigators were more/less likely to engage in trade depending on their location in Basin, type of commodities product, irrigation volumes applied, investment in on-farm irrigation infrastructure, GVAP, access to finance, farm profitability, gender, age, formal education, or proportion of household income earned off-farm. While these detailed data were presented in individual tables for each year when describing engagement in trade in general (Tables 4, 5 and 6), from this point a single summary table is used to summarise differences between different groups of irrigators. Table 11 summarises the findings, while detailed data for Table 11 are provided in Appendix 1, Tables A4 to A6. The overall findings of this analysis were that:

- Consistent with the findings regarding differences between dairy farmers, grain growers and producers of other commodities, there was higher participation in allocation trade in the Victorian catchments in which dairy farming is concentrated in the Basin – the Victorian Murray, Campaspe and Goulburn catchments as well as in the NSW Murray

- Trading was less common farms that used smaller volumes of water, and more common amongst those using larger volumes

- Trading was less common amongst farmers with smaller GVAP, and more common amongst those with larger GVAP

- As expected, Northern Basin irrigators engaged in less trade than Southern Basin irrigators
- Those who modernised on-farm infrastructure were more likely to engage in trading both entitlements and allocation, and in trade of entitlements, and

Younger farmers appeared to more commonly engage in trade compared to older farmers, however no single age group differed significantly to irrigators across the Basin as a whole.

Table 10 Types of trading engagement – Basin irrigators by farm type

See Tables A4, A5 and A6 in Appendix 1 for detailed data on engagement of different groups of irrigator in different combinations of water trading, including sample sizes for each farm type in each year.	2015 %	95% CI	2016 %	95% CI	2018 %	95% CI
Dairy farmers	**Traded allocation and entitlements**	11.8%	±4.5%	17.3%	±5.8%	1.1%	±1.0%
	Traded allocation only	38.9%	±7.7%	47.2%	±8.5%	32.2%	±9.0%
	Traded entitlements only	5.6%	±2.9%	3.9%	±2.4%	2.2%	±1.8%
	No trading of any kind	43.8%	±7.9%	31.5%	±7.6%	64.4%	±10.2%
Grain growers	**Traded allocation and entitlements**	19.6%	±5.9%	17.9%	±7.3%	6.1%	±4.4%
	Traded allocation only	39.1%	±7.8%	42.3%	±10.5%	30.6%	±11.5%
	Traded entitlements only	4.3%	±2.5%	9.0%	±4.9%	6.1%	±4.4%
	No trading of any kind	37.0%	±7.7%	30.8%	±9.4%	57.1%	±13.9%
Grazier	**Traded allocation and entitlements**	4.9%	±2.3%	4.2%	±2.3%	2.7%	±1.6%
	Traded allocation only	26.7%	±5.7%	25.6%	±6.1%	16.5%	±4.4%
	Traded entitlements only	5.3%	±2.5%	4.2%	±2.3%	4.5%	±2.1%
	No trading of any kind	63.1%	±6.7%	66.1%	±7.4%	76.3%	±5.9%
Horticulture (all types)	**Traded allocation and entitlements**	12.1%	±3.3%	12.8%	±5.6%	5.8%	±2.7%
	Traded allocation only	24.3%	±4.6%	29.8%	±8.5%	6.8%	±3.0%
	Traded entitlements only	7.9%	±2.6%	1.1%	±0.9%	8.4%	±3.3%
	No trading of any kind	55.7%	±5.6%	56.4%	±10.1%	78.9%	±6.2%
Mixed cropping-grazing	**Traded allocation and entitlements**	10.6%	±5.2%	10.5%	±5.4%	5.3%	±3.5%
	Traded allocation only	38.8%	±9.8%	38.2%	±10.3%	34.7%	±10.0%
	Traded entitlements only	8.2%	±4.5%	2.6%	±2.1%	4.0%	±2.9%
	No trading of any kind	42.4%	±10.1%	48.7%	±11.0%	56.0%	±11.3%
Wine-grape grower	**Traded allocation and entitlements**	11.7%	±4.7%	15.2%	±6.6%	3.2%	±2.5%
	Traded allocation only	26.6%	±7.1%	31.6%	±9.5%	3.2%	±2.5%
	Traded entitlements only	10.2%	±4.3%	1.3%	±1.1%	7.9%	±4.8%
	No trading of any kind	51.6%	±8.6%	51.9%	±10.9%	85.7%	±10.2%
Fruit/nut grower (excluding wine grapes)	**Traded allocation and entitlements**	13.7%	±5.1%	14.1%	±6.6%	7.3%	±4.8%
	Traded allocation only	28.2%	±7.2%	16.9%	±7.3%	7.3%	±4.8%
	Traded entitlements only	4.6%	±2.6%	15.5%	±7.0%	9.1%	±5.5%
	No trading of any kind	53.4%	±8.5%	53.5%	±11.5%	76.4%	±12.4%

Table 11 Variation in trading engagement by different groups of Basin irrigators (summary of findings reported in Appendix 1, Tables A4, A5, A6)

See Appendix 1, Tables A4-A6, for detailed data including sample sizes for each group in each year.		Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
		Less likely to do this in one or more years	**More likely to do this in one or more years**	
Traded both allocation and entitle-ments	Basin location	*No significant differences identified in 2015, 2016 or 2018*		
	Basin State	Qld		NSW Nth, NSW Sth, SA, Vic
	Farm type	*No significant differences identified in 2015, 2016 or 2018*		
	ML used		1000ML+	<30Ml, 30-99ML, 100-299ML, 300-999ML
	Modernisation		Modernised – grant	Modernised – self-funded, Has not modernised
	GVAP		$1 million+	<$50,000, $50-99,999, $100-299,999, $300-$499,999, $500-$999,999
	Finance access	*No significant differences identified in 2015, 2016 or 2018*		
	Farm profit			
	Gender			
	Age			
	Education			
	Off-farm income			
	Catchment			
Traded allocation (but not entitle-ments)	Basin	North		South
	Basin State	Qld, NSW Nth		NSW Sth, SA, Vic
	Farm type	Winegrape, Horticulture, Fruit/nut	Dairy	Crop, Mixed crop/graze,
	ML used	<30ML	300-999ML, 1000ML+	30-99ML, 100-299ML
	Modernisation	*No significant differences identified in 2015, 2016 or 2018*		
	GVAP			
	Finance access			
	Farm profit			
	Gender			
	Age			
	Education			
	Off-farm income			
	Catchment	Condamine-Balonne, Namoi	Campaspe, Goulburn, Vic Murray	Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, NSW Murray, SA Non-Prescribed Areas[3]
Traded entitlements (but not allocation)	Basin	*No significant differences identified in 2015, 2016 or 2018*		
	Basin State	Qld	SA	NSW Nth, NSW Sth, Vic
	Farm type	*No significant differences identified in 2015, 2016 or 2018*		
	ML used			
	Modernisation			
	GVAP			
	Finance access			
	Farm profit			
	Gender			

See Appendix 1, Tables A4-A6, for detailed data including sample sizes for each group in each year.		Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
		Less likely to do this in one or more years	More likely to do this in one or more years	
	Age			
	Education			
	Off-farm income			
	Catchment	Condamine-Balonne, Loddon		Campaspe, Goulburn-Broken, Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray, SA Non-Prescribed Areas[2,3]
No trading	Basin		North	South
	Basin State	Qld, NSW Nth		NSW Sth, SA, Vic
	Farm type	Dairy	Grazier	Crop, Horticulture, Mixed crop/graze, Fruit/nut, Winegrape
	ML used	300-999ML, 1000ML+	<30ML, 30-99ML	100-299ML
	Modernisation	Modernised – grant	Has not modernised	Modernised – self-funded
	GVAP	$1 million+		<$50,000, $50-99,999, $100-299,999, $300-$499,999, $500-$999,999
	Finance access	Very difficult		Moderately difficult, Not difficult
	Farm profit	*No significant differences identified in 2015, 2016 or 2018*		
	Gender			
	Age			
	Education			
	Off-farm income		76-100% off-farm	1-25% off-farm, 26-50% off-farm, 51-75% off-farm, No off-farm income
	Catchment	Campaspe, Vic Murray	Condamine-Balonne	Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, NSW Murray, SA Non-Prescribed Areas[3]

[1] A group is listed as being significantly more likely to agree or disagree with a statement if their mean score was significantly different to Basin irrigators as a whole, in one or more of the years for which data were measured.

[2] The trade typology is explained in detail in section 3.4; findings related to the trade typology developed later in this report are included here to reduce complexity of presentation of data.

[3] For some catchments, there were only small samples of irrigators in some years: this means it is likely some differences between catchments exist that were not identified in this analysis

3.3 Barriers to engaging in water trade

In the 2016 RWS, irrigators were asked the open-ended question 'What are the biggest challenges you face when trading water, if any?'. Of the 631 Basin irrigators who participated in the survey in that year, 167 opted to answer this question. Most identified a single challenge to participating in water trade, while a smaller number identified two or three different challenges, with a total of 217 statements made about specific challenges across the 167 irrigators. In addition, a further 16 irrigators (almost all located in the Northern Basin) stated that they had no access to water trading opportunities.

Table 12 summarises the key themes that emerged from the open-ended questions. The most common challenge identified was high prices for temporary water, identified by 45 irrigators. This was followed by concerns about the transparency and fairness of governance, particularly of the participation of government water holders in trade while governments also regulated water trade. Lack of water availability, the effect of non-irrigator participants on the market, high costs such as fees/charges for trades, and complexity of regulation were the next most common. Seventeen expressed specific concerns about a lack of a 'level playing field' which had some commonalities with concerns expressed about non-irrigator participants in the water market. Sixteen found the often rapid changes in prices a challenge.

Table 12 Challenges to participating in the water market

Challenge	Number of irrigators	Description of challenge
High price of temporary water	45	Most irrigators described this simply as 'high prices' or 'high cost of temporary water'. Some specified concerns about high costs during periods of low availability/drought in particular
Governance, transparency and stability	22	This group of challenges involved irrigators criticising the governance of water markets in terms of independence, transparency and stability. Most of the 22 identified concerns about governments being both participants in and regulators of the market (two examples of this are the following quotes: 'the largest water holders [government] also manage all the rules and regulations' and 'fox in charge of the hen house'). Several specified lack of transparency as a concern, but did not detailed the exact transparency issues of concern. Of the 22, 15 identified that changes being made to water market and trading rules by government, some specifying 'non-transparent changes' was a specific concern.
Lack of water availability	21	Lack of water availability was often stated as 'lack of water on market' or 'low water availability', with some specifying that the concern was about lack of water availability at key times of the year.
Effect of non-farming water market participants	19	This concern, raised by 19 irrigators, was about the effect of market participation by people not engaged directly in farming. The types of groups named included brokers, speculative investors, government water holders and environmental groups. Concerns identified specifically included that these participants influenced market prices, 'flooded' the market, or 'manipulated' the market resulting in what irrigators felt were artificially inflated prices.

Challenge	Number of irrigators	Description of challenge
High expense (unspecified)	19	Some irrigators wrote 'high cost', 'expensive' or similar terms, without specifying whether the issue was high price of temporary water, or high cost of associated transaction fees.
Complex/burdensome regulation	18	Eighteen irrigations wrote that the complexity of regulations was a challenge, with some also specifying that this created substantial burden for those seeking to trade water. A smaller number in this group (4) mentioned the specific example of temporary water being placed in spillover water.
Lack of 'level playing field'	17	This challenge has similarities to 'effect of non-farming water market participants', however these comments specifically described concern about what was perceived as lack of fairness in water market regulations leading to loss of a 'level playing field'. Some of these specifically identified concern about the relative costs of infrastructure and water storage paid by irrigators versus government water holders as a key contributor to what they felt was lack of a level playing field in the water market.
Price fluctuation/ volatility	16	Sixteen irrigators specifically identified rapid fluctuation in allocation prices, or volatility of the market more generally, as their biggest challenge. Some of these reported that this fluctuation/volatility made it difficult to identify optimum time to buy or sell.
Other	10	Ten irrigators identified other issues, which could not be categorised due to lack of detail or specificity. For example, some of these wrote 'government' without explaining what the concern about government was.
Availability of water allocation to sell	9	Seven irrigators identified that receiving low water allocations (some specified they felt they received unfairly low allocation) reduced their ability to participate in the water market. Some identified that they had low water security which led to often low allocation.
Separation of land and water use rights	6	Six irrigators specifically identified that they felt separation of land and water rights, or in some cases the ability to purchase water without specifying land it was to be used on, created problems in the water market; problems were not detailed.
Fees/ charges	5	Some irrigators reported that high transaction fees/charges made it difficult to trade small volumes of water, or for some to conduct any trades; others in this group identified high variability in transaction charges.
Trade processing	4	Four irrigators specifically identified delays in trades being processed as key challenges to successfully engaging in the market.
Lack of information	4	Four irrigators identified issues related to lack of information as challenges: three stated they found it difficult to access information, while the fourth reported difficulty accessing independent advice about the water market.
Difficulty getting finance	2	Two irrigators reported difficulty obtaining sufficient finance to trade water on the temporary market.
	217	

3.4 Irrigation water sourcing strategies

The choice to engage in differing forms of water trade is commonly driven by water sourcing strategies. In the Basin, while the 'traditional' water sourcing model for irrigators has been to purchase water entitlements against which they receive an allocation of water each water year, water markets in many (but not all) parts of the Basin provide the option for irrigators to use other water sourcing strategies as well. These include:

- Purchasing allocation on the market to supplement water allocated to an irrigator's own entitlements

- Opting to purchase all water used on the farm on the temporary market (allocation purchase) and hold no personal entitlements

- Leasing entitlements that are owned by others and using their allocation

Many irrigators combine one or more of these strategies. In addition, some irrigators diversify water sources through using both surface water and ground water, rather than relying solely on surface water. The extent to which they will do so depends both on opportunity – there is varying scope to purchase allocation in different catchments, and ability to purchase also depends on availability and price of water on the market, for example.

This section examines these different water sourcing strategies and their prevalence amongst Basin irrigators.

As shown in Table 13, almost all Basin irrigators have at least some entitlements they own – 95% or higher depending on the year examined – and they typically use water from these entitlements. Many also sell some of this water onto the temporary market, as identified in the previous section. Between one third and 45% (depending on the year) of those who use surface water also source water for their farm by purchasing water on the temporary market; this fluctuates year to year based on the types of factors discussed in the previous section. More detailed data are provided in Appendix 1, Tables A7 to A12.

Use of water from leased entitlements is less common, ranging between 6% and 10% of irrigators in the two survey years that examined this practice. Carry over of water varies substantially year to year based on factors including whether any water was allocated to an entitlement (and therefore can be carried over), water prices and water availability, from a low in 2018 of 11.2% to a high of 62.5% in 2016.

As most irrigators rely to some extent on water from their own entitlements, it is useful to identify who relies solely on their own entitlements, versus sourcing water from both their entitlements and other sources. This is examined in the second part of Table 13, where the combinations of water sources used to supply water to the farm are examined.

This shows that during the period examined, there was slight growth in the proportion of irrigators relying solely on using water from their own entitlements – likely reflecting that prices of temporary water were much higher in 2018 than the earlier years in which data were collected. In 2018, around 66% of irrigators used only water allocated to entitlements they owned to water their farm, while another 1% used water from their own entitlements and from entitlements they leased from others. Just over a quarter – 26% - used water from their own entitlements and supplemented this with water purchased on the temporary market; 3% combined water from their own entitlements, leased entitlements, and water purchased on the temporary market. Only 3% of irrigators used no water from their own entitlements and relied solely on water either purchased on the temporary market or from a leased entitlement.

Table 4 Types of irrigation water used to water farm - Basin irrigators

See also Appendix 1, Tables A7 to A12, which provide detailed data for different groups of irrigators, and sample sizes for each group in each year.	All Basin irrigators (all surface water and ground water irrigators)			Basin irrigators using surface water (excludes those who rely solely on groundwater)		
	2015	**2016**	**2018**	**2015**	**2016**	**2018**
Use of different sources to irrigate land in previous 12 months — Used water from own entitlements	97.2% ±1.4%	97.1% ±1.7%	95.0% ±2.8%	97.3% ±1.7%	97.5% ±2.0%	95.1% ±3.0%
Used allocation purchased on temporary market	37.2% ±3.5%	32.0% ±3.9%	33.1% ±5.0%	44.6% ±4.3%	38.6% ±4.9%	35.8% ±5.4%
Used water from a leased entitlement	No data	9.8% ±2.3%	6.6% ±2.3%	No data	10.4% ±2.8%	6.7% ±2.5%
Carried water over to next water year	29.8% ±3.3%	54.7% ±4.3%	11.6% ±3.2%	33.9% ±4.0%	62.5% ±5.1%	11.2% ±3.3%
Note: the rows above are not mutually exclusive, with some irrigators doing more than one of the four actions reported above. This means each columns totals more than 100%.						
% using different combinations of water sources used to irrigate land — Used ONLY water from own entitlements	62.8% ±3.6%	64.0% ±4.2%	65.9% ±5.4%	55.4% ±4.3%	57.8% ±5.1%	63.6% ±5.8%
Used water from own entitlements and leased entitlements		3.3% ±1.3%	1.3% ±0.8%		3.3% ±1.5%	1.4% ±0.9%
Used water from own entitlements AND allocation purchased on temporary market	34.3% ±3.4%	24.7% ±3.6%	26.4% ±4.6%	41.8% ±4.2%	30.1% ±4.5%	28.2% ±5.0%
Used water from own entitlements AND leased entitlement AND allocation purchased on temporary market		5.2% ±1.7%	3.2% ±1.5%		6.3% ±2.2%	3.6% ±1.7%
Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	2.8% ±1.0%	2.9% ±1.2%	3.2% ±1.5%	2.7% ±1.2%	2.5% ±1.2%	3.2% ±1.6%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

When irrigators in the Northern and Southern Basin are compared (Table 14), as expected those in the Northern Basin were much more likely to use water sourced solely from their own entitlements (around 80%) compared to Southern Basin irrigators (around 64% in 2018). Some Northern Basin irrigators did report relying entirely on water from leased entitlements (around 5% in 2018).

When different farm types were compared, there were quite different mixes of water used, and changes in water sourcing strategies over time (Table 15):

- Dairy farmers were the least likely to report using only water from their own entitlements, with only 29% relying solely on their own entitlements in 2015. However, this changed substantially between 2015 and 2018, with rapid growth in reliance on their own entitlements – in 2018, 54% relied solely on water from their own entitlements. This may be a consequence of many factors, including high water prices and low milk prices causing reduction in ability of dairy farmers to purchase allocation, and exit of some dairy

farmers from irrigation with those relying on purchased allocation potentially more likely to have exited. However, these data do not allow confirmation of these hypotheses.

- Grain growers were the next least likely to rely on water from their own entitlements only, with only 47% relying solely on this in 2015, rising to 59% in 2018.

- Those in horticulture mostly relied on water from their own entitlements (71% in 2015, rising to 84% in 2018). Fruit and nut growers were more likely to report increased reliance on their own entitlements over time than winegrape growers.

- Graziers mostly reported high reliance on water from their own entitlements, while mixed cropping-grazing enterprises fell almost exactly between 'graziers' and 'grain growers', as expected.

Table 5 Types of irrigation water used to water farm – Northern and Southern Basin irrigators

See also Appendix 1, Tables A7 to A12, which provide detailed data for different groups of irrigators, and sample sizes for each group in each year.		Southern Basin irrigators			Northern Basin irrigators		
		2015	**2016**	**2018**	**2015**	**2016**	**2018**
% irrigators using different water use strategies	Used water from own entitlements	96.7% ±1.7%	95.9% ±1.8%	95.4% ±2.9%	100% ±1.7%	97.3% ±6.4%	92.5% ±11.2%
	Used allocation purchased on temporary market	40.1% ±3.9%	35.1% ±4.3%	36.1% ±5.5%	20.2% ±6.7%	13.5% ±6.3%	12.5% ±7.6%
	Used water from a leased entitlement	No data	10.3% ±2.6%	5.7% ±2.3%	No data	6.8% ±4.1%	12.5% ±7.6%
	Carried water over to next water year	31.2% ±3.6%	58.0% ±4.6%	10.7% ±3.2%	22.0% ±7.0%	35.1% ±10.1%	17.5% ±9.3%
% irrigators using different combin-ations of water use strategies	Used ONLY water from own entitlements	59.8% ±4.0%	60.9% ±4.6%	63.6% ±5.8%	79.8% ±8.3%	82.4% ±9.8%	82.1% ±14.1%
	Used water from own entitlements and leased entitlements		3.1% ±1.3%	1.5% ±1.0%		4.1% ±2.9%	Too few to report
	Used water from own entitlements AND allocation purchased on temporary market	36.9% ±3.8%	27.4% ±4.0%	28.4% ±5.1%	20.2% ±6.7%	8.1% ±4.7%	12.8% ±7.8%
	Used water from own entitlements AND leased entitlement AND allocation purchased on temporary market		5.8% ±1.9%	3.6% ±1.8%		Too few to report	Too few to report
	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	3.4% ±1.2%	2.7% ±1.2%	2.9% ±1.5%	0.0%	4.1% ±2.7%	5.1% ±4.0%

Table 6 Types of irrigation water used to water farm – Basin irrigators

See also Appendix 1, Tables A7 to A12, which provide detailed data for different groups of irrigators, and sample sizes for each group in each year.		2015 %	95% CI	2016 %	95% CI	2018 %	95% CI
Dairy farmers	Own entitlements only	29.3%	8.6%	32.2%	8.0%	54.1%	11.3%
	Own & leased entitlements			1.7%	1.4%	2.7%	2.1%
	Own entitlements &temp. allocation			51.3%	9.1%	32.4%	9.8%
	Own & leased entitlements & temp allocation	64.1%	10.1%	10.4%	4.6%	8.1%	4.7%
	Temp. allocation and/or leased entitlements only	6.5%	3.8%	4.3%	2.7%	2.7%	2.1%
Grain growers	Own entitlements only	46.8%	8.6%	46.5%	11.3%	58.5%	15.2%
	Own & leased entitlements			4.2%	3.0%	0.0%	0.0%
	Own entitlements &temp. allocation			36.6%	10.5%	36.6%	13.4%
	Own & leased entitlements & temp allocation	53.2%	8.7%	9.9%	5.3%	2.4%	2.2%
	Temp. allocation and/or leased entitlements only	0%		2.8%	2.2%	2.4%	2.2%
Grazier	Own entitlements only	87.8%	6.2%	82.0%	7.9%	83.1%	7.1%
	Own & leased entitlements			0.9%	0.8%	2.3%	1.7%
	Own entitlements &temp. allocation			10.8%	4.8%	12.3%	4.8%
	Own & leased entitlements & temp allocation	12.2%	4.7%	3.6%	2.4%	0.8%	0.7%
	Temp. allocation and/or leased entitlements only	0%		2.7%	1.9%	1.5%	1.2%
Hort-iculture (all types)	Own entitlements only	70.8%	6.8%	71.8%	10.6%	83.6%	6.3%
	Own & leased entitlements			9.0%	4.9%	3.1%	1.9%
	Own entitlements &temp. allocation			15.4%	6.7%	8.8%	3.7%
	Own & leased entitlements & temp allocation	26.5%	6.0%	2.6%	2.0%	2.5%	1.7%
	Temp. allocation and/or leased entitlements only	2.7%	1.7%	1.3%	1.1%	1.9%	1.4%
Mixed cropping-grazing	Own entitlements only	63.8%	11.7%	71.7%	12.2%	63.5%	12.3%
	Own & leased entitlements			3.3%	2.6%	1.6%	1.4%
	Own entitlements &temp. allocation			20.0%	8.6%	28.6%	10.0%
	Own & leased entitlements & temp allocation	34.8%	10.4%	1.7%	1.5%	1.6%	1.4%
	Temp. allocation and/or leased entitlements only	1.4%	1.3%	3.3%	2.6%	4.8%	3.4%
Wine-grape grower	Own entitlements only	71.6%	10.0%	85.2%	10.4%	80.4%	13.1%
	Own & leased entitlements			3.3%	2.6%	2.2%	1.9%
	Own entitlements &temp. allocation			6.6%	4.3%	13.0%	7.4%
	Own+leased entitlements+ temp allocation	23.9%	8.0%	1.6%	1.5%	2.2%	1.9%
	Temp. allocation and/or leased entitlements only	4.5%	3.0%	3.3%	2.6%	2.2%	1.9%
Fruit/nut grower (exc-luding wine grapes)	Own entitlements only	70.2%	10.3%	72.5%	11.3%	88.9%	10.4%
	Own & leased entitlements			10.1%	5.5%	1.9%	1.7%
	Own entitlements &temp. allocation			13.0%	6.4%	3.7%	2.9%
	Own & leased entitlements & temp allocation	28.6%	8.8%	2.9%	2.3%	3.7%	2.9%
	Temp. allocation and/or leased entitlements only	1.2%	1.1%	1.4%	1.3%	1.9%	1.7%

Table 16 further identifies which types of irrigators were significantly more and less likely to use water from their own entitlements versus water purchased on the temporary market, or sourced from leased entitlements. Tables A7 to A12 in the Appendix provide the detailed data underpinning Table 19. Overall:

- Dairy farmers and grain growers, were more likely to use water purchased on the temporary markets combined with entitlements than others

- Larger farmers (in terms of volume of water and GVAP) were more likely to use water from both their own entitlements and from water purchased on the temporary markets – but were not more likely to use a 'non-portfolio' model in which they held none of their own entitlements

- Farmers were more likely to rely solely on water from their own entitlements if they were in the Northern Basin, graziers, winegrape growers, managed a smaller farm (in terms of both volume of water and GVAP), had not modernised on-farm water infrastructure, or were aged 65-74

- Non-portfolio watering – in which only water purchased on the temporary market or (in the Northern Basin) water from leased entitlements was used, and no water from a farmer's own entitlements – was more common amongst those in the Victorian Basin, dairy farmers, and younger farmers, but not significantly so. It was less common amongst grain growers, graziers, and those who had not modernised on-farm water infrastructure.

Table 7 Variation in water sourcing strategies used by different Basin irrigators – entitlements and purchased temporary water (summary of findings reported in Appendix 1, Tables A7 to A9)

See Appendix 1, Tables A to A9 for detailed data including sample sizes for each group in each year.		Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
		Less likely to do this in one or more years	More likely to do this in one or more years	
Used water from own entitle-ments only	Basin location		North	South
	Basin State		Qld, NSW Nth	NSW Sth, SA, Vic
	Farm type	Dairy, Crop	Grazier, Winegrape	Horticulture, Mixed crop/graze, Fruit/nu
	ML used	300-999ML, 1000ML+	<30ML, 30-99ML, 100-299ML	
	Modernisation		Has not modernised	Modernised – grant, modernised – self-funded
	GVAP	$500-$999,999, $1 million+	<$50,000	$50-99,999, $100-299,999, $300-$499,999
	Finance access	*No significant differences to the Basin as a whole*		
	Farm profit			
	Gender			
	Age	Aged <45, Aged 45-54	Aged 65-74	Aged 55-64, Aged 75+
	Education	*No significant differences to the Basin as a whole*		
	Off-farm income		51-75% off-farm	1-25% off-farm, 26-50% off-farm, 76-100% off-farm, No off-farm income
	Catchment	Campaspe		Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray, SA Non-Prescribed Areas[2]
Used water from own entitle-ments and tempo-rary water/ leased water	Basin location	North		South
	Basin State	Qld, NSW Nth		NSW Sth, SA, Vic
	Farm type	Grazier, Winegrape	Dairy, Crop	Dairy, Horticulture, Mixed crop/graze, Fruit/nut
	ML used	<30ML, 30-99ML, 100-299ML	300-999ML, 1000ML+	
	Modernisation	Has not modernised	Modernised – grant	Modernised – self-funded
	GVAP	<$50,000	$500-$999,999, $1 million+	$50-99,999, $100-299,999, $300-$499,999
	Finance access	Moderately difficult		Very difficult, Not difficult
	Farm profit	*No significant differences to the Basin as a whole*		
	Gender			
	Age	Aged 65-74	Aged <45, Aged 45-54	Aged 55-64, Aged 75+
	Education	*No significant differences to the Basin as a whole*		
	Off-farm income			
	Catchment		Campaspe	Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh,

See Appendix 1, Tables A to A9 for detailed data including sample sizes for each group in each year.	Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
	Less likely to do this in one or more years	More likely to do this in one or more years	
			Murrumbidgee, Namoi, Murray, SA Non-Prescribed Areas[2]
Used temporary water/ leased water only (no entitle-ments) — Basin location	North		South
Basin State	NSW Nth, Qld, NSW Sth		SA, Vic
Farm type	Grazier, Crop		Dairy, Horticulture, Mixed crop/graze, Fruit/nut, Winegrape
ML used			<30Ml, 30-99ML, 100-299ML, 300-999ML, 1000ML+
Modernisation	Has not modernised		Modernised – grant, modernised – self-funded
GVAP	$300-$499,999		<$50,000, $50-99,999, $100-299,999, $500-$999,999, $1 million+
Finance access	*No significant differences to the Basin as a whole*		
Farm profit			
Gender			
Age	Aged 75+		Aged <45, Aged 45-54, Aged 55-64, Aged 65-74,
Education	*No significant differences to the Basin as a whole*		
Off-farm income	51-75% off-farm		1-25% off-farm, 26-50% off-farm, 76-100% off-farm, No off-farm income
Catchment	Condamine-Balonne		Campaspe, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray, SA Non-Prescribed Areas[2]

[1] A group is listed as being significantly more likely to agree or disagree with a statement if their mean score was significantly different to Basin irrigators as a whole, in one or more of the years for which data were measured.

[2] For some catchments, there were only small samples of irrigators in some years: this means it is likely some differences between catchments exist that were not identified in this analysis

3.5 Irrigation water sources – use of surface and ground water

Some irrigators used only surface water, some only groundwater, and some a combination of both. With very different water trading options for these types, it is important to understand which irrigators typically rely on one or the other, or both. Tables 17 and 18 summarise reliance on surface and ground water. More detailed data are provided in Appendix 1, Tables A7, A8 and A9. Reliance on surface versus ground water stayed relatively stable over time, something that was expected as this is typically based on physical restrictions rather than something irrigators can readily change. Across the Basin, almost three quarters of irrigators rely on surface water only, although this falls to around half in the Northern Basin, while 13% use both groundwater and surface water, and 15% rely solely on groundwater (11% of Southern Basin irrigators and 43% of Northern Basin irrigators). Data by farm type (Table 12) is consistent with this, and largely reflects the distribution of farm types across the Southern and Northern Basin.

Table 8 Use of surface versus ground water – Basin, Northern Basin and Southern Basin irrigators

See also Appendix 1, Tables A7 to A9, which provide detailed data for different groups of irrigators, and sample sizes for each group in each year	All Basin irrigators			Southern Basin irrigators			Northern Basin irrigators		
	2015	**2016**	**2018**	**2015**	**2016**	**2018**	**2015**	**2016**	**2018**
Use surface water only	75.5% ±4.0%	71.5% ±3.9%	72.4% ±95.0%	80.2% ±4.2%	77.5% ±4.2%	75.7% ±5.3%	42.1% ±7.7%	38.7% ±5.6%	49.0% ±9.3%
Use surface water and ground water	11.8% ±2.4%	13.9% ±2.5%	12.7% ±3.0%	11.0% ±2.4%	12.5% ±2.6%	13.3% ±3.3%	17.1% ±7.2%	20.8% ±6.9%	8.2% ±7.9%
Used groundwater only	12.8% ±2.5%	14.7% ±2.6%	15.0% ±3.3%	8.8% ±2.2%	9.9% ±2.3%	10.9% ±3.0%	40.8% ±10.5%	40.6% ±9.0%	42.9% ±13.1%

Table 9 Use of surface versus ground water – by farm type

See also Appendix 1, Tables A7 to A9, which provide detailed data for different groups of irrigators, and sample sizes for each group in each year	**2015**		**2016**		**2018**	
	%	95% CI	**%**	95% CI	**%**	95% CI
Dairy farmers — Use surface water only	64.7%	10.6%	70.1%	8.3%	62.2%	10.3%
Use surface water and ground water	29.4%	8.9%	23.1%	6.5%	22.2%	7.6%
Used groundwater only	5.9%	3.6%	6.7%	3.3%	15.6%	6.4%
Grain growers — Use surface water only	76.0%	9.5%	73.9%	10.4%	72.0%	13.8%
Use surface water and ground water	10.6%	4.8%	17.0%	6.7%	12.0%	6.8%
Used groundwater only	13.5%	5.5%	9.1%	4.7%	16.0%	8.1%
Grazier — Use surface water only	80.2%	8.7%	70.8%	8.1%	72.0%	7.5%
Use surface water and ground water	8.3%	3.9%	10.4%	4.2%	8.3%	3.5%
Used groundwater only	11.6%	4.8%	18.8%	5.7%	19.6%	5.5%
Horticulture (all types) — Use surface water only	80.6%	7.6%	76.5%	9.8%	55.9%	5.7%
Use surface water and ground water	4.4%	2.4%	5.1%	3.1%	14.4%	4.3%
Used groundwater only	15.0%	4.9%	18.4%	6.7%	29.7%	6.0%
Mixed cropping-grazing — Use surface water only	71.4%	12.1%	64.9%	11.1%	75.0%	11.0%
Use surface water and ground water	9.5%	5.4%	15.6%	6.8%	11.8%	5.8%
Used groundwater only	19.0%	8.2%	19.5%	7.6%	13.2%	6.2%
Winegrape grower — Use surface water only	80.0%	11.0%	64.7%	11.4%	59.6%	11.3%
Use surface water and ground water	5.3%	3.5%	8.8%	5.1%	7.0%	4.6%
Used groundwater only	14.7%	6.6%	26.5%	9.4%	33.3%	11.2%
Fruit/ nut grower (exc. wine grapes) — Use surface water only	84.0%	10.7%	76.7%	10.5%	54.2%	10.2%
Use surface water and ground water	1.3%	1.2%	4.7%	3.1%	15.3%	6.9%
Used groundwater only	14.7%	6.6%	18.6%	7.1%	30.6%	9.7%

The relationship between engagement in trading and sources of water used was examined, shown in Table 19. This shows that use of water trade is similar amongst those who rely on surface water only and those who combine surface water and ground water, suggesting these groups can be combined in subsequent analyses. Those who relied on using water from their own entitlements fell into two groups: those who did some trade (either buying or selling entitlements, or selling some of their allocation on the temporary market). Of these, the proportion engaging in trade of these types fell from 40% in 2015 and 2016 to 22% in 2018, likely reflecting that many were experiencing drought conditions and were more likely to be retaining the water allocated to them to use on their farm in 2018 rather than selling some of their allocation on the market. Those who engaged in using some water purchased on the market or leased from others by definition engaged in trade of some form.

Those who used surface water (whether in combination with groundwater or not) were likely to engage in trade, while those who relied on groundwater only were less likely to.

Table 10 Comparing engagement in water trading and water sources used

	2015		2016		2018	
	Engaged in some form of trade (allocation and/ or entitlement) (n=452)	**Engaged in NO WATER TRADE of any kind (n=292)**	**Engaged in some form of trade (allocation and/ or entitlement) (n=311)**	**Engaged in NO WATER TRADE of any kind (n=244)**	**Engaged in some form of trade (allocation and/ or entitlement) (n=159)**	**Engaged in NO WATER TRADE of any kind (n=213)**
Used water from own entitlements AND (i) allocation purchased on temporary market or (ii) leased entitlement	40.2% -3.6%[1]	59.8% -4.0%	38.7% -4.0%	61.3% -5.2%	22.3% -3.1%	77.7% -4.9%
Used ONLY water from own entitlements	100%	0%	100%	0%	100%	0%
Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	100%	0%	100%	0%	100%	0%
Used surface water only	61.6% -4.5%	38.4% -4.0%	60.3% -4.7%	39.7% -4.6%	42.0% -4.3%	58.0% -5.5%
Used both surface water and ground water	62.5% -7.7%	37.5% -9.2%	54.7% -7.3%	45.3% -9.7%	42.9% -7.3%	57.1% -12.3%
Used groundwater only	28.2% -4.4%	71.8% -8.6%	23.0% -4.7%	77.0% -11.6%	11.0% -2.8%	89.0% -7.2%

[1] Confidence intervals presented here are presented in the form of '-' rather than ±. This is because for these figures, the confidence interval calculated differed slightly for the '+' and '-'. As the data for each year are binary variables (did engage in water trade/didn't), presenting the '-' confidence interval for each also presents the '+' for the opposite part of the variable. For example: in 2015, 40.2% of those who used water from both entitlements and purchased allocation engaged in some form of allocation trade, and the confidence interval is -3.6% and + 4.0%, with a total confidence interval range of 36.6% to 44.2%. Thus the single sided confidence intervals provide the full data if needed.

Table 20 identifies which types of irrigators were significantly more and less likely to use water from surface water versus ground water. Tables A7 to A9 in the Appendix provide the detailed data underpinning Table 20. Overall:

- Irrigators using groundwater only were more commonly located in the Northern Basin and used smaller volumes of water

- Those using surface water only were more commonly in the Goulburn-Murray

- Those combining surface water and ground water use were more commonly dairy farmers and larger farmers (in terms of both volume of water used and GVAP), with those reporting a GVAP of $1 million or more, and using 1000ML of water or more, significantly more likely to report using both surface water and ground water compared to irrigators in the Basin as a whole.

Table 11 Variation in water sources used by different Basin irrigators – surface water and ground water (summary of findings reported in Appendix 1, Tables A7 to A9)

See Appendix 1, Tables A7-A9 for detailed data including sample sizes for each group in each year.		Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
		Less likely to do this in one or more years	More likely to do this in one or more years	
Used surface water only	Basin location	North		South
	Basin State	Qld, NSW Nth	NSW Sth	SA, Vic
	Farm type	*No significant differences to the Basin as a whole*		
	ML used			
	Modernisation			
	GVAP			
	Finance access			
	Farm profit			
	Gender			
	Age		Aged 75+	Aged <45, Aged 45-54, Aged 55-64, Aged 65-74
	Education	*No significant differences to the Basin as a whole*		
	Off-farm income			
	Catchment	Condamine-Balonne, Macquarie-Castlereagh, Namoi	NSW Murray, Goulburn, Vic Murray	
Used surface water and ground-water	Basin location	SA		North, South
	Basin State			Qld, NSW Nth, NSW Sth, Vic
	Farm type	Horticulture, Winegrape	Dairy	Crop, Grazier, Mixed crop/graze, Fruit/nut
	ML used		1000ML+	<30Ml, 30-99ML, 100-299ML, 300-999ML
	Modernisation	*No significant differences to the Basin as a whole*		
	GVAP		$1 million+	<$50,000, $50-99,999, $100-299,999, $300-$499,999, $500-$999,999
	Finance access	*No significant differences to the Basin as a whole*		
	Farm profit			
	Gender			
	Age			
	Education			
	Off-farm income			
	Catchment	SA Non-prescribed areas	Campaspe	Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray[2]
Used ground-water only	Basin location		North	South
	Basin State	SA, Vic	Qld, NSW Nth	NSW Sth
	Farm type	Dairy	Winegrape	Crop, Horticulture, Grazier, Mixed crop/graze, Fruit/nut

| See Appendix 1, Tables A7-A9 for detailed data including sample sizes for each group in each year. | Who was significantly more and less likely to…. [1] | | Who did not differ significantly to the Basin as a whole? |
	Less likely to do this in one or more years	More likely to do this in one or more years	
ML used	100-299ML, 300-999ML	<30ML	30-99ML, 1000ML+
Modernisation	Modernised – grant		Modernised – self-funded, Has not modernised
GVAP	$1 million+	<$50,000	$50-99,999, $100-299,999, $300-$499,999, $500-$999,999
Finance access	*No significant differences to the Basin as a whole*		
Farm profit			
Gender			
Age			
Education			
Off-farm income			
Catchment	Vic Murray, Goulburn	Condamine-Balonne, Namoi, Macquarie-Castlereagh	Campaspe, Broken, Loddon, Murrumbidgee, NSW Murray, SA Non-Prescribed Areas[2]

[1] A group is listed as being significantly more likely to agree or disagree with a statement if their mean score was significantly different to Basin irrigators as a whole, in one or more of the years for which data were measured.

[2] For some catchments, there were only small samples of irrigators in some years: this means it is likely some differences between catchments exist that were not identified in this analysis

3.6 Market and water sourcing strategies: key strategies

Ideally, irrigators could be categorised by the type of engagement they have with the water market, with those who trade regularly and using diverse trading actions separated from those who trade only occasionally or in restricted ways. The available datasets are limited in the extent to which they can provide insight into different levels and types of engagement in trading. The data focus on engagement in trading in different years, and this shows that many irrigators strategically engage in trading when appropriate in one year, but may have no engagement in trading in another year, instead relying solely on using water from their entitlements. This means that in the RWS dataset, some of those classified as engaging in no trading in a given year will trade in other years – the dataset is likely to understate engagement in trading in 2018 in particular, when many did not engage in trade due to climate conditions. The 2015 and 2016 years, in contract, provide better insight into willingness to engage in trade and types of trading engaged in, as they reflect better water years where there were substantial volumes of water available on the market and many had sufficient resources to engage in trade.

At the broadest level, it is useful to classify irrigators into two over-arching categories:

- Traders who engage in some form of water trade, whether it is buying or selling entitlements or allocation

- Non-traders who do not engage in any form of water trade.

When cluster analysis was undertaken on the dataset (see Appendix 2 for detail), with engagement in (i) allocation trade, (ii) entitlement trade and (iii) reliance for water on entitlements and/or allocation and leased water used as the input variables, unconstrained two-step cluster analysis (in which the number of clusters identified was not constrained) returned a two cluster solution, in which irrigators clustered into two clear and separate categories: non-traders and traders. This was the case for all three years of survey data. While this confirmed that irrigators who do and do not engage in water trade cluster into distinct categories, a two-cluster grouping was not considered to add significant value given it was already possible to compare traders and non-traders in the existing data.

Therefore more specific cluster analysis was undertaken that examined whether forcing a three-cluster, four-cluster or five-cluster solution in two-step cluster analysis provided statistically and semantically meaningful insights into different types of traders. This analysis is described in detail in Appendix 2. It suggested that based on available data, irrigators who traded water had relatively consistent differences with regard to diversity of trading, but often non-interpretable categorisation for some of the clusters identified. In the different years, there was some differentiation that appeared related to differences in allocation versus entitlement trade.

Comparison of the different solutions suggested that the most meaningful classification was a categorisation that separated traders into the following four categories. It should be noted that this is a typology that was not directly derived from cluster analysis. Instead, it was developed based on examination of multiple cluster analysis solutions and identifying how best to group these into a simpler typology that while consistent with the cluster solutions could be more readily interpreted in terms of trading behaviours. This was considered more appropriate than directly using specific clusters of trading behaviour given that (i) cluster analysis showed a two cluster solution was preferred that suggested strong interaction across different trading clusters (in other words, there is some overlap between the categories below, with some irrigators shifting between categories year to year and blurry boundaries that were reflected in inconsistent cluster analysis outcomes year to year), (ii) forced cluster solutions consistently returned clusters that split traders into sub-categories, but not consistently, and (iii) there was some evidence to suggest the differences (and

inconsistencies in them) related to differences in patterns of allocation versus entitlement trading, suggesting it is useful to separate these in a typology.

Based on this, irrigators were classified into the following categories using the available data:

- **Non-diverse allocation traders:** These traders use water from their own entitlements and also trade allocation through either buying or selling in a given year, but do not both buy and sell allocation, and do not trade entitlements or lease entitlements. Ideally, allocation traders would be further divided into those who only occasionally trade allocation versus those who regularly trade allocation, however the datasets do not enable this type of classification. This is an important limitation of the dataset, as it is likely that views of those who trade more frequently are different to those who trade less frequently.

- **Non-diverse entitlement traders:** Traders who use water from their own entitlements and also may either buy or sell some entitlements in a given year, but do not trade allocation, and do not both buy and sell entitlements in a given year.

- **Diverse traders**: These traders engage in two or more forms of trade. This is defined as two or more of buying or selling allocation, entitlement and leasing in a single year. A person who both buys and sells allocation in a year is considered diverse, as is a person who both buys and sells entitlements, as engaging in both buying and selling indicates diversity of engagement with the water market.

- **Non-portfolio traders:** Those who lease entitlements or trade allocation but do not also own their own entitlements.

N**on-traders**: Those who did not engage in any form of trade. Within the available dataset, there are relatively small numbers of diverse traders and non-portfolio traders, as they make up a relatively small proportion of Basin irrigators. This means that the data presented for these groups through the rest of the report has large confidence intervals and lower reliability than that for larger groups of irrigators such as non-traders and non-diverse allocation traders. This classification is limited in other ways: it does not for example distinguish between irrigators who engage in multi-year leasing and trading forward versus those who trade only in a given water year.

As shown in Table 21, in good water years, the proportion of irrigators in different 'water trader' groups was relatively stable, with two-thirds of Southern Basin and one-third of Northern Basin irrigators engaging in some form of water trade, and one-third and just under two-thirds respectively not engaging in any form of water trade. In 2018, when water prices were increasing and there was widespread drought across the Basin, the proportion of Southern Basin irrigators engaging in water trade fell significantly. Tables A13 to A15 in Appendix 1 provide more detailed data for a wider range of irrigator groups, as well as detail of sample sizes.

Table 12 Proportion of irrigators in different trading groups – Basin, Northern Basin and Southern Basin

See Appendix 1, Tables A13, A14 and A15 for detailed data by irrigator group, including sample sizes for each group and year.	Non-trader	Non-diverse allocation trader	Non-diverse entitlement trader	Diverse trader	Non-portfolio trader[1]
Basin - 2015	38.8%	38.1%	5.2%	15.2%	2.7%
95% CI	*3.5%*	*3.4%*	*1.4%*	*2.4%*	*1.0%*
Basin - 2016	37.8%	32.0%	8.1%	19.1%	2.9%
95% CI	*4.1%*	*3.9%*	*2.1%*	*3.2%*	*1.2%*
Basin - 2018	51.5%	28.5%	6.4%	10.8%	2.8%
95% CI	*5.1%*	*4.5%*	*2.2%*	*2.9%*	*1.3%*
Northern Basin - 2015	62.5%	23.2%	3.6%	10.7%	See footnote
95% CI	*9.2%*	*7.1%*	*2.4%*	*4.7%*	
Northern Basin - 2016	59.7%	13.9%	12.5%	9.7%	4.2%
95% CI	*11.5%*	*6.5%*	*6.1%*	*5.3%*	*3.0%*
Northern Basin - 2018	64.0%	14.0%	10.0%	8.0%	4.0%
95% CI	*13.8%*	*7.5%*	*6.1%*	*5.2%*	*3.2%*
Southern Basin - 2015	34.6%	40.8%	5.5%	16.0%	3.2%
95% CI	*3.6%*	*3.8%*	*1.6%*	*2.7%*	*1.2%*
Southern Basin - 2016	34.3%	35.0%	7.4%	20.6%	2.7%
95% CI	*4.3%*	*4.3%*	*2.2%*	*3.6%*	*1.2%*
Southern Basin - 2018	49.5%	30.9%	5.8%	11.3%	2.6%
95% CI	*5.4%*	*4.9%*	*2.2%*	*3.2%*	*1.3%*

[1] With only small numbers of irrigators in this group, data should be considered unreliable. Blank cells indicate no irrigators were recorded in this category, however it is likely this reflects the sample not including the small numbers of irrigators in this category in that year rather than a complete lack of irrigators in this category.

In 2015, dairy farmers were the most likely of all farm types to engage in water trading of any kind, followed by 'grain growers' (who include cotton and rice growers as well as those growing annual crops of other grains, oilseeds and legumes). In 2018, grain growers were more likely to be engaging in water trade than dairy farmers. Graziers were the least likely to engage in water trade; this group is more also more likely to rely on groundwater and be based in the Northern Basin, both things associated with lower engagement in water trade due to fewer water trading opportunities. Non-portfolio trading was more common amongst dairy farmers and, to a lesser extent, grain growers, than other types of irrigators. Diverse trading was most common amongst dairy farmers and grain growers in most years, although in 2018 horticulture farmers were slightly (but not significantly) more likely to engage in diverse trading in which they undertook more than one type of water trading activity in the previous 12 months. There were many differences in the types of trading engaged in by Basin location, farm size, and demographic characteristics of farmers (Table 23, with detailed data provides in Tables A13 to A15 in the Appendix). In particular:

- Non-traders: An irrigator was more likely to be a non-trader if they were located in the Northern Basin, a grazier, used less than 30 ML of irrigation water, had not modernised their on-farm water infrastructure since 2008, and earned most of their income off-farm (76-100%). An irrigator was significantly more likely to be a trader if they were a dairy farmer, used 100 ML or more of irrigation water in the last 12 months, had modernised their on-farm water infrastructure with help from a government grant, had GVAP of $1 million or more, and were aged under 45. Those in the Southern Basin were more likely to trade than those in the Northern Basin; however, as the majority of Basin irrigators are located in the Southern Basin, this

means that Southern Basin irrigators were not significantly different to the Basin as a whole.

- Non-diverse allocation trader: As many Basin irrigators traded some allocation, there were few who were significantly *more* likely than the typical Basin irrigator to be a non-diverse allocation trader: in some years (but not all) an irrigator was more likely to be a non-diverse allocation trader if they used 1000 ML or more of irrigation water. Those who were consistently less likely to be non-diverse allocation traders were those in the Northern Basin, those engaged in horticulture, those using small volumes of irrigation water in the last year (<30 ML), and those earning 51-75% of income off-farm.

- Non-diverse entitlement trader: With relatively small proportions of irrigators trading entitlements in any given year, there were few significant differences between groups of irrigators. An irrigator was more likely to be a non-diverse entitlement trader if they were located in the Northern Basin or South Australia. They were less likely to be a non-diverse entitlement trader if they were located in Queensland, had modernised on-farm water infrastructure with assistance from a government grant, and (in only some periods) had GVAP of $300-499,999.

- Diverse trader: An irrigator was more likely to be a diverse trader who engaged in one or more forms of trade in a 12 month period if they were crop growers, used higher volumes of water (particularly over 1000 ML of water), had modernised on-farm water infrastructure with help from a government grant, or had GVAP of $1 million or more. An irrigator was less likely to be a diverse trader if they were located in the Northern Basin, were a grazier, used smaller volumes of irrigation water (30-99 ML), had not modernised their on-farm water infrastructure, had small GVAP ($50,000 or less), were making a loss on their farm, or earned most of their household income (76-100%) off-farm.

- Non-portfolio trader: Due to the small numbers of non-portfolio traders, most differences observed between this group and other irrigators were not statistically significant. Larger sample sizes are needed to confidently identify differences between this group and other groups. The data available in Appendix 1, Tables A13 to A15, suggest that irrigators may be more likely to be non-portfolio traders if they are dairy farmers, find it difficult to access affordable farm finance, are aged under 45, and earn most income off-farm. In 2015, but not in other years, those in the Campaspe, Goulburn and Victorian Murray catchments were more likely to be non-portfolio traders than those in other catchments. In some years female irrigators were more likely to report being non-portfolio traders than male irrigators, however the difference was not statistically significant. Future studies should investigate whether these qualitative differences, which were relatively consistent across the three years of data collected, are in fact significant when a larger group of non-portfolio traders is examined.

Table 13 Proportion of irrigators in different trading groups – by farm type

See Appendix 1, Tables A13, A14 and A15 for detailed data by irrigator group, including sample sizes for each group and year.	2015					2016					2018				
	Non-trader	Non-diverse allocation trader	Non-diverse entitlement trader	Diverse trader	Non-portfolio trader	Non-trader	Non-diverse allocation trader	Non-diverse entitlement trader	Diverse trader	Non-portfolio trader	Non-trader	Non-diverse allocation trader	Non-diverse entitlement trader	Diverse trader	Non-portfolio trader
Dairy	25.8%	49.5%	2.2%	16.1%	6.5%	24.4%	38.7%	5.9%	26.9%	4.2%	40.4%	42.3%	5.8%	7.7%	3.8%
95% CI	*8.1%*	*10.0%*	*1.7%*	*6.4%*	*3.7%*	*7.0%*	*8.4%*	*3.2%*	*7.3%*	*2.6%*	*12.3%*	*12.7%*	*4.1%*	*5.0%*	*3.0%*
Grain growing	34.1%	37.1%	3.0%	25.8%	0.0%	25.0%	31.9%	12.5%	27.8%	2.8%	37.5%	42.5%	7.5%	10.0%	2.5%
95% CI	*7.7%*	*7.9%*	*2.0%*	*6.9%*	*0.0%*	*8.9%*	*9.9%*	*6.1%*	*9.3%*	*2.2%*	*10.7%*	*14.4%*	*5.3%*	*6.5%*	*2.2%*
Grazier	52.7%	35.6%	4.1%	7.5%	0.0%	50.5%	28.0%	6.5%	12.1%	2.8%	53.2%	29.4%	6.4%	9.2%	1.8%
95% CI	*8.1%*	*7.4%*	*2.4%*	*3.5%*	*0.0%*	*9.4%*	*7.8%*	*3.6%*	*5.2%*	*2.0%*	*9.2%*	*7.9%*	*3.5%*	*4.4%*	*1.5%*
Horticulture (all)	43.3%	30.5%	8.4%	15.3%	2.5%	44.2%	31.2%	6.5%	16.9%	1.3%	64.4%	13.3%	7.8%	12.2%	2.2%
95% CI	*6.7%*	*6.0%*	*3.2%*	*4.4%*	*1.5%*	*10.7%*	*9.5%*	*4.0%*	*7.1%*	*1.2%*	*10.3%*	*5.8%*	*4.2%*	*5.6%*	*1.8%*
Mixed cropping/ grazing	37.8%	40.5%	6.8%	13.5%	1.4%	40.6%	35.9%	6.3%	14.1%	3.1%	45.2%	30.6%	3.2%	16.1%	4.8%
95% CI	*10.4%*	*10.6%*	*4.1%*	*6.3%*	*1.2%*	*11.4%*	*10.9%*	*4.1%*	*6.9%*	*2.5%*	*11.0%*	*10.4%*	*2.5%*	*7.5%*	*3.5%*
Fruit/nut grower	40.0%	32.2%	11.1%	15.6%	1.1%	41.2%	30.9%	7.4%	19.1%	1.5%	67.7%	6.5%	12.9%	9.7%	3.2%
95% CI	*9.7%*	*9.0%*	*5.3%*	*6.4%*	*1.0%*	*11.1%*	*10.0%*	*4.5%*	*8.0%*	*1.3%*	*17.5%*	*5.1%*	*8.4%*	*6.9%*	*2.9%*
Winegrape grower	43.3%	32.0%	6.2%	14.4%	4.1%	49.1%	14.5%	14.5%	18.2%	3.6%	67.6%	14.7%	5.9%	8.8%	2.9%
95% CI	*9.5%*	*8.6%*	*3.6%*	*5.9%*	*2.7%*	*12.9%*	*7.4%*	*7.4%*	*8.4%*	*2.9%*	*16.7%*	*8.9%*	*4.6%*	*6.3%*	*2.6%*

Table 14 Variation in water trading typology by irrigator groups (summary of findings reported in Appendix 1, Tables A13, A14, A15)

See Appendix 1, Tables A10-A12 for detailed data including sample sizes for each group in each year.	Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
	Less likely to do this in one or more years	**More likely to do this in one or more years**	
Non-trader			
Basin location		North	South
Basin State		Qld, NSW Nth	NSW Sth, SA, Vic
Farm type	Dairy	Grazier	Crop, Horticulture, Mixed crop/graze, Fruit/nut, Winegrape
ML used	100-299ML, 300-999ML, 1000ML+	<30ML	30-99ML
Modernisation	Modernised – grant	Has not modernised	Modernised – self-funded
GVAP	$1 million+		<$50,000, $50-99,999, $100-299,999, $300-$499,999, $500-$999,999
Finance access	Very difficult		Moderately difficult, Not difficult
Farm profit	*No significant differences to the Basin as a whole*		
Gender			
Age	Aged <45		Aged 45-54, Aged 55-64, Aged 65-74, Aged 75+
Education	*No significant differences to the Basin as a whole*		
Off-farm income		76-100% off-farm	1-25% off-farm, 26-50% off-farm, 51-75% off-farm, No off-farm income
Catchment	Campaspe, Vic Murray	Condamine-Balonne	Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, NSW Murray, SA Non-Prescribed Areas[2]
Non-diverse allocation trader			
Basin location	North		South
Basin State	Qld, NSW Nth		NSW Sth, SA, Vic
Farm type	Horticulture, Fruit/nut, Winegrape		Dairy, Crop, Grazier, Mixed crop/graze
ML used	<30ML	1000ML+	30-99ML, 100-299ML, 300-999ML
Modernisation	*No significant differences to the Basin as a whole*		
GVAP			
Finance access			
Farm profit			
Gender			
Age			
Education			
Off-farm income	51-75% off-farm		1-25% off-farm, 26-50% off-farm, 76-100% off-farm, No off-farm income
Catchment	Condamine-Balonne, Macquarie-Castlereagh		Campaspe, Goulburn-Broken, Loddon, Murrumbidgee,

See Appendix 1, Tables A10-A12 for detailed data including sample sizes for each group in each year.		Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
		Less likely to do this in one or more years	More likely to do this in one or more years	
				Namoi, Murray, SA Non-Prescribed Areas[2]
Non-diverse entitlement trader	Basin location		North	South
	Basin State	Qld	SA	NSW Nth, NSW Sth, Vic
	Farm type	*No significant differences to the Basin as a whole*		
	ML used			
	Modernisation	Modernised – grant		Modernised – self-funded, Has not modernised
	GVAP	$300-$499,999		<$50,000, $50-99,999, $100-299,999, $500-$999,999, $1 million+
	Finance access	*No significant differences to the Basin as a whole*		
	Farm profit			
	Gender			
	Age			
	Education			
	Off-farm income			
	Catchment		Namoi	Campaspe, Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Murray, SA Non-Prescribed Areas[2]
Diverse trader	Basin location	North		South
	Basin State	Qld, NSW Nth		NSW Sth, SA, Vic
	Farm type	Grazier	Crop	Dairy, Horticulture, Mixed crop/graze, Fruit/nut, Winegrape
	ML used	30-99ML	100-299ML, 1000ML+	<30ML, 300-999ML
	Modernisation	Has not modernised	Modernised – grant	Modernised – self-funded
	GVAP	<$50,000	$1 million+	$50-99,999, $100-299,999, $300-$499,999, $500-$999,999
	Finance access	*No significant differences to the Basin as a whole*		
	Farm profit	Loss		Break even, Profit
	Gender	*No significant differences to the Basin as a whole*		
	Age			
	Education			
	Off-farm income	76-100% off-farm		1-25% off-farm, 26-50% off-farm, 51-75% off-farm, No off-farm income
	Catchment	*No significant differences to the Basin as a whole*		
Non-portfolio trader	Basin location	*No significant differences to the Basin as a whole*		
	Basin State			
	Farm type			
	ML used			
	Modernisation			

| See Appendix 1, Tables A10-A12 for detailed data including sample sizes for each group in each year. | Who was significantly more and less likely to…. [1] | | Who did not differ significantly to the Basin as a whole? |
	Less likely to do this in one or more years	More likely to do this in one or more years	
GVAP			
Finance access			
Farm profit			
Gender			
Age			
Education	No high school		Completed high school/cert/ diploma, Completed tertiary degree
Off-farm income	*No significant differences to the Basin as a whole*		
Catchment	Goulburn	Campaspe	Condamine-Balonne, Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray, SA Non-Prescribed Areas[2]

[1] A group is listed as being significantly more likely to agree or disagree with a statement if their mean score was significantly different to Basin irrigators as a whole, in one or more of the years for which data were measured.

[2] For some catchments, there were only small samples of irrigators in some years: this means it is likely some differences between catchments exist that were not identified in this analysis

4. Views about water trading and water markets

In the 2015 and 2016 Regional Wellbeing Surveys, irrigators were asked their views about a number of aspects of water trading and water markets, including whether they felt water markets were fair, whether they found it easy or difficult to trade water, and whether they felt their water rights were secure. The results for 2015 and 2016 are presented in Figures 2 and 3, while changes in results between the two years are presented in Figure 4. It is important to note that the data represents irrigators' views as of 2015 and 2016 and is not necessarily representative of views held in 2020. The data also shows some changes in attitudes between 2015 and 2016, specifically, a small and, in some cases, a statistically significant increase in more positive views about certain aspects of the water market.

- Overall, these results indicate that: Most irrigators found it easy to trade entitlements and temporary water if they wanted to, with 57% or more reporting this in 2015 and 60% or more 2016. In both years, more irrigators found it easy to trade temporary water than entitlements (70.9% compared to 60.9% in 2016). However, in 2016 14.3% still reported finding it difficult to trade temporary water if they wanted to. Between 2015 and 2016, there was a significant increase in the proportion who reported finding it easy to trade temporary water if they wanted to, and a non-significant increase in those finding it easy to trade entitlements. It is not possible to identify the factors causing this increase: multiple factors can influence attitudes, ranging from change in confidence of using water trading, to changes in the ease of water trading. It is also possible that external factors such as the type of seasonal conditions being experienced influenced answers – for example, in seasons where greater volumes of temporary water are available at lower prices, it is likely that irrigators may find it easier to trade temporary water than they do in other years.

- Just over half felt their rights to access water – when it was available - were secure (53.5% in 2015, 60.0% in 2016), although a quarter to a third did not (33.1% in 2015, 23.6% in 2016). The proportion reporting having secure rights to water increased slightly but significantly between 2015 and 2016: as with other increases discussed above, this may be due to factors ranging from actual changes in security of rights, to simply feeling more secure in a water year in which many had relatively good allocations against entitlements.

- Most irrigators found it easy to access information needed to make water trading decisions (53.2% in 2015 and 64.1% in 2016); however, some were unsure (14.0% in 2015, 8.9% in 2016), or found it difficult to access information (19.5% in 2015, 15.7% in 2016). While a higher proportion reported finding it easy to access information in 2016 than 2015, the difference was not statistically significant. In 2015, a second similar question was asked, in which irrigators were asked if they knew how to access the information they needed: similar proportions reported being able to access information as reported finding it easy to access that information.

- Around half were confident to use water trading as part of their farm management (48.1% in 2015, 53.5% in 2016), while a quarter were not confident (27.6% in 2015, 25.2% in 2016), and the remainder unsure or neutral. This did not increase significantly between 2015 and 2016.

- Only 22% felt that changes to the rules for water trading in the years prior to 2015 had increased their confidence in the water market, while 47.8% disagreed (this item was included in the 2015 survey only)

- Less than one in three felt the water trade market was fair for all users (23.4% in 2015, 32.4% in 2016), while many felt it was not fair for all users (48.0% in 2015, 36.8% in 2016), and around 30% were unsure or neutral. Perceptions of fairness

increased significantly between 2015 and 2016, although even after this increase more irrigators felt the market was not fair for all users than felt it was fair for all users. The reasons for this increase are not known, but may related to short-term events (fewer specific events triggering distrust in fairness of the market) and/or long-term change in levels of trust in the fairness of water markets.

- Most irrigators either disagreed that water entitlements held by the government were subject to the same rules and charges as other water market participants (49.0% in 2015, 40.5% in 2016), or were unsure (31.6% in 2015, 25.8% in 2016). Relatively few agreed with this statement in either year (16.1% in 2015, 25.8% in 2016). While perceptions became significantly less negative between 2015 and 2016, they remained negative overall.
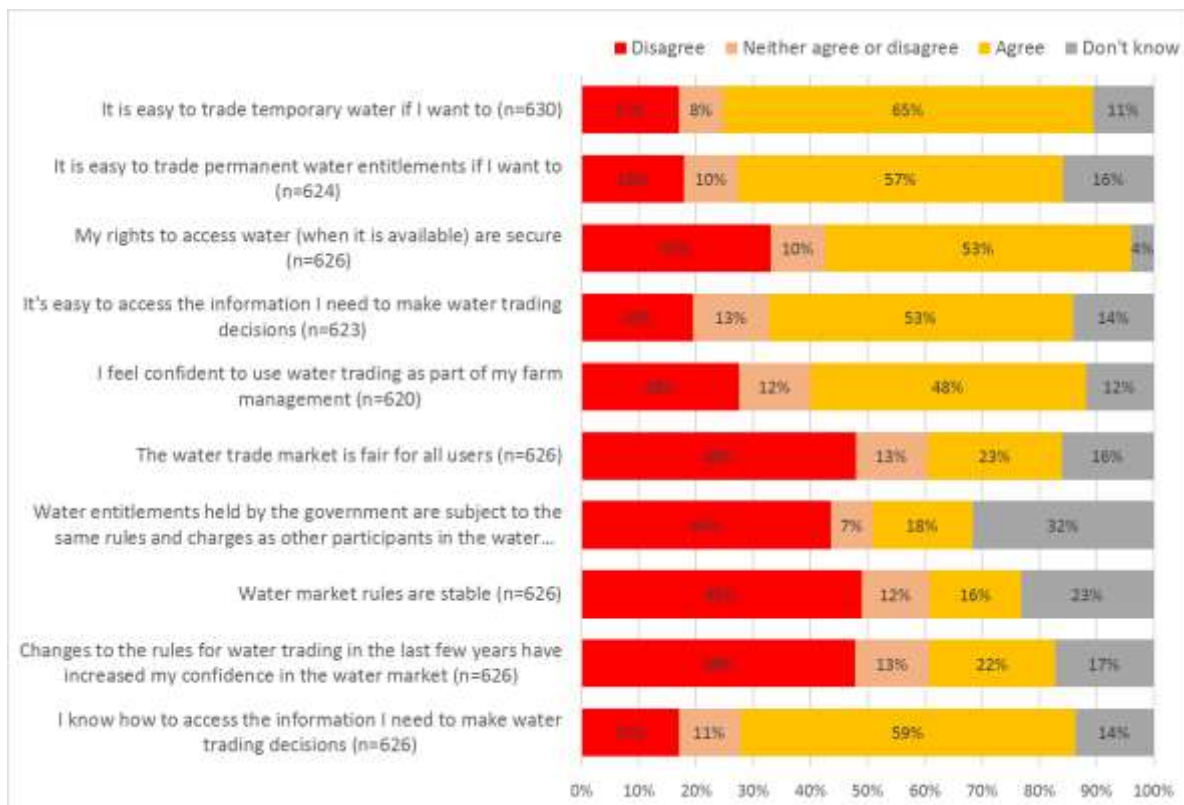
Figure 2 Irrigator views about water markets – Basin irrigators, 2015
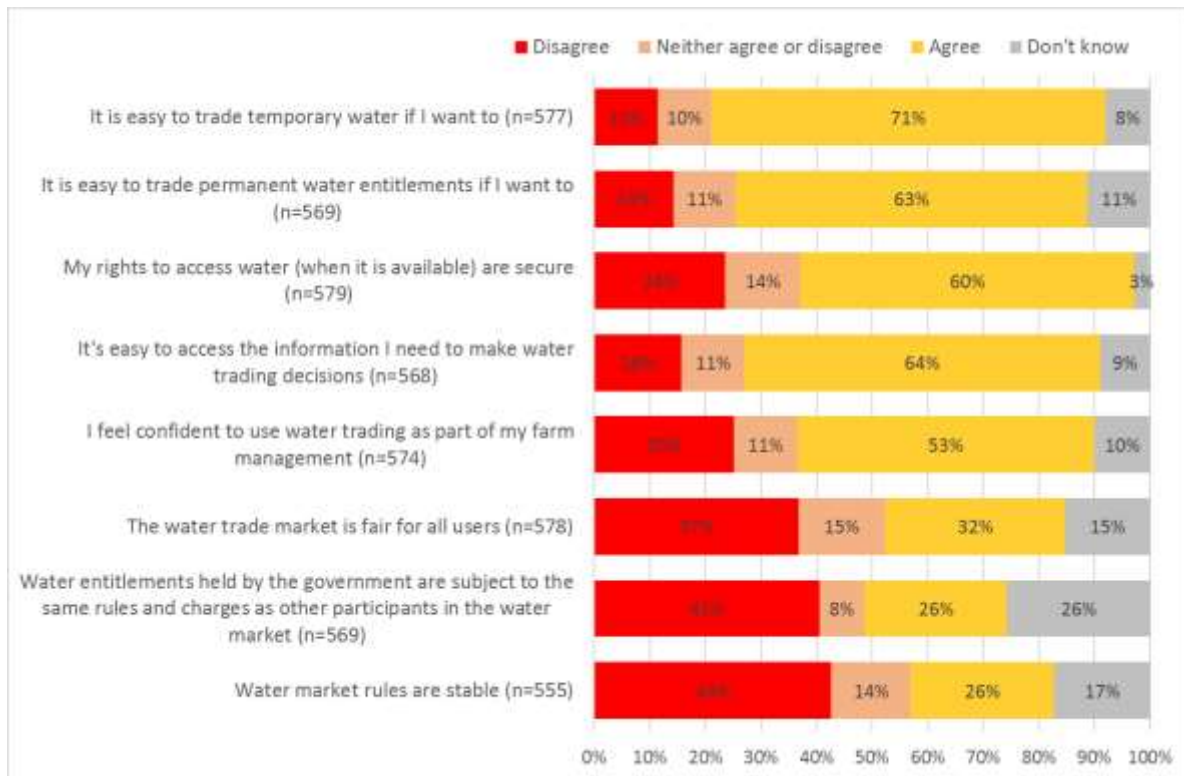
Figure 3 Irrigator views about water markets – Basin irrigators, 2016
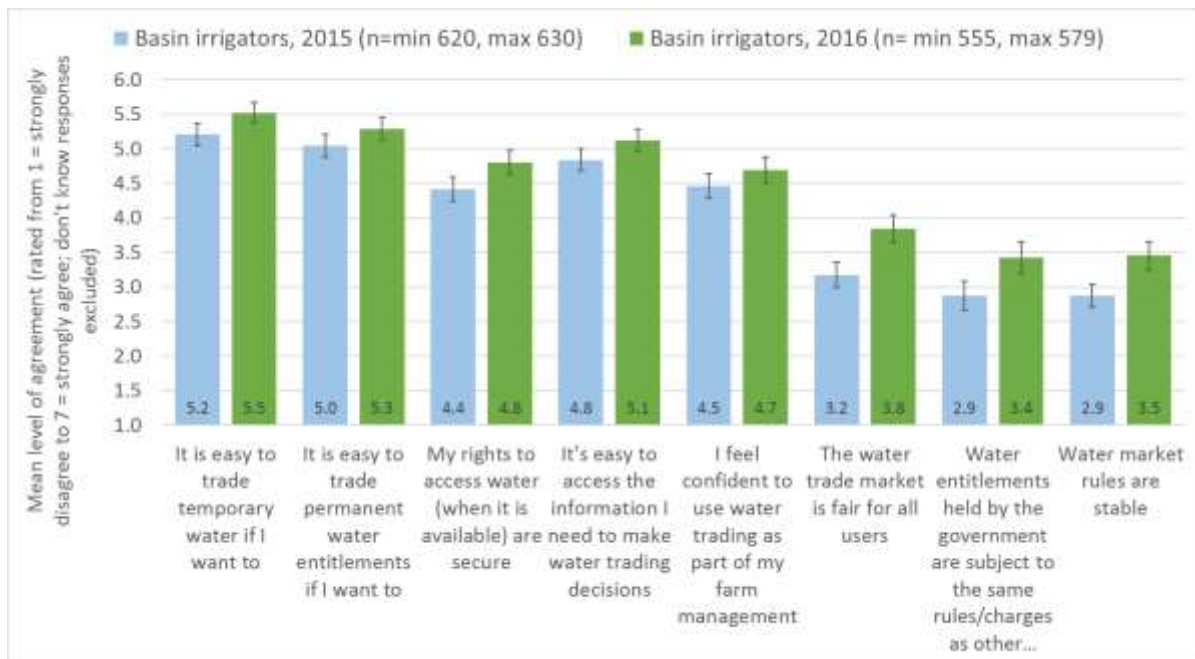
Figure 4 Basin irrigator views about water markets: 2015- 2016 comparison[1]

Table 24 compares the mean scores for each statement for those who did and didn't engage in trade of allocation and entitlements, for 2015 and 2016. In general, those who traded allocation were more likely to agree with statements than those who did not trade:

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[1] Bars indicate 95% confidence intervals.

- Those who traded allocation were slightly (but not significantly) less likely than those who did not trade allocation to feel that their rights to access water were secure.

- Those who traded allocation were significantly more likely to find it easy to trade both temporary water and entitlements, to feel confident to use water trading, and to feel able to access information, than those who did not trade allocation

- Those who did and did not trade allocation did not differ significantly in their views about the fairness of the water trade market, views about the stability of water market rules, or whether water entitlements held by the government were subject to the same rules and charges as other water market participants.

The views of those who traded entitlements typically did not differ significantly to those who did not trade entitlements, although those who traded were generally more likely to agree with most statements, despite the difference rarely being statistically significant.

These findings suggest that trading allocation is associated with finding it easy to trade, confidence in being able to use water trade, and confidence in being able to access information about trading. It is less associated with views about the fairness or stability of the water market.

Table 24 Differences in views of water traders and non-traders about water markets - Basin irrigators, 2015 and 2016

	Yellow highlighting indicates that traders were significantly more likely than non-traders to agree with this statement, in that year.		Mean score (1 = strongly disagree to 7 = strongly agree)			
			Did not trade allocation (neither bought or sold) (n=244[1])	Traded allocation (bought and/or sold) (n=345[1])	Did not trade entitlements (neither bought or sold) (n=421[1])	Traded entitlements (bought and/or sold) (n=121[1])
2015	My rights to access water (when it is available) are secure	Mean	4.59	4.25	4.38	4.43
		95% CI	±0.26	±0.24	±0.20	±0.39
	It is easy to trade temporary water if I want to	Mean	4.50	5.61	5.21	5.20
		95% CI	±0.30	±0.18	±0.19	±0.35
	It is easy to trade permanent water entitlements if I want to	Mean	4.47	5.38	5.00	5.16
		95% CI	±0.29	±0.19	±0.19	±0.35
	The water trade market is fair for all users	Mean	3.12	3.21	3.12	3.37
		95% CI	±0.28	±0.24	±0.20	±0.39
	I feel confident to use water trading as part of my farm management	Mean	3.69	4.94	4.33	4.99
		95% CI	±0.30	±0.21	±0.21	±0.34
	Changes to the rules for water trading in the last few years have increased my confidence in the water market	Mean	2.74	3.30	3.04	3.30
		95% CI	±0.28	±0.22	±0.20	±0.37
	Water market rules are stable	Mean	2.82	2.88	2.73	3.29
		95% CI	±0.35	±0.26	±0.23	±0.45
	Water entitlements held by the government are subject to the same rules/charges as other participants in the water market	Mean	2.85	2.89	2.84	3.00
		95% CI	±0.27	±0.21	±0.19	±0.35
	I know how to access the information I need to make water trading decisions	Mean	4.53	5.31	4.94	5.31
		95% CI	±0.27	±0.19	±0.18	±0.31
	It's easy to access the information I need to make water trading decisions	Mean	4.40	5.08	4.77	5.03
		95% CI	±0.28	±0.19	±0.19	±0.32

2016	Yellow highlighting indicates that traders were significantly more likely than non-traders to agree with this statement, in that year.		Mean score (1 = strongly disagree to 7 = strongly agree)			
			Did not trade allocation (neither bought or sold) (n=238)	Did not trade allocation (neither bought or sold) (n=276)	Did not trade allocation (neither bought or sold) (415)	Did not trade allocation (neither bought or sold) (n=99)
	My rights to access water (when it is available) are secure	Mean	4.91	4.66	4.75	4.85
		95% CI	±0.24	±0.24	±0.19	±0.41
	It is easy to trade temporary water if I want to	Mean	4.83	5.95	5.41	5.75
		95% CI	±0.28	±0.15	±0.18	±0.30
	It is easy to trade permanent water entitlements if I want to	Mean	4.67	5.70	5.15	5.67
		95% CI	±0.29	±0.18	±0.19	±0.32
	The water trade market is fair for all users	Mean	3.60	3.92	3.68	4.19
		95% CI	±0.30	±0.27	±0.22	±0.47
	I feel confident to use water trading as part of my farm management	Mean	3.93	5.14	4.52	5.10
		95% CI	±0.31	±0.22	±0.21	±0.41
	Water market rules are stable	Mean	3.35	3.42	3.34	3.58
		95% CI	±0.30	±0.27	±0.22	±0.48
	Water entitlements held by the government are subject to the same rules/charges as other…	Mean	3.44	3.30	3.24	3.80
		95% CI	±0.36	±0.31	±0.26	±0.53
	It's easy to access the information I need to make water trading decisions	Mean	4.54	5.47	4.98	5.47
		95% CI	±0.28	±0.18	±0.19	±0.31

[1] The numbers of respondents vary between groups and years due to differences in the proportions who provided a 'don't know' response. 'Don't know' responses were excluded when calculating means, and the sample size reported here excludes respondents who selected 'don't know'.

To better understand what drives differences in views about water markets, Tables A16 and A17 in Appendix 1 compare mean scores for each aspect of water trade, for different types of irrigators. The key findings are summarised in Table 25 for each aspect of water trade asked about:

- Security of rights to access water: Irrigators were more likely to agree their rights to access water were secure if they were engaged in horticulture, aged 75 or older, and located in South Australian non-prescribed areas. They were less likely to agree if they use both water from their own entitlements and from allocation purchased on the market, lived in the NSW Murray and (in one year) were finding it somewhat difficult to access farm finance.

- Ease of trading allocation: Irrigators were more likely to agree that it was easy to trade temporary water if they used larger amounts of water (300-999ML) and had modernised on-farm infrastructure with the help of a government grant. They were less likely to agree if they did not trade water, relied solely on groundwater, were located in the Northern Basin, and/or used small volumes of water (<30ML).

- Ease of trading water entitlements: Irrigators were more likely to agree that it was easy to trade permanent entitlements if they had traded entitlements in the last year or were a diverse trader, and if they had modernised on-farm irrigation infrastructure with assistance from a government grant. They were less likely to agree if they had not engaged in any trade in the last year, relied solely on groundwater, or were located in the Northern Basin.

- Perceived fairness of the water trade market: Irrigators were less likely to feel the water trade market was unfair if they were located in the Northern Basin or South Australia, or engaged in horticulture. They were more likely to feel the water trade market was unfair if they used water from both their own entitlements and allocation purchased on the market, located in Victoria, aged under 45, operated a dairy farm and/or had some difficulty accessing farm finance.

- Confidence to use water trading: Irrigators were more likely to report feeling confident to use water trading as part of their farm management if they traded allocation, had a GVAP of $1 million or more, and (in one year) were in the Murrumbidgee or SA non-prescribed areas catchments. They were less likely to report feeling confident if they did not use water trade or relied solely on groundwater.

- Water trading rule changes: Irrigators were more likely to agree that changes to rules for water trading made in the years before 2015 had increased their confidence in the water market if they were located in the Queensland Basin or South Australia, and less likely to if they were dairy farmers or using moderately high volumes of irrigation (300-999 ML)

- Rules and charges for government water holders: Irrigators were more likely to agree that water entitlements held by the government were subject to the same rules and charges as other water market participants if they were engaged in horticulture, or located in SA non-prescribed areas; and less likely to agree if they were graziers.

- Stability of water market rules: Irrigators were less likely to feel water market rules were unstable if they were located in South Australia, aged 75 or older, or engaged in horticulture; and more likely to feel they were unstable if they were dairy farmers, aged under 45, and had difficulty accessing farm finance.

- Ability to access information: Irrigators were more likely to report knowing how to access the information they needed to make water trading decisions if they traded allocation, had GVAP of $1 million or more, or were located in SA non-prescribed areas. They were less likely to report knowing how to access information if they did not engage in water trade, relied solely on groundwater, and/or were located in the Northern Basin.

Table 15 Differences in views of irrigators about water markets (summary of findings reported in Appendix 1, Tables A16 and A17)

See Appendix 1, Tables A16 and A17 for detailed data including sample sizes for each group in each year.		Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
		Less likely to agree with this statement in one or more years	**More likely to agree with this statement in one or more years**	
My rights to access water (when it is available) are secure	Trade typology	*No significant differences to the Basin as a whole*		
	Water sourcing strategy	Entitlement & allocation		Entitlement only Allocation/lease only
	Water sources used	*No significant differences to the Basin as a whole*		
	Basin location			
	Basin State			
	Farm type		Horticulture, Fruit/nut, Winegrape	Dairy, Crop, Grazier, Mixed crop/graze
	ML used	*No significant differences to the Basin as a whole*		
	Modernisation			
	GVAP			
	Finance access	Moderately difficult		Very difficult, Not difficult
	Farm profit	*No significant differences to the Basin as a whole*		
	Gender			
	Age		Aged 75+	Aged <45, Aged 45-54, Aged 55-64, Aged 65-74
	Education	*No significant differences to the Basin as a whole*		
	Off-farm income			
	Catchment	NSW Murray	SA Non-prescribed areas	Campaspe, Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Vic Murray[2]
It is easy to trade temporary water if I want to	Trade typology	No trade	Entitlement	Allocation, Diverse, Nonportfolio,
	Water sourcing strategy			Entitlement only, Entitlement & allocation, Allocation/lease only
	Water sources used	Ground only		Surface only, Surface & ground
	Basin location	North		South
	Basin State	NSW Nth		Qld, NSW Sth, SA, Vic
	Farm type	*No significant differences to the Basin as a whole*		
	ML used	<30ML	300-999ML	30-99ML, 100-299ML, 1000ML+
	Modernisation		Modernised – grant	Modernised – self-funded, Has not modernised
	GVAP	*No significant differences to the Basin as a whole*		
	Finance access			
	Farm profit			
	Gender			

See Appendix 1, Tables A16 and A17 for detailed data including sample sizes for each group in each year.		Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
		Less likely to agree with this statement in one or more years	More likely to agree with this statement in one or more years	
	Age			
	Education			
	Off-farm income			
	Catchment			
It is easy to trade permanent water entitlements if I want to	Trade typology	No trade	Entitlement, Diverse	Allocation, Nonportfolio,
	Water sourcing strategy	*No significant differences to the Basin as a whole*		
	Water sources used	Ground only		Surface only, Surface & ground
	Basin location	North		South
	Basin State	NSW Nth		Qld, NSW Sth, SA, Vic
	Farm type	*No significant differences to the Basin as a whole*		
	ML used			
	Modernisation		Modernised – grant	Modernised – self-funded, Has not modernised
	GVAP	*No significant differences to the Basin as a whole*		
	Finance access	Moderately difficult		Very difficult, Not difficult
	Farm profit	*No significant differences to the Basin as a whole*		
	Gender			
	Age			
	Education			
	Off-farm income			
	Catchment			
The water trade market is fair for all users	Trade typology	*No significant differences to the Basin as a whole*		
	Water sourcing strategy	Entitlement & allocation		Entitlement only, Allocation/lease only
	Water sources used	*No significant differences to the Basin as a whole*		
	Basin location		North	South
	Basin State	Vic	Qld, SA	NSW Nth, NSW Sth
	Farm type	Dairy	Horticulture	Crop, Grazier, Mixed crop/graze, Fruit/nut, Winegrape
	ML used	*No significant differences to the Basin as a whole*		
	Modernisation			
	GVAP			
	Finance access	Moderately difficult		Very difficult, Not difficult
	Farm profit	*No significant differences to the Basin as a whole*		
	Gender			
	Age	Aged <45		Aged 45-54, Aged 55-64, Aged 65-74, Aged 75+
	Education	*No significant differences to the Basin as a whole*		
	Off-farm income			
	Catchment	NSW Murray	SA Non-prescribed	Campaspe, Condamine-Balonne, Goulburn-

See Appendix 1, Tables A16 and A17 for detailed data including sample sizes for each group in each year.		Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
		Less likely to agree with this statement in one or more years	More likely to agree with this statement in one or more years	
				Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Vic Murray[3]
I feel confident to use water trading as part of my farm management	Trade typology	No trade	Allocation	Diverse, Entitlement, Nonportfolio,
	Water sourcing strategy	*No significant differences to the Basin as a whole*		
	Water sources used	Ground only		Surface only, Surface & ground
	Basin location	*No significant differences to the Basin as a whole*		
	Basin State			
	Farm type			
	ML used			
	Modernisation			
	GVAP		$1 million+	<$50,000, $50-99,999, $100-299,999, $300-$499,999, $500-$999,999
	Finance access	*No significant differences to the Basin as a whole*		
	Farm profit			
	Gender			
	Age			
	Education			
	Off-farm income			
	Catchment		Murrumbidgee, SA Non-prescribed areas	Campaspe, Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Namoi, Murray[3]
Changes to the rules for water trading in the last few years have increased my confidence in the water market	Trade typology	*No significant differences to the Basin as a whole*		
	Water sourcing strategy			
	Water sources used			
	Basin location		North	South
	Basin State		SA, Qld	NSW Nth, NSW Sth, Vic
	Farm type	Dairy		Crop, Horticulture (all), Grazier, Mixed crop/graze
	ML used	300-999ML		<30ML, 30-99ML, 100-299ML, 1000ML+
	Modernisation	*No significant differences to the Basin as a whole*		
	GVAP			
	Finance access			
	Farm profit			
	Gender			
	Age			
	Education			
	Off-farm income			
	Catchment		Condamine-Balonne	Campaspe, Goulburn-Broken, Loddon,

See Appendix 1, Tables A16 and A17 for detailed data including sample sizes for each group in each year.		Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole
		Less likely to agree with this statement in one or more years	More likely to agree with this statement in one or more years	
				Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray, SA Non-Prescribed Areas[3]
Water entitle-ments held by the government are subject to the same rules and charges as other participants in the water market	Trade typology	*No significant differences to the Basin as a whole*		
	Water sourcing strategy			
	Water sources used			
	Basin location			
	Basin State			
	Farm type	Grazier	Horticulture, Fruit/nut	Dairy, Crop, Mixed crop/graze, Winegrape
	ML used	*No significant differences to the Basin as a whole*		
	Modernisation			
	GVAP			
	Finance access			
	Farm profit			
	Gender			
	Age			
	Education			
	Off-farm income			
	Catchment		SA Non-prescribed	Campaspe, Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray[3]
Water market rules are stable	Trade typology	*No significant differences to the Basin as a whole*		
	Water sourcing strategy			
	Water sources used			
	Basin location			
	Basin State		SA	Qld, NSW Nth, NSW Sth, Vic
	Farm type	Dairy	Horticulture	Crop, Grazier, Mixed crop/graze, Fruit/nut, Winegrape
	ML used	*No significant differences to the Basin as a whole*		
	Modernisation			
	GVAP			
	Finance access	Very difficult		Moderately difficult, Not difficult
	Farm profit	*No significant differences to the Basin as a whole*		
	Gender			
	Age	Aged <45	Aged 75+	Aged 45-54, Aged 55-64, Aged 65-74
	Education	*No significant differences to the Basin as a whole*		
	Off-farm income			

| See Appendix 1, Tables A16 and A17 for detailed data including sample sizes for each group in each year. | | Who was significantly more and less likely to…. [1] | | Who did not differ significantly to the Basin as a whole? |
		Less likely to agree with this statement in one or more years	More likely to agree with this statement in one or more years	
	Catchment		SA Non-prescribed	Campaspe, Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray[3]
I know how to access the information I need to make water trading decisions	Trade typology	No trade	Allocation	Diverse, Entitlement, Nonportfolio,
	Water sourcing strategy	*No significant differences to the Basin as a whole*		
	Water sources used	Ground only		Surface only, Surface & ground
	Basin location	North		South
	Basin State	NSW Nth		Qld, NSW Sth, SA, Vic
	Farm type	*No significant differences to the Basin as a whole*		
	ML used			
	Modernisation			
	GVAP		$1 million+	<$50,000, $50-99,999, $100-299,999, $300-$499,999, $500-$999,999
	Finance access	*No significant differences to the Basin as a whole*		
	Farm profit			
	Gender			
	Age			
	Education			
	Off-farm income			
	Catchment		SA Non-prescribed	Campaspe, Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray[3]
It's easy to access the information I need to make water trading decisions	Trade typology	No trade		Diverse, Allocation, Entitlement, Nonportfolio
	Water sourcing strategy	*No significant differences to the Basin as a whole*		
	Water sources used	Ground only		Surface only, Surface & ground
	Basin location	*No significant differences to the Basin as a whole*		
	Basin State			
	Farm type			
	ML used			
	Modernisation			
	GVAP		$50-99,999	<$50,000, $100-299,999, $300-$499,999, $500-$999,999, $1 million+
	Finance access	Moderately difficult		Very difficult, Not difficult
	Farm profit	*No significant differences to the Basin as a whole*		
	Gender			

See Appendix 1, Tables A16 and A17 for detailed data including sample sizes for each group in each year.	Who was significantly more and less likely to…. [1]		Who did not differ significantly to the Basin as a whole?
	Less likely to agree with this statement in one or more years	More likely to agree with this statement in one or more years	
Age			
Education			
Off-farm income			
Catchment		SA Non-prescribed	Condamine-Balonne, Goulburn-Broken, Loddon, Macquarie-Castlereagh, Murrumbidgee, Namoi, Murray[3]

[1] A group is listed as being significantly more likely to agree or disagree with a statement if their mean score was significantly different to Basin irrigators as a whole, in one or more of the years for which data were measured.

[2] The trade typology is explained in detail in section 3.4; findings related to the trade typology developed later in this report are included here to reduce complexity of presentation of data.

[3]For some catchments, there were only small samples of irrigators in some years: this means it is likely some differences between catchments exist that were not identified in this analysis

A cluster analysis was undertaken to identify whether irrigator attitudes to water market trading clustered into interpretable categories that could then provide insight into the relationship between engagement in trade and attitudes to trading. This was done for 2015 using the 10 variables in Figure 2, and for 2016 using the eight variables in Figure 3.

To create the typology of attitudes to the water market, a latent class analysis was used, with detailed methods described in Appendix 3. While three-cluster, four-cluster and five-cluster solutions were examined, ultimately four-cluster solutions provided the optimal classification that combined both statistical robustness in terms of distinct clusters, and semantic meaningfulness in terms of being able to interpret the differences in attitudes to water trading between clusters.

The mean level of agreement with each of the ten statements for the four latent classes of irrigator in 2015 is shown in Figure 5, and mean agreement with eight statements in 2016 is shown in Figure 6. These show high consistency in patterns of views in the four classes across both years, supporting their use as indicators of common clusterings of attitudes. Overall, irrigators in Class 1 had lower levels of agreement with all statements than other groups, and irrigators in Class 4 had higher levels of agreement with all of the eight statements repeated in both years (for the other two statements included in 2015 but not 2016, levels of agreement were similar to Class 3).

Comparing classes 2 and 3, Those in Class 2 had higher levels of agreement with the statements, which were statistically significant in at least one of the two years of data: *The water trade market is fair for all users (significant difference in 2015, non-significant in 2016), changes to the rules for water trading in the last few years have increased my confidence in the water market (2015 only), and water market rules are stable (significantly higher in 2016, non-significantly higher in 2015)*. While agreement was higher with these statements than it was amongst irrigators clustered into class three, it was still below the scale midpoint of 4, indicating that most irrigators in Class 2 still disagreed with the statements.

Irrigators in Class 3 had higher levels of agreement than those in Class 1 or 2 with the statements: *It is easy to trade temporary water if I want to*, *it is easy to trade permanent*

water entitlements if I want to, *I know how to access the information I need to make water trading decisions*, and *it's easy to access the information I need to make water trading decisions*. They were less likely than those in Class 2 or 4 to agree that the water trade market was fair for all users, changes to water trading in recent years had increased their confidence in the water market, that water entitlements held by the government were subject to the same rules and charges as other water market participants, or that water market rules were stable.

The four classes of irrigators were given the following descriptions based on these differences:

- Class 1: Low confidence in water trade. This group lack confidence both in their own ability to access information about trade, and in the settings of water trading systems. They do not feel their water rights are secure, find it difficult to trade water and to access information needed to trade, and do not believe the water market is fair for all users.

- Class 2: Moderate confidence in water trade. This group has moderate confidence in being able to trade, and some confidence that the water trade systems are fair and appropriate to all. However, their confidence levels are not high for either and on whole this group feel the water market is somewhat unfair, while being slightly but not highly confident in their ability to access information about the market and trade water.

- Class 3: Confident traders but sceptical of water trade. This group is very confident in their own ability to trade, being able to easily access information about water trade and engage in water trade. However, they hold concerns about the structure and fairness of the trading system, often believing that rules are not stable and holding concerns about the fairness of the market for all users.

- Class 4: Confident traders who trust the market. This group are very confident in their own ability to engage in water trade, finding it easy to access information and to trade. They have mostly high confidence in the water market system, finding it fair and stable.

Irrigators with low confidence in water trade (Class 1) made up 15.1% of Basin irrigators in 2015, dropping to 11.8% in 2016 (this change was not, however, statistically significant). Those with moderate confidence in water trade (Class 2) fell from 28.6% in 2015 to 20.1% in 2016. Those who were confident but sceptical of water trade (Class 3) grew from 29.2% in 2015 to 35.4% in 2016, while confident traders who trusted the market (Class 4) rose from 27.1% to 32.8%. While these changes suggest some increase in confidence (and possibly trust) in water trade, they were non-significant once confidence intervals were taken into account, with detailed data showing confidence intervals presented in Appendix 1, Tables A18 and A19.
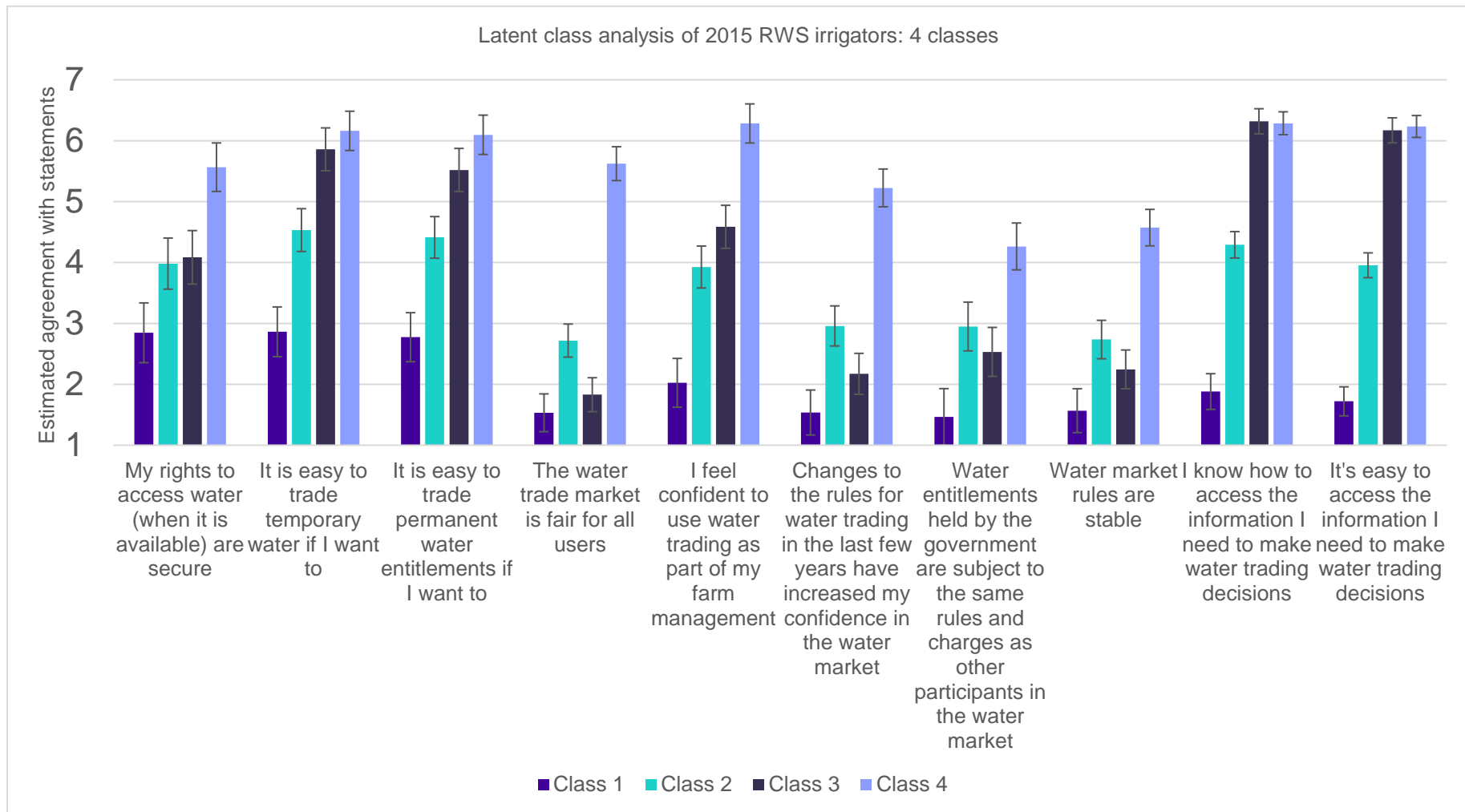
Figure 5 Estimated mean level of agreement with water market statements for four latent classes of irrigator - 2015
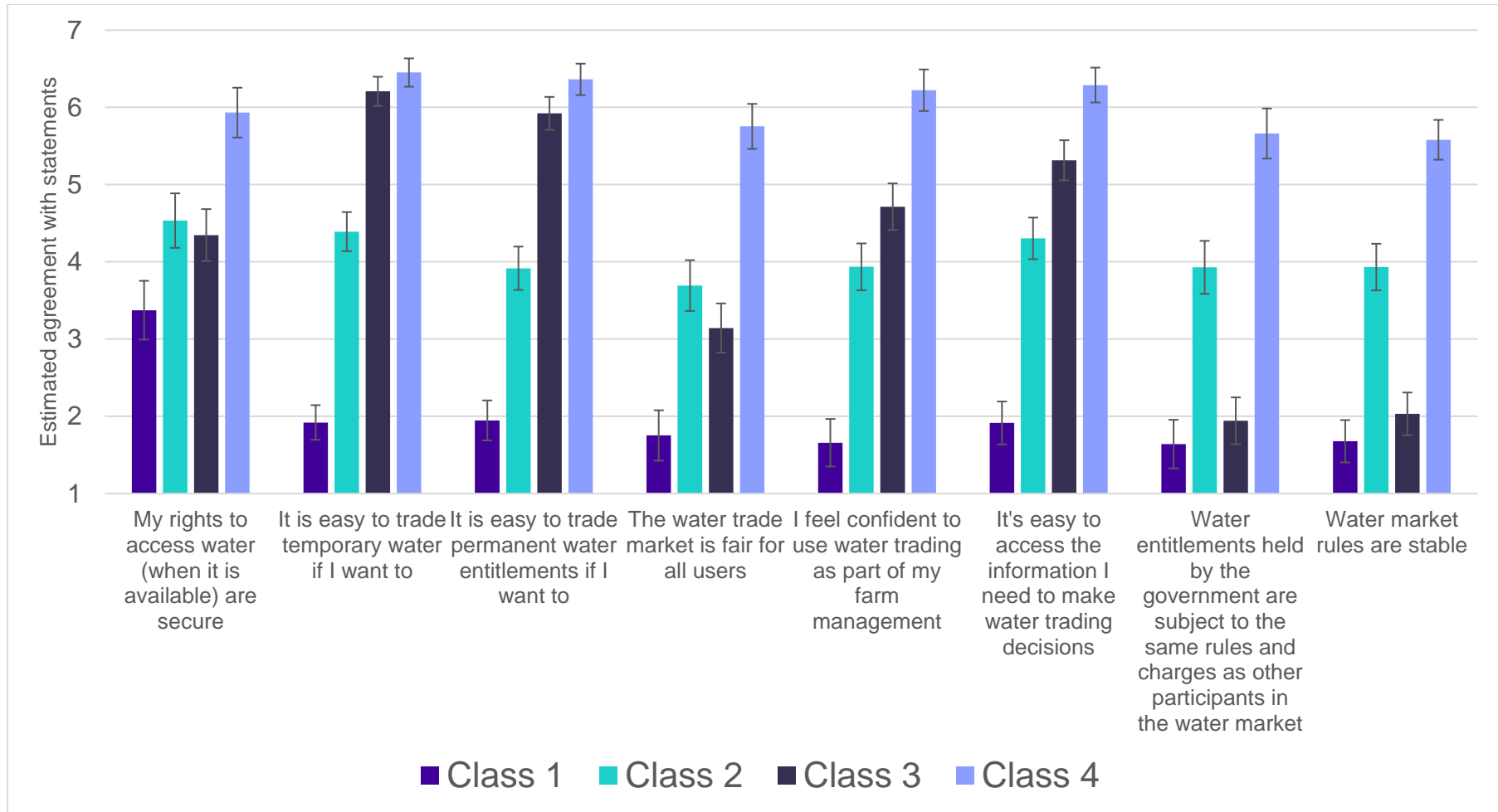
Figure 6 Estimated mean level of agreement with water market statements for four latent classes of irrigator - 2016

Tables 26 shows the proportion of irrigators who did and didn't engage in allocation and entitlement trade, or leasing of entitlement, across the four attitude classes.

Those who traded allocation were significantly more likely to belong to Class 3 and 4 than to Class 1 or 2, across both years of data, suggesting that those engaging with the temporary market are commonly either confident but sceptical traders, or confident and trusting traders. Those who did not trade allocation were more likely to be in Classes 1 and 2 (low and moderate confidence in the water market) and less likely to be confident water traders (whether sceptical or trusting).

The differences between classes were sufficiently large to result in some classes being significantly different to irrigators across the Basin as a whole, with Class 3 and 4 being significantly more likely to trade allocation than Basin irrigators as a whole, and, in 2016, Class 1 being significantly less likely to trade allocation than Basin irrigators as a whole.

In addition to these data, Appendix 1 contains some further exploratory analysis of the trade typology and how it varies. As the attitudinal classification was based on analysing only those irrigators who did not answer 'don't know' to the different questions, sample sizes were smaller than for other analyses done with the same dataset. This meant that while there were often large differences between groups, confidence intervals were also large – with the result that there were very few statistically significant differences between groups of irrigators. Given this, rather than presenting a summary table of statistically significant differences, the findings reported in Tables A18 and A19 in Appendix 1 were explored qualitatively to identify patterns that indicate potential associations. Future work should examine the following using larger samples, as the associations noted below were not statistically significant for the most part due to the small sample sizes:

- Class 1 – Low confidence in water trade: Irrigators in this group on average used smaller volumes of irrigation water than those in other groups, had lower GVAP and were more likely to be making a loss than those in the other classes of irrigators.

- Class 2 – Moderate confidence in water trade: Irrigators more likely to be in this group in 2015 and 2016 were Northern Basin irrigators, graziers (other than dairy farmers), and those who had not modernised on-farm irrigation infrastructure.

- Class 3 – Confident but sceptical of water trade: Northern Basin irrigators were significantly less likely to be in this group, while dairy farmers were more likely to be compared to Basin irrigators as a whole. To some extent, those with larger GVAP and using larger volumes of water were more likely to be in this class, although these associations were not statistically significant.

- Class 4: Confident traders who trust the market: Those more likely to be in this class (although not significantly so) were those with smaller GVAP and older farmers.

Table 26 Engagement in water trade by irrigators with different attitudes to the water market – 2015 and 2016

	Yellow shading indicates significantly more irrigators did this than did in Basin as a whole. Red shading indicates significantly fewer irrigators did this than in Basin as a whole.	Did not trade allocation (n=108)	Traded allocation (n=221)	Did not trade entitle-ments (n=243)	Traded entitle-ments (n=86)			
2015	Basin	45.0%	55.0%	80.6%	19.4%			100%
	95% CI	*3.5%*	*3.6%*	*3.0%*	*2.7%*			
	Class 1: Low confidence in water trade	44.0%	56.0%	78.0%	22.0%			100%
	95% CI	*-13.1%*	*-13.8%*	*-13.1%*	*-12.8%*			
	Class 2: Moderate confidence in water trade	42.6%	57.4%	73.4%	26.6%			100%
	95% CI	*-9.6%*	*-10.1%*	*-9.6%*	*-9.5%*			
	Class 3: Confident but sceptical	25.3%	74.7%	72.6%	27.4%			100%
	95% CI	*-7.9%*	*-9.4%*	*-7.9%*	*-9.5%*			
	Class 4: Confident traders who trust the market	24.4%	75.6%	73.3%	26.7%			100%
	95% CI	*-8.0%*	*-9.6%*	*-8.0%*	*-9.8%*			

		Did not trade allocation (n=124)	Traded allocation (n=190)	Did not trade entitle-ments (n=252)	Traded entitle-ments (n=62)	Did not lease entitle-ments (n=220)	Leased entitle-ments (n=36)	
2016	Basin	50.3%	49.7%	82.5%	17.5%	88.6%	11.4%	100%
	95% CI	*4.1%*	*4.1%*	*3.2%*	*2.9%*	*3.1%*	*2.6%*	
	Class 1: Low confidence in water trade	72.2%	27.8%	88.9%	11.1%	94.4%	5.6%	100%
	95% CI	*15.9%*	*12.5%*	*13.2%*	*7.2%*	*11.1%*	*4.4%*	
	Class 2: Moderate confidence in water trade	55.4%	44.6%	81.5%	18.5%	81.1%	18.9%	100%
	95% CI	*12.1%*	*11.6%*	*10.7%*	*8.0%*	*12.0%*	*8.7%*	
	Class 3: Confident but sceptical	25.9%	74.1%	83.0%	17.0%	85.1%	14.9%	100%
	95% CI	*7.4%*	*8.7%*	*7.7%*	*6.1%*	*8.2%*	*6.1%*	
	Class 4: Confident traders who trust the market	32.7%	67.3%	73.3%	26.7%	86.3%	13.7%	100%
	95% CI	*8.6%*	*9.5%*	*9.2%*	*7.9%*	*9.2%*	*6.4%*	

[1] Confidence intervals presented here are presented in the form of '-' rather than ±. This is because for these figures, the confidence interval calculated differed slightly for the '+' and '-'. As the data for each year are binary variables (did engage in water trade/didn't), presenting the '-' confidence interval for each also presents the '+' for the opposite part of the variable. For example: in 2015, 44.0% of those in Class 1 did not trade allocation, and the confidence interval is -13.1% and + 13.8%, with a total confidence interval range of 30.9% t0 57.8%. Meanwhile 56.0% did trade allocation, with a confidence interval of -13.8% and +13.1% (opposite of the intervals for those who did not trade in Class 1. Thus the single sided confidence intervals provide the full data if needed.

5. Understanding water market participation

5.1 Introduction

While the previous section examined whether different types of irrigators were more or less likely to engage in using the water market as part of strategies for sourcing irrigation water cost-effectively, it focused mostly on descriptive characteristics, such as farm type. While these often predict aspects of water market participation, there are also other factors that can predict water market participation. These relate to the conditions being experienced by farmers, their own wellbeing, and the way they approach farm planning and risk. These are examined in this section, including an integrated modelling approach that examines which factors most strongly predict engagement in water trade.

This section summarises key findings of examination of a wide range of areas. In all cases, the data underpinning this analysis are provided in Appendix 1: the specific tables providing data are listed in each part of this section.

5.2 Water trading availability and water related barriers to farm development

Access to trading opportunities on a water market varies substantially across the Basin. Even in areas with good access to water trade, the ability of irrigators to engage in trade will depend on factors such as how much water is actually available on the market, and water prices. This was examined by identifying

1. How much trading activity varied by access to water trade (using data from the 2016 RWS, reported in detail in Tables A20 to A23 in the Appendix), and

2. The extent to which irrigators reported experienced different water-related barriers to farm development, including reduced water allocation, high fixed costs of water entitlements, high water prices, and lack of water allocation to purchase on the market (Tables A24 to A34 provide detailed statistics).

In 2016, while almost all Basin irrigators could trade water allocation (temporary water, 87.9%) and entitlements (86.3%) within their irrigation district or local area, fewer could trade allocation (66.0%) or entitlements (64.0%) between their district and other irrigation districts (see Table A20). Only 12.4% reported having no access at all to water trade, while 25.6% reported that in their local area there was often little or no water to buy on the market at any price, while 78.0% reported that in their area you could always buy water – as long as you could afford the market price.

In 2016, Southern Basin irrigators were significantly more likely to report being able to engage in any form of trade, and Northern Basin irrigators significantly less likely to either be able to trade water within their local district (66.3%/64.6% for allocation and entitlements respectively) or outside it (16.0%/18.7% for allocation and entitlements respectively). Those relying on groundwater only and graziers were less likely to have access to water trade. As expected, those who engaged in trade of water allocation reported having very good access to trade. Amongst non-traders, 79.1% reported being able to trade within their district, and 50.0% reported being able to trade between districts (Table A20).

When access to trade was examined using the trade typology (Table A22), non-traders differed significantly to the typical Basin irrigator in that there were more likely to report that in their local area, there was often little or no water available to buy on the market at any price (36.3%). This suggests that one factor influencing lack of engagement in trading is availability of water on local markets, but also that this explains only part of lack of

engagement in trading, with many non-traders reporting good availability of water on local markets.

Irrigators were asked if reduced water allocation for one or more seasons had been a barrier to running their farm business the way they wanted to in the last three years (Tables A24 to A34. Across the Basin, 52.7% reported this was a large barrier in 2015, 50.0% in 2016, and 58.6% in 2018:

- Those *more* likely to report this was a barrier were: NSW Southern Basin irrigators (2015, 2016 and 2018), dairy farmers and grain growers (2015, 2016, 2018), those who engaged in water trade, particularly diverse traders (all three years)

- Those *less* likely to report this was a barrier were: Northern Basin irrigators, SA Basin irrigators, horticulture farmers, and non-traders.

Irrigators were asked if high water costs (in some years split into water delivery costs versus costs of fixed water entitlements other than delivery) for one or more seasons had been a barrier to running their farm business the way they wanted to in the last three years (Tables A24 to A34. In 2015, 57.0% of irrigators reported that increase in fixed costs of water entitlements was a major barrier to farm development, 63.5% in 2016, and 59.3% in 2018, with no significant differences between the years:

- Those *more* likely to report this was a barrier were NSW Southern Basin irrigators (2015, 2018), Vic Basin irrigators (2016), dairy farmers (2015, 2016, 2018), and allocation traders.

- Those less likely to report this was a barrier were Northern Basin irrigators, South Australian Basin irrigators, horticulture farmers, non-traders and those who used groundwater only.

Irrigators were asked if high price of temporary water had been a barrier to running their farm business the way they wanted to in the last three years (Tables A24 to A34). In 2016, 52.6% reported this was a large barrier, and 58.6% in 2018:

- Those *more* likely to report this were Victorian Basin irrigators (2016), NSW Southern Basin irrigators (2018), dairy farmers, grain growers, diverse traders, and allocation traders.

- Those *less* likely to report this were Northern Basin irrigators, South Australian Basin irrigators, horticulture farmers, non-traders, those using water from their own entitlements only and those relying on groundwater only.

Irrigators were asked if lack of available water allocation to purchase on the water market had been a barrier to running their farm business the way they wanted to in the last three years, with this question included in the 2018 RWS (Tables A24 to A34). In 2018, 37.2% reported this was a large barrier:

- Those *more* likely to report this was a larger barrier were irrigators in the NSW Southern Basin, dairy farmers, grain growers, mixed cropping/grazing farmers, diverse traders, and those purchasing water allocation.

- Those *less* likely to report this was a larger barrier were South Australian Basin irrigators, horticultural farmers, non-traders and those relying on ground water only.

Overall, dairy farmers and annual crop growers in the Victorian and NSW Southern Basin were most likely to report experiencing water price and availability related barriers to farm development. Those who engaged in water trade were, not surprisingly, more likely to report

that issues such as high prices of water or lack of water on the market were barriers to their farm business compared to non-traders who are not attempting to trade on the water market.

5.3 Farming conditions

Irrigators were asked about a range of farming conditions, and data were analysed to identify whether those experiencing more positive or adverse farming conditions were more or less likely to be engaging in water trade (Tables A35 to A46).

First, irrigators were asked how farming and business conditions had been on their farm in the last years. Across the Basin, 47.5% reported conditions had been more challenging than usual in 2015, 48.5% in 2016, rising to 72.1% in 2018 with widespread drought being experienced. Overall, those engaging in trade of water allocation (but not entitlements) were more likely than non-traders to report experiencing more challenging conditions than usual in all three years: for example, in 2018 89.0% of non-diverse allocation traders reported experiencing more challenging business conditions than usual, compared to 61.6% of non-traders. Similarly, in 2018, 61.3% of those who used water from their own entitlements only reported experiencing business conditions that were more challenging than usual, compared to 88.0% of those who used water from their own entitlements and allocation purchased on the market.

Irrigators were then asked about their farm financial conditions:

- Farm cash flow was poor for 28.6% of irrigators in 2015, 33.0% in 2016 and 31.6% in 2018. Non-portfolio traders reported poorer cash flow than other types of irrigators in all three years (50.0%, 45.5% and 60.0% in the three years), although the small sample meant that despite the large difference, they were not significantly different to the average. The consistency of this difference across years does however suggest that this is likely to be a meaningful difference, with use of non-portfolio approaches linked to cash flow difficulties.

- 27.0% of irrigators found it difficult to service their farm debt in 2015, 22.9% in 2016 and 31.7% in 2018. Non-diverse entitlement traders were less likely to find it difficult to service debt, while non-portfolio traders were more likely to in 2015 and 2018.

- 43.1% reported their farm business was under a lot of financial stress in 2015, 38.3% in 2016 and 39.9% in 2018. Engagement in water trade was not associated with consistent, significant differences in this.

Finally, irrigators were asked if they had experienced different types of specific adverse farming conditions:

- Drought: This was a large barrier for 47.3% in 2015, 51.7% in 2016 and 57.1% in 2018. In 2018, those who were trading allocation were significantly more likely than others to report drought being a large barrier to business development in the previous three years.

- Rising costs of inputs: This was a large barrier for 47.8% in 2015, 53.1% in 2016, and 61.8% in 2018, with no significant differences between those engaging in different types of trade and those not engaged in water trading.

- Lack of demand for goods they produced: This was a large barrier for 21.8% in 2015, 32.8% in 2016, and 13.2% in 2018, with no significant differences between those engaging in different types of trade and those not engaged in water trading.

- Falling prices for goods they produced: This was a large barrier for 44.4% in 2015, 51.4% in 2016, and 29.0% in 2018, with no significant differences between those engaging in different types of trade and those not engaged in water trading.

5.4 Future farming intentions

Irrigators were how likely they were to do the following in the next five years (Tables A47 to A58):

- Retire from farming: 30.8% reported this was likely in 2015, 38.4% in 2016 and 39.8% in 2018. This did not differ significantly based on engagement in water trad in 2015 and 2016, but in 2018, diverse traders and non-portfolio traders were less likely to report planning to retire from farming in the next five years than other irrigators, potentially reflecting the overall younger age of those in these groups.

- Leave farming for reasons other than retirement: 20.0% felt this was likely in 2016, and 16.3% in 2018 (this question was not asked in 2015). In 2018, those engaged in diverse water trading were less likely to feel this was likely than other irrigators.

- Expand the farm business: 21.4% reported this was likely in 2015, 23.2% in 2016 and 19.4% in 2018 In 2015, those who traded entitlements but not allocation were more likely to be planning to expand their farm business than others. In 2018, those who were diverse traders were more likely to report planning to expand their farm business, with 47.4% reporting this was likely compared to the Basin average of 19.4%. Those who used water both from their own entitlements and from allocation purchased on the market were slightly more likely than others to be planning to expand (27.6% in 2015, 31.2% in 2016 and 24.5% in 2018).

- Downsize the farm business: 25.5% felt this was likely in 2015, 19.0% in 2016, and 19.4% in 2018.

- Change the farm enterprise mix: 23.4% felt this was likely in 2015, 17.2% in 2016, and 26.7% in 2018. Those using groundwater only were less likely to be planning to change their enterprise mix than others in 2016, and those using both surface and ground water a little more likely to be in 2018.

- Intensify farm production: 18.3% felt this was likely in 2015, 15.9% in 2016, and 22.7% in 2018. Those who used water both from their own entitlements and from allocation purchased on the market were slightly more likely than others to be planning to intensify in 2018 (35.4%).

5.5 Farm planning and risk mitigation strategies

Farmers were asked whether they had a farm plan, whether their farm plan included planning for risks such as drought, and whether they monitored performance against the plan or regularly reviewed and updated their farm plan. Irrigators who did and didn't engage in trade were then compared to see if they had differing levels and types of engagement in farm planning. In 2018, irrigators were also asked if they invested in any forms of farm insurance, and those who did and didn't were compared to identify if they were more or less likely to engage in water trading. Detailed data are provided in Tables A59 to A70.

As there were very few differences between those who engaged in water trade and those who didn't, and they were almost all non-significant, no detailed discussion of this section of analysis is provided in the report. The only significant difference identified was that diverse traders were significantly more likely to report having a written farm plan (44.4% in 2015 compared to 31.6% of all Basin irrigators, and 54.3% in 2016, compared to 42.9% of all irrigators). Non-portfolio traders reported lower engagement in farm planning and risk mitigation than other irrigators, however the low numbers of irrigators in this category meant the differences were not statistically significant.

5.6 Farming confidence and self-efficacy

It is possible that irrigators who engage in water trade report overall different levels of optimism about their farming future, and confidence in being able to achieve desired outcomes on their farm. To examine this, questions included in the 2016 and 2018 RWS were examined, with detailed data provided in Tables A71 to A78 in Appendix 1.

First, farmers were asked the extent to which they agreed or disagreed that 'I feel optimistic about my farming future'. Across the Basin, 50.5% of irrigators agreed with this statement in 2016, and 52.4% in 2018. In 2018, diverse traders were more likely to agree with this statement, while those trading allocation only and potentially non-portfolio traders were less likely to agree (the result for non-portfolio traders was non-significant due to the small sample in this group).

Farmers were then asked if they agreed or disagreed that 'I am confident I can achieve the things I want to on my farm'. Across the Basin, 56.6% of irrigators agreed with this in 2016 and 53.5% in 2018.

When asked whether they were confident they could achieve their farm business objectives, 59.0% of Basin irrigators agreed in 2016, and 52.9% in 2018. Diverse traders, particularly those trading both entitlements and allocation, were more likely to agree with this statement in 2018, and non-portfolio traders and those trading allocation but not entitlements less likely to.

Finally, when asked if they felt confident they could cope well with most difficult conditions on the farm such as drought or pest outbreaks, 55.1% agreed in 2016, and 45.8% agreed in 2018 (a significant decline between the two periods). Diverse traders were more confident, and non-diverse entitlement traders and those relying solely on water from allocation or leased entitlements were less confident.

5.7 Farmer health

Sometimes, experiencing health or wellbeing challenges can reduce a person's ability to engage successfully in some activities, such as those involving complex planning or decision making. Data on health and wellbeing are provided in Tables A79 to in Appendix 1.

Overall, around half of Basin irrigators reported being in excellent or very good health in each year, while 30 to 35% reported being in good health, and 16% to 20% in poor health.

Half of irrigators reported very high wellbeing, although this declined from 52.5% in 2015 to 45.7% in 2018, while the proportion reporting poor overall wellbeing rose from 18.1% in 2015 to 24.7% in 2018.

Psychological distress levels were measured using the Kessler 10 distress scale in 2015, and the Kessler 6 distress scale in 2016 and 2018. This scale was scored to identify the proportion of irrigators reporting low, moderate and high levels of psychological distress. In 2015, 80.8% had low distress scores, 82.7% in 2016, and 77.7% in 2018. Moderate distress was identified for 10.2% in 2015, 13.0% in 2016, 17.2% in 2018, with the increase in moderate distress significant over time. High distress was identified for 9.0% in 2015, 4.3% in 2016, and 5.1% in 2018, with the change between 2015 and the later years likely to be due in large part to the change in the specific measure used.

While there were few statistically significant differences in the health of irrigators engaging in different forms of trade, one group did report consistently poorer health and in particular

higher psychological distress: non-portfolio trader, and those relying solely on allocation purchased on the market or leased entitlements to water their farm. Due to their low numbers, these differences were only sometimes statistically significant, but were highly consistent across time, particularly for 2015 and 2018, and less so in 2016.

Diverse traders had somewhat higher wellbeing in some periods, however this finding did not occur consistently across years.

5.8 Exploratory modelling of views about the fairness of water trading markets

After reviewing initial findings, exploratory modelling was used to further examine factors that may be associated with differing perceptions of the fairness of water trading. This topic was explored as fairness of the water market is a key concern raised in a range of forums by Basin irrigators, and emerged from the descriptive analysis as an important topic. Appendix 4 provides a detailed description of the multiple-step exploratory modelling process used, and how factors considered likely to be associated with differing perceptions of fairness were selected and explored. The model sought to identify factors that predicted differences in the extent to which irrigators agreed or disagreed with the statement 'the water market is fair for all users', which was measured using a 7-point ordinal scale (from 1 = strongly disagree to 7 = strongly agree).

As a large number of factors were identified that could theoretically cause differing perceptions of fairness, a three-step process was used to reduce the total number of factors examined to a smaller number. This process is described in Appendix 4, and ensured the modelling was both theory driven, but also used exploratory analyses to eliminate some of the large number of potential predictor variables.

The final model developed examined surface water users only, and excluded groundwater users. This was done as initial exploratory analysis indicated that groundwater and surface water users differed in their perceptions of fairness and did not have the same patterns of variation in perceptions of fairness.

The final model included the following variables as predictors of views about the fairness of water trade (see Appendix 4 for details of the rationale for their inclusion):

- Geographic location:
    - Barmah Choke: This variable identified whether an irrigator was located above or below the Barmah Choke (variable name: Barmah Choke in the tables of findings below)
- Farm characteristics:
    - Megalitres used: The megalitres used in the last 12 months to irrigate the farm
    - GVAP: The gross value of agricultural production in the last financial year
    - profitability: Overall profitability of the farm enterprise
- Farmer demographic characteristics:
    - Gender: Whether the irrigator was female or male
    - Age: The age of the irrigator in years
- Experience of water trade and water reform:

- o Ability to trade water easily: This variable was the 7-point ordinal scale in which irrigators were asked how much they agreed or disagreed that 'It is easy to trade temporary water if I want to'
- o Stability of water market rules: This variable was the 7-point ordinal scale in which irrigators were asked how much they agreed or disagreed that 'Water market rules are stable'
- o Government subject to same rules: 'Water entitlements held by the government are subject to the same rules/charges as other water holders'

This model did not include farm type as a predictor variable. This was despite initial hypothesis that farm type may be a significant driver of perceptions of fairness, and some significant, but relatively small, associations in initial exploratory analyses between some farm types and perceptions of fairness. The detailed analysis presented in Appendix 4 suggests that these associations are reflective of differences in views about aspects of water trade (which were included in the final model), rather than reflecting inherent differences between different types of farms.

The model was significant, with an adjusted R squared of 0.39, $p<0.000$, and F=22.47 (see Appendix 4 for further details of the overall model). In this model, significant predictors of differences in views about fairness of water trade were (see Appendix 4 for detailed tables of findings for co-efficients):

- Barmah Choke location above or below, with those above less likely to feel the water trade market was fair for all users compared to those below

- Megalitres applied, with those applying large volumes of water more likely to feel water trade markets were fair for all users

- GVAP – those managing farms with smaller value of agricultural production were more likely to feel water markets were fair for all users compared to those managing farmers with a higher value of production

- Profitability – those reporting larger profit were more likely to report finding water trade markets fair

- Ability to trade easily – those who found it easy to trade were more likely to feel markets were fair

- Perception of stability of water market rules – those who felt rules were stable found markets fairer

- Perception of whether rules applied to government water users were the same – those who felt the government was subject to the same rules as other water market participants were more likely to report the water market was fair for all users.

Age and gender were not significant predictors.

The findings of the modelling process, and the final model, highlight that while some assume that perceptions of fairness depend on the type of farm an irrigator runs, or the part of the Basin they are located in, the strongest predictors are an irrigator's personal experiences of trading, and of the stability of water market rules. This suggests that changes to water market rules are a key driver of perceptions about fairness, with lack of stability associated with concerns about fairness. Similarly, if trading is difficult to do, or an irrigator has not had sufficient experience with trading to find it easy to trade on the market, they are less likely to view the market as being fair.

While the Basin state an irrigator lived in was not a consistent predictor of views about fairness in initial modelling (see Appendix 4 for detail), location above or below the Barmah Choke was a strong predictor. This suggests that the constraints on trade associated with the Choke so influence views about fairness of water markets.

While not as strong a predictor of views about fairness of water markets, those with larger farms – whether in terms of economic turnover (GVAP) or volume of water used – were significantly less likely to view the water market as being fair for all users compared to those with smaller farms. The reasons for this need further exploration – while it was initially hypothesised that this may reflect greater engagement in trade of those with larger farms, including engagement in trade in the model did not add to predictive power or change the significance of the findings related to farm size.

Overall, the findings suggest that concerns about stability of water market rules, about the equity of rules applying to different market participants, and about the ease with which it is possible to trade (likely reflecting the issues identified earlier in this report when challenges experienced with trading were identified), are key drivers of perceptions of fairness. Investing to ensure it is possible to trade easily without undue delays, high fees/charges, or overly complex processes, as well as ensuring the market remains stable over time so those seeking to trade can be confident in the conditions that will apply when they engage in trade, are likely to be key to increasing confidence in the fairness of the water trade market.

5.9 Exploratory modelling of factors associated with engagement in allocation trade

As multiple differences were identified between irrigators who did and did not trade water allocation, exploratory modelling was used to examine factors that predict engagement in allocation trade. This exploration was done as the analysis presented in earlier parts of this report suggested a range of potential predictors of engagement in allocation trade, but many of these have inter-relationships – for example, some of the demographic characteristics of irrigators that often varied with use of trade (such as age of irrigator) are also often predictive of factors such as size of the farm enterprise. At younger ages, irrigators are more likely to be managing smaller farms (in terms of GVAP and water use), and therefore it was difficult to identify from descriptive data alone which factors were more consistently associated with differences in engagement in trade. Modelling could potentially shed light on this by controlling for the range of factors that, while not highly correlated with each other, may be interacting.

Appendix 5 provides a detailed description of the modelling process, while a summary of emerging findings is provided here.

Factors that predict engagement in allocation trade were explored using a binary logistic regression model, which sought to explain what factors were associated with (i) trading allocation versus (ii) not trading allocation, in a given season. This modelling focused on only surface water users. Three different models were developed:

- Use of allocation trade: Factors predicting whether an irrigator traded allocation or not, irrespective of whether the trade they engaged in involving buying or selling

- Purchasing allocation: Factors predicting whether an irrigator purchased allocation

- Selling allocation: Factors predicting whether an irrigator sold allocation on the market.

These three were all examined as for some potential predictors, there were potentially contradictory drivers of engagement in trade behaviour, described below.

Based on the descriptive analysis conducted in this project, and review of public discussion about water trade, the following factors were hypothesised to be potential predictors of whether an irrigator trades allocation or not in a given season:

- Age: It is commonly hypothesised that older irrigators may be less likely to engage in trade, and descriptive analysis suggested that younger irrigators were more likely to engage in trade in some years than older irrigators

- Basin location: In any given year, varying conditions in different parts of the Basin may mean it is easier or more difficult to engage in trade. Additionally, opportunities to trade are substantially different across the Basin. In particular, whether an irrigator lived in the following regions was considered likely to influence ability to engage in trade:

- Barmah Choke – being located above or below the Choke

- North/South – being located in the Northern or Southern Basin

- Water prices: If water prices are high, it may encourage selling and reduce ability to buy

- Market conditions: A farmer who is experiencing poor prices for the commodities they typically grow may be more likely to sell their allocation and less likely to buy, as they cannot afford to pay as much for water during a time of low commodity prices. The RWS included a question asking farmers to rate the extent to which low commodity prices for the goods they produce acted as a barrier to managing their farm, from 0 (not a barrier) to 7 (big barrier), and this item was used to examine this potential predictor.

- GVAP: Farmers with larger turnover were considered more likely to have a diverse entitlement base and ability to use a diverse range of trading actions to support their property; this was supported by the results of the initial analyses presented in earlier parts of this report.

- Megalitres used: Similar to GVAP, those using larger volumes of water were considered more likely to engage in trade, in part due simply to greater opportunity through likely having financial resources and access to allocation that farmers seeking smaller volumes of water may not have.

- Infrastructure investment: Those who had modernised on-farm irrigation infrastructure (versus those who had not done this since 2008) were considered more likely to engage in trade as they were engaging in actions to improve efficiency and effectiveness of water use, and may be also using water trading to achieve similar goals.

- Ease of trading: Whether irrigator reported being able to easily trade temporary water if they wished to.

The three models were run, and had differing power. The first model – the 'Trading allocation model' – examined whether irrigators did or didn't trade allocation, with the 'trade' part of the 'trade/no trade' variable including all trading, whether it involved buying or selling allocation. The model was significant (p<0.000, Cox & Snell R Square 0.125, Nagelkerke R square 0.172, see Appendix 5 for further overall model statistics). As shown in Appendix 5, those who had modernised on-farm infrastructure, who lived in the Southern Basin, and who found trading allocation easy to do were more likely to trade allocation overall. All other hypothesised predictors were not significant predictors.

The second model – the 'Purchasing allocation' model - examined whether irrigators had or hadn't purchased allocation in the last year. The model was significantly stronger than the

first model, indicating that there may be differing factors explaining purchase versus sale of allocation (p<0.000, Cox & Snell R Square 0.402, Nagelkerke R square 0.543, see Appendix 5 for further overall model statistics). As shown in Appendix 5, those who purchased allocation were more likely than those who had not to report rising allocation prices being a challenge, to have higher GVAP, and to live in the Southern Basin. All other hypothesised predictors were not significant predictors.

The third model – the 'Selling allocation' model - examined whether irrigators had or hadn't sold allocation in the last year. The model was significantly stronger than the first model, and had differing predictors to those in the second model, supporting the hypothesis that differing factors explain engagement in purchase versus sale of allocation (p<0.000, Cox & Snell R Square 0.238, Nagelkerke R square 0.338, see Appendix 5 for further overall model statistics). As reported in Appendix 5, significant predictors of selling allocation were water prices (with those who sold being less likely to report high prices being a challenge, likely because high prices resulted in positive financial return when they sold), infrastructure investment (those who had modernised infrastructure were less likely to sell allocation), GVAP (lower GVAP was associated with higher probability of selling), age (older irrigators were more likely to sell), Barmah Choke, and ease of trading (those who sold had a higher probability of reporting finding trading easy than those who didn't).

Overall, the findings suggest that it is important to separately examine drivers of purchasing versus selling allocation, as there are differing patterns of engagement with the water trade market for both of these. Water prices have predictably different effects on buying and selling behaviour (higher prices inhibiting purchase and encouraging sale). Those who modernised infrastructure on their farm appear more likely to keep allocation rather than sell it, perhaps due to many having transferred some of their entitlements in return for a grant to assist with modernisation, or possibly due to modernising infrastructure in ways that enable more profitable use of allocation on-farm. Larger farms (in terms of GVAP) were more likely to buy allocation and smaller farms more likely to sell, indicating a pattern in which smaller farms are using trade strategically, possibly to smooth income flows depending on market conditions (further work is needed to examine this in more detail).

6. Recommendations for future work

The analysis conducted for this report was limited to analysis of existing data, which provided a general overview of engagement in trade, but was based on a relatively small number of questions included in a large survey. The findings suggest several areas where additional data collection is needed to better understand how irrigators and other water market participants:

- engage in water trade – the ways irrigators trade water and water market mechanisms used by different market participants

- experience trade – their views about the water trade market and how it is governed

- utilise water trade – how irrigators plan their use of water trade to help them achieve overall business objectives for their agricultural enterprise.

This section presents several recommendations for future data collection in these areas that would improve understanding of these areas.

1. Survey non-irrigator water market participants

This report only examined irrigators, and did not examine others who trade on the water market. It thus presents only a partial picture of how different water market participants experience the market. Future work should incorporate samples of all types of people/organisations engaging in water trade. However, this can be challenging: investment is needed in identifying how best to achieve robust surveys of the full diversity of water market participants.

2. Examine use of greater diversity of market mechanisms

The survey data analysed in this report examined use of allocation trade on the temporary market, buying/selling entitlements, and in some years leasing of entitlements. This represents a subset of the full range of water market mechanisms used. Future data collection should better identify the full range of mechanisms used. In particular, use of the forward water market should be examined, including the types of forward trades engaged in and the reasons for using the forward water market.

3. Examine attitudes toward engaging in trade as well as recent trading history

A key limitation of the data available for this report is that while it identified whether an irrigator engaged in water trade in the last 12 months, it did not identify overall attitudes towards engaging in trade. The large variance in the proportion of irrigators who engaged in trading activity in different years highlights that the decision to trade is based on a range of factors and actual trading will depend on seasonal conditions. People who did not trade water in a given year are likely to be in reality a diverse group, with some who are willing to trade but in the last 12 months have not experienced conditions favourable to trading (and hence have not), and others who have never engaged in water trade and are unwilling to.

Future surveys should ask irrigators about their overall history of engaging in water trade and level of willingness/interest in trading water, as well as actual trades conducted in the last 12 months. For those who have a history of trading, or an interest in doing so in future, it would then be possible to also ask questions identifying when and why they make trades versus opting not to do so.

4. Larger samples of specific types of traders, particularly diverse and non-portfolio traders

The conclusions that could be drawn about differences in types of trading in this report were limited. In particular, they were limited due to the small samples of some types of water trade users, specifically diverse traders and non-portfolio traders. In addition to capturing more detail about the diversity of market mechanisms being utilised, larger samples of irrigators who engage in diverse forms of water trade should be collected in future.

5. More regular data collection

Some of the data analysed for this report was four to five years old at the time of analysis, particularly data on attitudes to the water trade market and perceptions of governance and fairness of the market. As noted when reporting on how irrigators perceive water trade, it is quite possible for attitudes to have changed significantly since 2016 when views about these issues were last measured in the Regional Wellbeing Survey. More regular data collection is needed to build a better understanding of things such as:

- How views about governance of water trading is changing over time: this is particularly important as many irrigators were only beginning to engage in water trade in the 2010's, and their views may change over time as they engage in more trading activity

- How use of water trade changes depending on seasonal conditions, prices, water prices and commodity prices, and in particular how irrigators choose to use trading in different ways depending on these conditions

- How water market conditions, and the way they change seasonally, affect the resilience of farmers to changing seasonal conditions – for example, does the way the water market operates reduce the impact of seasonal conditions or exacerbate them, and how do the different trading strategies used by irrigators affect this?

- How different water market conditions are experienced by irrigators, for example when non-irrigators participants are engaging in the market in different ways.

6. Process and outcomes of trading

When asked what challenges they experienced when trading water (in the 2016 RWS), open ended answers written by irrigators indicate that many challenges relate to being able to identify the optimum times to engage in trade in order to achieve desired outcomes, and being able to successfully navigate the water trade process. The data analysed for this report did not include information on whether irrigators felt their use of water trading enabled them to achieve desired outcomes, or detailed questions on how they found different aspects of the water trade process. Future surveys should specifically ask irrigators about the following aspects of trades they engaged in during the last 12 months as well as trades they hoped to engage in but were unable to do (for example due to high prices or lack of water availability):

- Prices achieved when buying and selling, and ability to manage timing of trade to optimise price

- Charges/fees paid for trades

- Availability of water on the market

- Ability to have trades processed in a suitable timeframe

- Volatility of market

- Views about appropriateness of allocations made to entitlements they own (which in turn influence the nature and type of their engagement with the water trade market)

7. Objectives of water trading

The data available to analyse for this report did not include information about why irrigators were engaging in the water trade market. Some of the data suggest there may be quite distinct and differently motivated groups of traders that could not be identified from the available data. In particular, future data collection should identify the factors motivating irrigators to engage in water trade. For example, motivations for selling allocation may range from a deliberate long-term strategy to use the water market to diversity income sources and smooth income fluctuations, to short-term decisions driven by a need to cover large expenses or only done opportunistically when it is clear a crop has failed or it is too risky to attempt to grow a crop based on long-term weather forecasts. Buying allocation on the temporary market may be used as an occasional strategy done opportunistically based on price and weather conditions, short-term as part of starting out in farming until an irrigator can afford to purchase entitlements, or done long-term as part of a long-term sourcing strategy with specific criteria used each season to guide decisions on trading.

Understanding these different motivations and approaches to planning and using trade would improve understanding of whether groups such as non-portfolio traders are using this trading model deliberately as a preferred farming approach, or because they have no alternatives and in the long-term are seeking to shift to different water sourcing strategies.

7. Conclusions

The findings of this report highlight that irrigators have complex and often differing experiences of water trade, and use it in different ways. While farmers managing enterprises with greater turnover (GVAP) are overall more likely to engage in trade, including both buying and selling, those managing smaller farms are less likely to trade at all and, when they do, appear more likely to sell than buy allocation. The findings show that there are a relatively small group of irrigators who rely entirely on nonportfolio-based trading to source water: due to the small sample size of this group, it was not possible to confidently identify their characteristics. However, the limited data analysed suggest at least some of this group are using nonportfolio trading as a way of entering farming and building an enterprise, and future work should examine if this approach is being entered into as a long-term strategy, or as a shorter-term strategy with irrigators seeking to purchase entitlements in the longer run.

The findings highlight that many irrigators hold concerns about the overall fairness and stability of the water trade market, despite a large proportion finding it relatively easy to trade on the market, and most finding it easy to access information on water trading. There are also many who view the market as relatively fair. Overall, the findings suggest that any ongoing changes to rules and regulations governing trade will reduce perceptions of fairness of the market: stability of market rules is critical to building confidence in the market. Also critical is addressing concerns about whether the market involves a 'level playing field' between irrigators and other water market participants, and ensuring that irrigators can trade easily. With multiple irrigators highlighting that challenges to trade include issues such as high transaction costs, and rapid fluctuation in prices, as well as delays in processing of trades for some, investing in improving ability to trade easily and rapidly is an important part of building confidence in the water market.

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Understanding participation in water trading by irrigators in the Murray-Darling Basin - APPENDICES

Report prepared for the Australian Competition and Consumer Commission

July 2020

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Contents

Tables

Appendix 1: data tables

Appendix 1 contains tables of data referred to in the main body of the report, which provide more detailed information on mean scores, confidence intervals and other findings of analysis conducted for this work.

In these tables, a colour coding scheme is used to indicate where different groups of irrigators were significantly different from each other:

- Yellow shading indicates this group of irrigators is significantly more likely to do this/have this view/have this attribute than Basin irrigators as a whole
- Red shading indicates this group of irrigations is significantly less likely to do this/have this view/have this attribute than Basin irrigators as a whole.

Table A1 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2015. This expands on the data provided in Table 4 in the main report.

Table A1 Use of allocation trade and entitlement trade – Basin irrigators, 2015

See Table 4 in main report for summary of these data.		Engagement in water market trade in 12 months prior to spring 2015							
		Did not trade allocation (neither bought or sold)	95% CI (minus only shown)[1]	Traded allocation (bought and/or sold)	95% CI (minus only shown)	Did not trade entitlements (neither bought or sold)	95% CI (minus only shown)	Traded entitlements (bought and/or sold)	95% CI (minus only shown)
Basin irrigators	Murray-Darling Basin (n=744)	45.0%	3.5%	55.0%	3.6%	80.6%	3.0%	19.4%	2.7%
Basin location	Northern Basin (n=113)	65.5%	9.1%	34.5%	8.3%	86.7%	7.2%	13.3%	5.3%
	Southern Basin (n=631)	41.4%	3.8%	58.6%	3.9%	79.6%	3.3%	20.4%	3.0%
Basin State	NSW Nth Basin (n=52)	55.8%	13.5%	44.2%	12.9%	82.7%	11.9%	17.3%	8.4%
	Qld Basin (n=61)	73.8%	12.0%	26.2%	9.8%	90.2%	9.3%	9.8%	5.6%
	NSW Sth Basin (n=229)	36.2%	6.0%	63.8%	6.4%	78.6%	5.6%	21.4%	4.9%
	SA Basin (n=93)	47.3%	9.9%	52.7%	10.1%	64.5%	10.0%	35.5%	9.2%
	Vic Basin (n=309)	43.4%	5.4%	56.6%	5.6%	84.8%	4.3%	15.2%	3.7%
Farm type	Dairy (n=92)	28.3%	8.4%	71.7%	9.8%	81.5%	8.8%	18.5%	6.9%
	Grain growing (n=131)	38.2%	8.0%	61.8%	8.5%	75.6%	7.9%	24.4%	6.7%
	Grazier (n=146)	56.8%	8.1%	43.2%	7.8%	89.0%	5.8%	11.0%	4.3%
	Horticulture (all) (n=203)	52.2%	6.9%	47.8%	6.8%	76.4%	6.2%	23.6%	5.4%
	Mixed cropping/grazing (n=75)	48.0%	11.1%	52.0%	11.2%	81.3%	9.9%	18.7%	7.5%
Horticulture farm type	Fruit/nut grower (n=90)	52.2%	10.3%	47.8%	10.1%	73.3%	9.8%	26.7%	8.3%
	Winegrape grower (n=97)	49.5%	9.8%	50.5%	9.8%	79.4%	8.8%	20.6%	7.1%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=231)	64.1%	6.3%	35.9%	6.0%	85.7%	4.9%	14.3%	4.1%
	30-99ML (n=103)	46.6%	9.4%	53.4%	9.6%	85.4%	7.8%	14.6%	5.8%
	100-299ML (n=135)	43.0%	8.1%	57.0%	8.4%	81.5%	7.2%	18.5%	5.8%
	300ML (n=153)	32.0%	7.0%	68.0%	7.7%	83.0%	6.5%	17.0%	5.3%
	1000ML+ (n=120)	25.8%	7.2%	74.2%	8.3%	62.5%	8.9%	37.5%	8.3%
	ML applied on farm - mean ML (n=744)	501	284	1175	550	600	190	2001	1497
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=147)	30.6%	7.0%	69.4%	7.8%	63.3%	8.0%	36.7%	7.5%
	Modernised irrigation infrastructure using self-funding (n=241)	46.5%	6.2%	53.5%	6.3%	83.0%	5.1%	17.0%	4.3%
	Has not modernised irrigation infrastructure (n=261)	49.8%	6.0%	50.2%	6.0%	87.0%	4.5%	13.0%	3.7%
Gross value of agricultural production 2015-16	<$50,000 (n=166)	55.4%	7.6%	44.6%	7.4%	81.9%	6.4%	18.1%	5.3%
	$50,000-$99,999 (n=71)	43.7%	11.1%	56.3%	11.6%	83.1%	9.9%	16.9%	7.3%
	$100,000-$299,999 (n=144)	45.1%	8.0%	54.9%	8.2%	86.8%	6.2%	13.2%	4.8%

See Table 4 in main report for summary of these data.		Engagement in water market trade in 12 months prior to spring 2015							
		Did not trade allocation (neither bought or sold)	95% CI (minus only shown)[1]	Traded allocation (bought and/or sold)	95% CI (minus only shown)	Did not trade entitlements (neither bought or sold)	95% CI (minus only shown)	Traded entitlements (bought and/or sold)	95% CI (minus only shown)
	$300,000-$499,999 (n=86)	48.8%	10.4%	51.2%	10.5%	82.6%	9.0%	17.4%	6.9%
	$500,000-$999,999 (n=121)	41.3%	8.5%	58.7%	8.9%	79.3%	7.9%	20.7%	6.5%
	$1 million + (n=121)	32.2%	7.8%	67.8%	8.7%	67.8%	8.7%	32.2%	7.8%
	Average GVAP (mean category) (n=744)	$100,000-$199,999	$100,000-$199,999	$200,000-$299,999	$200,000-$299,999	$100,000-$199,999	$200,000-$299,999	$200,000-$299,999	$300,000-$399,999
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=86)	36.0%	9.6%	64.0%	10.5%	76.7%	9.7%	23.3%	7.9%
	Found it moderately difficult to access affordable farm finance (n=91)	48.4%	10.1%	51.6%	10.2%	82.4%	8.8%	17.6%	6.7%
	Did not find it difficult to access farm finance (n=347)	46.1%	5.2%	53.9%	5.3%	82.1%	4.3%	17.9%	3.8%
	Average level of difficulty accessing affordable farm finance (n=744)	Low difficulty		Moderate difficulty		Low difficulty		Moderate difficulty	
Self-reported farm profitability over last 3 years	Making a loss (n=195)	42.6%	6.8%	57.4%	7.0%	77.4%	6.2%	22.6%	5.4%
	Breaking even/small profit (n=350)	47.7%	5.2%	52.3%	5.2%	84.0%	4.1%	16.0%	3.6%
	Moderate/large profit (n=179)	44.1%	7.1%	55.9%	7.3%	76.0%	6.6%	24.0%	5.8%
	Average profitability (category of mean) (n=744)	Breaking even		Breaking even		Breaking even		Breaking even	
Gender	Female (n=225)	44.9%	6.4%	55.1%	6.5%	79.6%	5.6%	20.4%	4.9%
	Male (n=517)	45.1%	4.3%	54.9%	4.3%	81.0%	3.5%	19.0%	3.2%
Age	Aged <45 (n=76)	35.5%	10.1%	64.5%	11.1%	80.3%	10.0%	19.7%	7.7%
	Aged 45-54 (n=174)	38.5%	7.0%	61.5%	7.4%	76.4%	6.7%	23.6%	5.8%
	Aged 55-64 (n=242)	49.2%	6.3%	50.8%	6.3%	80.2%	5.4%	19.8%	4.6%
	Aged 65-74 (n=173)	49.7%	7.4%	50.3%	7.4%	85.0%	5.9%	15.0%	4.7%
	Aged75+ (n=76)	46.1%	10.9%	53.9%	11.2%	81.6%	9.8%	18.4%	7.5%
	Average age (mean, years) (n=744)	61	12	59	12	60	9	58	20
Highest level of formal educational attainment	Did not complete high school (n=195)	44.6%	6.9%	55.4%	7.0%	83.1%	5.7%	16.9%	4.8%
	Has high school or non-university post-school qualification (n=319)	49.2%	5.5%	50.8%	5.5%	79.6%	4.7%	20.4%	4.1%
	Completed tertiary qualification (n=211)	39.8%	6.4%	60.2%	6.7%	80.6%	5.7%	19.4%	4.9%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=170)	41.2%	7.2%	58.8%	7.5%	80.0%	6.5%	20.0%	5.5%
	Earned 26-50% income off-farm (n=103)	38.8%	9.0%	61.2%	9.6%	80.6%	8.4%	19.4%	6.7%
	Earned 51-75% income off-farm (n=56)	55.4%	13.0%	44.6%	12.5%	91.1%	9.5%	8.9%	5.4%

See Table 4 in main report for summary of these data.		Engagement in water market trade in 12 months prior to spring 2015							
		Did not trade allocation (neither bought or sold)	95% CI (minus only shown)[1]	Traded allocation (bought and/or sold)	95% CI (minus only shown)	Did not trade entitlements (neither bought or sold)	95% CI (minus only shown)	Traded entitlements (bought and/or sold)	95% CI (minus only shown)
	Earned 76-100% income off-farm (n=157)	45.9%	7.7%	54.1%	7.8%	77.1%	7.0%	22.9%	6.0%
	All household income earned from farm (n=256)	47.7%	6.1%	52.3%	6.1%	80.9%	5.2%	19.1%	4.5%
	Average proportion of income earned off-farm (mean, %) (n=744)	33.5%	4.0%	32.6%	3.5%	32.7%	2.9%	34.4%	6.3%
Catchment	Campaspe (n=31)	22.6%	11.9%	77.4%	16.7%	80.6%	16.3%	19.4%	10.8%
	Condamine-Balonne (n=47)	76.6%	13.4%	23.4%	10.3%	93.6%	9.7%	6.4%	4.6%
	Goulburn-Broken (n=94)	34.0%	9.0%	66.0%	9.9%	85.1%	8.2%	14.9%	6.1%
	Lachlan (n=38)	42.1%	14.6%	57.9%	15.8%	86.8%	13.3%	13.2%	8.0%
	Loddon (n=37)	70.3%	15.8%	29.7%	12.8%	91.9%	12.0%	8.1%	5.8%
	Murray (n=246)	37.4%	5.9%	62.6%	6.2%	71.5%	5.9%	28.5%	5.4%
	Murrumbidgee (n=89)	37.1%	9.5%	62.9%	10.3%	78.7%	9.3%	21.3%	7.5%
	Wimmera-Avoca (n=47)	40.4%	13.1%	59.6%	14.3%	87.2%	11.7%	12.8%	7.3%

[1]Confidence intervals presented here are presented in the form of '-' rather than ±. This is because for these figures, the confidence interval calculated differed slightly for the '+' and '-'. As the data for each year are binary variables (did engage in water trade/didn't), presenting the '-' confidence interval for each also presents the '+' for the opposite part of the variable. For example: in 2015 (Table A1) 55.0% engaged in some form of allocation trade, and the confidence interval is -3.6% and + 3.5%, with a total confidence interval range of 51.4% to 58.5%. The 45.0% who did not engage in allocation trade have a confidence interval of +3.6% and -3.5%. Thus the table contains both sides of the confidence interval due to presenting both parts of the binary confidence interval proportion.

Table A2 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2015. This expands on the data provided in Table 5 in the main report.

Table A2 – Use of allocation trade and entitlement trade – Basin irrigators, 2016

See Table 5 in main report for summary report of these data.		Engagement in water market trade in 12 months prior to spring 2016											
		Did not trade allocation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitlements (neither bought or sold)	95% CI (minus only)	Traded entitlements (bought and/or sold)	95% CI (minus only)	Did not lease entitle-ments	95% CI (minus only)	Leased entitle-ments	95% CI (minus only)
Basin irrigators	Murray-Darling Basin (n=595)	48.8%	4.1%	51.2%	4.1%	82.7%	3.3%	17.3%	3.3%	88.3%	3.2%	11.7%	3.2%
Basin location	Northern Basin (n=97)	77.3%	9.1%	22.7%	9.1%	86.6%	7.8%	13.4%	7.8%	92.9%	7.0%	7.1%	7.0%
	Southern Basin (n=484)	44.8%	4.4%	55.2%	4.4%	81.6%	3.6%	18.4%	3.6%	87.7%	3.6%	12.3%	3.6%
Basin State	NSW Nth Basin (n=61)	73.8%	12.0%	26.2%	12.0%	82.0%	11.0%	18.0%	11.0%	90.9%	9.7%	9.1%	9.7%
	Qld Basin (n=36)	83.3%	14.5%	16.7%	14.5%	94.4%	11.1%	5.6%	11.1%	96.6%	11.6%	3.4%	11.6%
	NSW Sth Basin (n=146)	43.8%	7.9%	56.2%	7.9%	79.5%	7.1%	20.5%	7.1%	89.6%	6.6%	10.4%	6.6%
	SA Basin (n=57)	56.1%	12.9%	43.9%	12.9%	75.4%	12.2%	24.6%	12.2%	81.3%	12.7%	18.8%	12.7%
	Vic Basin (n=280)	42.9%	5.7%	57.1%	5.7%	83.9%	4.6%	16.1%	4.6%	88.1%	4.8%	11.9%	4.8%
Farm type	Dairy (n=121)	32.2%	7.8%	67.8%	7.8%	77.7%	8.0%	22.3%	8.0%	83.5%	8.3%	16.5%	8.3%
	Grain growing (n=76)	39.5%	10.4%	60.5%	10.4%	73.7%	10.7%	26.3%	10.7%	81.4%	11.3%	18.6%	11.3%
	Grazier (n=143)	66.4%	8.0%	33.6%	8.0%	90.9%	5.5%	9.1%	5.5%	93.9%	5.5%	6.1%	5.5%
	Horticulture (all) (n=78)	51.3%	11.0%	48.7%	11.0%	84.6%	9.2%	15.4%	9.2%	85.1%	9.9%	14.9%	9.9%
	Mixed cropping/grazing (n=76)	51.3%	11.1%	48.7%	11.1%	86.8%	8.9%	13.2%	8.9%	91.1%	9.5%	8.9%	9.5%
Horticulture farm type	Fruit/nut grower (n=69)	49.3%	11.6%	50.7%	11.6%	82.6%	10.2%	17.4%	10.2%	83.9%	10.6%	16.1%	10.6%
	Winegrape grower (n=56)	64.3%	13.0%	35.7%	13.0%	71.4%	12.7%	28.6%	12.7%	92.2%	9.7%	7.8%	9.7%
Megalitres of water	<30ML (n=131)	65.6%	8.4%	34.4%	8.4%	80.9%	7.4%	19.1%	7.4%	90.0%	6.6%	10.0%	6.6%
	30-99ML (n=87)	50.6%	10.4%	49.4%	10.4%	85.1%	8.6%	14.9%	8.6%	93.5%	7.2%	6.5%	7.2%

See Table 5 in main report for summary report of these data.		Engagement in water market trade in 12 months prior to spring 2016											
		Did not trade alloc-ation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitlements (neither bought or sold)	95% CI (minus only)	Traded entitlements (bought and/or sold)	95% CI (minus only)	Did not lease entitle-ments	95% CI (minus only)	Leased entitle-ments	95% CI (minus only)
used in on-farm irrigation in last year	100-299ML (n=102)	50.0%	9.6%	50.0%	9.6%	85.3%	7.8%	14.7%	7.8%	92.6%	7.2%	7.4%	7.2%
	300ML (n=135)	32.6%	7.5%	67.4%	7.5%	82.2%	7.1%	17.8%	7.1%	84.7%	7.6%	15.3%	7.6%
	1000ML+ (n=62)	19.4%	8.3%	80.6%	8.3%	62.9%	12.4%	37.1%	12.4%	76.0%	13.1%	24.0%	13.1%
	ML applied on farm - mean ML (n=582)	241	59	575	100	373	62	624	191	433	114	714	261
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=108)	27.8%	7.8%	72.2%	7.8%	74.1%	8.8%	25.9%	8.8%	81.8%	9.0%	18.2%	9.0%
	Modernised irrigation infrastructure using self-funding (n=200)	41.5%	6.7%	58.5%	6.7%	79.0%	6.0%	21.0%	6.0%	85.8%	5.9%	14.2%	5.9%
	Has not modernised irrigation infrastructure (n=230)	63.5%	6.4%	36.5%	6.4%	88.7%	4.6%	11.3%	4.6%	93.7%	4.1%	6.3%	4.1%
Gross value of agricultural production 2015-16	<$50,000 (n=125)	61.6%	8.7%	38.4%	8.7%	84.0%	7.2%	16.0%	7.2%	96.0%	5.2%	4.0%	5.2%
	$50,000-$99,999 (n=73)	50.7%	11.3%	49.3%	11.3%	86.3%	9.2%	13.7%	9.2%	91.5%	9.1%	8.5%	9.1%
	$100,000-$299,999 (n=94)	56.4%	10.1%	43.6%	10.1%	83.0%	8.5%	17.0%	8.5%	88.8%	8.3%	11.3%	8.3%
	$300,000-$499,999 (n=65)	47.7%	11.8%	52.3%	11.8%	87.7%	9.6%	12.3%	9.6%	94.6%	8.3%	5.4%	8.3%

See Table 5 in main report for summary report of these data.		Engagement in water market trade in 12 months prior to spring 2016											
		Did not trade alloc-ation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitlements (neither bought or sold)	95% CI (minus only)	Traded entitlements (bought and/or sold)	95% CI (minus only)	Did not lease entitle-ments	95% CI (minus only)	Leased entitle-ments	95% CI (minus only)
	$500,000-$999,999 (n=81)	38.3%	10.0%	61.7%	10.0%	77.8%	9.9%	22.2%	9.9%	84.8%	10.1%	15.2%	10.1%
	$1 million + (n=95)	37.9%	9.3%	62.1%	9.3%	76.8%	9.2%	23.2%	9.2%	76.4%	10.7%	23.6%	10.7%
	Average GVAP (mean category) (n=582)	$100,000 - $199,999	$100,000 - $199,999	$200,000-$299,999	$200,000 - $299,999	$100,000-$199,999	$200,000 - $299,999	$200,000-$299,999	$300,000 - $399,999	$100,000 - $199,999	$200,000 - $299,999	$300,000 - $399,999	$400,000 - $499,999
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=80)	48.8%	10.7%	51.3%	10.7%	75.0%	10.3%	25.0%	10.3%	88.7%	8.9%	11.3%	8.9%
	Found it moderately difficult to access affordable farm finance (n=102)	44.1%	9.4%	55.9%	9.4%	83.3%	8.1%	16.7%	8.1%	89.7%	7.7%	10.3%	7.7%
	Did not find it difficult to access farm finance (n=349)	50.1%	5.2%	49.9%	5.2%	85.1%	4.0%	14.9%	4.0%	88.3%	4.1%	11.7%	4.1%
	Average level of difficulty accessing affordable farm finance (n=582)	Low-moderate difficulty		Low-moderate difficulty		Low-moderate difficulty		Moderate difficulty		Low-moderate difficulty		Low-moderate difficulty	
Self-reported farm profitability over last 3 years	Making a loss (n=135)	56.3%	8.4%	43.7%	8.4%	87.4%	6.4%	12.6%	6.4%	94.4%	5.6%	5.6%	5.6%
	Breaking even/small profit (n=268)	46.6%	5.9%	53.4%	5.9%	81.7%	5.0%	18.3%	5.0%	89.6%	4.5%	10.4%	4.5%
	Moderate/large profit (n=145)	51.0%	8.1%	49.0%	8.1%	81.4%	6.9%	18.6%	6.9%	82.1%	7.9%	17.9%	7.9%

See Table 5 in main report for summary report of these data.		Did not trade allocation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitlements (neither bought or sold)	95% CI (minus only)	Traded entitlements (bought and/or sold)	95% CI (minus only)	Did not lease entitlements	95% CI (minus only)	Leased entitlements	95% CI (minus only)
		Engagement in water market trade in 12 months prior to spring 2016											
	Average profitability (category of mean) (n=582)	Breaking even		Making a small profit		Breaking even		Making a small profit		Breaking even		Making a small profit	
Gender	Female (n=122)	53.3%	8.8%	46.7%	8.8%	78.7%	7.9%	21.3%	7.9%	88.7%	7.4%	11.3%	7.4%
	Male (n=448)	50.0%	4.6%	50.0%	4.6%	83.0%	3.7%	17.0%	3.7%	89.4%	3.5%	10.6%	3.5%
Age	Aged <45 (n=53)	39.6%	12.3%	60.4%	12.3%	77.4%	12.5%	22.6%	12.5%	83.7%	13.0%	16.3%	13.0%
	Aged 45-54 (n=99)	54.5%	9.8%	45.5%	9.8%	81.8%	8.5%	18.2%	8.5%	80.9%	9.1%	19.1%	9.1%
	Aged 55-64 (n=188)	47.3%	7.1%	52.7%	7.1%	80.9%	6.1%	19.1%	6.1%	93.3%	4.8%	6.7%	4.8%
	Aged 65-74 (n=151)	53.0%	8.0%	47.0%	8.0%	84.1%	6.5%	15.9%	6.5%	90.8%	6.1%	9.2%	6.1%
	Aged75+ (n=74)	56.8%	11.4%	43.2%	11.4%	85.1%	9.4%	14.9%	9.4%	90.0%	10.5%	10.0%	10.5%
	Average age (mean, 5-year category) (n=582)	60-64	55-69	55-59	50-64	60-64	55-69	60-64	55-69	60-64	55-69	55-59	45-69
Highest level of formal educational attainment	Did not complete high school (n=183)	49.7%	7.2%	50.3%	7.2%	84.2%	5.8%	15.8%	5.8%	91.0%	5.7%	9.0%	5.7%
	Has high school or non-university post-school qualification (n=261)	49.0%	6.0%	51.0%	6.0%	79.3%	5.2%	20.7%	5.2%	86.6%	5.1%	13.4%	5.1%
	Completed tertiary qualification (n=131)	54.2%	8.5%	45.8%	8.5%	85.5%	6.8%	14.5%	6.8%	91.5%	6.0%	8.5%	6.0%
Proportion of household	Earned 1-25% income off-farm (n=142)	47.2%	8.1%	52.8%	8.1%	78.2%	7.3%	21.8%	7.3%	89.4%	6.3%	10.6%	6.3%

See Table 5 in main report for summary report of these data.		Engagement in water market trade in 12 months prior to spring 2016											
		Did not trade alloc-ation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitlements (neither bought or sold)	95% CI (minus only)	Traded entitlements (bought and/or sold)	95% CI (minus only)	Did not lease entitle-ments	95% CI (minus only)	Leased entitle-ments	95% CI (minus only)
income earned off-farm and on-farm	Earned 26-50% income off-farm (n=71)	42.3%	11.0%	57.7%	11.0%	80.3%	10.4%	19.7%	10.4%	94.6%	8.3%	5.4%	8.3%
	Earned 51-75% income off-farm (n=36)	58.3%	16.2%	41.7%	16.2%	94.4%	11.1%	5.6%	11.1%	83.9%	15.7%	16.1%	15.7%
	Earned 76-100% income off-farm (n=102)	59.8%	9.7%	40.2%	9.7%	84.3%	8.0%	15.7%	8.0%	94.0%	6.6%	6.0%	6.6%
	All household income earned from farm (n=228)	49.6%	6.5%	50.4%	6.5%	82.9%	5.3%	17.1%	5.3%	84.5%	6.0%	15.5%	6.0%
	Average proportion of income earned off-farm (mean, %) (n=582)	31.1%	4.2%	25.2%	3.8%	28.9%	3.2%	24.7%	6.7%	30.2%	3.4%	20.9%	8.8%
Catchment	Campaspe (n=35)	31.4%	13.4%	68.6%	13.4%	85.7%	14.2%	14.3%	14.2%	80.8%	17.9%	19.2%	17.9%
	Goulburn-Broken (n=74)	32.4%	9.8%	67.6%	9.8%	82.4%	9.8%	17.6%	9.8%	89.3%	10.0%	10.7%	10.0%
	Loddon (n=35)	51.4%	16.1%	48.6%	16.1%	82.9%	14.8%	17.1%	14.8%	88.0%	16.7%	12.0%	16.7%
	Macquarie-Castlereagh (n=31)	67.7%	17.5%	32.3%	17.5%	87.1%	14.9%	12.9%	14.9%	84.6%	17.2%	15.4%	17.2%
	Murray (n=182)	42.3%	7.0%	57.7%	7.0%	81.3%	6.1%	18.7%	6.1%	85.0%	6.6%	15.0%	6.6%
	Murrumbidgee (n=73)	34.2%	10.1%	65.8%	10.1%	76.7%	10.6%	23.3%	10.6%	87.9%	10.2%	12.1%	10.2%

[1]Confidence intervals presented here are presented in the form of '-' rather than ±. This is because for these figures, the confidence interval calculated differed slightly for the '+' and '-'. As the data for each year are binary variables (did engage in water trade/didn't), presenting the '-' confidence interval for each also presents the '+' for the opposite part of the variable. For example: in 2015 (Table A1) 55.0% engaged in some form of allocation trade, and the confidence interval is -3.6% and + 3.5%, with a total confidence interval range of 51.4% to 58.5%. The 45.0% who did not engage in allocation trade have a confidence interval of +3.6% and -3.5%. Thus the table contains both sides of the confidence interval due to presenting both parts of the binary confidence interval proportion

Table A3 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2015. This expands on the data provided in Table 6 in the main report.

Table A3 – Use of allocation trade and entitlement trade – Basin irrigators, 2018

See Table 6 in main report for summary of these data.		Engagement in water market trade in 12 months prior to spring 2018											
		Did not trade allocation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitle-ments (neither bought or sold)	95% CI (minus only)	Traded entitle-ments (bought and/or sold)	95% CI (minus only)	Did not lease entitle-ments	95% CI (minus only)	Leased entitle-ments	95% CI (minus only)
Basin irrigators	Murray-Darling Basin (n=362)	51.1%	5.9%	48.9%	5.9%	87.3%	3.7%	12.7%	6.9%	93.4%	3.1%	6.6%	3.1%
Basin location	Northern Basin (n=63)	79.5%	13.6%	20.5%	13.6%	85.7%	10.2%	14.3%	17.1%	87.5%	12.7%	12.5%	12.7%
	Southern Basin (n=299)	45.7%	6.3%	54.3%	6.3%	87.6%	4.1%	12.4%	7.5%	94.3%	3.2%	5.7%	3.2%
Basin State	NSW Nth Basin (n=42)	73.5%	16.3%	26.5%	16.3%	83.3%	13.3%	16.7%	22.2%	88.0%	16.7%	12.0%	16.7%
	Qld Basin (n=21)	100.0%	100.0%	0.0%	0.0%	90.5%	17.7%	9.5%	25.2%	86.7%	23.0%	13.3%	23.0%
	NSW Sth Basin (n=87)	39.2%	10.5%	60.8%	10.5%	83.9%	8.8%	16.1%	15.3%	97.6%	5.0%	2.4%	5.0%
	SA Basin (n=33)	59.1%	20.6%	40.9%	20.6%	81.8%	15.5%	18.2%	25.7%	88.9%	15.7%	11.1%	15.7%
	Vic Basin (n=178)	46.7%	8.2%	53.3%	8.2%	90.4%	5.0%	9.6%	8.6%	93.4%	4.5%	6.6%	4.5%
Farm type	Dairy (n=52)	33.3%	13.2%	66.7%	13.2%	94.2%	8.8%	5.8%	12.9%	86.5%	11.2%	13.5%	11.2%
	Grain growing (n=36)	41.9%	16.0%	58.1%	16.0%	83.3%	14.5%	16.7%	23.9%	92.1%	11.7%	7.9%	11.7%
	Grazier (n=118)	56.4%	10.1%	43.6%	10.1%	90.7%	6.2%	9.3%	10.5%	95.5%	5.9%	4.5%	5.9%
	Horticulture (all) (n=83)	61.8%	13.2%	38.2%	13.2%	78.3%	9.7%	21.7%	17.5%	96.2%	6.0%	3.8%	6.0%
	Mixed cropping/grazing (n=61)	38.8%	12.7%	61.2%	12.7%	88.5%	9.7%	11.5%	15.9%	92.9%	8.9%	7.1%	8.9%
Horticulture farm type	Fruit/nut grower (n=30)	75.0%	24.1%	25.0%	24.1%	80.0%	16.7%	20.0%	27.9%	92.9%	13.9%	7.1%	13.9%
	Winegrape grower (n=31)	66.7%	21.3%	33.3%	21.3%	80.6%	16.3%	19.4%	27.1%	96.7%	11.2%	3.3%	11.2%
Megalitres of water used	<30ML (n=90)	72.7%	11.6%	27.3%	11.6%	91.1%	7.2%	8.9%	11.8%	97.3%	5.7%	2.7%	5.7%
	30-99ML (n=45)	54.5%	16.8%	45.5%	16.8%	84.4%	12.6%	15.6%	20.9%	96.4%	7.4%	3.6%	7.4%

See Table 6 in main report for summary of these data.		Engagement in water market trade in 12 months prior to spring 2018											
		Did not trade allocation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitle-ments (neither bought or sold)	95% CI (minus only)	Traded entitle-ments (bought and/or sold)	95% CI (minus only)	Did not lease entitle-ments	95% CI (minus only)	Leased entitle-ments	95% CI (minus only)
in on-farm irrigation in last year	100-299ML (n=63)	34.8%	12.5%	65.2%	12.5%	81.0%	11.0%	19.0%	19.1%	92.8%	7.9%	7.2%	7.9%
	300ML (n=71)	21.2%	9.4%	78.8%	9.4%	83.1%	9.9%	16.9%	17.3%	90.9%	7.9%	9.1%	7.9%
	1000ML+ (n=38)	25.7%	12.2%	74.3%	12.2%	81.6%	14.4%	18.4%	24.2%	88.6%	11.8%	11.4%	11.8%
	ML applied on farm - mean ML (n=362)	1039	1537	749	269	728	604	938	1778	584	254	2383	2246
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=41)	32.4%	13.8%	67.6%	13.8%	87.8%	12.5%	12.2%	19.9%	89.8%	10.7%	10.2%	10.7%
	Modernised irrigation infrastructure using self-funding (n=199)	41.3%	7.7%	58.7%	7.7%	81.4%	5.8%	18.6%	10.8%	93.0%	4.2%	7.0%	4.2%
	Has not modernised irrigation infrastructure (n=104)	72.5%	10.5%	27.5%	10.5%	97.1%	4.6%	2.9%	6.7%	100.0%	100.0%	0.0%	0.0%
Gross value of agricultural production 2015-16	<$50,000 (n=58)	67.4%	14.8%	32.6%	14.8%	93.1%	8.7%	6.9%	13.2%	97.5%	8.6%	2.5%	8.6%
	$50,000-$99,999 (n=51)	54.1%	15.9%	45.9%	15.9%	90.2%	10.4%	9.8%	16.3%	95.7%	8.7%	4.3%	8.7%
	$100,000-$299,999 (n=85)	51.5%	11.7%	48.5%	11.7%	87.1%	8.3%	12.9%	14.2%	98.5%	5.3%	1.5%	5.3%
	$300,000-$499,999 (n=32)	42.9%	16.9%	57.1%	16.9%	84.4%	15.3%	15.6%	24.7%	93.8%	12.3%	6.3%	12.3%
	$500,000-$999,999 (n=45)	51.5%	16.6%	48.5%	16.6%	91.1%	10.9%	8.9%	16.7%	88.1%	12.2%	11.9%	12.2%
	$1 million + (n=51)	24.4%	11.1%	75.6%	11.1%	72.5%	13.2%	27.5%	24.0%	81.5%	11.8%	18.5%	11.8%

See Table 6 in main report for summary of these data.		Did not trade allocation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitlements (neither bought or sold)	95% CI (minus only)	Traded entitlements (bought and/or sold)	95% CI (minus only)	Did not lease entitlements	95% CI (minus only)	Leased entitlements	95% CI (minus only)
		Engagement in water market trade in 12 months prior to spring 2018
	Average GVAP (mean category) (n=362)	$50,000-$99,999	$100,000-$199,999	$200,000-$299,999	$200,000-$299,999	$100,000-$199,999	$100,000-$199,999	$200,000-$299,999	$300,000-$399,999	$100,000-$199,999	$100,000-$199,999	$400,000-$499,999	$500,000-$749,999
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=34)	32.3%	14.3%	67.7%	14.3%	79.4%	15.6%	20.6%	26.5%	94.1%	11.7%	5.9%	11.7%
	Found it moderately difficult to access affordable farm finance (n=34)	34.5%	15.2%	65.5%	15.2%	82.4%	15.2%	17.6%	25.1%	84.8%	14.9%	15.2%	14.9%
	Did not find it difficult to access farm finance (n=277)	55.3%	6.8%	44.7%	6.8%	88.8%	4.1%	11.2%	7.4%	95.3%	3.3%	4.7%	3.3%
	Average level of difficulty accessing affordable farm finance (n=362)	Low difficulty		Low difficulty		Low difficulty		Low difficulty	Moderate difficulty	Low difficulty		Low-moderate difficulty	
Self-reported farm profitability over last 3 years	Making a loss (n=85)	54.4%	11.8%	45.6%	11.8%	90.6%	7.6%	9.4%	12.4%	89.4%	7.8%	10.6%	7.8%
	Breaking even/small profit (n=187)	45.1%	8.0%	54.9%	8.0%	88.2%	5.2%	11.8%	9.2%	96.2%	3.8%	3.8%	3.8%
	Moderate/large profit (n=78)	58.3%	12.6%	41.7%	12.6%	80.8%	9.8%	19.2%	17.3%	90.8%	8.8%	9.2%	8.8%
	Average profitability (category of mean) (n=362)	Breaking even	Small profit	Breaking even	Small profit	Breaking even	Small profit	Small profit	Moderate profit	Breaking even	Small profit	Breaking even	Small profit
Gender	Female (n=82)	47.0%	11.7%	53.0%	11.7%	82.9%	9.2%	17.1%	16.1%	93.8%	6.8%	6.2%	6.8%
	Male (n=276)	52.6%	6.8%	47.4%	6.8%	88.8%	4.1%	11.2%	7.4%	93.1%	3.8%	6.9%	3.8%

See Table 6 in main report for summary of these data.		Engagement in water market trade in 12 months prior to spring 2018											
		Did not trade allocation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitlements (neither bought or sold)	95% CI (minus only)	Traded entitlements (bought and/or sold)	95% CI (minus only)	Did not lease entitlements	95% CI (minus only)	Leased entitlements	95% CI (minus only)
Age	Aged <45 (n=18)	37.5%	20.1%	62.5%	20.1%	72.2%	22.8%	27.8%	39.1%	81.8%	19.5%	18.2%	19.5%
	Aged 45-54 (n=53)	36.4%	13.0%	63.6%	13.0%	88.7%	10.5%	11.3%	17.0%	94.2%	8.8%	5.8%	8.8%
	Aged 55-64 (n=118)	51.6%	10.0%	48.4%	10.0%	87.3%	6.9%	12.7%	12.0%	94.0%	5.9%	6.0%	5.9%
	Aged 65-74 (n=123)	55.3%	10.6%	44.7%	10.6%	87.8%	6.6%	12.2%	11.5%	95.0%	5.6%	5.0%	5.6%
	Aged75+ (n=42)	67.7%	17.5%	32.3%	17.5%	88.1%	12.2%	11.9%	19.5%	95.0%	10.1%	5.0%	10.1%
	Average age (mean, years) (n=362)	64	2	60	2	63	1	61	7	62	1	57	6
Highest level of formal educational attainment	Did not complete high school (n=96)	54.7%	11.3%	45.3%	11.3%	89.6%	7.3%	10.4%	12.2%	93.3%	6.6%	6.7%	6.6%
	Has high school or non-university post-school qualification (n=160)	50.0%	8.9%	50.0%	8.9%	86.9%	5.9%	13.1%	10.4%	92.4%	5.4%	7.6%	5.4%
	Completed tertiary qualification (n=102)	48.8%	10.6%	51.2%	10.6%	86.3%	7.7%	13.7%	13.3%	94.6%	6.0%	5.4%	6.0%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=91)	47.0%	11.7%	53.0%	11.7%	81.3%	8.9%	18.7%	15.9%	93.7%	7.0%	6.3%	7.0%
	Earned 26-50% income off-farm (n=47)	40.5%	13.8%	59.5%	13.8%	87.2%	11.7%	12.8%	18.9%	92.7%	10.9%	7.3%	10.9%
	Earned 51-75% income off-farm (n=30)	47.8%	19.1%	52.2%	19.1%	83.3%	16.1%	16.7%	26.1%	90.6%	13.6%	9.4%	13.6%
	Earned 76-100% income off-farm (n=81)	73.3%	12.1%	26.7%	12.1%	96.3%	5.9%	3.7%	8.5%	96.6%	7.0%	3.4%	7.0%

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See Table 6 in main report for summary of these data.	Engagement in water market trade in 12 months prior to spring 2018											
	Did not trade allocation (neither bought or sold)	95% CI (minus only)[1]	Traded allocation (bought and/or sold)	95% CI (minus only)	Did not trade entitle-ments (neither bought or sold)	95% CI (minus only)	Traded entitle-ments (bought and/or sold)	95% CI (minus only)	Did not lease entitle-ments	95% CI (minus only)	Leased entitle-ments	95% CI (minus only)
All household income earned from farm (n=112)	44.8%	10.1%	55.2%	10.1%	86.6%	7.2%	13.4%	12.6%	92.5%	6.1%	7.5%	6.1%
Average proportion of income earned off-farm (mean, %) (n=362)	41.0%	6.6%	27.3%	5.5%	35.9%	4.2%	23.9%	17.5%	32.1%	4.2%	27.0%	15.6%

[1]Confidence intervals presented here are presented in the form of '-' rather than ±. This is because for these figures, the confidence interval calculated differed slightly for the '+' and '-'. As the data for each year are binary variables (did engage in water trade/didn't), presenting the '-' confidence interval for each also presents the '+' for the opposite part of the variable. For example: in 2015 (Table A1) 55.0% engaged in some form of allocation trade, and the confidence interval is -3.6% and + 3.5%, with a total confidence interval range of 51.4% to 58.5%. The 45.0% who did not engage in allocation trade have a confidence interval of +3.6% and -3.5%. Thus the table contains both sides of the confidence interval due to presenting both parts of the binary confidence interval proportion

Table A4 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2015. This expands on the data provided in Tables 8, 9, 10 and 11 in the main report.

Table A4 Engagement in trading allocation and entitlements - Basin irrigators, 2015

Tables 8, 9, 10 and 11 in the main report contain summarised information from this table.		Engagement in water market trade in 12 months prior to spring 2015							
		Traded both allocation and entitlements (Basin sample=101)	CI	Traded allocation (but not entitlements) (Basin sample=308)	CI	Traded entitlements (but not allocation) (Basin sample=43)	CI	No trading (Basin sample=292)	CI
Basin irrigators	Murray-Darling Basin (n=745)	13.6%	2.3%	41.3%	3.5%	5.8%	1.5%	39.3%	3.5%
Basin location	Northern Basin (n=112)	9.8%	4.5%	24.1%	7.2%	3.6%	2.4%	62.5%	9.2%
	Southern Basin (n=633)	14.3%	2.6%	44.4%	3.8%	6.2%	1.7%	35.1%	3.7%
Basin State	NSW Nth Basin (n=51)	9.8%	6.0%	33.3%	11.7%	7.8%	5.1%	49.0%	13.3%
	Qld Basin (n=61)	9.8%	5.6%	16.4%	7.6%	0.0%	0.0%	73.8%	12.0%
	NSW Sth Basin (n=230)	16.7%	4.4%	46.9%	6.4%	4.8%	2.2%	31.6%	5.8%
	SA Basin (n=93)	21.5%	7.4%	31.2%	8.7%	14.0%	5.9%	33.3%	9.0%
	Vic Basin (n=310)	10.4%	3.0%	46.4%	5.5%	4.9%	2.0%	38.3%	5.3%
Farm type	Dairy (n=93)	16.3%	6.5%	55.4%	10.2%	2.2%	1.7%	26.1%	8.1%
	Grain growing (n=132)	20.6%	6.2%	41.2%	8.2%	3.8%	2.3%	34.4%	7.7%
	Grazier (n=146)	6.8%	3.3%	36.3%	7.5%	4.1%	2.4%	52.7%	8.1%
	Horticulture (all) (n=203)	14.8%	4.4%	33.0%	6.2%	8.9%	3.3%	43.3%	6.7%
	Mixed cropping/grazing (n=74)	9.5%	5.1%	41.9%	10.8%	9.5%	5.1%	39.2%	10.5%
Horticulture farm type	Fruit/nut grower (n=90)	14.4%	6.1%	33.3%	9.1%	12.2%	5.6%	40.0%	9.7%
	Winegrape grower (n=97)	14.4%	5.9%	36.1%	9.0%	6.2%	3.6%	43.3%	9.5%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=232)	7.4%	2.9%	28.3%	5.5%	7.0%	2.8%	57.4%	6.5%
	30-99ML (n=103)	11.7%	5.1%	41.7%	9.2%	2.9%	2.1%	43.7%	9.3%
	100-299ML (n=136)	12.6%	4.8%	44.4%	8.2%	5.9%	3.1%	37.0%	7.8%
	300-999ML (n=153)	11.8%	4.4%	56.2%	7.9%	5.2%	2.7%	26.8%	6.5%
	1000ML+ (n=121)	30.8%	7.7%	43.3%	8.6%	6.7%	3.5%	19.2%	6.3%
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=148)	28.6%	6.8%	40.8%	7.7%	8.2%	3.6%	22.4%	6.2%
	Modernised irrigation infrastructure using self-funding (n=241)	11.2%	3.5%	42.3%	6.1%	5.8%	2.4%	40.7%	6.1%
	Has not modernised irrigation infrastructure (n=262)	8.8%	3.0%	41.5%	5.9%	4.2%	2.0%	45.4%	6.0%
Gross value of agricultural production 2015-16	<$50,000 (n=164)	9.8%	3.8%	34.1%	6.9%	8.5%	3.6%	47.6%	7.5%
	$50,000-$99,999 (n=72)	14.1%	6.6%	42.3%	11.0%	2.8%	2.2%	40.8%	10.9%
	$100,000-$299,999 (n=144)	8.3%	3.7%	46.5%	8.0%	4.9%	2.7%	40.3%	7.8%

Tables 8, 9, 10 and 11 in the main report contain summarised information from this table.		Engagement in water market trade in 12 months prior to spring 2015							
		Traded both allocation and entitlements (Basin sample=101)	CI	Traded allocation (but not entitlements) (Basin sample=308)	CI	Traded entitlements (but not allocation) (Basin sample=43)	CI	No trading (Basin sample=292)	CI
	$300,000-$499,999 (n=86)	12.8%	5.8%	38.4%	9.8%	4.7%	3.1%	44.2%	10.2%
	$500,000-$999,999 (n=121)	14.9%	5.5%	43.8%	8.6%	5.8%	3.2%	35.5%	8.1%
	$1 million + (n=122)	25.6%	7.1%	42.1%	8.5%	6.6%	3.4%	25.6%	7.1%
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=87)	12.8%	5.8%	51.2%	10.5%	10.5%	5.2%	25.6%	8.3%
	Found it moderately difficult to access affordable farm finance (n=91)	12.1%	5.5%	39.6%	9.6%	5.5%	3.4%	42.9%	9.8%
	Did not find it difficult to access farm finance (n=347)	13.5%	3.3%	40.3%	5.1%	4.3%	1.8%	41.8%	5.1%
Self-reported farm profitability over last 3 years	Making a loss (n=194)	16.6%	4.7%	40.4%	6.7%	6.2%	2.8%	36.8%	6.6%
	Breaking even/small profit (n=351)	10.6%	2.9%	41.7%	5.1%	5.4%	2.0%	42.3%	5.1%
	Moderate/large profit (n=180)	17.3%	5.0%	38.5%	6.9%	6.7%	3.0%	37.4%	6.8%
Gender	Female (n=226)	15.1%	4.2%	40.0%	6.2%	5.3%	2.4%	39.6%	6.2%
	Male (n=517)	13.0%	2.7%	41.8%	4.2%	6.0%	1.8%	39.1%	4.1%
Age	Aged <45 (n=76)	18.4%	7.5%	46.1%	10.9%	1.3%	1.2%	34.2%	9.9%
	Aged 45-54 (n=176)	16.7%	5.0%	44.8%	7.3%	6.9%	3.1%	31.6%	6.6%
	Aged 55-64 (n=240)	11.7%	3.6%	39.2%	6.0%	8.3%	3.0%	40.8%	6.1%
	Aged 65-74 (n=174)	11.0%	4.0%	39.3%	7.1%	4.0%	2.2%	45.7%	7.3%
	Aged 75+ (n=76)	14.7%	6.6%	38.7%	10.4%	4.0%	2.9%	42.7%	10.7%
Highest level of formal educational attainment	Did not complete high school (n=196)	10.4%	3.7%	44.6%	6.9%	6.7%	2.9%	38.3%	6.6%
	Has high school or non-university post-school qualification (n=319)	14.8%	3.6%	36.2%	5.1%	5.7%	2.1%	43.4%	5.4%
	Completed tertiary qualification (n=211)	14.7%	4.3%	45.5%	6.6%	4.7%	2.3%	35.1%	6.2%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=170)	14.1%	4.6%	44.7%	7.3%	5.9%	2.8%	35.3%	6.9%
	Earned 26-50% income off-farm (n=104)	13.6%	5.6%	47.6%	9.5%	5.8%	3.4%	33.0%	8.5%
	Earned 51-75% income off-farm (n=55)	7.3%	4.8%	36.4%	11.8%	1.8%	1.6%	54.5%	13.1%
	Earned 76-100% income off-farm (n=157)	14.0%	4.8%	40.1%	7.4%	8.9%	3.7%	36.9%	7.3%
	All household income earned from farm (n=257)	14.6%	3.9%	37.8%	5.8%	4.7%	2.1%	42.9%	6.0%
Catchment	Campaspe (n=32)	12.9%	8.4%	61.3%	17.5%	6.5%	5.1%	19.4%	10.8%

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Tables 8, 9, 10 and 11 in the main report contain summarised information from this table.		Engagement in water market trade in 12 months prior to spring 2015							
		Traded both allocation and entitlements (Basin sample=101)	CI	Traded allocation (but not entitlements) (Basin sample=308)	CI	Traded entitlements (but not allocation) (Basin sample=43)	CI	No trading (Basin sample=292)	CI
	Condamine–Balonne (n=43)	4.7%	3.7%	16.3%	8.7%	0.0%	0.0%[!]	79.1%	13.8%
	Goulburn (n=72)	13.9%	6.5%	56.9%	11.5%	1.4%	1.2%	27.8%	9.3%
	Murrumbidgee (n=101)	18.8%	6.7%	43.6%	9.4%	4.0%	2.6%	33.7%	8.7%
	Namoi (n=20)	10.0%	7.9%	25.0%	14.8%	20.0%	12.8%	45.0%	19.9%
	New South Wales Murray (n=84)	19.5%	7.4%	47.6%	10.6%	6.1%	3.7%	26.8%	8.7%
	South Australian Non-Prescribed Areas (n=65)	21.5%	8.6%	36.9%	11.0%	12.3%	6.3%	29.2%	10.0%
	Victorian Murray (n=91)	13.2%	5.8%	57.1%	10.3%	7.7%	4.2%	22.0%	7.5%

Table A5 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2016. This expands on the data provided in Tables 8, 9, 10 and 11 in the main report.

Table A5 Types of trading engagement - Basin irrigators, 2016

Tables 8, 9, 10 and 11 in the main report contain summarised information from this table.		Engagement in water market trade in 12 months prior to spring 2016							
		Traded both allocation and entitlements (Basin n = 72)	CI	Traded allocation (but not entitlements) (Basin n = 208)	CI	Traded entitlements (but not allocation) (Basin n = 28)	CI	No trading (Basin n = 210)	CI
Basin irrigators	Murray-Darling Basin (n=518)	13.9%	2.8%	40.2%	4.2%	5.4%	1.7%	40.4%	4.2%
Basin location	Northern Basin (n=72)	9.7%	5.3%	19.4%	7.8%	8.3%	4.8%	62.5%	11.5%
	Southern Basin (n=446)	14.6%	3.0%	43.6%	4.6%	4.9%	1.7%	36.9%	4.4%
Basin State	NSW Nth Basin (n=48)	14.6%	7.8%	16.7%	8.5%	8.3%	5.5%	60.4%	14.1%
	Qld Basin (n=24)	0.0%	0.0%	25.0%	13.8%	8.3%	6.6%	66.7%	19.9%
	NSW Sth Basin (n=129)	14.0%	5.2%	46.5%	8.5%	7.8%	3.7%	31.8%	7.6%
	SA Basin (n=51)	18.0%	8.7%	28.0%	11.0%	10.0%	6.1%	44.0%	13.1%
	Vic Basin (n=265)	14.3%	3.8%	45.3%	5.9%	2.6%	1.5%	37.7%	5.7%
Farm type	Dairy (n=119)	18.5%	6.2%	50.4%	8.9%	4.2%	2.6%	26.9%	7.3%
	Grain growing (n=72)	18.1%	7.5%	45.8%	11.2%	8.3%	4.8%	27.8%	9.3%
	Grazier (n=107)	6.5%	3.6%	35.5%	8.6%	5.6%	3.2%	52.3%	9.4%
	Horticulture (all) (n=77)	14.3%	6.5%	35.1%	10.0%	1.3%	1.2%	49.4%	11.0%
	Mixed cropping/grazing (n=64)	12.5%	6.4%	42.2%	11.5%	3.1%	2.5%	42.2%	11.5%
	Fruit/nut grower (n=68)	16.2%	7.3%	35.3%	10.6%	1.5%	1.3%	47.1%	11.5%

Tables 8, 9, 10 and 11 in the main report contain summarised information from this table.		Engagement in water market trade in 12 months prior to spring 2016							
		Traded both allocation and entitlements (Basin n = 72)	CI	Traded allocation (but not entitlements) (Basin n = 208)	CI	Traded entitlements (but not allocation) (Basin n = 28)	CI	No trading (Basin n = 210)	CI
Horticulture farm type	Winegrape grower (n=55)	18.5%	8.6%	18.5%	8.6%	11.1%	6.3%	51.9%	13.1%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=131)	10.7%	4.4%	23.7%	6.7%	8.4%	3.9%	57.3%	8.6%
	30-99ML (n=88)	10.3%	5.1%	39.1%	9.8%	4.9%	3.0%	46.0%	10.2%
	100-299ML (n=102)	9.8%	9.9%	40.2%	9.1%	9.7%	5.5%	45.1%	9.4%
	300ML (n=135)	16.3%	5.1%	51.1%	8.4%	4.6%	3.0%	31.1%	7.3%
	1000ML+ (n=62)	27.4%	5.5%	53.2%	12.3%	1.5%	1.2%	9.7%	5.5%
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=106)	23.6%	7.3%	49.1%	9.4%	1.9%	1.5%	25.5%	7.6%
	Modernised irrigation infrastructure using self-funding (n=196)	16.3%	4.7%	42.9%	6.8%	5.1%	2.4%	35.7%	6.5%
	Has not modernised irrigation infrastructure (n=191)	7.4%	3.1%	33.7%	6.4%	5.8%	2.7%	53.2%	7.1%
Gross value of agricultural production 2015-16	<$50,000 (n=105)	10.5%	4.8%	33.3%	8.5%	8.6%	4.2%	47.6%	9.4%
	$50,000-$99,999 (n=63)	12.7%	6.5%	41.3%	11.5%	3.2%	2.5%	42.9%	11.7%
	$100,000-$299,999 (n=83)	11.0%	5.4%	39.0%	10.0%	7.3%	4.2%	42.7%	10.3%
	$300,000-$499,999 (n=62)	11.3%	6.1%	43.5%	11.8%	1.6%	1.4%	43.5%	11.8%
	$500,000-$999,999 (n=75)	18.7%	7.5%	46.7%	11.0%	4.0%	2.9%	30.7%	9.6%
	$1 million + (n=89)	20.2%	7.3%	43.8%	10.0%	4.5%	3.0%	31.5%	8.9%
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=74)	21.6%	8.2%	33.8%	10.0%	4.1%	2.9%	40.5%	10.6%
	Found it moderately difficult to access affordable farm finance (n=95)	13.7%	5.8%	46.3%	9.8%	4.2%	2.8%	35.8%	9.1%
	Did not find it difficult to access farm finance (n=313)	11.9%	3.2%	42.3%	5.4%	4.8%	2.0%	41.0%	5.4%
Self-reported farm profitability over last 3 years	Making a loss (n=120)	6.7%	3.5%	40.8%	8.5%	7.5%	3.7%	45.0%	8.7%
	Breaking even/small profit (n=243)	15.7%	4.2%	42.6%	6.1%	3.7%	1.9%	38.0%	5.9%
	Moderate/large profit (n=126)	16.7%	5.7%	37.3%	8.1%	4.8%	2.8%	41.3%	8.3%
Gender	Female (n=114)	14.0%	5.4%	36.0%	8.4%	8.8%	4.2%	41.2%	8.7%
	Male (n=394)	14.2%	3.2%	40.7%	4.8%	4.6%	1.7%	40.5%	4.8%
Age	Aged <45 (n=51)	17.6%	8.5%	45.1%	13.1%	5.9%	4.2%	31.4%	11.4%
	Aged 45-54 (n=93)	14.0%	5.9%	34.4%	9.1%	5.4%	3.3%	46.2%	9.9%
	Aged 55-64 (n=172)	15.7%	4.8%	40.1%	7.1%	4.7%	2.4%	39.5%	7.1%
	Aged 65-74 (n=133)	10.6%	4.4%	40.9%	8.1%	6.8%	3.4%	41.7%	8.2%
	Aged75+ (n=56)	14.3%	7.3%	39.3%	12.0%	5.4%	3.8%	41.1%	12.2%

Tables 8, 9, 10 and 11 in the main report contain summarised information from this table.		Engagement in water market trade in 12 months prior to spring 2016							
		Traded both allocation and entitlements (Basin n = 72)	CI	Traded allocation (but not entitlements) (Basin n = 208)	CI	Traded entitlements (but not allocation) (Basin n = 28)	CI	No trading (Basin n = 210)	CI
Highest level of formal educational attainment	Did not complete high school (n=154)	12.4%	4.5%	45.1%	7.7%	5.2%	2.7%	37.3%	7.4%
	Has high school or non-university post-school qualification (n=235)	17.4%	4.4%	38.3%	6.0%	5.5%	2.4%	38.7%	6.1%
	Completed tertiary qualification (n=124)	9.7%	4.3%	37.1%	8.1%	5.6%	3.1%	47.6%	8.6%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=130)	15.4%	5.4%	40.8%	8.2%	7.7%	3.7%	36.2%	7.9%
	Earned 26-50% income off-farm (n=66)	16.7%	7.5%	43.9%	11.5%	4.5%	3.2%	34.8%	10.7%
	Earned 51-75% income off-farm (n=32)	6.3%	4.9%	34.4%	14.5%			59.4%	17.2%
	Earned 76-100% income off-farm (n=88)	8.0%	4.3%	37.5%	9.6%	10.2%	5.0%	44.3%	10.1%
	All household income earned from farm (n=199)	16.2%	4.6%	40.4%	6.7%	3.0%	1.8%	40.4%	6.7%
Catchment	Campaspe (n=35)	11.4%	7.4%	57.1%	16.4%	2.9%	2.5%	28.6%	12.8%
	Loddon (n=32)	10.0%	8.9%	60.0%	29.6%	10.0%	8.9%	20.0%	15.6%
	Macquarie–Castlereagh (n=25)	12.0%	8.5%	24.0%	13.3%	4.0%	3.6%	60.0%	19.4%
	Murrumbidgee (n=60)	23.3%	9.3%	43.3%	12.0%	3.3%	2.6%	30.0%	10.5%
	Namoi (n=17)	17.6%	12.4%	5.9%	5.2%	11.8%	9.2%	64.7%	23.6%
	New South Wales Murray (n=49)	6.1%	4.4%	53.1%	13.8%	10.2%	6.2%	30.6%	11.5%
	South Australian Non-Prescribed Areas (n=33)	15.2%	9.1%	33.3%	14.2%	12.1%	7.9%	39.4%	15.2%
	Victorian Murray (n=96)	15.6%	6.2%	46.9%	9.8%	3.1%	2.2%	34.4%	8.9%

Table A6 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2018. This expands on the data provided in Tables 8, 9, 10 and 11 in the main report.

Table A6 Types of trading engagement - Basin irrigators, 2018

Tables 8, 9, 10 and 11 in the main report contain summarised information from this table.		Engagement in water market trade in 12 months prior to spring 2018							
		Traded both allocation and entitlements	CI	Traded allocation (but not entitlements)	CI	Traded entitlements (but not allocation)	CI	No trading	CI
Basin irrigators	Murray-Darling Basin (n=317)	7.3%	2.5%	33.8%	5.0%	7.3%	2.5%	51.7%	5.5%
Basin location	Northern Basin (n=45)	6.7%	4.8%	11.1%	6.7%	13.3%	7.6%	68.9%	14.4%
	Southern Basin (n=272)	7.4%	2.7%	37.5%	5.6%	6.3%	2.4%	48.9%	5.9%
Basin State	NSW Nth Basin (n=30)	10.0%	7.1%	16.7%	10.0%	13.3%	8.7%	60.0%	17.8%
	NSW Sth Basin (n=86)	9.3%	4.8%	41.9%	10.0%	7.0%	4.0%	41.9%	10.0%
	Qld Basin (n=15)	0.0%	0.0%	0.0%	0.0%	13.3%	10.5%	86.7%	23.0%
	SA Basin (n=25)	16.0%	10.3%	20.0%	11.9%	8.0%	6.3%	56.0%	19.2%
	Vic Basin (n=161)	5.0%	2.6%	37.9%	7.2%	5.6%	2.8%	51.6%	7.7%
Farm type	Dairy (n=50)	2.0%	1.8%	50.0%	13.5%	4.0%	3.2%	44.0%	13.1%
	Grain growing (n=30)	10.0%	7.1%	46.7%	16.9%	10.0%	7.1%	33.3%	14.7%
	Grazier (n=100)	4.0%	2.6%	34.0%	8.7%	7.0%	3.8%	55.0%	9.8%
	Horticulture (all) (n=78)	14.1%	6.4%	12.8%	6.0%	9.0%	4.9%	64.1%	11.0%
	Mixed cropping/grazing (n=53)	7.5%	4.9%	45.3%	12.9%	5.7%	4.0%	41.5%	12.5%
Horticulture farm type	Fruit/nut grower (n=28)	7.1%	5.6%	7.1%	5.6%	14.3%	9.3%	71.4%	18.2%
	Winegrape grower (n=29)	13.8%	9.0%	10.3%	7.3%	6.9%	5.4%	69.0%	18.0%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=93)	4.3%	2.8%	15.1%	6.2%	4.3%	2.8%	76.3%	9.4%
	30-99ML (n=48)	6.3%	4.5%	25.0%	10.5%	8.3%	5.5%	60.4%	14.1%
	100-299ML (n=64)	7.8%	4.8%	39.1%	11.3%	10.9%	5.9%	42.2%	11.5%
	300ML (n=73)	11.0%	5.6%	45.2%	11.0%	5.5%	3.6%	38.4%	10.5%
	1000ML+ (n=39)	7.7%	5.5%	59.0%	15.6%	10.3%	6.7%	23.1%	11.0%
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=41)	7.3%	5.2%	46.3%	14.6%	4.9%	3.9%	41.5%	14.1%
	Modernised irrigation infrastructure using self-funding (n=205)	9.3%	3.4%	33.7%	6.2%	8.8%	3.3%	48.3%	6.8%

Tables 8, 9, 10 and 11 in the main report contain summarised information from this table.		Engagement in water market trade in 12 months prior to spring 2018							
		Traded both allocation and entitlements	CI	Traded allocation (but not entitlements)	CI	Traded entitlements (but not allocation)	CI	No trading	CI
	Has not modernised irrigation infrastructure (n=63)	1.6%	1.4%	25.4%	9.5%	3.2%	2.5%	69.8%	12.0%
Gross value of agricultural production 2015-16	<$50,000 (n=49)	2.0%	1.8%	24.5%	10.3%	6.1%	4.4%	67.3%	13.8%
	$50,000-$99,999 (n=46)	6.5%	4.7%	28.3%	11.4%	4.3%	3.4%	60.9%	14.4%
	$100,000-$299,999 (n=69)	8.7%	5.0%	34.8%	10.4%	7.2%	4.4%	49.3%	11.6%
	$300,000-$499,999 (n=31)	9.7%	6.9%	41.9%	16.0%	6.5%	5.1%	41.9%	16.0%
	$500,000-$999,999 (n=40)	5.0%	3.9%	32.5%	12.9%	5.0%	3.9%	57.5%	15.4%
	$1 million + (n=48)	16.7%	8.5%	47.9%	13.7%	12.5%	7.1%	22.9%	10.1%
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=33)	18.2%	10.2%	39.4%	15.2%	3.0%	2.7%	39.4%	15.2%
	Found it moderately difficult to access affordable farm finance (n=35)	5.7%	4.5%	48.6%	15.9%	11.4%	7.4%	34.3%	14.0%
	Did not find it difficult to access farm finance (n=237)	6.3%	2.6%	31.2%	5.6%	6.8%	2.7%	55.7%	6.4%
Self-reported farm profitability over last 3 years	Making a loss (n=81)	4.9%	3.2%	32.1%	9.4%	4.9%	3.2%	58.0%	10.9%
	Breaking even/small profit (n=166)	6.6%	3.1%	38.6%	7.2%	6.6%	3.1%	48.2%	7.5%
	Moderate/large profit (n=61)	13.1%	6.7%	24.6%	9.5%	11.5%	6.2%	50.8%	12.3%
Gender	Female (n=78)	7.7%	4.4%	37.2%	10.1%	10.3%	5.3%	44.9%	10.7%
	Male (n=235)	6.8%	2.7%	32.8%	5.8%	6.4%	2.6%	54.0%	6.4%
Age	Aged <45 (n=19)	10.5%	8.3%	42.1%	19.8%	15.8%	11.1%	31.6%	17.2%
	Aged 45-54 (n=49)	6.1%	4.4%	49.0%	13.6%	6.1%	4.4%	38.8%	12.7%
	Aged 55-64 (n=107)	7.5%	3.9%	32.7%	8.3%	6.5%	3.6%	53.3%	9.4%
	Aged 65-74 (n=106)	6.6%	3.6%	28.3%	7.9%	7.5%	3.9%	57.5%	9.5%
	Aged75+ (n=30)	10.0%	7.1%	23.3%	12.2%	6.7%	5.3%	60.0%	17.8%
Highest level of formal educational attainment	Did not complete high school (n=80)	5.0%	3.3%	36.3%	9.9%	7.5%	4.3%	51.3%	10.8%
	Has high school or non-university post-school qualification (n=137)	7.3%	3.5%	33.6%	7.5%	8.0%	3.7%	51.1%	8.3%

Tables 8, 9, 10 and 11 in the main report contain summarised information from this table.		Engagement in water market trade in 12 months prior to spring 2018							
		Traded both allocation and entitlements	CI	Traded allocation (but not entitlements)	CI	Traded entitlements (but not allocation)	CI	No trading	CI
	Completed tertiary qualification (n=96)	8.3%	4.3%	33.3%	8.8%	6.3%	3.6%	52.1%	9.9%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=84)	9.5%	4.9%	31.0%	9.1%	10.7%	5.3%	48.8%	10.5%
	Earned 26-50% income off-farm (n=41)	7.3%	5.2%	46.3%	14.6%	7.3%	5.2%	39.0%	13.8%
	Earned 51-75% income off-farm (n=28)	14.3%	9.3%	28.6%	14.0%	3.6%	3.2%	53.6%	18.1%
	Earned 76-100% income off-farm (n=66)	Too few respondents to report robustly		22.7%	8.8%	4.5%	3.2%	72.7%	11.6%
	All household income earned from farm (n=97)	8.2%	4.3%	40.2%	9.4%	7.2%	3.9%	44.3%	9.6%
	Campaspe (n=29)	3.4%	3.1%	69.0%	18.0%	3.4%	3.1%	24.1%	12.6%
	Goulburn-Broken (n=53)	3.8%	3.0%	34.0%	11.6%	3.8%	3.0%	58.5%	13.4%
	Loddon (n=23)	4.3%	3.9%	30.4%	15.7%	8.7%	6.8%	56.5%	20.0%
	Macquarie-Castlereagh (n=17)	17.6%	12.4%	17.6%	12.4%	11.8%	9.2%	52.9%	22.6%
	Murray (n=104)	9.6%	4.6%	42.3%	9.2%	6.7%	3.7%	41.3%	9.1%
Catchment	Murrumbidgee (n=29)	6.9%	5.4%	31.0%	14.4%	6.9%	5.4%	55.2%	17.9%

Table A7 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2015. This expands on the data provided in Tables 13, 14, 15, 16, 17, 18 and 20 in the main report. More detailed data on water sources used to irrigate land are also provided for 2015 in Table A10.

Table A7 Types of water used to irrigate land - 2015

This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Water sources used to irrigate farm						Use of surface water and ground water					
		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
Basin irrigators	Murray-Darling Basin (n=745)	62.8%	3.6%	34.3%	3.4%	2.8%	1.0%	75.5%	3.5%	11.8%	2.4%	12.8%	2.5%
Basin location	Northern Basin (n=112)	79.8%	8.3%	20.2%	6.7%	0.0%	0.0%	42.1%	10.6%	17.1%	7.2%	40.8%	10.5%
	Southern Basin (n=633)	59.7%	4.0%	36.9%	3.8%	3.4%	1.2%	80.2%	3.5%	11.0%	2.4%	8.8%	2.2%
Basin State	NSW Nth Basin (n=51)	73.1%	13.1%	26.9%	10.6%	0.0%	0.0%	42.1%	14.6%	23.7%	11.3%	34.2%	13.5%
	Qld Basin (n=61)	86.0%	10.7%	14.0%	7.2%	0.0%	0.0%	42.1%	14.6%	10.5%	6.9%	47.4%	15.2%

This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Water sources used to irrigate farm						Use of surface water and ground water					
		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
	NSW Sth Basin (n=230)	60.6%	6.5%	39.4%	6.3%	0.0%	0.0%	84.7%	5.6%	10.6%	3.8%	4.8%	2.4%
	SA Basin (n=93)	73.3%	10.0%	24.4%	8.1%	2.3%	1.8%	85.1%	9.4%	1.4%	1.2%	13.5%	6.3%
	Vic Basin (n=310)	55.0%	5.8%	38.8%	5.5%	6.2%	2.4%	75.7%	5.3%	14.0%	3.7%	10.3%	3.2%
Farm type	Dairy (n=93)	29.3%	8.6%	64.1%	10.1%	6.5%	3.8%	64.7%	10.5%	29.4%	8.9%	5.9%	3.6%
	Grain growing (n=132)	46.8%	8.6%	53.2%	8.7%	0.0%	0.0%	76.0%	8.8%	10.6%	4.8%	13.5%	5.5%
	Grazier (n=146)	87.8%	6.2%	12.2%	4.7%	0.0%	0.0%	80.2%	7.8%	8.3%	3.9%	11.6%	4.8%
	Horticulture (all) (n=203)	70.8%	6.8%	26.5%	6.0%	2.7%	1.7%	80.6%	6.6%	4.4%	2.4%	15.0%	4.9%
	Mixed cropping/grazing (n=74)	63.2%	11.8%	35.3%	10.6%	1.5%	1.3%	71.0%	12.1%	9.7%	5.5%	19.4%	8.3%
Horticulture farm type	Fruit/nut grower (n=90)	70.2%	10.3%	28.6%	8.8%	1.2%	1.1%	84.0%	9.5%	1.3%	1.2%	14.7%	6.6%
	Winegrape grower (n=97)	71.6%	10.0%	23.9%	8.0%	4.5%	3.0%	80.0%	10.1%	5.3%	3.5%	14.7%	6.6%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=232)	80.6%	5.9%	15.9%	4.6%	3.5%	1.9%	72.2%	9.5%	4.1%	2.7%	23.7%	7.6%
	30-99ML (n=103)	77.0%	8.9%	21.0%	7.1%	2.0%	1.6%	77.5%	8.8%	4.9%	3.0%	17.6%	6.4%
	100-299ML (n=136)	75.9%	7.8%	21.8%	6.4%	2.3%	1.6%	75.7%	7.7%	10.3%	4.3%	14.0%	5.0%
	300ML (n=153)	45.8%	7.7%	50.3%	7.8%	3.9%	2.2%	78.7%	6.9%	14.2%	4.8%	7.1%	3.3%
	1000ML+ (n=121)	27.6%	7.5%	70.7%	8.7%	1.7%	1.4%	71.9%	8.5%	22.3%	6.7%	5.8%	3.2%
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=148)	51.4%	8.1%	47.9%	8.0%	0.7%	0.6%	76.3%	7.8%	16.8%	5.6%	6.9%	3.4%
	Modernised irrigation infrastructure using self-funding (n=241)	55.4%	6.4%	42.9%	6.3%	1.7%	1.1%	79.0%	5.9%	9.5%	3.4%	11.4%	3.8%
	Has not modernised irrigation infrastructure (n=262)	71.4%	5.9%	23.7%	5.0%	5.0%	2.2%	73.4%	6.4%	10.8%	3.7%	15.8%	4.5%
Gross value of agricultural production 2015-16	<$50,000 (n=164)	81.5%	6.9%	14.4%	5.0%	4.1%	2.4%	79.0%	8.0%	5.0%	2.9%	16.0%	5.7%
	$50,000-$99,999 (n=72)	74.6%	11.3%	23.9%	9.0%	1.5%	1.3%	72.1%	12.1%	14.8%	7.2%	13.1%	6.7%
	$100,000-$299,999 (n=144)	70.5%	7.9%	25.2%	6.7%	4.3%	2.5%	83.0%	7.7%	9.8%	4.5%	7.1%	3.7%
	$300,000-$499,999 (n=86)	66.3%	10.6%	32.5%	9.3%	1.2%	1.1%	77.3%	10.4%	6.7%	4.1%	16.0%	6.9%

This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Water sources used to irrigate farm						Use of surface water and ground water					
		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
	$500,000-$999,999 (n=121)	49.1%	9.0%	48.3%	9.0%	2.6%	1.9%	75.9%	8.7%	12.0%	5.1%	12.0%	5.1%
	$1 million + (n=122)	33.6%	8.0%	64.7%	8.9%	1.7%	1.3%	61.1%	9.4%	25.0%	7.4%	13.9%	5.5%
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=87)	51.2%	10.5%	41.9%	10.0%	7.0%	4.0%	71.2%	11.1%	15.1%	6.8%	13.7%	6.4%
	Found it moderately difficult to access affordable farm finance (n=91)	48.8%	10.6%	45.1%	10.4%	6.1%	3.7%	74.3%	10.7%	16.2%	7.0%	9.5%	5.1%
	Did not find it difficult to access farm finance (n=347)	66.3%	5.3%	31.3%	4.9%	2.5%	1.3%	73.8%	5.4%	12.4%	3.5%	13.8%	3.7%
Self-reported farm profitability over last 3 years	Making a loss (n=194)	62.0%	7.2%	32.1%	6.4%	6.0%	2.8%	73.7%	7.3%	12.8%	4.6%	13.5%	4.7%
	Breaking even/small profit (n=351)	65.1%	5.3%	32.7%	4.9%	2.1%	1.2%	75.5%	5.2%	10.5%	3.2%	14.0%	3.7%
	Moderate/large profit (n=180)	58.3%	7.4%	41.1%	7.1%	0.6%	0.5%	74.8%	7.3%	14.6%	4.9%	10.6%	4.2%
Gender	Female (n=226)	56.3%	6.8%	38.8%	6.5%	4.9%	2.3%	69.9%	7.3%	18.4%	5.4%	11.7%	4.2%
	Male (n=517)	65.5%	4.3%	32.5%	4.0%	2.0%	1.0%	77.4%	4.1%	9.4%	2.4%	13.2%	2.9%
Age	Aged <45 (n=76)	52.7%	11.3%	40.5%	10.6%	6.8%	4.1%	76.9%	11.3%	18.5%	8.0%	4.6%	3.3%
	Aged 45-54 (n=176)	50.0%	7.6%	46.4%	7.5%	3.6%	2.1%	66.0%	7.8%	17.3%	5.4%	16.7%	5.3%
	Aged 55-64 (n=240)	62.7%	6.4%	35.5%	6.0%	1.8%	1.2%	76.0%	6.3%	10.7%	3.8%	13.3%	4.2%
	Aged 65-74 (n=174)	75.0%	7.0%	22.0%	5.8%	3.0%	1.9%	78.2%	7.3%	7.7%	3.6%	14.1%	5.0%
	Aged75+ (n=76)	75.4%	11.1%	24.6%	9.0%	0.0%	0.0%	90.9%	9.7%	3.6%	2.9%	5.5%	3.9%
Highest level of formal educational attainment	Did not complete high school (n=196)	64.5%	7.1%	33.9%	6.6%	1.6%	1.2%	79.7%	6.5%	7.0%	3.1%	13.4%	4.5%
	Has high school or non-university post-school qualification (n=319)	61.3%	5.6%	36.0%	5.3%	2.7%	1.4%	75.1%	5.5%	12.6%	3.6%	12.3%	3.6%
	Completed tertiary qualification (n=211)	62.3%	6.8%	33.3%	6.2%	4.4%	2.2%	72.7%	7.2%	15.5%	5.0%	11.8%	4.3%
Proportion of household	Earned 1-25% income off-farm (n=170)	56.6%	7.8%	42.1%	7.5%	1.3%	1.0%	77.6%	7.2%	10.2%	4.1%	12.2%	4.6%

This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Water sources used to irrigate farm						Use of surface water and ground water					
		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
income earned off-farm and on-farm	Earned 26-50% income off-farm (n=104)	61.8%	9.7%	36.3%	8.8%	2.0%	1.6%	78.0%	9.3%	13.2%	5.8%	8.8%	4.5%
	Earned 51-75% income off-farm (n=55)	80.0%	11.9%	20.0%	8.9%	0.0%	0.0%	75.6%	13.9%	6.7%	4.8%	17.8%	9.0%
	Earned 76-100% income off-farm (n=157)	70.6%	7.8%	23.8%	6.4%	5.6%	2.9%	77.5%	8.1%	10.0%	4.4%	12.5%	5.0%
	All household income earned from farm (n=257)	58.6%	6.3%	38.1%	5.9%	3.3%	1.7%	71.8%	6.4%	14.6%	4.3%	13.6%	4.2%
Catchment	Campaspe (n=32)	36.7%	15.4%	46.7%	16.9%	16.7%	10.0%	67.9%	18.4%	25.0%	13.1%	7.1%	5.6%
	Condamine–Balonne (n=43)	90.2%	11.8%	9.8%	6.4%	0.0%	0.0%	34.4%	14.5%	12.5%	8.1%	53.1%	16.9%
	Goulburn (n=72)	55.6%	11.5%	36.1%	10.4%	8.3%	4.8%	74.3%	11.1%	20.0%	8.0%	5.7%	3.8%
	Lachlan (n=30)	63.3%	17.8%	36.7%	15.4%	0.0%	0.0%	70.0%	21.7%	20.0%	12.8%	10.0%	7.9%
	Loddon (n=48)	58.5%	15.2%	39.0%	13.8%	2.4%	2.2%	76.9%	14.8%	7.7%	5.5%	15.4%	8.7%
	Macquarie–Castlereagh (n=19)	73.7%	22.1%	26.3%	15.5%	0.0%	0.0%	46.2%	24.0%	23.1%	16.1%	30.8%	19.4%
	Murrumbidgee (n=101)	60.6%	10.1%	39.4%	9.4%	0.0%	0.0%	79.8%	9.5%	13.1%	5.9%	7.1%	4.1%
	Namoi (n=20)	80.0%	20.8%	20.0%	12.8%	0.0%	0.0%	27.8%	16.3%	27.8%	16.3%	44.4%	20.7%
	New South Wales Murray (n=84)	54.2%	10.7%	45.8%	10.4%	0.0%	0.0%	91.7%	8.0%	6.9%	4.2%	1.4%	1.2%
	South Australian Non-Prescribed Areas (n=65)	72.1%	12.1%	26.2%	9.8%	1.6%	1.5%	94.4%	8.5%	0.0%	0.0%	5.6%	4.0%
	Victorian Murray (n=91)	45.6%	10.0%	48.9%	10.2%	5.6%	3.4%	82.6%	9.0%	14.0%	6.1%	3.5%	2.5%

Table A8 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2016. This expands on the data provided in Tables 13, 14, 15, 16, 17, 18 and 20 in the main report. More detailed data on water sources used to irrigate land are also provided for 2016 in Table A11.

Table A8 Types of water used to irrigate land - 2016

This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Water sources used to irrigate farm						Use of surface water and ground water					
		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
Basin irrigators	Murray-Darling Basin (n=518)	64.0%	4.2%	33.1%	3.9%	2.9%	1.2%	71.5%	3.6%	13.9%	2.5%	14.7%	2.6%
Basin location	Northern Basin (n=72)	82.4%	9.8%	13.5%	6.3%	4.1%	2.9%	39.0%	8.9%	21.0%	6.9%	40.0%	9.0%
	Southern Basin (n=446)	60.9%	4.6%	36.4%	4.4%	2.7%	1.2%	77.8%	3.7%	12.5%	2.6%	9.7%	2.3%
Basin State	NSW Nth Basin (n=48)	81.6%	12.5%	12.2%	7.0%	6.1%	4.4%	39.4%	11.1%	24.2%	9.1%	36.4%	10.8%
	Qld Basin (n=24)	84.0%	17.7%	16.0%	10.3%	0.0%	0.0%	38.5%	14.0%	15.4%	8.7%	46.2%	14.9%
	NSW Sth Basin (n=129)	65.4%	8.4%	32.3%	7.6%	2.3%	1.7%	80.9%	6.7%	10.2%	4.0%	8.9%	3.7%
	SA Basin (n=51)	75.0%	12.4%	23.2%	9.5%	1.8%	1.6%	63.5%	12.3%	11.1%	6.0%	25.4%	9.5%
	Vic Basin (n=265)	55.4%	6.1%	41.5%	5.9%	3.1%	1.6%	79.0%	4.8%	14.1%	3.6%	6.9%	2.4%
Farm type	Dairy (n=119)	32.2%	8.0%	63.5%	9.0%	4.3%	2.7%	70.1%	8.1%	23.1%	6.5%	6.7%	3.3%
	Grain growing (n=72)	46.5%	11.3%	50.7%	11.5%	2.8%	2.2%	73.9%	9.8%	17.0%	6.7%	9.1%	4.7%
	Grazier (n=107)	82.0%	7.9%	15.3%	5.8%	2.7%	1.9%	71.9%	7.9%	10.1%	4.2%	18.0%	5.7%
	Horticulture (all) (n=77)	71.8%	10.6%	26.9%	8.9%	1.3%	1.1%	76.5%	9.1%	5.1%	3.1%	18.4%	6.7%
	Mixed cropping/grazing (n=64)	71.7%	12.2%	25.0%	9.6%	3.3%	2.6%	64.9%	11.3%	16.2%	7.0%	18.9%	7.6%
Horticulture farm type	Fruit/nut grower (n=68)	72.5%	11.3%	26.1%	9.2%	1.4%	1.3%	76.7%	9.7%	4.7%	3.1%	18.6%	7.1%
	Winegrape grower (n=55)	85.2%	10.4%	11.5%	6.2%	3.3%	2.6%	64.7%	11.8%	8.8%	5.1%	26.5%	9.4%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=131)	82.2%	7.3%	16.30%	5.60%	1.6%	1.2%	65.7%	6.3%	7.8%	3.0%	26.5%	5.4%
	30-99ML (n=88)	81.3%	8.9%	13.20%	5.80%	3.0%	2.2%	80.4%	8.5%	10.5%	5.0%	13.7%	5.8%
	100-299ML (n=102)	72.7%	9.3%	24.20%	7.60%	1.5%	1.4%	58.2%	11.9%	10.8%	4.9%	8.8%	4.3%
	300ML (n=135)	45.9%	37.7%	51.10%	8.40%	5.5%	3.4%	75.8%	9.3%	17.9%	5.7%	4.3%	2.5%
	1000ML+ (n=62)	27.7$	9.7%	70.80%	11.80%	3.0%	2.0%	77.9%	7.4%	35.8%	10.7%	6.0%	4.0%
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=106)	46.7%	9.3%	50.5%	9.5%	2.9%	2.0%	82.4%	8.0%	17.6%	6.3%	0.0%	0.0%
	Modernised irrigation infrastructure using self-funding (n=196)	56.9%	7.0%	41.5%	6.8%	1.5%	1.1%	71.0%	6.4%	18.1%	4.8%	11.0%	3.7%
	Has not modernised irrigation infrastructure (n=191)	78.4%	6.1%	17.6%	4.8%	4.0%	2.1%	67.1%	6.4%	11.0%	3.6%	21.9%	5.1%

		Water sources used to irrigate farm						Use of surface water and ground water					
This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
Gross value of agricultural production 2015-16	<$50,000 (n=105)	83.5%	8.0%	13.6%	5.6%	2.9%	2.1%	68.4%	8.2%	12.0%	4.7%	19.5%	6.0%
	$50,000-$99,999 (n=63)	77.8%	11.4%	20.6%	8.5%	1.6%	1.4%	84.5%	9.7%	9.9%	5.3%	5.6%	3.7%
	$100,000-$299,999 (n=83)	67.1%	10.4%	29.4%	8.9%	3.5%	2.5%	74.8%	9.0%	10.7%	4.9%	14.6%	5.8%
	$300,000-$499,999 (n=62)	59.4%	12.2%	37.5%	11.1%	3.1%	2.5%	74.4%	10.5%	6.4%	3.9%	19.2%	7.5%
	$500,000-$999,999 (n=75)	51.3%	11.1%	46.1%	10.9%	2.6%	2.1%	68.2%	10.4%	16.5%	6.7%	15.3%	6.4%
	$1 million + (n=89)	39.1%	9.8%	58.6%	10.5%	2.3%	1.8%	57.7%	9.9%	32.0%	8.6%	10.3%	4.9%
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=74)	52.7%	11.3%	41.9%	10.8%	5.4%	3.6%	70.7%	9.8%	17.4%	6.7%	12.0%	5.4%
	Found it moderately difficult to access affordable farm finance (n=95)	63.4%	9.7%	34.7%	8.7%	2.0%	1.6%	72.7%	8.4%	14.0%	5.3%	13.2%	5.1%
	Did not find it difficult to access farm finance (n=313)	64.6%	5.5%	32.8%	5.1%	2.6%	1.4%	69.8%	4.9%	14.4%	3.3%	15.8%	3.5%
Self-reported farm profitability over last 3 years	Making a loss (n=120)	71.1%	8.8%	26.3%	7.4%	2.6%	1.9%	74.5%	7.8%	11.7%	4.6%	13.9%	5.0%
	Breaking even/small profit (n=243)	63.6%	6.1%	32.8%	5.6%	3.6%	1.8%	71.0%	5.3%	14.3%	3.6%	14.7%	3.7%
	Moderate/large profit (n=126)	57.4%	8.9%	40.2%	8.4%	2.5%	1.8%	66.0%	8.0%	18.8%	5.7%	15.3%	5.2%
Gender	Female (n=114)	63.5%	9.0%	30.4%	7.8%	6.1%	3.3%	70.1%	7.5%	14.0%	4.8%	15.9%	5.1%
	Male (n=394)	64.9%	4.8%	33.3%	4.5%	1.8%	1.0%	71.6%	4.2%	14.0%	2.9%	14.4%	3.0%
Age	Aged <45 (n=51)	38.0%	12.5%	52.0%	13.6%	10.0%	6.1%	75.0%	12.0%	15.0%	7.3%	10.0%	5.7%
	Aged 45-54 (n=93)	57.3%	10.4%	40.4%	9.8%	2.2%	1.8%	70.9%	8.9%	13.6%	5.4%	15.5%	5.8%
	Aged 55-64 (n=172)	67.3%	7.3%	30.4%	6.5%	2.3%	1.5%	66.5%	6.6%	16.7%	4.6%	16.7%	4.6%
	Aged 65-74 (n=133)	70.1%	8.0%	28.5%	7.0%	1.5%	1.2%	74.2%	7.1%	12.9%	4.5%	12.9%	4.5%
	Aged75+ (n=56)	75.9%	12.1%	24.1%	9.6%	0.0%	0.0%	74.4+	10.5%	7.7%	4.4%	17.9%	7.3%
Highest level of formal educational attainment	Did not complete high school (n=154)	61.2%	7.9%	38.2%	7.4%	0.7%	0.6%	74.3%	6.8%	11.7%	4.1%	14.0%	4.5%
	Has high school or non-university post-school qualification (n=235)	63.4%	6.3%	32.3%	5.7%	4.3%	2.0%	72.0%	5.3%	15.7%	3.8%	12.3%	3.4%

This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Water sources used to irrigate farm						Use of surface water and ground water					
		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
	Completed tertiary qualification (n=124)	69.3%	8.4%	27.6%	7.2%	3.1%	2.1%	66.0%	7.7%	13.5%	4.7%	20.5%	5.8%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=130)	62.2%	8.4%	35.6%	7.7%	2.2%	1.6%	70.3%	7.5%	16.8%	5.2%	12.9%	4.6%
	Earned 26-50% income off-farm (n=66)	70.8%	11.8%	26.2%	9.5%	3.1%	2.4%	82.3%	9.5%	10.1%	5.2%	7.6%	4.4%
	Earned 51-75% income off-farm (n=32)	66.7%	17.8%	30.0%	14.0%	3.3%	3.0%	70.7%	15.0%	7.3%	5.2%	22.0%	10.5%
	Earned 76-100% income off-farm (n=88)	76.2%	9.9%	21.4%	7.7%	2.4%	1.9%	75.4%	8.5%	6.1%	3.4%	18.4%	6.3%
	All household income earned from farm (n=199)	57.2%	6.9%	39.3%	6.6%	3.5%	1.9%	66.8%	6.1%	18.3%	4.5%	14.9%	4.1%
Catchment	Campaspe (n=35)	36.4%	14.7%	63.6%	17.0%	0.0%	0.0%	55.3%	15.7%	36.8%	13.9%	7.9%	5.6%
	Goulburn (n=74)	80.0%	30.3%	20.0%	15.6%	6.8%	4.2%	85.9%	8.6%	11.8%	5.6%	2.4%	1.9%
	Macquarie—Castlereagh (n=25)	73.9%	20.0%	13.0%	9.2%	13.0%	9.2%	45.7%	15.6%	20.0%	10.6%	34.3%	14.0%
	Murrumbidgee (n=60)	68.3%	12.4%	30.0%	10.5%	1.7%	1.5%	82.6%	10.2%	10.1%	5.5%	7.2%	4.4%
	New South Wales Murray (n=49)	58.3%	14.1%	39.6%	12.9%	2.1%	1.9%	86.9%	10.1%	8.2%	5.0%	4.9%	3.5%
	South Australian Non-Prescribed Areas (n=33)	76.5%	16.0%	23.5%	11.7%	0.0%	0.0%	78.4%	15.1%	8.1%	5.8%	13.5%	8.2%
	Victorian Murray (n=96)	54.9%	10.2%	45.1%	9.9%	0.0%	0.0%	89.6%	6.9%	9.4%	4.5%	0.9%	0.8%

Table A9 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2018. This expands on the data provided in Tables 13, 14, 15, 16, 17, 18 and 20 in the main report. More detailed data on water sources used to irrigate land are also provided for 2018 in Table A12.

Table A9 Types of water used to irrigate land - 2018

This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Water sources used to irrigate farm						Use of surface water and ground water					
		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
Basin irrigators	Murray-Darling Basin (n=314)	65.9%	5.4%	30.9%	4.9%	3.2%	1.5%	72.6%	4.6%	12.7%	3.0%	14.7%	3.3%
Basin location	Northern Basin (n=39)	82.1%	14.1%	12.8%	7.8%	5.1%	4.0%	49.0%	13.6%	8.2%	5.3%	42.9%	13.1%
	Southern Basin (n=275)	63.6%	5.8%	33.5%	5.4%	2.9%	1.5%	76.0%	4.8%	13.3%	3.3%	10.7%	3.0%
Basin State	NSW Nth Basin (n=25)	76.0%	18.9%	16.0%	10.3%	8.0%	6.3%	46.4%	17.4%	7.1%	5.6%	46.4%	17.4%
	NSW Sth Basin (n=85)	63.5%	10.5%	34.1%	9.4%	2.4%	1.9%	80.6%	8.2%	11.1%	4.9%	8.3%	4.1%
	Qld Basin (n=14)	92.9%	21.7%	7.1%	6.4%	0.0%	0.0%	52.4%	20.5%	9.5%	7.5%	38.1%	18.2%
	SA Basin (n=27)	66.7%	18.8%	29.6%	14.5%	3.7%	3.3%	80.0%	15.3%	2.9%	2.5%	17.1%	9.7%
	Vic Basin (n=163)	63.2%	7.6%	33.7%	6.9%	3.1%	1.9%	72.8%	6.5%	16.4%	4.7%	10.8%	3.8%
Farm type	Dairy (n=50)	44.0%	13.1%	52.0%	13.6%	4.0%	3.2%	69.0%	12.6%	20.7%	8.9%	10.3%	5.9%
	Grain growing (n=37)	54.1%	15.9%	43.2%	15.0%	2.7%	2.4%	72.7%	14.3%	11.4%	6.9%	15.9%	8.5%
	Grazier (n=86)	75.6%	9.8%	22.1%	7.8%	2.3%	1.8%	77.1%	8.5%	11.0%	4.8%	11.9%	5.1%
	Horticulture (all) (n=78)	78.2%	10.1%	19.2%	7.5%	2.6%	2.0%	69.1%	9.7%	11.3%	5.2%	19.6%	6.9%
	Mixed cropping/grazing (n=56)	58.9%	13.1%	35.7%	11.6%	5.4%	3.8%	76.1%	11.2%	11.9%	6.1%	11.9%	6.1%
Horticulture farm type	Fruit/nut grower (n=28)	82.1%	16.9%	14.3%	9.3%	3.6%	3.2%	62.9%	16.5%	11.4%	7.4%	25.7%	12.2%
	Winegrape grower (n=29)	75.9%	17.5%	20.7%	11.6%	3.4%	3.1%	68.6%	16.4%	5.7%	4.5%	25.7%	12.2%
Megalitres of water used in on-farm	<30ML (n=73)	82.2%	9.9%	15.1%	6.8%	2.7%	2.2%	66.7%	8.4%	5.4%	3.0%	27.9%	7.2%
	30-99ML (n=53)	84.9%	11.4%	7.5%	4.9%	7.5%	4.9%	74.6%	12.1%	6.8%	4.4%	18.6%	8.3%
	100-299ML (n=67)	74.6%	11.3%	20.9%	8.4%	4.5%	3.2%	84.9%	9.5%	11.0%	5.6%	4.1%	2.9%

		Water sources used to irrigate farm						Use of surface water and ground water					
This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
irrigation in last year	300ML (n=77)	51.9%	11.1%	48.1%	10.9%	0.0%	0.0%	73.4%	10.5%	22.8%	8.2%	3.8%	2.7%
	1000ML+ (n=44)	27.3%	11.4%	70.5%	14.5%	2.3%	2.0%	66.0%	14.2%	25.5%	10.8%	8.5%	5.6%
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=48)	47.9%	13.7%	50.0%	13.8%	2.1%	1.9%	84.3%	11.7%	11.8%	6.7%	3.9%	3.1%
	Modernised irrigation infrastructure using self-funding (n=197)	65.0%	6.8%	30.5%	6.1%	4.6%	2.3%	72.2%	6.1%	15.2%	4.3%	12.6%	3.9%
	Has not modernised irrigation infrastructure (n=58)	87.9%	10.2%	12.1%	6.5%	0.0%	0.0%	68.1%	11.3%	6.9%	4.2%	25.0%	8.9%
Gross value of agricultural production 2015-16	<$50,000 (n=38)	81.6%	14.4%	15.8%	8.9%	2.6%	2.3%	58.6%	12.8%	10.3%	5.9%	31.0%	10.8%
	$50,000-$99,999 (n=47)	83.0%	12.5%	14.9%	8.0%	2.1%	1.9%	82.0%	12.3%	6.0%	4.3%	12.0%	6.8%
	$100,000-$299,999 (n=65)	66.2%	12.0%	29.2%	10.0%	4.6%	3.3%	77.9%	10.2%	7.8%	4.5%	14.3%	6.5%
	$300,000-$499,999 (n=30)	70.0%	17.7%	30.0%	14.0%	0.0%	0.0%	80.6%	15.0%	0.0%	0.0%	19.4%	10.3%
	$500,000-$999,999 (n=42)	50.0%	14.7%	47.6%	14.5%	2.4%	2.1%	69.6%	14.2%	19.6%	9.4%	10.9%	6.6%
	$1 million + (n=54)	37.0%	11.9%	59.3%	13.3%	3.7%	2.9%	67.9%	12.9%	30.4%	10.8%	1.8%	1.6%
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=33)	60.6%	17.0%	30.3%	13.5%	9.1%	6.5%	73.2%	14.8%	17.1%	9.1%	9.8%	6.4%
	Found it moderately	39.4%	15.2%	51.5%	16.6%	9.1%	6.5%	80.5%	14.0%	9.8%	6.4%	9.8%	6.4%

This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Water sources used to irrigate farm						Use of surface water and ground water					
		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
	difficult to access affordable farm finance (n=33)	🟥	🟥										
	Did not find it difficult to access farm finance (n=231)	71.9%	6.0%	26.4%	5.4%	1.7%	1.1%	72.8%	5.4%	11.1%	3.3%	16.1%	4.0%
Self-reported farm profitability over last 3 years	Making a loss (n=83)	65.1%	10.6%	27.7%	8.7%	7.2%	4.2%	69.1%	9.7%	10.3%	4.9%	20.6%	7.1%
	Breaking even/small profit (n=156)	66.7%	7.7%	31.4%	6.9%	1.9%	1.4%	72.7%	6.7%	13.9%	4.4%	13.4%	4.3%
	Moderate/large profit (n=64)	62.5%	12.2%	35.9%	10.9%	1.6%	1.4%	77.8%	10.6%	12.5%	6.1%	9.7%	5.3%
Gender	Female (n=80)	61.3%	10.9%	33.8%	9.6%	5.0%	3.3%	72.1%	9.1%	13.5%	5.5%	14.4%	5.7%
	Male (n=228)	67.5%	6.3%	30.3%	5.7%	2.2%	1.4%	72.8%	5.5%	12.3%	3.5%	14.9%	3.8%
Age	Aged <45 (n=21)	42.9%	19.1%	52.4%	20.5%	4.8%	4.2%	86.2%	15.7%	10.3%	7.3%	3.4%	3.1%
	Aged 45-54 (n=50)	56.0%	13.8%	38.0%	12.5%	6.0%	4.3%	67.2%	12.4%	21.3%	8.8%	11.5%	6.2%
	Aged 55-64 (n=99)	61.6%	9.8%	36.4%	9.0%	2.0%	1.6%	70.2%	8.6%	14.0%	5.3%	15.7%	5.6%
	Aged 65-74 (n=100)	77.0%	8.9%	20.0%	6.9%	3.0%	2.1%	75.8%	8.2%	10.0%	4.4%	14.2%	5.4%
	Aged75+ (n=39)	76.9%	14.8%	23.1%	11.0%	🟥 0.0%	🟥 0.0%	71.4%	13.6%	6.1%	4.4%	22.4%	9.9%
Highest level of formal educational attainment	Did not complete high school (n=86)	67.4%	10.4%	30.2%	8.9%	2.3%	1.8%	77.0%	8.9%	11.0%	5.0%	12.0%	5.3%
	Has high school or non-university post-school qualification (n=131)	63.4%	8.5%	34.4%	7.7%	2.3%	1.6%	73.7%	7.0%	14.4%	4.7%	12.0%	4.3%
	Completed tertiary	68.1%	10.0%	26.4%	8.2%	5.5%	3.4%	68.4%	8.9%	11.4%	4.9%	20.2%	6.6%

		Water sources used to irrigate farm						Use of surface water and ground water					
This table provides detailed data underpinning data presented in Tables 14-18 and 20 in the main body of the report.		Used water from own entitlements only	CI	Used water from own entitlements and temporary water/leased water	CI	Used temporary water/leased water only (no entitlements)	CI	Used surface water only	CI	Used surface water and groundwater	CI	Used groundwater only	CI
	qualification (n=91)												
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=78)	71.8%	10.6%	23.1%	8.3%	5.1%	3.4%	73.7%	9.5%	14.7%	6.0%	11.6%	5.3%
	Earned 26-50% income off-farm (n=41)	61.0%	15.3%	36.6%	13.4%	2.4%	2.2%	79.6%	12.8%	16.3%	8.3%	4.1%	3.2%
	Earned 51-75% income off-farm (n=30)	80.0%	16.7%	20.0%	11.2%	0.0%	0.0%	67.5%	15.3%	10.0%	6.5%	22.5%	10.7%
	Earned 76-100% income off-farm (n=57)	80.7%	11.6%	15.8%	7.7%	3.5%	2.8%	69.5%	10.5%	4.9%	3.2%	25.6%	8.5%
	All household income earned from farm (n=106)	51.9%	9.5%	45.3%	9.2%	2.8%	2.0%	72.0%	8.6%	16.1%	5.8%	11.9%	4.9%
Catchment	Campaspe (n=31)	35.5%	15.0%	54.8%	17.3%	9.7%	6.9%	70.3%	15.8%	18.9%	10.0%	10.8%	7.0%
	Goulburn-Broken (n=52)	73.1%	13.1%	25.0%	10.2%	1.9%	1.7%	81.0%	11.0%	14.3%	7.0%	4.8%	3.4%
	Loddon (n=22)	77.3%	20.1%	22.7%	13.5%	0.0%		65.4%	19.1%	15.4%	10.0%	19.2%	11.5%
	Macquarie-Castlereagh (n=16)	81.3%	23.3%	12.5%	9.8%	6.3%	5.6%	44.4%	20.7%	11.1%	8.7%	44.4%	20.7%
	Murray (n=106)	62.3%	9.5%	34.9%	8.6%	2.8%	2.0%	79.7%	7.6%	13.3%	5.0%	7.0%	3.5%
	Murrumbidgee (n=33)	60.6%	17.0%	36.4%	14.7%	3.0%	2.7%	75.6%	14.6%	12.2%	7.4%	12.2%	7.4%

Table A10 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2015. This expands on the data provided in Tables 13, 14, 15, and 16 in the main report, and Table A7 in this Appendix.

Table A10 Detailed water sourcing strategy - 2015

This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.		Detailed water sourcing strategy – 2015					
		Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
Basin irrigators	Murray-Darling Basin (n=745)	62.9%	3.6%	34.3%	3.4%	2.8%	1.0%
Basin location	Northern Basin (n=112)	79.8%	8.3%	20.2%	6.7%	0.0%	0.0%
	Southern Basin (n=633)	59.8%	4.0%	36.9%	3.8%	3.4%	1.2%
Basin State	NSW Nth Basin (n=51)	73.1%	13.1%	26.9%	10.6%	0.0%	0.0%
	Qld Basin (n=61)	86.0%	10.7%	14.0%	7.2%	0.0%	0.0%
	NSW Sth Basin (n=230)	60.8%	6.5%	39.2%	6.2%	0.0%	0.0%
	SA Basin (n=93)	73.3%	10.0%	24.4%	8.1%	2.3%	1.8%
	Vic Basin (n=310)	55.0%	5.8%	38.8%	5.5%	6.2%	2.4%
Farm type	Dairy (n=93)	29.3%	8.6%	64.1%	10.1%	6.5%	3.8%
	Grain growing (n=132)	46.8%	8.6%	53.2%	8.7%	0.0%	0.0%
	Grazier (n=146)	87.8%	6.2%	12.2%	4.7%	0.0%	0.0%
	Horticulture (all) (n=203)	70.8%	6.8%	26.5%	6.0%	2.7%	1.7%
	Mixed cropping/grazing (n=74)	63.8%	11.7%	34.8%	10.4%	1.4%	1.3%
Horticulture farm type	Fruit/nut grower (n=90)	70.2%	10.3%	28.6%	8.8%	1.2%	1.1%
	Winegrape grower (n=97)	71.6%	10.0%	23.9%	8.0%	4.5%	3.0%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=232)	80.7%	5.9%	15.8%	4.5%	3.5%	1.9%
	30-99ML (n=103)	77.0%	8.9%	21.0%	7.1%	2.0%	1.6%
	100-299ML (n=136)	75.9%	7.8%	21.8%	6.4%	2.3%	1.6%
	300ML (n=153)	45.8%	7.7%	50.3%	7.8%	3.9%	2.2%
	1000ML+ (n=121)	27.6%	7.5%	70.7%	8.7%	1.7%	1.4%
	ML applied on farm - mean ML (n=745)	587	485	1357	338	631	645
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=148)	51.4%	8.1%	47.9%	8.0%	0.7%	0.6%
	Modernised irrigation infrastructure using self-funding (n=241)	55.4%	6.4%	42.9%	6.3%	1.7%	1.1%

This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.		Detailed water sourcing strategy – 2015					
		Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
	Has not modernised irrigation infrastructure (n=262)	71.4%	5.9%	23.7%	5.0%	5.0%	2.2%
Gross value of agricultural production 2015-16	<$50,000 (n=164)	81.6%	6.8%	14.3%	4.9%	4.1%	2.4%
	$50,000-$99,999 (n=72)	74.6%	11.3%	23.9%	9.0%	1.5%	1.3%
	$100,000-$299,999 (n=144)	70.5%	7.9%	25.2%	6.7%	4.3%	2.5%
	$300,000-$499,999 (n=86)	66.3%	10.6%	32.5%	9.3%	1.2%	1.1%
	$500,000-$999,999 (n=121)	49.1%	9.0%	48.3%	9.0%	2.6%	1.9%
	$1 million + (n=122)	33.6%	8.0%	64.7%	8.9%	1.7%	1.3%
	Average GVAP (mean category) (n=745)	$100,000-$199,999	$100,000-$199,999	$300,000-$399,999	$300,000-$399,999	$100,000-$199,999	$200,000-$299,999
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=87)	51.2%	10.5%	41.9%	10.0%	7.0%	4.0%
	Found it moderately difficult to access affordable farm finance (n=91)	48.8%	10.6%	45.1%	10.4%	6.1%	3.7%
	Did not find it difficult to access farm finance (n=347)	66.3%	5.3%	31.3%	4.9%	2.5%	1.3%
	Average level of difficulty accessing affordable farm finance (n=745)	Low-moderate difficulty	Moderate difficulty	Moderate difficulty	Moderate difficulty	Moderate difficulty	Moderate difficulty
Self-reported farm profitability over last 3 years	Making a loss (n=194)	62.2%	7.1%	31.9%	6.4%	5.9%	2.7%
	Breaking even/small profit (n=351)	65.1%	5.3%	32.7%	4.9%	2.1%	1.2%
	Moderate/large profit (n=180)	58.3%	7.4%	41.1%	7.1%	0.6%	0.5%
	Average profitability (category of mean) (n=745)	Breaking even	Small profit	Breaking even	Small profit	Small loss	Breaking even
Gender	Female (n=226)	56.3%	6.8%	38.8%	6.5%	4.9%	2.3%
	Male (n=517)	65.5%	4.3%	32.5%	4.0%	2.0%	1.0%
Age	Aged <45 (n=76)	52.7%	11.3%	40.5%	10.6%	6.8%	4.1%
	Aged 45-54 (n=176)	50.0%	7.6%	46.4%	7.5%	3.6%	2.1%
	Aged 55-64 (n=240)	62.9%	6.4%	35.4%	6.0%	1.7%	1.2%
	Aged 65-74 (n=174)	75.0%	7.0%	22.0%	5.8%	3.0%	1.9%
	Aged 75+ (n=76)	75.4%	11.1%	24.6%	9.0%	0.0%	0.0%
	Average age (years) (n=745)	61	1	57	1	54	6

This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.		Detailed water sourcing strategy – 2015					
		Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
Highest level of formal educational attainment	Did not complete high school (n=196)	64.7%	7.1%	33.7%	6.5%	1.6%	1.2%
	Has high school or non-university post-school qualification (n=319)	61.3%	5.6%	36.0%	5.3%	2.7%	1.4%
	Completed tertiary qualification (n=211)	62.3%	6.8%	33.3%	6.2%	4.4%	2.2%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=170)	56.6%	7.8%	42.1%	7.5%	1.3%	1.0%
	Earned 26-50% income off-farm (n=104)	61.8%	9.7%	36.3%	8.8%	2.0%	1.6%
	Earned 51-75% income off-farm (n=55)	80.0%	11.9%	20.0%	8.9%	0.0%	0.0%
	Earned 76-100% income off-farm (n=157)	70.6%	7.8%	23.8%	6.4%	5.6%	2.9%
	All household income earned from farm (n=257)	58.8%	6.2%	38.0%	5.9%	3.3%	1.7%
	Average proportion of income earned off-farm (mean, %) (n=745)	36.2	3.5	24.9	4.1	42.6	21.1
Catchment	Campaspe (n=35)	40.0%	16.0%	50.0%	17.2%	10.0%	7.1%
	Condamine-Balonne (n=47)	88.9%	11.5%	11.1%	6.7%	0.0%	0.0%
	Goulburn-Broken (n=74)	55.9%	10.1%	34.4%	9.1%	9.7%	4.8%
	Murray (n=182)	59.4%	6.3%	38.5%	6.0%	2.1%	1.3%
	Murrumbidgee (n=89)	66.3%	10.6%	33.7%	9.5%	0.0%	0.0%
	Wimmera-Avoca (n=47)	39.0%	13.8%	58.5%	15.2%	2.4%	2.2%

Table A11 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2016. This expands on the data provided in Tables 13, 14, 15, and 16 in the main report, and Table A8 in this Appendix.

Table A11 Detailed water sourcing strategy – 2016

		Detailed water sourcing strategy – 2016									
This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.		Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitlements AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
Basin irrigators	Murray-Darling Basin (n=498)	63.5%	4.3%	24.9%	3.6%	3.4%	1.3%	5.2%	1.7%	3.0%	1.2%
Basin location	Northern Basin (n=74)	82.4%	9.8%	8.1%	4.7%	4.1%	2.9%	1.4%	1.2%	4.1%	2.9%
	Southern Basin (n=445)	60.9%	4.6%	27.4%	4.0%	3.1%	1.3%	5.8%	1.9%	2.7%	1.2%
Basin State	NSW Nth Basin (n=49)	81.6%	12.5%	6.1%	4.4%	4.1%	3.2%	2.0%	1.8%	6.1%	4.4%
	Qld Basin (n=25)	84.0%	17.7%	12.0%	8.5%	4.0%	3.6%	0.0%	0.0%	0.0%	0.0%
	NSW Sth Basin (n=130)	65.4%	8.4%	24.6%	6.8%	1.5%	1.2%	6.2%	3.2%	2.3%	1.7%
	SA Basin (n=56)	75.0%	12.4%	8.9%	5.4%	8.9%	5.4%	5.4%	3.8%	1.8%	1.6%
	Vic Basin (n=258)	55.4%	6.1%	32.9%	5.5%	2.7%	1.5%	5.8%	2.4%	3.1%	1.6%
Farm type	Dairy (n=115)	32.2%	8.0%	51.3%	9.1%	1.7%	1.4%	10.4%	4.6%	4.3%	2.7%
	Grain growing (n=71)	46.5%	11.3%	36.6%	10.5%	4.2%	3.0%	9.9%	5.3%	2.8%	2.2%
	Grazier (n=111)	82.0%	7.9%	10.8%	4.8%	0.9%	0.8%	3.6%	2.4%	2.7%	1.9%
	Horticulture (all) (n=78)	71.8%	10.6%	15.4%	6.7%	9.0%	4.9%	2.6%	2.0%	1.3%	1.1%
	Mixed cropping/grazing (n=60)	71.7%	12.2%	20.0%	8.6%	3.3%	2.6%	1.7%	1.5%	3.3%	2.6%

		Detailed water sourcing strategy – 2016									
This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.		Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitle-ments AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
Horticulture farm type	Fruit/nut grower (n=69)	72.5%	11.3%	13.0%	6.4%	10.1%	5.5%	2.9%	2.3%	1.4%	1.3%
	Winegrape grower (n=61)	85.2%	10.4%	6.6%	4.3%	3.3%	2.6%	1.6%	1.5%	3.3%	2.6%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=129)	82.2%	7.3%	8.5%	3.9%	3.9%	2.4%	3.9%	2.4%	1.6%	1.2%
	30-99ML (n=91)	81.3%	8.9%	9.9%	4.9%	3.3%	2.4%	0.0%	0.0%	5.5%	3.4%
	100-299ML (n=99)	72.7%	9.3%	18.2%	6.6%	4.0%	2.7%	2.0%	1.6%	3.0%	2.2%
	300ML (n=135)	45.9%	8.2%	41.5%	8.1%	3.7%	2.3%	5.9%	3.1%	3.0%	2.0%
	1000ML+ (n=65)	27.7%	9.7%	52.3%	12.0%	0.0%	0.0%	18.5%	8.0%	1.5%	1.4%
	ML applied on farm - mean ML (n=519)	307	115	800	172	171	89	1142	432	318	235
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=105)	46.7%	9.3%	37.1%	8.8%	1.0%	0.8%	12.4%	5.3%	2.9%	2.0%
	Modernised irrigation infrastructure using self-funding (n=195)	56.9%	7.0%	30.8%	6.2%	5.1%	2.5%	5.6%	2.6%	1.5%	1.1%
	Has not modernised irrigation	78.4%	6.1%	13.1%	4.1%	3.0%	1.7%	1.5%	1.1%	4.0%	2.1%

	Detailed water sourcing strategy – 2016									
This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.	Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitlements AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
infrastructure (n=199)										
Gross value of agricultural production 2015-16										
<$50,000 (n=103)	83.5%	8.0%	10.7%	4.9%	1.0%	0.9%	1.9%	1.5%	2.9%	2.1%
$50,000-$99,999 (n=63)	77.8%	11.4%	15.9%	7.4%	4.8%	3.4%	0.0%	0.0%	1.6%	1.4%
$100,000-$299,999 (n=85)	67.1%	10.4%	21.2%	7.6%	4.7%	3.1%	3.5%	2.5%	3.5%	2.5%
$300,000-$499,999 (n=64)	59.4%	12.2%	34.4%	10.7%	1.6%	1.4%	1.6%	1.4%	3.1%	2.5%
$500,000-$999,999 (n=76)	51.3%	11.1%	34.2%	9.9%	3.9%	2.8%	7.9%	4.5%	2.6%	2.1%
$1 million + (n=87)	39.1%	9.8%	40.2%	9.8%	3.4%	2.5%	14.9%	6.3%	2.3%	1.8%
Average GVAP (mean category) (n=519)	$100,000-$199,999	$200,000-$299,999	$300,000-$399,999	$200,000-$499,999	$200,000-$299,999	$200,000-$499,999	$400,000-$499,999	$300,000-$749,999	$200,000-$299,999	$100,000-$399,999
Ability to access affordable farm finance										
Found it very difficult to access affordable farm finance (n=74)	52.7%	11.3%	32.4%	9.8%	4.1%	2.9%	5.4%	3.6%	5.4%	3.6%
Found it moderately difficult to access affordable farm finance (n=101)	63.4%	9.7%	25.7%	7.8%	4.0%	2.6%	5.0%	3.0%	2.0%	1.6%
Did not find it difficult to access	64.6%	5.5%	24.3%	4.6%	3.0%	1.5%	5.6%	2.2%	2.6%	1.4%

	Detailed water sourcing strategy – 2016									
This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.	Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitle-ments AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
farm finance (n=305)										
Average level of difficulty accessing affordable farm finance (n=519)	Low-moderate difficulty		Moderate difficuty		Moderate difficulty		Low-moderate difficulty		Moderate-high difficulty	
Self-reported farm profitability over last 3 years — Making a loss (n=114)	71.1%	8.8%	21.9%	6.8%	1.8%	1.4%	2.6%	1.9%	2.6%	1.9%
Breaking even/small profit (n=253)	63.6%	6.1%	25.7%	5.1%	2.4%	1.4%	4.7%	2.1%	3.6%	1.8%
Moderate/large profit (n=122)	57.4%	8.9%	26.2%	7.2%	5.7%	3.1%	8.2%	3.9%	2.5%	1.8%
Average profitability (category of mean) (n=519)	Breaking even	Breaking even	Breaking even	Small profit	Small profit	Moderate profit	Small profit	Small profit	Small profit	Moderate profit
Gender — Female (n=115)	63.5%	9.0%	21.7%	6.8%	3.5%	2.3%	5.2%	3.0%	6.1%	3.3%
Male (n=393)	64.9%	4.8%	25.2%	4.1%	2.8%	1.3%	5.3%	1.9%	1.8%	1.0%
Age — Aged <45 (n=50)	38.0%	12.5%	40.0%	12.7%	2.0%	1.8%	10.0%	6.1%	10.0%	6.1%
Aged 45-54 (n=89)	57.3%	10.4%	22.5%	7.7%	9.0%	4.6%	9.0%	4.6%	2.2%	1.8%
Aged 55-64 (n=171)	67.3%	7.3%	26.3%	6.2%	0.6%	0.5%	3.5%	2.0%	2.3%	1.5%
Aged 65-74 (n=137)	70.1%	8.0%	21.9%	6.3%	3.6%	2.2%	2.9%	1.9%	1.5%	1.2%
Aged75+ (n=58)	75.9%	12.1%	15.5%	7.6%	1.7%	1.5%	6.9%	4.5%	0.0%	0.0%

		Detailed water sourcing strategy – 2016									
This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.		Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitle-ments AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
	Average age (mean, years) (n=519)	60-64	54-69	55-59	50-64	60-64	55-69	55-59	50-64	50-54	40-64
Highest level of formal educational attainment	Did not complete high school (n=152)	61.2%	7.9%	30.3%	6.9%	4.6%	2.5%	3.3%	2.0%	0.7%	0.6%
	Has high school or non-university post-school qualification (n=235)	63.4%	6.3%	23.4%	5.1%	2.1%	1.3%	6.8%	2.7%	4.3%	2.0%
	Completed tertiary qualification (n=127)	69.3%	8.4%	20.5%	6.3%	2.4%	1.7%	4.7%	2.7%	3.1%	2.1%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=135)	62.2%	8.4%	28.1%	7.1%	0.0%	0.0%	7.4%	3.5%	2.2%	1.6%
	Earned 26-50% income off-farm (n=65)	70.8%	11.8%	23.1%	8.9%	3.1%	2.4%	0.0%	0.0%	3.1%	2.4%
	Earned 51-75% income off-farm (n=30)	66.7%	17.8%	16.7%	10.0%	13.3%	8.7%	0.0%	0.0%	3.3%	3.0%
	Earned 76-100% income off-farm (n=84)	76.2%	9.9%	15.5%	6.5%	2.4%	1.9%	3.6%	2.6%	2.4%	1.9%

	Detailed water sourcing strategy – 2016										
This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.	Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitle-ments AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
	All household income earned from farm (n=201)	57.2%	6.9%	28.4%	5.9%	4.5%	2.2%	6.5%	2.8%	3.5%	1.9%
	Average proportion of income earned off-farm (mean, %) (n=519)	30.4	3.8	19.4	5.4	31.8	18.9	15.4	12.0	24.3	18.7
Catchment	Campaspe (n=33)	36.4%	14.7%	48.5%	16.3%	3.0%	2.7%	12.1%	7.9%	0.0%	0.0%
	Goulburn-Broken (n=73)	54.8%	11.4%	34.2%	10.1%	2.7%	2.2%	2.7%	2.2%	5.5%	3.6%
	Loddon (n=32)	56.3%	17.1%	31.3%	13.9%	0.0%	0.0%	9.4%	6.7%	3.1%	2.8%
	Macquarie-Castlereagh (n=23)	73.9%	20.0%	4.3%	3.9%	4.3%	3.9%	4.3%	3.9%	13.0%	9.2%
	Murray (n=169)	59.8%	7.5%	26.6%	6.2%	4.7%	2.5%	6.5%	3.0%	2.4%	1.6%
	Murrumbidgee (n=66)	66.7%	11.9%	22.7%	8.8%	3.0%	2.4%	6.1%	4.0%	1.5%	1.4%

Table A12 provides detailed data on use of allocation trade and entitlement trade for Basin irrigators in 2018. This expands on the data provided in Tables 13, 14, 15, and 16 in the main report, and Table A9 in this Appendix.

Table A12 Detailed water sourcing strategy - 2018

This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.	Detailed water sourcing strategy – 2018									
	Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitlements AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
Basin irrigators Murray-Darling Basin (n=314)	65.9%	5.4%	26.4%	4.6%	1.3%	0.8%	3.2%	1.5%	3.2%	1.5%
Basin location Northern Basin (n=39)	82.1%	14.1%	12.8%	7.8%	0.0%	0.0%	0.0%	0.0%	5.1%	4.0%
Southern Basin (n=275)	63.6%	5.8%	28.4%	5.1%	1.5%	1.0%	3.6%	1.8%	2.9%	1.5%
Basin State NSW Nth Basin (n=25)	76.0%	18.9%	16.0%	10.3%	0.0%	0.0%	0.0%	0.0%	8.0%	6.3%
Qld Basin (n=14)	92.9%	21.7%	7.1%	6.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NSW Sth Basin (n=84)	63.1%	10.6%	32.1%	9.3%	0.0%	0.0%	2.4%	1.9%	2.4%	1.9%
SA Basin (n=27)	66.7%	18.8%	18.5%	11.1%	3.7%	3.3%	7.4%	5.8%	3.7%	3.3%
Vic Basin (n=163)	63.2%	7.6%	28.2%	6.5%	1.8%	1.3%	3.7%	2.1%	3.1%	1.9%
Farm type Dairy (n=50)	44.0%	13.1%	42.0%	12.9%	2.0%	1.8%	8.0%	5.2%	4.0%	3.2%
Grain growing (n=37)	54.1%	15.9%	40.5%	14.6%	0.0%	0.0%	2.7%	2.4%	2.7%	2.4%
Grazier (n=86)	75.6%	9.8%	18.6%	7.1%	2.3%	1.8%	1.2%	1.0%	2.3%	1.8%
Horticulture (all) (n=78)	78.2%	10.1%	15.4%	6.7%	0.0%	0.0%	3.8%	2.8%	2.6%	2.0%
Mixed cropping/grazing (n=56)	58.9%	13.1%	32.1%	11.1%	1.8%	1.6%	1.8%	1.6%	5.4%	3.8%
Horticulture farm type Fruit/nut grower (n=28)	82.1%	16.9%	7.1%	5.6%	0.0%	0.0%	7.1%	5.6%	3.6%	3.2%
Winegrape grower (n=29)	75.9%	17.5%	17.2%	10.3%	0.0%	0.0%	3.4%	3.1%	3.4%	3.1%
<30ML (n=73)	82.2%	9.9%	12.3%	6.0%	2.7%	2.2%	0.0%	0.0%	2.7%	2.2%

		Detailed water sourcing strategy – 2018									
This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.		Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitlements AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
Megalitres of water used in on-farm irrigation in last year	30-99ML (n=53)	84.9%	11.4%	7.5%	4.9%	0.0%	0.0%	0.0%	0.0%	7.5%	4.9%
	100-299ML (n=67)	74.6%	11.3%	17.9%	7.7%	0.0%	0.0%	3.0%	2.4%	4.5%	3.2%
	300ML (n=77)	51.9%	11.1%	40.3%	10.4%	1.3%	1.2%	6.5%	4.0%	0.0%	0.0%
	1000ML+ (n=44)	27.3%	11.4%	61.4%	14.7%	2.3%	2.0%	6.8%	4.9%	2.3%	2.0%
	ML applied on farm - mean ML (n=314)	518	385	1020	343	781	1726	2526	2775	391	660
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=48)	47.9%	13.7%	41.7%	13.1%	2.1%	1.9%	6.3%	4.5%	2.1%	1.9%
	Modernised irrigation infrastructure using self-funding (n=197)	65.0%	6.8%	25.9%	5.7%	1.5%	1.1%	3.0%	1.8%	4.6%	2.3%
	Has not modernised irrigation infrastructure (n=58)	87.9%	10.2%	12.1%	6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross value of agricultural production 2015-16	<$50,000 (n=38)	81.6%	14.4%	13.2%	8.0%	2.6%	2.3%	0.0%	0.0%	2.6%	2.3%
	$50,000-$99,999 (n=47)	83.0%	12.5%	12.8%	7.3%	0.0%	0.0%	2.1%	1.9%	2.1%	1.9%
	$100,000-$299,999 (n=65)	66.2%	12.0%	29.2%	10.0%	0.0%	0.0%	0.0%	0.0%	4.6%	3.3%
	$300,000-$499,999 (n=30)	70.0%	17.7%	26.7%	13.2%	0.0%	0.0%	3.3%	3.0%	0.0%	0.0%
	$500,000-$999,999 (n=42)	50.0%	14.7%	40.5%	13.8%	2.4%	2.1%	4.8%	3.8%	2.4%	2.1%

This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.		Detailed water sourcing strategy – 2018									
		Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitlements AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
	$1 million + (n=54)	37.0%	11.9%	44.4%	12.7%	3.7%	2.9%	11.1%	6.3%	3.7%	2.9%
	Average GVAP (mean category) (n=314)	$100,000-$199,999	$50,000-$299,999	$300,000-$399,999	$200,000-$499,999	$400,000-$499,999	$50,000-$1.99 million	$500,000-$749,999	300,000-$1.99 million	$100,000-$199,999	$5,000-$399,999
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=33)	60.6%	17.0%	27.3%	12.8%	0.0%	0.0%	3.0%	2.7%	9.1%	6.5%
	Found it moderately difficult to access affordable farm finance (n=33)	39.4%	15.2%	39.4%	15.2%	3.0%	2.7%	9.1%	6.5%	9.1%	6.5%
	Did not find it difficult to access farm finance (n=231)	71.9%	6.0%	23.4%	5.1%	1.3%	0.9%	1.7%	1.1%	1.7%	1.1%
	Average level of difficulty accessing affordable farm finance (n=314)	Low difficulty		Moderate difficulty		Low difficulty		Moderate difficulty		Moderate-high difficulty	
Self-reported farm profitability over last 3 years	Making a loss (n=83)	65.1%	10.6%	20.5%	7.6%	3.6%	2.6%	3.6%	2.6%	7.2%	4.2%
	Breaking even/small profit (n=156)	66.7%	7.7%	28.8%	6.7%	0.6%	0.6%	1.9%	1.4%	1.9%	1.4%
	Moderate/large profit (n=64)	62.5%	12.2%	29.7%	10.1%	0.0%	0.0%	6.3%	4.1%	1.6%	1.4%
	Average profitability	Breaking even	Breaking even	Small profit	Small loss to	Small loss	Large loss to	Small profit	Breaking even to	Small loss	Moderate loss to

	Detailed water sourcing strategy – 2018										
This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.		Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitlements AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
	(category of mean) (n=314)				small profit		moderate profit		moderate profit		breaking even
Gender	Female (n=80)	61.3%	10.9%	30.0%	9.2%	1.3%	1.1%	2.5%	2.0%	5.0%	3.3%
	Male (n=228)	67.5%	6.3%	25.4%	5.3%	1.3%	0.9%	3.5%	1.8%	2.2%	1.4%
Age	Aged <45 (n=21)	42.9%	19.1%	33.3%	17.0%	9.5%	7.5%	9.5%	7.5%	4.8%	4.2%
	Aged 45-54 (n=50)	56.0%	13.8%	32.0%	11.6%	0.0%	0.0%	6.0%	4.3%	6.0%	4.3%
	Aged 55-64 (n=99)	61.6%	9.8%	32.3%	8.6%	1.0%	0.9%	3.0%	2.2%	2.0%	1.6%
	Aged 65-74 (n=100)	77.0%	8.9%	18.0%	6.6%	1.0%	0.9%	1.0%	0.9%	3.0%	2.1%
	Aged75+ (n=39)	76.9%	14.8%	20.5%	10.3%	0.0%	0.0%	2.6%	2.3%	0.0%	0.0%
	Average age (mean, years) (n=314)	64	1	60	3	51	26	55	10	55	8
Highest level of formal educational attainment	Did not complete high school (n=86)	67.4%	10.4%	26.7%	8.5%	1.2%	1.0%	2.3%	1.8%	2.3%	1.8%
	Has high school or non-university post-school qualification (n=131)	63.4%	8.5%	28.2%	7.2%	1.5%	1.2%	4.6%	2.6%	2.3%	1.6%
	Completed tertiary qualification (n=91)	68.1%	10.0%	23.1%	7.7%	1.1%	1.0%	2.2%	1.7%	5.5%	3.4%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=78)	71.8%	10.6%	17.9%	7.3%	2.6%	2.0%	2.6%	2.0%	5.1%	3.4%
	Earned 26-50% income off-farm (n=41)	61.0%	15.3%	29.3%	12.2%	0.0%	0.0%	7.3%	5.2%	2.4%	2.2%

This table provides detailed data underpinning data presented in Tables 14, 15 and 16 in the main body of the report.	Detailed water sourcing strategy – 2018									
	Used ONLY water from own entitlements	95% CI	Used water from own entitlements AND allocation purchased on temporary market	95% CI	Used water from own entitlements and leased entitlements	95% CI	Used water from own entitlements AND leased entitlement AND allocation purchased on temporary market	95% CI	Used no water from own entitlements (all water from purchases on temporary market and/or leased entitlements)	95% CI
Earned 51-75% income off-farm (n=30)	80.0%	16.7%	16.7%	10.0%	0.0%	0.0%	3.3%	3.0%	0.0%	0.0%
Earned 76-100% income off-farm (n=57)	80.7%	11.6%	14.0%	7.2%	1.8%	1.6%	0.0%	0.0%	3.5%	2.8%
All household income earned from farm (n=106)	51.9%	9.5%	40.6%	9.0%	0.9%	0.8%	3.8%	2.5%	2.8%	2.0%
Average proportion of income earned off-farm (mean, %) (n=314)	36.3	5.1	20.7	6.9	25.5	73.8	21.9	16.8	25.9	27.0

Table A13 examines the proportions of different groups of irrigators by the trade typology for 2015. This expands on the data provided in Tables 21, 22 and 23 in the main report.

Table A13 Trade typology - 2015

This table provides detailed data underpinning data presented in Tables 21, 22 and 23 in the main body of the report.		Trade typology									
		Non-trader	CI	Non-diverse allocation trader	CI	Non-diverse entitlement trader	CI	Diverse trader	CI	Non-portfolio trader	CI
Basin irrigators	Murray-Darling Basin (n=745)	38.8%	3.5%	38.1%	3.4%	5.2%	1.4%	15.2%	2.4%	2.7%	1.0%
Basin location	Northern Basin (n=112)	62.5%	9.2%	23.2%	7.1%	3.6%	2.4%	10.7%	4.7%	0.0%	0.0%
	Southern Basin (n=633)	34.6%	3.6%	40.8%	3.8%	5.5%	1.6%	16.0%	2.7%	3.2%	1.2%
Basin State	NSW Nth Basin (n=51)	49.0%	13.3%	31.4%	11.4%	7.8%	5.1%	11.8%	6.7%	0.0%	0.0%
	Qld Basin (n=61)	73.8%	12.0%	16.4%	7.6%	0.0%	0.0%	9.8%	5.6%	0.0%	0.0%
	NSW Sth Basin (n=230)	31.3%	5.7%	44.8%	6.3%	4.3%	2.1%	19.6%	4.7%	0.0%	0.0%
	SA Basin (n=93)	33.3%	9.0%	29.0%	8.5%	14.0%	5.9%	21.5%	7.4%	2.2%	1.7%
	Vic Basin (n=310)	37.4%	5.2%	41.3%	5.4%	3.9%	1.7%	11.6%	3.2%	5.8%	2.2%
Farm type	Dairy (n=93)	25.8%	8.1%	49.5%	10.0%	2.2%	1.7%	16.1%	6.4%	6.5%	3.7%
	Grain growing (n=132)	34.1%	7.7%	37.1%	7.9%	3.0%	2.0%	25.8%	6.9%	0.0%	0.0%
	Grazier (n=146)	52.7%	8.1%	35.6%	7.4%	4.1%	2.4%	7.5%	3.5%	0.0%	0.0%
	Horticulture (all) (n=203)	43.3%	6.7%	30.5%	6.0%	8.4%	3.2%	15.3%	4.4%	2.5%	1.5%
	Mixed cropping/grazing (n=74)	37.8%	10.4%	40.5%	10.6%	6.8%	4.1%	13.5%	6.3%	1.4%	1.2%
Horticulture farm type	Fruit/nut grower (n=90)	40.0%	9.7%	32.2%	9.0%	11.1%	5.3%	15.6%	6.4%	1.1%	1.0%
	Winegrape grower (n=97)	43.3%	9.5%	32.0%	8.6%	6.2%	3.6%	14.4%	5.9%	4.1%	2.7%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=232)	56.0%	6.4%	26.3%	5.3%	6.0%	2.5%	8.6%	3.1%	3.0%	1.7%
	30-99ML (n=136)	43.7%	9.3%	38.8%	9.0%	2.9%	2.1%	12.6%	5.4%	1.9%	1.5%
	100-299ML (n=136)	36.8%	7.8%	43.4%	8.1%	4.4%	2.5%	13.2%	4.9%	2.2%	1.6%
	300ML (n=153)	26.8%	6.5%	51.0%	7.9%	5.2%	2.7%	13.1%	4.6%	3.9%	2.3%
	1000ML+ (n=121)	19.0%	6.2%	38.0%	8.3%	6.6%	3.4%	34.7%	8.0%	1.7%	1.3%
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=148)	22.3%	6.1%	39.2%	7.6%	6.8%	3.2%	31.1%	7.0%	0.7%	0.6%
	Modernised irrigation infrastructure using self-funding (n=241)	40.7%	6.1%	38.6%	6.0%	5.0%	2.2%	14.1%	4.0%	1.7%	1.1%
	Has not modernised irrigation infrastructure (n=262)	44.7%	5.9%	37.8%	5.7%	4.2%	1.9%	8.8%	3.0%	4.6%	2.1%
Gross value of agricultural production 2015-16	<$50,000 (n=164)	46.3%	7.5%	31.7%	6.8%	7.9%	3.4%	10.4%	4.0%	3.7%	2.1%
	$50,000-$99,999 (n=72)	40.3%	10.8%	40.3%	10.8%	1.4%	1.2%	16.7%	7.2%	1.4%	1.2%
	$100,000-$299,999 (n=144)	40.3%	7.8%	43.1%	7.9%	4.2%	2.4%	8.3%	3.7%	4.2%	2.4%
	$300,000-$499,999 (n=86)	44.2%	10.2%	34.9%	9.4%	3.5%	2.5%	16.3%	6.6%	1.2%	1.0%

		Trade typology									
This table provides detailed data underpinning data presented in Tables 21, 22 and 23 in the main body of the report.		Non-trader	CI	Non-diverse allocation trader	CI	Non-diverse entitlement trader	CI	Diverse trader	CI	Non-portfolio trader	CI
	$500,000-$999,999 (n=121)	35.5%	8.1%	38.0%	8.3%	5.8%	3.2%	18.2%	6.1%	2.5%	1.8%
	$1 million + (n=122)	25.4%	7.1%	40.2%	8.4%	6.6%	3.4%	26.2%	7.2%	1.6%	1.3%
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=87)	25.3%	8.2%	47.1%	10.3%	8.0%	4.4%	12.6%	5.7%	6.9%	4.0%
	Found it moderately difficult to access affordable farm finance (n=91)	40.7%	9.7%	34.1%	9.1%	4.4%	2.9%	15.4%	6.3%	5.5%	3.4%
	Did not find it difficult to access farm finance (n=347)	41.8%	5.1%	36.6%	4.9%	4.0%	1.7%	15.3%	3.5%	2.3%	1.2%
Self-reported farm profitability over last 3 years	Making a loss (n=194)	35.6%	6.5%	35.1%	6.5%	5.7%	2.6%	18.0%	4.9%	5.7%	2.6%
	Breaking even/small profit (n=351)	42.2%	5.1%	39.0%	5.0%	4.8%	1.9%	12.0%	3.1%	2.0%	1.1%
	Moderate/large profit (n=180)	37.2%	6.8%	37.2%	6.8%	6.1%	2.8%	18.9%	5.2%	0.6%	0.5%
Gender	Female (n=226)	38.5%	6.2%	35.8%	6.0%	5.3%	2.4%	15.9%	4.3%	4.4%	2.1%
	Male (n=517)	38.9%	4.1%	39.1%	4.1%	5.2%	1.7%	14.9%	2.9%	1.9%	0.9%
Age	Aged <45 (n=76)	32.9%	9.8%	38.2%	10.3%	1.3%	1.2%	21.1%	8.0%	6.6%	4.0%
	Aged 45-54 (n=176)	30.7%	6.5%	43.2%	7.2%	6.8%	3.0%	15.9%	4.8%	3.4%	2.0%
	Aged 55-64 (n=240)	40.8%	6.1%	35.4%	5.8%	7.5%	2.8%	14.6%	4.0%	1.7%	1.1%
	Aged 65-74 (n=174)	45.4%	7.3%	35.6%	6.8%	2.9%	1.8%	13.2%	4.4%	2.9%	1.8%
	Aged75+ (n=76)	42.1%	10.6%	39.5%	10.4%	3.9%	2.8%	14.5%	6.5%	0.0%	0.0%
Highest level of formal educational attainment	Did not complete high school (n=196)	37.2%	6.5%	43.9%	6.8%	5.1%	2.4%	12.2%	4.0%	1.5%	1.1%
	Has high school or non-university post-school qualification (n=319)	43.3%	5.4%	32.9%	5.0%	5.3%	2.1%	16.0%	3.7%	2.5%	1.3%
	Completed tertiary qualification (n=211)	34.6%	6.2%	39.8%	6.4%	4.7%	2.3%	16.6%	4.5%	4.3%	2.1%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=170)	35.3%	6.9%	43.5%	7.3%	5.9%	2.8%	14.1%	4.6%	1.2%	0.9%
	Earned 26-50% income off-farm (n=104)	32.7%	8.4%	43.3%	9.2%	4.8%	2.9%	17.3%	6.3%	1.9%	1.5%
	Earned 51-75% income off-farm (n=55)	54.5%	13.1%	32.7%	11.3%	1.8%	1.6%	10.9%	6.2%	0.0%	0.0%
	Earned 76-100% income off-farm (n=157)	36.3%	7.2%	35.0%	7.1%	8.3%	3.6%	15.3%	5.0%	5.1%	2.7%
	All household income earned from farm (n=257)	42.0%	5.9%	35.0%	5.6%	3.9%	1.9%	16.0%	4.1%	3.1%	1.6%
Catchment	Campaspe (n=32)	18.8%	10.5%	50.0%	16.7%	3.1%	2.8%	12.5%	8.1%	15.6%	9.4%
	Condamine–Balonne (n=43)	79.1%	13.8%	16.3%	8.7%	0.0%	0.0%	4.7%	3.7%	0.0%	0.0%

| This table provides detailed data underpinning data presented in Tables 21, 22 and 23 in the main body of the report. | Trade typology | | | | | | | | | | |
	Non-trader	CI	Non-diverse allocation trader	CI	Non-diverse entitlement trader	CI	Diverse trader	CI	Non-portfolio trader	CI
Goulburn (n=72)	26.4%	9.1%	48.6%	11.3%	1.4%	1.2%	15.3%	6.9%	8.3%	4.8%
Lachlan (n=30)	40.0%	16.0%	50.0%	17.2%	0.0%	0.0%	10.0%	7.1%	0.0%	0.0%
Loddon (n=48)	54.2%	14.0%	33.3%	12.1%	0.0%	0.0%	10.4%	6.3%	2.1%	1.9%
Macquarie–Castlereagh (n=19)	57.9%	22.0%	36.8%	18.6%	0.0%	0.0%	5.3%	4.7%	0.0%	0.0%
Murrumbidgee (n=101)	33.7%	8.7%	40.6%	9.2%	3.0%	2.1%	22.8%	7.3%	0.0%	0.0%
Namoi (n=20)	45.0%	19.9%	25.0%	14.8%	20.0%	12.8%	10.0%	7.9%	0.0%	0.0%
New South Wales Murray (n=84)	26.2%	8.5%	45.2%	10.3%	6.0%	3.6%	22.6%	7.9%	0.0%	0.0%
South Australian Non-Prescribed Areas (n=65)	29.2%	10.0%	35.4%	10.8%	12.3%	6.3%	21.5%	8.6%	1.5%	1.4%
Victorian Murray (n=91)	22.0%	7.5%	50.5%	10.2%	6.6%	3.8%	15.4%	6.3%	5.5%	3.4%

Table A14 examines the proportions of different groups of irrigators by the trade typology for 2016. This expands on the data provided in Tables 21, 22 and 23 in the main report.

Table A14 Trade typology - 2016

This table provides detailed data underpinning data presented in Tables 21, 22 and 23 in the main body of the report.		Non-trader	CI	Non-diverse allocation trader	CI	Non-diverse entitlement trader	CI	Diverse trader	CI	Non-portfolio trader	CI
Basin irrigators	Murray-Darling Basin (n=518)	37.8%	4.1%	32.0%	3.9%	8.1%	2.1%	19.1%	3.2%	2.9%	1.2%
Basin location	Northern Basin (n=72)	59.7%	11.5%	13.9%	6.5%	12.5%	6.1%	9.7%	5.3%	4.2%	3.0%
	Southern Basin (n=446)	34.3%	4.3%	35.0%	4.3%	7.4%	2.2%	20.6%	3.6%	2.7%	1.2%
Basin State	NSW Nth Basin (n=48)	58.3%	14.1%	8.3%	5.5%	12.5%	7.1%	14.6%	7.8%	6.3%	4.5%
	Qld Basin (n=24)	62.5%	19.9%	25.0%	13.8%	12.5%	8.9%	0.0%	0.0%	0.0%	
	NSW Sth Basin (n=129)	31.0%	7.5%	34.1%	7.8%	9.3%	4.1%	23.3%	6.6%	2.3%	1.7%
	SA Basin (n=51)	37.3%	12.3%	25.5%	10.4%	15.7%	8.0%	19.6%	9.1%	2.0%	1.7%
	Vic Basin (n=265)	35.1%	5.6%	37.4%	5.7%	4.9%	2.1%	19.6%	4.4%	3.0%	1.6%
Farm type	Dairy (n=119)	24.4%	7.0%	38.7%	8.4%	5.9%	3.2%	26.9%	7.3%	4.2%	2.6%
	Grain growing (n=72)	25.0%	8.9%	31.9%	9.9%	12.5%	6.1%	27.8%	9.3%	2.8%	2.2%
	Grazier (n=107)	50.5%	9.4%	28.0%	7.8%	6.5%	3.6%	12.1%	5.2%	2.8%	2.0%
	Horticulture (all) (n=77)	44.2%	10.7%	31.2%	9.5%	6.5%	4.0%	16.9%	7.1%	1.3%	1.2%
	Mixed cropping/grazing (n=64)	40.6%	11.4%	35.9%	10.9%	6.3%	4.1%	14.1%	6.9%	3.1%	2.5%
Horticulture farm type	Fruit/nut grower (n=68)	41.2%	11.1%	30.9%	10.0%	7.4%	4.5%	19.1%	8.0%	1.5%	1.3%
	Winegrape grower (n=55)	49.1%	12.9%	14.5%	7.4%	14.5%	7.4%	18.2%	8.4%	3.6%	2.9%
	<30ML (n=131)	55.0%	8.6%	18.3%	5.9%	10.7%	4.4%	14.5%	5.2%	1.5%	1.2%

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This table provides detailed data underpinning data presented in Tables 21, 22 and 23 in the main body of the report.		Non-trader	CI	Non-diverse allocation trader	CI	Non-diverse entitlement trader	CI	Diverse trader	CI	Non-portfolio trader	CI
Megalitres of water used in on-farm irrigation in last year	30-99ML (n=88)	42.2%	9.3%	33.3%	8.6%	8.8%	4.4%	12.7%	5.4%	2.9%	2.1%
	100-299ML (n=102)	9.7%	5.5%	40.3%	11.5%	9.7%	5.5%	38.7%	11.4%	1.6%	1.4%
	300ML (n=135)	44.3%	10.1%	29.5%	8.8%	6.8%	3.9%	13.6%	6.0%	5.7%	3.5%
	1000ML+ (n=62)	26.7%	6.9%	42.2%	8.1%	5.2%	2.8%	23.0%	6.5%	3.0%	2.0%
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=106)	25.5%	7.6%	34.0%	8.5%	2.8%	2.0%	34.9%	8.6%	2.8%	2.0%
	Modernised irrigation infrastructure using self-funding (n=196)	32.7%	6.3%	34.7%	6.4%	8.7%	3.3%	22.4%	5.4%	1.5%	1.1%
	Has not modernised irrigation infrastructure (n=191)	49.2%	7.0%	28.8%	6.1%	8.9%	3.4%	8.9%	3.4%	4.2%	2.2%
Gross value of agricultural production 2015-16	<$50,000 (n=105)	46.7%	9.3%	27.6%	7.9%	9.5%	4.5%	13.3%	5.5%	2.9%	2.0%
	$50,000-$99,999 (n=63)	39.7%	11.4%	34.9%	10.9%	7.9%	4.8%	15.9%	7.4%	1.6%	1.4%
	$100,000-$299,999 (n=83)	37.3%	9.8%	34.9%	9.6%	9.6%	5.0%	14.5%	6.3%	3.6%	2.6%
	$300,000-$499,999 (n=62)	41.9%	11.7%	33.9%	10.8%	3.2%	2.5%	17.7%	7.9%	3.2%	2.5%
	$500,000-$999,999 (n=75)	29.3%	9.4%	34.7%	10.0%	8.0%	4.6%	25.3%	8.8%	2.7%	2.1%
	$1 million + (n=89)	27.0%	8.4%	34.8%	9.3%	7.9%	4.3%	28.1%	8.5%	2.2%	1.8%
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=74)	37.8%	10.4%	23.0%	8.4%	8.1%	4.7%	25.7%	8.9%	5.4%	3.6%
	Found it moderately difficult to access affordable farm finance (n=95)	32.6%	8.8%	35.8%	9.1%	6.3%	3.6%	23.2%	7.6%	2.1%	1.7%
	Did not find it difficult to access farm finance (n=313)	38.3%	5.3%	35.1%	5.1%	7.7%	2.6%	16.3%	3.8%	2.6%	1.3%
Self-reported farm profitability over last 3 years	Making a loss (n=120)	44.2%	8.7%	34.2%	8.0%	9.2%	4.2%	10.0%	4.4%	2.5%	1.8%
	Breaking even/small profit (n=243)	35.4%	5.8%	34.2%	5.7%	5.3%	2.3%	21.4%	4.8%	3.7%	1.9%
	Moderate/large profit (n=126)	36.5%	8.0%	29.4%	7.4%	10.3%	4.4%	21.4%	6.5%	2.4%	1.7%
Gender	Female (n=114)	37.7%	8.5%	27.2%	7.5%	10.5%	4.6%	18.4%	6.3%	6.1%	3.4%
	Male (n=394)	38.6%	4.7%	33.0%	4.5%	7.1%	2.2%	19.5%	3.7%	1.8%	1.0%
Age	Aged <45 (n=51)	29.4%	11.1%	31.4%	11.4%	7.8%	5.1%	21.6%	9.5%	9.8%	6.0%
	Aged 45-54 (n=93)	40.9%	9.6%	24.7%	7.9%	10.8%	5.1%	21.5%	7.4%	2.2%	1.7%
	Aged 55-64 (n=172)	38.4%	7.0%	33.1%	6.7%	5.2%	2.6%	20.9%	5.6%	2.3%	1.5%
	Aged 65-74 (n=133)	39.1%	8.0%	34.6%	7.7%	10.5%	4.4%	14.3%	5.2%	1.5%	1.2%
	Aged75+ (n=56)	39.3%	12.0%	33.9%	11.3%	7.1%	4.7%	19.6%	8.7%	0.0%	0.0%
Highest level of formal educational attainment	Did not complete high school (n=154)	34.4%	7.2%	40.3%	7.5%	9.1%	3.8%	15.6%	5.1%	0.6%	0.6%
	Has high school or non-university post-school qualification (n=235)	36.2%	5.9%	28.5%	5.5%	7.7%	2.9%	23.4%	5.1%	4.3%	2.0%

This table provides detailed data underpinning data presented in Tables 21, 22 and 23 in the main body of the report.		Non-trader	CI	Non-diverse allocation trader	CI	Non-diverse entitlement trader	CI	Diverse trader	CI	Non-portfolio trader	CI
	Completed tertiary qualification (n=124)	46.0%	8.6%	28.2%	7.4%	6.5%	3.4%	16.1%	5.7%	3.2%	2.1%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=130)	35.4%	7.8%	33.8%	7.7%	7.7%	3.7%	20.8%	6.3%	2.3%	1.7%
	Earned 26-50% income off-farm (n=66)	33.3%	10.5%	36.4%	10.8%	7.6%	4.6%	19.7%	8.2%	3.0%	2.4%
	Earned 51-75% income off-farm (n=32)	53.1%	16.9%	15.6%	9.4%	12.5%	8.1%	15.6%	9.4%	3.1%	2.8%
	Earned 76-100% income off-farm (n=88)	43.2%	10.0%	31.8%	9.0%	10.2%	5.0%	12.5%	5.7%	2.3%	1.8%
	All household income earned from farm (n=199)	36.2%	6.4%	32.2%	6.2%	7.0%	2.9%	21.1%	5.2%	3.5%	1.9%
Catchment	Campaspe (n=35)	25.7%	12.2%	48.6%	15.9%	5.7%	4.5%	20.0%	10.6%	Too few responses to confidently report by catchment	
	Goulburn (n=74)	66.7%	31.9%	22.2%	17.3%	11.1%	9.9%	0.0%			
	Loddon (n=32)	20.0%	15.6%	50.0%	27.6%	10.0%	8.9%	10.0%	8.9%		
	Macquarie–Castlereagh (n=25)	60.0%	19.4%	8.0%	6.3%	8.0%	6.3%	12.0%	8.5%		
	Murrumbidgee (n=60)	28.3%	10.2%	33.3%	10.9%	6.7%	4.4%	30.0%	10.5%		
	New South Wales Murray (n=49)	30.6%	11.5%	34.7%	12.1%	10.2%	6.2%	22.4%	9.9%		
	South Australian Non-Prescribed Areas (n=33)	30.3%	13.5%	30.3%	13.5%	21.2%	11.2%	18.2%	10.2%		
	Victorian Murray (n=96)	31.3%	8.6%	38.5%	9.3%	6.3%	3.6%	24.0%	7.7%		

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Table A15 examines the proportions of different groups of irrigators by the trade typology for 2018. This expands on the data provided in Tables 21, 22 and 23 in the main report.

Table A15 Trade typology - 2018

This table provides detailed data underpinning data presented in Tables 21, 22 and 23 in the main body of the report.		Non-trader	CI	Non-diverse allocation trader	CI	Non-diverse entitlement trader	CI	Diverse trader	CI	Non-portfolio trader	CI
Basin irrigators	Murray-Darling Basin (n=164)	51.5%	5.1%	28.5%	4.5%	6.4%	2.2%	10.8%	2.9%	2.8%	1.3%
Basin location	Northern Basin (n=31)	64.0%	13.8%	14.0%	7.5%	10.0%	6.1%	8.0%	5.2%	4.0%	3.2%
	Southern Basin (n=36)	49.5%	5.4%	30.9%	4.9%	5.8%	2.2%	11.3%	3.2%	2.6%	1.3%
Basin State	NSW Nth Basin (n=18	50.0%	16.7%	21.9%	11.5%	12.5%	8.1%	9.4%	6.7%	6.3%	4.9%
	NSW Sth Basin (n=36)	43.3%	9.1%	36.1%	9.0%	6.2%	3.6%	12.4%	5.4%	2.1%	1.6%
	Qld Basin (n=13)	88.9%	22.8%	0.0%		5.6%	4.9%	5.6%	4.9%	0.0%	0.0%
	SA Basin (n=14)	56.7%	16.9%	16.7%	10.0%	3.3%	3.0%	20.0%	11.2%	3.3%	3.0%
	Vic Basin (n=83)	51.6%	7.0%	30.4%	6.3%	6.0%	2.8%	9.2%	3.6%	2.7%	1.7%
Farm type	Dairy (n=22)	40.4%	12.3%	42.3%	12.7%	5.8%	4.1%	7.7%	5.0%	3.8%	3.0%
	Grain growing (n=10)	37.5%	10.7%	42.5%	14.4%	7.5%	5.3%	10.0%	6.5%	2.5%	2.2%
	Grazier (n=55)	53.2%	9.2%	29.4%	7.9%	6.4%	3.5%	9.2%	4.4%	1.8%	1.5%
	Horticulture (all) (n=50)	64.4%	10.3%	13.3%	5.8%	7.8%	4.2%	12.2%	5.6%	2.2%	1.8%
	Mixed cropping/grazing (n=22)	45.2%	11.0%	30.6%	10.4%	3.2%	2.5%	16.1%	7.5%	4.8%	3.5%
Horticulture farm type	Fruit/nut grower (n=20)	67.7%	17.5%	6.5%	5.1%	12.9%	8.4%	9.7%	6.9%	3.2%	2.9%
	Winegrape grower (n=20)	67.6%	16.7%	14.7%	8.9%	5.9%	4.6%	8.8%	6.3%	2.9%	2.6%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=71)	75.2%	9.4%	11.4%	5.0%	5.7%	3.3%	5.7%	3.3%	1.9%	1.5%
	30-99ML (n=29)	64.9%	12.8%	21.1%	9.0%	3.5%	2.8%	3.5%	2.8%	7.0%	4.6%
	100-299ML (n=27)	41.1%	10.1%	31.5%	9.8%	11.0%	5.6%	12.3%	6.0%	4.1%	2.9%
	300ML (n=28)	38.0%	9.7%	36.7%	10.0%	5.1%	3.3%	20.3%	7.7%	0.0%	0.0%
	1000ML+ (n=9)	21.3%	8.6%	57.4%	14.2%	6.4%	4.6%	12.8%	7.3%	2.1%	1.9%
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=17)	41.2%	11.7%	37.3%	12.3%	5.9%	4.2%	13.7%	7.4%	2.0%	1.7%
	Modernised irrigation infrastructure using self-funding (n=99)	48.0%	6.3%	27.8%	5.5%	7.5%	2.9%	12.8%	3.9%	4.0%	2.0%
	Has not modernised irrigation infrastructure (n=44)	71.4%	11.7%	22.9%	8.6%	2.9%	2.3%	2.9%	2.3%	0.0%	0.0%
Gross value of agricultural	<$50,000 (n=33)	67.3%	13.2%	21.8%	9.3%	5.5%	3.9%	3.6%	2.9%	1.8%	1.6%
	$50,000-$99,999 (n=28)	60.0%	13.7%	22.0%	9.7%	6.0%	4.3%	10.0%	6.1%	2.0%	1.8%
	$100,000-$299,999 (n=34)	51.3%	10.6%	30.8%	9.4%	5.1%	3.4%	9.0%	4.9%	3.8%	2.8%

This table provides detailed data underpinning data presented in Tables 21, 22 and 23 in the main body of the report.		Non-trader	CI	Non-diverse allocation trader	CI	Non-diverse entitlement trader	CI	Diverse trader	CI	Non-portfolio trader	CI
production 2015-16	$300,000-$499,999 (n=13)	42.4%	15.2%	39.4%	15.2%	3.0%	2.7%	15.2%	9.1%	0.0%	0.0%
	$500,000-$999,999 (n=23)	47.9%	13.3%	27.1%	11.0%	8.3%	5.5%	14.6%	7.8%	2.1%	1.9%
	$1 million + (n=11)	23.6%	8.4%	40.0%	12.2%	9.1%	5.5%	23.6%	9.7%	3.6%	2.9%
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=13)	45.9%	13.8%	21.6%	10.8%	2.7%	2.4%	21.6%	10.8%	8.1%	5.8%
	Found it moderately difficult to access affordable farm finance (n=12)	32.5%	11.9%	37.5%	13.7%	5.0%	3.9%	17.5%	9.3%	7.5%	5.3%
	Did not find it difficult to access farm finance (n=132)	55.8%	6.0%	27.5%	5.1%	6.8%	2.6%	8.3%	2.9%	1.5%	1.0%
Self-reported farm profitability over last 3 years	Making a loss (n=47)	55.8%	9.7%	21.1%	7.3%	5.3%	3.2%	11.6%	5.3%	6.3%	3.6%
	Breaking even/small profit (n=80)	48.4%	7.0%	34.8%	6.6%	6.5%	2.9%	8.7%	3.4%	1.6%	1.2%
	Moderate/large profit (n=31)	52.1%	11.1%	22.5%	8.5%	7.0%	4.3%	16.9%	7.3%	1.4%	1.3%
Gender	Female (n=35)	45.1%	9.5%	31.9%	8.9%	6.6%	3.8%	12.1%	5.5%	4.4%	2.9%
	Male (n=127)	53.8%	5.9%	27.7%	5.1%	6.4%	2.5%	10.2%	3.2%	1.9%	1.2%
Age	Aged <45 (n=6)	21.7%	12.9%	39.1%	17.7%	17.4%	11.2%	17.4%	11.2%	4.3%	3.9%
	Aged 45-54 (n=19)	40.0%	11.5%	36.4%	11.8%	3.6%	2.9%	14.5%	7.4%	5.5%	3.9%
	Aged 55-64 (n=57)	55.4%	8.7%	27.3%	7.3%	3.3%	2.2%	12.4%	5.0%	1.7%	1.3%
	Aged 65-74 (n=61)	55.8%	9.1%	25.7%	7.4%	9.7%	4.5%	6.2%	3.4%	2.7%	1.9%
	Aged75+ (n=18)	60.5%	13.8%	23.3%	10.6%	4.7%	3.7%	11.6%	7.0%	0.0%	0.0%
Highest level of formal educational attainment	Did not complete high school (n=41)	54.3%	9.6%	27.7%	8.3%	6.4%	3.7%	9.6%	4.7%	2.1%	1.7%
	Has high school or non-university post-school qualification (n=70)	50.3%	7.6%	29.0%	6.7%	7.1%	3.3%	11.6%	4.3%	1.9%	1.4%
	Completed tertiary qualification (n=50)	50.5%	9.3%	28.6%	8.0%	5.7%	3.3%	10.5%	4.8%	4.8%	2.9%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=41)	50.5%	9.9%	25.3%	8.1%	8.8%	4.5%	11.0%	5.2%	4.4%	2.9%
	Earned 26-50% income off-farm (n=16)	38.3%	12.3%	38.3%	12.9%	6.4%	4.6%	14.9%	8.0%	2.1%	1.9%
	Earned 51-75% income off-farm (n=15)	55.9%	15.3%	20.6%	10.9%	5.9%	4.6%	17.6%	9.9%	0.0%	0.0%
	Earned 76-100% income off-farm (n=48)	71.6%	11.3%	18.9%	7.6%	5.4%	3.6%	1.4%	1.2%	2.7%	2.1%
	All household income earned from farm (n=43)	43.4%	8.4%	35.4%	8.4%	5.3%	3.1%	13.3%	5.3%	2.7%	1.9%

This table provides detailed data underpinning data presented in Tables 21, 22 and 23 in the main body of the report.		Non-trader	CI	Non-diverse allocation trader	CI	Non-diverse entitlement trader	CI	Diverse trader	CI	Non-portfolio trader	CI
	Goulburn-Broken (n=31)	60.7%	12.3%	23.0%	9.1%	3.3%	2.6%	11.5%	6.2%	1.6%	1.5%
	Murray (n=43)	43.6%	8.3%	35.0%	8.2%	5.1%	3.0%	13.7%	5.3%	2.6%	1.8%
	Murrumbidgee (n=16)	51.4%	15.6%	28.6%	12.8%	5.7%	4.5%	11.4%	7.4%	2.9%	2.5%

Table A16 examines how views about water markets varied between different groups of irrigators in 2015. This was used to produce Table 24 in the main body of the report.

Table A16 Basin irrigator views about water markets, 2015: mean scores and 95% confidence intervals

This table provides detailed data underpinning the data in Table 24 in the main body of the report.		My rights to access water (when it is available) are secure		It is easy to trade temporary water if I want to		It is easy to trade permanent water entitlements if I want to		The water trade market is fair for all users		I feel confident to use water trading as part of my farm management		Changes to the rules for water trading in the last few years have increased my confidence in the water market		Water entitlements held by the government are subject to the same rules and charges as other participants in the water market		Water market rules are stable		I know how to access the information I need to make water trading decisions		It's easy to access the information I need to make water trading decisions	
		Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI
Basin irrigators	Murray-Darling Basin (n=829)	4.4	0.2	5.2	0.2	5.0	0.2	3.2	0.2	4.5	0.2	3.1	0.2	2.9	0.2	2.9	0.2	5.0	0.2	4.8	0.2
Trade typology	Non-trader (n=289)	4.6	0.3	4.4	0.3	4.4	0.3	3.1	0.3	3.5	0.3	2.7	0.3	2.9	0.4	2.9	0.3	4.5	0.3	4.3	0.3
	Non-diverse allocation trader (n=113)	4.5	0.4	5.4	0.4	5.3	0.4	3.4	0.4	5.2	0.4	3.4	0.4	3.4	0.5	3.1	0.4	5.5	0.3	5.3	0.3
	Non-diverse entitlement trader (n=284)	4.2	0.3	5.7	0.2	5.4	0.2	3.2	0.3	4.8	0.3	3.2	0.3	2.7	0.3	2.8	0.3	5.3	0.2	5.1	0.2
	Diverse trader (n=39)	4.3	0.8	5.2	0.7	5.0	0.7	3.5	0.8	4.6	0.7	3.2	0.7	2.7	1.0	2.6	0.7	4.8	0.7	4.7	0.7
	Non-portfolio trader (n=20)	3.6	1.2	5.0	1.1	4.7	1.5	2.6	1.2	4.6	1.2	2.6	1.2	2.3	1.2	2.6	1.0	4.9	1.2	4.5	1.1
Engagement in water market trade in 12 months prior to spring 2016	Traded both allocation and entitlements (n=101)	4.5	0.5	5.2	0.4	5.2	0.4	3.3	0.5	5.1	0.4	3.4	0.4	3.5	0.5	3.1	0.4	5.5	0.3	5.1	0.4
	Traded allocation (but not entitlements) (n=306)	4.2	0.3	5.8	0.2	5.4	0.2	3.2	0.3	4.9	0.3	3.3	0.3	2.7	0.3	2.8	0.2	5.3	0.2	5.1	0.2
	Traded entitlements (but not allocation) (n=43)	4.3	0.7	5.2	0.6	5.0	0.7	3.5	0.7	4.6	0.7	3.1	0.7	2.6	0.9	2.6	0.6	4.8	0.7	4.8	0.7
	No trading (n=291)	4.6	0.3	4.4	0.3	4.4	0.3	3.0	0.3	3.5	0.3	2.7	0.3	2.9	0.4	2.9	0.3	4.5	0.3	4.3	0.3
Water sources used to irrigate farm	Used water from own entitlements only (n=443)	4.7	0.2	5.2	0.2	5.0	0.2	3.5	0.2	4.5	0.2	3.3	0.2	2.9	0.3	3.1	0.2	5.0	0.2	4.8	0.2
	Used water from own entitlements and temporary	3.9	0.3	5.3	0.3	5.2	0.3	2.7	0.3	4.6	0.3	2.8	0.3	2.8	0.3	2.6	0.3	5.2	0.2	4.9	0.2

This table provides detailed data underpinning the data in Table 24 in the main body of the report.		My rights to access water (when it is available) are secure		It is easy to trade temporary water if I want to		It is easy to trade permanent water entitlements if I want to		The water trade market is fair for all users		I feel confident to use water trading as part of my farm management		Changes to the rules for water trading in the last few years have increased my confidence in the water market		Water entitlements held by the government are subject to the same rules and charges as other participants in the water market		Water market rules are stable		I know how to access the information I need to make water trading decisions		It's easy to access the information I need to make water trading decisions	
		Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI
	water/leased water (n=242)	(red)	(red)					(red)	(red)												
	Used temporary water/leased water only (no entitlements) (n=20)	3.6	1.2	5.0	1.1	4.7	1.5	2.6	1.2	4.6	1.2	2.6	1.2	2.3	1.2	2.6	1.0	4.9	1.2	4.5	1.1
Use of surface water and ground water	Used surface water only (n=461)	4.4	0.2	5.5	0.2	5.3	0.2	3.3	0.2	4.6	0.2	3.1	0.2	2.9	0.3	2.9	0.2	5.1	0.2	5.0	0.2
	Used surface water and groundwater (n=72)	4.4	0.5	5.3	0.5	5.1	0.5	2.8	0.5	4.8	0.5	3.0	0.5	2.8	0.6	2.8	0.5	5.0	0.5	4.9	0.5
	Used groundwater only (n=78)	4.8	0.6	3.7	0.7	3.6	0.7	2.8	0.6	3.4	0.8	2.6	0.7	3.0	0.9	2.5	0.6	3.8	0.7	3.6	0.7
Basin location	Northern Basin (n=137)	4.6	0.4	4.4	0.4	4.2	0.4	3.9	0.4	4.0	0.5	3.8	0.5	2.9	0.5	3.4	0.4	4.3	0.4	4.2	0.5
	Southern Basin (n=692)	4.4	0.2	5.3	0.2	5.2	0.2	3.1	0.2	4.5	0.2	3.0	0.2	2.9	0.2	2.8	0.2	5.1	0.2	4.9	0.2
Basin State	NSW Nth Basin (n=64)	4.3	0.6	4.5	0.6	4.2	0.6	3.8	0.6	4.0	0.6	3.4	0.6	2.8	0.7	3.2	0.5	4.3	0.6	4.3	0.6
	Qld Basin (n=73)	5.0	0.6	4.4	0.7	4.3	0.7	4.0	0.6	4.2	0.8	4.3	0.7	3.1	0.9	3.6	0.6	4.4	0.7	4.1	0.8
	NSW Sth Basin (n=245)	4.3	0.3	5.5	0.3	5.2	0.3	3.1	0.3	4.6	0.3	3.0	0.3	3.0	0.4	2.8	0.3	5.2	0.3	5.0	0.3
	SA Basin (n=105)	4.9	0.5	5.5	0.4	5.4	0.4	4.2	0.5	5.2	0.4	3.9	0.5	3.7	0.7	3.6	0.5	5.5	0.4	5.4	0.4
	Vic Basin (n=342)	4.3	0.3	5.1	0.3	5.0	0.3	2.7	0.3	4.3	0.3	2.7	0.3	2.5	0.3	2.6	0.3	5.0	0.3	4.7	0.3
Farm type	Dairy (n=98)	3.9	0.5	5.3	0.5	5.3	0.4	2.4	0.4	4.3	0.5	2.4	0.5	2.4	0.6	2.3	0.4	5.0	0.5	4.7	0.5
	Grain growing (n=142)	4.3	0.4	5.4	0.3	5.3	0.3	3.2	0.4	4.7	0.4	3.2	0.4	3.3	0.5	3.1	0.4	5.3	0.3	5.0	0.3
	Grazier (n=171)	4.2	0.4	4.9	0.4	4.7	0.4	3.1	0.4	4.2	0.4	2.9	0.4	2.1	0.4	2.6	0.4	4.6	0.4	4.6	0.4
	Horticulture (all) (n=220)	5.2	0.3	5.3	0.3	5.0	0.4	3.8	0.4	4.8	0.3	3.7	0.4	3.6	0.4	3.4	0.3	5.3	0.3	5.1	0.3
	Mixed cropping/grazing (n=82)	3.9	0.6	5.6	0.4	5.2	0.5	3.1	0.6	4.2	0.6	3.2	0.5	2.7	0.6	2.8	0.6	4.9	0.5	4.7	0.5
Horticulture farm type	Fruit/nut grower (n=96)	5.1	0.4	5.3	0.5	5.0	0.5	3.8	0.5	4.8	0.5	3.7	0.5	3.8	0.6	3.5	0.5	5.2	0.4	5.0	0.4
	Winegrape grower (n=104)	5.1	0.4	5.3	0.5	5.0	0.5	3.6	0.6	4.8	0.5	3.5	0.5	3.3	0.6	3.0	0.5	5.3	0.5	5.0	0.5

This table provides detailed data underpinning the data in Table 24 in the main body of the report.		My rights to access water (when it is available) are secure		It is easy to trade temporary water if I want to		It is easy to trade permanent water entitlements if I want to		The water trade market is fair for all users		I feel confident to use water trading as part of my farm management		Changes to the rules for water trading in the last few years have increased my confidence in the water market		Water entitlements held by the government are subject to the same rules and charges as other participants in the water market		Water market rules are stable		I know how to access the information I need to make water trading decisions		It's easy to access the information I need to make water trading decisions	
		Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI
Megalitres of water used in on-farm irrigation in last year	<30ML (n=307)	4.7	0.3	4.8	0.4	4.6	0.4	3.4	0.3	4.2	0.4	3.3	0.4	2.8	0.4	3.1	0.3	5.0	0.3	4.7	0.3
	30-99ML (n=105)	4.9	0.4	5.3	0.5	5.2	0.5	3.7	0.6	4.7	0.5	3.4	0.5	2.7	0.5	3.3	0.5	5.0	0.5	5.0	0.5
	100-299ML (n=139)	4.5	0.4	5.4	0.4	5.1	0.4	3.3	0.4	4.6	0.4	3.4	0.4	2.8	0.5	2.9	0.4	5.1	0.4	4.9	0.4
	300-999ML (n=156)	4.1	0.4	5.4	0.3	5.2	0.3	2.6	0.4	4.3	0.4	2.5	0.3	2.8	0.4	2.4	0.3	4.9	0.3	4.7	0.3
	1000ML+ (n=122)	4.0	0.4	5.3	0.3	5.2	0.3	3.1	0.4	4.7	0.4	3.1	0.4	3.2	0.5	2.9	0.4	5.3	0.3	5.1	0.3
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=149)	4.4	0.4	5.3	0.3	5.2	0.3	3.1	0.4	4.8	0.4	3.1	0.4	2.8	0.4	2.8	0.3	5.3	0.3	5.0	0.3
	Modernised irrigation infrastructure using self-funding (n=245)	4.3	0.3	5.3	0.3	5.0	0.3	3.2	0.3	4.3	0.3	3.1	0.3	2.9	0.3	2.9	0.3	4.9	0.3	4.8	0.3
	Has not modernised irrigation infrastructure (n=274)	4.6	0.3	5.1	0.3	5.1	0.3	3.2	0.3	4.5	0.3	3.1	0.3	2.8	0.4	3.0	0.3	5.0	0.3	4.9	0.3
Gross value of agricultural production 2015-16	<$50,000 (n=183)	4.6	0.4	5.0	0.4	4.9	0.4	3.4	0.4	4.4	0.4	3.1	0.4	2.5	0.4	2.9	0.4	4.6	0.4	4.6	0.4
	$50,000-$99,999 (n=82)	4.8	0.6	5.3	0.5	5.3	0.5	4.0	0.7	4.6	0.6	3.7	0.6	3.1	0.8	3.5	0.6	5.5	0.4	5.5	0.4
	$100,000-$299,999 (n=150)	4.5	0.4	5.4	0.3	5.1	0.4	3.2	0.4	4.5	0.4	3.2	0.4	2.9	0.4	2.8	0.4	4.8	0.4	4.7	0.4
	$300,000-$499,999 (n=92)	4.5	0.5	5.2	0.5	5.1	0.5	2.5	0.5	3.9	0.6	2.5	0.5	2.9	0.6	2.8	0.5	5.1	0.5	4.7	0.5
	$500,000-$999,999 (n=128)	3.9	0.4	5.1	0.4	4.8	0.4	2.7	0.4	4.4	0.4	2.6	0.4	3.0	0.5	2.5	0.4	5.0	0.4	4.9	0.4
	$1 million + (n=135)	4.4	0.4	5.4	0.4	5.3	0.4	3.3	0.4	5.0	0.4	3.5	0.4	3.1	0.5	3.0	0.4	5.5	0.3	5.1	0.3
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=91)	4.2	0.6	5.2	0.5	5.0	0.5	2.6	0.5	4.4	0.5	2.9	0.5	2.3	0.5	2.5	0.5	5.0	0.5	4.5	0.5
	Found it moderately difficult to access affordable farm finance (n=98)	4.2	0.5	5.1	0.4	5.0	0.4	2.7	0.5	4.7	0.5	3.2	0.5	2.9	0.6	2.7	0.4	4.8	0.5	4.6	0.5

This table provides detailed data underpinning the data in Table 24 in the main body of the report.		My rights to access water (when it is available) are secure		It is easy to trade temporary water if I want to		It is easy to trade permanent water entitlements if I want to		The water trade market is fair for all users		I feel confident to use water trading as part of my farm management		Changes to the rules for water trading in the last few years have increased my confidence in the water market		Water entitlements held by the government are subject to the same rules and charges as other participants in the water market		Water market rules are stable		I know how to access the information I need to make water trading decisions		It's easy to access the information I need to make water trading decisions	
		Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI
	Did not find it difficult to access farm finance (n=381)	4.6	0.3	5.2	0.3	5.1	0.3	3.3	0.3	4.5	0.3	3.1	0.3	3.0	0.3	2.9	0.3	5.2	0.2	5.0	0.2
Self-reported farm profitability over last 3 years	Making a loss (n=209)	4.1	0.4	5.2	0.3	5.0	0.4	2.7	0.4	4.3	0.4	3.0	0.4	2.5	0.4	2.7	0.3	4.9	0.3	4.8	0.3
	Breaking even/small profit (n=381)	4.3	0.3	5.0	0.2	4.9	0.2	3.2	0.3	4.3	0.3	3.0	0.2	2.9	0.3	2.8	0.2	4.9	0.2	4.7	0.2
	Moderate/large profit (n=204)	4.9	0.3	5.6	0.3	5.3	0.3	3.6	0.4	4.9	0.3	3.3	0.3	3.3	0.4	3.2	0.4	5.4	0.3	5.2	0.3
Gender	Female (n=259)	4.2	0.3	5.0	0.3	5.0	0.3	2.9	0.3	4.3	0.3	3.1	0.3	3.0	0.4	2.6	0.3	5.1	0.3	4.9	0.3
	Male (n=567)	4.5	0.2	5.3	0.2	5.1	0.2	3.3	0.2	4.5	0.2	3.1	0.2	2.8	0.2	3.0	0.2	5.0	0.2	4.8	0.2
Age	Aged <45 (n=84)	4.1	0.5	5.1	0.4	5.2	0.4	2.9	0.5	4.8	0.5	3.0	0.5	3.2	0.7	2.8	0.5	4.9	0.5	4.8	0.5
	Aged 45-54 (n=190)	4.2	0.4	4.9	0.4	4.9	0.4	2.8	0.4	4.1	0.4	3.0	0.3	2.5	0.4	2.7	0.3	5.0	0.3	4.8	0.3
	Aged 55-64 (n=258)	4.4	0.3	5.3	0.3	5.1	0.3	3.4	0.3	4.7	0.3	3.2	0.3	3.0	0.4	2.9	0.3	5.0	0.3	4.8	0.3
	Aged 65-74 (n=200)	4.5	0.4	5.2	0.4	5.0	0.4	3.3	0.4	4.4	0.4	3.1	0.4	2.9	0.5	3.0	0.3	5.0	0.3	4.8	0.3
	Aged75+ (n=92)	5.3	0.6	5.8	0.5	5.5	0.6	3.5	0.8	4.6	0.7	3.1	0.7	2.8	0.8	3.2	0.7	5.2	0.6	5.1	0.6
Highest level of formal educational attainment	Did not complete high school (n=231)	4.6	0.4	5.4	0.3	5.2	0.3	3.3	0.3	4.3	0.4	2.9	0.4	2.7	0.4	2.8	0.4	5.1	0.3	4.9	0.3
	Has high school or non-university post-school qualification (n=350)	4.4	0.3	5.1	0.3	5.0	0.2	3.1	0.3	4.3	0.3	3.0	0.3	2.9	0.3	2.9	0.3	5.0	0.2	4.8	0.2
	Completed tertiary qualification (n=227)	4.3	0.3	5.2	0.3	4.9	0.3	3.1	0.3	4.7	0.3	3.3	0.3	3.0	0.4	2.9	0.3	5.1	0.3	4.8	0.3
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=189)	4.4	0.3	5.2	0.3	5.1	0.3	3.1	0.3	4.3	0.4	3.1	0.3	3.0	0.4	2.8	0.3	5.3	0.3	5.0	0.3
	Earned 26-50% income off-farm (n=115)	4.5	0.5	5.3	0.4	5.2	0.4	3.3	0.5	5.0	0.5	3.4	0.4	3.1	0.6	3.3	0.4	5.0	0.4	4.8	0.4
	Earned 51-75% income off-farm (n=62)	5.0	0.6	5.2	0.6	4.8	0.6	3.9	0.7	4.7	0.7	3.4	0.7	3.1	0.9	3.2	0.7	5.0	0.7	5.0	0.7
	Earned 76-100% income off-farm (n=169)	4.4	0.4	5.2	0.4	5.2	0.4	3.2	0.4	4.5	0.4	3.2	0.4	2.7	0.5	2.7	0.3	5.0	0.4	4.9	0.4

This table provides detailed data underpinning the data in Table 24 in the main body of the report.		My rights to access water (when it is available) are secure		It is easy to trade temporary water if I want to		It is easy to trade permanent water entitlements if I want to		The water trade market is fair for all users		I feel confident to use water trading as part of my farm management		Changes to the rules for water trading in the last few years have increased my confidence in the water market		Water entitlements held by the government are subject to the same rules and charges as other participants in the water market		Water market rules are stable		I know how to access the information I need to make water trading decisions		It's easy to access the information I need to make water trading decisions	
		Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI
	All household income earned from farm (n=287)	4.3	0.3	5.1	0.3	4.9	0.3	3.0	0.3	4.3	0.3	2.8	0.3	2.8	0.4						
Catchment	Campaspe (n=33)	4.6	0.7	4.7	0.9	4.6	0.8	2.9	0.9	4.2	0.9	2.5	0.8	3.0	1.0	2.8	0.7	5.2	0.7	4.9	0.6
	Condamine–Balonne (n=49)	5.0	0.7	4.8	0.8	4.6	0.8	3.9	0.7	4.3	1.0	4.4	0.9	2.7	1.1	3.7	0.7	4.2	0.8	3.8	0.9
	Goulburn (n=80)	4.2	0.7	5.4	0.5	5.1	0.6	2.7	0.6	4.2	0.7	2.5	0.5	2.2	0.7	2.3	0.6	5.2	0.6	4.9	0.5
	Lachlan (n=35)	4.2	0.8	4.9	0.8	4.8	0.8	3.4	0.9	4.6	0.7	3.3	0.7	2.1	0.8	3.5	0.9	4.8	0.8	4.3	0.9
	Loddon (n=52)	4.2	0.8	5.0	0.8	5.2	0.7	2.5	0.7	4.6	0.8	3.3	0.8	2.7	0.9	2.8	0.7	5.0	0.7	4.5	0.8
	Macquarie–Castlereagh (n=23)	4.8	1.0	4.2	1.1	4.2	1.1	4.1	1.0	3.9	1.1	3.8	1.1	2.9	1.1	3.3	0.8	4.4	1.1	4.8	1.1
	Murrumbidgee (n=104)	4.7	0.5	5.6	0.4	5.4	0.4	3.7	0.5	5.1	0.5	3.1	0.5	3.6	0.6	2.9	0.4	5.4	0.4	5.3	0.4
	Namoi (n=24)	4.2	1.1	4.7	1.3	3.9	1.2	3.6	1.3	4.0	1.3	2.8	1.0	2.1	1.2	2.8	1.1	3.9	1.1	3.7	1.2
	New South Wales Murray (n=91)	3.6	0.5	5.4	0.4	5.1	0.4	2.4	0.5	3.9	0.5	2.7	0.5	2.7	0.5	2.3	0.4	5.0	0.4	4.9	0.5
	Ovens (n=33)	5.1	1.0	3.5	1.5	3.8	1.6	2.8	1.3	3.9	1.2	2.8	1.7	3.3	2.5	3.3	2.3	4.1	1.1	4.0	1.2
	South Australian Non-Prescribed Areas (n=71)	5.2	0.6	5.5	0.5	5.4	0.5	4.3	0.6	5.3	0.5	3.8	0.6	3.9	0.8	3.7	0.6	5.8	0.4	5.5	0.4
	Victorian Murray (n=99)	4.1	0.5	5.6	0.4	5.6	0.4	2.6	0.5	4.6	0.5	2.8	0.4	2.4	0.5	2.6	0.5	5.0	0.5	4.8	0.5

Table A17 examines how views about water markets varied between different groups of irrigators in 2016. This was used to produce Table 24 in the main body of the report.

Table A17 Basin irrigator views about water markets, 2016: mean scores and 95% confidence intervals

This table provides detailed data underpinning the data in Table 24 in the main body of the report.		My rights to access water (when it is available) are secure		It is easy to trade temporary water if I want to		It is easy to trade permanent water entitlements if I want to		The water trade market is fair for all users		I feel confident to use water trading as part of my farm management		It's easy to access the information I need to make water trading decisions		Water entitlements held by the government are subject to the same rules and charges as other participants in the water market		Water market rules are stable	
		Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI
Basin irrigators	Murray-Darling Basin (n=634)	4.8	0.2	5.5	0.2	5.3	0.2	3.8	0.2	4.7	0.2	5.1	0.2	3.4	0.2	3.5	0.2
Trade typology	Non-trader (n=196)	4.9	0.3	5.0	0.3	4.7	0.3	3.6	0.3	4.1	0.3	4.7	0.3	3.5	0.4	3.4	0.3
	Non-diverse allocation trader (n=166)	4.7	0.3	6.0	0.2	5.7	0.2	3.9	0.3	5.0	0.3	5.4	0.3	3.2	0.4	3.4	0.3
	Non-diverse entitlement trader (n=42)	5.2	0.6	5.6	0.6	5.4	0.7	4.7	0.8	4.8	0.7	5.1	0.6	4.0	0.9	4.0	0.8
	Diverse trader (n=99)	4.5	0.4	5.9	0.3	5.7	0.3	3.9	0.4	5.2	0.4	5.5	0.3	3.4	0.5	3.4	0.5
	Non-portfolio trader (n=15)	4.4	1.3	5.1	1.0	5.0	1.1	3.6	1.3	5.0	1.1	4.8	1.0	2.5	1.4	3.5	1.3
Engagement in water market trade in 12 months prior to spring 2016	Traded both allocation and entitlements (n=72)	4.7	0.5	5.8	0.3	5.8	0.3	4.0	0.6	5.2	0.5	5.6	0.3	3.6	0.7	3.4	0.6
	Traded allocation (but not entitlements) (n=208)	4.6	0.3	6.0	0.2	5.7	0.2	3.9	0.3	5.1	0.3	5.4	0.2	3.1	0.4	3.4	0.3
	Traded entitlements (but not allocation) (n=28)	5.2	0.7	5.6	0.7	5.3	0.8	4.6	0.9	4.7	0.9	5.0	0.7	4.2	1.0	4.0	1.0
	No trading (n=209)	4.9	0.3	5.0	0.3	4.8	0.3	3.6	0.3	4.1	0.3	4.7	0.3	3.5	0.4	3.4	0.3
Water sources used to irrigate farm	Used water from own entitlements only (n=332)	5.0	0.2	5.4	0.2	5.1	0.2	4.0	0.3	4.5	0.3	5.1	0.2	3.7	0.3	3.6	0.3
	Used water from own entitlements and temporary water/leased water (n=172)	4.4	0.3	5.8	0.2	5.6	0.2	3.6	0.3	4.9	0.3	5.2	0.3	3.1	0.4	3.1	0.3
	Used temporary water/leased water only (no entitlements) (n=15)	4.4	1.3	5.1	1.0	5.0	1.1	3.6	1.3	5.0	1.1	4.8	1.0	2.5	1.4	3.5	1.3
Use of surface water and ground water	Used surface water only (n=453)	4.8	0.2	5.8	0.1	5.5	0.2	3.9	0.2	4.9	0.2	5.3	0.2	3.5	0.3	3.6	0.2
	Used surface water and groundwater (n=88)	4.9	0.5	5.4	0.4	5.2	0.5	3.7	0.5	4.6	0.5	5.0	0.4	2.9	0.6	2.8	0.5
	Used groundwater only (n=93)	4.8	0.6	3.2	0.7	3.4	0.6	3.6	0.8	3.4	0.7	4.1	0.7	3.9	1.0	3.6	0.8
Water sources used	Used water from own entitlements only (n=332)	5.0	0.2	5.4	0.2	5.1	0.2	4.0	0.3	4.5	0.3	5.1	0.2	3.7	0.3	3.6	0.3

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This table provides detailed data underpinning the data in Table 24 in the main body of the report.		My rights to access water (when it is available) are secure		It is easy to trade temporary water if I want to		It is easy to trade permanent water entitlements if I want to		The water trade market is fair for all users		I feel confident to use water trading as part of my farm management		It's easy to access the information I need to make water trading decisions		Water entitlements held by the government are subject to the same rules and charges as other participants in the water market		Water market rules are stable	
		Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI
to irrigate farm - detailed	Used water from own entitlements and temporary water (n=128)	4.2	0.4	5.8	0.2	5.5	0.3	3.4	0.4	4.8	0.3	5.2	0.3	3.0	0.4	3.0	0.4
	Used water from own entitlements and leased water (n=27)	4.8	0.8	5.8	1.0	5.3	1.3	4.6	1.3	4.7	1.3	4.9	1.2	3.5	1.7	3.8	1.3
	Used water from own entitlements and both temporary and leased water (n=27)	4.8	0.9	5.9	0.5	5.8	0.5	3.7	0.9	5.4	0.7	5.5	0.6	3.6	1.1	3.2	0.9
	Used temporary water/leased water only (no entitlements) (n=15)	4.4	1.3	5.1	1.0	5.0	1.1	3.6	1.3	5.0	1.1	4.8	1.0	2.5	1.4	3.5	1.3
Basin location	Northern Basin (n=105)	4.3	0.5	4.6	0.5	4.5	0.6	4.1	0.5	4.6	0.5	4.5	0.5	3.4	0.7	3.4	0.6
	Southern Basin (n=526)	4.9	0.2	5.6	0.2	5.4	0.2	3.8	0.2	4.7	0.2	5.2	0.2	3.4	0.2	3.5	0.2
Basin State	NSW Nth Basin (n=66)	4.1	0.6	4.6	0.7	4.7	0.6	4.2	0.6	4.7	0.6	4.7	0.6	3.2	0.8	3.3	0.6
	Qld Basin (n=39)	5.0	0.7	4.6	1.1	4.1	1.2	3.8	1.2	4.5	1.2	4.1	1.2	3.8	1.4	3.9	1.4
	NSW Sth Basin (n=157)	4.8	0.3	5.6	0.3	5.2	0.3	4.1	0.4	4.7	0.4	5.1	0.3	3.5	0.5	3.5	0.4
	SA Basin (n=63)	5.0	0.5	5.6	0.5	5.4	0.5	4.3	0.6	4.6	0.6	5.1	0.5	4.3	0.7	4.3	0.6
	Vic Basin (n=305)	4.9	0.2	5.7	0.2	5.5	0.2	3.6	0.3	4.7	0.3	5.3	0.2	3.2	0.3	3.3	0.3
Farm type	Dairy (n=134)	4.6	0.4	5.8	0.3	5.6	0.3	3.0	0.4	4.5	0.4	5.3	0.3	3.0	0.5	2.8	0.4
	Grain growing (n=88)	4.7	0.5	5.6	0.4	5.4	0.4	4.2	0.5	5.1	0.5	5.1	0.4	3.8	0.7	3.4	0.6
	Grazier (n=139)	4.8	0.4	5.3	0.3	5.1	0.4	3.9	0.4	4.6	0.4	4.9	0.3	3.0	0.5	3.5	0.4
	Horticulture (all inc. vegetables) (n=98)	4.9	0.4	5.4	0.5	5.0	0.5	4.2	0.5	4.2	0.5	4.8	0.5	4.0	0.6	3.9	0.5
	Mixed cropping/grazing (n=74)	4.7	0.6	5.4	0.5	5.1	0.5	3.6	0.6	4.7	0.5	5.1	0.5	3.3	0.7	3.2	0.6
Horticulture farm type	Fruit/nut grower (n=86)	5.0	0.4	5.3	0.5	4.9	0.5	4.3	0.6	4.2	0.6	4.9	0.5	4.1	0.6	4.1	0.5
	Winegrape grower (n=68)	5.1	0.5	5.2	0.5	5.4	0.5	4.2	0.6	4.9	0.6	5.5	0.5	4.3	0.7	4.0	0.6
Megalitres of water used on-farm in last year	<30ML (n=230)	5.0	0.3	4.9	0.4	4.8	0.4	3.9	0.4	4.4	0.4	4.7	0.4	3.7	0.5	3.6	0.4
	30-99ML (n=95)	4.8	0.4	5.6	0.4	5.3	0.4	4.1	0.5	4.8	0.4	5.2	0.4	3.8	0.5	3.8	0.5
	100-299ML (n=102)	4.9	0.4	5.5	0.4	5.2	0.4	3.9	0.5	4.9	0.4	5.2	0.4	3.3	0.6	3.5	0.5
	300-999ML (n=140)	4.7	0.3	5.9	0.2	5.6	0.2	3.6	0.4	4.5	0.4	5.3	0.3	3.2	0.4	3.4	0.4
	1000ML+ (n=67)	4.5	0.6	5.8	0.4	5.6	0.4	3.9	0.6	5.1	0.5	5.2	0.4	3.3	0.7	3.0	0.6
Investment in modernising on-farm	Modernised irrigation infrastructure with assistance from government grant (n=108)	4.8	0.4	6.0	0.2	5.8	0.3	3.5	0.4	4.7	0.4	5.3	0.3	3.0	0.5	3.1	0.4

This table provides detailed data underpinning the data in Table 24 in the main body of the report.		My rights to access water (when it is available) are secure		It is easy to trade temporary water if I want to		It is easy to trade permanent water entitlements if I want to		The water trade market is fair for all users		I feel confident to use water trading as part of my farm management		It's easy to access the information I need to make water trading decisions		Water entitlements held by the government are subject to the same rules and charges as other participants in the water market		Water market rules are stable	
		Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI
irrigation infrastructure since 2008	Modernised irrigation infrastructure using self-funding (n=210)	4.7	0.3	5.5	0.2	5.2	0.3	3.8	0.3	4.8	0.3	5.1	0.3	3.6	0.4	3.3	0.3
	Has not modernised irrigation infrastructure (n=219)	4.8	0.3	5.2	0.3	5.0	0.3	4.0	0.3	4.5	0.3	5.0	0.3	3.5	0.4	3.7	0.3
Gross value of agricultural production 2015-16	<$50,000 (n=133)	4.8	0.4	5.3	0.4	5.1	0.4	4.1	0.5	4.6	0.4	4.9	0.4	3.3	0.5	3.8	0.5
	$50,000-$99,999 (n=71)	5.0	0.5	5.8	0.3	5.4	0.4	4.0	0.5	4.8	0.5	5.2	0.5	3.4	0.7	3.6	0.5
	$100,000-$299,999 (n=103)	5.2	0.4	5.5	0.4	5.5	0.4	3.9	0.5	4.9	0.5	5.4	0.4	3.6	0.6	3.5	0.5
	$300,000-$499,999 (n=78)	4.7	0.5	5.4	0.4	5.2	0.5	3.8	0.5	4.4	0.5	5.1	0.4	3.6	0.6	3.6	0.6
	$500,000-$999,999 (n=85)	4.7	0.4	5.8	0.4	5.4	0.4	3.3	0.5	4.7	0.5	5.2	0.4	3.2	0.6	3.0	0.5
	$1 million + (n=97)	4.3	0.5	5.5	0.4	5.1	0.4	3.6	0.5	4.7	0.5	4.9	0.4	3.5	0.6	3.2	0.5
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=92)	4.3	0.5	5.3	0.4	5.4	0.4	3.3	0.6	4.5	0.5	5.2	0.5	3.0	0.6	2.7	0.5
	Found it moderately difficult to access affordable farm finance (n=121)	4.2	0.4	5.2	0.3	4.7	0.4	3.1	0.4	4.4	0.4	4.5	0.4	3.1	0.5	2.9	0.4
	Did not find it difficult to access farm finance (n=361)	5.1	0.2	5.7	0.2	5.4	0.2	4.2	0.3	4.9	0.2	5.3	0.2	3.6	0.3	3.7	0.3
Self-reported farm profitability last 3 years	Making a loss (n=137)	4.9	0.4	5.4	0.3	5.2	0.4	3.8	0.4	4.4	0.4	5.0	0.4	3.4	0.5	3.6	0.4
	Breaking even/small profit (n=300)	4.7	0.3	5.5	0.2	5.3	0.2	3.7	0.3	4.7	0.3	5.1	0.2	3.3	0.3	3.4	0.3
	Moderate/large profit (n=144)	4.8	0.4	5.7	0.3	5.3	0.3	4.1	0.4	4.8	0.4	5.1	0.3	3.8	0.5	3.5	0.4
Gender	Female (n=157)	4.6	0.4	5.2	0.3	5.0	0.4	3.3	0.4	4.2	0.4	4.8	0.4	2.9	0.5	3.1	0.4
	Male (n=465)	4.9	0.2	5.6	0.2	5.4	0.2	4.0	0.2	4.8	0.2	5.2	0.2	3.6	0.3	3.6	0.2
Age	Aged <45 (n=60)	4.1	0.6	5.4	0.5	4.9	0.5	2.5	0.5	4.2	0.6	4.7	0.5	3.0	0.6	2.6	0.5
	Aged 45-54 (n=110)	4.5	0.4	5.6	0.4	5.4	0.4	3.6	0.5	4.9	0.4	5.1	0.4	3.0	0.6	3.1	0.5
	Aged 55-64 (n=209)	4.6	0.3	5.5	0.2	5.2	0.3	3.9	0.3	4.8	0.3	5.1	0.3	3.4	0.4	3.3	0.3
	Aged 65-74 (n=163)	5.3	0.3	5.6	0.3	5.4	0.3	4.4	0.4	4.8	0.4	5.3	0.3	3.8	0.5	4.0	0.4
	Aged75+ (n=78)	5.3	0.6	5.3	0.6	5.5	0.5	4.2	0.7	4.4	0.7	5.3	0.5	3.9	0.9	4.4	0.7
Highest level of formal educational attainment	Did not complete high school (n=179)	5.1	0.3	5.7	0.3	5.4	0.3	4.0	0.3	4.8	0.3	5.3	0.3	3.6	0.5	3.7	0.4
	Has high school or non-university post-school qualification (n=293)	4.8	0.3	5.6	0.2	5.5	0.2	4.0	0.3	4.8	0.3	5.2	0.2	3.6	0.3	3.5	0.3

This table provides detailed data underpinning the data in Table 24 in the main body of the report.		My rights to access water (when it is available) are secure		It is easy to trade temporary water if I want to		It is easy to trade permanent water entitlements if I want to		The water trade market is fair for all users		I feel confident to use water trading as part of my farm management		It's easy to access the information I need to make water trading decisions		Water entitlements held by the government are subject to the same rules and charges as other participants in the water market		Water market rules are stable	
		Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI	Mean	CI
	Completed tertiary qualification (n=156)	4.4	0.4	5.1	0.3	4.8	0.4	3.4	0.4	4.3	0.4	4.8	0.4	3.0	0.4	3.2	0.4
% household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=155)	4.9	0.3	5.6	0.3	5.2	0.3	3.6	0.4	4.8	0.4	5.1	0.3	3.6	0.4	3.5	0.4
	Earned 26-50% income off-farm (n=79)	5.0	0.5	5.7	0.4	5.3	0.5	3.9	0.6	5.1	0.5	5.1	0.5	3.8	0.7	3.5	0.6
	Earned 51-75% income off-farm (n=79)	5.3	0.6	5.6	0.6	5.1	0.7	4.1	0.9	4.6	0.9	5.1	0.7	3.2	1.0	4.1	0.8
	Earned 76-100% income off-farm (n=114)	4.7	0.4	5.4	0.4	5.2	0.4	3.9	0.5	4.7	0.5	5.1	0.4	3.4	0.6	3.4	0.5
	All household income earned from farm (n=241)	4.7	0.3	5.5	0.2	5.4	0.3	3.9	0.3	4.5	0.3	5.2	0.3	3.2	0.4	3.3	0.3

Table A18 examines the proportion of different types of irrigators who were members of the four different groups of irrigators with distinct attitudes towards water markets in 2015. This is referred to in discussion presented in the main report in the text after Table 26.

Table A18 Basin irrigator water trade attitude typology, 2015: mean scores and 95% confidence intervals

This table provides detailed data underpinning the data in Table 25 in the main body of the report.		Water trading confidence – four types							
		Class 1: Low confidence in water trade	95% CI	Class 2: Moderate confidence in water trade	95% CI	Class 3: Confident but sceptical of water trade	95% CI	Class 4: Confident traders who trust the market	95% CI
Basin irrigators	Murray-Darling Basin (n=332)	15.1%	3.5%	28.6%	4.7%	29.2%	4.7%	27.1%	4.6%
Trade typology	Non-trader (n=88)	20.5%	7.4%	23.6%	9.7%	18.2%	7.0%	22.7%	7.8%
	Non-diverse allocation trader (n=140)	13.6%	4.9%	33.3%	6.4%	34.3%	7.5%	28.6%	7.0%
	Non-diverse entitlement trader (n=18)	16.7%	11.7%	27.0%	18.0%	38.9%	19.5%	11.1%	8.7%
	Diverse trader (n=74)	9.5%	5.1%	10.0%	9.1%	31.1%	9.7%	32.4%	9.8%
	Non-portfolio trader (n=10)	30.0%	20.7%	0.0%	8.9%	20.0%	15.6%	40.0%	24.7%
Basin location	Northern Basin (n=41)	17.1%	9.1%	41.5%	14.1%	2.4%	2.2%	39.0%	13.8%

This table provides detailed data underpinning the data in Table 25 in the main body of the report.		Water trading confidence – four types							
		Class 1: Low confidence in water trade	95% CI	Class 2: Moderate confidence in water trade	95% CI	Class 3: Confident but sceptical of water trade	95% CI	Class 4: Confident traders who trust the market	95% CI
	Southern Basin (n=291)	14.8%	3.7%	26.8%	4.8%	33.0%	5.2%	25.4%	4.7%
Basin State	NSW Nth Basin (n=27)	18.5%	11.1%	37.0%	16.2%	3.7%	3.3%	40.7%	16.8%
	Qld Basin (n=14)	14.3%	11.2%	50.0%	24.1%	0.0%	0.0%	35.7%	20.6%
	NSW Sth Basin (n=111)	14.4%	5.6%	25.2%	7.4%	32.4%	8.2%	27.9%	7.7%
	SA Basin (n=39)	7.7%	5.5%	33.3%	13.2%	23.1%	11.0%	35.9%	13.6%
	Vic Basin (n=141)	17.0%	5.5%	26.2%	6.7%	36.2%	7.6%	20.6%	6.0%
Farm type	Dairy (n=49)	18.4%	8.9%	20.4%	9.4%	42.9%	13.1%	18.4%	8.9%
	Grain growing (n=63)	4.8%	3.4%	31.7%	10.5%	33.3%	10.7%	30.2%	10.3%
	Grazier (n=64)	18.8%	8.1%	32.8%	10.5%	21.9%	8.7%	26.6%	9.6%
	Horticulture (all) (n=79)	13.9%	6.3%	26.6%	8.8%	26.6%	8.8%	32.9%	9.6%
	Mixed cropping/grazing (n=34)	20.6%	10.9%	35.3%	14.3%	20.6%	10.9%	23.5%	11.7%
Horticulture farm type	Fruit/nut grower (n=38)	13.2%	8.0%	31.6%	13.0%	26.3%	11.9%	28.9%	12.5%
	Winegrape grower (n=37)	16.2%	9.2%	24.3%	11.6%	27.0%	12.2%	32.4%	13.3%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=63)	23.8%	9.2%	30.2%	10.3%	20.6%	8.5%	25.4%	9.5%
	30-99ML (n=39)	20.5%	10.3%	12.8%	7.8%	25.6%	11.6%	41.0%	14.3%
	100-299ML (n=62)	12.9%	6.6%	32.3%	10.6%	27.4%	9.9%	27.4%	9.9%
	300ML (n=84)	15.5%	6.5%	28.6%	8.8%	35.7%	9.6%	20.2%	7.5%
	1000ML+ (n=83)	7.2%	4.2%	32.5%	9.3%	32.5%	9.3%	27.7%	8.7%
	ML applied on farm - mean ML (n=332)	391	189	1335	645	1033	428	2237	2388
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=84)	10.7%	5.3%	31.0%	9.1%	34.5%	9.5%	23.8%	8.1%
	Modernised irrigation infrastructure using self-funding (n=121)	17.4%	5.9%	26.4%	7.2%	26.4%	7.2%	29.8%	7.6%
	Has not modernised irrigation infrastructure (n=94)	14.9%	6.1%	26.6%	8.1%	31.9%	8.8%	26.6%	8.1%
Gross value of agricultural production 2015-16	<$50,000 (n=63)	27.0%	9.8%	22.2%	8.9%	17.5%	7.8%	33.3%	10.7%
	$50,000-$99,999 (n=27)	7.4%	5.8%	25.9%	13.5%	22.2%	12.4%	44.4%	17.4%
	$100,000-$299,999 (n=71)	19.7%	7.9%	33.8%	10.2%	23.9%	8.8%	22.5%	8.5%
	$300,000-$499,999 (n=38)	13.2%	8.0%	23.7%	11.3%	47.4%	15.2%	15.8%	8.9%
	$500,000-$999,999 (n=49)	10.2%	6.2%	32.7%	11.8%	36.7%	12.4%	20.4%	9.4%
	$1 million + (n=70)	8.6%	4.9%	25.7%	9.1%	32.9%	10.1%	32.9%	10.1%
	Average GVAP (mean category) (n=332)	$100,000-$199,999	$200,000-$299,999	$200,000-$299,999	$300,000-$399,999	$300,000-$399,999	$400,000-$499,999	$200,000-$299,999	$300,000-$399,999
	Found it very difficult to access affordable farm finance (n=47)	21.3%	9.8%	25.5%	10.8%	29.8%	11.6%	23.4%	10.3%

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This table provides detailed data underpinning the data in Table 25 in the main body of the report.		Water trading confidence – four types							
		Class 1: Low confidence in water trade	95% CI	Class 2: Moderate confidence in water trade	95% CI	Class 3: Confident but sceptical of water trade	95% CI	Class 4: Confident traders who trust the market	95% CI
Ability to access affordable farm finance	Found it moderately difficult to access affordable farm finance (n=44)	20.5%	9.8%	29.5%	11.9%	25.0%	10.9%	25.0%	10.9%
	Did not find it difficult to access farm finance (n=134)	12.7%	4.8%	26.9%	7.0%	36.6%	7.8%	23.9%	6.6%
	Average level of difficulty accessing affordable farm finance (n=332)	Moderate difficulty	Moderate difficulty	Moderate difficulty	Moderate difficulty	Low-moderate difficulty	Moderate difficulty	Moderate difficulty	Low-moderate difficulty
Self-reported farm profitability over last 3 years	Making a loss (n=90)	22.2%	7.6%	20.0%	7.2%	35.6%	9.3%	22.2%	7.6%
	Breaking even/small profit (n=150)	15.3%	5.1%	33.3%	7.2%	24.7%	6.4%	26.7%	6.6%
	Moderate/large profit (n=83)	7.2%	4.2%	28.9%	8.9%	30.1%	9.1%	33.7%	9.5%
	Average profitability (category of mean) (n=332)	Small loss	Breaking even	Breaking even	Small profit	Breaking even	Small profit	Small profit	Moderate profit
Gender	Female (n=89)	19.1%	7.1%	29.2%	8.7%	23.6%	7.9%	28.1%	8.5%
	Male (n=241)	13.3%	3.8%	28.6%	5.4%	31.1%	5.6%	27.0%	5.3%
Age	Aged <45 (n=38)	18.4%	9.8%	26.3%	11.9%	28.9%	12.5%	26.3%	11.9%
	Aged 45-54 (n=72)	19.4%	7.8%	29.2%	9.5%	26.4%	9.1%	25.0%	8.9%
	Aged 55-64 (n=114)	13.2%	5.3%	28.9%	7.7%	31.6%	8.0%	26.3%	7.4%
	Aged 65-74 (n=77)	14.3%	6.5%	32.5%	9.7%	26.0%	8.8%	27.3%	9.0%
	Aged 75+ (n=30)	10.0%	7.1%	16.7%	10.0%	36.7%	15.4%	36.7%	15.4%
	Average age (mean, years) (n=332)	57	3	59	2	59	3	61	2
Highest level of formal educational attainment	Did not complete high school (n=84)	15.5%	6.5%	29.8%	9.0%	28.6%	8.8%	26.2%	8.5%
	Has high school or non-university post-school qualification (n=151)	14.6%	4.9%	30.5%	6.9%	30.5%	6.9%	24.5%	6.3%
	Completed tertiary qualification (n=91)	16.5%	6.5%	25.3%	8.1%	26.4%	8.2%	31.9%	8.9%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=87)	8.0%	4.4%	34.5%	9.4%	34.5%	9.4%	23.0%	7.9%
	Earned 26-50% income off-farm (n=49)	18.4%	8.9%	34.7%	12.1%	24.5%	10.3%	22.4%	9.9%
	Earned 51-75% income off-farm (n=22)	18.2%	11.7%	27.3%	15.0%	18.2%	11.7%	36.4%	17.4%
	Earned 76-100% income off-farm (n=59)	18.6%	8.3%	23.7%	9.4%	25.4%	9.8%	32.2%	10.9%
	All household income earned from farm (n=115)	16.5%	5.9%	24.3%	7.1%	31.3%	7.9%	27.8%	7.6%
	Average proportion of income earned off-farm (mean, %) (n=332)	34.0	10.5	27.9	6.6	25.9	6.8	33.4	8.0

Table A19 examines the proportion of different types of irrigators who were members of the four different groups of irrigators with distinct attitudes towards water markets in 2016. This was used to produce Table 25 in the main body of the report.

Table A19 Basin irrigator water trade attitude typology, 2016: mean scores and 95% confidence intervals

		Water trading confidence – four types							
This table provides detailed data underpinning the data in Table 25 in the main body of the report.		Class 1: Low confidence in water trade	95% CI	Class 2: Moderate confidence in water trade	95% CI	Class 3: Confident but sceptical of water trade	95% CI	Class 4: Confident traders who trust the market	95% CI
Basin irrigators	Murray-Darling Basin (n=314)	11.8%	3.2%	20.1%	4.1%	35.4%	5.1%	32.8%	5.0%
Trade typology	Non-trader (n=102)	12.2%	9.0%	16.0%	21.0%	16.8%	25.6%	34.3%	29.4%
	Non-diverse allocation trader (n=111)	22.5%	15.3%	31.4%	30.4%	22.1%	39.8%	24.5%	17.0%
	Non-diverse entitlement trader (n=23)	6.3%	2.9%	12.0%	14.4%	8.8%	21.8%	44.1%	35.2%
	Diverse trader (n=71)	13.0%	3.8%	30.9%	17.4%	6.2%	36.2%	13.0%	3.8%
	Non-portfolio trader (n=8)	4.2%	1.2%	10.8%	16.9%	9.6%	26.9%	45.1%	33.9%
Basin location	Northern Basin (n=43)	23.3%	10.6%	32.6%	12.5%	16.3%	8.7%	27.9%	11.7%
	Southern Basin (n=286)	10.5%	3.2%	19.2%	4.2%	37.1%	5.4%	33.2%	5.3%
Basin State	NSW Nth Basin (n=32)	18.8%	10.5%	37.5%	15.1%	21.9%	11.5%	21.9%	11.5%
	Qld Basin (n=11)	36.4%	22.6%	18.2%	14.2%	0.0%	0.0%	45.5%	25.5%
	NSW Sth Basin (n=84)	8.3%	4.5%	20.2%	7.5%	34.5%	9.5%	36.9%	9.7%
	SA Basin (n=32)	9.4%	6.7%	28.1%	13.2%	18.8%	10.5%	43.8%	16.0%
	Vic Basin (n=170)	11.8%	4.2%	17.1%	5.1%	41.8%	7.2%	29.4%	6.5%
Farm type	Dairy (n=76)	7.9%	4.5%	11.8%	5.8%	56.6%	11.2%	23.7%	8.5%
	Grain growing (n=51)	3.9%	3.1%	23.5%	10.0%	31.4%	11.4%	41.2%	12.7%
	Grazier (n=74)	14.9%	6.7%	29.7%	9.5%	29.7%	9.5%	25.7%	8.9%
	Horticulture (all) (n=37)	21.6%	10.8%	21.6%	10.8%	18.9%	10.0%	37.8%	14.2%
	Mixed cropping/grazing (n=42)	16.7%	8.9%	16.7%	8.9%	35.7%	13.2%	31.0%	12.4%
Megalitres of water used in on-farm irrigation in last year	<30ML (n=58)	17.2%	8.0%	22.4%	9.2%	24.1%	9.6%	36.2%	11.5%
	30-99ML (n=49)	10.2%	6.2%	30.6%	11.5%	28.6%	11.2%	30.6%	11.5%
	100-299ML (n=62)	16.1%	7.5%	19.4%	8.3%	27.4%	9.9%	37.1%	11.2%
	300ML (n=100)	5.0%	3.1%	20.0%	6.9%	46.0%	9.5%	29.0%	8.2%
	1000ML+ (n=46)	4.3%	3.4%	15.2%	8.1%	45.7%	13.8%	34.8%	12.5%
	ML applied on farm - mean ML (n=329)	244	147	403	138	670	163	516	180
Investment in modernising on-farm irrigation infrastructure since 2008	Modernised irrigation infrastructure with assistance from government grant (n=80)	3.8%	2.7%	15.0%	6.5%	50.0%	10.8%	31.3%	9.4%
	Modernised irrigation infrastructure using self-funding (n=125)	13.6%	5.2%	16.8%	5.8%	36.0%	8.0%	33.6%	7.8%
	Has not modernised irrigation infrastructure (n=112)	17.9%	6.2%	28.6%	7.7%	22.3%	6.9%	31.3%	8.0%
Gross value of agricultural	<$50,000 (n=57)	22.8%	9.4%	22.8%	9.4%	22.8%	9.4%	31.6%	10.9%
	$50,000-$99,999 (n=36)	13.9%	8.4%	22.2%	11.1%	30.6%	13.1%	33.3%	13.7%
	$100,000-$299,999 (n=55)	10.9%	6.2%	23.6%	9.7%	29.1%	10.7%	36.4%	11.8%

This table provides detailed data underpinning the data in Table 25 in the main body of the report.		Water trading confidence – four types							
		Class 1: Low confidence in water trade	95% CI	Class 2: Moderate confidence in water trade	95% CI	Class 3: Confident but sceptical of water trade	95% CI	Class 4: Confident traders who trust the market	95% CI
production 2015-16	$300,000-$499,999 (n=46)	8.7%	5.7%	23.9%	10.5%	37.0%	12.8%	30.4%	11.8%
	$500,000-$999,999 (n=54)	7.4%	4.9%	18.5%	8.6%	55.6%	13.3%	18.5%	8.6%
	$1 million + (n=60)	13.3%	6.8%	16.7%	7.8%	35.0%	11.1%	35.0%	11.1%
	Average GVAP (mean category) (n=329)	$100,000-$199,999	$200,000-$299,999	$200,000-$299,999	$300,000-$399,999	$300,000-$399,999	$400,000-$499,999	$200,000-$299,999	$300,000-$399,999
Ability to access affordable farm finance	Found it very difficult to access affordable farm finance (n=44)	18.2%	9.2%	20.5%	9.8%	38.6%	13.3%	22.7%	10.4%
	Found it moderately difficult to access affordable farm finance (n=71)	16.9%	7.3%	23.9%	8.8%	40.8%	10.9%	18.3%	7.6%
	Did not find it difficult to access farm finance (n=192)	9.4%	3.5%	19.8%	5.2%	30.7%	6.2%	40.1%	6.7%
	Average level of difficulty accessing affordable farm finance (n=329)	Moderate difficulty		Moderate difficulty		Moderate difficulty		Low difficulty	
Self-reported farm profitability over last 3 years	Making a loss (n=69)	17.4%	7.5%	20.3%	8.2%	30.4%	9.9%	31.9%	10.1%
	Breaking even/small profit (n=157)	10.8%	4.1%	20.4%	5.7%	37.6%	7.3%	31.2%	6.9%
	Moderate/large profit (n=87)	11.5%	5.4%	24.1%	8.0%	32.2%	9.1%	32.2%	9.1%
	Average profitability (category of mean) (n=329)	Breaking even	Small profit	Small profit	Small profit	Small profit	Small profit	Breaking even	Small profit
Gender	Female (n=60)	15.0%	7.3%	23.3%	9.3%	36.7%	11.3%	25.0%	9.6%
	Male (n=262)	11.5%	3.4%	20.6%	4.6%	33.2%	5.5%	34.7%	5.6%
Age	Aged <45 (n=38)	10.5%	6.9%	36.8%	13.9%	44.7%	14.9%	7.9%	5.6%
	Aged 45-54 (n=49)	16.3%	8.3%	12.2%	7.0%	44.9%	13.3%	26.5%	10.8%
	Aged 55-64 (n=112)	9.8%	4.5%	19.6%	6.5%	38.4%	8.6%	32.1%	8.1%
	Aged 65-74 (n=92)	12.0%	5.4%	19.6%	7.1%	21.7%	7.5%	46.7%	10.0%
	Aged 75+ (n=27)	11.1%	7.9%	25.9%	13.5%	25.9%	13.5%	37.0%	16.2%
	Average age (mean, years) (n=329)	60-64	45-79	55-59	45-64	55-59	45-64	65-69	55-79
Highest level of formal educational attainment	Did not complete high school (n=93)	11.8%	5.4%	18.3%	6.8%	31.2%	8.7%	38.7%	9.4%
	Has high school or non-university post-school qualification (n=157)	9.6%	3.9%	20.4%	5.7%	36.3%	7.2%	33.8%	7.0%
	Completed tertiary qualification (n=74)	17.6%	7.3%	25.7%	8.9%	33.8%	10.0%	23.0%	8.4%
Proportion of household income earned off-farm and on-farm	Earned 1-25% income off-farm (n=87)	6.9%	4.0%	26.4%	8.4%	31.0%	9.0%	35.6%	9.5%
	Earned 26-50% income off-farm (n=44)	15.9%	8.5%	9.1%	5.9%	34.1%	12.6%	40.9%	13.6%
	Earned 51-75% income off-farm (n=16)	18.8%	13.2%	6.3%	5.6%	25.0%	15.9%	50.0%	22.8%
	Earned 76-100% income off-farm (n=48)	12.5%	7.1%	22.9%	10.1%	39.6%	12.9%	25.0%	10.5%
	All household income earned from farm (n=132)	13.6%	5.0%	21.2%	6.3%	36.4%	7.8%	28.8%	7.2%

	Water trading confidence – four types							
This table provides detailed data underpinning the data in Table 25 in the main body of the report.	Class 1: Low confidence in water trade	95% CI	Class 2: Moderate confidence in water trade	95% CI	Class 3: Confident but sceptical of water trade	95% CI	Class 4: Confident traders who trust the market	95% CI
Average proportion of income earned off-farm (mean, %) (n=329)	28.5	11.6	21.4	8.1	25.5	6.4	25.7	6.0

Table A20 Water trading availability by Basin location - 2016

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		I can trade water allocation (temporary water) within my irrigation district		I can trade water entitlements (permanent water) within my irrigation district		I can trade water allocation (temporary water) outside my district e.g. buying or selling water between my district and other districts		I can trade water entitlements (permanent water) outside my district e.g. buying or selling water between my district and other districts		I have no access to any kind of water trading opportunities		In my local area, there's often little or no water available to buy on the market (at any price)		In my local area, you can always buy water as long as you can pay the market price	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	Murray-Darling Basin (n=538)	12.1%	87.9%	13.7%	86.3%	34.0%	66.0%	36.0%	64.0%	87.6%	12.4%	74.4%	25.6%	22.0%	78.0%
	95% CI	2.5%	3.0%	2.7%	3.1%	4.0%	4.2%	4.1%	4.3%	3.2%	2.7%	4.1%	3.8%	3.5%	3.8%
	Northern Basin (n=80)	33.8%	66.3%	35.4%	64.6%	84.0%	16.0%	81.3%	18.7%	74.0%	26.0%	46.6%	53.4%	60.0%	40.0%
	95% CI	9.6%	10.8%	9.9%	10.9%	9.5%	6.9%	9.9%	7.5%	10.9%	9.0%	11.1%	11.4%	11.7%	10.9%
	Southern Basin (n=458)	8.3%	91.7%	10.0%	90.0%	25.5%	74.5%	28.1%	71.9%	90.1%	9.9%	79.4%	20.6%	15.6%	84.4%
Basin location	95% CI	2.3%	2.8%	2.5%	3.0%	3.9%	4.2%	4.1%	4.4%	3.2%	2.6%	4.2%	3.7%	3.2%	3.7%
	NSW Nth Basin (n=52)	32.7%	67.3%	31.4%	68.6%	87.8%	12.2%	81.6%	18.4%	78.3%	21.7%	46.9%	53.1%	56.5%	43.5%
	95% CI	11.5%	13.4%	11.4%	13.5%	11.3%	7.0%	12.5%	8.9%	13.4%	10.0%	13.5%	13.8%	14.4%	13.6%
	Qld Basin (n=28)	35.7%	64.3%	42.9%	57.1%	76.9%	23.1%	80.8%	19.2%	66.7%	33.3%	45.8%	54.2%	66.7%	33.3%
	95% CI	15.7%	18.4%	16.9%	18.3%	18.4%	12.8%	17.9%	11.5%	18.8%	15.4%	18.5%	19.5%	19.9%	16.1%
	NSW Sth Basin (n=137)	8.8%	91.2%	9.7%	90.3%	23.7%	76.3%	29.0%	71.0%	85.6%	14.4%	80.2%	19.8%	12.0%	88.0%
	95% CI	3.9%	5.6%	4.2%	5.9%	6.7%	7.8%	7.2%	8.2%	7.2%	5.4%	7.9%	6.5%	4.8%	6.5%
	SA Basin (n=55)	10.9%	89.1%	11.3%	88.7%	25.9%	74.1%	25.5%	74.5%	88.0%	12.0%	78.6%	21.4%	21.7%	78.3%
	95% CI	6.2%	10.2%	6.5%	10.5%	10.2%	12.7%	10.4%	13.1%	11.1%	6.8%	14.0%	10.3%	10.0%	13.4%
	Vic Basin (n=265)	7.5%	92.5%	9.8%	90.2%	26.1%	73.9%	27.8%	72.2%	92.8%	7.2%	79.2%	20.8%	16.4%	83.6%
Basin state	95% CI	2.7%	3.6%	3.2%	4.0%	5.1%	5.7%	5.3%	5.8%	3.8%	2.8%	5.5%	4.8%	4.2%	5.0%

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Table A21 Water trading availability by farm type - 2016

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report. Note: statistical significant is shown relative to the Basin, and data for the Basin are provided in Table A20.		I can trade water allocation (temporary water) within my irrigation district		I can trade water entitlements (permanent water) within my irrigation district		I can trade water allocation (temporary water) outside my district e.g. buying or selling water between my district and other districts		I can trade water entitlements (permanent water) outside my district e.g. buying or selling water between my district and other districts		I have no access to any kind of water trading opportunities		In my local area, there's often little or no water available to buy on the market (at any price)		In my local area, you can always buy water as long as you can pay the market price	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	Dairy (n=119)	6.7%	93.3%	6.8%	93.2%	23.2%	76.8%	27.0%	73.0%	93.1%	6.9%	75.7%	24.3%	15.9%	84.1%
	95% CI	3.5%	5.6%	3.6%	5.6%	7.1%	8.4%	7.6%	8.8%	6.1%	3.7%	8.7%	7.4%	5.9%	7.6%
	Grain growing (n=73)	2.7%	97.3%	8.5%	91.5%	40.0%	60.0%	42.0%	58.0%	91.9%	8.1%	75.4%	24.6%	17.9%	82.1%
	95% CI	2.2%	5.8%	4.8%	8.1%	10.9%	11.7%	11.1%	11.8%	8.7%	4.9%	11.4%	9.2%	7.7%	10.4%
	Grazier (n=115)	11.3%	88.7%	17.2%	82.8%	36.6%	63.4%	39.6%	60.4%	86.7%	13.3%	66.0%	34.0%	29.0%	71.0%
	95% CI	4.8%	6.7%	6.0%	7.6%	8.5%	9.2%	8.7%	9.3%	7.5%	5.5%	9.6%	8.7%	8.2%	9.4%
	Horticulture (all) (n=80)	20.0%	80.0%	18.8%	81.3%	40.5%	59.5%	37.0%	63.0%	83.3%	16.7%	80.6%	19.4%	23.3%	76.7%
	95% CI	7.6%	9.7%	7.4%	9.6%	10.6%	11.4%	10.4%	11.4%	9.8%	7.2%	10.6%	8.1%	8.5%	10.6%
	Mixed cropping/grazing (n=64)	17.2%	82.8%	18.0%	82.0%	37.1%	62.9%	36.7%	63.3%	89.7%	10.3%	71.7%	28.3%	27.4%	72.6%
	95% CI	7.7%	10.6%	8.1%	11.0%	11.2%	12.4%	11.3%	12.6%	9.7%	5.9%	12.2%	10.2%	9.9%	11.9%
	Fruit/nut grower (n=71)	21.1%	78.9%	19.4%	80.6%	40.9%	59.1%	36.9%	63.1%	82.8%	17.2%	81.4%	18.6%	21.5%	78.5%
	95% CI	8.2%	10.5%	7.8%	10.2%	11.3%	12.0%	11.0%	12.1%	10.6%	7.7%	11.3%	8.3%	8.6%	11.1%
	Vegetable grower (n=9)	11.1%	88.9%	12.5%	87.5%	37.5%	62.5%	37.5%	62.5%	87.5%	12.5%	75.0%	25.0%	37.5%	62.5%
	95% CI	9.9%	30.3%	11.1%	32.9%	25.6%	33.0%	25.6%	33.0%	32.9%	11.1%	34.2%	19.4%	25.6%	33.0%
	Winegrape grower (n=61)	19.7%	80.3%	16.4%	83.6%	37.3%	62.7%	43.1%	56.9%	80.0%	20.0%	78.0%	22.0%	20.4%	79.6%
Farm type	95% CI	8.4%	11.2%	7.6%	10.7%	11.5%	12.7%	12.2%	12.8%	11.9%	8.9%	12.8%	9.7%	9.0%	12.1%

Table A22 Water trading availability by trade typology - 2016

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		I can trade water allocation (temporary water) within my irrigation district		I can trade water entitlements (permanent water) within my irrigation district		I can trade water allocation (temporary water) outside my district e.g. buying or selling water between my district and other districts		I can trade water entitlements (permanent water) outside my district e.g. buying or selling water between my district and other districts		I have no access to any kind of water trading opportunities		In my local area, there's often little or no water available to buy on the market (at any price)		In my local area, you can always buy water as long as you can pay the market price	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
	Diverse trader (n=98)	0.0%	100.0%	3.1%	96.9%	15.1%	84.9%	17.4%	82.6%	96.6%	3.4%	82.4%	17.6%	13.7%	86.3%
	95% CI	0.0%	100.0%	2.2%	4.9%	6.2%	8.3%	6.7%	8.7%	5.4%	2.4%	8.8%	6.7%	5.8%	8.0%
	Non-diverse allocation trader (n=165)	0.0%	100.0%	3.1%	96.9%	16.7%	83.3%	20.0%	80.0%	94.6%	5.4%	84.8%	15.2%	11.3%	88.7%
	95% CI	0.0%	100.0%	1.9%	3.6%	5.1%	6.3%	5.6%	6.7%	4.6%	2.8%	6.4%	5.1%	4.2%	5.6%
	Non-diverse entitlement trader (n=42)	19.0%	81.0%	19.0%	81.0%	42.5%	57.5%	43.6%	56.4%	83.8%	16.2%	69.4%	30.6%	20.5%	79.5%
	95% CI	9.6%	13.7%	9.6%	13.7%	14.4%	15.4%	14.6%	15.6%	14.2%	9.2%	16.1%	13.1%	10.3%	14.5%
	Non-portfolio trader (n=14)	7.1%	92.9%	15.4%	84.6%	41.7%	58.3%	50.0%	50.0%	100.0%	0.0%	75.0%	25.0%	15.4%	84.6%
	95% CI	6.4%	21.7%	12.0%	25.5%	23.6%	27.1%	25.7%	25.7%	100.0%	0.0%	27.9%	17.4%	12.0%	25.5%
	Non-trader (n=187)	20.9%	79.1%	21.0%	79.0%	50.0%	50.0%	50.6%	49.4%	79.8%	20.2%	63.7%	36.3%	34.9%	65.1%
Trade typology	95% CI	5.3%	6.2%	5.4%	6.3%	7.3%	7.3%	7.4%	7.4%	6.6%	5.5%	7.5%	7.0%	6.8%	7.3%

Table A23 Water trading availability by type of water trade engaged in and water sources - 2016

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		I can trade water allocation (temporary water) within my irrigation district		I can trade water entitlements (permanent water) within my irrigation district		I can trade water allocation (temporary water) outside my district e.g. buying or selling water between my district and other districts		I can trade water entitlements (permanent water) outside my district e.g. buying or selling water between my district and other districts		I have no access to any kind of water trading opportunities		In my local area, there's often little or no water available to buy on the market (at any price)		In my local area, you can always buy water as long as you can pay the market price	
		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Types of water trade engaged in during previous 12 months	Traded both entitlements and allocation (n=71)	0.0%	100.0%	4.3%	95.7%	19.1%	80.9%	16.4%	83.6%	96.9%	3.1%¹	83.3%	16.7%	16.2%	83.8%
	95% CI	0.0%	100.0%	3.1%	6.7%	8.0%	10.5%	7.4%	10.2%	6.4%	2.4%	10.3%	7.5%	7.3%	10.1%
	Traded allocation but not entitlements (n=206)	1.0%	99.0%	4.0%	96.0%	16.5%	83.5%	21.3%	78.7%	94.5%	5.5%	83.1%	16.9%	10.5%	89.5%
	95% CI	0.8%	2.1%	2.1%	3.4%	4.6%	5.6%	5.3%	6.1%	4.0%	2.6%	5.8%	4.8%	3.7%	4.8%
	Traded entitlements but not allocation (n=28)	17.9%	82.1%	10.7%	89.3%	38.5%	61.5%	42.3%	57.7%	87.5%	12.5%	73.9%	26.1%	24.0%	76.0%
	95% CI	10.7%	16.9%	7.6%	15.2%	16.7%	19.1%	17.4%	19.0%	17.2%	8.9%	20.0%	14.4%	13.3%	18.9%
	No trade (n=200)	20.5%	79.5%	21.6%	78.4%	50.0%	50.0%	50.5%	49.5%	80.0%	20.0%	63.9%	36.1%	34.1%	65.9%
	95% CI	5.1%	6.0%	5.3%	6.1%	7.1%	7.1%	7.1%	7.1%	6.3%	5.3%	7.2%	6.8%	6.5%	7.0%
Water sources - entitlements, allocation and lease	Used water from own entitlements only (n=320)	14.4%	85.6%	14.9%	85.1%	40.1%	59.9%	41.5%	58.5%	86.2%	13.8%	72.6%	27.4%	26.7%	73.3%
	95% CI	3.5%	4.2%	3.6%	4.2%	5.4%	5.6%	5.5%	5.6%	4.4%	3.6%	5.5%	5.0%	4.9%	5.4%
	Used water from own entitlements and allocation purchased on the market (n=171)	1.8%	98.2%	5.3%	94.7%	17.5%	82.5%	20.1%	79.9%	96.1%	3.9%	81.1%	18.9%	11.9%	88.1%
	95% CI	1.3%	2.9%	2.7%	4.2%	5.2%	6.3%	5.6%	6.6%	4.0%	2.3%	6.6%	5.5%	4.2%	5.5%
	Used water from allocation or leased entitlements only (n=14)	7.1%	92.9%	15.4%	84.6%	41.7%	58.3%	50.0%	50.0%	100.0%	0.0%	75.0%	25.0%	15.4%	84.6%
	95% CI	6.4%	21.7%	12.0%	25.5%	23.6%	27.1%	25.7%	25.7%			27.9%	17.4%	12.0%	25.5%
Water sources - surface water and ground water	Used surface water only (n=390)	5.4%	94.6%	8.6%	91.4%	21.2%	78.8%	24.2%	75.8%	90.1%	9.9%	78.6%	21.4%	16.6%	83.4%
	95% CI	1.9%	2.6%	2.5%	3.1%	3.9%	4.4%	4.2%	4.6%	3.5%	2.8%	4.5%	4.1%	3.5%	4.1%
	Used both surface water and ground water (n=79)	11.4%	88.6%	14.1%	85.9%	46.1%	53.9%	46.1%	53.9%	94.4%	5.6%	74.6%	25.4%	17.6%	82.4%
	95% CI	5.6%	8.4%	6.4%	9.0%	10.9%	11.2%	10.9%	11.2%	7.1%	3.7%	11.0%	9.0%	7.3%	9.8%
	Used ground water only (n=69)	50.7%	49.3%	40.8%	59.2%	92.4%	7.6%	89.4%	10.6%	65.6%	34.4%	45.1%	54.9%	68.0%	32.0%
	95% CI	11.6%	11.6%	10.9%	11.6%	8.2%	4.6%	9.1%	5.7%	12.4%	11.0%	13.1%	13.6%	13.7%	11.6%

1 A small number of irrigators identified having no access to water trading opportunities despite also reporting engaging in some water trade. It is not known why this is the case, and the data have been left in as it is possible some irrigators interpreted this question as asking about access to trade at the specific point in time they completed the survey, rather than over the last year.

Table A24 Water-related barriers to farm development experienced in last three years, by Basin location - 2016

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Basin location						Basin state									
		Murray-Darling Basin (n=578)	95% CI	Northern Basin (n=94)	95% CI	Southern Basin (n=482)	95% CI	NSW Nth Basin (n=66)	95% CI	Qld Basin (n=28)	95% CI	NSW Sth Basin (n=142)	95% CI	SA Basin (n=57)	95% CI	Vic Basin (n=282)	95% CI
Reduced allocation for one or more seasons	No/small barrier	43.3%	4.0%	63.8%	10.0%	39.2%	4.3%	63.6%	12.0%	64.3%	18.5%	32.4%	7.3%	57.9%	12.9%	38.7%	5.6%
	Moderate barrier	6.7%	1.8%	9.6%	4.8%	6.2%	1.9%	9.1%	5.2%	10.7%	7.6%	5.6%	2.9%	5.3%	3.8%	6.7%	2.5%
	Large barrier	50.0%	4.1%	26.6%	8.1%	54.6%	4.5%	27.3%	9.6%	25.0%	13.1%	62.0%	8.2%	36.8%	11.6%	54.6%	5.8%
Increase in costs of water delivery	No/small barrier	26.0%	3.4%	56.5%	10.2%	20.1%	3.4%	47.7%	11.8%	77.8%	18.0%	21.3%	6.2%	36.2%	11.5%	15.8%	3.9%
	Moderate barrier	12.4%	2.5%	14.1%	5.9%	12.1%	2.7%	13.8%	6.7%	14.8%	9.6%	12.1%	4.6%	20.7%	8.9%	10.4%	3.2%
	Large barrier	61.5%	4.0%	29.3%	8.5%	67.8%	4.3%	38.5%	11.2%	7.4%	5.8%	66.7%	8.1%	43.1%	12.1%	73.7%	5.4%
Increase in fixed costs of water entitlements	No/small barrier	25.6%	3.5%	46.7%	10.1%	21.5%	3.5%	35.9%	10.9%	73.1%	18.8%	24.5%	6.5%	33.3%	11.1%	17.3%	4.1%
	Moderate barrier	11.2%	2.4%	15.6%	6.4%	10.4%	2.5%	18.8%	8.1%	7.7%	6.1%	9.8%	4.1%	19.3%	8.6%	9.0%	2.9%
	Large barrier	63.2%	4.0%	37.8%	9.5%	68.1%	4.3%	45.3%	11.8%	19.2%	11.5%	65.7%	8.0%	47.4%	12.6%	73.7%	5.4%
High price of temporary water	No/small barrier	39.8%	4.0%	61.4%	10.4%	35.9%	4.2%	51.6%	12.3%	84.6%	17.1%	37.6%	7.7%	54.4%	12.9%	31.0%	5.2%
	Moderate barrier	7.6%	1.9%	14.8%	6.3%	6.3%	1.9%	16.1%	7.5%	11.5%	8.1%	4.3%	2.5%	12.3%	6.6%	6.2%	2.4%
	Large barrier	52.6%	4.2%	23.9%	8.0%	57.7%	4.5%	32.3%	10.7%	3.8%	3.4%	58.2%	8.3%	33.3%	11.1%	62.8%	5.9%

Table A25 Water-related barriers to farm development experienced in last three years, by Basin location - 2018

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Basin location						Basin state									
		Murray-Darling Basin (n=127)	95% CI	Northern Basin (n=53)	95% CI	Southern Basin (n=329)	95% CI	NSW Nth Basin (n=32)	95% CI	Qld Basin (n=21)	95% CI	NSW Sth Basin (n=106)	95% CI	SA Basin (n=35)	95% CI	Vic Basin (n=186)	95% CI
High price of temporary water	No/small barrier	36.1%	4.7%	52.8%	13.3%	33.4%	4.9%	59.4%	17.2%	42.9%	19.1%	26.4%	7.7%	48.6%	15.9%	33.9%	6.5%
	Moderate barrier	5.2%	1.9%	13.2%	7.1%	4.0%	1.7%	15.6%	9.4%	9.5%	7.5%	0.9%	0.8%	2.9%	2.5%	5.9%	2.7%
	Large barrier	58.6%	5.0%	34.0%	11.6%	62.6%	5.3%	25.0%	12.4%	47.6%	19.9%	72.6%	9.0%	48.6%	15.9%	60.2%	7.1%
Increase in fixed costs of water entitlements	No/small barrier	33.6%	4.6%	57.7%	13.5%	29.8%	4.8%	62.5%	17.3%	50.0%	20.7%	25.0%	7.6%	42.9%	15.3%	29.2%	6.2%
	Moderate barrier	7.1%	2.3%	9.6%	5.9%	6.7%	2.3%	9.4%	6.7%	10.0%	7.9%	4.8%	2.9%	20.0%	10.6%	5.4%	2.6%
	Large barrier	59.3%	5.0%	32.7%	11.5%	63.5%	5.3%	28.1%	13.2%	40.0%	18.9%	70.2%	9.3%	37.1%	14.5%	65.4%	7.1%
Reduced water allocation for one or more seasons	No/small barrier	49.5%	5.0%	52.9%	13.5%	48.9%	5.4%	60.0%	17.8%	42.9%	19.1%	28.8%	8.0%	76.5%	16.0%	54.6%	7.2%
	Moderate barrier	3.2%	1.4%	3.9%	3.1%	3.1%	1.5%	0.0%	0.0%	9.5%	7.5%	2.9%	2.1%	2.9%	2.6%	3.2%	1.9%
	Large barrier	47.3%	5.0%	43.1%	12.9%	48.0%	5.4%	40.0%	16.0%	47.6%	19.9%	68.3%	9.4%	20.6%	10.9%	42.2%	6.9%
Lack of available water allocation to purchase on the water market	No/small barrier	59.8%	5.0%	62.7%	13.7%	59.4%	5.4%	66.7%	17.8%	57.1%	20.9%	41.7%	9.2%	88.2%	13.8%	63.4%	7.1%
	Moderate barrier	2.9%	1.4%	2.0%	1.7%	3.1%	1.5%	3.3%	3.0%	0.0%	0.0%	4.9%	3.0%	0.0%	0.0%	2.7%	1.7%
	Large barrier	37.2%	4.8%	35.3%	12.0%	37.5%	5.1%	30.0%	14.0%	42.9%	19.1%	53.4%	9.6%	11.8%	7.7%	33.9%	6.5%

Table A26 Water-related barriers to farm development experienced in last three years, by farm type - 2015

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Dairy (n=93)	95% CI	Grain growing (n=80)	95% CI	Grazier (n=119)	95% CI	Horti-culture (all) (n=165)	95% CI	Mixed cropping/ grazing (n=53)	95% CI	Fruit/nut grower (n=70)	95% CI	Winegrape grower (n=82)	95% CI
Reduced water allocation for one or more seasons	No/small barrier	23.7%	7.7%	22.5%	8.1%	47.9%	8.8%	50.9%	7.6%	39.6%	12.3%	50.0%	11.5%	51.2%	10.7%
	Moderate barrier	2.2%	1.7%	11.3%	5.5%	9.2%	4.2%	8.5%	3.5%	3.8%	3.0%	10.0%	5.4%	8.5%	4.6%
	Large barrier	74.2%	9.5%	66.3%	10.8%	42.9%	8.6%	40.6%	7.3%	56.6%	13.4%	40.0%	10.9%	40.2%	10.1%
Increase in fixed costs of water entitlements	No/small barrier	17.4%	6.7%	32.5%	9.5%	37.3%	8.3%	43.3%	7.4%	26.4%	10.4%	43.5%	11.2%	42.0%	10.3%
	Moderate barrier	9.8%	4.8%	11.3%	5.5%	6.8%	3.5%	11.0%	4.1%	9.4%	5.7%	11.6%	6.0%	12.3%	5.8%
	Large barrier	72.8%	9.7%	56.3%	10.9%	55.9%	9.0%	45.7%	7.5%	64.2%	13.4%	44.9%	11.3%	45.7%	10.5%
Lack of available water allocation to purchase on the water market	No/small barrier	20.4%	7.2%	31.3%	9.4%	55.2%	9.1%	51.5%	7.6%	40.4%	12.5%	58.8%	11.9%	45.1%	10.4%
	Moderate barrier	3.2%	2.3%	8.8%	4.8%	5.2%	3.0%	8.0%	3.4%	7.7%	5.0%	5.9%	3.9%	9.8%	5.0%
	Large barrier	76.3%	9.4%	60.0%	10.9%	39.7%	8.6%	40.5%	7.3%	51.9%	13.4%	35.3%	10.6%	45.1%	10.4%

Table A27 Water-related barriers to farm development experienced in last three years, by farm type - 2016

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Farm type														
		Dairy (n=130)	95% CI	Grain growing (n=80)	95% CI	Grazier (n=128)	95% CI	Horti-culture (all) (n=84)	95% CI	Mixed cropping/ grazing (n=70)	95% CI	Fruit/nut grower (n=74)	95% CI	Winegrape grower (n=60)	95% CI
Reduced allocation for one or more seasons	No/small barrier	22.3%	6.5%	17.5%	7.1%	51.6%	8.6%	61.9%	10.6%	55.7%	11.7%	63.5%	11.3%	65.0%	12.5%
	Moderate barrier	6.2%	3.2%	8.8%	4.8%	7.8%	3.7%	4.8%	3.2%	2.9%	2.3%	5.4%	3.5%	10.0%	5.7%
	Large barrier	71.5%	8.1%	73.8%	10.4%	40.6%	8.2%	33.3%	9.4%	41.4%	11.0%	31.1%	9.7%	25.0%	9.6%
Increase in costs of water delivery	No/small barrier	15.0%	5.4%	21.0%	7.8%	28.6%	7.4%	36.9%	9.7%	31.4%	9.9%	37.3%	10.3%	31.0%	10.7%
	Moderate barrier	8.7%	4.0%	13.6%	6.2%	11.9%	4.8%	13.1%	5.9%	11.4%	5.8%	14.7%	6.6%	15.5%	7.5%
	Large barrier	76.4%	7.9%	65.4%	10.7%	59.5%	8.7%	50.0%	10.5%	57.1%	11.6%	48.0%	11.1%	53.4%	12.7%
Increase in fixed costs of water entitlements	No/small barrier	13.0%	5.0%	21.0%	7.8%	27.8%	7.3%	35.8%	9.8%	31.4%	9.9%	37.5%	10.5%	36.2%	11.5%
	Moderate barrier	9.2%	4.1%	8.6%	4.7%	11.1%	4.6%	8.6%	4.7%	12.9%	6.3%	9.7%	5.2%	17.2%	8.0%
	Large barrier	77.9%	7.7%	70.4%	10.6%	61.1%	8.7%	55.6%	10.9%	55.7%	11.7%	52.8%	11.5%	46.6%	12.5%
High price of temporary water	No/small barrier	17.3%	5.8%	18.3%	7.2%	48.3%	8.8%	61.0%	10.8%	52.2%	11.7%	63.0%	11.4%	50.0%	12.6%
	Moderate barrier	4.7%	2.7%	8.5%	4.6%	4.2%	2.6%	6.1%	3.7%	7.2%	4.4%	5.5%	3.6%	19.0%	8.5%
	Large barrier	78.0%	7.8%	73.2%	10.3%	47.5%	8.8%	32.9%	9.4%	40.6%	11.0%	31.5%	9.8%	31.0%	10.7%

Table A28 Water-related barriers to farm development experienced in last three years, by farm type - 2018

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Dairy (n=57)	95% CI	Grain growing (n=43)	95% CI	Grazier (n=112)	95% CI	Horti-culture (all) (n=94)	95% CI	Mixed cropping/ grazing (n=68)	95% CI	Fruit/nut grower (n=33)	95% CI	Winegrape grower (n=36)	95% CI
High price of temporary water	No/small barrier	22.8%	9.4%	20.9%	10.0%	30.4%	7.9%	62.8%	10.0%	29.4%	9.8%	66.7%	16.9%	55.6%	16.1%
	Moderate barrier	1.8%	1.6%	7.0%	5.0%	8.9%	4.2%	2.1%	1.7%	4.4%	3.2%	3.0%	2.7%	2.8%	2.5%
	Large barrier	75.4%	12.2%	72.1%	14.5%	60.7%	9.2%	35.1%	9.1%	66.2%	11.7%	30.3%	13.5%	41.7%	14.9%
	No/small barrier	25.0%	9.9%	16.7%	8.9%	30.9%	8.1%	55.4%	10.2%	27.9%	9.6%	59.4%	17.2%	52.9%	16.4%
	Moderate barrier	7.1%	4.7%	7.1%	5.1%	2.7%	2.0%	8.7%	4.5%	10.3%	5.6%	12.5%	8.1%	8.8%	6.3%
Increase in fixed costs of water entitlements	Large barrier	67.9%	12.9%	76.2%	14.3%	66.4%	9.2%	35.9%	9.2%	61.8%	11.8%	28.1%	13.2%	38.2%	14.8%
Reduced water allocation for one or more seasons	No/small barrier	42.1%	12.2%	27.5%	11.9%	45.0%	9.0%	79.6%	9.0%	34.3%	10.5%	82.4%	15.2%	78.8%	16.0%
	Moderate barrier	3.5%	2.8%	7.5%	5.3%	2.7%	1.9%	2.2%	1.7%	1.5%	1.3%	2.9%	2.6%	3.0%	2.7%
	Large barrier	54.4%	12.9%	65.0%	15.4%	52.3%	9.2%	18.3%	6.8%	64.2%	11.9%	14.7%	8.9%	18.2%	10.2%
Lack of available water allocation to purchase on the water market	No/small barrier	47.4%	12.6%	38.1%	13.5%	63.1%	9.2%	87.1%	7.9%	38.5%	11.1%	94.1%	11.7%	84.8%	14.9%
	Moderate barrier	1.8%	1.6%	2.4%	2.1%	4.5%	2.8%	0.0%	0.0%	4.6%	3.3%	0.0%	0.0%	0.0%	0.0%
	Large barrier	50.9%	12.8%	59.5%	15.1%	32.4%	8.2%	12.9%	5.7%	56.9%	12.1%	5.9%	4.6%	15.2%	9.1%

Table A29 Water-related barriers to farm development experienced in last three years, by trade typology - 2015

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months							
		Diverse trader (n=81)	95% CI	Non-diverse allocation trader (n=199)	95% CI	Non-diverse entitlement trader (n=26)	95% CI	Non-portfolio trader (n=19)	95% CI	Non-trader (n=204)	95% CI	Traded both entitlements and allocation (n=72)	95% CI	Traded allocation but not entitlements (n=220)	95% CI	Traded entitlements but not allocation (n=30)	95% CI	No trade (n=206)	95% CI
Reduced water allocation for one or more seasons	No/small barrier	28.4%	8.9%	28.1%	5.9%	30.8%	15.0%	36.8%	18.6%	55.4%	6.9%	27.8%	9.3%	29.1%	5.7%	30.0%	14.0%	55.3%	6.8%
	Moderate barrier	4.9%	3.2%	5.0%	2.4%	3.8%	3.4%	0.0%	0.0%	10.3%	3.6%	4.2%	3.0%	5.0%	2.3%	3.3%	3.0%	10.2%	3.6%
	Large barrier	66.7%	10.7%	66.8%	6.7%	65.4%	19.1%	63.2%	22.3%	34.3%	6.3%	68.1%	11.3%	65.9%	6.4%	66.7%	17.8%	34.5%	6.2%
Increase in fixed costs of water entitlements	No/small barrier	27.2%	8.8%	21.2%	5.3%	19.2%	11.5%	36.8%	18.6%	45.5%	6.8%	26.4%	9.1%	22.8%	5.2%	20.0%	11.2%	45.6%	6.7%
	Moderate barrier	6.2%	3.8%	7.6%	3.1%	7.7%	6.1%	5.3%	4.7%	14.4%	4.3%	6.9%	4.2%	7.3%	2.9%	6.7%	5.3%	14.2%	4.3%
	Large barrier	66.7%	10.7%	71.2%	6.6%	73.1%	18.8%	57.9%	22.0%	40.1%	6.6%	66.7%	11.4%	69.9%	6.3%	73.3%	17.4%	40.2%	6.6%
Lack of available water allocation to purchase on the water market	No/small barrier	25.9%	8.6%	31.6%	6.2%	23.1%	12.8%	15.8%	11.1%	60.0%	6.9%	26.4%	9.1%	30.0%	5.8%	23.3%	12.2%	59.9%	6.9%
	Moderate barrier	4.9%	3.2%	5.1%	2.4%	7.7%	6.1%	0.0%	0.0%	7.0%	2.9%	5.6%	3.7%	4.6%	2.2%	6.7%	5.3%	6.9%	2.9%
	Large barrier	69.1%	10.6%	63.3%	6.9%	69.2%	19.0%	84.2%	20.6%	33.0%	6.2%	68.1%	11.3%	65.4%	6.5%	70.0%	17.7%	33.2%	6.2%

Table A30 Water-related barriers to farm development experienced in last three years, by trade typology - 2016

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months							
		Diverse trader (n=93)	95% CI	Non-diverse allocation trader (n=161)	95% CI	Non-diverse entitlement trader (n=37)	95% CI	Non-portfolio trader (n=13)	95% CI	No trade (n=180)	95% CI	Traded both entitlements and allocation (n=67)	95% CI	Traded allocation but not entitlements (n=200)	95% CI	Traded entitlements but not allocation (n=24)	95% CI	No trade (n=192)	95% CI
Reduced allocation for one or more seasons	No/small barrier	19.4%	7.1%	34.2%	7.0%	48.6%	15.4%	38.5%	22.0%	53.3%	7.3%	25.4%	9.3%	30.5%	6.1%	41.7%	17.9%	53.6%	7.0%
	Moderate barrier	5.4%	3.3%	5.0%	2.6%	8.1%	5.8%	7.7%	6.9%	10.6%	3.9%	6.0%	4.0%	5.0%	2.4%	8.3%	6.5%	10.4%	3.7%
	Large barrier	75.3%	9.5%	60.9%	7.7%	43.2%	14.9%	53.8%	25.5%	36.1%	6.7%	68.7%	11.8%	64.5%	6.8%	50.0%	19.0%	35.9%	6.5%
Increase in costs of water delivery	No/ small barrier	10.5%	5.0%	14.2%	4.7%	33.3%	13.6%	15.4%	12.1%	32.0%	6.5%	13.2%	6.4%	13.9%	4.3%	26.1%	14.4%	32.1%	6.3%
	Moderate barrier	13.7%	5.8%	11.1%	4.1%	22.2%	11.1%			11.8%	4.1%	13.2%	6.4%	10.9%	3.7%	26.1%	14.4%	12.1%	4.1%
	Large barrier	75.8%	9.3%	74.7%	7.1%	44.4%	15.2%	84.6%	25.5%	56.2%	7.4%	73.5%	11.3%	75.2%	6.2%	47.8%	19.1%	55.8%	7.1%
Increase in fixed costs of water entitlements	No/small barrier	12.6%	5.5%	17.6%	5.3%	27.0%	12.2%	15.4%	12.1%	32.8%	6.6%	14.7%	6.9%	15.6%	4.5%	20.8%	12.4%	33.3%	6.4%
	Moderate barrier	11.6%	5.3%	8.2%	3.5%	16.2%	9.1%			12.4%	4.2%	10.3%	5.6%	9.0%	3.4%	12.5%	8.9%	12.7%	4.2%
	Large barrier	75.8%	9.3%	74.2%	7.2%	56.8%	16.0%	84.6%	25.5%	54.8%	7.4%	75.0%	11.2%	75.4%	6.3%	66.7%	19.9%	54.0%	7.2%
High price of temporary water	No/small barrier	19.1%	6.9%	33.3%	6.9%	31.4%	13.4%	21.4%	15.0%	53.4%	7.4%	26.9%	9.5%	28.6%	5.9%	26.1%	14.4%	52.4%	7.2%
	Moderate barrier	5.3%	3.2%	6.8%	3.1%	14.3%	8.6%	7.1%	6.3%	9.2%	3.6%	7.5%	4.6%	5.9%	2.6%	13.0%	9.2%	9.7%	3.6%
	Large barrier	75.5%	9.3%	59.9%	7.7%	54.3%	16.3%	71.4%	25.9%	37.4%	7.0%	65.7%	11.9%	65.5%	6.7%	60.9%	20.3%	37.8%	6.7%

Table A31 Water-related barriers to farm development experienced in last three years, by trade typology - 2018

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months							
		Diverse trader (n=39)	95% CI	Non-diverse allocation trader (n=103)	95% CI	Non-diverse entitlement trader (n=22)	95% CI	Non-portfolio trader (n=10)	95% CI	No trade (n=151)	95% CI	Traded both entitlements and allocation (n=23)	95% CI	Traded allocation but not entitlements (n=107)	95% CI	Traded entitlements but not allocation (n=22)	95% CI	No trade (n=156)	95% CI
High price of temporary water	No/small barrier	23.1%	11.0%	12.6%	5.4%	27.3%	15.0%	10.0%	8.9%	57.1%	7.8%	30.4%	15.7%	11.2%	4.9%	22.7%	13.5%	57.1%	7.8%
	Moderate barrier	5.1%	4.0%	4.9%	3.0%	4.5%	4.1%	10.0%	8.9%	5.1%	2.7%	4.3%	3.9%	3.7%	2.5%	9.1%	7.2%	5.1%	2.7%
	Large barrier	71.8%	15.3%	82.5%	8.2%	68.2%	20.8%	80.0%	30.3%	37.8%	7.3%	65.2%	20.3%	85.0%	7.7%	68.2%	20.8%	37.8%	7.3%
Increase in fixed costs of water entitlements	No/small barrier	18.4%	9.8%	13.0%	5.5%	14.3%	10.1%	10.0%	8.9%	50.6%	7.8%	26.1%	14.4%	11.3%	5.0%	19.0%	12.3%	50.6%	7.8%
	Moderate barrier	7.9%	5.6%	12.0%	5.3%	9.5%	7.5%	10.0%	8.9%	3.8%	2.2%	0.0%	0.0%	8.5%	4.2%	14.3%	10.1%	3.8%	2.2%
	Large barrier	73.7%	15.4%	75.0%	9.1%	76.2%	20.8%	80.0%	30.3%	45.5%	7.7%	73.9%	20.0%	80.2%	8.3%	66.7%	21.3%	45.5%	7.7%
Reduced water allocation for one or more seasons	No/small barrier	35.9%	13.6%	33.0%	8.6%	28.6%	15.7%	40.0%	24.7%	65.2%	7.7%	52.2%	19.7%	30.2%	8.1%	28.6%	15.7%	65.2%	7.7%
	Moderate barrier	7.7%	5.5%	2.0%	1.6%	4.8%	4.2%	0.0%	0.0%	2.6%	1.7%	8.7%	6.8%	2.8%	2.0%	0.0%	0.0%	2.6%	1.7%
	Large barrier	56.4%	15.6%	65.0%	9.7%	66.7%	21.3%	60.0%	29.6%	32.3%	7.0%	39.1%	17.7%	67.0%	9.3%	71.4%	21.1%	32.3%	7.0%
Lack of available water allocation to purchase on the water market	No/small barrier	46.2%	14.9%	41.4%	9.3%	57.1%	20.9%	50.0%	27.6%	75.0%	7.2%	47.8%	19.1%	41.3%	9.1%	52.4%	20.5%	75.0%	7.2%
	Moderate barrier	0.0%	0.0%	4.0%	2.7%	4.8%	4.2%	10.0%	8.9%	3.2%	2.0%	0.0%	0.0%	2.9%	2.1%	4.8%	4.2%	3.2%	2.0%
	Large barrier	53.8%	15.5%	54.5%	9.8%	38.1%	18.2%	40.0%	24.7%	21.8%	5.9%	52.2%	19.7%	55.8%	9.6%	42.9%	19.1%	21.8%	5.9%

Table A32 Water-related barriers to farm development experienced in last three years, by water source/s used - 2015

		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Used water from own entitle-ments only (n=296)	95% CI	Used water from own entitlements and allocation purchased on the market (n=177)	95% CI	Used water from alloc-ation or leased entitle-ments only (n=19)	95% CI	Used surface water only (n=317)	95% CI	Used surface water and ground water (n=59)	95% CI	Used ground water only (n=57)	95% CI
Reduced water allocation for one or more seasons	No/small barrier	52.4%	5.7%	13.0%	4.3%	36.8%	18.6%	36.3%	5.1%	13.6%	6.9%	59.6%	13.0%
	Moderate barrier	8.1%	2.7%	4.0%	2.2%	0.0%	0.0%	6.0%	2.2%	3.4%	2.7%	10.5%	6.0%
	Large barrier	39.5%	5.4%	83.1%	6.0%	63.2%	22.3%	57.7%	5.5%	83.1%	11.0%	29.8%	10.7%
Increase in fixed costs of water entitlements	No/small barrier	40.5%	5.5%	14.6%	4.6%	36.8%	18.6%	29.0%	4.8%	10.2%	5.8%	43.9%	12.3%
	Moderate barrier	12.2%	3.4%	5.1%	2.5%	5.3%	4.7%	7.6%	2.5%	13.6%	6.9%	15.8%	7.7%
	Large barrier	47.3%	5.7%	80.3%	6.3%	57.9%	22.0%	63.4%	5.4%	76.3%	11.9%	40.4%	12.0%
Lack of water allocation on the water market	No/small barrier	60.1%	5.7%	8.0%	3.3%	15.8%	11.1%	36.3%	5.2%	15.3%	7.4%	64.3%	13.0%
	Moderate barrier	6.5%	2.4%	4.5%	2.4%	0.0%	0.0%	4.1%	1.8%	6.8%	4.4%	12.5%	6.7%
	Large barrier	33.3%	5.2%	87.5%	5.5%	84.2%	20.6%	59.6%	5.5%	78.0%	11.7%	23.2%	9.5%

Table A33 Water-related barriers to farm development experienced in last three years, by water source/s used - 2016

		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Used water from own entitlements only (n=305)	95% CI	Used water from own entitlements and allocation purchased on the market (n=165)	95% CI	Used water from allocation or leased entitle-ments only (n=13)	95% CI	Used surface water only (n=410)	95% CI	Used surface water and ground water (n=84)	95% CI	Used ground water only (n=84)	95% CI
Reduced allocation for one or more seasons	No/small barrier	52.1%	5.6%	17.6%	5.2%	38.5%	22.0%	36.3%	4.5%	38.1%	9.8%	82.1%	9.2%
	Moderate barrier	9.2%	2.9%	2.4%	1.6%	7.7%	6.9%	6.6%	2.1%	10.7%	5.3%	3.6%	2.6%
	Large barrier	38.7%	5.3%	80.0%	6.6%	53.8%	25.5%	57.1%	4.9%	51.2%	10.6%	14.3%	6.2%
Increase in costs of water delivery	No/small barrier	28.5%	4.8%	10.2%	3.9%	15.4%	12.1%	18.0%	3.5%	21.4%	7.7%	70.7%	10.4%
	Moderate barrier	14.8%	3.7%	12.0%	4.3%			12.3%	2.9%	15.5%	6.5%	9.8%	5.1%
	Large barrier	56.7%	5.6%	77.8%	6.7%	84.6%	25.5%	69.7%	4.6%	63.1%	10.6%	19.5%	7.4%
Increase in fixed costs of water entitlements	No/small barrier	27.7%	4.9%	12.5%	4.4%	15.4%	12.1%	19.4%	3.6%	20.2%	7.5%	62.5%	10.9%
	Moderate barrier	12.0%	3.3%	11.3%	4.1%			10.3%	2.7%	11.9%	5.6%	15.0%	6.5%
	Large barrier	60.3%	5.6%	76.2%	6.9%	84.6%	25.5%	70.3%	4.6%	67.9%	10.5%	22.5%	8.1%
High price of temporary water	No/small barrier	54.2%	5.7%	9.0%	3.6%	21.4%	15.0%	33.9%	4.5%	34.9%	9.6%	76.3%	10.4%
	Moderate barrier	10.4%	3.1%	4.2%	2.3%	7.1%	6.3%	7.4%	2.2%	7.2%	4.1%	9.2%	5.0%
	Large barrier	35.5%	5.3%	86.7%	5.7%	71.4%	25.9%	58.7%	4.9%	57.8%	10.7%	14.5%	6.6%

Table A34 Water-related barriers to farm development experienced in last three years, by water source/s used - 2018

This table provides detailed data underpinning the findings reported in Section 5.2 in the main report.		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
		Used water from own entitlements only (n=199)	95% CI	Used water from own entitlements and allocation purchased on the market (n=97)	95% CI	Used water from allocation or leased entitlements only (n=10)	95% CI	Used surface water only (n=271)	95% CI	Used both surface water and ground water (n=49)	95% CI	Used ground water only (n=52)	95% CI
High price of temporary water	No/small barrier	44.2%	6.8%	10.3%	4.9%	10.0%	8.9%	28.4%	5.1%	28.6%	11.2%	73.1%	13.1%
	Moderate barrier	5.0%	2.4%	6.2%	3.6%	10.0%	8.9%	5.2%	2.2%	6.1%	4.4%	5.8%	4.1%
	Large barrier	50.8%	6.9%	83.5%	8.3%	80.0%	30.3%	66.4%	5.8%	65.3%	13.9%	21.2%	9.4%
Increase in fixed costs of water entitlements	No/small barrier	34.5%	6.3%	14.0%	5.9%	10.0%	8.9%	27.3%	5.0%	19.1%	9.2%	68.6%	13.5%
	Moderate barrier	6.0%	2.7%	12.9%	5.7%	10.0%	8.9%	7.7%	2.7%	8.5%	5.6%	3.9%	3.1%
	Large barrier	59.5%	6.9%	73.1%	9.6%	80.0%	30.3%	64.9%	5.8%	72.3%	13.8%	27.5%	10.8%
Reduced water allocation for one or more seasons	No/small barrier	53.3%	6.9%	29.8%	8.5%	40.0%	24.7%	43.3%	5.8%	37.0%	12.8%	84.9%	11.4%
	Moderate barrier	2.0%	1.3%	5.3%	3.3%	0.0%	0.0%	3.7%	1.8%	2.2%	1.9%	1.9%	1.7%
	Large barrier	44.7%	6.8%	64.9%	10.0%	60.0%	29.6%	53.0%	6.0%	60.9%	14.4%	13.2%	7.1%
Lack of available water allocation to purchase on the water market	No/small barrier	66.8%	6.7%	39.4%	9.4%	50.0%	27.6%	54.5%	6.0%	56.5%	14.4%	84.9%	11.4%
	Moderate barrier	3.5%	1.9%	2.1%	1.7%	10.0%	8.9%	3.7%	1.8%	0.0%	0.0%	1.9%	1.7%
	Large barrier	29.6%	6.0%	58.5%	10.1%	40.0%	24.7%	41.8%	5.8%	43.5%	13.6%	13.2%	7.1%

Table A35 Farming conditions, by Basin location - 2015

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Basin	95% CI	Northern Basin	95% CI	Southern Basin	95% CI	NSW Nth Basin	95% CI	Qld Basin	95% CI	NSW Sth Basin	95% CI	SA Basin	95% CI	Vic Basin	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year? (n=798)	Easier than usual	8.5%	1.8%	9.1%	4.0%	8.4%	1.9%	6.3%	4.1%	11.6%	6.0%	11.4%	3.6%	13.0%	5.5%	4.9%	2.0%
		About the same as usual	44.0%	3.4%	44.7%	8.3%	43.8%	3.7%	46.0%	11.9%	43.5%	11.3%	43.5%	6.2%	45.0%	9.5%	43.8%	5.3%
		More challenging than usual	47.5%	3.5%	46.2%	8.3%	47.7%	3.7%	47.6%	12.0%	44.9%	11.3%	45.1%	6.2%	42.0%	9.3%	51.4%	5.4%
Farming conditions - farm finances	Average cash flow on the farm over the last 12 months? (n=427)	Poor cash flow	28.6%	4.2%	25.0%	10.9%	29.0%	4.4%			25.0%	10.9%			38.5%	11.2%	27.7%	4.7%
		Neither poor or good cash flow	40.5%	4.6%	38.6%	13.3%	40.7%	4.8%			38.6%	13.3%			30.8%	10.2%	42.6%	5.4%
		Good cash flow	30.9%	4.2%	36.4%	13.0%	30.3%	4.5%			36.4%	13.0%			30.8%	10.2%	29.7%	4.9%
	How easy or difficult is it for you to service your farm business debt at the moment? (n=659)	Difficult to service debt	27.0%	3.3%	23.0%	7.0%	27.8%	3.6%	25.9%	10.2%	20.3%	8.7%	25.8%	5.8%	29.1%	9.1%	28.9%	5.1%
		Neither easy or difficult to service debt	42.0%	3.7%	47.8%	9.1%	40.8%	4.0%	46.3%	12.8%	49.2%	12.5%	43.3%	6.8%	41.8%	10.4%	38.8%	5.6%
		Easy to service debt	31.0%	3.5%	29.2%	7.8%	31.3%	3.8%	27.8%	10.6%	30.5%	10.6%	30.9%	6.2%	29.1%	9.1%	32.2%	5.3%
	Farm business is under a lot of financial stress at the moment (n=793)	Disagree	39.6%	3.4%	37.7%	8.0%	40.0%	3.7%	37.1%	11.2%	38.2%	10.8%	43.3%	6.2%	34.7%	8.9%	39.1%	5.1%
		Neither	17.3%	2.5%	20.0%	6.2%	16.7%	2.7%	16.1%	7.5%	23.5%	8.8%	15.5%	4.1%	18.4%	6.7%	17.1%	3.8%
		Agree	43.1%	3.4%	42.3%	8.2%	43.3%	3.7%	46.8%	12.1%	38.2%	10.8%	41.2%	6.1%	46.9%	9.6%	43.7%	5.3%
Farming conditions - barriers to farm development in last 3 years	Drought (n=769)	No/small barrier	45.7%	4.1%	37.3%	10.3%	47.0%	4.4%	44.4%	27.1%	36.4%	10.8%	40.5%	10.0%	62.8%	10.0%	44.0%	5.4%
		Moderate barrier	7.0%	1.9%	5.3%	3.5%	7.3%	2.0%	0.0%	0.0%	6.1%	4.0%	8.3%	4.5%	3.2%	2.3%	8.2%	2.6%
		Large barrier	47.3%	4.1%	57.3%	11.3%	45.8%	4.3%	55.6%	30.1%	57.6%	12.0%	51.2%	10.6%	34.0%	9.0%	47.8%	5.4%
	Rising costs of farm inputs e.g. fertiliser, fuel (n=575)	No/small barrier	38.1%	3.9%	38.7%	10.4%	38.0%	4.2%	44.4%	27.1%	37.9%	11.0%	35.7%	9.6%	36.5%	9.1%	39.1%	5.2%
		Moderate barrier	14.1%	2.7%	10.7%	5.5%	14.6%	2.9%	22.2%	17.3%	9.1%	5.2%	14.3%	6.2%	18.8%	6.8%	13.4%	3.4%
		Large barrier	47.8%	4.1%	50.7%	11.2%	47.4%	4.4%	33.3%	22.9%	53.0%	12.0%	50.0%	10.5%	44.8%	9.7%	47.5%	5.4%
	Lack of demand for the goods you produce (n=188)	No/small barrier	66.5%	4.0%	75.7%	10.6%	65.1%	4.3%	66.7%	31.9%	76.9%	11.3%	65.9%	10.7%	50.5%	10.0%	69.2%	5.3%
		Moderate barrier	11.7%	2.5%	10.8%	5.6%	11.8%	2.6%	0.0%	0.0%	12.3%	6.3%	13.4%	6.1%	9.7%	4.8%	12.1%	3.2%
		Large barrier	21.8%	3.3%	13.5%	6.3%	23.1%	3.6%	33.3%	22.9%	10.8%	5.8%	20.7%	7.7%	39.8%	9.5%	18.7%	4.0%
	Falling prices for the goods you produce (n=570)	No/small barrier	44.2%	4.0%	42.7%	10.7%	44.4%	4.3%	44.4%	27.1%	42.4%	11.4%	40.5%	10.0%	34.4%	9.1%	48.4%	5.5%
		Moderate barrier	11.4%	2.4%	17.3%	7.3%	10.5%	2.5%	0.0%	0.0%	19.7%	8.2%	11.9%	5.6%	11.8%	5.4%	9.7%	2.9%
		Large barrier	44.4%	4.0%	40.0%	10.5%	45.1%	4.3%	55.6%	30.1%	37.9%	11.0%	47.6%	10.4%	53.8%	10.1%	41.8%	5.3%

Table A36 Farming conditions, by Basin location - 2016

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Basin location						Basin state									
			Basin	95% CI	Northern Basin	95% CI	Southern Basin	95% CI	NSW Nth Basin	95% CI	Qld Basin	95% CI	NSW Sth Basin	95% CI	SA Basin	95% CI	Vic Basin	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year? (n=586[1])	Easier than usual	7.3%	1.9%	6.9%	3.7%	7.5%	2.1%	9.5%	5.4%	2.6%	2.3%	7.8%	3.6%	11.9%	6.4%	6.4%	2.4%
		About the same as usual	44.2%	4.0%	56.4%	9.7%	41.6%	4.3%	52.4%	12.2%	63.2%	15.9%	50.4%	8.2%	62.7%	12.7%	32.6%	5.2%
		More challenging than usual	48.5%	4.1%	36.6%	8.9%	50.9%	4.4%	38.1%	11.2%	34.2%	13.5%	41.8%	7.9%	25.4%	9.7%	61.0%	5.8%
Farming conditions - farm finances	Farm business is under a lot of financial stress at the moment (n=614)	Disagree	46.4%	3.9%	58.3%	9.7%	44.3%	4.3%	55.4%	12.1%	63.2%	15.9%	50.3%	7.9%	55.0%	12.6%	38.9%	5.4%
		Neither	15.3%	2.7%	11.7%	5.2%	16.1%	3.0%	10.8%	5.9%	13.2%	8.0%	20.8%	5.9%	15.0%	7.3%	14.1%	3.6%
		Agree	38.3%	3.8%	30.1%	8.2%	39.6%	4.2%	33.8%	10.6%	23.7%	11.3%	28.9%	6.9%	30.0%	10.5%	47.0%	5.6%
	How easy or difficult is it for you to service your farm business debt at the moment? (n=463)	Difficult to service debt	22.9%	3.7%	14.8%	6.4%	24.7%	4.1%	18.2%	8.5%	7.7%	6.1%	18.7%	6.5%	12.0%	6.8%	30.6%	5.8%
		Neither easy or difficult to service debt	44.3%	4.5%	50.6%	10.7%	42.6%	4.9%	49.1%	12.9%	53.8%	18.7%	41.1%	9.0%	50.0%	13.5%	41.9%	6.4%
		Easy to service debt	32.8%	4.1%	34.6%	9.7%	32.6%	4.5%	32.7%	11.2%	38.5%	16.7%	40.2%	8.9%	38.0%	12.5%	27.5%	5.6%
	How would you describe your average cash flow on the farm over the last 12 months? (n=545)	Poor cash flow	33.0%	3.8%	24.7%	8.0%	34.8%	4.3%	22.4%	9.2%	29.0%	13.6%	17.1%	5.8%	31.5%	11.2%	44.1%	5.9%
		Neither poor or good cash flow	32.5%	3.9%	30.3%	8.8%	32.6%	4.2%	36.2%	11.5%	19.4%	10.9%	34.9%	7.8%	33.3%	11.4%	31.1%	5.3%
		Good cash flow	34.5%	3.9%	44.9%	10.0%	32.6%	4.2%	41.4%	12.0%	51.6%	17.1%	48.1%	8.5%	35.2%	11.7%	24.8%	4.9%
Farming conditions - barriers to farm develop- ment in	Drought (n=584)	No/small barrier	38.5%	3.9%	34.3%	8.8%	39.5%	4.2%	33.8%	10.6%	35.3%	14.4%	44.0%	8.0%	62.1%	12.9%	32.9%	5.3%
		Moderate barrier	9.8%	2.2%	7.1%	3.9%	10.4%	2.5%	4.6%	3.3%	11.8%	7.7%	12.1%	4.6%	8.6%	5.2%	9.9%	3.1%
		Large barrier	51.7%	4.0%	58.6%	9.8%	50.1%	4.4%	61.5%	12.1%	52.9%	16.4%	44.0%	8.0%	29.3%	10.5%	57.2%	5.8%
	Lack of demand for the goods you produce (n=574)	No/small barrier	52.8%	4.1%	64.1%	10.1%	50.8%	4.4%	64.6%	12.0%	63.0%	18.8%	51.8%	8.3%	64.4%	12.7%	47.3%	5.8%
		Moderate barrier	14.5%	2.7%	10.9%	5.2%	14.8%	3.0%	12.3%	6.3%	7.4%	5.8%	17.3%	5.6%	10.2%	5.8%	14.6%	3.8%
		Large barrier	32.8%	3.8%	25.0%	8.0%	34.4%	4.2%	23.1%	9.0%	29.6%	14.5%	30.9%	7.2%	25.4%	9.7%	38.1%	5.6%
		No/small barrier	35.2%	3.8%	40.4%	9.5%	34.4%	4.2%	40.0%	11.3%	41.4%	16.4%	38.0%	7.6%	42.4%	12.0%	30.6%	5.1%

last 3 years	Falling prices for the goods you produce (n=582)	Moderate barrier	13.4%	2.6%	18.1%	6.8%	12.1%	2.6%	16.9%	7.6%	20.7%	11.6%	14.8%	5.1%	8.5%	5.2%	11.6%	3.3%
		Large barrier	51.4%	4.1%	41.5%	9.6%	53.5%	4.4%	43.1%	11.5%	37.9%	15.8%	47.2%	8.1%	49.2%	12.5%	57.7%	5.8%
	Rising costs of farm inputs e.g. fertiliser, fuel (n=588)	No/small barrier	29.4%	3.6%	30.2%	8.5%	29.4%	3.9%	28.8%	9.9%	33.3%	14.7%	32.2%	7.3%	36.7%	11.4%	26.2%	4.8%
		Moderate barrier	17.5%	2.9%	20.8%	7.2%	16.7%	3.1%	19.7%	8.2%	23.3%	12.2%	18.2%	5.7%	15.0%	7.3%	16.4%	3.9%
		Large barrier	53.1%	4.1%	49.0%	9.9%	53.9%	4.4%	51.5%	11.9%	43.3%	16.4%	49.7%	8.2%	48.3%	12.3%	57.3%	5.7%

[1] This number indicates the number of respondents in the Murray-Darling Basin

Table A37 Farming conditions, by Basin location - 2018

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Murray-Darling Basin	95% CI	Northern Basin	95% CI	Southern Basin	95% CI	NSW Nth Basin	95% CI	Qld Basin	95% CI	NSW Sth Basin	95% CI	SA Basin	95% CI	Vic Basin	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year? (n=380)[1]	Easier than usual	1.3%	0.8%	1.8%	1.6%	1.2%	0.8%	0.0%	0.0%	4.5%	4.1%	0.0%	0.0%	6.5%	5.1%	1.1%	0.8%
		About the same as usual	26.6%	4.3%	20.0%	8.9%	27.7%	4.7%	15.2%	9.1%	27.3%	15.0%	16.7%	6.3%	41.9%	16.0%	31.1%	6.3%
		More challenging that usual	72.1%	4.7%	78.2%	12.2%	71.1%	5.1%	84.8%	14.9%	68.2%	20.8%	83.3%	8.1%	51.6%	17.1%	67.9%	6.9%
Farming conditions - farm finances	My farm business is under a lot of financial stress at the moment (n=393)	Disagree	45.8%	4.9%	42.9%	12.3%	46.3%	5.3%	39.4%	15.2%	47.8%	19.1%	41.9%	9.1%	68.6%	16.4%	45.1%	6.9%
		Neither	14.2%	3.2%	10.7%	6.1%	14.8%	3.5%	9.1%	6.5%	13.0%	9.2%	12.4%	5.3%	14.3%	8.6%	15.9%	4.6%
		Agree	39.9%	4.8%	46.4%	12.6%	38.9%	5.1%	51.5%	16.6%	39.1%	17.7%	45.7%	9.3%	17.1%	9.7%	39.0%	6.6%
	How easy or difficult is it for you to service your farm business debt at the moment? (n=230)	Difficult to service debt	31.7%	5.8%	41.7%	14.9%	29.9%	6.1%	50.0%	22.8%	35.0%	17.8%	38.8%	11.0%	25.0%	14.8%	25.2%	7.5%
		Neither easy or difficult to service debt	44.8%	6.3%	30.6%	13.1%	47.4%	6.9%	25.0%	15.9%	35.0%	17.8%	41.8%	11.3%	35.0%	17.8%	53.3%	9.4%
		Easy to service debt	23.5%	5.1%	27.8%	12.5%	22.7%	5.5%	25.0%	15.9%	30.0%	16.4%	19.4%	8.1%	40.0%	18.9%	21.5%	7.0%
		Poor cash flow	31.6%	4.8%	32.7%	11.5%	31.4%	5.1%	26.7%	13.2%	40.9%	18.4%	38.2%	9.6%	25.8%	12.8%	29.0%	6.4%

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Murray-Darling Basin	95% CI	Northern Basin	95% CI	Southern Basin	95% CI	NSW Nth Basin	95% CI	Qld Basin	95% CI	NSW Sth Basin	95% CI	SA Basin	95% CI	Vic Basin	95% CI
	How would you describe your average cash flow on the farm over the last 12 months? (n=342)	Neither poor or good cash flow	36.3%	5.0%	28.8%	10.9%	37.6%	5.4%	33.3%	14.7%	22.7%	13.5%	31.5%	8.9%	29.0%	13.6%	42.6%	7.3%
		Good cash flow	32.2%	4.8%	38.5%	12.3%	31.0%	5.1%	40.0%	16.0%	36.4%	17.4%	30.3%	8.8%	45.2%	16.4%	28.4%	6.4%
Farming conditions - barriers to farm development in last 3 years	Has drought been a barrier to farm development in the last 3 years? (n=380)	No/small barrier	36.6%	4.7%	26.9%	10.6%	38.1%	5.1%	25.8%	12.8%	28.6%	15.7%	28.6%	8.0%	69.7%	16.8%	37.2%	6.7%
		Moderate barrier	6.3%	2.1%	7.7%	5.0%	6.1%	2.2%	6.5%	5.1%	9.5%	7.5%	3.8%	2.5%	3.0%	2.7%	8.0%	3.2%
		Large barrier	57.1%	5.0%	65.4%	13.5%	55.8%	5.4%	67.7%	17.5%	61.9%	21.2%	67.6%	9.3%	27.3%	12.8%	54.8%	7.1%
	Lack of demand for the goods you produce (n=365)	No/small barrier	80.3%	4.3%	78.8%	12.5%	80.5%	4.7%	77.4%	16.7%	81.0%	20.1%	84.7%	8.1%	84.8%	14.9%	77.2%	6.5%
		Moderate barrier	6.6%	2.2%	3.8%	3.0%	7.0%	2.4%	6.5%	5.1%	0.0%	0.0%	6.1%	3.5%	9.1%	6.5%	7.2%	3.1%
		Large barrier	13.2%	3.2%	17.3%	8.4%	12.5%	3.3%	16.1%	9.7%	19.0%	12.3%	9.2%	4.5%	6.1%	4.8%	15.6%	4.7%
	Falling prices for the goods you produce (n=373)	No/small barrier	63.3%	5.0%	73.1%	13.1%	61.7%	5.4%	75.0%	16.7%	70.0%	21.7%	65.3%	9.6%	70.6%	16.5%	57.6%	7.2%
		Moderate barrier	7.8%	2.4%	3.8%	3.0%	8.4%	2.7%	6.3%	4.9%	0.0%	0.0%	9.9%	4.7%	11.8%	7.7%	7.1%	3.0%
		Large barrier	29.0%	4.4%	23.1%	9.8%	29.9%	4.8%	18.8%	10.5%	30.0%	16.4%	24.8%	7.6%	17.6%	9.9%	35.3%	6.6%
	Rising costs of farm inputs e.g. fertiliser, fuel (n=382)	No/small barrier	27.5%	4.3%	34.0%	11.6%	26.4%	4.5%	34.4%	14.5%	33.3%	17.0%	21.9%	7.1%	35.3%	14.3%	26.6%	5.9%
		Moderate barrier	10.7%	2.8%	9.4%	5.7%	10.9%	3.0%	6.3%	4.9%	14.3%	10.1%	9.5%	4.5%	5.9%	4.6%	12.8%	4.2%
		Large barrier	61.8%	4.9%	56.6%	13.4%	62.6%	5.3%	59.4%	17.2%	52.4%	20.5%	68.6%	9.3%	58.8%	16.7%	60.6%	7.1%
	Lack of land available to purchase or lease for farm expansion (n=124)	No/small barrier	76.4%	4.5%	68.6%	13.5%	77.6%	4.8%	66.7%	17.8%	71.4%	21.1%	76.7%	8.8%	78.1%	16.3%	77.8%	6.4%
		Moderate barrier	7.8%	2.4%	13.7%	7.4%	6.8%	2.4%	13.3%	8.7%	14.3%	10.1%	2.9%	2.1%	9.4%	6.7%	8.6%	3.4%
		Large barrier	15.8%	3.4%	17.6%	8.5%	15.5%	3.6%	20.0%	11.2%	14.3%	10.1%	20.4%	6.9%	12.5%	8.1%	13.5%	4.3%
	Small size of my farm (n=374)	No/small barrier	74.9%	4.6%	76.9%	12.7%	74.5%	5.0%	71.0%	17.3%	85.7%	19.1%	76.5%	8.9%	82.4%	15.2%	71.7%	6.8%

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Murray-Darling Basin	95% CI	Northern Basin	95% CI	Southern Basin	95% CI	NSW Nth Basin	95% CI	Qld Basin	95% CI	NSW Sth Basin	95% CI	SA Basin	95% CI	Vic Basin	95% CI
		Moderate barrier	6.1%	2.1%	3.8%	3.0%	6.5%	2.3%	6.5%	5.1%	0.0%	0.0%	5.9%	3.4%	2.9%	2.6%	7.6%	3.2%
		Large barrier	19.0%	3.7%	19.2%	8.9%	18.9%	4.0%	22.6%	11.9%	14.3%	10.1%	17.6%	6.4%	14.7%	8.9%	20.7%	5.4%
	Inability to fully use farm infrastructure, e.g. not getting full productivity from infrastructure or machinery (n=369)	No/small barrier	70.7%	4.8%	70.6%	13.4%	70.8%	5.2%	76.7%	17.1%	61.9%	21.2%	61.0%	9.8%	87.5%	14.5%	72.8%	6.7%
		Moderate barrier	7.6%	2.4%	9.8%	6.0%	7.2%	2.5%	10.0%	7.1%	9.5%	7.5%	6.0%	3.5%	6.3%	4.9%	8.2%	3.3%
		Large barrier	21.7%	4.0%	19.6%	9.1%	22.0%	4.3%	13.3%	8.7%	28.6%	15.7%	33.0%	8.6%	6.3%	4.9%	19.0%	5.2%

[1] This number indicates the number of respondents in the Murray-Darling Basin

Table A38 Farming conditions, by farm type - 2015

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Dairy (n=96)	95% CI	Grain growing (n=136)	95% CI	Grazier (n=166)	95% CI	Horti-culture (all) (n=218)	95% CI	Mixed cropping/ grazing (n=82)	95% CI	Fruit/ nut grower (n=96)	95% CI	Wine-grape grower (n=102)	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year?	Easier than usual	8.3%	4.3%	8.1%	3.7%	10.2%	3.9%	10.6%	3.6%	4.9%	3.2%	15.6%	6.2%	5.9%	3.4%
		About the same as usual	29.2%	8.4%	42.6%	8.0%	51.8%	7.6%	45.0%	6.5%	35.4%	9.7%	46.9%	9.8%	40.2%	9.1%
		More challenging than usual	62.5%	9.9%	49.3%	8.3%	38.0%	7.2%	44.5%	6.5%	59.8%	10.8%	37.5%	9.2%	53.9%	9.6%
Farming conditions - farm finances	How would you describe your average cash flow on the farm over the last 12 months?	Poor cash flow	25.6%	8.3%	18.2%	9.2%	28.1%	8.5%	40.5%	8.3%	23.1%	11.0%	38.9%	12.2%	46.7%	12.3%
		Neither poor or good cash flow	39.5%	9.8%	52.3%	14.5%	38.2%	9.6%	33.3%	7.7%	41.0%	14.3%	25.9%	10.2%	36.7%	11.4%
		Good cash flow	34.9%	9.5%	29.5%	11.8%	33.7%	9.2%	26.2%	7.1%	35.9%	13.6%	35.2%	11.7%	16.7%	7.8%
	How easy or difficult is it for you to service your farm business debt at the moment?	Difficult to service debt	34.8%	9.2%	27.4%	7.5%	20.3%	6.2%	26.9%	6.2%	36.1%	10.4%	21.5%	7.9%	33.3%	9.5%
		Neither easy or difficult to service debt	32.6%	8.9%	39.3%	8.5%	40.6%	8.2%	46.3%	7.3%	45.8%	11.1%	44.3%	10.6%	46.9%	10.6%
		Easy to service debt	32.6%	8.9%	33.3%	8.0%	39.1%	8.2%	26.9%	6.2%	18.1%	7.6%	34.2%	9.8%	19.8%	7.6%
	My farm business is under a lot of financial stress at the moment	Disagree	27.7%	8.3%	37.9%	7.8%	53.4%	7.7%	34.6%	6.1%	34.1%	9.5%	36.2%	9.2%	26.2%	7.7%
		Neither	17.0%	6.5%	15.7%	5.3%	18.0%	5.3%	18.9%	4.8%	19.5%	7.4%	20.2%	7.1%	21.4%	7.1%
		Agree	55.3%	10.1%	46.4%	8.1%	28.6%	6.6%	46.5%	6.5%	46.3%	10.5%	43.6%	9.7%	52.4%	9.6%
Farming conditions - barriers to farm development in last 3 years	Has drought been a barrier to farm development in the last 3 years?	No/small barrier	28.6%	8.5%	37.0%	9.9%	47.1%	8.8%	65.0%	7.5%	24.5%	10.0%	65.2%	11.9%	61.4%	10.7%
		Moderate barrier	11.0%	5.2%	7.4%	4.3%	5.9%	3.2%	4.3%	2.4%	9.4%	5.7%	6.1%	4.0%	3.6%	2.6%
		Large barrier	60.4%	10.2%	55.6%	10.9%	47.1%	8.8%	30.7%	6.7%	66.0%	13.3%	28.8%	9.8%	34.9%	9.6%
	Rising costs of farm inputs e.g. fertiliser, fuel	No/small barrier	35.9%	9.2%	43.2%	10.4%	40.3%	8.5%	35.8%	7.0%	28.3%	10.7%	37.3%	10.8%	32.1%	9.3%
		Moderate barrier	10.9%	5.1%	9.9%	5.1%	17.6%	6.0%	17.6%	5.2%	9.4%	5.7%	19.4%	8.1%	17.9%	7.0%
		Large barrier	53.3%	10.2%	46.9%	10.6%	42.0%	8.6%	46.7%	7.5%	62.3%	13.4%	43.3%	11.4%	50.0%	10.5%
	Lack of demand for the goods you produce	No/small barrier	61.8%	10.3%	74.1%	10.3%	82.5%	7.7%	48.5%	7.6%	64.2%	13.4%	54.4%	11.8%	38.3%	10.0%
		Moderate barrier	15.7%	6.4%	7.4%	4.3%	9.6%	4.4%	14.1%	4.7%	18.9%	8.7%	14.7%	6.9%	13.6%	6.1%
		Large barrier	22.5%	7.7%	18.5%	7.3%	7.9%	3.9%	37.4%	7.2%	17.0%	8.2%	30.9%	10.0%	48.1%	10.7%
	Falling prices for the goods you produce	No/small barrier	33.7%	9.0%	50.6%	10.7%	57.4%	9.1%	34.5%	6.9%	34.0%	11.6%	36.8%	10.7%	27.7%	8.7%
		Moderate barrier	10.9%	5.1%	12.3%	5.8%	14.8%	5.6%	9.1%	3.7%	13.2%	7.1%	11.8%	6.0%	7.2%	4.2%
		Large barrier	55.4%	10.2%	37.0%	9.9%	27.8%	7.6%	56.4%	7.6%	52.8%	13.3%	51.5%	11.7%	65.1%	10.6%

Table A39 Farming conditions, by farm type - 2016

			Farm type												
This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Dairy (n=124)	95% CI	Grain grow-ing (n=79)	95% CI	Grazier (n=128)	95% CI	Horti-culture (all) (n=93)	95% CI	Mixed cropping/ grazing (n=71)	95% CI	Fruit/ nut grower (n=81)	95% CI	Wine grape grower (n=65)	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year?	Easier than usual	3.2%	2.1%	3.8%	2.7%	14.1%	5.2%	6.5%	3.8%	7.0%	4.3%	7.4%	4.2%	6.2%	4.1%
		About the same as usual	10.5%	4.5%	46.8%	10.7%	58.6%	8.7%	48.4%	10.0%	47.9%	11.4%	46.9%	10.6%	61.5%	12.1%
		More challenging than usual	86.3%	6.9%	49.4%	10.9%	27.3%	7.1%	45.2%	9.9%	45.1%	11.2%	45.7%	10.6%	32.3%	10.4%
Farming conditions - farm finances	My farm business is under a lot of financial stress at the moment	Disagree	23.1%	6.6%	51.8%	10.6%	60.0%	8.4%	45.3%	9.8%	50.7%	11.3%	40.5%	10.1%	56.1%	12.1%
		Neither	10.8%	4.5%	18.8%	7.2%	13.3%	4.9%	14.7%	6.0%	19.2%	7.8%	16.7%	6.8%	16.7%	7.5%
		Agree	66.2%	8.5%	29.4%	8.9%	26.7%	6.9%	40.0%	9.4%	30.1%	9.6%	42.9%	10.2%	27.3%	9.6%
	How easy or difficult is it for you to service your farm business debt at the moment?	Difficult to service debt	42.2%	8.7%	11.4%	5.8%	15.4%	6.3%	21.2%	8.5%	21.1%	9.0%	22.0%	9.0%	16.3%	8.3%
		Neither easy or difficult to service debt	37.1%	8.4%	48.6%	11.5%	44.0%	9.9%	47.0%	11.7%	47.4%	12.6%	44.1%	12.2%	46.9%	13.4%
		Easy to service debt	20.7%	6.6%	40.0%	10.9%	40.7%	9.7%	31.8%	10.3%	31.6%	10.9%	33.9%	11.1%	36.7%	12.4%
	How would you describe your average cash flow on the farm over the last 12 months?	Poor cash flow	53.7%	8.9%	9.1%	4.9%	26.7%	7.3%	36.6%	9.8%	23.4%	9.0%	36.1%	10.4%	36.8%	11.6%
		Neither poor or good cash flow	26.8%	7.2%	32.5%	9.7%	37.5%	8.3%	23.2%	8.1%	39.1%	11.3%	23.6%	8.6%	40.4%	12.0%
		Good cash flow	19.5%	6.2%	58.4%	11.1%	35.8%	8.1%	40.2%	10.1%	37.5%	11.1%	40.3%	10.8%	22.8%	9.4%
Farming conditions - barriers to farm development experienced in last 3 years	Has drought been a barrier to farm development in the last 3 years?	No/small barrier	26.2%	7.0%	30.9%	9.3%	33.1%	7.7%	55.2%	10.5%	34.7%	10.2%	54.5%	11.1%	62.1%	12.9%
		Moderate barrier	10.8%	4.5%	11.1%	5.5%	10.0%	4.3%	9.2%	4.8%	4.2%	3.0%	10.4%	5.4%	15.5%	7.5%
		Large barrier	63.1%	8.5%	58.0%	10.8%	56.9%	8.6%	35.6%	9.4%	61.1%	11.5%	35.1%	10.0%	22.4%	9.2%
	Lack of demand for the goods you produce	No/small barrier	31.3%	7.6%	55.0%	10.9%	77.0%	8.0%	56.3%	10.5%	54.3%	11.7%	55.7%	11.0%	40.0%	11.7%
		Moderate barrier	14.8%	5.3%	18.8%	7.4%	10.7%	4.6%	14.9%	6.3%	14.3%	6.7%	15.2%	6.6%	13.3%	6.8%
		Large barrier	53.9%	8.6%	26.3%	8.7%	12.3%	4.9%	28.7%	8.7%	31.4%	9.9%	29.1%	9.1%	46.7%	12.3%
	Falling prices for the goods you produce	No/small barrier	6.0%	3.1%	33.3%	9.5%	64.2%	8.7%	40.4%	9.7%	34.8%	10.4%	39.2%	10.2%	31.7%	10.7%
		Moderate barrier	10.5%	4.3%	19.8%	7.6%	13.0%	5.1%	14.6%	6.2%	8.7%	5.0%	15.2%	6.6%	15.0%	7.3%
		Large barrier	83.5%	7.0%	46.9%	10.6%	22.8%	6.8%	44.9%	10.0%	56.5%	11.7%	45.6%	10.7%	53.3%	12.5%
	Rising costs of farm inputs e.g. fertiliser, fuel	No/small barrier	20.9%	6.3%	28.0%	8.8%	33.1%	7.9%	27.5%	8.4%	35.6%	10.2%	23.8%	8.3%	36.1%	11.2%
		Moderate barrier	19.4%	6.1%	25.6%	8.5%	16.1%	5.6%	17.6%	6.8%	13.7%	6.4%	20.0%	7.6%	13.1%	6.7%
		Large barrier	59.7%	8.6%	46.3%	10.5%	50.8%	8.7%	54.9%	10.2%	50.7%	11.3%	56.3%	11.0%	50.8%	12.3%

Table A40 Farming conditions, by farm type - 2018

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Dairy (n=56)	95% CI	Grain growing (n=42)	95% CI	Grazier (n=114)	95% CI	Horti-culture (all) (n=90)	95% CI	Mixed cropping/ grazing (n=67)	95% CI	Fruit/ nut grower (n=31)	95% CI	Wine grape grower (n=33)	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year?	Easier than usual	1.8%	1.6%	0.0%	0.0%	0.0%	0.0%	4.4%	2.9%	0.0%	0.0%	6.5%	5.1%	0.0%	0.0%
		About the same as usual	14.3%	7.3%	16.7%	8.9%	23.7%	7.1%	53.3%	10.3%	11.9%	6.1%	61.3%	17.5%	51.5%	16.6%
		More challenging that usual	83.9%	11.2%	83.3%	13.3%	76.3%	8.4%	42.2%	9.8%	88.1%	9.3%	32.3%	14.3%	48.5%	16.3%
Farming conditions - farm finances	My farm business is under a lot of financial stress at the moment	Disagree	49.1%	12.7%	44.2%	14.1%	43.2%	8.7%	54.6%	9.9%	32.8%	10.3%	48.6%	15.9%	51.4%	16.1%
		Neither	12.3%	6.6%	11.6%	7.0%	16.1%	5.8%	14.4%	5.9%	14.9%	7.0%	25.7%	12.2%	11.4%	7.4%
		Agree	38.6%	11.8%	44.2%	14.1%	40.7%	8.5%	30.9%	8.5%	52.2%	11.8%	25.7%	12.2%	37.1%	14.5%
	How easy or difficult is it for you to service your farm business debt at the moment?	Difficult to service debt	38.1%	13.5%	32.3%	14.3%	28.6%	10.5%	19.2%	8.9%	42.2%	13.6%	25.0%	15.9%	17.4%	11.2%
		Neither easy or difficult to service debt	45.2%	14.3%	45.2%	16.4%	50.0%	12.8%	42.3%	12.7%	40.0%	13.3%	31.3%	18.2%	47.8%	19.1%
		Easy to service debt	16.7%	8.9%	22.6%	11.9%	21.4%	9.1%	38.5%	12.3%	17.8%	9.0%	43.8%	21.6%	34.8%	16.8%
	Average cash flow on the farm over the last 12 months	Poor cash flow	42.0%	12.9%	26.3%	11.9%	36.9%	8.9%	20.0%	7.4%	30.5%	10.6%	25.0%	13.1%	25.8%	12.8%
		Neither poor or good cash flow	34.0%	11.9%	47.4%	15.2%	35.0%	8.7%	36.5%	9.6%	35.6%	11.3%	21.4%	12.0%	45.2%	16.4%
		Good cash flow	24.0%	10.2%	26.3%	11.9%	28.2%	8.0%	43.5%	10.2%	33.9%	11.1%	53.6%	18.1%	29.0%	13.6%
Farming conditions - barriers to farm develop-pment in last 3 years	Has drought been a barrier to farm development in the last 3 years?	No/small barrier	21.4%	9.1%	19.0%	9.6%	31.3%	7.9%	71.3%	9.7%	17.9%	7.7%	79.4%	15.6%	62.9%	16.5%
		Moderate barrier	10.7%	6.1%	14.3%	8.1%	7.0%	3.6%	3.2%	2.3%	1.5%	1.3%	0.0%	0.0%	5.7%	4.5%
		Large barrier	67.9%	12.9%	66.7%	15.0%	61.7%	9.1%	25.5%	8.0%	80.6%	10.6%	20.6%	10.9%	31.4%	13.4%
	Lack of demand for the goods you produce	No/small barrier	71.7%	13.0%	90.0%	12.0%	80.0%	8.2%	75.0%	9.5%	89.1%	9.3%	81.8%	15.5%	64.7%	16.7%
		Moderate barrier	1.9%	1.7%	2.5%	2.2%	6.4%	3.5%	12.0%	5.4%	4.7%	3.3%	6.1%	4.8%	20.6%	10.9%
		Large barrier	26.4%	10.4%	7.5%	5.3%	13.6%	5.4%	13.0%	5.7%	6.3%	4.1%	12.1%	7.9%	14.7%	8.9%
	Falling prices for the goods you produce	No/small barrier	37.5%	11.8%	56.4%	15.6%	66.1%	9.1%	71.3%	9.7%	73.4%	11.7%	70.6%	16.5%	77.1%	15.7%
		Moderate barrier	1.8%	1.6%	2.6%	2.3%	9.8%	4.5%	9.6%	4.7%	9.4%	5.4%	8.8%	6.3%	8.6%	6.1%
		Large barrier	60.7%	13.1%	41.0%	14.3%	24.1%	7.2%	19.1%	7.0%	17.2%	7.7%	20.6%	10.9%	14.3%	8.6%
	Rising costs of farm inputs e.g. fertiliser	No/small barrier	12.5%	6.7%	18.6%	9.4%	29.5%	7.8%	40.0%	9.4%	23.9%	9.0%	50.0%	16.2%	31.4%	13.4%
		Moderate barrier	8.9%	5.4%	7.0%	5.0%	10.7%	4.7%	14.7%	6.0%	10.4%	5.7%	11.8%	7.7%	11.4%	7.4%
		Large barrier	78.6%	12.0%	74.4%	14.3%	59.8%	9.2%	45.3%	9.7%	65.7%	11.8%	38.2%	14.8%	57.1%	16.4%
	Small size of my farm	No/small barrier	81.1%	12.0%	67.5%	15.3%	66.4%	9.0%	83.9%	8.5%	77.6%	11.0%	90.9%	13.2%	77.1%	15.7%
		Moderate barrier	13.2%	7.1%	5.0%	3.9%	5.3%	3.1%	5.4%	3.3%	4.5%	3.2%	3.0%	2.7%	8.6%	6.1%
		Large barrier	5.7%	4.0%	27.5%	11.9%	28.3%	7.7%	10.8%	5.1%	17.9%	7.7%	6.1%	4.8%	14.3%	8.6%
	Inability to fully use farm infrastructure	No/small barrier	67.9%	13.3%	62.5%	15.4%	68.5%	9.0%	84.9%	8.3%	60.9%	12.2%	85.3%	14.6%	82.4%	15.2%
		Moderate barrier	13.2%	7.1%	7.5%	5.3%	7.2%	3.7%	6.5%	3.7%	6.3%	4.1%	8.8%	6.3%	8.8%	6.3%
		Large barrier	18.9%	8.7%	30.0%	12.4%	24.3%	7.3%	8.6%	4.5%	32.8%	10.5%	5.9%	4.6%	8.8%	6.3%

Table A41 Farming conditions, by trade typology - 2015

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Diverse trader (n=111)	95% CI	Non-diverse allocation trader (n=276)	95% CI	Non-diverse entitlement trader (n=39)	95% CI	Non-portfolio trader (n=19)	95% CI	Non-trader (n=284)	95% CI	Traded both entitlements and allocation (n=100)	95% CI	Traded allocation but not entitlements (n=297)	95% CI	Traded entitlements but not allocation (n=43)	95% CI	No trade (n=286)	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year?	Easier than usual	9.0%	4.3%	8.3%	2.8%	7.7%	5.5%	10.5%	8.2%	7.4%	2.6%	10.0%	4.7%	8.4%	2.7%	7.0%	5.0%	7.3%	2.6%
		About the same as usual	39.6%	8.7%	40.9%	5.6%	53.8%	15.4%	31.6%	17.2%	47.9%	5.8%	39.0%	9.1%	40.7%	5.4%	51.2%	14.6%	47.6%	5.8%
		More challenging than usual	51.4%	9.3%	50.7%	5.9%	38.5%	14.0%	57.9%	22.0%	44.7%	5.7%	51.0%	9.7%	50.8%	5.6%	41.9%	13.9%	45.1%	5.7%
Farming conditions - farm finances	How would you describe your average cash flow on the farm over the last 12 months?	Poor cash flow	35.2%	11.7%	29.4%	7.0%	42.1%	19.8%	50.0%	21.6%	24.5%	6.2%	38.0%	12.5%	30.8%	6.8%	40.9%	18.4%	24.4%	6.2%
		Neither poor or good cash flow	40.7%	12.3%	39.9%	7.8%	21.1%	13.5%	44.4%	20.7%	44.0%	7.5%	36.0%	12.2%	40.9%	7.4%	27.3%	15.0%	44.4%	7.6%
		Good cash flow	24.1%	9.9%	30.8%	7.2%	36.8%	18.6%	5.6%	5.0%	31.4%	6.8%	26.0%	10.6%	28.3%	6.6%	31.8%	16.3%	31.3%	6.8%
	How easy or difficult is it for you to service your farm business debt at the moment?	Difficult to service debt	30.3%	8.4%	26.4%	5.4%	28.1%	13.2%	47.4%	20.8%	25.8%	5.4%	32.6%	9.1%	27.1%	5.2%	30.6%	13.2%	25.6%	5.4%
		Neither easy or difficult to service debt	36.4%	9.0%	45.9%	6.4%	37.5%	15.1%	10.5%	8.2%	45.3%	6.4%	37.1%	9.5%	43.0%	6.0%	36.1%	14.1%	45.4%	6.4%
		Easy to service debt	33.3%	8.7%	27.7%	5.5%	34.4%	14.6%	42.1%	19.8%	28.9%	5.6%	30.3%	8.8%	29.9%	5.4%	33.3%	13.6%	29.1%	5.6%
	My farm business is under a lot of financial stress at the moment	Disagree	33.9%	8.2%	36.1%	5.5%	29.7%	12.8%	33.3%	18.0%	44.7%	5.7%	31.3%	8.5%	36.8%	5.3%	29.3%	12.2%	44.7%	5.7%
		Neither	13.4%	5.4%	15.9%	4.0%	21.6%	10.8%	11.1%	8.7%	19.9%	4.4%	13.1%	5.5%	16.1%	3.9%	19.5%	9.8%	19.7%	4.3%
		Agree	52.7%	9.2%	48.0%	5.8%	48.6%	15.4%	55.6%	22.4%	35.5%	5.5%	55.6%	9.9%	47.2%	5.7%	51.2%	14.9%	35.6%	5.4%
Farming cond-itions - barriers to farm develop-ment in last 3 years	Has drought been a barrier to farm development in the last 3 years?	No/small barrier	45.0%	10.6%	41.6%	6.7%	48.0%	18.5%	27.8%	16.3%	49.8%	6.8%	45.1%	11.2%	41.9%	6.4%	41.4%	16.4%	49.3%	6.8%
		Moderate barrier	6.3%	3.8%	8.6%	3.3%	4.0%	3.6%	11.1%	8.7%	5.9%	2.6%	5.6%	3.7%	8.8%	3.2%	3.4%	3.1%	6.3%	2.7%
		Large barrier	48.8%	10.7%	49.7%	6.9%	48.0%	18.5%	61.1%	22.8%	44.4%	6.7%	49.3%	11.4%	49.3%	6.6%	55.2%	17.9%	44.4%	6.7%
	Rising costs of farm	No/small barrier	41.3%	10.3%	34.0%	6.3%	32.0%	15.6%	26.3%	15.5%	42.0%	6.6%	40.8%	10.9%	34.4%	6.1%	27.6%	13.6%	42.1%	6.5%

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This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Diverse trader (n=111)	95% CI	Non-diverse allocation trader (n=276)	95% CI	Non-diverse entitlement trader (n=39)	95% CI	Non-portfolio trader (n=19)	95% CI	Non-trader (n=284)	95% CI	Traded both entitlements and allocation (n=100)	95% CI	Traded allocation but not entitlements (n=297)	95% CI	Traded entitlements but not allocation (n=43)	95% CI	No trade (n=286)	95% CI
	inputs e.g. fertiliser, fuel	Moderate barrier	15.0%	6.5%	12.7%	4.1%	20.0%	11.9%	10.5%	8.3%	15.0%	4.4%	16.9%	7.3%	12.4%	3.9%	17.2%	10.3%	14.8%	4.3%
		Large barrier	43.8%	10.5%	53.3%	7.0%	48.0%	18.5%	63.2%	22.3%	43.0%	6.6%	42.3%	11.0%	53.2%	6.6%	55.2%	17.9%	43.1%	6.6%
	Lack of demand for the goods you produce	No/small barrier	61.3%	10.9%	67.7%	6.8%	48.0%	18.5%	58.8%	23.2%	68.8%	6.6%	60.6%	11.6%	67.8%	6.5%	44.8%	16.9%	68.6%	6.6%
		Moderate barrier	8.8%	4.8%	11.3%	3.9%	12.0%	8.5%	17.6%	12.4%	11.9%	3.9%	7.0%	4.3%	11.7%	3.8%	13.8%	9.0%	12.3%	4.0%
		Large barrier	30.0%	9.2%	21.0%	5.3%	40.0%	17.3%	23.5%	15.0%	19.3%	5.0%	32.4%	10.0%	20.6%	5.0%	41.4%	16.4%	19.1%	4.9%
	Falling prices for the goods you produce	No/small barrier	42.0%	10.3%	40.9%	6.7%	38.5%	16.7%	47.1%	21.7%	50.0%	6.9%	40.3%	10.8%	42.4%	6.4%	36.7%	15.4%	50.0%	6.8%
		Moderate barrier	8.6%	4.7%	10.6%	3.7%	15.4%	10.0%	0.0%	0.0%	11.9%	3.9%	6.9%	4.2%	9.2%	3.3%	20.0%	11.2%	11.8%	3.9%
		Large barrier	49.4%	10.7%	48.5%	6.9%	46.2%	17.9%	52.9%	22.6%	38.1%	6.5%	52.8%	11.5%	48.4%	6.6%	43.3%	16.4%	38.2%	6.5%

Table A42 Farming conditions, by trade typology - 2016

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Trade typology										Types of water trade engaged in during previous 12 months							
			Diverse trader (n=95)	95% CI	Non-diverse allocation trader (n=157)	95% CI	Non-diverse entitlement trader (n=37)	95% CI	Non-portfolio trader (n=14)	95% CI	No trade (n=186)	95% CI	Traded both entitlements and allocation (n=68)	95% CI	Traded allocation but not entitlements (n=197)	95% CI	Traded entitlements but not allocation (n=24)	95% CI	No trade (n=199)	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year?	Easier than usual	5.3%	3.3%	6.4%	3.1%	10.8%	7.0%	0.0%		8.6%	3.4%	5.9%	3.9%	6.1%	2.7%	12.5%	8.9%	8.0%	3.1%
		About the same as usual	40.0%	9.4%	35.7%	7.2%	51.4%	15.7%	42.9%	22.6%	50.0%	7.1%	41.2%	11.2%	36.5%	6.4%	54.2%	19.5%	49.7%	6.9%
		More challenging than usual	54.7%	10.0%	58.0%	7.8%	37.8%	14.2%	57.1%	25.2%	41.4%	6.9%	52.9%	11.7%	57.4%	7.0%	33.3%	16.1%	42.2%	6.7%
Farming conditions - farm finances	My farm business is under a lot of financial	Disagree	43.3%	9.5%	40.5%	7.3%	62.5%	15.4%	40.0%	21.2%	50.3%	7.1%	44.3%	11.2%	41.0%	6.6%	57.7%	19.0%	51.0%	6.9%
		Neither	14.4%	5.9%	16.0%	5.0%	17.5%	9.3%	20.0%	14.0%	13.1%	4.2%	15.7%	7.1%	15.1%	4.4%	23.1%	12.8%	13.2%	4.1%
		Agree	42.3%	9.5%	43.6%	7.5%	20.0%	10.1%	40.0%	21.2%	36.6%	6.5%	40.0%	10.9%	43.9%	6.7%	19.2%	11.5%	35.8%	6.4%

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Trade typology										Types of water trade engaged in during previous 12 months							
			Diverse trader (n=95)	95% CI	Non-diverse allocation trader (n=157)	95% CI	Non-diverse entitlement trader (n=37)	95% CI	Non-portfolio trader (n=14)	95% CI	No trade (n=186)	95% CI	Traded both entitlements and allocation (n=68)	95% CI	Traded allocation but not entitlements (n=197)	95% CI	Traded entitlements but not allocation (n=24)	95% CI	No trade (n=199)	95% CI
	stress at the moment																			
	How easy or difficult is it for you to service your farm business debt at the moment?	Difficult to service debt	24.7%	8.4%	23.4%	6.7%	9.7%	6.9%	27.3%	19.0%	22.6%	6.2%	26.3%	10.0%	23.3%	6.0%	9.5%	7.5%	21.9%	5.9%
		Neither easy or difficult to service debt	43.2%	10.4%	50.0%	8.6%	45.2%	16.5%	27.3%	19.0%	43.2%	7.9%	40.4%	12.0%	48.5%	7.6%	47.6%	19.9%	43.2%	7.6%
		Easy to service debt	32.1%	9.4%	26.6%	7.1%	45.2%	16.5%	45.5%	25.5%	34.2%	7.3%	33.3%	11.1%	28.2%	6.5%	42.9%	19.2%	34.8%	7.1%
	How would you describe your average cash flow on the farm over the last 12 months?	Poor cash flow	28.4%	8.6%	34.0%	7.1%	33.3%	13.6%	28.6%	18.1%	34.1%	6.8%	31.7%	10.4%	32.0%	6.3%	45.8%	18.5%	32.4%	6.4%
		Neither poor or good cash flow	37.5%	9.6%	34.6%	7.1%	25.0%	11.8%	35.7%	20.6%	29.5%	6.4%	34.9%	10.9%	35.1%	6.5%	20.8%	12.4%	30.3%	6.3%
		Good cash flow	34.1%	9.3%	31.4%	6.9%	41.7%	15.0%	35.7%	20.6%	36.4%	6.9%	33.3%	10.7%	33.0%	6.3%	33.3%	16.1%	37.3%	6.7%
Farming conditions - barriers to farm development in last 3 years	Has drought been a barrier to farm development in the last 3 years?	No/small barrier	25.3%	7.9%	41.6%	7.4%	50.0%	15.8%	25.0%	17.4%	45.4%	7.1%	25.0%	9.1%	40.5%	6.6%	34.8%	16.8%	45.6%	6.8%
		Moderate barrier	10.5%	5.0%	9.9%	3.9%	5.6%	4.4%	8.3%	7.4%	9.3%	3.6%	10.3%	5.6%	9.5%	3.5%	4.3%	3.8%	9.2%	3.4%
		Large barrier	64.2%	9.9%	48.4%	7.6%	44.4%	15.2%	66.7%	27.9%	45.4%	7.1%	64.7%	11.8%	50.0%	6.9%	60.9%	20.3%	45.1%	6.8%
	Lack of demand for the goods you produce	No/small barrier	50.0%	10.0%	51.3%	7.8%	64.9%	16.1%	53.8%	25.5%	56.9%	7.3%	52.2%	11.8%	50.0%	6.9%	65.2%	20.3%	57.7%	7.0%
		Moderate barrier	14.9%	6.1%	14.6%	4.9%	10.8%	7.0%	30.8%	19.4%	12.2%	4.2%	14.9%	7.0%	16.2%	4.7%	8.7%	6.8%	11.9%	4.0%
		Large barrier	35.1%	9.1%	34.2%	7.1%	24.3%	11.5%	15.4%	12.1%	30.9%	6.4%	32.8%	10.3%	33.8%	6.3%	26.1%	14.4%	30.4%	6.1%
	Falling prices for the goods you produce	No/small barrier	26.9%	8.2%	35.2%	7.1%	31.6%	13.0%	28.6%	18.1%	37.6%	6.8%	25.4%	9.3%	33.7%	6.3%	20.8%	12.4%	38.7%	6.7%
		Moderate barrier	12.9%	5.6%	9.9%	3.9%	15.8%	8.9%	21.4%	15.0%	14.9%	4.6%	13.4%	6.5%	11.4%	3.8%	20.8%	12.4%	13.9%	4.3%

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			Trade typology										Types of water trade engaged in during previous 12 months							
This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Diverse trader (n=95)	95% CI	Non-diverse allocation trader (n=157)	95% CI	Non-diverse entitlement trader (n=37)	95% CI	Non-portfolio trader (n=14)	95% CI	No trade (n=186)	95% CI	Traded both entitlements and allocation (n=68)	95% CI	Traded allocation but not entitlements (n=197)	95% CI	Traded entitlements but not allocation (n=24)	95% CI	No trade (n=199)	95% CI
		Large barrier	60.2%	10.1%	54.9%	7.7%	52.6%	15.5%	50.0%	24.1%	47.5%	7.2%	61.2%	11.9%	55.0%	6.9%	58.3%	19.7%	47.4%	6.9%
	Rising costs of farm inputs e.g. fertiliser, fuel	No/small barrier	30.1%	8.6%	22.2%	5.9%	36.8%	13.9%	20.0%	14.0%	33.1%	6.5%	22.4%	8.7%	25.1%	5.6%	41.7%	17.9%	33.5%	6.4%
		Moderate barrier	16.1%	6.4%	19.8%	5.6%	26.3%	11.9%	6.7%	6.0%	18.8%	5.2%	14.9%	7.0%	19.7%	5.0%	20.8%	12.4%	18.6%	5.0%
		Large barrier	53.8%	10.2%	58.0%	7.7%	36.8%	13.9%	73.3%	25.0%	48.1%	7.2%	62.7%	11.9%	55.2%	6.9%	37.5%	17.1%	47.9%	6.9%

Table A43 Farming conditions, by trade typology - 2018

			Trade typology										Types of water trade engaged in during previous 12 months							
This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Diverse trader (n=36)	95% CI	Non-diverse allocation trader (n=100)	95% CI	Non-diverse entitlement trader (n=22)	95% CI	Non-portfolio trader (n=10)	95% CI	No trade (n=21)	95% CI	Traded both entitlements and allocation (n=20)	95% CI	Traded allocation but not entitlements (n=106)	95% CI	Traded entitlements but not allocation (n=22)	95% CI	No trade (n=159)	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year?	Easier than usual	5.6%	4.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	1.4%	5.0%	4.5%	0.0%	0.0%	0.0%	0.0%	1.9%	1.4%
		About the same as usual	22.2%	11.1%	11.0%	5.0%	27.3%	15.0%	20.0%	15.6%	36.5%	7.2%	20.0%	12.8%	11.3%	5.0%	31.8%	16.3%	36.5%	7.2%
		More challenging that usual	72.2%	15.9%	89.0%	7.2%	72.7%	20.6%	80.0%	30.3%	61.6%	7.7%	75.0%	21.4%	88.7%	7.1%	68.2%	20.8%	61.6%	7.7%
Farming conditions - farm finances	My farm business is under a lot of financial stress at the moment	Disagree	41.0%	14.3%	47.1%	9.5%	39.1%	17.7%	40.0%	24.7%	46.0%	7.6%	43.5%	18.5%	43.4%	9.2%	52.2%	19.7%	46.0%	7.6%
		Neither	12.8%	7.8%	12.7%	5.4%	8.7%	6.8%	0.0%	0.0%	18.0%	5.3%	8.7%	6.8%	13.2%	5.4%	0.0%	0.0%	18.0%	5.3%
		Agree	46.2%	14.9%	40.2%	9.1%	52.2%	19.7%	60.0%	29.6%	36.0%	7.1%	47.8%	19.1%	43.4%	9.2%	47.8%	19.1%	36.0%	7.1%

			Trade typology										Types of water trade engaged in during previous 12 months							
This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Diverse trader (n=36)	95% CI	Non-diverse allocation trader (n=100)	95% CI	Non-diverse entitlement trader (n=22)	95% CI	Non-portfolio trader (n=10)	95% CI	No trade (n=21)	95% CI	Traded both entitlements and allocation (n=20)	95% CI	Traded allocation but not entitlements (n=106)	95% CI	Traded entitlements but not allocation (n=22)	95% CI	No trade (n=159)	95% CI
	How easy or difficult is it for you to service your farm business debt at the moment?	Difficult to service debt	28.1%	13.2%	30.9%	10.0%	21.4%	15.0%	83.3%	39.1%	31.0%	9.0%	27.8%	16.3%	35.2%	10.3%	35.7%	20.6%	31.0%	9.0%
		Neither easy or difficult to service debt	50.0%	16.7%	47.1%	11.5%	35.7%	20.6%	16.7%	14.8%	43.7%	10.1%	44.4%	20.7%	46.5%	11.3%	28.6%	18.1%	43.7%	10.1%
		Easy to service debt	21.9%	11.5%	22.1%	8.6%	42.9%	22.6%	0.0%	0.0%	25.3%	8.2%	27.8%	16.3%	18.3%	7.6%	35.7%	20.6%	25.3%	8.2%
	How would you describe your average cash flow on the farm over the last 12 months?	Poor cash flow	32.4%	13.3%	31.9%	8.9%	18.2%	11.7%	60.0%	29.6%	28.2%	6.8%	30.4%	15.7%	36.8%	9.2%	22.7%	13.5%	28.2%	6.8%
		Neither poor or good cash flow	21.6%	10.8%	42.9%	9.8%	27.3%	15.0%	20.0%	15.6%	39.6%	7.6%	13.0%	9.2%	40.0%	9.4%	18.2%	11.7%	39.6%	7.6%
		Good cash flow	45.9%	15.2%	25.3%	8.1%	54.5%	20.3%	20.0%	15.6%	32.2%	7.1%	56.5%	20.0%	23.2%	7.6%	59.1%	20.6%	32.2%	7.1%
Farming conditions - barriers to farm development in last 3 years	Has drought been a barrier to farm development in the last 3 years?	No/small barrier	31.6%	13.0%	25.7%	7.8%	28.6%	15.7%	10.0%	8.9%	46.3%	7.6%	39.1%	17.7%	20.8%	6.9%	28.6%	15.7%	46.3%	7.6%
		Moderate barrier	2.6%	2.3%	3.0%	2.1%	4.8%	4.2%	0.0%	0.0%	9.4%	3.8%	0.0%	0.0%	3.8%	2.5%	4.8%	4.2%	9.4%	3.8%
		Large barrier	65.8%	15.8%	71.3%	9.3%	66.7%	21.3%	90.0%	28.1%	44.4%	7.5%	60.9%	20.3%	75.5%	8.8%	66.7%	21.3%	44.4%	7.5%
	Lack of demand for the goods you produce	No/small barrier	78.4%	15.1%	78.4%	9.0%	66.7%	21.3%	70.0%	30.6%	83.7%	6.5%	78.3%	19.5%	77.1%	8.7%	66.7%	21.3%	83.7%	6.5%
		Moderate barrier	13.5%	8.2%	7.2%	3.9%	9.5%	7.5%	0.0%	0.0%	3.9%	2.3%	17.4%	11.2%	6.7%	3.6%	9.5%	7.5%	3.9%	2.3%
		Large barrier	8.1%	5.8%	14.4%	5.9%	23.8%	14.1%	30.0%	20.7%	12.4%	4.5%	4.3%	3.9%	16.2%	6.1%	23.8%	14.1%	12.4%	4.5%
	Falling prices for the goods you produce	No/small barrier	54.1%	15.9%	54.5%	9.8%	52.4%	20.5%	50.0%	27.6%	70.5%	7.5%	56.5%	20.0%	53.3%	9.5%	66.7%	21.3%	70.5%	7.5%
		Moderate barrier	13.5%	8.2%	8.1%	4.2%	4.8%	4.2%	20.0%	15.6%	5.8%	2.9%	13.0%	9.2%	9.5%	4.5%	4.8%	4.2%	5.8%	2.9%
		Large barrier	32.4%	13.3%	37.4%	9.1%	42.9%	19.1%	30.0%	20.7%	23.7%	6.2%	30.4%	15.7%	37.1%	8.8%	28.6%	15.7%	23.7%	6.2%

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Trade typology										Types of water trade engaged in during previous 12 months							
			Diverse trader (n=36)	95% CI	Non-diverse allocation trader (n=100)	95% CI	Non-diverse entitlement trader (n=22)	95% CI	Non-portfolio trader (n=10)	95% CI	No trade (n=21)	95% CI	Traded both entitlements and allocation (n=20)	95% CI	Traded allocation but not entitlements (n=106)	95% CI	Traded entitlements but not allocation (n=22)	95% CI	No trade (n=159)	95% CI
	Rising costs of farm inputs e.g. fertiliser, fuel	No/small barrier	18.4%	9.8%	14.7%	5.9%	19.0%	12.3%	0.0%	0.0%	37.3%	7.3%	21.7%	12.9%	13.2%	5.4%	23.8%	14.1%	37.3%	7.3%
		Moderate barrier	18.4%	9.8%	11.8%	5.2%	9.5%	7.5%	20.0%	15.6%	9.5%	3.8%	21.7%	12.9%	12.3%	5.2%	4.8%	4.2%	9.5%	3.8%
		Large barrier	63.2%	15.8%	73.5%	9.1%	71.4%	21.1%	80.0%	30.3%	53.2%	7.8%	56.5%	20.0%	74.5%	8.9%	71.4%	21.1%	53.2%	7.8%
	Lack of land available to purchase or lease for farm expansion	No/small barrier	63.2%	15.8%	65.7%	9.7%	71.4%	21.1%	60.0%	29.6%	83.3%	6.4%	63.6%	20.8%	66.7%	9.4%	71.4%	21.1%	83.3%	6.4%
		Moderate barrier	10.5%	6.9%	10.1%	4.8%	9.5%	7.5%	10.0%	8.9%	5.8%	2.9%	4.5%	4.1%	10.5%	4.8%	14.3%	10.1%	5.8%	2.9%
		Large barrier	26.3%	11.9%	24.2%	7.6%	19.0%	12.3%	30.0%	20.7%	10.9%	4.2%	31.8%	16.3%	22.9%	7.2%	14.3%	10.1%	10.9%	4.2%
	Small size of my farm	No/small barrier	70.3%	15.8%	71.7%	9.4%	66.7%	21.3%	60.0%	29.6%	77.1%	7.0%	69.6%	20.2%	67.6%	9.3%	71.4%	21.1%	77.1%	7.0%
		Moderate barrier	8.1%	5.8%	9.1%	4.5%	9.5%	7.5%	0.0%	0.0%	5.7%	2.9%	4.3%	3.9%	10.5%	4.8%	4.8%	4.2%	5.7%	2.9%
		Large barrier	21.6%	10.8%	19.2%	6.8%	23.8%	14.1%	40.0%	24.7%	17.2%	5.3%	26.1%	14.4%	21.9%	7.1%	23.8%	14.1%	17.2%	5.3%
	Inability to fully use farm infrastructure,	No/small barrier	60.5%	15.8%	64.9%	9.8%	66.7%	21.3%	70.0%	30.6%	76.6%	7.1%	69.6%	20.2%	62.5%	9.5%	71.4%	21.1%	76.6%	7.1%
		Moderate barrier	10.5%	6.9%	6.2%	3.6%	4.8%	4.2%	0.0%	0.0%	8.4%	3.6%	8.7%	6.8%	6.7%	3.7%	4.8%	4.2%	8.4%	3.6%
		Large barrier	28.9%	12.5%	28.9%	8.3%	28.6%	15.7%	30.0%	20.7%	14.9%	5.0%	21.7%	12.9%	30.8%	8.3%	23.8%	14.1%	14.9%	5.0%

Table A44 Farming conditions, by water source/s used - 2015

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.	Used water from own entitlements only (n=430[1])	95% CI	Used water from own entitlements and allocation purchased on the market (n=240)	95% CI	Used water from allocation or leased entitlements only (n=19)	95% CI	Used surface water only (n=449)	95% CI	Used both surface water and ground water (n=72)	95% CI	Used ground water only (n=77)	95% CI

Category	Question	Response												
Farming conditions - general	How have farming and business conditions been on your farm in the last year?	Easier than usual	8.6%	2.4%	7.9%	2.9%	10.5%	8.2%	7.3%	2.1%	15.3%	6.9%	7.8%	4.5%
		About the same as usual	47.0%	4.7%	37.1%	5.9%	31.6%	17.2%	42.1%	4.5%	37.5%	10.5%	39.0%	10.4%
		More challenging than usual	44.4%	4.6%	55.0%	6.3%	57.9%	22.0%	50.6%	4.7%	47.2%	11.2%	53.2%	11.0%
Farming conditions - farm finances	How would you describe your average cash flow on the farm over the last 12 months?	Poor cash flow	27.0%	5.5%	29.7%	7.4%	50.0%	21.6%	29.0%	5.4%	27.9%	11.6%	28.6%	11.2%
		Neither poor or good cash flow	41.9%	6.4%	39.8%	8.1%	44.4%	20.7%	40.8%	6.0%	37.2%	13.2%	42.9%	13.2%
		Good cash flow	31.1%	5.8%	30.5%	7.5%	5.6%	5.0%	30.2%	5.5%	34.9%	12.9%	28.6%	11.2%
	How easy or difficult is it for you to service your farm business debt at the moment?	Difficult to service debt	22.4%	4.2%	34.1%	6.0%	47.4%	20.8%	27.3%	4.3%	31.8%	10.3%	30.2%	10.3%
		Neither easy or difficult to service debt	47.4%	5.3%	36.4%	6.2%	10.5%	8.2%	41.1%	4.9%	36.4%	10.9%	38.1%	11.2%
		Easy to service debt	30.3%	4.7%	29.5%	5.7%	42.1%	19.8%	31.6%	4.6%	31.8%	10.3%	31.7%	10.4%
	My farm business is under a lot of financial stress at the moment	Disagree	41.7%	4.6%	32.9%	5.7%	33.3%	18.0%	37.3%	4.4%	40.8%	10.8%	45.5%	10.8%
		Neither	17.9%	3.4%	14.6%	4.0%	11.1%	8.7%	17.6%	3.3%	15.5%	7.0%	14.3%	6.5%
		Agree	40.3%	4.5%	52.5%	6.3%	55.6%	22.4%	45.1%	4.6%	43.7%	11.1%	40.3%	10.5%
Farming conditions - barriers to farm development experienced in last 3 years	Has drought been a barrier to farm development in the last 3 years?	No/small barrier	50.5%	5.7%	37.1%	6.9%	27.8%	16.3%	45.3%	5.4%	40.7%	11.8%	48.2%	12.7%
		Moderate barrier	5.4%	2.1%	10.9%	4.0%	11.1%	8.7%	7.9%	2.6%	5.1%	3.6%	10.7%	6.1%
		Large barrier	44.1%	5.6%	52.0%	7.4%	61.1%	22.8%	46.8%	5.5%	54.2%	12.7%	41.1%	12.2%
	Rising costs of farm inputs e.g. fertiliser, fuel	No/small barrier	39.9%	5.5%	31.6%	6.5%	26.3%	15.5%	37.4%	5.2%	38.3%	11.5%	35.1%	11.4%
		Moderate barrier	14.9%	3.7%	13.6%	4.4%	10.5%	8.3%	13.1%	3.4%	13.3%	6.8%	17.5%	8.2%
		Large barrier	45.3%	5.6%	54.8%	7.4%	63.2%	22.3%	49.5%	5.5%	48.3%	12.3%	47.4%	12.6%
	Lack of demand for the goods you produce	No/small barrier	66.1%	5.6%	63.0%	7.4%	58.8%	23.2%	63.0%	5.5%	61.0%	12.7%	68.4%	12.7%
		Moderate barrier	10.6%	3.1%	12.7%	4.3%	17.6%	12.4%	11.4%	3.2%	13.6%	6.9%	15.8%	7.7%
		Large barrier	23.3%	4.6%	24.3%	5.9%	23.5%	15.0%	25.6%	4.6%	25.4%	9.8%	15.8%	7.7%
	Falling prices for the goods you produce	No/small barrier	46.9%	5.7%	36.7%	6.8%	47.1%	21.7%	44.9%	5.5%	42.4%	12.0%	38.6%	11.8%
		Moderate barrier	11.6%	3.3%	11.3%	4.0%	0.0%	0.0%	10.6%	3.0%	5.1%	3.6%	26.3%	10.1%
		Large barrier	41.5%	5.5%	52.0%	7.3%	52.9%	22.6%	44.6%	5.4%	52.5%	12.6%	35.1%	11.4%

[1] The sample sizes reported are for the variable 'farming conditions – general'

Table A45 Farming conditions, by water source/s used - 2016

			Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Used water from own entitle-ments only (n=310)	95% CI	Used water from own entitle-ments and alloc-ation purchased on the market (n=166)	95% CI	Used water from alloc-ation or leased entitle-ments only (n=14)	95% CI	Used surface water only (n=413)	95% CI	Used both surface water and ground water (n=86)	95% CI	Used ground water only (n=87)	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year?	Easier than usual	8.7%	2.7%	4.8%	2.5%	0.0%		7.3%	2.2%	3.5%	2.5%	11.5%	5.4%
		About the same as usual	51.0%	5.6%	31.9%	6.7%	42.9%	22.6%	45.3%	4.8%	31.4%	9.1%	51.7%	10.4%
		More challenging than usual	40.3%	5.3%	63.3%	7.6%	57.1%	25.2%	47.5%	4.8%	65.1%	10.4%	36.8%	9.6%
Farming conditions - farm finances	My farm business is under a lot of financial stress at the moment	Disagree	50.9%	5.4%	40.6%	7.2%	40.0%	21.2%	46.3%	4.6%	38.4%	9.8%	54.3%	10.1%
		Neither	14.5%	3.5%	14.1%	4.6%	20.0%	14.0%	16.3%	3.3%	14.0%	6.1%	12.0%	5.5%
		Agree	34.6%	5.1%	45.3%	7.4%	40.0%	21.2%	37.4%	4.5%	47.7%	10.4%	33.7%	9.0%
	How easy or difficult is it for you to service your farm business debt at the moment?	Difficult to service debt	19.3%	4.6%	24.0%	6.4%	27.3%	19.0%	21.1%	4.2%	33.3%	9.7%	19.4%	8.4%
		Neither easy or difficult to service debt	45.0%	6.3%	45.2%	7.9%	27.3%	19.0%	44.9%	5.4%	43.6%	10.6%	41.9%	11.6%
		Easy to service debt	35.7%	5.9%	30.8%	7.0%	45.5%	25.5%	34.1%	5.1%	23.1%	8.3%	38.7%	11.4%
	How would you describe your average cash flow on the farm over the last 12 months?	Poor cash flow	33.7%	5.3%	29.4%	6.7%	28.6%	18.1%	32.5%	4.5%	35.4%	9.7%	33.3%	9.8%
		Neither poor or good cash flow	31.6%	5.2%	36.3%	7.2%	35.7%	20.6%	34.0%	4.6%	32.9%	9.4%	24.0%	8.6%
		Good cash flow	34.7%	5.3%	34.4%	7.1%	35.7%	20.6%	33.5%	4.6%	31.7%	9.3%	42.7%	10.8%
Farming conditions - barriers to farm develop-ment in last 3 years	Has drought been a barrier to farm development in the last 3 years?	No/small barrier	46.3%	5.5%	28.9%	6.5%	25.0%	17.4%	37.3%	4.6%	39.8%	9.8%	43.0%	10.1%
		Moderate barrier	9.7%	2.9%	10.8%	4.0%	8.3%	7.4%	9.5%	2.5%	12.5%	5.7%	8.1%	4.4%
		Large barrier	44.0%	5.4%	60.2%	7.5%	66.7%	27.9%	53.2%	4.9%	47.7%	10.2%	48.8%	10.3%
	Lack of demand for the goods you produce	No/small barrier	57.4%	5.6%	48.2%	7.6%	53.8%	25.5%	51.5%	4.9%	48.8%	10.6%	63.1%	10.6%
		Moderate barrier	12.1%	3.3%	15.2%	4.8%	30.8%	19.4%	17.2%	3.5%	9.8%	5.1%	6.0%	3.7%
		Large barrier	30.5%	5.0%	36.6%	7.1%	15.4%	12.1%	31.4%	4.4%	41.5%	10.3%	31.0%	9.2%
	Falling prices for the goods you produce	No/small barrier	40.3%	5.3%	26.5%	6.3%	28.6%	18.1%	34.5%	4.5%	30.1%	9.0%	43.7%	10.1%
		Moderate barrier	12.9%	3.4%	11.4%	4.1%	21.4%	15.0%	13.8%	3.0%	12.0%	5.6%	12.6%	5.7%
		Large barrier	46.8%	5.5%	62.0%	7.5%	50.0%	24.1%	51.7%	4.8%	57.8%	10.7%	43.7%	10.1%
	Rising costs of farm inputs e.g. fertiliser, fuel	No/small barrier	31.2%	5.0%	25.1%	6.1%	20.0%	14.0%	28.7%	4.2%	25.3%	8.2%	36.8%	9.6%
		Moderate barrier	17.5%	3.9%	20.4%	5.6%	6.7%	6.0%	17.6%	3.4%	18.4%	7.0%	16.1%	6.6%
		Large barrier	51.3%	5.6%	54.5%	7.6%	73.3%	25.0%	53.6%	4.8%	56.3%	10.5%	47.1%	10.2%

Table A46 Farming conditions, by water source/s used - 2018

			Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.			Used water from own entitlements only (n=194)	95% CI	Used water from own entitlements and allocation purchased on the market (n=92)	95% CI	Used water from allocation or leased entitlements only (n=10)	95% CI	Used surface water only (n=266)	95% CI	Used both surface water and ground water (n=47)	95% CI	Used ground water only (n=54)	95% CI
Farming conditions - general	How have farming and business conditions been on your farm in the last year?	Easier than usual	1.5%	1.1%	1.1%	1.0%	0.0%	0.0%	1.5%	1.0%	2.1%	1.9%	0.0%	0.0%
		About the same as usual	37.1%	6.6%	10.9%	5.1%	20.0%	15.6%	27.8%	5.1%	17.0%	8.6%	33.3%	11.4%
		More challenging than usual	61.3%	7.0%	88.0%	7.8%	80.0%	30.3%	70.7%	5.7%	80.9%	12.9%	66.7%	13.2%
Farming conditions - farm finances	My farm business is under a lot of financial stress at the moment	Disagree	47.8%	6.8%	45.8%	9.7%	40.0%	24.7%	47.8%	5.8%	34.7%	12.1%	45.5%	12.6%
		Neither	13.3%	4.1%	15.6%	6.2%	0.0%	0.0%	13.0%	3.6%	6.1%	4.4%	29.1%	10.7%
		Agree	38.9%	6.5%	38.5%	9.3%	60.0%	29.6%	39.1%	5.6%	59.2%	14.0%	25.5%	10.1%
	How easy or difficult is it for you to service your farm business debt at the moment?	Difficult to service debt	33.3%	8.4%	26.6%	8.8%	83.3%	39.1%	30.2%	6.9%	36.8%	13.9%	25.7%	12.2%
		Neither easy or difficult to service debt	39.8%	8.9%	50.6%	10.9%	16.7%	14.8%	42.3%	7.7%	44.7%	14.9%	57.1%	16.4%
		Easy to service debt	26.9%	7.7%	22.8%	8.2%	0.0%	0.0%	27.5%	6.7%	18.4%	9.8%	17.1%	9.7%
	How would you describe your average cash flow on the farm over the last 12 months?	Poor cash flow	31.7%	6.4%	31.1%	8.9%	60.0%	29.6%	30.3%	5.6%	31.8%	12.3%	38.3%	12.9%
		Neither poor or good cash flow	29.0%	6.2%	45.6%	10.0%	20.0%	15.6%	33.6%	5.8%	40.9%	13.6%	44.7%	13.5%
		Good cash flow	39.3%	6.9%	23.3%	7.8%	20.0%	15.6%	36.1%	5.9%	27.3%	11.4%	17.0%	8.6%
Farming conditions - barriers to farm development in last 3 years	Has drought been a barrier to farm development in the last 3 years?	No/small barrier	44.3%	6.7%	25.5%	8.0%	10.0%	8.9%	35.2%	5.5%	37.0%	12.8%	44.4%	12.7%
		Moderate barrier	6.5%	2.8%	3.2%	2.3%	0.0%	0.0%	5.2%	2.2%	10.9%	6.6%	5.6%	4.0%
		Large barrier	49.3%	6.9%	71.3%	9.7%	90.0%	28.1%	59.6%	5.9%	52.2%	14.2%	50.0%	13.0%
	Lack of demand for the goods you produce	No/small barrier	84.5%	5.6%	76.4%	9.6%	70.0%	30.6%	78.7%	5.2%	88.1%	12.2%	90.0%	10.5%
		Moderate barrier	5.7%	2.6%	7.9%	4.3%	0.0%	0.0%	8.4%	2.9%	0.0%	0.0%	2.0%	1.8%
		Large barrier	9.8%	3.6%	15.7%	6.4%	30.0%	20.7%	12.9%	3.6%	11.9%	7.2%	8.0%	5.2%
	Falling prices for the goods you produce	No/small barrier	70.1%	6.7%	46.2%	10.0%	50.0%	27.6%	60.9%	6.0%	56.8%	14.7%	81.1%	12.0%
		Moderate barrier	6.6%	2.8%	8.8%	4.5%	20.0%	15.6%	9.4%	3.1%	4.5%	3.6%	1.9%	1.7%
		Large barrier	23.4%	5.5%	45.1%	9.9%	30.0%	20.7%	29.7%	5.2%	38.6%	13.3%	17.0%	8.2%
	Rising costs of farm inputs e.g. fertiliser, fuel	No/small barrier	29.5%	6.0%	14.7%	6.0%	0.0%	0.0%	26.3%	5.0%	17.0%	8.6%	43.6%	12.5%
		Moderate barrier	8.5%	3.3%	12.6%	5.5%	20.0%	15.6%	8.9%	3.0%	23.4%	10.3%	9.1%	5.5%
		Large barrier	62.0%	6.9%	72.6%	9.5%	80.0%	30.3%	64.8%	5.8%	59.6%	14.3%	47.3%	12.8%
	Lack of land available to purchase or lease for farm expansion	No/small barrier	79.2%	6.1%	65.6%	10.0%	60.0%	29.6%	77.4%	5.3%	70.5%	14.5%	75.9%	12.5%
		Moderate barrier	5.6%	2.6%	14.0%	5.9%	10.0%	8.9%	7.2%	2.6%	9.1%	5.9%	9.3%	5.6%
		Large barrier	15.2%	4.5%	20.4%	7.2%	30.0%	20.7%	15.5%	4.0%	20.5%	9.8%	14.8%	7.6%
	Small size of my farm	No/small barrier	74.7%	6.4%	73.6%	9.7%	60.0%	29.6%	73.6%	5.5%	83.3%	13.3%	71.7%	13.0%
		Moderate barrier	6.1%	2.7%	11.0%	5.2%	0.0%	0.0%	6.3%	2.5%	4.8%	3.8%	7.5%	4.9%
		Large barrier	19.2%	5.0%	15.4%	6.3%	40.0%	24.7%	20.1%	4.5%	11.9%	7.2%	20.8%	9.2%
	Inability to fully use farm infrastructure	No/small barrier	77.9%	6.2%	57.8%	10.3%	70.0%	30.6%	70.7%	5.7%	62.8%	14.9%	81.1%	12.0%
		Moderate barrier	6.2%	2.7%	12.2%	5.6%	0.0%	0.0%	7.6%	2.7%	9.3%	6.1%	5.7%	4.0%
		Large barrier	15.9%	4.6%	30.0%	8.7%	30.0%	20.7%	21.7%	4.7%	27.9%	11.7%	13.2%	7.1%

Table A47 Future farming intentions, by Basin location - 2015

This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Basin location						Basin state									
		Murray-Darling Basin (n=685)	95% CI	Northern Basin (n=110)	95% CI	Southern Basin (n=575)	95% CI	NSW Nth Basin (n=49)	95% CI	Qld Basin (n=61)	95% CI	NSW Sth Basin (n=213)	95% CI	SA Basin (n=85)	95% CI	Vic Basin (n=277)	95% CI
In the next 5 years, how likely are you to … retire from farming	Unlikely	62.0%	3.7%	70.0%	9.0%	60.5%	4.0%	73.5%	13.4%	67.2%	12.4%	61.0%	6.7%	64.7%	10.5%	58.8%	5.9%
	Neither likely or unlikely	7.2%	1.8%	4.5%	2.8%	7.7%	2.0%	4.1%	3.2%	4.9%	3.5%	8.5%	3.2%	4.7%	3.1%	7.9%	2.8%
	Likely	30.8%	3.4%	25.5%	7.4%	31.8%	3.7%	22.4%	9.9%	27.9%	10.0%	30.5%	5.9%	30.6%	9.0%	33.2%	5.3%
In the next 5 years, how likely are you to … expand farm business	Unlikely	67.0%	3.5%	60.5%	8.9%	68.3%	3.9%	54.5%	13.1%	65.6%	12.1%	64.3%	6.7%	71.8%	10.2%	70.1%	5.4%
	Neither likely or unlikely	11.6%	2.2%	10.1%	4.5%	11.9%	2.4%	12.7%	6.8%	7.8%	4.8%	10.6%	3.7%	8.2%	4.5%	13.9%	3.6%
	Likely	21.4%	2.9%	29.4%	7.6%	19.8%	3.1%	32.7%	11.3%	26.6%	9.6%	25.1%	5.5%	20.0%	7.4%	16.0%	3.8%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	64.2%	3.6%	70.3%	8.9%	63.1%	4.0%	74.5%	13.1%	66.7%	12.5%	69.4%	6.5%	61.3%	10.9%	59.0%	5.7%
	Neither likely or unlikely	10.2%	2.1%	6.3%	3.4%	11.0%	2.3%	7.8%	5.1%	5.0%	3.6%	8.1%	3.1%	11.3%	5.5%	13.0%	3.5%
	Likely	25.5%	3.1%	23.4%	7.1%	25.9%	3.4%	17.6%	8.5%	28.3%	10.2%	22.5%	5.3%	27.5%	8.9%	28.0%	4.9%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	62.3%	3.7%	55.0%	9.3%	63.7%	4.0%	57.1%	13.9%	53.2%	12.3%	62.1%	6.8%	68.7%	10.5%	63.4%	5.7%
	Neither likely or unlikely	14.3%	2.5%	17.1%	6.1%	13.7%	2.6%	20.4%	9.4%	14.5%	7.1%	18.2%	4.8%	12.0%	5.7%	11.0%	3.2%
	Likely	23.4%	3.1%	27.9%	7.7%	22.6%	3.3%	22.4%	9.9%	32.3%	10.6%	19.7%	5.0%	19.3%	7.4%	25.5%	4.8%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	66.9%	3.6%	56.6%	9.2%	68.9%	3.9%	60.0%	13.8%	54.0%	12.3%	68.3%	6.5%	76.8%	10.0%	67.1%	5.6%
	Neither likely or unlikely	14.8%	2.5%	15.0%	5.7%	14.8%	2.7%	14.0%	7.5%	15.9%	7.4%	14.9%	4.3%	9.8%	5.0%	16.1%	3.9%
	Likely	18.3%	2.8%	28.3%	7.7%	16.3%	2.8%	26.0%	10.6%	30.2%	10.3%	16.8%	4.6%	13.4%	6.1%	16.8%	4.0%

Table A48 Future farming intentions, by Basin location - 2016

This table provides detailed data underpinning the findings reported in Section 5.43 in the main report.		Basin location						Basin state									
		Murray-Darling Basin (n=560)	95% CI	Northern Basin (n=461)	95% CI	Southern Basin (n=97)	95% CI	NSW Nth Basin (n=62)	95% CI	Qld Basin (n=35)	95% CI	NSW Sth Basin (n=133)	95% CI	SA Basin (n=57)	95% CI	Vic Basin (n=270)	95% CI
In the next 5 years, how likely are you to … retire from farming	Unlikely	55.4%	4.1%	60.8%	9.9%	54.2%	4.6%	56.5%	12.4%	68.6%	16.4%	54.1%	8.5%	56.1%	12.9%	54.1%	6.0%
	Neither likely or unlikely	6.3%	1.8%	6.2%	3.6%	6.3%	1.9%	6.5%	4.2%	5.7%	4.5%	5.3%	2.9%	14.0%	7.2%	5.2%	2.2%
	Likely	38.4%	4.0%	33.0%	8.8%	39.5%	4.4%	37.1%	11.2%	25.7%	12.2%	40.6%	8.1%	29.8%	10.7%	40.7%	5.7%
In the next 5 years, how likely are you to … leave farming for reasons other than retirement	Unlikely	74.7%	3.8%	77.8%	9.4%	73.9%	4.2%	75.4%	11.8%	82.8%	16.5%	75.7%	7.7%	72.2%	12.9%	73.3%	5.6%
	Neither likely or unlikely	5.4%	1.7%	2.2%	1.8%	6.0%	1.9%	3.3%	2.6%	0.0%	0.0%	5.9%	3.1%	11.1%	6.3%	5.0%	2.2%
	Likely	20.0%	3.2%	20.0%	7.2%	20.0%	3.5%	21.3%	8.8%	17.2%	10.3%	18.4%	5.8%	16.7%	8.1%	21.7%	4.7%
In the next 5 years, how likely are you to … expand farm business	Unlikely	69.3%	4.0%	59.6%	10.4%	71.1%	4.3%	58.3%	12.6%	62.1%	18.1%	68.4%	8.2%	65.4%	13.5%	73.3%	5.5%
	Neither likely or unlikely	7.5%	2.0%	9.0%	4.6%	7.2%	2.1%	8.3%	5.1%	10.3%	7.3%	6.0%	3.1%	11.5%	6.6%	7.0%	2.6%
	Likely	23.2%	3.4%	31.5%	8.9%	21.7%	3.6%	33.3%	10.9%	27.6%	13.6%	25.6%	6.8%	23.1%	9.8%	19.6%	4.4%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	73.1%	3.8%	72.0%	9.7%	73.4%	4.2%	68.8%	12.0%	79.3%	17.1%	82.1%	7.1%	73.7%	12.4%	68.9%	5.7%
	Neither likely or unlikely	7.9%	2.0%	5.4%	3.3%	8.4%	2.3%	7.8%	4.8%	0.0%	0.0%	4.5%	2.6%	15.8%	7.7%	8.9%	3.0%
	Likely	19.0%	3.1%	22.6%	7.6%	18.2%	3.3%	23.4%	9.1%	20.7%	11.6%	13.4%	5.0%	10.5%	6.0%	22.2%	4.6%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	74.8%	3.8%	73.1%	9.6%	75.3%	4.1%	76.6%	11.4%	65.5%	18.1%	81.5%	7.2%	84.9%	11.4%	70.1%	5.7%
	Neither likely or unlikely	8.0%	2.1%	9.7%	4.8%	7.5%	2.2%	7.8%	4.8%	13.8%	9.0%	4.4%	2.6%	7.5%	4.9%	9.1%	3.0%
	Likely	17.2%	3.0%	17.2%	6.6%	17.2%	3.3%	15.6%	7.3%	20.7%	11.6%	14.1%	5.1%	7.5%	4.9%	20.8%	4.6%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	73.7%	3.8%	56.0%	10.3%	77.1%	4.0%	58.7%	12.3%	50.0%	17.8%	77.8%	7.6%	71.7%	13.0%	77.8%	5.3%
	Neither likely or unlikely	10.4%	2.3%	22.0%	7.5%	8.1%	2.2%	19.0%	8.2%	28.6%	14.0%	8.9%	3.9%	7.5%	4.9%	7.9%	2.8%
	Likely	15.9%	2.9%	22.0%	7.5%	14.7%	3.0%	22.2%	8.9%	21.4%	12.0%	13.3%	4.9%	20.8%	9.2%	14.3%	3.8%

Table A49 Future farming intentions, by Basin location - 2018

This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Murray-Darling Basin (n=184)	95% CI	Northern Basin (n=24)	95% CI	Southern Basin (n=160)	95% CI	NSW Nth Basin (n=13)	95% CI	Qld Basin (n=11)	95% CI	NSW Sth Basin (n=52)	95% CI	SA Basin (n=17)	95% CI	Vic Basin (n=90)	95% CI
In the next 5 years, how likely are you to … retire from farming	Unlikely	52.6%	6.7%	59.4%	17.2%	51.4%	7.3%	55.0%	21.2%	66.7%	27.9%	62.7%	12.7%	36.8%	18.6%	47.5%	9.6%
	Neither likely or unlikely	7.6%	3.0%	3.1%	2.8%	8.4%	3.4%	0.0%	0.0%	8.3%	7.4%	8.5%	5.2%	10.5%	8.3%	8.1%	4.2%
	Likely	39.8%	6.4%	37.5%	15.1%	40.2%	7.0%	45.0%	19.9%	25.0%	17.4%	28.8%	10.3%	52.6%	21.5%	44.4%	9.5%
In the next 5 years, how likely are you to … leave farming for reasons other than retirement	Unlikely	75.0%	6.6%	87.5%	17.2%	73.1%	7.2%	92.3%	23.0%	81.8%	28.5%	71.2%	13.2%	64.7%	23.6%	75.6%	9.6%
	Neither likely or unlikely	8.7%	3.4%	4.2%	3.7%	9.4%	3.8%	0.0%	0.0%	9.1%	8.1%	9.6%	5.9%	5.9%	5.2%	10.0%	4.9%
	Likely	16.3%	4.8%	8.3%	6.6%	17.5%	5.3%	7.7%	6.8%	9.1%	8.1%	19.2%	8.9%	29.4%	17.2%	14.4%	6.1%
In the next 5 years, how likely are you to … expand farm business	Unlikely	69.2%	6.5%	51.6%	17.1%	72.2%	6.9%	44.4%	20.7%	61.5%	26.5%	58.9%	13.1%	76.2%	20.8%	78.2%	8.8%
	Neither likely or unlikely	11.4%	3.8%	25.8%	12.8%	8.9%	3.5%	33.3%	18.0%	15.4%	12.0%	14.3%	7.3%	14.3%	10.1%	5.0%	3.0%
	Likely	19.4%	4.9%	22.6%	11.9%	18.9%	5.2%	22.2%	14.2%	23.1%	16.1%	26.8%	10.2%	9.5%	7.5%	16.8%	6.3%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	71.8%	6.5%	83.3%	16.1%	69.8%	7.1%	84.2%	20.6%	81.8%	28.5%	75.0%	12.9%	63.6%	20.8%	68.8%	9.7%
	Neither likely or unlikely	4.5%	2.2%	3.3%	3.0%	4.7%	2.4%	5.3%	4.7%	0.0%	0.0%	3.8%	3.0%	0.0%	0.0%	6.3%	3.6%
	Likely	23.8%	5.5%	13.3%	8.7%	25.6%	6.1%	10.5%	8.3%	18.2%	14.2%	21.2%	9.4%	36.4%	17.4%	25.0%	7.8%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	62.9%	6.8%	58.6%	18.0%	63.6%	7.3%	61.1%	22.8%	54.5%	27.6%	57.1%	13.0%	75.0%	21.4%	64.2%	9.9%
	Neither likely or unlikely	10.4%	3.6%	13.8%	9.0%	9.8%	3.8%	16.7%	11.7%	9.1%	8.1%	14.3%	7.3%	0.0%	0.0%	9.5%	4.7%
	Likely	26.7%	5.7%	27.6%	13.6%	26.6%	6.2%	22.2%	14.2%	36.4%	22.6%	28.6%	10.5%	25.0%	14.8%	26.3%	8.1%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	63.5%	6.8%	51.7%	17.6%	65.5%	7.3%	58.8%	23.2%	41.7%	23.6%	60.0%	13.2%	65.0%	21.8%	68.0%	9.7%
	Neither likely or unlikely	13.8%	4.2%	20.7%	11.6%	12.6%	4.3%	11.8%	9.2%	33.3%	20.9%	12.7%	6.8%	20.0%	12.8%	11.3%	5.2%
	Likely	22.7%	5.3%	27.6%	13.6%	21.8%	5.6%	29.4%	17.2%	25.0%	17.4%	27.3%	10.4%	15.0%	10.6%	20.6%	7.1%

Table A50 Future farming intentions, by farm type - 2015

This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Farm type														
		Dairy (n=82)	95% CI	Grain growing (n=118)	95% CI	Grazier (n=139)	95% CI	Horticulture (all) (n=191)	95% CI	Mixed cropping/ grazing (n=63)	95% CI	Fruit/nut grower (n=78)	95% CI	Winegrape grower (n=94)	95% CI
In the next 5 years, how likely are you to … retire from farming	Unlikely	58.5%	10.8%	66.9%	8.8%	63.3%	8.2%	58.6%	7.1%	66.7%	12.2%	51.3%	11.0%	61.7%	10.1%
	Neither likely or unlikely	4.9%	3.2%	6.8%	3.5%	7.9%	3.6%	6.3%	2.8%	11.1%	6.0%	10.3%	5.3%	4.3%	2.8%
	Likely	36.6%	9.8%	26.3%	7.3%	28.8%	7.0%	35.1%	6.5%	22.2%	8.9%	38.5%	10.2%	34.0%	9.0%
In the next 5 years, how likely are you to … expand farm business	Unlikely	59.3%	10.5%	55.3%	8.8%	70.3%	7.8%	74.1%	6.5%	58.6%	11.7%	72.6%	10.2%	77.2%	9.3%
	Neither likely or unlikely	18.6%	7.1%	12.2%	4.9%	11.0%	4.3%	8.3%	3.3%	17.1%	7.4%	8.3%	4.5%	6.5%	3.8%
	Likely	22.1%	7.8%	32.5%	7.8%	18.6%	5.7%	17.6%	4.9%	24.3%	8.9%	19.0%	7.3%	16.3%	6.5%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	64.4%	10.4%	73.6%	8.3%	57.3%	8.0%	60.8%	7.2%	63.8%	11.7%	55.0%	10.9%	65.9%	10.5%
	Neither likely or unlikely	10.3%	5.1%	6.6%	3.4%	13.3%	4.7%	9.4%	3.6%	13.0%	6.4%	11.3%	5.5%	7.1%	4.1%
	Likely	25.3%	8.2%	19.8%	6.3%	29.3%	6.8%	29.8%	6.3%	23.2%	8.7%	33.8%	9.6%	27.1%	8.6%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	68.2%	10.2%	52.9%	8.9%	68.7%	7.8%	59.9%	7.2%	55.2%	11.9%	53.2%	11.0%	67.8%	10.3%
	Neither likely or unlikely	8.0%	4.3%	24.4%	7.0%	9.5%	4.0%	12.6%	4.2%	19.4%	8.1%	12.7%	6.0%	11.5%	5.4%
	Likely	23.9%	8.0%	22.7%	6.8%	21.8%	6.1%	27.5%	6.1%	25.4%	9.2%	34.2%	9.7%	20.7%	7.5%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	63.2%	10.4%	54.9%	8.9%	68.2%	7.8%	74.9%	6.6%	63.6%	12.0%	69.2%	10.8%	81.8%	9.0%
	Neither likely or unlikely	20.7%	7.5%	21.3%	6.5%	10.1%	4.1%	10.9%	3.9%	19.7%	8.2%	10.3%	5.3%	8.0%	4.3%
	Likely	16.1%	6.6%	23.8%	6.9%	21.6%	6.0%	14.2%	4.5%	16.7%	7.5%	20.5%	7.8%	10.2%	5.0%

Table A51 Future farming intentions, by farm type - 2016

This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Farm type														
		Dairy (n=126)	95% CI	Grain growing (n=83)	95% CI	Grazier (n=123)	95% CI	Horticulture (all) (n=82)	95% CI	Mixed cropping/ grazing (n=63)	95% CI	Fruit/nut grower (n=71)	95% CI	Wine grape grower (n=60)	95% CI
In the next 5 years, how likely are you to … retire from farming	Unlikely	58.7%	8.7%	51.8%	10.7%	59.3%	8.8%	52.4%	10.7%	58.7%	12.3%	47.9%	11.3%	50.0%	12.4%
	Neither likely or unlikely	5.6%	3.0%	7.2%	4.2%	6.5%	3.4%	4.9%	3.2%	9.5%	5.4%	5.6%	3.7%	3.3%	2.6%
	Likely	35.7%	8.0%	41.0%	10.1%	34.1%	7.9%	42.7%	10.3%	31.7%	10.5%	46.5%	11.3%	46.7%	12.2%
In the next 5 years, how likely are you to … leave farming for reasons other than retirement	Unlikely	71.9%	8.5%	83.1%	9.5%	75.8%	8.2%	74.4%	10.5%	77.3%	11.1%	75.0%	11.2%	69.1%	12.9%
	Neither likely or unlikely	3.3%	2.2%	2.6%	2.1%	5.8%	3.2%	6.4%	3.9%	6.1%	4.0%	5.9%	3.9%	12.7%	6.8%
	Likely	24.8%	7.0%	14.3%	6.5%	18.3%	6.1%	19.2%	7.5%	16.7%	7.5%	19.1%	8.0%	18.2%	8.4%
In the next 5 years, how likely are you to … expand farm business	Unlikely	71.5%	8.4%	59.3%	10.9%	74.8%	8.3%	69.2%	10.8%	57.6%	12.0%	70.0%	11.4%	74.1%	12.2%
	Neither likely or unlikely	9.8%	4.3%	4.9%	3.2%	7.6%	3.8%	3.8%	2.8%	6.1%	4.0%	4.3%	3.1%	15.5%	7.6%
	Likely	18.7%	6.1%	35.8%	9.8%	17.6%	6.0%	26.9%	8.9%	36.4%	10.8%	25.7%	9.1%	10.3%	5.9%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	66.4%	8.7%	81.3%	9.6%	77.2%	8.0%	67.5%	10.5%	75.4%	11.1%	71.2%	11.1%	72.4%	12.4%
	Neither likely or unlikely	9.0%	4.1%	5.0%	3.3%	5.7%	3.1%	10.8%	5.3%	7.2%	4.4%	9.6%	5.2%	12.1%	6.5%
	Likely	24.6%	7.0%	13.8%	6.2%	17.1%	5.8%	21.7%	7.8%	17.4%	7.5%	19.2%	7.7%	15.5%	7.6%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	67.5%	8.6%	74.7%	10.1%	81.0%	7.8%	67.9%	10.7%	70.1%	11.6%	70.8%	11.2%	89.3%	10.0%
	Neither likely or unlikely	9.8%	4.3%	9.6%	5.0%	6.0%	3.3%	8.6%	4.7%	10.4%	5.7%	5.6%	3.7%	5.4%	3.8%
	Likely	22.8%	6.7%	15.7%	6.6%	12.9%	5.2%	23.5%	8.2%	19.4%	8.1%	23.6%	8.6%	5.4%	3.8%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	76.5%	8.2%	67.1%	10.6%	75.4%	8.2%	69.6%	10.7%	72.7%	11.6%	71.8%	11.2%	78.9%	11.8%
	Neither likely or unlikely	7.6%	3.8%	14.6%	6.4%	11.5%	4.7%	7.6%	4.4%	10.6%	5.7%	4.2%	3.0%	10.5%	6.0%
	Likely	16.0%	5.7%	18.3%	7.2%	13.1%	5.1%	22.8%	8.2%	16.7%	7.5%	23.9%	8.8%	10.5%	6.0%

Table A52 Future farming intentions, by farm type - 2018

This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Dairy (n=30)	95% CI	Grain growing (n=17)	95% CI	Grazier (n=53)	95% CI	Horticulture (all) (n=44)	95% CI	Mixed cropping/ grazing (n=36)	95% CI	Fruit/nut grower (n=17)	95% CI	Wine grape grower (n=17)	95% CI
In the next 5 years, how likely are you to … retire from farming	Unlikely	58.8%	16.7%	54.2%	19.5%	49.2%	12.3%	46.0%	13.3%	60.5%	15.8%	47.4%	20.7%	40.0%	18.9%
	Neither likely or unlikely	2.9%	2.6%	8.3%	6.6%	3.3%	2.6%	10.0%	6.1%	13.2%	8.0%	5.3%	4.7%	10.0%	7.9%
	Likely	38.2%	14.8%	37.5%	17.1%	47.5%	12.2%	44.0%	13.1%	26.3%	11.9%	47.4%	20.7%	50.0%	20.7%
In the next 5 years, how likely are you to … leave farming for reasons other than retirement	Unlikely	70.0%	17.7%	82.4%	22.4%	77.4%	12.5%	72.7%	14.3%	77.8%	15.4%	58.8%	23.2%	76.5%	23.2%
	Neither likely or unlikely	10.0%	7.1%	11.8%	9.2%	5.7%	4.0%	9.1%	5.9%	11.1%	7.2%	11.8%	9.2%	5.9%	5.2%
	Likely	20.0%	11.2%	5.9%	5.2%	17.0%	8.2%	18.2%	9.2%	11.1%	7.2%	29.4%	17.2%	17.6%	12.4%
In the next 5 years, how likely are you to … expand farm business	Unlikely	78.8%	16.0%	59.1%	20.6%	75.0%	12.0%	67.9%	13.3%	61.5%	15.6%	76.2%	20.8%	71.4%	21.1%
	Neither likely or unlikely	3.0%	2.7%	18.2%	11.7%	11.7%	6.3%	13.2%	7.1%	12.8%	7.8%	4.8%	4.2%	14.3%	10.1%
	Likely	18.2%	10.2%	22.7%	13.5%	13.3%	6.8%	18.9%	8.7%	25.6%	11.6%	19.0%	12.3%	14.3%	10.1%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	54.5%	16.8%	85.0%	19.9%	69.1%	12.9%	74.5%	13.1%	79.5%	14.5%	70.0%	21.7%	80.0%	20.8%
	Neither likely or unlikely	9.1%	6.5%	5.0%	4.5%	5.5%	3.9%	3.9%	3.1%	0.0%	0.0%	5.0%	4.5%	5.0%	4.5%
	Likely	36.4%	14.7%	10.0%	7.9%	25.5%	10.1%	21.6%	9.5%	20.5%	10.3%	25.0%	14.8%	15.0%	10.6%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	60.6%	17.0%	76.2%	20.8%	56.1%	12.9%	77.1%	13.2%	48.7%	15.1%	82.4%	22.4%	90.0%	18.4%
	Neither likely or unlikely	6.1%	4.8%	4.8%	4.2%	14.0%	7.2%	6.3%	4.5%	17.9%	9.5%	0.0%	0.0%	10.0%	7.9%
	Likely	33.3%	14.2%	19.0%	12.3%	29.8%	10.7%	16.7%	8.5%	33.3%	13.2%	17.6%	12.4%	0.0%	0.0%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	67.7%	17.5%	50.0%	19.8%	66.7%	12.8%	72.0%	13.4%	48.7%	15.1%	73.7%	22.1%	80.0%	20.8%
	Neither likely or unlikely	19.4%	10.8%	9.1%	7.2%	8.8%	5.3%	14.0%	7.5%	20.5%	10.3%	15.8%	11.1%	10.0%	7.9%
	Likely	12.9%	8.4%	40.9%	18.4%	24.6%	9.7%	14.0%	7.5%	30.8%	12.7%	10.5%	8.3%	10.0%	7.9%

Table A53 Future farming intentions, by trade typology - 2015

This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months							
In the next 5 years, how likely are you to …		Diverse trader (n=98)	95% CI	Non-diverse alloc-ation trader (n=238)	95% CI	Non-diverse entitle-ment trader (n=36)	95% CI	Non-portfolio trader (n=15)	95% CI	Non-trader (n=242)	95% CI	Traded both entitle-ments and allocation (n=87)	95% CI	Traded alloc-ation but not entitle-ments (n=257)	95% CI	Traded entitle-ments but not allocation (n=39)	95% CI	No trade (n=243)	95% CI
retire from farming	Unlikely	65.3%	9.8%	56.3%	6.3%	69.4%	16.1%	60.0%	24.7%	64.9%	6.2%	64.4%	10.4%	56.0%	6.1%	71.8%	15.3%	65.0%	6.1%
	Neither likely or unlikely	5.1%	3.1%	9.7%	3.3%	2.8%	2.5%	6.7%	5.9%	7.4%	2.8%	5.7%	3.5%	9.3%	3.1%	2.6%	2.3%	7.4%	2.8%
	Likely	29.6%	8.3%	34.0%	5.8%	27.8%	12.5%	33.3%	19.3%	27.7%	5.3%	29.9%	8.8%	34.6%	5.6%	25.6%	11.6%	27.6%	5.3%
expand farm business	Unlikely	58.2%	9.9%	68.8%	5.9%	53.1%	16.9%	61.1%	22.8%	70.8%	5.8%	57.3%	10.4%	68.8%	5.7%	51.4%	16.1%	71.0%	5.8%
	Neither likely or unlikely	17.3%	6.5%	11.2%	3.5%	3.1%	2.8%	16.7%	11.7%	11.9%	3.5%	15.7%	6.4%	11.9%	3.5%	8.6%	6.1%	11.8%	3.5%
	Likely	24.5%	7.7%	20.0%	4.6%	43.8%	16.0%	22.2%	14.2%	17.4%	4.3%	27.0%	8.4%	19.3%	4.4%	40.0%	14.9%	17.3%	4.3%
downsize farm business	Unlikely	64.1%	10.1%	64.6%	6.1%	63.3%	17.8%	43.8%	21.6%	67.2%	5.9%	61.0%	10.8%	63.4%	5.9%	66.7%	16.9%	67.3%	5.9%
	Neither likely or unlikely	12.0%	5.4%	9.8%	3.2%	10.0%	7.1%	18.8%	13.2%	10.2%	3.3%	12.2%	5.7%	10.6%	3.3%	9.1%	6.5%	10.1%	3.2%
	Likely	23.9%	7.8%	25.6%	5.1%	26.7%	13.2%	37.5%	20.1%	22.7%	4.8%	26.8%	8.7%	26.0%	5.0%	24.2%	12.1%	22.6%	4.8%
change farm enterprise mix	Unlikely	50.0%	10.0%	66.7%	6.1%	41.9%	16.0%	42.1%	19.8%	67.5%	6.0%	47.1%	10.4%	65.4%	5.9%	47.1%	16.0%	67.3%	6.0%
	Neither likely or unlikely	19.1%	7.0%	12.3%	3.7%	19.4%	10.8%	21.1%	13.5%	13.4%	3.8%	18.8%	7.2%	12.9%	3.6%	17.6%	9.9%	13.7%	3.9%
	Likely	30.9%	8.6%	21.0%	4.8%	38.7%	15.5%	36.8%	18.6%	19.1%	4.5%	34.1%	9.4%	21.7%	4.7%	35.3%	14.3%	19.0%	4.5%
intensify farm production	Unlikely	57.7%	9.9%	71.4%	5.9%	56.7%	17.7%	73.3%	25.0%	67.7%	6.0%	56.2%	10.4%	71.7%	5.7%	60.6%	17.0%	67.7%	6.0%
	Neither likely or unlikely	20.6%	7.1%	13.7%	3.9%	16.7%	10.0%	6.7%	5.9%	13.9%	3.9%	21.3%	7.5%	13.6%	3.8%	15.2%	9.1%	13.9%	3.9%
	Likely	21.6%	7.3%	14.9%	4.1%	26.7%	13.2%	20.0%	14.0%	18.3%	4.4%	22.5%	7.7%	14.7%	3.9%	24.2%	12.1%	18.3%	4.4%

Table A54 Future farming intentions, by trade typology - 2016

This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months							
In the next 5 years, how likely are you to …		Diverse trader (n=92)	95% CI	Non-diverse allocation trader (n=152)	95% CI	Non-diverse entitlement trader (n=37)	95% CI	Non-portfolio trader (n=13)	95% CI	No trade (n=177)	95% CI	Traded both entitlements and allocation (n=66)	95% CI	Traded allocation but not entitlements (n=190)	95% CI	Traded entitlements but not allocation (n=24)	95% CI	No trade (n=190)	95% CI
retire from farming	Unlikely	55.4%	10.2%	52.6%	7.9%	56.8%	16.0%	61.5%	26.5%	60.5%	7.3%	48.5%	11.8%	56.3%	7.1%	58.3%	19.7%	60.0%	7.1%
	Neither likely or unlikely	7.6%	4.1%	5.9%	3.0%	8.1%	5.8%	0.0%	0.0%	4.5%	2.4%	7.6%	4.6%	5.8%	2.7%	12.5%	8.9%	4.2%	2.2%
	Likely	37.0%	9.3%	41.4%	7.6%	35.1%	13.8%	38.5%	22.0%	35.0%	6.7%	43.9%	11.5%	37.9%	6.7%	29.2%	15.1%	35.8%	6.6%
leave farming for reasons other than retirement	Unlikely	74.4%	9.7%	75.8%	7.3%	74.3%	16.0%	84.6%	25.5%	73.8%	7.0%	68.8%	12.0%	77.7%	6.3%	79.2%	19.0%	73.7%	6.8%
	Neither likely or unlikely	3.3%	2.4%	4.7%	2.6%	5.7%	4.5%	0.0%	0.0%	7.1%	3.2%	3.1%	2.5%	4.3%	2.2%	8.3%	6.6%	6.7%	3.0%
	Likely	22.2%	7.6%	19.5%	5.7%	20.0%	10.6%	15.4%	12.0%	19.0%	5.4%	28.1%	9.9%	18.1%	5.0%	12.5%	8.9%	19.6%	5.3%
expand farm business	Unlikely	64.8%	10.2%	71.7%	7.5%	67.6%	16.0%	69.2%	26.9%	67.1%	7.3%	66.7%	11.9%	70.5%	6.8%	62.5%	19.9%	67.2%	7.0%
	Neither likely or unlikely	6.6%	3.8%	5.9%	3.0%	10.8%	7.0%	7.7%	6.8%	5.9%	2.8%	6.1%	4.0%	6.3%	2.8%	12.5%	8.9%	6.0%	2.8%
	Likely	28.6%	8.5%	22.4%	6.1%	21.6%	10.8%	23.1%	16.1%	27.1%	6.3%	27.3%	9.6%	23.2%	5.6%	25.0%	13.8%	26.8%	6.0%
downsize farm business	Unlikely	80.6%	8.9%	72.7%	7.4%	73.7%	15.4%	71.4%	26.0%	72.7%	6.9%	74.6%	11.3%	75.9%	6.4%	79.2%	19.0%	72.0%	6.7%
	Neither likely or unlikely	4.3%	2.8%	8.4%	3.6%	7.9%	5.6%	7.1%	6.4%	8.0%	3.3%	4.5%	3.2%	7.7%	3.1%	4.2%	3.7%	8.5%	3.3%
	Likely	15.1%	6.2%	18.8%	5.6%	18.4%	9.8%	21.4%	15.0%	19.3%	5.3%	20.9%	8.4%	16.4%	4.7%	16.7%	10.8%	19.6%	5.2%
change farm enterprise mix	Unlikely	78.3%	9.2%	73.9%	7.4%	75.0%	15.7%	69.2%	26.9%	73.1%	6.9%	78.8%	11.0%	74.0%	6.5%	78.3%	19.5%	72.9%	6.7%
	Neither likely or unlikely	3.3%	2.3%	8.5%	3.7%	8.3%	5.9%	23.1%	16.1%	7.4%	3.2%	1.5%	1.4%	8.9%	3.4%	13.0%	9.2%	7.4%	3.1%
	Likely	18.5%	6.9%	17.6%	5.4%	16.7%	9.4%	7.7%	6.8%	19.4%	5.3%	19.7%	8.2%	17.2%	4.8%	8.7%	6.8%	19.7%	5.2%
intensify farm production	Unlikely	71.0%	9.8%	77.0%	7.2%	78.4%	15.1%	83.3%	27.0%	70.1%	7.1%	76.1%	11.2%	75.3%	6.5%	75.0%	19.5%	70.6%	6.8%
	Neither likely or unlikely	8.6%	4.5%	9.9%	4.0%	8.1%	5.8%	8.3%	7.4%	12.6%	4.3%	7.5%	4.6%	9.5%	3.6%	12.5%	8.9%	12.3%	4.1%
	Likely	20.4%	7.2%	13.2%	4.7%	13.5%	8.2%	8.3%	7.4%	17.2%	5.1%	16.4%	7.4%	15.3%	4.6%	12.5%	8.9%	17.1%	4.9%

Table A55 Future farming intentions, by trade typology - 2018

This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Diverse trader (n=20)	95% CI	Non-diverse alloc-ation trader (n=50)	95% CI	Non-diverse entitle-ment trader (n=17)	95% CI	Non-port-folio trader (n=9)	95% CI	No trade (n=13)	95% CI	Traded both entitle-ments and alloc-ation (n=14)	95% CI	Traded alloc-ation but not entitle-ments (n=50)	95% CI	Traded entitle-ments but not alloc-ation (n=19)	95% CI	No trade (n=84)	95% CI
In the next 5 years, how likely are you to … retire from farming	Unlikely	75.0%	21.4%	54.0%	13.7%	41.2%	20.5%	66.7%	31.9%	45.2%	10.3%	71.4%	26.0%	58.0%	13.8%	47.4%	20.7%	45.2%	10.3%
	Neither likely or unlikely	5.0%	4.5%	2.0%	1.8%	17.6%	12.4%	11.1%	9.9%	9.5%	4.9%	7.1%	6.4%	4.0%	3.2%	15.8%	11.1%	9.5%	4.9%
	Likely	20.0%	12.8%	44.0%	13.1%	41.2%	20.5%	22.2%	17.3%	45.2%	10.3%	21.4%	15.0%	38.0%	12.5%	36.8%	18.6%	45.2%	10.3%
In the next 5 years, how likely are you to … leave farming for reasons other than retirement	Unlikely	94.1%	18.5%	73.8%	14.6%	81.3%	23.3%	44.4%	27.1%	75.3%	10.7%	91.7%	24.5%	75.6%	13.9%	76.5%	23.2%	75.3%	10.7%
	Neither likely or unlikely	5.9%	5.2%	4.8%	3.8%	18.8%	13.2%	22.2%	17.3%	9.6%	5.2%	8.3%	7.4%	6.7%	4.8%	11.8%	9.2%	9.6%	5.2%
	Likely	0.0%	0.0%	21.4%	10.3%	0.0%	0.0%	33.3%	22.9%	15.1%	6.8%	0.0%	0.0%	17.8%	9.0%	11.8%	9.2%	15.1%	6.8%
In the next 5 years, how likely are you to … expand farm business	Unlikely	31.6%	17.2%	66.7%	14.0%	66.7%	22.9%	66.7%	31.9%	76.5%	9.8%	33.3%	20.9%	68.6%	13.5%	57.9%	22.0%	76.5%	9.8%
	Neither likely or unlikely	21.1%	13.5%	14.6%	7.8%	16.7%	11.7%	33.3%	22.9%	7.1%	4.1%	16.7%	13.0%	11.8%	6.7%	26.3%	15.5%	7.1%	4.1%
	Likely	47.4%	20.7%	18.8%	9.0%	16.7%	11.7%	0.0%	0.0%	16.5%	6.7%	50.0%	25.7%	19.6%	9.1%	15.8%	11.1%	16.5%	6.7%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	82.4%	22.4%	71.1%	14.2%	76.5%	23.2%	55.6%	30.1%	70.7%	10.4%	81.8%	28.5%	72.0%	13.4%	68.4%	22.3%	70.7%	10.4%
	Neither likely or unlikely	0.0%	0.0%	4.4%	3.5%	11.8%	9.2%	11.1%	9.9%	3.7%	2.6%	0.0%	0.0%	6.0%	4.3%	10.5%	8.3%	3.7%	2.6%
	Likely	17.6%	12.4%	24.4%	10.7%	11.8%	9.2%	33.3%	22.9%	25.6%	8.5%	18.2%	14.2%	22.0%	9.7%	21.1%	13.5%	25.6%	8.5%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	63.2%	22.3%	55.3%	14.2%	66.7%	22.9%	75.0%	34.2%	65.0%	10.8%	69.2%	26.9%	58.8%	13.7%	61.1%	22.8%	65.0%	10.8%
	Neither likely or unlikely	15.8%	11.1%	8.5%	5.6%	11.1%	8.7%	25.0%	19.4%	10.0%	5.2%	15.4%	12.0%	11.8%	6.7%	16.7%	11.7%	10.0%	5.2%
	Likely	21.1%	13.5%	36.2%	12.6%	22.2%	14.2%	0.0%	0.0%	25.0%	8.5%	15.4%	12.0%	29.4%	11.1%	22.2%	14.2%	25.0%	8.5%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	42.1%	19.8%	55.1%	13.9%	68.8%	24.3%	66.7%	31.9%	73.8%	10.4%	38.5%	22.0%	56.9%	13.7%	66.7%	22.9%	73.8%	10.4%
	Neither likely or unlikely	26.3%	15.5%	10.2%	6.2%	18.8%	13.2%	11.1%	9.9%	11.3%	5.5%	23.1%	16.1%	11.8%	6.7%	16.7%	11.7%	11.3%	5.5%
	Likely	31.6%	17.2%	34.7%	12.1%	12.5%	9.8%	22.2%	17.3%	15.0%	6.5%	38.5%	22.0%	31.4%	11.4%	16.7%	11.7%	15.0%	6.5%

Table A56 Future farming intentions, by water source/s used - 2015

This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
		Used water from own entitlements only (n=377)	95% CI	Used water from own entitlements and allocation purchased on the market (n=207)	95% CI	Used water from allocation or leased entitlements only (n=15)	95% CI	Used surface water only (n=390)	95% CI	Used both surface water and ground water (n=67)	95% CI	Used ground water only (n=70)	95% CI
In the next 5 years, how likely are you to … leave farming for reasons other than retirement	Unlikely	61.8%	5.0%	60.9%	6.8%	60.0%	24.7%	57.4%	4.9%	65.7%	11.8%	65.7%	11.6%
	Neither likely or unlikely	8.5%	2.5%	6.8%	2.8%	6.7%	5.9%	9.7%	2.6%	1.5%	1.3%	5.7%	3.8%
	Likely	29.7%	4.4%	32.4%	6.1%	33.3%	19.3%	32.8%	4.5%	32.8%	10.3%	28.6%	9.6%
In the next 5 years, how likely are you to … expand farm business	Unlikely	71.5%	4.6%	57.9%	6.7%	61.1%	22.8%	66.3%	4.7%	60.9%	11.8%	68.5%	11.2%
	Neither likely or unlikely	10.5%	2.8%	14.5%	4.2%	16.7%	11.7%	13.5%	3.1%	13.0%	6.4%	12.3%	6.0%
	Likely	18.0%	3.6%	27.6%	5.7%	22.2%	14.2%	20.3%	3.7%	26.1%	9.2%	19.2%	7.7%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	63.1%	4.9%	68.4%	6.5%	43.8%	21.6%	63.9%	4.8%	67.2%	11.8%	62.5%	11.5%
	Neither likely or unlikely	9.7%	2.7%	10.5%	3.6%	18.8%	13.2%	11.3%	2.8%	9.0%	5.1%	6.9%	4.2%
	Likely	27.2%	4.3%	21.1%	5.1%	37.5%	20.1%	24.8%	4.1%	23.9%	9.0%	30.6%	9.7%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	63.9%	5.0%	58.4%	6.7%	42.1%	19.8%	63.9%	4.8%	55.2%	11.9%	63.2%	11.8%
	Neither likely or unlikely	14.7%	3.3%	14.5%	4.2%	21.1%	13.5%	13.6%	3.1%	20.9%	8.4%	11.8%	6.0%
	Likely	21.5%	4.0%	27.1%	5.6%	36.8%	18.6%	22.5%	3.9%	23.9%	9.0%	25.0%	9.1%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	70.1%	4.8%	59.9%	6.7%	73.3%	25.0%	68.6%	4.7%	63.6%	12.0%	61.4%	11.7%
	Neither likely or unlikely	10.9%	2.9%	21.7%	5.1%	6.7%	5.9%	13.7%	3.1%	18.2%	7.8%	17.1%	7.4%
	Likely	18.9%	3.7%	18.4%	4.8%	20.0%	14.0%	17.7%	3.5%	18.2%	7.8%	21.4%	8.3%

Table A57 Future farming intentions, by water source/s used - 2016

		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
This table provides detailed data underpinning the findings reported in Section 5.4 in the main report.		Used water from own entitlements only (n=298)	95% CI	Used water from own entitlements and allocation purchased on the market (n=161)	95% CI	Used water from allocation or leased entitlements only (n=13)	95% CI	Used surface water only (n=398)	95% CI	Used both surface water and ground water (n=83)	95% CI	Used ground water only (n=79)	95% CI
In the next 5 years, how likely are you to … retire from farming	Unlikely	55.0%	5.7%	58.4%	7.7%	61.5%	26.5%	54.0%	4.9%	57.8%	10.7%	59.5%	11.0%
	Neither likely or unlikely	5.0%	2.1%	5.6%	2.8%	0.0%	0.0%	6.5%	2.1%	4.8%	3.2%	6.3%	3.9%
	Likely	39.9%	5.4%	36.0%	7.1%	38.5%	22.0%	39.4%	4.7%	37.3%	9.8%	34.2%	9.7%
In the next 5 years, how likely are you to … leave farming for reasons other than retirement	Unlikely	73.6%	5.3%	75.6%	7.2%	84.6%	25.5%	73.2%	4.6%	78.6%	9.6%	78.1%	10.5%
	Neither likely or unlikely	6.3%	2.4%	4.5%	2.5%	0.0%	0.0%	5.5%	1.9%	2.4%	1.9%	8.2%	4.7%
	Likely	20.1%	4.3%	19.9%	5.7%	15.4%	12.0%	21.4%	3.9%	19.0%	7.3%	13.7%	6.4%
In the next 5 years, how likely are you to … expand farm business	Unlikely	74.1%	5.2%	63.7%	7.7%	69.2%	26.9%	73.3%	4.6%	54.2%	10.7%	65.3%	11.2%
	Neither likely or unlikely	7.5%	2.6%	5.1%	2.7%	7.7%	6.8%	6.9%	2.2%	8.4%	4.6%	9.3%	5.1%
	Likely	18.4%	4.1%	31.2%	6.9%	23.1%	16.1%	19.8%	3.7%	37.3%	9.8%	25.3%	8.8%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	73.3%	5.2%	75.9%	7.0%	71.4%	26.0%	72.0%	4.6%	83.3%	9.0%	67.5%	10.7%
	Neither likely or unlikely	8.0%	2.7%	7.4%	3.3%	7.1%	6.4%	7.4%	2.3%	7.1%	4.1%	11.3%	5.5%
	Likely	18.7%	4.1%	16.7%	5.1%	21.4%	15.0%	20.6%	3.8%	9.5%	4.9%	21.3%	7.8%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	78.5%	5.0%	70.4%	7.4%	69.2%	26.9%	74.2%	4.5%	71.4%	10.3%	81.6%	9.8%
	Neither likely or unlikely	6.5%	2.4%	7.5%	3.4%	23.1%	16.1%	6.4%	2.1%	14.3%	6.2%	9.2%	5.0%
	Likely	15.0%	3.7%	22.0%	5.9%	7.7%	6.8%	19.3%	3.7%	14.3%	6.2%	9.2%	5.0%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	73.9%	5.2%	73.1%	7.2%	83.3%	27.0%	76.6%	4.4%	62.7%	10.7%	71.1%	10.8%
	Neither likely or unlikely	10.2%	3.1%	8.8%	3.6%	8.3%	7.4%	8.7%	2.5%	15.7%	6.6%	13.2%	6.2%
	Likely	15.9%	3.8%	18.1%	5.4%	8.3%	7.4%	14.7%	3.2%	21.7%	7.8%	15.8%	6.9%

Table A58 Future farming intentions, by water source/s used - 2018

This table provides detailed data underpinning the findings reported in Section 5.3 in the main report.		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
		Used water from own entitlements only (n=104)	95% CI	Used water from own entitlements and allocation purchased on the market (n=51)	95% CI	Used water from allocation or leased entitlements only (n=9)	95% CI	Used surface water only (n=149)	95% CI	Used both surface water and ground water (n=22)	95% CI	Used ground water only (n=34)	95% CI
In the next 5 years, how likely are you to … retire from farming	Unlikely	48.1%	9.4%	60.8%	13.7%	66.7%	31.9%	53.0%	8.0%	54.5%	20.3%	50.0%	16.2%
	Neither likely or unlikely	8.7%	4.3%	2.0%	1.7%	11.1%	9.9%	8.1%	3.6%	4.5%	4.1%	8.8%	6.3%
	Likely	43.3%	9.2%	37.3%	12.3%	22.2%	17.3%	38.9%	7.6%	40.9%	18.4%	41.2%	15.3%
In the next 5 years, how likely are you to … leave farming for reasons other than retirement	Unlikely	74.7%	9.8%	79.5%	13.6%	44.4%	27.1%	74.6%	8.0%	78.9%	21.6%	72.4%	17.8%
	Neither likely or unlikely	9.2%	4.8%	6.8%	4.9%	22.2%	17.3%	9.2%	4.1%	5.3%	4.7%	10.3%	7.3%
	Likely	16.1%	6.6%	13.6%	7.7%	33.3%	22.9%	16.2%	5.6%	15.8%	11.1%	17.2%	10.3%
In the next 5 years, how likely are you to … expand farm business	Unlikely	70.3%	9.4%	59.2%	14.0%	66.7%	31.9%	71.0%	7.7%	64.0%	19.5%	61.8%	16.7%
	Neither likely or unlikely	8.9%	4.4%	16.3%	8.3%	33.3%	22.9%	10.3%	4.2%	12.0%	8.5%	17.6%	9.9%
	Likely	20.8%	7.0%	24.5%	10.3%	0.0%	0.0%	18.6%	5.7%	24.0%	13.3%	20.6%	10.9%
In the next 5 years, how likely are you to … downsize farm business	Unlikely	73.0%	9.3%	75.0%	14.1%	55.6%	30.1%	72.9%	7.7%	68.2%	20.8%	76.7%	17.1%
	Neither likely or unlikely	5.0%	3.1%	2.3%	2.0%	11.1%	9.9%	3.5%	2.1%	9.1%	7.2%	6.7%	5.3%
	Likely	22.0%	7.2%	22.7%	10.4%	33.3%	22.9%	23.6%	6.4%	22.7%	13.5%	16.7%	10.0%
In the next 5 years, how likely are you to … change farm enterprise mix	Unlikely	62.6%	9.8%	56.5%	14.4%	75.0%	34.2%	66.4%	8.0%	45.5%	19.2%	60.0%	17.8%
	Neither likely or unlikely	8.1%	4.2%	13.0%	7.4%	25.0%	19.4%	9.1%	3.9%	13.6%	9.6%	10.0%	7.1%
	Likely	29.3%	8.3%	30.4%	11.8%	0.0%	0.0%	24.5%	6.5%	40.9%	18.4%	30.0%	14.0%
In the next 5 years, how likely are you to …intensify farm production	Unlikely	70.8%	9.6%	45.8%	13.5%	66.7%	31.9%	65.2%	8.1%	58.3%	19.7%	56.3%	17.1%
	Neither likely or unlikely	10.4%	4.9%	18.8%	9.0%	11.1%	9.9%	14.2%	5.0%	12.5%	8.9%	15.6%	9.4%
	Likely	18.8%	6.8%	35.4%	12.4%	22.2%	17.3%	20.6%	6.0%	29.2%	15.1%	28.1%	13.2%

Table A59 Farm planning and risk mitigation, by Basin location - 2015

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.		Murray-Darling Basin (n=752)	95% CI	Northern Basin (n=124)	95% CI	Southern Basin (n=628)	95% CI	NSW Nth Basin (n=59)	95% CI	Qld Basin (n=65)	95% CI	NSW Sth Basin (n=225)	95% CI	SA Basin (n=91)	95% CI	Vic Basin (n=312)	95% CI
On our farm, we have a written farm plan	Disagree	53.3%	3.5%	54.0%	8.7%	53.2%	3.9%	54.2%	12.6%	53.8%	12.0%	50.7%	6.5%	60.4%	10.2%	52.9%	5.6%
	Neither	15.0%	2.4%	11.3%	4.7%	15.8%	2.7%	6.8%	4.5%	15.4%	7.2%	16.9%	4.5%	12.1%	5.5%	16.0%	3.7%
	Agree	31.6%	3.2%	34.7%	8.0%	31.1%	3.6%	39.0%	11.7%	30.8%	10.2%	32.4%	5.8%	27.5%	8.4%	31.1%	5.0%
On our farm, we have a farm plan but it isn't written down	Disagree	35.4%	3.3%	39.0%	8.3%	34.7%	3.6%	47.4%	12.6%	31.8%	10.3%	32.2%	5.8%	41.5%	9.6%	34.5%	5.1%
	Neither	13.6%	2.3%	12.2%	4.9%	13.9%	2.5%	14.0%	7.1%	10.6%	5.7%	11.6%	3.6%	16.0%	6.4%	15.0%	3.6%
	Agree	51.0%	3.6%	48.8%	8.7%	51.4%	3.9%	38.6%	11.8%	57.6%	12.1%	56.2%	6.4%	42.6%	9.7%	50.5%	5.5%
On our farm, we have a plan in place for the next drought	Disagree	25.1%	3.0%	19.8%	6.2%	26.1%	3.3%	26.7%	9.9%	13.6%	6.6%	23.4%	5.1%	34.0%	8.8%	25.7%	4.6%
	Neither	18.9%	2.7%	16.7%	5.8%	19.3%	2.9%	16.7%	7.8%	16.7%	7.5%	19.9%	4.7%	12.4%	5.5%	21.0%	4.3%
	Agree	56.0%	3.5%	63.5%	8.6%	54.6%	3.9%	56.7%	12.6%	69.7%	11.8%	56.7%	6.4%	53.6%	9.9%	53.3%	5.5%
On our farm, we have a plan in place for coping with risks that could affect the farm such as pest or disease outbreak, fires, or floods	Disagree	29.3%	3.1%	26.0%	7.1%	29.9%	3.4%	31.0%	10.7%	21.5%	8.6%	27.9%	5.5%	35.8%	9.1%	29.6%	4.8%
	Neither	19.4%	2.6%	17.9%	6.0%	19.7%	2.9%	13.8%	7.1%	21.5%	8.6%	21.4%	4.9%	13.7%	5.8%	20.4%	4.2%
	Agree	51.2%	3.5%	56.1%	8.8%	50.3%	3.9%	55.2%	12.8%	56.9%	12.1%	50.7%	6.5%	50.5%	9.9%	50.0%	5.5%
Performance against the farm plan is monitored	Disagree	26.6%	3.0%	21.6%	6.5%	27.6%	3.4%	25.0%	9.6%	18.5%	8.0%	24.5%	5.3%	27.8%	8.1%	29.7%	4.8%
	Neither	18.9%	2.6%	16.8%	5.8%	19.3%	2.9%	15.0%	7.3%	18.5%	8.0%	18.3%	4.6%	16.5%	6.4%	20.9%	4.2%
	Agree	54.5%	3.5%	61.6%	8.7%	53.1%	3.9%	60.0%	12.6%	63.1%	12.1%	57.2%	6.5%	55.7%	10.0%	49.4%	5.5%
The farm plan is regularly reviewed and updated	Disagree	38.7%	3.4%	32.5%	7.8%	39.9%	3.7%	37.3%	11.5%	28.1%	9.8%	38.4%	6.1%	37.2%	9.2%	41.8%	5.4%
	Neither	21.1%	2.8%	19.5%	6.2%	21.4%	3.0%	22.0%	9.0%	17.2%	7.7%	21.0%	4.9%	22.3%	7.5%	21.5%	4.2%
	Agree	40.2%	3.5%	48.0%	8.7%	38.7%	3.8%	40.7%	11.9%	54.7%	12.2%	40.6%	6.2%	40.4%	9.5%	36.7%	5.2%
On our farm, we regularly draw on our planning to make decisions about the business	Disagree	28.6%	3.2%	24.4%	6.9%	29.4%	3.5%	25.4%	9.7%	23.4%	9.0%	28.2%	5.6%	28.6%	8.5%	30.5%	4.9%
	Neither	20.1%	2.7%	17.9%	6.0%	20.5%	3.0%	22.0%	9.0%	14.1%	6.9%	19.4%	4.8%	18.7%	7.0%	21.9%	4.3%
	Agree	51.3%	3.5%	57.7%	8.8%	50.1%	3.9%	52.5%	12.6%	62.5%	12.2%	52.4%	6.5%	52.7%	10.2%	47.6%	5.5%

Table A60 Farm planning and risk mitigation, by Basin location - 2016

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.		Murray-Darling Basin (n=366)	95% CI	Northern Basin (n=50)	95% CI	Southern Basin (n=315)	95% CI	NSW Nth Basin (n=36)	95% CI	Qld Basin (n=14)	95% CI	NSW Sth Basin (n=78)	95% CI	SA Basin (n=28)	95% CI	Vic Basin (n=208)	95% CI
On our farm, we have a written farm plan	Disagree	44.0%	5.0%	52.0%	13.6%	42.5%	5.3%	55.6%	16.2%	42.9%	22.6%	34.6%	9.8%	50.0%	17.8%	44.2%	6.6%
	Neither	13.1%	3.1%	8.0%	5.2%	14.0%	3.5%	5.6%	4.4%	14.3%	11.2%	16.7%	7.0%	17.9%	10.7%	12.5%	4.0%
	Agree	42.9%	5.0%	40.0%	12.7%	43.5%	5.4%	38.9%	14.6%	42.9%	22.6%	48.7%	10.9%	32.1%	14.9%	43.3%	6.6%
On our farm, we have a farm plan but it isn't written down	Disagree	31.6%	4.7%	26.0%	10.6%	32.7%	5.1%	26.5%	12.5%	25.0%	15.9%	28.6%	9.2%	23.3%	12.2%	35.9%	6.5%
	Neither	8.4%	2.6%	8.0%	5.2%	8.5%	2.7%	5.9%	4.7%	12.5%	9.8%	15.6%	6.8%	3.3%	2.9%	6.6%	2.9%
	Agree	60.1%	5.2%	66.0%	13.7%	58.8%	5.6%	67.6%	16.6%	62.5%	24.2%	55.8%	11.1%	73.3%	17.4%	57.6%	7.0%
On our farm, the farm plan includes farm plan business objectives	Disagree	27.2%	4.4%	28.0%	11.0%	27.3%	4.8%	29.7%	12.8%	23.1%	16.1%	18.4%	7.4%	32.3%	14.4%	30.1%	6.1%
	Neither	12.6%	3.1%	12.0%	6.8%	12.8%	3.4%	5.4%	4.3%	30.8%	19.4%	13.2%	6.2%	6.5%	5.1%	13.8%	4.3%
	Agree	60.1%	5.1%	60.0%	13.8%	59.9%	5.6%	64.9%	16.1%	46.2%	24.1%	68.4%	11.0%	61.3%	17.5%	56.1%	7.0%
On our farm, we have a plan for land management objectives e.g. regarding stocking, planting, watering and other farm activities	Disagree	21.5%	4.0%	14.3%	7.7%	22.7%	4.3%	13.5%	8.2%	16.7%	13.1%	10.7%	5.5%	23.5%	11.7%	27.1%	5.8%
	Neither	10.6%	2.8%	10.2%	6.2%	10.7%	3.0%	10.8%	7.0%	8.3%	7.4%	16.0%	6.9%	5.9%	4.7%	9.7%	3.5%
	Agree	67.9%	4.9%	75.5%	13.3%	66.6%	5.4%	75.7%	15.4%	75.0%	27.9%	73.3%	10.7%	70.6%	16.5%	63.3%	6.7%
On our farm, we have a plan in place for coping with risks that could affect the farm such as pest or disease outbreak, fires, or floods	Disagree	25.8%	4.3%	20.0%	9.2%	26.9%	4.7%	24.3%	11.5%	7.7%	6.9%	18.4%	7.4%	37.5%	15.1%	28.4%	5.9%
	Neither	12.7%	3.1%	14.0%	7.5%	12.6%	3.3%	13.5%	8.2%	15.4%	12.1%	13.2%	6.2%	9.4%	6.7%	12.9%	4.1%
	Agree	61.5%	5.1%	66.0%	13.7%	60.5%	5.5%	62.2%	16.1%	76.9%	26.6%	68.4%	11.0%	53.1%	16.9%	58.7%	6.9%
On our farm, we have a plan in place for the next drought	Disagree	19.4%	3.8%	15.4%	7.8%	20.1%	4.1%	15.8%	8.9%	14.3%	11.2%	12.8%	6.0%	23.5%	11.7%	22.4%	5.3%
	Neither	13.3%	3.2%	5.8%	4.1%	14.6%	3.6%	7.9%	5.6%	0.0%		11.5%	5.6%	17.6%	9.9%	15.2%	4.3%
	Agree	67.4%	4.9%	78.8%	12.4%	65.3%	5.3%	76.3%	15.1%	85.7%	24.2%	75.6%	10.3%	58.8%	16.7%	62.4%	6.7%

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Table A61 Farm planning and risk mitigation, by Basin location - 2018

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.			Basin location						Basin state										
			Murray-Darling Basin (n=366)	95% CI	Northern Basin (n=53)	95% CI	Southern Basin (n=313)	95% CI	NSW Nth Basin (n=31)	95% CI	Qld Basin (n=22)	95% CI	NSW Sth Basin (n=96)	95% CI	SA Basin (n=30)	95% CI	Vic Basin (n=186)	95% CI
Risk mitigation - farm planning	On our farm, we have a plan in place for the next drought	Disagree	25.1%	4.2%	24.5%	10.0%	25.2%	4.6%	35.5%	15.0%	9.1%	7.2%	13.5%	5.7%	20.0%	11.2%	32.3%	6.4%
		Neither	21.0%	3.9%	13.2%	7.1%	22.4%	4.3%	12.9%	8.4%	13.6%	9.6%	21.9%	7.4%	10.0%	7.1%	24.2%	5.7%
		Agree	53.8%	5.1%	62.3%	13.4%	52.4%	5.5%	51.6%	17.1%	77.3%	20.1%	64.6%	9.9%	70.0%	17.7%	43.5%	7.0%
	On our farm, we have a plan in place for coping with risks that could affect the farm	Disagree	31.0%	4.6%	17.0%	8.2%	33.3%	5.1%	22.6%	11.9%	9.1%	7.2%	21.9%	7.4%	26.7%	13.2%	40.5%	6.9%
		Neither	23.6%	4.1%	18.9%	8.7%	24.4%	4.5%	19.4%	10.8%	18.2%	11.7%	31.3%	8.6%	13.3%	8.7%	22.2%	5.5%
		Agree	45.5%	5.1%	64.2%	13.4%	42.3%	5.4%	58.1%	17.4%	72.7%	20.6%	46.9%	9.8%	60.0%	17.8%	37.3%	6.7%
	On our farm, we have a plan for land management objectives	Disagree	20.1%	3.9%	13.2%	7.1%	21.2%	4.3%	16.1%	9.7%	9.1%	7.2%	14.6%	6.0%	21.4%	12.0%	24.7%	5.8%
		Neither	20.1%	3.9%	18.9%	8.7%	20.3%	4.2%	19.4%	10.8%	18.2%	11.7%	18.8%	6.8%	10.7%	7.6%	22.6%	5.6%
		Agree	59.9%	5.1%	67.9%	13.3%	58.5%	5.5%	64.5%	17.5%	72.7%	20.6%	66.7%	9.8%	67.9%	18.4%	52.7%	7.2%
	On our farm, we regularly draw on our planning to make decisions about the business	Disagree	27.7%	4.4%	15.1%	7.7%	29.8%	4.9%	12.9%	8.4%	18.2%	11.7%	26.3%	8.1%	34.5%	15.2%	31.0%	6.3%
		Neither	23.0%	4.1%	20.8%	9.2%	23.4%	4.4%	29.0%	13.6%	9.1%	7.2%	27.4%	8.2%	10.3%	7.3%	23.5%	5.6%
		Agree	49.3%	5.1%	64.2%	13.4%	46.8%	5.5%	58.1%	17.4%	72.7%	20.6%	46.3%	9.8%	55.2%	17.9%	45.5%	7.0%
Risk mitigation - use of insurance products	Do you currently have multi-peril crop insurance?	No	93.7%	3.9%			92.7%	4.5%					91.4%	9.2%			92.2%	6.4%
		Yes	6.3%	2.7%			7.3%	3.2%					8.6%	5.3%			7.8%	4.1%
	Do you currently have rainfall downgrade insurance?	No	97.1%	3.0%	96.7%	11.2%	97.1%	3.3%			92.9%	21.7%	94.5%	8.4%			98.1%	4.1%
		Yes	2.9%	1.7%	3.3%	3.0%	2.9%	1.8%			7.1%	6.4%	5.5%	3.9%			1.9%	1.5%
	Do you currently have hail or storm insurance for your farm?	No	58.7%	6.6%	41.9%	16.0%	61.5%	7.1%	38.9%	19.5%	46.2%	24.0%	62.3%	12.5%	50.0%	22.8%	62.4%	9.3%
		Yes	41.3%	6.4%	58.1%	17.4%	38.5%	6.8%	61.1%	22.8%	53.8%	25.6%	37.7%	11.4%	50.0%	22.8%	37.6%	8.7%
	Do you currently have frost insurance for your farm?	No	95.6%	3.5%			94.9%	4.0%					96.4%	7.4%	81.3%	23.3%	96.1%	5.1%
		Yes	4.4%	2.2%			5.1%	2.6%					3.6%	2.8%	18.8%	13.2%	3.9%	2.6%
	Do you currently have business interruption insurance for your farm?	No	85.7%	5.2%	86.7%	15.3%	85.6%	5.7%	75.0%	24.1%			90.7%	9.8%	75.0%	24.1%	84.4%	7.7%
		Yes	14.3%	4.2%	13.3%	8.7%	14.4%	4.6%	25.0%	15.9%			9.3%	5.6%	25.0%	15.9%	15.6%	5.9%

Table A62 Farm planning and risk mitigation, by farm type - 2015

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.		Dairy (n=93)	95% CI	Grain growing (n=135)	95% CI	Grazier (n=152)	95% CI	Horticulture (all) (n=204)	95% CI	Mixed cropping/-grazing (n=75)	95% CI	Fruit/nut grower (n=89)	95% CI	Winegrape grower (n=97)	95% CI
On our farm, we have a written farm plan	Disagree	53.8%	10.2%	53.3%	8.4%	53.3%	7.9%	50.5%	6.8%	44.0%	10.8%	47.2%	10.2%	55.7%	10.0%
	Neither	17.2%	6.6%	15.6%	5.4%	14.5%	4.9%	13.2%	4.1%	20.0%	7.8%	13.5%	5.9%	10.3%	4.9%
	Agree	29.0%	8.4%	31.1%	7.3%	32.2%	7.0%	36.3%	6.4%	36.0%	10.2%	39.3%	9.6%	34.0%	8.8%
On our farm, we have a farm plan but it isn't written down	Disagree	31.5%	8.8%	25.9%	6.8%	35.0%	7.1%	39.3%	6.5%	38.5%	10.3%	36.3%	9.4%	40.2%	9.3%
	Neither	18.5%	6.9%	11.1%	4.5%	15.9%	5.1%	13.1%	4.1%	9.0%	4.9%	11.0%	5.2%	13.4%	5.7%
	Agree	50.0%	10.1%	63.0%	8.4%	49.0%	7.7%	47.6%	6.8%	52.6%	11.0%	52.7%	10.2%	46.4%	9.7%
On our farm, we have a plan in place for the next drought	Disagree	28.7%	8.4%	17.3%	5.6%	21.2%	5.9%	31.1%	6.1%	15.2%	6.6%	28.7%	8.7%	32.0%	8.5%
	Neither	19.1%	6.9%	18.7%	5.8%	18.6%	5.5%	22.8%	5.3%	10.1%	5.2%	20.7%	7.5%	22.0%	7.2%
	Agree	52.1%	10.0%	64.0%	8.2%	60.3%	7.9%	46.1%	6.7%	74.7%	10.4%	50.6%	10.4%	46.0%	9.5%
On our farm, we have a plan in place for coping with risks that could affect the farm	Disagree	33.3%	8.9%	25.0%	6.7%	28.8%	6.8%	30.6%	6.0%	17.7%	7.2%	24.2%	7.9%	34.4%	9.0%
	Neither	19.4%	7.1%	19.1%	5.9%	18.3%	5.5%	18.9%	4.9%	17.7%	7.2%	17.6%	6.8%	19.8%	7.0%
	Agree	47.3%	9.9%	55.9%	8.4%	52.9%	7.9%	50.5%	6.8%	64.6%	11.0%	58.2%	10.2%	45.8%	9.7%
Performance against the farm plan is monitored	Disagree	31.9%	8.8%	21.9%	6.3%	28.2%	6.6%	26.9%	5.7%	23.4%	8.4%	28.1%	8.5%	24.0%	7.6%
	Neither	18.1%	6.8%	24.1%	6.6%	18.6%	5.5%	13.5%	4.2%	16.9%	7.1%	11.2%	5.3%	16.0%	6.2%
	Agree	50.0%	10.0%	54.0%	8.3%	53.2%	7.8%	59.6%	6.7%	59.7%	11.1%	60.7%	10.4%	60.0%	9.8%
The farm plan is regularly reviewed and updated	Disagree	40.4%	9.5%	36.8%	7.8%	38.3%	7.4%	38.2%	6.5%	36.8%	10.1%	41.8%	9.8%	34.7%	8.9%
	Neither	22.3%	7.5%	25.0%	6.7%	23.4%	6.2%	18.4%	4.9%	13.2%	6.2%	14.3%	6.0%	20.4%	7.0%
	Agree	37.2%	9.2%	38.2%	7.8%	38.3%	7.4%	43.5%	6.6%	50.0%	11.1%	44.0%	9.9%	44.9%	9.6%
On our farm, we regularly draw on our planning to make decisions about the business	Disagree	36.2%	9.2%	22.4%	6.4%	28.9%	6.7%	28.4%	5.8%	21.1%	8.0%	31.5%	9.0%	25.0%	7.8%
	Neither	22.3%	7.5%	24.6%	6.7%	18.4%	5.5%	18.6%	4.9%	19.7%	7.7%	11.2%	5.3%	25.0%	7.8%
	Agree	41.5%	9.6%	53.0%	8.5%	52.6%	7.9%	52.9%	6.8%	59.2%	11.2%	57.3%	10.4%	50.0%	9.9%

Table A63 Farm planning and risk mitigation, by farm type - 2016

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.	Farm type													
		Dairy (n=110)	95% CI	Grain growing (n=55)	95% CI	Grazier (n=73)	95% CI	Horticulture (all) (n=40)	95% CI	Mixed cropping/ grazing (n=39)	95% CI	Fruit/nut grower (n=37)	95% CI	Winegrape grower (n=37)	95% CI
On our farm, we have a written farm plan	Disagree	33.6%	8.3%	32.7%	11.2%	56.2%	11.5%	42.5%	14.4%	48.7%	15.1%	43.2%	14.9%	56.8%	16.0%
	Neither	9.1%	4.3%	18.2%	8.5%	16.4%	7.1%	12.5%	7.6%	12.8%	7.7%	13.5%	8.2%	13.5%	8.2%
	Agree	57.3%	9.4%	49.1%	12.9%	27.4%	9.2%	45.0%	14.6%	38.5%	14.0%	43.2%	14.9%	29.7%	12.8%
On our farm, we have a farm plan but it isn't written down	Disagree	40.6%	9.2%	29.6%	10.9%	23.4%	8.4%	16.3%	8.7%	36.1%	14.1%	15.4%	8.7%	37.1%	14.4%
	Neither	5.0%	3.1%	16.7%	8.1%	7.8%	4.5%	11.6%	7.0%	8.3%	5.9%	10.3%	6.7%	2.9%	2.6%
	Agree	54.5%	9.8%	53.7%	13.2%	68.8%	10.9%	72.1%	14.5%	55.6%	16.2%	74.4%	15.1%	60.0%	16.5%
On our farm, the farm plan includes farm plan business objectives	Disagree	26.7%	7.8%	18.9%	8.8%	34.2%	9.9%	23.1%	11.0%	31.4%	13.4%	18.9%	10.0%	27.0%	12.2%
	Neither	9.5%	4.5%	15.1%	7.7%	13.2%	6.2%	12.8%	7.7%	11.4%	7.4%	13.5%	8.2%	16.2%	9.1%
	Agree	63.8%	9.5%	66.0%	13.3%	52.6%	11.1%	64.1%	15.6%	57.1%	16.4%	67.6%	16.0%	56.8%	16.0%
On our farm, we have a plan for land management objectives e.g. regarding stocking, planting, watering and other farm activities	Disagree	24.8%	7.5%	20.4%	9.1%	13.9%	6.3%	21.4%	10.2%	20.5%	10.3%	20.0%	10.1%	32.4%	13.3%
	Neither	8.6%	4.3%	11.1%	6.3%	15.2%	6.6%	9.5%	6.2%	10.3%	6.7%	10.0%	6.5%	8.1%	5.8%
	Agree	66.7%	9.4%	68.5%	13.1%	70.9%	10.6%	69.0%	14.8%	69.2%	15.4%	70.0%	15.2%	59.5%	16.1%
On our farm, we have a plan in place for coping with risks that could affect the farm such as pest or disease outbreak, fires, or floods	Disagree	24.5%	7.5%	21.8%	9.3%	29.1%	9.1%	24.4%	11.1%	26.3%	11.9%	23.7%	11.3%	33.3%	13.6%
	Neither	13.7%	5.6%	12.7%	6.8%	15.2%	6.6%	12.2%	7.4%	15.8%	8.9%	13.2%	8.0%	2.8%	2.5%
	Agree	61.8%	9.7%	65.5%	13.1%	55.7%	11.0%	63.4%	15.2%	57.9%	15.8%	63.2%	15.9%	63.9%	16.3%
On our farm, we have a plan in place for the next drought	Disagree	21.5%	7.0%	20.4%	9.1%	13.4%	6.1%	22.7%	10.4%	10.0%	6.5%	22.0%	10.5%	33.3%	13.2%
	Neither	16.8%	6.1%	5.6%	4.0%	12.2%	5.8%	22.7%	10.4%	15.0%	8.5%	22.0%	10.5%	5.1%	4.0%
	Agree	61.7%	9.4%	74.1%	12.8%	74.4%	10.2%	54.5%	14.6%	75.0%	14.8%	56.1%	15.2%	61.5%	15.6%

Table A64 Farm planning and risk mitigation, by farm type - 2018

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.			Dairy (n=54)	95% CI	Grain growing (n=42)	95% CI	Grazier (n=114)	95% CI	Horti-culture (all) (n=89)	95% CI	Mixed cropping / grazing (n=61)	95% CI	Fruit/ nut grower (n=31)	95% CI	Wine grape grower (n=34)	95% CI
Risk mitigation - farm planning	On our farm, we have a plan in place for the next drought	Disagree	25.9%	10.2%	21.4%	10.3%	26.3%	7.4%	25.8%	8.2%	18.0%	8.1%	22.6%	11.9%	41.2%	15.3%
		Neither	25.9%	10.2%	21.4%	10.3%	21.1%	6.7%	19.1%	7.1%	19.7%	8.4%	25.8%	12.8%	11.8%	7.7%
		Agree	48.1%	12.9%	57.1%	15.0%	52.6%	9.1%	55.1%	10.4%	62.3%	12.5%	51.6%	17.1%	47.1%	16.0%
	On our farm, we have a plan in place for coping with risks that could affect the farm such as pest or disease outbreak, fires, or floods	Disagree	48.1%	12.9%	22.0%	10.5%	29.2%	7.8%	29.2%	8.7%	24.2%	9.3%	29.0%	13.6%	35.3%	14.3%
		Neither	20.4%	9.0%	19.5%	9.8%	22.1%	6.9%	22.5%	7.7%	33.9%	10.8%	22.6%	11.9%	17.6%	9.9%
		Agree	31.5%	11.2%	58.5%	15.2%	48.7%	9.1%	48.3%	10.2%	41.9%	11.7%	48.4%	16.8%	47.1%	16.0%
	On our farm, we have a plan for land management objectives e.g. regarding stocking, planting, watering and other farm activities	Disagree	14.8%	7.6%	19.0%	9.6%	21.9%	6.8%	24.1%	8.0%	14.8%	7.2%	20.7%	11.6%	32.4%	13.8%
		Neither	20.4%	9.0%	14.3%	8.1%	21.9%	6.8%	18.4%	7.0%	21.3%	8.8%	27.6%	13.6%	14.7%	8.9%
		Agree	64.8%	13.2%	66.7%	15.0%	56.1%	9.2%	57.5%	10.5%	63.9%	12.5%	51.7%	17.6%	52.9%	16.4%
	On our farm, we regularly draw on our planning to make decisions about the business	Disagree	23.6%	9.7%	21.4%	10.3%	27.2%	7.5%	35.6%	9.5%	23.0%	9.1%	31.0%	14.4%	44.1%	15.6%
		Neither	16.4%	7.9%	21.4%	10.3%	25.4%	7.3%	18.4%	7.0%	29.5%	10.3%	17.2%	10.3%	14.7%	8.9%
		Agree	60.0%	13.2%	57.1%	15.0%	47.4%	9.0%	46.0%	10.2%	47.5%	12.2%	51.7%	17.6%	41.2%	15.3%
Risk mitigation - use of insurance products	Do you currently have multi-peril crop insurance?	No	93.3%	13.0%	88.5%	16.1%	100.0%	100.0%	96.2%	7.9%	86.0%	12.6%	100.0%	100.0%	90.9%	17.0%
		Yes	6.7%	5.3%	11.5%	8.2%	0.0%	0.0%	3.8%	3.0%	14.0%	7.9%	0.0%	0.0%	9.1%	7.2%
	Do you currently have rainfall downgrade insurance?	No	96.9%	10.6%	95.8%	13.7%	100.0%	100.0%	100.0%	100.0%	90.7%	11.3%	100.0%	100.0%	100.0%	100.0%
		Yes	3.1%	2.8%	4.2%	3.7%	0.0%	0.0%	0.0%	0.0%	9.3%	6.1%	0.0%	0.0%	0.0%	0.0%
	Do you currently have hail or storm insurance for your farm?	No	54.3%	16.3%	38.5%	16.7%	75.9%	12.1%	73.1%	13.1%	34.1%	12.6%	70.6%	23.6%	68.0%	19.5%
		Yes	45.7%	15.6%	61.5%	19.1%	24.1%	9.6%	26.9%	10.6%	65.9%	14.7%	29.4%	17.2%	32.0%	15.6%
	Do you currently have frost insurance for your farm?	No	100.0%	100.0%	100.0%	100.0%	96.4%	7.4%	91.7%	10.3%	92.5%	11.2%	82.4%	22.4%	91.3%	16.4%
		Yes	0.0%	0.0%	0.0%	0.0%	3.6%	2.8%	8.3%	5.5%	7.5%	5.3%	17.6%	12.4%	8.7%	6.8%
	Do you currently have business interruption insurance for your farm?	No	76.5%	16.0%	100.0%	100.0%	89.5%	9.9%	82.4%	12.1%	82.5%	13.8%	89.5%	19.2%	77.3%	20.1%
		Yes	23.5%	11.7%	0.0%	0.0%	10.5%	6.0%	17.6%	8.5%	17.5%	9.3%	10.5%	8.3%	22.7%	13.5%

Table A65 Farm planning and risk mitigation, by trade typology - 2015

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.		Diverse trader (n=108)	95% CI	Non-diverse allocation trader (n=265)	95% CI	Non-diverse entitlement trader (n=38)	95% CI	Non-portfolio trader (n=18)	95% CI	Non-trader (n=267)	95% CI	Traded entitlements and allocation (n=96)	95% CI	Traded allocation but not entitlements (n=287)	95% CI	Traded entitlements but not allocation (n=42)	95% CI	No trade (n=269)	95% CI
On our farm, we have a written farm plan	Disagree	41.7%	9.0%	56.6%	6.0%	52.6%	15.5%	55.6%	22.4%	55.1%	6.0%	42.7%	9.5%	55.7%	5.7%	50.0%	14.7%	55.0%	6.0%
	Neither	13.9%	5.6%	14.3%	3.8%	21.1%	10.6%	11.1%	8.7%	15.7%	4.0%	14.6%	6.0%	13.9%	3.6%	21.4%	10.2%	15.6%	3.9%
	Agree	44.4%	9.1%	29.1%	5.3%	26.3%	11.9%	33.3%	18.0%	29.2%	5.2%	42.7%	9.5%	30.3%	5.1%	28.6%	11.9%	29.4%	5.2%
On our farm, we have a farm plan but it isn't written down	Disagree	38.3%	8.8%	36.3%	5.6%	36.1%	14.1%	47.1%	21.7%	33.1%	5.3%	42.1%	9.6%	36.1%	5.4%	35.0%	13.3%	33.2%	5.3%
	Neither	13.1%	5.4%	10.0%	3.2%	11.1%	7.2%	11.8%	9.3%	18.0%	4.2%	13.7%	5.8%	10.3%	3.1%	10.0%	6.5%	17.9%	4.2%
	Agree	48.6%	9.3%	53.7%	6.0%	52.8%	16.0%	41.2%	20.5%	48.9%	5.8%	44.2%	9.7%	53.6%	5.7%	55.0%	15.3%	48.9%	5.8%
On our farm, we have a plan in place for the next drought	Disagree	21.1%	6.8%	25.8%	4.9%	29.7%	12.8%	36.8%	18.6%	24.2%	4.8%	22.7%	7.5%	25.9%	4.8%	26.8%	11.6%	24.7%	4.8%
	Neither	18.3%	6.3%	15.9%	4.0%	13.5%	8.2%	26.3%	15.5%	21.6%	4.6%	19.6%	7.0%	16.3%	3.9%	12.2%	7.4%	21.5%	4.6%
	Agree	60.6%	9.4%	58.3%	5.9%	56.8%	16.0%	36.8%	18.6%	54.2%	5.9%	57.7%	9.9%	57.8%	5.7%	61.0%	15.3%	53.8%	5.9%
On our farm, we have a plan in place for risks that could affect the farm	Disagree	25.0%	7.4%	31.4%	5.3%	25.0%	11.8%	47.4%	20.8%	28.4%	5.1%	28.1%	8.2%	31.4%	5.2%	22.5%	10.7%	28.9%	5.1%
	Neither	14.8%	5.7%	18.9%	4.3%	13.9%	8.4%	15.8%	11.1%	20.4%	4.5%	15.6%	6.2%	18.1%	4.1%	12.5%	7.6%	20.2%	4.4%
	Agree	60.2%	9.4%	49.6%	6.0%	61.1%	16.3%	36.8%	18.6%	51.3%	5.9%	56.3%	10.0%	50.5%	5.7%	65.0%	15.4%	50.9%	5.9%
Performance against the farm plan is monitored	Disagree	22.2%	7.0%	27.9%	5.1%	22.2%	11.1%	21.1%	13.5%	28.1%	5.1%	21.9%	7.4%	28.1%	4.9%	20.0%	10.1%	27.9%	5.0%
	Neither	19.4%	6.6%	16.4%	4.1%	19.4%	10.3%	31.6%	17.2%	19.8%	4.4%	19.8%	7.0%	16.4%	3.9%	22.5%	10.7%	20.0%	4.4%
	Agree	58.3%	9.4%	55.8%	6.0%	58.3%	16.2%	47.4%	20.8%	52.2%	5.9%	58.3%	10.0%	55.5%	5.8%	57.5%	15.4%	52.1%	5.8%
The farm plan is regularly reviewed and updated	Disagree	29.9%	8.0%	42.8%	5.9%	32.4%	13.3%	36.8%	18.6%	39.1%	5.6%	28.4%	8.3%	42.8%	5.6%	31.7%	12.6%	39.2%	5.6%
	Neither	24.3%	7.4%	18.2%	4.2%	24.3%	11.5%	21.1%	13.5%	22.5%	4.7%	26.3%	8.0%	17.5%	4.1%	22.0%	10.5%	22.7%	4.7%
	Agree	45.8%	9.2%	39.0%	5.7%	43.2%	14.9%	42.1%	19.8%	38.4%	5.6%	45.3%	9.8%	39.7%	5.5%	46.3%	14.5%	38.1%	5.5%
We regularly draw on our plan to make decisions	Disagree	23.4%	7.3%	30.3%	5.2%	27.0%	12.2%	36.8%	18.6%	30.0%	5.2%	24.2%	7.7%	30.3%	5.0%	24.4%	11.1%	30.1%	5.2%
	Neither	20.6%	6.9%	18.4%	4.3%	21.6%	10.8%	26.3%	15.5%	20.7%	4.5%	22.1%	7.4%	17.9%	4.1%	22.0%	10.5%	21.0%	4.6%
	Agree	56.1%	9.5%	51.3%	6.0%	51.4%	15.7%	36.8%	18.6%	49.3%	6.0%	53.7%	10.0%	51.7%	5.7%	53.7%	15.1%	48.9%	5.9%

about the business																		

Table A66 Farm planning and risk mitigation, by trade typology - 2016

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months						
		Diverse trader (n=70)	95% CI	Non-diverse alloc-ation trader (n=113)	95% CI	Non-diverse entitle-ment trader (n=19)	95% CI	Non-port-folio trader (n=12)	95% CI	No trade (n=102)	95% CI	Traded entitlements and allocation (n=48)	95% CI	Traded allocation but not entitlements (n=145)	95% CI	Traded entitlements but not allocation (n=13)	95% CI	No trade (n=109)	95% CI
On our farm, we have a written farm plan	Disagree	37.1%	10.6%	46.0%	9.0%	42.1%	19.8%	41.7%	23.7%	49.0%	9.5%	35.4%	12.3%	44.8%	7.9%	30.8%	19.4%	50.5%	9.3%
	Neither	8.6%	4.9%	15.9%	5.8%	10.5%	8.2%	0.0%		12.7%	5.4%	4.2%	3.3%	15.2%	5.2%	0.0%		12.8%	5.2%
	Agree	54.3%	11.7%	38.1%	8.6%	47.4%	20.8%	58.3%	27.1%	38.2%	9.0%	60.4%	14.1%	40.0%	7.7%	69.2%	26.9%	36.7%	8.6%
On our farm, we have a farm plan but it isn't written down	Disagree	41.5%	11.4%	26.8%	7.5%	25.0%	14.8%	63.6%	28.8%	30.3%	8.4%	45.7%	13.8%	29.8%	7.1%	25.0%	17.4%	30.8%	8.1%
	Neither	6.2%	4.1%	9.8%	4.5%	10.0%	7.9%	0.0%		10.1%	4.8%	6.5%	4.6%	8.5%	3.8%	8.3%	7.4%	10.3%	4.7%
	Agree	52.3%	12.0%	63.4%	9.2%	65.0%	21.8%	36.4%	22.7%	59.6%	9.8%	47.8%	13.9%	61.7%	8.2%	66.7%	27.9%	58.9%	9.5%
On our farm, the farm plan includes farm plan business objectives	Disagree	20.3%	8.4%	26.8%	7.5%	28.6%	15.7%	55.6%	30.2%	31.3%	8.5%	15.6%	8.4%	29.5%	7.1%	33.3%	19.3%	30.5%	8.2%
	Neither	14.1%	6.9%	17.9%	6.3%	4.8%	4.3%	0.0%		12.1%	5.3%	11.1%	6.7%	17.3%	5.6%	6.7%	6.0%	11.4%	5.0%
	Agree	65.6%	12.1%	55.4%	9.3%	66.7%	21.3%	44.4%	27.1%	56.6%	9.9%	73.3%	14.0%	53.2%	8.3%	60.0%	24.7%	58.1%	9.6%
On our farm, we have a plan for land management objectives	Disagree	15.4%	7.2%	22.5%	6.8%	30.0%	16.4%	25.0%	19.4%	24.8%	7.7%	15.6%	8.4%	22.3%	6.1%	14.3%	11.2%	26.4%	7.7%
	Neither	12.3%	6.3%	9.2%	4.2%	5.0%	4.5%	0.0%		15.8%	6.1%	8.9%	5.8%	10.1%	4.1%	0.0%		16.0%	6.0%
	Agree	72.3%	11.7%	68.3%	8.6%	65.0%	21.8%	75.0%	34.2%	59.4%	9.7%	75.6%	13.9%	67.6%	7.9%	85.7%	24.2%	57.5%	9.5%
On our farm, we have a plan in place for risks that could affect the farm	Disagree	26.2%	9.5%	23.7%	7.1%	42.1%	19.8%	37.5%	25.6%	26.3%	7.9%	19.6%	9.5%	27.1%	6.8%	46.2%	24.1%	26.7%	7.8%
	Neither	12.3%	6.3%	14.0%	5.4%	5.3%	4.7%	25.0%	19.4%	15.2%	6.1%	10.9%	6.6%	15.0%	5.2%	0.0%		15.2%	5.9%
	Agree	61.5%	12.1%	62.3%	9.1%	52.6%	21.4%	37.5%	25.6%	58.6%	9.8%	69.6%	14.2%	57.9%	8.3%	53.8%	25.5%	58.1%	9.6%
	Disagree	28.1%	9.8%	15.6%	5.6%	14.3%	10.1%	37.5%	25.6%	20.2%	6.8%	22.2%	10.2%	20.3%	5.9%	6.7%	6.0%	20.9%	6.8%

| | | | Neither | 12.5% | 6.4% | 14.8% | 5.5% | 19.0% | 12.2% | 0.0% | | 15.4% | 6.0% | 15.6% | 8.4% | 12.8% | 4.6% | 13.3% | 10.4% | 16.4% | 6.0% |
| On our farm, we have a plan in place for the next drought | | | Agree | 59.4% | 12.3% | 69.7% | 8.6% | 66.7% | 21.3% | 62.5% | 33.0% | 64.4% | 9.5% | 62.2% | 14.5% | 66.9% | 7.9% | 80.0% | 24.4% | 62.7% | 9.2% |

Table A67 Farm planning and risk mitigation, by trade typology - 2018

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.			Trade typology											Types of water trade engaged in during previous 12 months								
			Diverse trader (n=38)	95% CI	Non-diverse allocation trader (n=100)	95% CI	Non-diverse entitlement trader (n=21)	95% CI	Non-portfolio trader (n=10)	95% CI	No trade (n=158)	95% CI	Traded both entitlements and allocation (n=23)	95% CI	Traded allocation but not entitlements (n=104)	95% CI	Traded entitlements but not allocation (n=21)	95% CI	No trade (n=158)	95% CI
Risk mitigation - farm planning	On our farm, we have a plan in place for the next drought	Disagree	23.7%	11.3%	15.0%	6.0%	33.3%	17.0%	50.0%	27.6%	30.4%	6.8%	26.1%	14.4%	15.4%	5.9%	28.6%	15.7%	30.4%	6.8%
		Neither	26.3%	11.9%	23.0%	7.4%	23.8%	14.1%	10.0%	8.9%	19.0%	5.5%	26.1%	14.4%	24.0%	7.4%	28.6%	15.7%	19.0%	5.5%
		Agree	50.0%	15.4%	62.0%	9.7%	42.9%	19.1%	40.0%	24.7%	50.6%	7.7%	47.8%	19.1%	60.6%	9.6%	42.9%	19.1%	50.6%	7.7%
	On our farm, we have a plan in place for risks that could affect the farm	Disagree	26.3%	11.9%	31.6%	8.6%	33.3%	17.0%	40.0%	24.7%	30.8%	6.8%	26.1%	14.4%	31.7%	8.4%	38.1%	18.2%	30.8%	6.8%
		Neither	23.7%	11.3%	26.5%	8.0%	14.3%	10.1%	0.0%	0.0%	23.3%	6.0%	17.4%	11.2%	27.9%	7.9%	14.3%	10.1%	23.3%	6.0%
		Agree	50.0%	15.4%	41.8%	9.4%	52.4%	20.5%	60.0%	29.6%	45.9%	7.6%	56.5%	20.0%	40.4%	9.1%	47.6%	19.9%	45.9%	7.6%
	On our farm, we have a plan for land management objectives	Disagree	13.2%	8.0%	18.2%	6.6%	28.6%	15.7%	10.0%	8.9%	20.9%	5.8%	13.0%	9.2%	15.4%	5.9%	28.6%	15.7%	20.9%	5.8%
		Neither	26.3%	11.9%	16.2%	6.2%	14.3%	10.1%	10.0%	8.9%	22.2%	5.9%	21.7%	12.9%	19.2%	6.7%	14.3%	10.1%	22.2%	5.9%
		Agree	60.5%	15.8%	65.7%	9.7%	57.1%	20.9%	80.0%	30.3%	57.0%	7.8%	65.2%	20.3%	65.4%	9.5%	57.1%	20.9%	57.0%	7.8%
	On our farm, we regularly draw on our planning to make decisions about the business	Disagree	15.8%	8.9%	23.2%	7.5%	33.3%	17.0%	30.0%	20.7%	31.0%	6.8%	13.0%	9.2%	21.2%	7.0%	47.6%	19.9%	31.0%	6.8%
		Neither	28.9%	12.5%	21.2%	7.2%	4.8%	4.2%	0.0%	0.0%	25.3%	6.3%	26.1%	14.4%	22.1%	7.1%	4.8%	4.2%	25.3%	6.3%
		Agree	55.3%	15.7%	55.6%	9.8%	61.9%	21.2%	70.0%	30.6%	43.7%	7.6%	60.9%	20.3%	56.7%	9.6%	47.6%	19.9%	43.7%	7.6%
Risk mitigation - use of insurance products	Do you currently have multi-peril crop insurance?	No	90.9%	17.0%	87.0%	10.8%	100.0%	100.0%	100.0%	100.0%	97.5%	5.3%	92.9%	21.7%	87.3%	10.6%	100.0%	100.0%	97.5%	5.3%
		Yes	9.1%	7.2%	13.0%	7.0%	0.0%	0.0%	0.0%	0.0%	2.5%	2.0%	7.1%	6.4%	12.7%	6.8%	0.0%	0.0%	2.5%	2.0%
	Do you currently have rainfall downgrade insurance?	No	90.0%	18.4%	98.2%	6.4%	100.0%	100.0%	100.0%	100.0%	97.5%	5.2%	100.0%	100.0%	96.4%	7.4%	94.4%	17.6%	97.5%	5.2%
		Yes	10.0%	7.9%	1.8%	1.6%	0.0%	0.0%	0.0%	0.0%	2.5%	2.0%	0.0%	0.0%	3.6%	2.8%	5.6%	4.9%	2.5%	2.0%
	Do you currently have hail or storm insurance for your farm?	No	59.1%	20.6%	65.0%	12.5%	56.3%	23.6%	33.3%	22.9%	58.8%	10.6%	71.4%	26.0%	62.3%	12.5%	55.6%	22.3%	58.8%	10.6%
		Yes	40.9%	18.4%	35.0%	11.1%	43.8%	21.6%	66.7%	31.9%	41.2%	10.0%	28.6%	18.1%	37.7%	11.4%	44.4%	20.7%	41.2%	10.0%
		No	90.0%	18.4%	98.2%	6.3%	100.0%	100.0%	100.0%	100.0%	95.1%	6.3%	100.0%	100.0%	98.2%	6.2%	100.0%	100.0%	95.1%	6.3%

Do you currently have frost insurance for your farm?	Yes	10.0%	7.9%	1.8%	1.6%	0.0%	0.0%	0.0%	0.0%	4.9%	3.2%	0.0%	0.0%	1.8%	1.6%	0.0%	0.0%	4.9%	3.2%
Do you currently have business interruption insurance for your farm?	No	76.2%	20.8%	82.8%	11.2%	100.0%	100.0%	100.0%	100.0%	89.2%	8.0%	76.9%	26.7%	84.5%	10.9%	94.1%	18.5%	89.2%	8.0%
	Yes	23.8%	14.1%	17.2%	8.0%	0.0%	0.0%	0.0%	0.0%	10.8%	5.3%	23.1%	16.1%	15.5%	7.6%	5.9%	5.2%	10.8%	5.3%

Table A68 Farm planning and risk mitigation, by water source/s used - 2015

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.		Used water from own entitlements only (n=411)	95% CI	Used water from own entitlements and allocation purchased on the market (n=228)	95% CI	Used water from allocation or leased entitlements only (n=18)	95% CI	Used surface water only (n=428)	95% CI	Used both surface water and ground water (n=71)	95% CI	Used ground water only (n=73)	95% CI
On our farm, we have a written farm plan	Disagree	55.5%	4.9%	47.8%	6.4%	55.6%	22.4%	53.3%	4.8%	45.1%	11.2%	58.9%	11.4%
	Neither	15.6%	3.3%	14.9%	4.2%	11.1%	8.7%	16.4%	3.3%	15.5%	7.0%	13.7%	6.4%
	Agree	29.0%	4.3%	37.3%	6.1%	33.3%	18.0%	30.4%	4.2%	39.4%	10.7%	27.4%	9.2%
On our farm, we have a farm plan but it isn't written down	Disagree	34.0%	4.4%	34.1%	5.9%	47.1%	21.7%	34.9%	4.4%	30.4%	9.9%	38.4%	10.6%
	Neither	14.7%	3.2%	12.7%	3.9%	11.8%	9.3%	13.0%	2.9%	15.9%	7.1%	21.9%	8.3%
	Agree	51.3%	4.8%	53.3%	6.5%	41.2%	20.5%	52.2%	4.7%	53.6%	11.7%	39.7%	10.6%
On our farm, we have a plan in place for the next drought	Disagree	26.2%	4.0%	20.1%	4.8%	36.8%	18.6%	25.0%	3.9%	22.2%	8.4%	29.2%	9.6%
	Neither	16.2%	3.3%	21.8%	4.9%	26.3%	15.5%	18.1%	3.4%	18.1%	7.6%	20.8%	8.1%
	Agree	57.6%	4.7%	58.1%	6.4%	36.8%	18.6%	56.9%	4.7%	59.7%	11.5%	50.0%	11.4%
On our farm, we have a plan in place for coping with risks that could affect the farm such as pest or disease outbreak, fires, or floods	Disagree	29.9%	4.2%	26.4%	5.4%	47.4%	20.8%	28.6%	4.1%	26.8%	9.3%	33.3%	10.0%
	Neither	17.7%	3.4%	20.3%	4.9%	15.8%	11.1%	19.9%	3.6%	18.3%	7.6%	19.4%	7.8%
	Agree	52.4%	4.8%	53.3%	6.5%	36.8%	18.6%	51.5%	4.7%	54.9%	11.5%	47.2%	11.2%
Performance against the farm plan is monitored	Disagree	25.6%	4.0%	27.7%	5.5%	21.1%	13.5%	24.8%	3.9%	26.4%	9.1%	34.7%	10.1%
	Neither	17.8%	3.4%	19.0%	4.6%	31.6%	17.2%	20.0%	3.6%	15.3%	6.9%	14.7%	6.6%
	Agree	56.6%	4.7%	53.2%	6.4%	47.4%	20.8%	55.3%	4.7%	58.3%	11.5%	50.7%	11.2%
The farm plan is regularly reviewed and updated	Disagree	37.5%	4.5%	39.2%	6.1%	36.8%	18.6%	36.5%	4.4%	30.6%	9.8%	43.2%	10.8%
	Neither	21.9%	3.8%	20.3%	4.8%	21.1%	13.5%	23.9%	3.9%	19.4%	7.8%	21.6%	8.2%
	Agree	40.6%	4.6%	40.5%	6.2%	42.1%	19.8%	39.7%	4.5%	50.0%	11.4%	35.1%	10.1%
On our farm, we regularly draw on our planning to make decisions about the business	Disagree	28.6%	4.2%	28.6%	5.6%	36.8%	18.6%	29.5%	4.2%	26.4%	9.1%	30.1%	9.6%
	Neither	17.5%	3.4%	22.1%	5.0%	26.3%	15.5%	20.4%	3.6%	20.8%	8.1%	26.0%	9.0%
	Agree	53.8%	4.8%	49.4%	6.5%	36.8%	18.6%	50.1%	4.7%	52.8%	11.5%	43.8%	10.9%

Table A69 Farm planning and risk mitigation, by water source/s used - 2016

This table provides detailed data underpinning the findings reported in Section 5.5 in the main report.		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
		Used water from own entitlements only (n=177)	95% CI	Used water from own entitlements and allocation purchased on the market (n=125)	95% CI	Used water from allocation or leased entitlements only (n=12)	95% CI	Used surface water only (n=265)	95% CI	Used both surface water and ground water (n=61)	95% CI	Used ground water only (n=40)	95% CI
On our farm, we have a written farm plan	Disagree	48.0%	7.3%	38.4%	8.2%	41.7%	23.7%	44.9%	5.9%	34.4%	11.0%	52.5%	15.2%
	Neither	13.6%	4.5%	16.0%	5.6%	0.0%		13.2%	3.7%	11.5%	6.2%	15.0%	8.5%
	Agree	38.4%	6.9%	45.6%	8.5%	58.3%	27.1%	41.9%	5.8%	54.1%	12.5%	32.5%	12.9%
On our farm, we have a farm plan but it isn't written down	Disagree	27.9%	6.1%	33.6%	8.1%	63.6%	28.8%	31.4%	5.4%	35.7%	11.6%	26.8%	11.6%
	Neither	10.4%	3.8%	6.9%	3.6%	0.0%		8.0%	2.8%	8.9%	5.4%	9.8%	6.4%
	Agree	61.7%	7.1%	59.5%	9.1%	36.4%	22.7%	60.5%	6.0%	55.4%	13.1%	63.4%	15.2%
On our farm, the farm plan includes farm plan business objectives	Disagree	29.8%	6.4%	23.5%	6.9%	55.6%	30.2%	29.3%	5.3%	14.5%	7.1%	34.2%	13.5%
	Neither	14.6%	4.6%	13.4%	5.2%	0.0%		12.5%	3.6%	9.7%	5.6%	18.4%	9.8%
	Agree	55.6%	7.3%	63.0%	8.9%	44.4%	27.1%	58.2%	6.1%	75.8%	11.7%	47.4%	15.2%
On our farm, we have a plan for land management objectives e.g. regarding stocking, planting, watering and other farm activities	Disagree	21.4%	5.4%	23.6%	6.9%	25.0%	19.4%	21.6%	4.6%	21.0%	8.7%	21.6%	10.8%
	Neither	12.3%	4.1%	11.4%	4.7%	0.0%		11.9%	3.5%	6.5%	4.3%	8.1%	5.8%
	Agree	66.3%	7.0%	65.0%	8.7%	75.0%	34.2%	66.5%	5.7%	72.6%	12.0%	70.3%	15.9%
On our farm, we have a plan in place for coping with risks that could affect the farm such as pest or disease outbreak, fires, or floods	Disagree	26.5%	6.0%	25.8%	7.2%	37.5%	25.6%	26.8%	5.1%	19.0%	8.1%	29.7%	12.8%
	Neither	13.3%	4.4%	14.2%	5.4%	25.0%	19.4%	14.2%	3.9%	7.9%	4.8%	10.8%	7.0%
	Agree	60.2%	7.2%	60.0%	8.9%	37.5%	25.6%	59.0%	6.0%	73.0%	11.8%	59.5%	16.1%
On our farm, we have a plan in place for the next drought	Disagree	17.5%	4.8%	22.1%	6.6%	37.5%	25.6%	20.8%	4.5%	11.1%	6.0%	22.5%	10.7%
	Neither	15.5%	4.6%	13.9%	5.2%	0.0%		14.6%	3.8%	12.7%	6.5%	5.0%	3.9%
	Agree	67.0%	6.8%	63.9%	8.7%	62.5%	33.0%	64.6%	5.8%	76.2%	11.5%	72.5%	15.0%

Table A70 Farm planning and risk mitigation, by water source/s used - 2018

| | | | Water sources - entitlements, allocation and lease | | | | | | Water sources - surface water and ground water | | | | | |
			Used water from own entitlements only (n=198)	95% CI	Used water from own entitlements and allocation purchased on the market (n=93)	95% CI	Used water from allocation or leased entitlements only (n=10)	95% CI	Used surface water only (n=258)	95% CI	Used both surface water and ground water (n=44)	95% CI	Used ground water only (n=52)	95% CI
Risk mitigation - farm planning	On our farm, we have a plan in place for the next drought	Disagree	26.8%	5.8%	19.4%	7.0%	50.0%	27.6%	23.3%	4.8%	25.0%	10.9%	34.6%	11.8%
		Neither	21.7%	5.3%	24.7%	7.9%	10.0%	8.9%	23.3%	4.8%	18.2%	9.2%	17.3%	8.4%
		Agree	51.5%	6.9%	55.9%	10.1%	40.0%	24.7%	53.5%	6.1%	56.8%	14.7%	48.1%	13.2%
	On our farm, we have a plan in place for coping with risks that could affect the farm such as pest or disease outbreak, fires, or floods	Disagree	34.8%	6.4%	28.6%	8.5%	40.0%	24.7%	33.5%	5.6%	29.5%	11.9%	26.9%	10.6%
		Neither	24.2%	5.6%	24.2%	7.9%	0.0%	0.0%	22.6%	4.8%	31.8%	12.3%	21.2%	9.4%
		Agree	40.9%	6.7%	47.3%	10.0%	60.0%	29.6%	44.0%	6.0%	38.6%	13.3%	51.9%	13.4%
	On our farm, we have a plan for land management objectives e.g. regarding stocking, planting, watering and other farm activities	Disagree	22.4%	5.4%	16.3%	6.5%	10.0%	8.9%	22.3%	4.8%	18.2%	9.2%	15.4%	7.8%
		Neither	22.4%	5.4%	16.3%	6.5%	10.0%	8.9%	20.3%	4.6%	20.5%	9.8%	19.2%	8.9%
		Agree	55.1%	7.0%	67.4%	10.0%	80.0%	30.3%	57.4%	6.1%	61.4%	14.7%	65.4%	13.5%
	On our farm, we regularly draw on our planning to make decisions about the business	Disagree	30.5%	6.1%	20.7%	7.3%	30.0%	20.7%	30.0%	5.4%	25.0%	10.9%	23.1%	9.8%
		Neither	25.4%	5.7%	19.6%	7.1%	0.0%	0.0%	21.8%	4.7%	20.5%	9.8%	23.1%	9.8%
		Agree	44.2%	6.8%	59.8%	10.2%	70.0%	30.6%	48.2%	6.1%	54.5%	14.6%	53.8%	13.4%
Risk mitigation - use of insurance products	Do you currently have multi-peril crop insurance?	No	96.0%	5.2%	83.9%	11.2%			93.8%	4.8%	88.0%	16.7%	96.9%	10.6%
		Yes	4.0%	2.6%	16.1%	7.8%			6.3%	3.1%	12.0%	8.5%	3.1%	2.8%
	Do you currently have rainfall downgrade insurance?	No	96.0%	5.2%	96.3%	7.7%			96.6%	3.9%	95.7%	14.2%		
		Yes	4.0%	2.6%	3.7%	2.9%			3.4%	2.1%	4.3%	3.9%		
	Do you currently have hail or storm insurance for your farm?	No	53.7%	9.4%	64.4%	12.7%	33.3%	22.9%	61.7%	7.8%	57.7%	19.0%	45.5%	16.0%
		Yes	46.3%	9.2%	35.6%	11.3%	66.7%	31.9%	38.3%	7.4%	42.3%	17.4%	54.5%	16.8%
	Do you currently have frost insurance for your farm?	No	94.9%	5.7%	94.5%	8.4%			94.3%	4.7%	96.0%	13.2%		
		Yes	5.1%	3.1%	5.5%	3.9%			5.7%	3.0%	4.0%	3.6%		
	Do you currently have business interruption insurance for your farm?	No	85.8%	7.6%	79.3%	11.7%			85.0%	6.4%	80.8%	17.9%	93.9%	12.0%
		Yes	14.2%	5.6%	20.7%	8.9%			15.0%	5.1%	19.2%	11.5%	6.1%	4.8%

Table A71 Farming confidence and self-efficacy, by Basin location - 2016

This table provides detailed data underpinning the findings reported in Section 5.6 in the main report.		Basin location						Basin state									
		Murray-Darling Basin (n=612)	95% CI	Northern Basin (n=104)	95% CI	Southern Basin (n=505)	95% CI	NSW Nth Basin (n=65)	95% CI	Qld Basin (n=39)	95% CI	NSW Sth Basin (n=148)	95% CI	SA Basin (n=59)	95% CI	Vic Basin (n=297)	95% CI
I feel optimistic about my farming future	Disagree	30.2%	3.5%	20.2%	6.8%	32.3%	4.0%	21.5%	8.6%	17.9%	9.5%	21.6%	6.0%	23.7%	9.4%	39.1%	5.5%
	Neither	19.3%	3.0%	16.3%	6.1%	19.8%	3.3%	15.4%	7.2%	17.9%	9.5%	20.9%	5.9%	11.9%	6.4%	20.9%	4.4%
	Agree	50.5%	4.0%	63.5%	9.6%	47.9%	4.3%	63.1%	12.1%	64.1%	15.6%	57.4%	8.0%	64.4%	12.7%	40.1%	5.5%
When I think about my farm, I am confident I can achieve the things I want to on my farm	Disagree	21.0%	3.1%	14.6%	6.0%	22.4%	3.5%	15.9%	7.4%	12.1%	7.9%	14.8%	5.1%	19.0%	8.5%	26.6%	4.9%
	Neither	22.4%	3.2%	20.8%	7.2%	22.6%	3.6%	17.5%	7.9%	27.3%	12.9%	19.0%	5.8%	13.8%	7.1%	26.2%	4.8%
	Agree	56.6%	4.1%	64.6%	9.9%	55.0%	4.4%	66.7%	12.2%	60.6%	17.0%	66.2%	8.0%	67.2%	12.6%	47.2%	5.7%
When I think about my farm, I am confident I can achieve my farm business objectives	Disagree	19.4%	3.0%	15.6%	6.2%	20.3%	3.4%	15.9%	7.4%	15.2%	9.2%	14.1%	5.0%	15.5%	7.5%	24.5%	4.8%
	Neither	21.5%	3.2%	18.8%	6.9%	21.9%	3.5%	15.9%	7.4%	24.2%	12.0%	16.9%	5.5%	17.2%	8.0%	25.2%	4.8%
	Agree	59.0%	4.0%	65.6%	9.8%	57.8%	4.5%	68.3%	12.2%	60.6%	17.0%	69.0%	7.9%	67.2%	12.6%	50.4%	5.9%
When I think about my farm, I am confident I can cope well with most difficult conditions e.g. drought, pest outbreaks	Disagree	18.4%	3.0%	16.7%	6.4%	18.8%	3.3%	15.9%	7.4%	18.2%	10.2%	14.1%	5.0%	19.0%	8.5%	21.3%	4.5%
	Neither	26.5%	3.5%	22.9%	7.5%	26.9%	3.8%	25.4%	9.5%	18.2%	10.2%	26.8%	6.8%	22.4%	9.2%	28.0%	5.0%
	Agree	55.1%	4.1%	60.4%	10.0%	54.2%	4.4%	58.7%	12.3%	63.6%	17.0%	59.2%	8.2%	58.6%	12.8%	50.7%	5.8%

Table A72 Farming confidence and self-efficacy, by Basin location - 2018

This table provides detailed data underpinning the findings reported in Section 5.6 in the main report.		Basin location						Basin state									
		Murray-Darling Basin (n=391)	95% CI	Northern Basin (n=55)	95% CI	Southern Basin (n=336)	95% CI	NSW Nth Basin (n=33)	95% CI	Qld Basin (n=22)	95% CI	NSW Sth Basin (n=106)	95% CI	SA Basin (n=35)	95% CI	Vic Basin (n=193)	95% CI
I feel optimistic about my farming future	Disagree	31.5%	4.5%	23.6%	9.7%	32.7%	4.9%	27.3%	12.8%	18.2%	11.7%	33.0%	8.4%	20.0%	10.6%	35.2%	6.5%
	Neither	16.1%	3.4%	7.3%	4.8%	17.6%	3.8%	6.1%	4.8%	9.1%	7.2%	17.9%	6.4%	14.3%	8.6%	17.6%	4.9%
	Agree	52.4%	5.0%	69.1%	12.9%	49.7%	5.3%	66.7%	16.9%	72.7%	20.6%	49.1%	9.4%	65.7%	16.5%	47.2%	7.0%
When I think about my farm, I am confident I can achieve the things I want to on my farm	Disagree	28.7%	4.4%	22.6%	9.6%	29.7%	4.7%	19.4%	10.8%	27.3%	15.0%	30.8%	8.3%	11.8%	7.7%	32.6%	6.4%
	Neither	17.8%	3.6%	17.0%	8.2%	17.9%	3.8%	12.9%	8.4%	22.7%	13.5%	16.3%	6.1%	20.6%	10.9%	17.9%	4.9%
	Agree	53.5%	5.0%	60.4%	13.4%	52.4%	5.4%	67.7%	17.5%	50.0%	19.8%	52.9%	9.6%	67.6%	16.7%	49.5%	7.1%
When I think about my farm, I am confident I can achieve my farm business objectives	Disagree	26.5%	4.3%	20.8%	9.2%	27.4%	4.6%	22.6%	11.9%	18.2%	11.7%	28.4%	8.1%	8.8%	6.3%	30.5%	6.3%
	Neither	20.6%	3.8%	24.5%	10.0%	20.0%	4.1%	16.1%	9.7%	36.4%	17.4%	16.7%	6.3%	20.6%	10.9%	21.9%	5.5%
	Agree	52.9%	5.0%	54.7%	13.4%	52.6%	5.4%	61.3%	17.5%	45.5%	19.2%	54.9%	9.7%	70.6%	16.5%	47.6%	7.1%
When I think about my farm, I am confident I can cope well with most difficult conditions e.g. drought, pest outbreaks	Disagree	32.1%	4.5%	30.2%	11.1%	32.4%	4.9%	35.5%	15.0%	22.7%	13.5%	27.5%	7.9%	26.5%	12.5%	36.0%	6.6%
	Neither	22.1%	4.0%	17.0%	8.2%	22.9%	4.3%	12.9%	8.4%	22.7%	13.5%	25.5%	7.7%	23.5%	11.7%	21.7%	5.4%
	Agree	45.8%	5.0%	52.8%	13.3%	44.6%	5.3%	51.6%	17.1%	54.5%	20.3%	47.1%	9.5%	50.0%	16.2%	42.3%	6.9%

Table A73 Farming confidence and self-efficacy, by farm type - 2016

This table provides detailed data underpinning the findings reported in Section 5.6 in the main report.		Farm type													
		Dairy (n=129)	95% CI	Grain growing (n=85)	95% CI	Grazier (n=136)	95% CI	Horticulture (all) (n=95)	95% CI	Mixed cropping/ grazing (n=73)	95% CI	Fruit/nut grower (n=84)	95% CI	Winegrape grower (n=65)	95% CI
I feel optimistic about my farming future	Disagree	49.6%	8.5%	17.6%	6.9%	22.8%	6.4%	31.6%	8.7%	20.5%	8.0%	31.0%	9.2%	27.7%	9.7%
	Neither	17.1%	5.8%	14.1%	6.1%	24.3%	6.6%	18.9%	6.8%	24.7%	8.8%	19.0%	7.2%	16.9%	7.6%
	Agree	33.3%	7.7%	68.2%	10.3%	52.9%	8.3%	49.5%	9.9%	54.8%	11.4%	50.0%	10.5%	55.4%	12.1%
When I think about my farm, I am confident I can achieve the things I want to on my farm	Disagree	33.6%	7.8%	8.5%	4.6%	16.0%	5.5%	20.5%	7.4%	18.6%	7.8%	22.1%	8.2%	19.4%	8.4%
	Neither	28.9%	7.3%	25.6%	8.5%	18.3%	5.9%	11.4%	5.4%	22.9%	8.7%	11.7%	5.8%	29.0%	10.1%
	Agree	37.5%	8.0%	65.9%	10.7%	65.6%	8.4%	68.2%	10.2%	58.6%	11.7%	66.2%	11.0%	51.6%	12.3%
When I think about my farm, I am confident I can achieve my farm business objectives	Disagree	30.5%	7.5%	11.0%	5.4%	13.7%	5.0%	19.5%	7.2%	15.9%	7.1%	20.8%	7.9%	16.4%	7.6%
	Neither	29.7%	7.4%	17.1%	7.0%	19.1%	6.0%	9.2%	4.8%	26.1%	9.2%	9.1%	4.9%	29.5%	10.3%
	Agree	39.8%	8.1%	72.0%	10.4%	67.2%	8.4%	71.3%	10.1%	58.0%	11.8%	70.1%	10.8%	54.1%	12.5%
When I think about my farm, I am confident I can cope well with most difficult conditions	Disagree	27.3%	7.1%	15.9%	6.7%	10.8%	4.5%	14.9%	6.3%	14.5%	6.8%	14.3%	6.5%	19.7%	8.5%
	Neither	22.7%	6.6%	24.4%	8.3%	32.3%	7.6%	20.7%	7.5%	30.4%	9.9%	19.5%	7.7%	32.8%	10.8%
	Agree	50.0%	8.6%	59.8%	10.8%	56.9%	8.6%	64.4%	10.4%	55.1%	11.8%	66.2%	11.0%	47.5%	12.1%

Table A74 Farming confidence and self-efficacy, by farm type - 2018

This table provides detailed data underpinning the findings reported in Section 5.6 in the main report.		Farm type													
		Dairy (n=58)	95% CI	Grain growing (n=44)	95% CI	Grazier (n=114)	95% CI	Horticulture (all) (n=97)	95% CI	Mixed cropping/ grazing (n=67)	95% CI	Fruit/nut grower (n=35)	95% CI	Wine grape grower (n=35)	95% CI
I feel optimistic about my farming future	Disagree	51.7%	12.7%	31.8%	12.3%	32.5%	8.1%	19.6%	6.9%	26.9%	9.5%	34.3%	14.0%	17.1%	9.7%
	Neither	13.8%	7.0%	13.6%	7.7%	14.9%	5.6%	17.5%	6.6%	17.9%	7.7%	11.4%	7.4%	20.0%	10.6%
	Agree	34.5%	11.2%	54.5%	14.6%	52.6%	9.1%	62.9%	9.9%	55.2%	11.9%	54.3%	16.3%	62.9%	16.5%
When I think about my farm, I am confident I can achieve the things I want to on my farm	Disagree	49.1%	12.7%	27.3%	11.4%	23.7%	7.1%	17.2%	6.6%	32.8%	10.3%	23.5%	11.7%	17.6%	9.9%
	Neither	19.3%	8.6%	18.2%	9.2%	19.3%	6.4%	20.4%	7.2%	11.9%	6.1%	26.5%	12.5%	20.6%	10.9%
	Agree	31.6%	10.9%	54.5%	14.6%	57.0%	9.2%	62.4%	10.1%	55.2%	11.9%	50.0%	16.2%	61.8%	16.7%
When I think about my farm, I am confident I can achieve my farm business objectives	Disagree	43.9%	12.3%	23.3%	10.6%	25.2%	7.4%	18.3%	6.8%	23.9%	9.0%	26.5%	12.5%	17.6%	9.9%
	Neither	24.6%	9.7%	23.3%	10.6%	23.4%	7.1%	18.3%	6.8%	16.4%	7.4%	14.7%	8.9%	23.5%	11.7%
	Agree	31.6%	10.9%	53.5%	14.7%	51.4%	9.2%	63.4%	10.1%	59.7%	11.9%	58.8%	16.7%	58.8%	16.7%
When I think about my farm, I am confident I can cope well with most difficult conditions e.g. drought, pest outbreaks	Disagree	52.6%	12.8%	19.0%	9.6%	32.5%	8.1%	21.5%	7.4%	32.8%	10.3%	20.6%	10.9%	32.4%	13.8%
	Neither	17.5%	8.2%	28.6%	11.9%	24.6%	7.2%	21.5%	7.4%	19.4%	8.1%	26.5%	12.5%	20.6%	10.9%
	Agree	29.8%	10.7%	52.4%	14.8%	43.0%	8.8%	57.0%	10.1%	47.8%	11.7%	52.9%	16.4%	47.1%	16.0%

Table A75 Farming confidence and self-efficacy, by trade typology - 2016

This table provides detailed data underpinning the findings reported in Section 5.6 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months							
		Diverse trader (n=96)	95% CI	Non-diverse alloc-ation trader (n=162)	95% CI	Non-diverse entitle-ment trader (n=40)	95% CI	Non-port-folio trader (n=15)	95% CI	No trade (n=192)	95% CI	Traded both entitle-ments and alloc-ation (n=69)	95% CI	Traded alloc-ation but not entitle-ments (n=204)	95% CI	Traded entitle-ments but not alloc-ation (n=26)	95% CI	No trade (n=205)	95% CI
I feel optimistic about my farming future	Disagree	30.2%	8.5%	32.1%	6.8%	30.0%	12.4%	26.7%	17.0%	29.7%	6.1%	36.2%	10.6%	29.4%	5.9%	34.6%	15.9%	29.3%	5.9%
	Neither	17.7%	6.6%	24.1%	6.1%	20.0%	10.1%	20.0%	14.0%	15.1%	4.5%	14.5%	6.8%	24.5%	5.5%	15.4%	10.0%	15.6%	4.5%
	Agree	52.1%	9.9%	43.8%	7.4%	50.0%	15.0%	53.3%	23.9%	55.2%	7.1%	49.3%	11.6%	46.1%	6.8%	50.0%	18.4%	55.1%	6.8%
When I think about my farm, I am confident I can achieve the things I want to on my farm	Disagree	20.2%	7.1%	21.0%	5.7%	13.9%	8.4%	0.0%		21.7%	5.4%	23.5%	8.8%	18.3%	4.8%	17.4%	11.2%	20.8%	5.2%
	Neither	20.2%	7.1%	25.3%	6.2%	25.0%	11.8%	40.0%	21.2%	20.6%	5.3%	20.6%	8.3%	26.2%	5.7%	26.1%	14.4%	20.3%	5.1%
	Agree	59.6%	10.1%	53.7%	7.7%	61.1%	16.3%	60.0%	24.7%	57.7%	7.1%	55.9%	11.9%	55.4%	6.8%	56.5%	20.0%	58.9%	6.9%
When I think about my farm, I am confident I can achieve my farm business objectives	Disagree	17.0%	6.5%	18.5%	5.4%	16.7%	9.4%	0.0%		21.0%	5.4%	19.1%	7.9%	16.3%	4.6%	21.7%	12.9%	20.1%	5.1%
	Neither	23.4%	7.7%	22.2%	5.9%	22.2%	11.1%	40.0%	21.2%	19.9%	5.3%	22.1%	8.6%	24.8%	5.6%	21.7%	12.9%	19.6%	5.1%
	Agree	59.6%	10.1%	59.3%	7.7%	61.1%	16.3%	60.0%	24.7%	59.1%	7.1%	58.8%	11.8%	58.9%	6.9%	56.5%	20.0%	60.3%	6.9%
When I think about my farm, I am confident I can cope well with most difficult conditions e.g. drought, pest outbreaks	Disagree	19.1%	6.9%	22.2%	5.9%	11.4%	7.4%	26.7%	17.0%	16.5%	4.8%	19.1%	7.9%	22.3%	5.3%	8.7%	6.8%	16.5%	4.6%
	Neither	23.4%	7.7%	28.4%	6.5%	31.4%	13.4%	26.7%	17.0%	26.1%	5.9%	22.1%	8.6%	28.7%	5.9%	26.1%	14.4%	26.0%	5.7%
	Agree	57.4%	10.0%	49.4%	7.6%	57.1%	16.4%	46.7%	22.8%	57.4%	7.1%	58.8%	11.8%	49.0%	6.8%	65.2%	20.3%	57.5%	6.9%

Table A76 Farming confidence and self-efficacy, by trade typology - 2018

This table provides detailed data underpinning the findings reported in Section 5.6 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months							
		Diverse trader (n=39)	95% CI	Non-diverse alloc-ation trader (n=102)	95% CI	Non-diverse entitle-ment trader (n=23)	95% CI	Non-port-folio trader (n=9)	95% CI	No trade (n=161)	95% CI	Traded both entitle-ments and alloc-ation (n=23)	95% CI	Traded alloc-ation but not entitle-ments (n=105)	95% CI	Traded entitle-ments but not alloc-ation (n=23)	95% CI	No trade (n=161)	95% CI
I feel optimistic about my farming future	Disagree	20.5%	10.3%	42.2%	9.3%	26.1%	14.4%	55.6%	30.1%	28.6%	6.6%	17.4%	11.2%	41.9%	9.1%	30.4%	15.7%	28.6%	6.6%
	Neither	10.3%	6.7%	15.7%	6.1%	26.1%	14.4%	11.1%	9.9%	15.5%	5.0%	13.0%	9.2%	16.2%	6.1%	17.4%	11.2%	15.5%	5.0%
	Agree	69.2%	15.5%	42.2%	9.3%	47.8%	19.1%	33.3%	22.9%	55.9%	7.7%	69.6%	20.2%	41.9%	9.1%	52.2%	19.7%	55.9%	7.7%
When I think about my farm, I am confident I can achieve the things I want to on my farm	Disagree	21.1%	10.6%	40.2%	9.1%	19.0%	12.3%	50.0%	27.6%	23.8%	6.1%	9.1%	7.2%	40.2%	8.9%	28.6%	15.7%	23.8%	6.1%
	Neither	15.8%	8.9%	15.7%	6.1%	38.1%	18.2%	20.0%	15.6%	18.8%	5.5%	18.2%	11.7%	16.8%	6.2%	23.8%	14.1%	18.8%	5.5%
	Agree	63.2%	15.8%	44.1%	9.4%	42.9%	19.1%	30.0%	20.7%	57.5%	7.7%	72.7%	20.6%	43.0%	9.1%	47.6%	19.9%	57.5%	7.7%
When I think about my farm, I am confident I can achieve my farm business objectives	Disagree	21.1%	10.6%	34.3%	8.8%	19.0%	12.3%	30.0%	20.7%	22.8%	6.0%	13.6%	9.6%	32.7%	8.3%	19.0%	12.3%	22.8%	6.0%
	Neither	15.8%	8.9%	23.2%	7.5%	28.6%	15.7%	20.0%	15.6%	22.2%	5.9%	18.2%	11.7%	21.5%	7.0%	23.8%	14.1%	22.2%	5.9%
	Agree	63.2%	15.8%	42.4%	9.4%	52.4%	20.5%	50.0%	27.6%	55.1%	7.8%	68.2%	20.8%	45.8%	9.2%	57.1%	20.9%	55.1%	7.8%
When I think about my farm, I am confident I can cope well with most difficult conditions	Disagree	28.9%	12.5%	38.0%	9.1%	42.9%	19.1%	60.0%	29.6%	30.2%	6.7%	27.3%	15.0%	40.6%	9.0%	42.9%	19.1%	30.2%	6.7%
	Neither	10.5%	6.9%	22.0%	7.2%	23.8%	14.1%	20.0%	15.6%	25.2%	6.3%	13.6%	9.6%	20.8%	6.9%	14.3%	10.1%	25.2%	6.3%
	Agree	60.5%	15.8%	40.0%	9.2%	33.3%	17.0%	20.0%	15.6%	44.7%	7.6%	59.1%	20.6%	38.7%	8.9%	42.9%	19.1%	44.7%	7.6%

Table A77 Farming confidence and self-efficacy, by water sources - 2016

		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
This table provides detailed data underpinning the findings reported in Section 5.6 in the main report.		Used water from own entitlements only (n=322)	95% CI	Used water from own entitlements and allocation purchased on the market (n=169)	95% CI	Used water from allocation or leased entitlements only (n=15)	95% CI	Used surface water only (n=434)	95% CI	Used both surface water and ground water (n=86)	95% CI	Used ground water only (n=92)	95% CI
I feel optimistic about my farming future	Disagree	29.5%	4.8%	30.2%	6.6%	26.7%	17.0%	30.6%	4.2%	33.7%	9.3%	25.0%	8.0%
	Neither	18.3%	3.9%	20.7%	5.6%	20.0%	14.0%	22.1%	3.7%	8.1%	4.4%	16.3%	6.5%
	Agree	52.2%	5.5%	49.1%	7.5%	53.3%	23.9%	47.2%	4.6%	58.1%	10.5%	58.7%	10.2%
When I think about my farm, I am confident I can achieve the things I want to on my farm	Disagree	20.4%	4.2%	20.4%	5.6%	0.0%		20.9%	3.7%	20.9%	7.5%	21.6%	7.6%
	Neither	22.0%	4.3%	24.0%	6.0%	40.0%	21.2%	24.6%	4.0%	18.6%	7.1%	15.9%	6.5%
	Agree	57.6%	5.5%	55.7%	7.6%	60.0%	24.7%	54.5%	4.8%	60.5%	10.6%	62.5%	10.4%
When I think about my farm, I am confident I can achieve my farm business objectives	Disagree	19.3%	4.1%	17.4%	5.2%	0.0%		18.6%	3.6%	21.4%	7.7%	21.6%	7.6%
	Neither	22.2%	4.4%	22.2%	5.8%	40.0%	21.2%	23.0%	3.9%	15.5%	6.5%	20.5%	7.4%
	Agree	58.5%	5.5%	60.5%	7.6%	60.0%	24.7%	58.4%	4.8%	63.1%	10.6%	58.0%	10.5%
When I think about my farm, I am confident I can cope well with most difficult conditions e.g. drought, pest outbreaks	Disagree	18.0%	4.0%	17.5%	5.2%	26.7%	17.0%	19.3%	3.6%	15.1%	6.4%	17.4%	6.8%
	Neither	27.0%	4.7%	28.3%	6.4%	26.7%	17.0%	27.6%	4.1%	19.8%	7.4%	27.9%	8.6%
	Agree	55.0%	5.6%	54.2%	7.6%	46.7%	22.8%	53.1%	4.9%	65.1%	10.4%	54.7%	10.6%

Table A78 Farming confidence and self-efficacy, by water sources - 2018

			Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
This table provides detailed data underpinning the findings reported in Section 5.6 in the main report.			Used water from own entitlements only (n=203)	95% CI	Used water from own entitlements and allocation purchased on the market (n=96)	95% CI	Used water from allocation or leased entitlements only (n=9)	95% CI	Used surface water only (n=275)	95% CI	Used both surface water and ground water (n=49)	95% CI	Used ground water only (n=55)	95% CI
Farming confidence and self-efficacy	I feel optimistic about my farming future	Disagree	25.1%	5.6%	40.6%	9.4%	55.6%	30.1%	30.5%	5.2%	38.8%	12.7%	29.1%	10.7%
		Neither	18.2%	4.8%	12.5%	5.5%	11.1%	9.9%	17.8%	4.2%	12.2%	7.0%	14.5%	7.4%
		Agree	56.7%	6.9%	46.9%	9.8%	33.3%	22.9%	51.6%	5.9%	49.0%	13.6%	56.4%	13.2%
	When I think about my farm, I am confident I can achieve the things I want to on my farm	Disagree	23.4%	5.4%	37.9%	9.3%	50.0%	27.6%	29.3%	5.2%	29.8%	11.6%	25.5%	10.1%
		Neither	18.4%	4.9%	14.7%	6.0%	20.0%	15.6%	17.4%	4.2%	17.0%	8.6%	20.0%	8.9%
		Agree	58.2%	6.9%	47.4%	9.8%	30.0%	20.7%	53.3%	6.0%	53.2%	14.1%	54.5%	13.1%
	When I think about my farm, I am confident I can achieve my farm business objectives	Disagree	20.1%	5.1%	34.8%	9.1%	30.0%	20.7%	25.9%	5.0%	29.8%	11.6%	25.9%	10.2%
		Neither	23.1%	5.4%	17.4%	6.7%	20.0%	15.6%	20.3%	4.5%	19.1%	9.2%	24.1%	9.9%
		Agree	56.8%	6.9%	47.8%	10.0%	50.0%	27.6%	53.8%	6.0%	51.1%	14.0%	50.0%	13.0%
	When I think about my farm, I am confident I can cope well with most difficult conditions e.g. drought, pest outbreaks	Disagree	28.0%	5.9%	38.7%	9.4%	60.0%	29.6%	31.8%	5.4%	29.8%	11.6%	38.2%	12.0%
		Neither	21.0%	5.2%	20.4%	7.2%	20.0%	15.6%	22.5%	4.7%	19.1%	9.2%	20.0%	8.9%
		Agree	51.0%	6.9%	40.9%	9.6%	20.0%	15.6%	45.7%	5.9%	51.1%	14.0%	41.8%	12.3%

Table A79 Farmer health and wellbeing, by Basin location - 2015

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Murray-Darling Basin (n=824)[1]	95% CI	Northern Basin (n=136)	95% CI	Southern Basin (n=688)	95% CI	NSW Nth Basin (n=64)	95% CI	Qld Basin (n=72)	95% CI	NSW Sth Basin (n=244)	95% CI	SA Basin (n=104)	95% CI	Vic Basin (n=340)	95% CI
Rating of general health	Excellent/very good health	49.9%	3.4%	50.0%	8.3%	49.9%	3.8%	59.4%	12.3%	41.7%	10.9%	50.8%	6.2%	39.4%	9.0%	52.4%	5.4%
	Good health	34.0%	3.2%	33.8%	7.5%	34.0%	3.5%	21.9%	8.8%	44.4%	11.0%	32.8%	5.7%	41.3%	9.1%	32.6%	4.8%
	Fair/poor health	16.1%	2.4%	16.2%	5.5%	16.1%	2.6%	18.8%	8.1%	13.9%	6.5%	16.4%	4.2%	19.2%	6.6%	15.0%	3.5%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	18.1%	2.6%	18.8%	6.1%	18.0%	2.9%	20.0%	8.6%	17.6%	7.6%	16.2%	4.4%	18.2%	6.6%	19.2%	4.1%
	Typical (good) wellbeing	29.5%	3.2%	25.0%	6.9%	30.3%	3.4%	25.0%	9.6%	25.0%	9.1%	27.5%	5.5%	33.3%	8.7%	31.4%	4.9%
	Very high wellbeing	52.5%	3.6%	56.3%	8.7%	51.7%	3.9%	55.0%	12.6%	57.4%	11.9%	56.3%	6.4%	48.5%	9.7%	49.4%	5.5%
Psychological distress	Low psychological distress	80.8%	2.8%	82.8%	7.0%	80.4%	3.1%	83.9%	10.6%	81.9%	10.0%	84.8%	4.9%	75.2%	8.8%	78.8%	4.6%
	Moderate psychological distress	10.2%	1.9%	9.0%	4.0%	10.4%	2.1%	11.3%	6.1%	6.9%	4.2%	6.6%	2.6%	17.1%	6.2%	11.2%	3.0%
	High psychological distress	9.0%	1.8%	8.2%	3.8%	9.1%	1.9%	4.8%	3.4%	11.1%	5.7%	8.6%	3.0%	7.6%	3.9%	10.0%	2.8%

[1] Sample size is based on the 'rating of general health' items; sample size did vary with psychological distress responded to by fewer irrigators.

Table A80 Farmer health and wellbeing, by Basin location - 2016

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Murray-Darling Basin (n=625)	95% CI	Northern Basin (n=104)	95% CI	Southern Basin (n=520)	95% CI	NSW Nth Basin (n=65)	95% CI	Qld Basin (n=39)	95% CI	NSW Sth Basin (n=155)	95% CI	SA Basin (n=63)	95% CI	Vic Basin (n=301)	95% CI
Rating of general health	Excellent/very good health	49.6%	3.9%	55.8%	9.6%	48.5%	4.3%	58.5%	12.2%	51.3%	15.3%	49.0%	7.8%	36.5%	11.1%	50.8%	5.6%
	Good health	30.4%	3.5%	26.9%	7.8%	31.2%	3.9%	27.7%	9.7%	25.6%	11.6%	31.0%	6.9%	30.2%	10.3%	31.2%	5.0%
	Fair/poor health	20.0%	3.0%	17.3%	6.3%	20.4%	3.3%	13.8%	6.7%	23.1%	11.0%	20.0%	5.7%	33.3%	10.7%	17.9%	4.0%
Psychological distress	Low psychological distress	82.7%	3.1%	83.8%	7.9%	82.6%	3.4%	84.8%	10.0%	82.1%	14.1%	85.2%	6.3%	82.5%	10.7%	81.3%	4.7%
	Moderate psychological distress	13.0%	2.5%	10.5%	4.8%	13.3%	2.7%	12.1%	6.2%	7.7%	5.5%	11.6%	4.3%	14.3%	7.0%	14.0%	3.5%
	High psychological distress	4.3%	1.4%	5.7%	3.3%	4.1%	1.5%	3.0%	2.4%	10.3%	6.7%	3.2%	2.0%	3.2%	2.5%	4.7%	2.0%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	22.6%	3.2%	14.4%	5.7%	24.1%	3.5%	13.8%	6.7%	15.4%	8.7%	18.8%	5.5%	22.2%	8.9%	27.2%	4.8%
	Typical (good) wellbeing	28.8%	3.4%	26.0%	7.7%	29.5%	3.8%	24.6%	9.2%	28.2%	12.2%	28.6%	6.7%	28.6%	10.0%	29.9%	5.0%
	Very high wellbeing	48.6%	3.9%	59.6%	9.6%	46.4%	4.2%	61.5%	12.1%	56.4%	15.5%	52.6%	7.9%	49.2%	12.1%	42.9%	5.5%

Table A81 Farmer health and wellbeing, by Basin location - 2018

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Basin location						Basin state									
		Murray-Darling Basin (n=391)	95% CI	Northern Basin (n=56)	95% CI	Southern Basin (n=335)	95% CI	NSW Nth Basin (n=34)	95% CI	Qld Basin (n=22)	95% CI	NSW Sth Basin (n=103)	95% CI	SA Basin (n=34)	95% CI	Vic Basin (n=196)	95% CI
Rating of general health	Excellent/very good health	45.5%	4.9%	42.9%	12.3%	46.0%	5.3%	47.1%	16.0%	36.4%	17.4%	53.4%	9.6%	44.1%	15.6%	42.3%	6.8%
	Good health	34.8%	4.6%	44.6%	12.5%	33.1%	4.9%	41.2%	15.3%	50.0%	19.8%	30.1%	8.2%	26.5%	12.5%	36.2%	6.5%
	Fair/poor health	19.7%	3.7%	12.5%	6.7%	20.9%	4.1%	11.8%	7.7%	13.6%	9.6%	16.5%	6.2%	29.4%	13.2%	21.4%	5.3%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	24.7%	4.1%	22.2%	9.5%	25.1%	4.4%	25.0%	12.4%	18.2%	11.7%	25.5%	7.7%	26.5%	12.5%	24.9%	5.7%
	Typical (good) wellbeing	29.6%	4.4%	24.1%	9.9%	30.5%	4.8%	31.3%	13.9%	13.6%	9.6%	32.4%	8.5%	23.5%	11.7%	30.6%	6.2%
	Very high wellbeing	45.7%	4.9%	53.7%	13.2%	44.4%	5.3%	43.8%	16.0%	68.2%	20.8%	42.2%	9.3%	50.0%	16.2%	44.6%	6.9%
Psychological distress	Low psychological distress	77.7%	4.3%	78.2%	12.2%	77.6%	4.7%	78.1%	16.3%	78.3%	19.5%	80.2%	8.3%	85.7%	14.2%	74.6%	6.4%
	Moderate psychological distress	17.2%	3.5%	12.7%	6.8%	17.9%	3.8%	12.5%	8.1%	13.0%	9.2%	15.1%	5.8%	8.6%	6.1%	21.3%	5.3%
	High psychological distress	5.1%	1.8%	9.1%	5.5%	4.4%	1.8%	9.4%	6.7%	8.7%	6.8%	4.7%	2.9%	5.7%	4.5%	4.1%	2.1%

Table A82 Farmer health and wellbeing, by farm type - 2015

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Dairy (n=98)	95% CI	Grain growing (n=140)	95% CI	Grazier (n=171)	95% CI	Horticulture (all) (n=219)	95% CI	Mixed cropping/ grazing (n=82)	95% CI	Fruit/nut grower (n=96)	95% CI	Winegrape grower (n=104)	95% CI
Rating of general health	Excellent/very good health	52.0%	9.8%	52.9%	8.3%	55.6%	7.5%	44.7%	6.4%	54.9%	10.8%	46.9%	9.8%	41.3%	9.1%
	Good health	32.7%	8.7%	34.3%	7.5%	29.8%	6.5%	36.5%	6.1%	32.9%	9.4%	34.4%	9.0%	39.4%	9.0%
	Fair/poor health	15.3%	6.1%	12.9%	4.8%	14.6%	4.7%	18.7%	4.7%	12.2%	5.8%	18.8%	6.9%	19.2%	6.6%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	25.8%	8.2%	13.2%	4.9%	18.0%	5.5%	17.1%	4.6%	14.3%	6.5%	17.0%	6.5%	19.4%	6.9%
	Typical (good) wellbeing	29.2%	8.7%	25.0%	6.7%	26.0%	6.5%	32.7%	6.1%	29.9%	9.4%	31.9%	8.8%	33.7%	8.8%
	Very high wellbeing	44.9%	10.0%	61.8%	8.4%	56.0%	8.0%	50.2%	6.7%	55.8%	11.1%	51.1%	10.0%	46.9%	9.6%
Psychological distress	Low psychological distress	71.1%	9.5%	87.3%	6.2%	83.3%	6.1%	80.7%	5.6%	80.5%	9.6%	84.0%	8.3%	76.0%	8.9%
	Moderate psychological distress	13.4%	5.7%	5.6%	2.9%	8.9%	3.6%	11.5%	3.7%	9.8%	5.1%	9.6%	4.8%	14.4%	5.7%
	High psychological distress	15.5%	6.2%	7.0%	3.3%	7.7%	3.3%	7.8%	3.0%	9.8%	5.1%	6.4%	3.7%	9.6%	4.5%

Table A83 Farmer health and wellbeing, by farm type - 2016

| This table provides detailed data underpinning the findings reported in Section 5.7 in the main report. | | Farm type | | | | | | | | | | | | | |
		Dairy (n=133)	95% CI	Grain growing (n=86)	95% CI	Grazier (n=135)	95% CI	Horticulture (all) (n=96)	95% CI	Mixed cropping /grazing (n=74)	95% CI	Fruit/nut grower (n=84)	95% CI	Winegrape grower (n=68)	95% CI
Rating of general health	Excellent/very good health	50.4%	8.5%	62.8%	10.5%	43.0%	8.2%	44.8%	9.7%	47.3%	11.1%	42.9%	10.2%	47.1%	11.6%
	Good health	28.6%	7.2%	19.8%	7.4%	34.8%	7.6%	33.3%	8.8%	33.8%	10.0%	36.9%	9.7%	33.8%	10.4%
	Fair/poor health	21.1%	6.3%	17.4%	6.8%	22.2%	6.4%	21.9%	7.4%	18.9%	7.6%	20.2%	7.5%	19.1%	7.9%
Psychological distress	Low psychological distress	75.0%	7.9%	87.5%	8.1%	86.6%	6.6%	84.4%	8.3%	79.7%	10.2%	84.5%	8.8%	82.4%	10.4%
	Moderate psychological distress	16.7%	5.6%	9.1%	4.7%	11.2%	4.5%	10.4%	4.9%	18.9%	7.6%	11.9%	5.6%	11.8%	6.1%
	High psychological distress	8.3%	3.8%	3.4%	2.4%	2.2%	1.6%	5.2%	3.2%	1.4%	1.3%	3.6%	2.6%	5.9%	3.9%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	31.8%	7.5%	9.3%	4.8%	17.8%	5.8%	15.6%	6.2%	31.1%	9.7%	15.5%	6.5%	32.4%	10.3%
	Typical (good) wellbeing	26.5%	6.9%	29.1%	8.8%	31.9%	7.5%	29.2%	8.4%	32.4%	9.8%	27.4%	8.7%	23.5%	8.8%
	Very high wellbeing	41.7%	8.2%	61.6%	10.5%	50.4%	8.4%	55.2%	10.0%	36.5%	10.3%	57.1%	10.6%	44.1%	11.3%

Table A84 Farmer health and wellbeing, by farm type - 2018

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Farm type														
		Dairy (n=57)	95% CI	Grain growing (n=44)	95% CI	Grazier (n=115)	95% CI	Horticulture (all) (n=96)	95% CI	Mixed cropping/ grazing (n=67)	95% CI	Fruit/nut grower (n=34)	95% CI	Winegrape grower (n=35)	95% CI
Rating of general health	Excellent/very good health	38.6%	11.8%	31.8%	12.3%	48.7%	9.0%	51.0%	9.9%	46.3%	11.6%	47.1%	16.0%	51.4%	16.1%
	Good health	42.1%	12.2%	45.5%	14.0%	29.6%	7.8%	30.2%	8.5%	38.8%	11.0%	26.5%	12.5%	34.3%	14.0%
	Fair/poor health	19.3%	8.6%	22.7%	10.4%	21.7%	6.8%	18.8%	6.8%	14.9%	7.0%	26.5%	12.5%	14.3%	8.6%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	31.6%	10.9%	21.4%	10.3%	26.8%	7.5%	18.6%	6.8%	23.1%	8.9%	17.6%	9.9%	22.2%	11.1%
	Typical (good) wellbeing	33.3%	11.2%	35.7%	13.2%	32.1%	8.1%	26.8%	8.0%	24.6%	9.2%	35.3%	14.3%	30.6%	13.1%
	Very high wellbeing	35.1%	11.4%	42.9%	14.1%	41.1%	8.8%	54.6%	9.9%	52.3%	12.0%	47.1%	16.0%	47.2%	15.6%
Psychological distress	Low psychological distress	67.2%	12.7%	84.1%	12.8%	78.6%	8.1%	80.4%	8.7%	79.1%	10.8%	74.3%	16.0%	85.7%	14.2%
	Moderate psychological distress	27.6%	10.2%	13.6%	7.7%	17.1%	6.0%	14.4%	5.9%	14.9%	7.0%	20.0%	10.6%	8.6%	6.1%
	High psychological distress	5.2%	3.7%	2.3%	2.0%	4.3%	2.6%	5.2%	3.2%	6.0%	3.9%	5.7%	4.5%	5.7%	4.5%

Table A85 Farmer health and wellbeing, by trade typology - 2015

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Diverse trader (n=113)	95% CI	Non-diverse allocation trader (n=282)	95% CI	Non-diverse entitlement trader (n=39)	95% CI	Non-portfolio trader (n=20)	95% CI	Non-trader (n=288)	95% CI	Traded both entitlements and allocation (n=101)	95% CI	Traded allocation but not entitlements (n=304)	95% CI	Traded entitlements but not allocation (n=43)	95% CI	No trade (n=290)	95% CI
Rating of general health	Excellent/very good health	46.0%	9.0%	52.5%	5.8%	48.7%	15.1%	35.0%	17.8%	51.0%	5.7%	43.6%	9.4%	53.0%	5.7%	46.5%	14.3%	51.0%	5.7%
	Good health	39.8%	8.7%	31.6%	5.3%	43.6%	14.7%	30.0%	16.4%	33.3%	5.2%	42.6%	9.3%	30.3%	5.0%	44.2%	14.1%	33.4%	5.2%
	Fair/poor health	14.2%	5.5%	16.0%	4.0%	7.7%	5.5%	35.0%	17.8%	15.6%	3.8%	13.9%	5.7%	16.8%	3.9%	9.3%	6.1%	15.5%	3.8%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	16.2%	6.1%	18.6%	4.3%	25.0%	11.8%	47.4%	20.8%	15.6%	3.9%	19.1%	6.9%	19.0%	4.2%	25.0%	11.4%	15.6%	4.0%
	Typical (good) wellbeing	29.5%	8.1%	30.1%	5.2%	19.4%	10.3%	21.1%	13.5%	30.1%	5.2%	27.7%	8.3%	30.0%	5.1%	20.0%	10.1%	30.4%	5.3%
	Very high wellbeing	54.3%	9.6%	51.3%	6.0%	55.6%	16.2%	31.6%	17.2%	54.3%	6.0%	53.2%	10.1%	51.0%	5.7%	55.0%	15.3%	54.1%	6.0%
Psycho-logical distress	Low distress	85.0%	7.5%	79.5%	5.0%	81.6%	14.4%	55.0%	21.2%	82.5%	4.7%	82.2%	8.3%	78.4%	4.9%	83.3%	13.3%	82.6%	4.7%
	Moderate distress	8.8%	4.2%	10.2%	3.1%	13.2%	8.0%	20.0%	12.8%	9.1%	2.9%	9.9%	4.7%	10.8%	3.1%	11.9%	7.2%	9.0%	2.9%
	High distress	6.2%	3.4%	10.2%	3.1%	5.3%	4.2%	25.0%	14.8%	8.4%	2.8%	7.9%	4.1%	10.8%	3.1%	4.8%	3.8%	8.3%	2.7%

Table A86 Farmer health and wellbeing, by trade typology - 2016

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months							
		Diverse trader (n=98)	95% CI	Non-diverse allocation trader (n=165)	95% CI	Non-diverse entitlement trader (n=42)	95% CI	Non-portfolio trader (n=15)	95% CI	No trade (n=193)	95% CI	Traded both entitlements and allocation (n=71)	95% CI	Traded allocation but not entitlements (n=207)	95% CI	Traded entitlements but not allocation (n=28)	95% CI	No trade (n=206)	95% CI
Rating of general health	Excellent/very good health	51.0%	9.8%	47.9%	7.6%	45.2%	14.3%	53.3%	23.9%	51.8%	7.0%	43.7%	11.1%	51.7%	6.8%	50.0%	17.8%	50.5%	6.8%
	Good health	33.7%	8.8%	32.7%	6.8%	31.0%	12.4%	33.3%	19.3%	27.5%	6.0%	36.6%	10.5%	31.4%	6.0%	28.6%	14.1%	28.2%	5.9%
	Fair/poor health	15.3%	6.1%	19.4%	5.5%	23.8%	10.9%	13.3%	10.4%	20.7%	5.2%	19.7%	7.9%	16.9%	4.6%	21.4%	11.9%	21.4%	5.2%
Psychological distress	Low psychological distress	85.9%	7.9%	83.4%	6.2%	78.6%	14.1%	66.7%	25.1%	83.5%	5.7%	86.1%	9.3%	82.4%	5.6%	75.0%	17.9%	84.1%	5.5%
	Moderate psychological distress	10.1%	4.8%	14.1%	4.7%	11.9%	7.2%	26.7%	17.0%	13.4%	4.2%	8.3%	4.7%	15.1%	4.4%	14.3%	9.3%	12.6%	4.0%
	High psychological distress	4.0%	2.6%	2.5%	1.7%	9.5%	6.2%	6.7%	6.0%	3.1%	1.8%	5.6%	3.7%	2.4%	1.5%	10.7%	7.6%	3.4%	1.9%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	18.4%	6.7%	23.2%	6.0%	28.6%	11.9%	26.7%	17.0%	22.3%	5.5%	18.3%	7.6%	22.8%	5.3%	35.7%	15.6%	21.8%	5.2%
	Typical (good) wellbeing	26.5%	7.9%	31.7%	6.7%	26.2%	11.4%	20.0%	14.0%	27.5%	6.0%	25.4%	9.0%	30.6%	6.0%	28.6%	14.1%	27.2%	5.7%
	Very high wellbeing	55.1%	9.9%	45.1%	7.5%	45.2%	14.3%	53.3%	23.9%	50.3%	7.1%	56.3%	11.6%	46.6%	6.7%	35.7%	15.6%	51.0%	6.8%

Table A87 Farmer health and wellbeing, by trade typology - 2018

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Trade typology										Types of water trade engaged in during previous 12 months							
		Diverse trader (n=39)	95% CI	Non-diverse allocation trader (n=99)	95% CI	Non-diverse entitlement trader (n=23)	95% CI	Non-portfolio trader (n=10)	95% CI	No trade (n=159)	95% CI	Traded both entitlements and allocation (n=23)	95% CI	Traded allocation but not entitlements (n=105)	95% CI	Traded entitlements but not allocation (n=23)	95% CI	No trade (n=159)	95% CI
Rating of general health	Excellent/very good health	59.0%	15.6%	47.5%	9.6%	47.8%	19.1%	50.0%	27.6%	40.9%	7.4%	56.5%	20.0%	50.5%	9.5%	52.2%	19.7%	40.9%	7.4%
	Good health	28.2%	12.2%	32.3%	8.6%	39.1%	17.7%	20.0%	15.6%	36.5%	7.2%	30.4%	15.7%	30.5%	8.2%	43.5%	18.5%	36.5%	7.2%
	Fair/poor health	12.8%	7.8%	20.2%	7.0%	13.0%	9.2%	30.0%	20.7%	22.6%	6.0%	13.0%	9.2%	19.0%	6.6%	4.3%	3.9%	22.6%	6.0%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	13.5%	8.2%	27.3%	8.0%	13.6%	9.6%	40.0%	24.7%	25.5%	6.3%	14.3%	10.1%	27.9%	7.9%	18.2%	11.7%	25.5%	6.3%
	Typical (good) wellbeing	18.9%	10.0%	35.4%	8.9%	54.5%	20.3%	40.0%	24.7%	28.0%	6.5%	28.6%	15.7%	32.7%	8.4%	45.5%	19.2%	28.0%	6.5%
	Very high wellbeing	67.6%	16.0%	37.4%	9.1%	31.8%	16.3%	20.0%	15.6%	46.6%	7.6%	57.1%	20.9%	39.4%	9.0%	36.4%	17.4%	46.6%	7.6%
Psychological distress	Low psychological distress	79.5%	14.5%	78.2%	8.8%	77.3%	20.1%	70.0%	30.6%	77.8%	6.9%	82.6%	18.8%	78.5%	8.5%	78.3%	19.5%	77.8%	6.9%
	Moderate psychological distress	15.4%	8.7%	16.8%	6.3%	18.2%	11.7%	30.0%	20.7%	16.0%	5.0%	8.7%	6.8%	17.8%	6.3%	17.4%	11.2%	16.0%	5.0%
	High psychological distress	5.1%	4.0%	5.0%	3.0%	4.5%	4.1%	0.0%	0.0%	6.2%	3.0%	8.7%	6.8%	3.7%	2.5%	4.3%	3.9%	6.2%	3.0%

Table A88 Farmer health and wellbeing, by water source/s used - 2015

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Used water from own entitlements only (n=440)	95% CI	Used water from own entitlements and allocation purchased on the market (n=242)	95% CI	Used water from allocation or leased entitlements only (n=20)	95% CI	Used surface water only (n=461)	95% CI	Used both surface water and ground water (n=72)	95% CI	Used ground water only (n=77)	95% CI
Rating of general health	Excellent/very good health	49.5%	4.6%	51.7%	6.3%	35.0%	17.8%	50.1%	4.5%	62.5%	11.5%	49.4%	11.0%
	Good health	33.4%	4.3%	36.0%	5.9%	30.0%	16.4%	33.8%	4.2%	27.8%	9.3%	36.4%	10.1%
	Fair/poor health	17.0%	3.2%	12.4%	3.7%	35.0%	17.8%	16.1%	3.2%	9.7%	5.2%	14.3%	6.5%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	15.9%	3.3%	20.4%	4.8%	47.4%	20.8%	16.8%	3.3%	14.9%	7.0%	18.7%	7.6%
	Typical (good) wellbeing	29.4%	4.2%	29.1%	5.6%	21.1%	13.5%	29.7%	4.2%	34.3%	10.5%	25.3%	8.7%
	Very high wellbeing	54.7%	4.8%	50.4%	6.4%	31.6%	17.2%	53.6%	4.7%	50.7%	11.7%	56.0%	11.3%
Psychological distress	Low psychological distress	81.6%	3.8%	80.8%	5.3%	55.0%	21.2%	82.4%	3.7%	76.4%	10.7%	79.2%	10.0%
	Moderate psychological distress	9.8%	2.6%	10.0%	3.3%	20.0%	12.8%	9.3%	2.4%	12.5%	6.1%	7.8%	4.5%
	High psychological distress	8.6%	2.3%	9.2%	3.2%	25.0%	14.8%	8.3%	2.3%	11.1%	5.7%	13.0%	6.1%

Table A89 Farmer health and wellbeing, by water source/s used - 2016

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
		Used water from own entitlements only (n=328)	95% CI	Used water from own entitlements and allocation purchased on the market (n=171)	95% CI	Used water from allocation or leased entitlements only (n=15)	95% CI	Used surface water only (n=447)	95% CI	Used both surface water and ground water (n=87)	95% CI	Used ground water only (n=91)	95% CI
Rating of general health	Excellent/very good health	47.9%	5.4%	51.5%	7.5%	53.3%	23.9%	48.8%	4.6%	55.2%	10.5%	48.4%	10.1%
	Good health	31.7%	4.9%	29.2%	6.4%	33.3%	19.3%	30.9%	4.2%	31.0%	8.9%	27.5%	8.4%
	Fair/poor health	20.4%	4.1%	19.3%	5.4%	13.3%	10.4%	20.4%	3.6%	13.8%	6.0%	24.2%	7.9%
Psychological distress	Low psychological distress	84.5%	4.2%	81.2%	6.4%	66.7%	25.1%	84.3%	3.6%	81.6%	9.1%	76.1%	9.4%
	Moderate psychological distress	13.1%	3.3%	14.1%	4.6%	26.7%	17.0%	11.2%	2.7%	16.1%	6.6%	18.5%	6.9%
	High psychological distress	2.4%	1.2%	4.7%	2.5%	6.7%	6.0%	4.5%	1.7%	2.3%	1.8%	5.4%	3.3%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	22.3%	4.3%	22.4%	5.8%	26.7%	17.0%	23.3%	3.8%	26.7%	8.4%	15.4%	6.3%
	Typical (good) wellbeing	29.9%	4.8%	27.1%	6.3%	20.0%	14.0%	29.5%	4.1%	19.8%	7.4%	34.1%	9.2%
	Very high wellbeing	47.9%	5.4%	50.6%	7.5%	53.3%	23.9%	47.2%	4.6%	53.5%	10.5%	50.5%	10.1%

Table A90 Farmer health and wellbeing, by water source/s used - 2018

This table provides detailed data underpinning the findings reported in Section 5.7 in the main report.		Water sources - entitlements, allocation and lease						Water sources - surface water and ground water					
		Used water from own entitlements only (n=203)	95% CI	Used water from own entitlements and allocation purchased on the market (n=93)	95% CI	Used water from allocation or leased entitlements only (n=10)	95% CI	Used surface water only (n=276)	95% CI	Used both surface water and ground water (n=47)	95% CI	Used ground water only (n=55)	95% CI
Rating of general health	Excellent/very good health	43.3%	6.7%	49.5%	10.0%	50.0%	27.6%	47.5%	5.8%	40.4%	13.1%	43.6%	12.5%
	Good health	35.5%	6.3%	31.2%	8.7%	20.0%	15.6%	31.5%	5.3%	40.4%	13.1%	41.8%	12.3%
	Fair/poor health	21.2%	5.2%	19.4%	7.0%	30.0%	20.7%	21.0%	4.5%	19.1%	9.2%	14.5%	7.4%
Personal Wellbeing Index - overall wellbeing	Low wellbeing	23.6%	5.5%	20.2%	7.1%	40.0%	24.7%	21.9%	4.6%	31.3%	11.7%	29.1%	10.7%
	Typical (good) wellbeing	28.1%	5.9%	37.2%	9.3%	40.0%	24.7%	30.7%	5.3%	27.1%	11.0%	29.1%	10.7%
	Very high wellbeing	48.2%	6.9%	42.6%	9.6%	20.0%	15.6%	47.4%	5.9%	41.7%	13.1%	41.8%	12.3%
Psychological distress	Low psychological distress	79.4%	5.9%	77.9%	9.1%	70.0%	30.6%	78.4%	5.1%	77.6%	13.0%	74.5%	12.6%
	Moderate psychological distress	14.7%	4.4%	18.9%	6.9%	30.0%	20.7%	16.5%	4.0%	20.4%	9.4%	16.4%	7.9%
	High psychological distress	5.9%	2.6%	3.2%	2.3%	0.0%	0.0%	5.0%	2.1%	2.0%	1.8%	9.1%	5.5%

Appendix 2: Water trading cluster analysis

A key question asked in this project was whether there are identifiable and distinct clusters of irrigators who engage in differing water trading behaviours. This section explains the cluster analysis used to examine this question. The first section describes this in narrative form. This is followed by further sections that provide output from the cluster analyses undertaken.

There is very little available theory to predict likely water trading cluster. While it was expected that there would be distinct differences between irrigators who engaged in no trade and those who engaged in some types of trade, beyond this no specific hypotheses were identified in previous work about the types of trading cluster that may exist. While we hypothesised that irrigators who use a wider range of types of trade may be different to others, this was not entirely consistent with descriptive data analysed in initial stages of this project, which suggested that the data collected may more reflect year to year changes in decisions made than underlying clusters of irrigators who typically engage in differing forms of trade.

Given the relative lack of existing hypotheses, an exploratory cluster analysis approach was taken to identify whether distinct groups of water traders could be identified in the datasets and, if so, if the clusters identified made meaningful sense (in the form of being interpretable based on the behaviours being clustered together) as well as having statistical meaning.

This exploratory analysis was conducted using two-step cluster analysis in IBM SPSS. Two-step cluster analysis was selected as the preferred method as all data were categorical in nature: this excludes use of some other clustering methods such as k-means cluster analysis, and limited ability to use hierarchical clustering, which has significant limitations when used with categorical variables (specifically, using hierarchical cluster analysis with categorical data has a known risk of resulting in arbitrary clusters that reflect the order cases are present in a dataset; in contract, the use of likelihood-based measures to model distances in the Two Step cluster process enables more appropriate modelling of distances between categorical variables).

To identify clusters, we used the following categorical variables as inputs:

- Allocation trading (variable name AllocationTrade): A categorical variable separating irrigators into four categories: no trade, bought allocation, sold allocation, and both bought and sold allocation

- Entitlement trading (variable name EntitlementTrade): A categorical variable separating irrigators into four categories: no trade, bought entitlements, sold entitlements, and both bought and sold entitlements

- Water sources used (variable name WaterSourcingStrategy): This categorical variable identified whether the sources of water used to irrigate the farm came from (i) irrigator's own entitlements only, (ii) irrigator's own entitlements plus water either purchased on the temporary market or from leased entitlements, or (iii) water purchased on the temporary market or leased entitlements only, with the irrigators having no water from their own entitlements.

These variables were considered relevant to developing a water trade typology as they identified engagement in the two forms of trade most common in the Basin (allocation and entitlement trading). The inclusion of water sources used was important as it enables consideration of whether an irrigator is using a 'non-portfolio' model in which they rely solely on water purchased on the temporary market or leased, versus a 'portfolio' model in which at least part of water comes from water allocated to entitlements directly owned by the irrigating business. This was considered likely to be associated with differing engagement in trade.

Ideally, use of leased entitlements would be included as a separate variable in this cluster analysis. However, this information was not collected in 2015, and in 2016 very few irrigators engaged in leasing of entitlements. While initial tests did include leasing of entitlements as a separate variable for 2016, the outcomes were identical to those in which it was grouped with purchase of water on the market, but had poorer distance characteristics between clusters, suggesting the small number of irrigators leasing entitlements was reducing rather than increasing ability to identify meaningful clusters.

Initially, engagement in carryover was also considered as a variable for inclusion in the cluster analysis. However, two factors meant it was excluded from the cluster analysis. First and most importantly, the data collected identified actual engagement in use of carryover which varied largely by year depending on weather conditions. Therefore rather than reflecting willingness to use carryover, it reflected weather and market conditions and how those resulted in particular decisions to carry over or not from one water year to another. Second, initial tests in exploratory analysis suggested that including this variable in cluster analysis resulted in clusters that reflected weather conditions and their effect on water availability and pricing, with clusters not clustered by trade, but having strong associations with geographic location. Both these factors strongly suggested a need to remove carryover as a variable in the cluster analysis.

In the first two-step cluster analyses performed, the variables were included, and the number of clusters returned in the solution was not constrained. The maximum number of clusters permitted was 20. The log-likelihood distance measure was used due to the use of categorical variables, and Schwarz's Bayesian Criterion (BIC) used.

This returned a two-cluster solution in all three years, which clustered very simply into 'no trade' and 'engaged in some form of trade' categories, with engagement in allocation trade the largest driver of the 'trade' category while a small number of irrigators who bought or sold entitlements but not allocation were also included in the 'trade' cluster (a larger number in 2015, a year in which somewhat higher engagement in entitlement trade was recorded compared to subsequent years).

This confirms that rather than seeing very distinct clusters of trading behaviours, the most significant distinction is simply between those who engage in no trade versus trade of some type. This is consistent with the changes in trading behaviour observed year to year in the dataset, in which hose who traded often varied their trading behaviour year to year based on trading conditions, rather than opting to always engage in one form of trade. The quality of the cluster solutions varied somewhat, from 0.5 on the silhouette measure of cohesion and separation in 2015 – the year in which there was great entitlement trade than typical for other years – to higher values indicating good quality in 2016 (0.6) and 2018 (0.7) (see next pages). While the clustering solutions in any one year do not clearly distinguish it, this suggests differences between those who trade entitlements and those who trade allocation, as the one year in which entitlement trade had greater importance as a predictor (2015) was also the year in which the cluster model had poorer quality. This is consistent with the typical separation of entitlement trade and allocation trade conceptually, with entitlement trade usually considered an 'occasional' strategic decision to buy and sell, rather than a regular trading activity. In contrast, allocation trade may be done regularly and vary over short periods of time based on market conditions, farm conditions, etc.

While the two cluster solution fit cluster analysis criteria for indicating statistically and semantically meaningful groups, with all solutions meeting both the criteria of meeting statistical requirements for distance, and semantic measures of being interpretable with regard to known attributes of trading, it was a very simple cluster solution. It usefully confirms that the most significant distinction is between non-traders and traders, but does not provide insight into whether there are distinct clusters of different types of traders.

To further explore this, the next step in cluster analysis was investigation of forced cluster solutions. For each year of data, a 3-cluster, 4-cluster and 5-cluster solution were generated. These were inspected to examine the extent to which the output met

i)   Key statistical quality criteria, namely, silhouette measures of cohesion and separation based on distance between clusters

ii)   The criteria of consistency over year, with stability of groupings considered to indicate presence of latent classes, while inconsistency may suggest the classes are reflecting year to year differences in market and weather conditions and their impacts on trade behaviour, rather than true classes, and

iii)   The criteria of semantic meaningfulness, meaning the clusters generated had meaningful that could be interpreted using available data. Lack of this meaningfulness suggests that clusters are reflecting variation in an unobserved variable not measured as part of the survey, which may be unrelated to trading behaviour.

Overall, the 3, 4 and 5 cluster solutions had the following similar patterns:

- All met statistical criteria for cluster quality

- All had one cluster that was entirely or almost entirely identical to the 'non-trader' category, suggesting that irrespective of number of clusters or year, non-traders are a distinct category

- All included all or almost all non-portfolio traders in a single cluster; in some cases these were also grouped with irrigators who engaged in more than one type of trade (including buying *and* selling allocation, or buying allocation *and* buying entitlements, or selling allocation *and* buying entitlements).

- Some separated 'diverse' traders who held an entitlement and engaged in more than one type of trade into a different cluster to non-portfolio traders.

- Across different years and different cluster numbers, clusters sometimes grouped based on whether a person engaged in a particular type of trade (for example, the 3-cluster solution in 2016 was largely grouped based on engagement in allocation trade, while the 4-cluster solution in 2015 was almost entirely grouped based on engagement in entitlement trade)

- Clusters varied across years inconsistently, suggesting that annual variation in allocation trade in particular (which reflects seasonal conditions in markets, weather and water allocation more than a change in irrigator willingness to engage in trade) was causing clusters to shift year to year, resulting in a seasonal bias in clusters.

The results suggested a need to identify a consistent typology across years that was based on the consistent patterns observed across years in the different clusters, rather than relying on the relatively limited data available to identify a cluster that had consistent statistical properties: it was clear that it was unlikely that stable clusters would be able to be identified across the different years of data. This was done in the trade typology identified and reported on in the main report (see Section 3.4, which describes the descriptive typology developed through qualitative examination of the results of the exploratory cluster analysis).

The Recommendations section of the report identifies the types of data that should be collected in future to support more robust identification of unique clusters of water trading behaviour amongst irrigators.

2015 unconstrained two-step cluster data output

Auto-Clustering

Number of Clusters	Schwarz's Bayesian Criterion (BIC)	BIC Change[a]	Ratio of BIC Changes[b]	Ratio of Distance Measures[c]
1	4475.784			
2	2998.281	-1477.504	1.000	2.252
3	2372.337	-625.944	.424	1.138
4	1829.019	-543.318	.368	1.861
5	1562.152	-266.867	.181	1.275
6	1364.579	-197.573	.134	1.322
7	1228.372	-136.207	.092	1.148
8	1116.737	-111.635	.076	1.649
9	1070.406	-46.331	.031	1.196
10	1040.555	-29.851	.020	1.055
11	1015.094	-25.460	.017	1.158
12	1000.507	-14.588	.010	1.343
13	1003.532	3.025	-.002	1.189
14	1014.699	11.166	-.008	1.342
15	1036.857	22.158	-.015	1.014

a. The changes are from the previous number of clusters in the table.
b. The ratios of changes are relative to the change for the two cluster solution.
c. The ratios of distance measures are based on the current number of clusters against the previous number of clusters.

Cluster Distribution

		N	% of Combined	% of Total
Cluster	1	496	55.9%	3.7%
	2	391	44.1%	2.9%
	Combined	887	100.0%	6.7%
Excluded Cases		12416		93.3%
Total		13303		100.0%

Frequencies

WaterSourcingStrategy

		1		2		3	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Cluster	1	496	84.2%	0	0.0%	0	0.0%
	2	93	15.8%	272	100.0%	26	100.0%
	Combined	589	100.0%	272	100.0%	26	100.0%

AllocationTrade

		.00		1.00		2.00		Frequenc
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Cluster	1	352	77.5%	144	73.1%	0	0.0%	
	2	102	22.5%	53	26.9%	220	100.0%	
	Combined	454	100.0%	197	100.0%	220	100.0%	

EntitlementTrade

		.00		1.00		2.00		Frequenc
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Cluster	1	496	68.9%	0	0.0%	0	0.0%	
	2	224	31.1%	77	100.0%	75	100.0%	
	Combined	720	100.0%	77	100.0%	75	100.0%	

Model Summary

Algorithm	TwoStep
Inputs	3
Clusters	2

Cluster Quality

Silhouette measure of cohesion and separation

Predictor Importance

2016 unconstrained two-step cluster data output

Auto-Clustering

Number of Clusters	Schwarz's Bayesian Criterion (BIC)	BIC Change[a]	Ratio of BIC Changes[b]	Ratio of Distance Measures[c]
1	2791.447			
2	1613.095	-1178.352	1.000	3.012
3	1255.515	-357.580	.303	1.672
4	1061.919	-193.596	.164	1.086
5	887.586	-174.333	.148	1.546
6	792.577	-95.009	.081	1.632
7	753.836	-38.741	.033	1.037
8	718.251	-35.585	.030	1.474
9	710.262	-7.989	.007	1.405
10	719.080	8.818	-.007	1.072
11	730.680	11.600	-.010	1.040
12	743.765	13.086	-.011	1.002
13	756.943	13.177	-.011	1.691
14	785.275	28.332	-.024	1.087
15	815.358	30.083	-.026	1.161
16	848.233	32.876	-.028	1.239
17	884.461	36.228	-.031	1.418
18	924.829	40.368	-.034	1.472

a. The changes are from the previous number of clusters in the table.
b. The ratios of changes are relative to the change for the two cluster solution.
c. The ratios of distance measures are based on the current number of clusters against the previous number of clusters.

Cluster Distribution

		N	% of Combined	% of Total
Cluster	1	344	64.2%	2.6%
	2	192	35.8%	1.4%
	Combined	536	100.0%	4.0%
Excluded Cases		12766		96.0%
Total		13302		100.0%

Frequencies

AllocationTrade

		Did not buy or sell allocation		Sold allocation		Bought allocation		Both bought and sold allocation	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Cluster	1	241	94.1%	103	92.0%	0	0.0%	0	0.0%
	2	15	5.9%	9	8.0%	152	100.0%	16	100.0%
	Combined	256	100.0%	112	100.0%	152	100.0%	16	100.0%

EntitlementTrade

|		Did not buy or sell entitlement		Sold entitlements		Bought entitlements		Both bought and sold entitlements	
		Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Cluster	1	286	66.1%	29	65.9%	26	51.0%	3	37.5%
	2	147	33.9%	15	34.1%	25	49.0%	5	62.5%
	Combined	433	100.0%	44	100.0%	51	100.0%	8	100.0%

WaterSourcingStrategy

		Own entitlements only (did not use water purchased on temporary market)		Own entitlements and water purchased on temporary market		Allocation/leased water only	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Cluster	1	344	100.0%	0	0.0%	0	0.0%
	2	0	0.0%	177	100.0%	15	100.0%
	Combined	344	100.0%	177	100.0%	15	100.0%

Model Summary

Algorithm	TwoStep
Inputs	3
Clusters	2

Cluster Quality

Silhouette measure of cohesion and separation
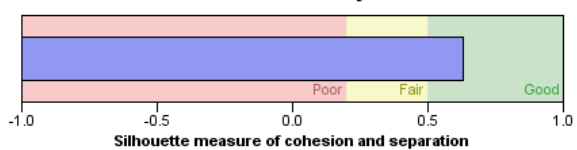
Predictor Importance
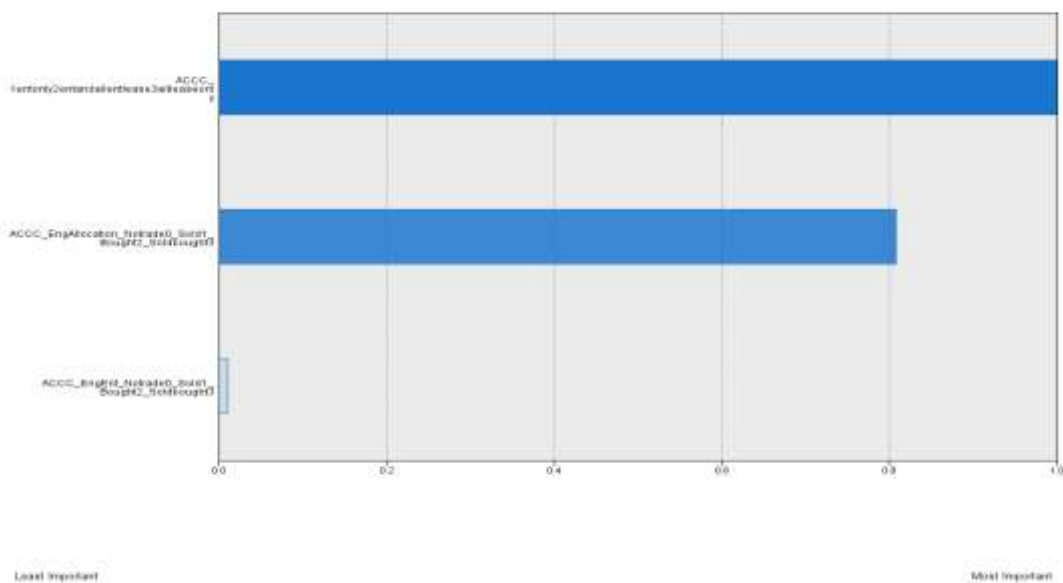
2018 unconstrained two-step cluster data output

Auto-Clustering

Number of Clusters	Schwarz's Bayesian Criterion (BIC)	BIC Change[a]	Ratio of BIC Changes[b]	Ratio of Distance Measures[c]
1	1756.486			
2	1009.636	-746.850	1.000	2.769
3	770.757	-238.878	.320	2.066
4	680.002	-90.755	.122	1.029
5	593.145	-86.857	.116	1.872
6	569.218	-23.928	.032	1.313
7	562.490	-6.728	.009	1.193
8	564.631	2.140	-.003	1.294
9	577.243	12.613	-.017	1.293
10	597.925	20.681	-.028	1.200
11	623.201	25.277	-.034	1.218
12	652.589	29.388	-.039	1.460
13	687.905	35.316	-.047	1.013
14	723.386	35.481	-.048	1.027
15	759.202	35.816	-.048	1.704

a. The changes are from the previous number of clusters in the table.
b. The ratios of changes are relative to the change for the two cluster solution.
c. The ratios of distance measures are based on the current number of clusters against the previous number of clusters.

Cluster Distribution

		N	% of Combined	% of Total
Cluster	1	105	25.4%	0.7%
	2	309	74.6%	2.0%
	Combined	414	100.0%	2.7%
Excluded Cases		14669		97.3%
Total		15083		100.0%

Frequencies

WaterSourcingStrategy

		1.00		2.00		3.00	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Cluster	1	0	0.0%	94	100.0%	11	100.0%
	2	309	100.0%	0	0.0%	0	0.0%
	Combined	309	100.0%	94	100.0%	11	100.0%

AllocationTrade

		.00		1.00		2.00		Frequenc
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Cluster	1	17	6.0%	1	2.4%	75	100.0%	
	2	268	94.0%	41	97.6%	0	0.0%	
	Combined	285	100.0%	42	100.0%	75	100.0%	

EntitlementTrade

		.00		1.00		2.00		Frequenc
		Frequency	Percent	Frequency	Percent	Frequency	Percent	
Cluster	1	88	24.6%	7	21.9%	8	38.1%	
	2	270	75.4%	25	78.1%	13	61.9%	
	Combined	358	100.0%	32	100.0%	21	100.0%	

Model Summary

Algorithm	TwoStep
Inputs	3
Clusters	2

Cluster Quality

Silhouette measure of cohesion and separation
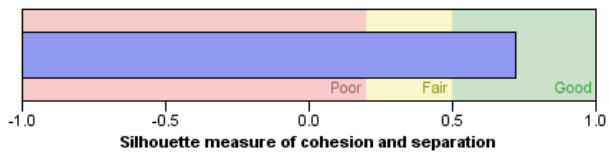
Predictor Importance
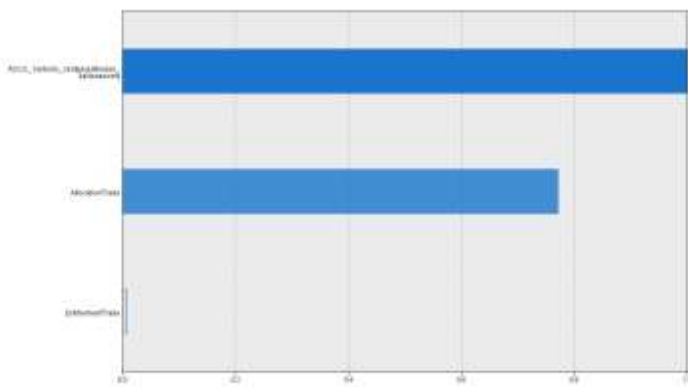
2015 – 3, 4 and 5 cluster constrained two-step cluster data output

3 cluster

Cluster distribution		N	% of All
Cluster	1	496	55.9%
	2	167	18.8%
	3	224	25.3%
	All	887	100.0%

		Water Sourcing Strategy		
		Ent only	Ent + All/lease	All/lease only
Cluster	1	84.2%	0.0%	0.0%
	2	13.6%	31.3%	7.7%
	3	2.2%	68.8%	92.3%
	All	100.0%	100.0%	100.0%

		Allocation trade			
		No trade	Sold	Bought	Both
Cluster	1	77.5%	73.1%	0.0%	0.0%
	2	12.6%	20.3%	29.1%	37.5%
	3	9.9%	6.6%	70.9%	62.5%
	All	100.0%	100.0%	100.0%	100.0%

		Entitlement trade			
		No trade	Sold	Bought	Both
Cluster	1	68.9%	0.0%	0.0%	0.0%
	2	0.0%	100.0%	100.0%	100.0%
	3	31.1%	0.0%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

Cluster Quality

Silhouette measure of cohesion and separation
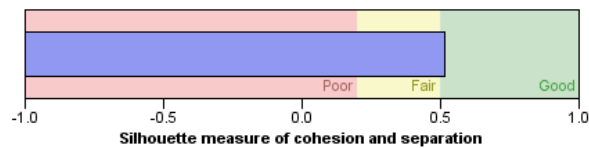
4 cluster

Cluster distribution		N	% of All
Cluster	1	352	39.7%
	2	167	18.8%
	3	145	16.3%
	4	223	25.1%
	All	887	100.0%

		Water Sourcing Strategy		
		Ent only	Ent + All/lease	All/lease only
Cluster	1	59.8%	0.0%	0.0%
	2	13.6%	31.3%	7.7%
	3	24.6%	0.0%	0.0%
	4	2.0%	68.8%	92.3%
	All	100.0%	100.0%	100.0%

		Allocation trade			
		No trade	Sold	Bought	Both
Cluster	1	77.5%	0.0%	0.0%	0.0%
	2	12.6%	20.3%	29.1%	37.5%
	3	0.0%	73.1%	0.0%	6.3%
	4	9.9%	6.6%	70.9%	56.3%
	All	100.0%	100.0%	100.0%	100.0%

		Entitlement trade			
		No trade	Sold	Bought	Both
Cluster	1	48.9%	0.0%	0.0%	0.0%
	2	0.0%	100.0%	100.0%	100.0%
	3	20.1%	0.0%	0.0%	0.0%
	4	31.0%	0.0%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

Cluster Quality

Silhouette measure of cohesion and separation
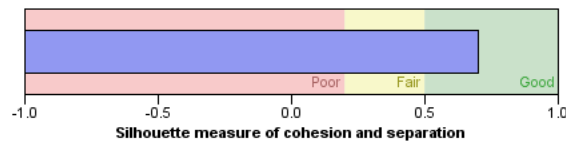
5 cluster

Cluster distribution		N	% of All
Cluster	1	352	39.7%
	2	105	11.8%
	3	145	16.3%
	4	223	25.1%
	5	62	7.0%
	All	887	100.0%

		Water Sourcing Strategy		
		Ent only	Ent + All/lease	All/lease only
Cluster	1	59.8%	0.0%	0.0%
	2	13.6%	8.8%	3.8%
	3	24.6%	0.0%	0.0%
	4	2.0%	68.8%	92.3%
	5	0.0%	22.4%	3.8%
	All	100.0%	100.0%	100.0%

		Allocation trade			
		No trade	Sold	Bought	Both
Cluster	1	77.5%	0.0%	0.0%	0.0%
	2	12.6%	20.3%	0.9%	37.5%
	3	0.0%	73.1%	0.0%	6.3%
	4	9.9%	6.6%	70.9%	56.3%
	5	0.0%	0.0%	28.2%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

		Entitlement trade			
		No trade	Sold	Bought	Both
Cluster	1	48.9%	0.0%	0.0%	0.0%
	2	0.0%	71.4%	56.0%	53.3%
	3	20.1%	0.0%	0.0%	0.0%
	4	31.0%	0.0%	0.0%	0.0%
	5	0.0%	28.6%	44.0%	46.7%
	All	100.0%	100.0%	100.0%	100.0%

Cluster Quality

Silhouette measure of cohesion and separation
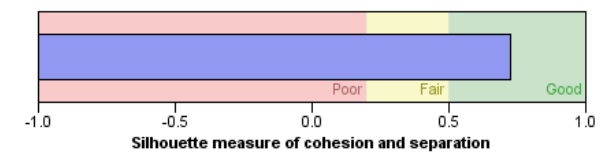
2016 – 3, 4 and 5 cluster constrained two-step cluster data output

3 cluster

Cluster distribution

Cluster		N	% of All
Cluster	1	211	39.4%
	2	133	24.8%
	3	192	35.8%
	All	536	100.0%

		Water Sourcing Strategy		
		Ent only	Ent + All/lease	All/lease only
Cluster	1	61.3%	0.0%	0.0%
	2	38.7%	0.0%	0.0%
	3	0.0%	100.0%	100.0%
	All	100.0%	100.0%	100.0%

		Allocation trade			
		No trade	Sold	Bought	Both
Cluster	1	82.4%	0.0%	0.0%	0.0%
	2	11.7%	92.0%	0.0%	0.0%
	3	5.9%	8.0%	100.0%	100.0%
	All	100.0%	100.0%	100.0%	100.0%

		Entitlement trade			
		No trade	Sold	Bought	Both
Cluster	1	48.7%	0.0%	0.0%	0.0%
	2	17.3%	65.9%	51.0%	37.5%
	3	33.9%	34.1%	49.0%	62.5%
	All	100.0%	100.0%	100.0%	100.0%

Cluster Quality

Silhouette measure of cohesion and separation
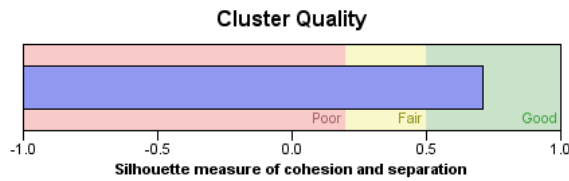
4 cluster

Cluster distribution

Cluster		N	% of All
Cluster	1	211	39.4%
	2	58	10.8%
	3	190	35.4%
	4	77	14.4%
	All	536	100.0%

		Water Sourcing Strategy		
		Ent only	Ent + All/lease	All/lease only
Cluster	1	61.3%	0.0%	0.0%
	2	16.9%	0.0%	0.0%
	3	0.0%	100.0%	86.7%
	4	21.8%	0.0%	13.3%
	All	100.0%	100.0%	100.0%

		Allocation trade			
		No trade	Sold	Bought	Both
Cluster	1	82.4%	0.0%	0.0%	0.0%
	2	11.7%	25.0%	0.0%	0.0%
	3	5.9%	6.3%	100.0%	100.0%
	4	0.0%	68.8%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

		Entitlement trade			
		No trade	Sold	Bought	Both
Cluster	1	48.7%	0.0%	0.0%	0.0%
	2	0.0%	65.9%	51.0%	37.5%
	3	33.5%	34.1%	49.0%	62.5%
	4	17.8%	0.0%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

Cluster Quality

Silhouette measure of cohesion and separation
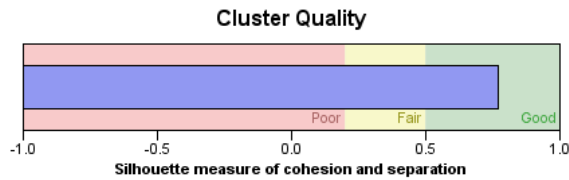
5 cluster

Cluster distribution

Cluster		N	% of All
Cluster	1	211	39.4%
	2	58	10.8%
	3	147	27.4%
	4	45	8.4%
	5	75	14.0%
	All	536	100.0%

		Water Sourcing Strategy		
		Ent only	Ent + All/lease	All/lease only
Cluster	1	61.3%	0.0%	0.0%
	2	16.9%	0.0%	0.0%
	3	0.0%	74.6%	100.0%
	4	0.0%	25.4%	0.0%
	5	21.8%	0.0%	0.0%
	All	100.0%	100.0%	100.0%

		Allocation trade			
		No trade	Sold	Bought	Both
Cluster	1	82.4%	0.0%	0.0%	0.0%
	2	11.7%	25.0%	0.0%	0.0%
	3	5.5%	7.1%	76.3%	56.3%
	4	0.4%	0.9%	23.7%	43.8%
	5	0.0%	67.0%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

		Entitlement trade			
		No trade	Sold	Bought	Both
Cluster	1	48.7%	0.0%	0.0%	0.0%
	2	0.0%	65.9%	51.0%	37.5%
	3	33.9%	0.0%	0.0%	0.0%
	4	0.0%	34.1%	49.0%	62.5%
	5	17.3%	0.0%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

Cluster Quality

Silhouette measure of cohesion and separation
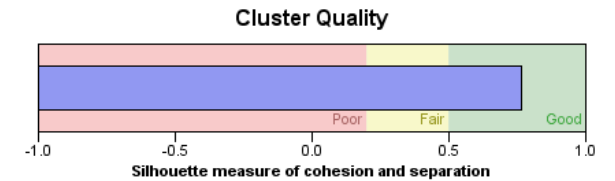
2018 – 3, 4 and 5 cluster constrained two-step cluster data output

3 cluster

Cluster distribution

Cluster		N	% of All
Cluster	1	105	25.4%
	2	240	58.0%
	3	69	16.7%
	All	414	100.0%

		Water Sourcing Strategy		
		Ent only	Ent + All/lease	All/lease only
Cluster	1	0.0%	100.0%	100.0%
	2	77.7%	0.0%	0.0%
	3	22.3%	0.0%	0.0%
	All	100.0%	100.0%	100.0%

		Allocation trade			
		No trade	Sold	Bought	Both
Cluster	1	6.0%	2.4%	100.0%	100.0%
	2	84.2%	0.0%	0.0%	0.0%
	3	9.8%	97.6%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

		Entitlement trade			
		No trade	Sold	Bought	Both
Cluster	1	24.6%	21.9%	38.1%	66.7%
	2	67.0%	0.0%	0.0%	0.0%
	3	8.4%	78.1%	61.9%	33.3%
	All	100.0%	100.0%	100.0%	100.0%

Cluster Quality

Silhouette measure of cohesion and separation

4 cluster

Cluster distribution

Cluster		N	% of All
Cluster	1	101	24.4%
	2	240	58.0%
	3	42	10.1%
	4	31	7.5%
	All	414	100.0%

		Water Sourcing Strategy		
		Ent only	Ent + All/lease	All/lease only
Cluster	1	0.0%	98.9%	72.7%
	2	77.7%	0.0%	0.0%
	3	12.6%	0.0%	27.3%
	4	9.7%	1.1%	0.0%
	All	100.0%	100.0%	100.0%

		Allocation trade			
		No trade	Sold	Bought	Both
Cluster	1	4.9%	0.0%	100.0%	100.0%
	2	84.2%	0.0%	0.0%	0.0%
	3	10.9%	26.2%	0.0%	0.0%
	4	0.0%	73.8%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

		Entitlement trade			
		No trade	Sold	Bought	Both
Cluster	1	24.3%	15.6%	33.3%	66.7%
	2	67.0%	0.0%	0.0%	0.0%
	3	0.0%	84.4%	66.7%	33.3%
	4	8.7%	0.0%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

Cluster Quality

Silhouette measure of cohesion and separation

5 cluster

Cluster distribution

Cluster		N	% of All
Cluster	1	62	15.0%
	2	43	10.4%
	3	240	58.0%
	4	39	9.4%
	5	30	7.2%
	All	414	100.0%

		Water Sourcing Strategy		
		Ent only	Ent + All/lease	All/lease only
Cluster	1	0.0%	66.0%	0.0%
	2	0.0%	34.0%	100.0%
	3	77.7%	0.0%	0.0%
	4	12.6%	0.0%	0.0%
	5	9.7%	0.0%	0.0%
	All	100.0%	100.0%	100.0%

		Allocation trade			
		No trade	Sold	Bought	Both
Cluster	1	0.0%	0.0%	82.7%	0.0%
	2	6.0%	2.4%	17.3%	100.0%
	3	84.2%	0.0%	0.0%	0.0%
	4	9.8%	26.2%	0.0%	0.0%
	5	0.0%	71.4%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

		Entitlement trade			
		No trade	Sold	Bought	Both
Cluster	1	17.3%	0.0%	0.0%	0.0%
	2	7.3%	21.9%	38.1%	66.7%
	3	67.0%	0.0%	0.0%	0.0%
	4	0.0%	78.1%	61.9%	33.3%
	5	8.4%	0.0%	0.0%	0.0%
	All	100.0%	100.0%	100.0%	100.0%

Cluster Quality

Silhouette measure of cohesion and separation
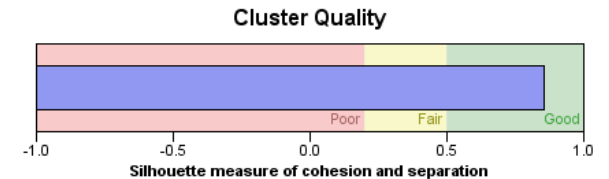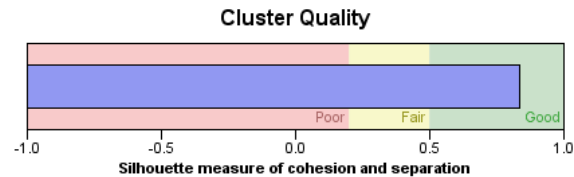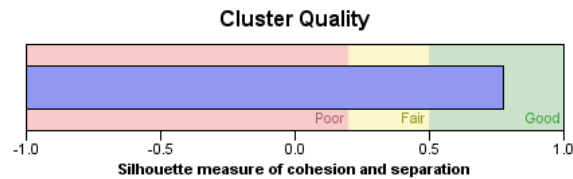
Appendix 3: water market attitudes cluster analysis – methods

This document describes the development of an irrigator typology based on experiences of water trading recorded in the Regional Wellbeing Survey. The approach used was exploratory as, similar to the development of a trade typology, while it was expected there would be distinct clusters of irrigators with differing attitudes towards water trade, this is a relatively new area that has not been examined in previous studies, and for which there is no existing theory to guide a constrained cluster analysis.

In 2015, irrigators completing the Regional Wellbeing Survey were asked to indicate how much they agreed or disagreed with the following survey items:
- My rights to access water (when it is available) are secure
- It is easy to trade temporary water if I want to
- It is easy to trade permanent water entitlements if I want to
- The water trade market is fair for all users
- I feel confident to use water trading as part of my farm management
- Changes to the rules for water trading in the last few years have increased my confidence in the water market
- Water entitlements held by the government are subject to the same rules and charges as other participants in the water market
- Water market rules are stable
- I know how to access the information I need to make water trading decisions
- It's easy to access the information I need to make water trading decisions

Responses were recorded on a seven-point scale with an additional 'don't know' option.

To prepare these data for analysis, a sample was defined by including only irrigators who had responded to each of the 10 items, excluding those who had selected 'don't know'. In 2015, 384 irrigators met these criteria.

In 2016, irrigators completing the Regional Wellbeing Survey were asked to indicate how much they agreed or disagreed with the following survey items:
- My rights to access water (when it is available) are secure
- It is easy to trade temporary water if I want to
- It is easy to trade permanent water entitlements if I want to
- The water trade market is fair for all users
- I feel confident to use water trading as part of my farm management
- It's easy to access the information I need to make water trading decisions
- Water entitlements held by the government are subject to the same rules and charges as other participants in the water market
- Water market rules are stable

Responses were recorded on a seven-point scale with an additional 'don't know' option.

To prepare these data for analysis, a sample was defined by including only irrigators who had responded to each of the seven items, excluding those who had selected 'don't know'. In 2016, 467 irrigators met these criteria.

For both years of data, to create the typology of irrigators, a *latent class analysis* was used. Latent class analyses are a set of statistical methods that can define un-observed class membership based on observed variables; in this case the items listed above. The variables were added to a *generalised structural equation model* (GSEM) using the *gsem* command in Stata (version 16.1). Solutions with three, four and five latent classes were explored. Ultimately, the solution with four latent classes was considered to have the greatest utility in terms of defining distinct groups of irrigators that separated in ways that were both statistically

robust and able to be explained intuitively with reference to the differences in attitudes evident in the clusters generated.

The output of the final model was four variables that represented the probability of an irrigator being in each of the four classes. Irrigators were assigned to a class if the probability of them being in that class was greater than 0.5 (i.e., their probability of being in that class was greater than the combined probability of being in the other classes). The model provided good differentiation between classes, and each irrigator was able to be assigned to a specific class using this method (known as *modal class assignment*).

In 2015, there were 67 (17.5%) irrigators in Class 1, 112 (29.2%) in Class 2, 100 (26.0%) in Class 3 and 105 (27.3%) in Class 4.

In 2016, there were 94 (20.2%) irrigators in Class 1, 114 (24.5%) in Class 2, 129 (27.7%) in Class 3 and 128 (27.5%) in Class 4.

Tables 1 and 2 provide AIC and BIC for solutions with differing numbers of classes.

Table 1 AIC and BIC comparing solutions with different numbers of classes for 2015 data

	3 class	4 class	5 class	6 class	7 class
AIC	14929.84	14739.25	14569.47	14497.09	14368.21
BIC	15095.77	14948.63	14822.31	14793.39	14707.96

Table 2 AIC and BIC comparing solutions with different numbers of classes for 2016 data

	3 class	4 class	5 class	6 class	7 class
AIC	14198.09	13956.8	13787.91	13720.64	13612.96
BIC	14339.07	14135.09	14003.52	13973.57	13903.21

Appendix 4: Understanding perceptions of fairness of the water trade market – detailed description of modelling process

This Appendix provides further detail of the exploratory analysis undertaken to understand perceptions of fairness. This was an initial, exploratory analysis, rather than a confirmatory piece of work, and as such has limitations. It does, however, point to areas for future exploration and modelling.

Who feels water trading is fair? In this analysis, we treated the 7-point ordinal scale responses to the item 'The water trade market is fair for all users' as the dependent variable and used linear regression to examine which factors most strongly predict feeling confident in fairness of the trade system. In 2015 and 2016, the RWS asked irrigators how much they agreed or disagreed that 'The water trade market is fair for all users', with irrigators able to answer from strongly disagree (1) to strongly agree (7) on a 7-point ordinal scale. This variable measures overall trust in water markets, and hence it is useful to examine what types of factors predict whether an irrigator agrees or disagrees with this statement.

Ordinary least-squares (OLS) regression was used, with the ordinal fairness variable used as the dependent variable. While OLS is designed to be used with continuous data, there is growing recognition that some ordinal data can, with caution, be used as a dependent variable in this type of regression modelling, particularly in exploratory modelling seeking to identify areas for further exploration. Multiple empirical studies have identified that OLS where an ordinal variable is used as the dependent variable can produce robust findings, even without conducting transformations to improve the approximation of continuous-variable-like intervals in the ordinal scale (see for example Kromrey and Rendina-Gobioff 2002). While many argue that ordinal scales require transformation into data that better approximates continuous data with known 'even' intervals and a normal distribution, recent work also suggests that if residual data are distributed normally, even a very non-normally distributed ordinal scale can be modelled using linear, rather than ordinal/logistic regression models (Norris et al. 2006). Thus OLS was considered suited to the initial exploratory analysis presented here. Future work should further examine these findings to identify whether use of alternative approaches such as ordered logit regression models (see for example Batool and Batool 2018) generates similar findings, and to examine the sensitivity of findings to the use of specific modelling approaches.

A4.1 Overall modelling approach

A key challenge with identifying what factors predict a person feeling the water trade market is fair for all users is the large number of potential factors that may predict differences in this. Ideally, understanding this would be based on measuring a set of factors specifically hypothesised to influence perceptions of fairness. However, when restrospectively developing a model using a dataset that was not specifically designed to examine all factors influencing fairness, there was limited capacity to do this. Instead, we identified the range of factors considered likely to influence perceptions of fairness largely based on the findings of the initial descriptive analysis, and based on a rapid (unstructured) review of public information about irrigator perceptions of water trade. Using this process, we identified a large number of potential predictor variables – more than 40 in total. As this is more than is feasible or appropriate for a final regression model, we approached developing the model in the following stages:

i) We grouped different types of variables identified as potential predictors into five groups: a) geographic location, b) farm type/size/water use, c) farmer demographics, d) water trade and reform experience, and e) confidence in farm management and future. Each of these groups was examined in turn to identify if the variables within the group were predictors of variance in perceptions of water market fairness in a simple regression analysis. This was used to reduce number of variables by identifying those within each group of highest relevance. Effectively, this formed an theoretically driven exploratory analysis.

ii) The remaining variables were then included in a multiple step regression model, in which each type of variable was entered in turn. This was done as it was considered likely that some independent variables in the model would be acting as proxies for others. In particular, it was considered likely that while some groups of irrigators and those in some locations may be less likely to feel water markets are fair for all users, this in turn would be due to differences in views

about whether water trade was accessible and easy to participate in, which – once accounted for – may mean the original predictors of geography or farm type were no longer significant.

iii) Based on the multi-step regression, we then tested simplified single models in which we removed some variables identified in the multi-step regression as having limited or little predictive significance after inclusion of other variables.

This approach was undertaken to ensure the modelling was both theory driven, but also used exploratory analysis to eliminate some of the large number of potential predictor variables.

A4.2. Groups of potential independent (predictor) variables

Based on the descriptive analyses (which in turn were based on common hypotheses about what variables predict differences in trading behaviour), the following were identified as variables that may be associated with differing views about fairness of water trade:

a) Geographic location

Many argue that those who have greater or lesser opportunity to trade, or differing water trade rules, may find water trading more or less fair. The key factors identified as potentially of relevance were:

- Barmah choke – location of irrigator above or below the Choke, which is associated with differing access to water trading
- Northern and Southern Basin – large differences exist in access to water trading in the Northern versus the Southern Basin
- Basin State (Qld Basin, Northern NSW Basin, Southern NSW Basin, Victorian Basin, SA Basin) – different states have some differences in water trade, although trade will also differ substantially within states depending on water type and catchment

b) Farm type/ size/water use

Farmers managing different types of farms – dairy, crop growing (including rice, oilseeds), horticulture and grazing – were considered likely to have differing views. However, some farm types are also clustered in specific parts of the Basin, meaning farm type can interact with geographic location. The age profile of different farmers also differs somewhat (for example, sheep graziers are overall older on average than other farmers)

- Economic size – those with large gross value of agricultural production had many differences in descriptive analyses
- Megalitres used – as above, those using smaller versus larger volumes of water were different in some ways in descriptive data
- Surface vs groundwater use – as these types of water are regulated and managed in different ways, it was considered likely that those who relied on surface water would have differing views compared to those relying on groundwater. This was also included to identify whether the model should use a 'surface water users only' approach in which those who relied on using groundwater only were removed from the model

c) Farmer demographics – age, gender, formal educational attainment, on and off-farm income

While not having a strong theoretical basis, there were sufficient differences between farmers of differing age groups and others, and sometimes between those earning more and less off-farm income, to suggest that these factors may be predictive of views of fairness of water trade. Formal educational attainment is commonly suggested as a factor influencing views of markets, and was also included.

d) Water trade experience - Engagement in water trade, investment in irrigation infrastructure, and access to trade

Those with more access to trade and who engaged in trade and water reform actions were considered to have potential to find water markets fairer. This included:

- Those who reported having ability to trade allocation in their district, and water regularly available on the market

- Those who had invested in modernising irrigation infrastructure may have differing views about water trade

- Those who have experienced high allocation prices were hypothesised to be likely to find trade less fair

- Those who reporting finding it easy to trade were considered likely to find water trading fairer

- Those who felt water market rules had remained stable were considered likely to find water trading fairer compared to those who felt rules were not stable

e) Confidence in farm management and future

Those who engaged in active farm planning, those experiencing more vs less farm stress, and those who felt confident to manage their farm and achieve desired outcomes, were considered to have potential to have differing views about water trade. However, there was less theoretical justification for this group than others: the broad justification for inclusion was that farmers who feel less confident or are experiencing stress are, similar to any person experiencing stress, less likely to feel confident markets are fair and more likely to perceive them as unfair.

A4.3. Linear regression models of five groups of variables

A key challenge in conducting this analysis, as noted earlier is the known crossover of some variables. For example, farm type, age, and Basin location sometime cross-over in unique way that will not cause problems of multi-collinearity in a regression analysis, but which may mean that including all these variables in a single regression will be potentially problematic. For example – many dairy farmers are clustered in the Murray-Goulburn region, and include a somewhat younger average age profile than other farmer types. This means that when including dairy farmers, Victorian Basin, and age of farmer in a regression, all three have some cross-over characteristics despite not having an overall high level of statistical correlation when the whole sample is examined.

In this section, each group of variables is briefly modelled to identify best predictors within each type of potential predictor variable. The next section then examines a multi-step model. Text summarising key findings for each group is first presented, with the statistical modelling output provided after this.

A4.3.1a Geographic location

The following variables were examined:

- Location in Northern vs Southern Basin (single binary variable) (Label: North1South0)

- Basin State (dummy variables used for Qld Basin, NSW Northern Basin, NSW Southern Basin, Vic Basin, SA Basin, with all but Qld Basin excluded and Qld Basin acting as reference variable) (Labels: BasinSteQld1Else0, BasinStateNSWNth1Else0, BasinStateNSWSth1Else0, BasinStateVic1Else0, BasinStateSA1Else0)

- Location above or below Barmah Choke (single binary variable) (Label BarmahChokeAbove1Below0)

Neither (i) location in Northern versus Southern Basin, (ii) Basin state or (iii) location above or below the Barmah Choke predicted substantial variation in views about fairness of the water market. This was examined in three separate regressions, as these three types of data correlate with each other and cannot be used robustly in a single regression analysis.

As irrigators in the Victorian Southern Basin, and the NSW Southern Basin, are sometimes reported to have greater concerns about aspects of water trade, a simpler regression including just these regions was examined. When this was done, without including dummy variables for other Basin states, Victorian Basin irrigators were significantly different, with being located in Victoria associated with significantly more negative views about the fairness of water trade. However, this variable on its own predicted only a smaller amount of overall variation.

This suggested that location variables at this scale were not sufficient to identify meaningful differences. However, it was considered possible that after including variables managing other factors, location above and below the Barmah Choke may still be a useful predictors, and this was still included in subsequent multi-step regression modelling.

A4.3.1b Geographic location – modelling output

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	North1South0[b]	.	Enter

a. Dependent Variable: WatermktfairforallDK4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.016[a]	.000	-.001	1.92414

a. Predictors: (Constant), North1South0

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.533	1	.533	.144	.704[b]
	Residual	2128.826	575	3.702		
	Total	2129.359	576			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), North1South0

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.822	.088		43.654	.000
	North1South0	.082	.217	.016	.379	.704

a. Dependent Variable: WatermktfairforallDK4

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	BarmahChokeAbove1Below0, North1South0[b]	.	Enter

a. Dependent Variable: WatermktfairforallDK4
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.031[a]	.001	-.003	1.92513

a. Predictors: (Constant), BarmahChokeAbove1Below0, North1South0

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.038	2	1.019	.275	.760[b]
	Residual	2127.321	574	3.706		
	Total	2129.359	576			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), BarmahChokeAbove1Below0, North1South0

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.892	.141		27.575	.000
	North1South0	.126	.228	.024	.555	.579
	BarmahChokeAbove1Below0	-.115	.180	-.028	-.637	.524

a. Dependent Variable: WatermktfairforallDK4

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	BarmahChokeAbove1Below0[b]	.	Enter

a. Dependent Variable: WatermktfairforallDK4
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.005[a]	.000	-.001	1.76786

a. Predictors: (Constant), BarmahChokeAbove1Below0

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.072	1	.072	.023	.879[b]
	Residual	3084.706	987	3.125		
	Total	3084.779	988			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), BarmahChokeAbove1Below0

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.835	.074		52.152	.000
	BarmahChokeAbove1Below0	1.952E-5	.000	.005	.152	.879

a. Dependent Variable: WatermktfairforallDK4

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	BarmahChokeAbove1Below0, BasinSteVic1Else0, BasinSteNSWNth1Else0, BasinSteSA1Else0, BasinSteNSWSth1Else0[b]	.	Enter

a. Dependent Variable: WatermktfairforallDK4
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.133[a]	.018	.009	1.91388

a. Predictors: (Constant), BarmahChokeAbove1Below0, BasinSteVic1Else0, BasinSteNSWNth1Else0, BasinSteSA1Else0, BasinSteNSWSth1Else0

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.816	5	7.563	2.065	.068[b]
	Residual	2091.542	571	3.663		
	Total	2129.359	576			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), BarmahChokeAbove1Below0, BasinSteVic1Else0, BasinSteNSWNth1Else0, BasinSteSA1Else0, BasinSteNSWSth1Else0

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		

1	(Constant)	4.011	.404		9.917[b]	.000
	BasinSteNSWNth1Else0	.002	.420	.000	.004	.997
	BasinSteNSWSth1Else0	.175	.379	.039	.460	.646
	BasinSteSA1Else0	.239	.474	.038	.505	.614
	BasinSteVic1Else0	-.356	.372	-.093	-.956	.339
	BarmahChokeAbove1Below0	-.107	.213	-.026	-.504	.614

a. Dependent Variable: WatermktfairforallDK4

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	BasinSteVic1Else0, BasinSteSA1Else0, BasinSteNSWNth1Else0, BasinSteNSWSth1Else0[b]	.	Enter

a. Dependent Variable: WatermktfairforallDK4
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.132[a]	.017	.010	1.91263

a. Predictors: (Constant), BasinSteVic1Else0, BasinSteSA1Else0, BasinSteNSWNth1Else0, BasinSteNSWSth1Else0

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	36.884	4	9.221	2.521	.040[b]
	Residual	2092.475	572	3.658		
	Total	2129.359	576			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), BasinSteVic1Else0, BasinSteSA1Else0, BasinSteNSWNth1Else0, BasinSteNSWSth1Else0

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.903	.344		11.362	.000
	BasinSteNSWNth1Else0	.002	.420	.000	.004	.997
	BasinSteNSWSth1Else0	.186	.378	.042	.493	.622
	BasinSteSA1Else0	.347	.423	.055	.820	.413
	BasinSteVic1Else0	-.313	.362	-.081	-.865	.387

a. Dependent Variable: WatermktfairforallDK4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.123[a]	.015	.013	1.90972

a. Predictors: (Constant), BasinSteVic1Else0

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	32.314	1	32.314	8.860	.003[b]
	Residual	2097.044	575	3.647		

Total	2129.359	576				

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), BasinSteVic1Else0

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.064	.110		36.793	.000
	BasinSteVic1Else0	-.474	.159	-.123	-2.977	.003

a. Dependent Variable: WatermktfairforallDK4

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.077[a]	.006	.004	1.91871

a. Predictors: (Constant), BasinSteNSWSth1Else0

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.524	1	12.524	3.402	.066[b]
	Residual	2116.834	575	3.681		
	Total	2129.359	576			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), BasinSteNSWSth1Else0

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.750	.092		40.622	.000
	BasinSteNSWSth1Else0	.340	.184	.077	1.844	.066

a. Dependent Variable: WatermktfairforallDK4

A4.3.2a Farm type and size

The following variables were examined:

- Use of surface water vs groundwater (binary variable, all using any surface water (including in combination with groundwater) were coded as '1' and those using groundwater only as 0 (label: ACCC_SurfWater)

- % income from off-farm work (continuous variable, label dFDincomeofffarmwork)

- Farm type: Dummy variables were used to identify those who were Fruit/nut growers (Fruitnut1Not0), crop growers including grains, cotton, rice and oilseed (Graingrow1Notgraingrow0), Dairy farmers (Dairy1_Notdairy0) or Graziers (Grazier1Notgrazier0), with graziers acting as the reference variable

- Self-reported farm profitability (ordinal variable with 13 categories, from loss of $200,000 or more to profit of $200,000 or more) (label dFDestlossprofit)

- Gross value of agricultural production (GVAP) (ordinal variable with 13 categories, from nil to $2 million or more) (label dFDgvap201516)

- Megalitres applied on farm for irrigated agriculture (ML applied) (continuous variable, label ACCC_TotalML)

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Some variables were significant predictors of views about fairness of water trade while others were not.

- Those making a higher profit were more confident in fairness of the market

- Those with farms of larger economic size less confident

- Those using more water more confident

- Surface water users less confident and those relying solely on groundwater more confident

- Dairy farmers less confident in the fairness of the market. Other farm types were not associated with differing views.

- Amount of income earned off-farm was not a significant predictor.

All variables except income earned off-farm were included in subsequent analysis, as income off-farm did not have a strong theoretical basis for inclusion in addition to being not significant in this initial analysis.

A4.3.2b Farm type and size – modelling output

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.268[a]	.072	.055	1.83310

a. Predictors: (Constant), ACCC_SurfWater, dFDincomeofffarmwork, Fruitnut1Not0, Graingrow1Notgraingrow0, dFDestlossprofit, ACCC_TotalML, Dairy1_Notdairy0, dFDgvap201516

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	113.445	8	14.181	4.220	.000[b]
	Residual	1461.715	435	3.360		
	Total	1575.160	443			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), ACCC_SurfWater, dFDincomeofffarmwork, Fruitnut1Not0, Graingrow1Notgraingrow0, dFDestlossprofit, ACCC_TotalML, Dairy1_Notdairy0, dFDgvap201516

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.976	.476		8.350	.000
	dFDincomeofffarmwork	.001	.003	.011	.208	.835
	dFDgvap201516	-.071	.035	-.121	-2.022	.044
	dFDestlossprofit	.119	.035	.180	3.378	.001
	ACCC_TotalML	.000	.000	.112	2.144	.033
	Dairy1_Notdairy0	-.422	.240	-.098	-1.763	.079
	Graingrow1Notgraingrow0	.042	.279	.008	.150	.881
	Fruitnut1Not0	.330	.268	.062	1.234	.218
	ACCC_SurfWater	-.708	.334	-.100	-2.119	.035

a. Dependent Variable: WatermktfairforallDK4

A4.3.3a Farmer demographics – age, gender, educational attainment

The following variables were modelled:

- Age (continuous) (dSDage)

- Gender (binary) (Gender1Female0Male)

- Educational attainment – two dummy variables (completed high school/did not complete high school dSDedu12; completed university degree/did not complete university degree dSDedudeg)

These factors predicted a very small amount of overall variance, with only age being a significant predictor. Age was included subsequently, as was gender given that descriptive analysis did suggest some differences in views of male versus female irrigators. Educational attainment was not included as the regression model below suggests that differences identified in descriptive analysis may reflect the correlation between education and age rather than an independent effect of education.

A4.3.3b Farmer demographics – modelling output

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.137[a]	.019	.015	1.75874

a. Predictors: (Constant), dSDedudeg, dSDedu12, dSDage, Gender1Female0Male

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.010	4	14.003	4.527	.001[b]
	Residual	2932.315	948	3.093		
	Total	2988.325	952			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), dSDedudeg, dSDedu12, dSDage, Gender1Female0Male

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.182	.288		11.035	.000
	Gender1Female0Male	-.269	.144	-.062	-1.861	.063
	dSDage	.072	.025	.097	2.943	.003
	dSDedu12	-.159	.121	-.042	-1.315	.189
	dSDedudeg	-.046	.131	-.012	-.354	.723

a. Dependent Variable: WatermktfairforallDK4

A4.3.4a Water trade experience - Engagement in water trade, investment in irrigation infrastructure, and access to trade

The following variables were examined:

- Whether irrigator reported being able to trade allocation in their irrigation district (binary variable yes/no) dIRRIGTRADEallocationindistrict

- Whether irrigators had modernised on-farm irrigation infrastructure since 2008 (binary variable yes/no) Modernised1Not0

- Whether irrigator reported being able to trade allocation between irrigation districts (binary variable yes/no) dIRRIGTRADEtempbetweendistrict,

- Whether irrigator had traded allocation in the last year (binary yes/no variable, with both buying and selling included in yes) Allocationtrade1yes0no

- Whether irrigator reported there was usually water available for purchase on the market in their local area as long as you could pay the price (binary variable yes/no) dIRRIGTRADEwateronmkt,

- Whether irrigator felt water market rules had remained stable (ordinal, 7 point scale) WRrulesstableCONTINUOUSnoDK

- Whether irrigator found it easy to engage in trade of water allocation (ordinal, 7 point scale) WReasytradetempwaterCONTINUOUSnoDK

- Whether irrigator felt government water holders were subject to the same rules as other water used (ordinal, 7 point scale, WRgovtsamerulesCONTINUOUSnoDK)

Three variables were significant predictors, and the model overall predicted a large proportion of variance: irrigators who found it easy to trade water, and felt water market rules were stable and government water holders were subject to the same rules as other water users, were significantly more likely to report finding the water trade market fair for all. Actual engagement in trade, investment in modernising water infrastructure, ability to trade within or between districts, and availability of water on the market, were not significant predictors.

Subsequent modelling included the two significant predictors only, as there was not sufficient theoretical justification for inclusion of the other variables in addition to the two that were significant predictors. The types of trade available in district may differ, but perceptions of whether the type of trade available is fair will be based on rules of that trade, rather than necessarily the overall availability of trade. Decisions on whether to trade allocation in a given year are more likely to be made based on a wide range of factors, such as market conditions, with perceptions of fairness likely (based on this analysis) to be a relatively smaller predictor.

A4.3.4b Engagement in water trade, investment in irrigation infrastructure, and access to trade – modelling output

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.600[a]	.360	.347	1.66917

a. Predictors: (Constant), dIRRIGTRADEallocationindistrict, Modernised1Not0, WRrulesstable4groupCONTINUOUSnoDK, Allocationtrade1yes0no, dIRRIGTRADEtempbetweendistrict, dIRRIGTRADEwateronmkt, WReasytradetempwaterCONTINUOUSnoDK

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	566.347	7	80.907	29.039	.000[b]
	Residual	1008.582	362	2.786		
	Total	1574.930	369			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), dIRRIGTRADEallocationindistrict, Modernised1Not0, WRrulesstable4groupCONTINUOUSnoDK, Allocationtrade1yes0no, dIRRIGTRADEtempbetweendistrict, dIRRIGTRADEwateronmkt, WReasytradetempwaterCONTINUOUSnoDK

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.689	.382		1.806	.072
	Modernised1Not0	-.094	.189	-.022	-.500	.617

WReasytradetempwaterCONTINUOUSnoDK	.312	.068	.263	4.588	.000
WRrulesstable4groupCONTINUOUSnoDK	.474	.044	.475	10.727	.000
Allocationtrade1yes0no	-.189	.198	-.045	-.957	.339
dIRRIGTRADEwateronmkt	.123	.268	.023	.459	.646
dIRRIGTRADEtempbetweendistrict	-.128	.229	-.027	-.559	.576
dIRRIGTRADEallocationindistrict	-.036	.426	-.004	-.084	.933

a. Dependent Variable: WatermktfairforallDK4

A4.3.5a Confidence in farm management and future

The following variables were examined:

- Whether farmer had a farm plan that actively identified and planned for management of key farm risks (dFMPLANmgtbusplanassrisk, 7 point ordinal variable)

- Whether farmer reported their farm was experiencing financial stress at the time of completing the survey (dFMPERFfinancialstress, 7 point ordinal variable)

- Whether farmer was confident they could achieve desired farming objectives on their farm (dFMACHonfarm, 7 point ordinal variable)

Two variables were significant predictors: farm financial stress, and farmer confidence in being able to achieve objectives. However, these predicted a very small proportion of overall variance in views about fairness of water markets.

A4.3.5b Confidence in farm management and future – modelling output
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.155[a]	.024	.020	1.72687

a. Predictors: (Constant), dFMPLANmgtbusplanassrisk, dFMPERFfinancialstress, dFMACHonfarm

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.484	3	16.161	5.419	.001[b]
	Residual	1974.140	662	2.982		
	Total	2022.625	665			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), dFMPLANmgtbusplanassrisk, dFMPERFfinancialstress, dFMACHonfarm

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.487	.312		11.168	.000
	dFMPERFfinancialstress	-.083	.033	-.099	-2.465	.014
	dFMACHonfarm	.097	.043	.090	2.249	.025
	dFMPLANmgtbusplanassrisk	.021	.035	.024	.617	.537

a. Dependent Variable: WatermktfairforallDK4

A4.4. Regression model – stepped

The variables identified in previous sections were included in a stepped regression model, in which the groups were added in the following order, selected based on descriptive variables being added first, and variables measuring perceptions and attitudes last:

- Geographic location
- Farm type/size/water use
- Farmer demographic
- Confidence in farm management and future
- Water trade experience

In the first step, geographic variables on their own explained a small proportion of model variance (adjusted R^2 = 0.009). In the second, the addition of farm type increased explanatory power, but it remained small (R^2 = 0.064). The addition of demographic characteristics improved explanatory power (R^2 = 0.080), while adding optimism about farming and farm financial stress also added some power (R^2 = 0.101). By far the strongest predictors were those related to views about how easy it was to trade allocation, whether water trading rules remained stable, and whether government water holders were subject to the same rules as other water users (R^2 = 0.367).

In the final step of the model, significant predictors were:

- Barmah Choke location above or below, with those above less likely to feel the water trade market was fair for all users compared to those below
- Megalitres applied, with those applying large volumes of water more likely to feel water trade markets were fair for all users
- GVAP – while only marginally significant (p=0.054), those managing farms with smaller value of agricultural production were less likely to feel water markets were fair for all users compared to those managing farmers with a higher value of production
- Ability to trade easily – those who found it easy to trade were more likely to feel markets were fair
- Perception of stability of water market rules – those who felt rules were stable found markets fairer
- Perception of whether rules applied to government water users were the same – those who felt the government was subject to the same rules as other water market participants were more likely to report the water market was fair for all users.

The step 4 model suggests that male farmers, those more confident in achieving desired outcomes on the farm, and those using ground water only were more likely to view the water market as fair. Given these variables were no longer significant in Step 5, it is likely Step 4 was identifying variance in those who perceive water market rules as stable and similar between government and private participants, and those who find it easy to trade.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.110[a]	.012	.009	2.06150
2	.301[b]	.091	.064	2.00333
3	.336[c]	.113	.080	1.98583
4	.374[d]	.140	.101	1.96311
5	.633[e]	.401	.367	1.64761

a. Predictors: (Constant), BarmahChokeAbove1Below0
b. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, Fruitnut1Not0, ACCC_SurfWater, Graingrow1Notgraingrow0, Dairy1_Notdairy0, dFDgvap201516

c. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, Fruitnut1Not0, ACCC_SurfWater, Graingrow1Notgraingrow0, Dairy1_Notdairy0, dFDgvap201516, Gender1Female0Male, dSDage
d. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, Fruitnut1Not0, ACCC_SurfWater, Graingrow1Notgraingrow0, Dairy1_Notdairy0, dFDgvap201516, Gender1Female0Male, dSDage, dFMACHonfarm, dFMPERFfinancialstress
e. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, Fruitnut1Not0, ACCC_SurfWater, Graingrow1Notgraingrow0, Dairy1_Notdairy0, dFDgvap201516, Gender1Female0Male, dSDage, dFMACHonfarm, dFMPERFfinancialstress, WRgovtsamerulesCONTINUOUSnoDK, WReasytradetempwaterCONTINUOUSnoDK, WRrulesstable4groupCONTINUOUSnoDK

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.477	1	14.477	3.406	.066[b]
	Residual	1177.186	277	4.250		
	Total	1191.663	278			
2	Regression	108.069	8	13.509	3.366	.001[c]
	Residual	1083.594	270	4.013		
	Total	1191.663	278			
3	Regression	134.799	10	13.480	3.418	.000[d]
	Residual	1056.864	268	3.944		
	Total	1191.663	278			
4	Regression	166.555	12	13.880	3.602	.000[e]
	Residual	1025.108	266	3.854		
	Total	1191.663	278			
5	Regression	477.715	15	31.848	11.732	.000[f]
	Residual	713.948	263	2.715		
	Total	1191.663	278			

a. Dependent Variable: WatermktfairforallDK4
b. Predictors: (Constant), BarmahChokeAbove1Below0
c. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, Fruitnut1Not0, ACCC_SurfWater, Graingrow1Notgraingrow0, Dairy1_Notdairy0, dFDgvap201516
d. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, Fruitnut1Not0, ACCC_SurfWater, Graingrow1Notgraingrow0, Dairy1_Notdairy0, dFDgvap201516, Gender1Female0Male, dSDage
e. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, Fruitnut1Not0, ACCC_SurfWater, Graingrow1Notgraingrow0, Dairy1_Notdairy0, dFDgvap201516, Gender1Female0Male, dSDage, dFMACHonfarm, dFMPERFfinancialstress
f. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, Fruitnut1Not0, ACCC_SurfWater, Graingrow1Notgraingrow0, Dairy1_Notdairy0, dFDgvap201516, Gender1Female0Male, dSDage, dFMACHonfarm, dFMPERFfinancialstress, WRgovtsamerulesCONTINUOUSnoDK, WReasytradetempwaterCONTINUOUSnoDK, WRrulesstable4groupCONTINUOUSnoDK

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.549	.140		25.379	.000
	BarmahChokeAbove1Below0	-.001	.000	-.110	-1.846	.066
2	(Constant)	4.037	.672		6.007	.000
	BarmahChokeAbove1Below0	-.001	.000	-.114	-1.904	.058
	Dairy1_Notdairy0	-.342	.320	-.076	-1.069	.286
	Graingrow1Notgraingrow0	.138	.363	.025	.380	.704
	Fruitnut1Not0	.161	.418	.024	.384	.701
	ACCC_SurfWater	-1.016	.543	-.114	-1.871	.062

	ACCC_TotalML	.000	.000	.156	2.449	.015
	dFDgvap201516	-.099	.047	-.151	-2.091	.037
	dFDestlossprofit	.134	.047	.190	2.880	.004
3	(Constant)	3.864	.932		4.144	.000
	BarmahChokeAbove1Below0	-.001	.000	-.119	-1.999	.047
	Dairy1_Notdairy0	-.293	.320	-.065	-.916	.360
	Graingrow1Notgraingrow0	.247	.362	.045	.681	.496
	Fruitnut1Not0	.137	.415	.020	.330	.741
	ACCC_SurfWater	-1.058	.541	-.119	-1.956	.052
	ACCC_TotalML	.000	.000	.147	2.312	.022
	dFDgvap201516	-.093	.048	-.142	-1.939	.053
	dFDestlossprofit	.113	.047	.159	2.398	.017
	Gender1Female0Male	-.664	.317	-.130	-2.094	.037
	dSDage	.045	.051	.055	.879	.380
4	(Constant)	3.913	1.068		3.664	.000
	BarmahChokeAbove1Below0	-.001	.000	-.123	-2.097	.037
	Dairy1_Notdairy0	-.106	.323	-.023	-.327	.744
	Graingrow1Notgraingrow0	.249	.359	.045	.694	.488
	Fruitnut1Not0	.125	.410	.018	.304	.761
	ACCC_SurfWater	-1.064	.536	-.120	-1.985	.048
	ACCC_TotalML	.000	.000	.139	2.204	.028
	dFDgvap201516	-.093	.048	-.142	-1.947	.053
	dFDestlossprofit	.071	.049	.101	1.456	.147
	Gender1Female0Male	-.610	.315	-.119	-1.937	.054
	dSDage	.038	.051	.046	.746	.457
	dFMPERFfinancialstress	-.107	.064	-.108	-1.680	.094
	dFMACHonfarm	.156	.080	.120	1.957	.051
5	(Constant)	.881	.985		.895	.372
	BarmahChokeAbove1Below0	-.001	.000	-.180	-3.420	.001
	Dairy1_Notdairy0	-.309	.275	-.069	-1.122	.263
	Graingrow1Notgraingrow0	-.012	.302	-.002	-.039	.969
	Fruitnut1Not0	-.189	.346	-.028	-.547	.585
	ACCC_SurfWater	-.282	.457	-.032	-.616	.538
	ACCC_TotalML	.000	.000	.162	3.059	.002
	dFDgvap201516	-.078	.040	-.119	-1.934	.054
	dFDestlossprofit	.035	.041	.049	.847	.398
	Gender1Female0Male	-.368	.267	-.072	-1.380	.169
	dSDage	-.023	.043	-.028	-.530	.597
	dFMPERFfinancialstress	-.075	.054	-.076	-1.401	.162
	dFMACHonfarm	.102	.067	.078	1.515	.131
	WReasytradetempwaterCONTINUOUSnoDK	.308	.067	.257	4.636	.000
	WRrulesstable4groupCONTINUOUSnoDK	.321	.067	.313	4.789	.000
	WRgovtsamerulesCONTINUOUSnoDK	.132	.058	.144	2.274	.024

a. Dependent Variable: WatermktfairforallDK4

A4.5. Refined model

A refined model was developed that

- Examined only surface water users and excluded those who relied solely on groundwater (this improved explanatory power)

- Removed farm type altogether (this improved explanatory power)

- Removed variables related to farming confidence and outlook (experience of farm financial stress and confidence in being able to achieve farm objectives)

This model had improved predictive power with a smaller number of predictors, indicating higher robustness. While age and gender were not significant predictors, including or excluding these variables made little difference to the overall power of the model or significance of other potential predictor variables.

In this model, significant predictors of differences in views about fairness of water trade were:

- Barmah Choke location above or below, with those above less likely to feel the water trade market was fair for all users compared to those below

- Megalitres applied, with those applying large volumes of water more likely to feel water trade markets were fair for all users

- GVAP – those managing farms with smaller value of agricultural production were less likely to feel water markets were fair for all users compared to those managing farmers with a higher value of production

- Profitability – those reporting larger profit were more likely to report finding water trade markets fair

- Ability to trade easily – those who found it easy to trade were more likely to feel markets were fair

- Perception of stability of water market rules – those who felt rules were stable found markets fairer

- Perception of whether rules applied to government water users were the same – those who felt the government was subject to the same rules as other water market participants were more likely to report the water market was fair for all users.

Model Summary[a]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.103[b]	.011	.007	2.08447	.011	3.186	1	299	.075
2	.259[c]	.067	.055	2.03402	.057	6.005	3	296	.001
3	.290[d]	.084	.066	2.02234	.017	2.715	2	294	.068
4	.640[e]	.410	.392	1.63158	.326	53.562	3	291	.000

a. ACCC_SurfWater = 1
b. Predictors: (Constant), BarmahChokeAbove1Below0
c. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, dFDgvap201516
d. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, dFDgvap201516, Gender1Female0Male, dSDage
e. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, dFDgvap201516, Gender1Female0Male, dSDage, WRgovtsamerulesCONTINUOUSnoDK, WReasytradetempwaterCONTINUOUSnoDK, WRrulesstable4groupCONTINUOUSnoDK

ANOVA[a,b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.843	1	13.843	3.186	.075[c]
	Residual	1299.153	299	4.345		
	Total	1312.997	300			
2	Regression	88.377	4	22.094	5.340	.000[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
	Residual	1224.620	296	4.137		
	Total	1312.997	300			
3	Regression	110.583	6	18.431	4.506	.000e
	Residual	1202.414	294	4.090		
	Total	1312.997	300			
4	Regression	538.337	9	59.815	22.470	.000f
	Residual	774.659	291	2.662		
	Total	1312.997	300			

a. ACCC_SurfWater = 1
b. Dependent Variable: WatermktfairforallDK4
c. Predictors: (Constant), BarmahChokeAbove1Below0
d. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, dFDgvap201516
e. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, dFDgvap201516, Gender1Female0Male, dSDage
f. Predictors: (Constant), BarmahChokeAbove1Below0, ACCC_TotalML, dFDestlossprofit, dFDgvap201516, Gender1Female0Male, dSDage, WRgovtsamerulesCONTINUOUSnoDK, WReasytradetempwaterCONTINUOUSnoDK, WRrulesstable4groupCONTINUOUSnoDK

Coefficients[a,b]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Statistics Tolerance	VIF
1	(Constant)	3.612	.134		26.978	.000		
	BarmahChokeAbove1Below0	-.001	.000	-.103	-1.785	.075	1.000	1.000
2	(Constant)	2.870	.360		7.969	.000		
	BarmahChokeAbove1Below0	-.001	.000	-.095	-1.696	.091	.998	1.002
	ACCC_TotalML	.000	.000	.115	1.892	.059	.847	1.181
	dFDgvap201516	-.117	.043	-.180	-2.754	.006	.736	1.358
	dFDestlossprofit	.167	.044	.229	3.777	.000	.856	1.168
3	(Constant)	2.039	.689		2.961	.003		
	BarmahChokeAbove1Below0	-.001	.000	-.098	-1.753	.081	.996	1.004
	ACCC_TotalML	.000	.000	.106	1.745	.082	.841	1.189
	dFDgvap201516	-.099	.044	-.151	-2.252	.025	.689	1.451
	dFDestlossprofit	.151	.045	.207	3.373	.001	.830	1.205
	Gender1Female0Male	-.272	.303	-.054	-.898	.370	.875	1.143
	dSDage	.088	.050	.107	1.764	.079	.851	1.175
4	(Constant)	-.492	.640		-.769	.442		
	BarmahChokeAbove1Below0	-.001	.000	-.186	-3.801	.000	.844	1.185
	ACCC_TotalML	.000	.000	.134	2.733	.007	.838	1.193
	dFDgvap201516	-.099	.036	-.151	-2.756	.006	.674	1.485
	dFDestlossprofit	.096	.037	.132	2.640	.009	.808	1.238
	Gender1Female0Male	-.193	.246	-.038	-.784	.434	.866	1.155
	dSDage	.021	.041	.025	.503	.616	.816	1.226
	WReasytradetempwaterCONTINUOUSnoDK	.352	.064	.283	5.492	.000	.763	1.311
	WRrulesstable4groupCONTINUOUSnoDK	.357	.065	.345	5.453	.000	.507	1.973
	WRgovtsamerulesCONTINUOUSnoDK	.121	.057	.130	2.139	.033	.547	1.830

a. ACCC_SurfWater = 1
b. Dependent Variable: WatermktfairforallDK4

Appendix 5: Understanding engagement in allocation trade

This Appendix provides detailed statistical output of the modelling reported in Section 5.8.2 of the main report. This Appendix provides further detail of the exploratory analysis undertaken to understand perceptions of fairness. This was an initial, exploratory analysis, rather than a confirmatory piece of work, and as such has limitations. It does, however, point to areas for future exploration and modelling. All analyses examined only irrigators who (i) lived in the MDB and (ii) used surface water for part or all of their irrigation. The analysis utilised the 2016 data set, and included 290 irrigators in the Basin who used surface water. No imputation of missing data was undertaken.

The following codes are used for different variables in the tables below:

- Allocation1Other0: Binary dependent variable, identifying whether irrigator had or hadn't traded allocation on the temporary market (in the form of buying and/or selling allocation) in the last 12 months

- BoughtAllocation1Other0: Binary dependent variable, identifying whether irrigator had or hadn't purchased allocation on the temporary market in the last 12 months

- SoldAllocation1Other0: Binary dependent variable, identifying whether irrigator had or hadn't sold allocation on the temporary market in the last 12 months

- Modernised1Not0: Binary variable identifying whether irrigator had or had not modernised on-farm irrigation since 2008

- dFMPREVrunbusinctempwater: 8 point ordinal scale identify the extent to which the irrigator felt rising prices of temporary water had been a barrier to developing their farm the way they wanted to in the last 3 years

- dFMPREVrunbusfallprice: 8 point ordinal scale identify the extent to which the irrigator felt falling prices for the commodities they produce had been a barrier to developing their farm the way they wanted to in the last 3 years

- ACCC_TotalML: Megalitres of water irrigator reported using to irrigate their property in the last year

- dFDGVAP201516: GVAP in last financial year

- dSDage: Age of the irrigator

- BarmahChokeAbove1Below0: Binary variable identifying if irrigator was located above or below the Barmah Choke

- NthSthBasin: Binary variable identifying if irrigator lived in the Northern or Southern Basin

- WReasytradetempwaterCONTINUOUSnoDK: 7 point ordinal scale identifying the extent to which the irrigator found it easy to trade temporary water.

Dependent variable: Traded allocation – modelling output

The tables below provide output from the binary logistic regression model in which trade of allocation (irrespective of whether it involved buying or selling) was the dependent variable. The dependent variable was thus composed of (i) those who traded allocation (including buying and selling) and (ii) those who did not trade allocation (neither bought nor sold).

Omnibus Tests of Model Coefficients[a]

		Chi-square	df	Sig.
Step 1	Step	38.700	9	.000
	Block	38.700	9	.000

Model	38.700	9	.000	

a. ACCC_Basin = 1, ACCC_SurfWater = 1

Model Summary[a]

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	334.928[b]	.125	.172

a. ACCC_Basin = 1, ACCC_SurfWater = 1

b. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Classification Table[a,b]

			Predicted		
			Allocationtrade1yes0no		Percentage
	Observed		.00	1.00	Correct
Step 1	Allocationtrade1yes0no	.00	39	61	39.0
		1.00	21	169	88.9
	Overall Percentage				71.7

a. ACCC_Basin = 1, ACCC_SurfWater = 1

b. The cut value is .500

Variables in the Equation[a]

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[b]	dFMPREVrunbusinctempwater	.065	.059	1.222	1	.269	1.068
	dFMPREVrunbusfallprice	.129	.064	4.039	1	.044	1.137
	Modernised1Not0(1)	-.616	.295	4.373	1	.037	.540
	ACCC_TotalML	.000	.000	1.184	1	.277	1.000
	dFDgvap201516	.036	.057	.409	1	.522	1.037
	dSDage	.064	.057	1.223	1	.269	1.066
	BarmahChokeAbove1Below0	.327	.286	1.306	1	.253	1.387
	NthSthBasin	-1.128	.518	4.740	1	.029	.324
	WReasytradetempwaterCONTINUOUSnoDK	.222	.097	5.277	1	.022	1.248
	Constant	-2.413	1.072	5.063	1	.024	.090

a. ACCC_Basin = 1, ACCC_SurfWater = 1

b. Variable(s) entered on step 1: dFMPREVrunbusinctempwater, dFMPREVrunbusfallprice, Modernised1Not0, ACCC_TotalML, dFDgvap201516, dSDage, BarmahChokeAbove1Below0, NthSthBasin, WReasytradetempwaterCONTINUOUSnoDK.

Correlation Matrix[a]

		Constant	dFMPREVrunbusinctempwater	dFMPREVrunbusfallprice	Modernised1Not0(1)	ACCC_Total
Step 1	Constant	1.000	-.402	-.250	-.180	
	dFMPREVrunbusinctempwater	-.402	1.000	-.185	.063	-
	dFMPREVrunbusfallprice	-.250	-.185	1.000	-.036	-
	Modernised1Not0(1)	-.180	.063	-.036	1.000	
	ACCC_TotalML	.158	-.178	-.018	.016	1
	dFDgvap201516	-.310	.080	-.118	.324	-
	dSDage	-.715	.173	.151	-.016	-
	BarmahChokeAbove1Below0	-.178	.067	.015	-.030	-
	NthSthBasin	-.055	.085	.033	-.037	
	WReasytradetempwaterCONTINUOUSnoDK	-.555	.126	-.022	-.032	-

a. ACCC_Basin = 1, ACCC_SurfWater = 1

Dependent variable: Bought allocation – modelling output

The tables below provide output from the binary logistic regression model in which purchase of allocation was the dependent variable. The dependent variable was thus composed of (i) those who purchased allocation (who may or may not have also sold allocation) and (ii) those who did not purchase allocation in the last 12 months (who may or may not have sold allocation).

Omnibus Tests of Model Coefficients[a]

		Chi-square	df	Sig.
Step 1	Step	149.235	9	.000
	Block	149.235	9	.000
	Model	149.235	9	.000

a. ACCC_Basin = 1, ACCC_SurfWater = 1

Model Summary[a]

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	242.677[b]	.402	.543

a. ACCC_Basin = 1, ACCC_SurfWater = 1

b. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Classification Table[a,b]

			Predicted		
			BoughtAllocation1Other0		Percentage
	Observed		.00	1.00	Correct
Step 1	BoughtAllocation1Other0	.00	144	28	83.7
		1.00	35	83	70.3
	Overall Percentage				78.3

a. ACCC_Basin = 1, ACCC_SurfWater = 1

b. The cut value is .500

Variables in the Equation[a]

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[b]	dFMPREVrunbusinctempwater	.656	.109	36.024	1	.000	1.927
	dFMPREVrunbusfallprice	.029	.085	.119	1	.730	1.030
	Modernised1Not0(1)	-.557	.366	2.316	1	.128	.573
	ACCC_TotalML	.000	.000	2.565	1	.109	1.000
	dFDgvap201516	.281	.069	16.387	1	.000	1.325
	dSDage	-.038	.066	.339	1	.560	.962
	BarmahChokeAbove1Below0	-.157	.343	.208	1	.648	.855
	NthSthBasin	-2.278	.776	8.625	1	.003	.103
	WReasytradetempwaterCONTINUOUSnoDK	-.155	.116	1.783	1	.182	.857
	Constant	-4.274	1.383	9.555	1	.002	.014

a. ACCC_Basin = 1, ACCC_SurfWater = 1

b. Variable(s) entered on step 1: dFMPREVrunbusinctempwater, dFMPREVrunbusfallprice, Modernised1Not0, ACCC_TotalML, dFDgvap201516, dSDage, BarmahChokeAbove1Below0, NthSthBasin, WReasytradetempwaterCONTINUOUSnoDK.

Correlation Matrix[a]

		Constant	dFMPREVrunbusinctempwater	dFMPREVrunbusfallprice	Modernised1Not0(1)	ACCC_Total
Step 1	Constant	1.000	-.507	-.244	-.204	
	dFMPREVrunbusinctempwater	-.507	1.000	-.180	-.045	
	dFMPREVrunbusfallprice	-.244	-.180	1.000	.017	
	Modernised1Not0(1)	-.204	-.045	.017	1.000	
	ACCC_TotalML	.081	-.037	-.009	.019	1
	dFDgvap201516	-.290	.279	-.189	.231	
	dSDage	-.682	.105	.173	.054	

BarmahChokeAbove1Below0	-.129	-.008	-.017	.003	
NthSthBasin	-.039	-.018	.036	-.022	
WReasytradetempwaterCONTINUOUSnoDK	-.479	-.066	.010	.095	

a. ACCC_Basin = 1, ACCC_SurfWater = 1

Dependent variable: Sold allocation – modelling output

The tables below provide output from the binary logistic regression model in which sale of allocation was the dependent variable. The dependent variable was thus composed of (i) those who sold allocation (who may or may not have also purchased allocation) and (ii) those who did not sell allocation in the last 12 months (who may or may not have purchased allocation).

Omnibus Tests of Model Coefficients[a]

		Chi-square	df	Sig.
Step 1	Step	78.642	9	.000
	Block	78.642	9	.000
	Model	78.642	9	.000

a. ACCC_Basin = 1, ACCC_SurfWater = 1

Model Summary[a]

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	272.204[b]	.238	.338

a. ACCC_Basin = 1, ACCC_SurfWater = 1

b. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Classification Table[a,b]

			Predicted		
			SoldAllocation1Other0		Percentage
	Observed		.00	1.00	Correct
Step 1	SoldAllocation1Other0	.00	185	20	90.2
		1.00	41	44	51.8
	Overall Percentage				79.0

a. ACCC_Basin = 1, ACCC_SurfWater = 1

b. The cut value is .500

Variables in the Equation[a]

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[b]	dFMPREVrunbusinctempwater	-.293	.066	19.884	1	.000	.746
	dFMPREVrunbusfallprice	.067	.072	.857	1	.355	1.069
	Modernised1Not0(1)	-.794	.354	5.043	1	.025	.452
	ACCC_TotalML	.000	.000	.045	1	.832	1.000
	dFDgvap201516	-.227	.066	11.943	1	.001	.797
	dSDage	.196	.071	7.519	1	.006	1.216
	BarmahChokeAbove1Below0	.664	.336	3.914	1	.048	1.943
	NthSthBasin	.366	.632	.336	1	.562	1.442
	WReasytradetempwaterCONTINUOUSnoDK	.508	.137	13.650	1	.000	1.662
	Constant	-3.895	1.355	8.267	1	.004	.020

a. ACCC_Basin = 1, ACCC_SurfWater = 1

b. Variable(s) entered on step 1: dFMPREVrunbusinctempwater, dFMPREVrunbusfallprice, Modernised1Not0, ACCC_TotalML, dFDgvap201516, dSDage, BarmahChokeAbove1Below0, NthSthBasin, WReasytradetempwaterCONTINUOUSnoDK.

Correlation Matrix[a]

		Constant	dFMPREVrunbusinctempwater	dFMPREVrunbusfallprice	Modernised1Not0(1)	ACCC_Total
Step 1	Constant	1.000	-.243	-.254	-.136	
	dFMPREVrunbusinctempwater	-.243	1.000	-.166	.182	-
	dFMPREVrunbusfallprice	-.254	-.166	1.000	.010	-
	Modernised1Not0(1)	-.136	.182	.010	1.000	
	ACCC_TotalML	.101	-.179	-.033	.015	1
	dFDgvap201516	-.202	.138	-.087	.352	-
	dSDage	-.705	.038	.177	-.025	-
	BarmahChokeAbove1Below0	-.198	-.024	.042	-.059	-
	NthSthBasin	-.098	.039	.038	-.057	
	WReasytradetempwaterCONTINUOUSnoDK	-.613	.012	-.050	-.099	

a. ACCC_Basin = 1, ACCC_SurfWater = 1