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Submission from the Dietitians Association of Australia Grocery Issues Paper

The Dietitians Association of Australia (DAA) commends the Australian Government for commissioning the ACCC to commence a formal inquiry into food prices and welcomes the opportunity to comment on the grocery issues paper.

DAA is the National Association of the dietetic profession, with branches in each State and Territory. DAA represents over 3400 members. DAA is a leader in nutrition and advocates for better food, better health, and better living for all. Members working in a range of practice areas including public health nutrition, Indigenous and rural communities contributed to the development of this submission. DAA commends the Australian Government on their commitment to investigating food pricing.

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Summary of Recommendations

- 1. That the ACCC consider the existing tools and methodology available to monitor food cost.**
- 2. DAA supports the provision of unit pricing information at point-of-sale.**
- 3. DAA supports the identification of factors that influence food cost and transparency in this process. We call for a national system for regular monitoring of the food availability, accessibility and cost.**
- 4. DAA is interested in the associations between food cost and health and would welcome the opportunity to be involved in an inquiry, public hearing and/or consultations.**

Background

As a nation, Australia may be considered to be food secure. Food security is defined as “access by all people at all times to sufficient food for an active and healthy life”(1). Within Australia however, as in other developed countries; there are far too many Australians who are food insecure(2). Access to nutritious food is a basic human right(2). The cost of nutritious food has been recognised as an important determinant of food security, nutritional intake and thus health(3). An intake of nutritionally inadequate foods can result in nutrient deficiencies, hunger, or obesity if poor food choices are made; hence having a significant link with chronic disease and health(4).

The increasing rates of preventable chronic disease, such as overweight and obesity are of concern. It is estimated that up to 60% of Australians are overweight or obese(5). This illustrates the significant role of food and nutrition in both the prevention and treatment of chronic diseases such as obesity. The link between food cost and health is of interest to DAA.

The DAA would like to bring to the attention of the inquiry a number of tools already in existence that measure the cost of food. A range of different validated ‘healthy food basket surveys’ exist to assess the cost and access to a nutritious basket of food for a family for a fortnight. For example, the Queensland Healthy Food Basket Survey(6) has been used in Queensland and other states to assess accessibility and cost of food. The Northern Territory also has a Market Basket Survey(7). Most recently a Victorian healthy food basket survey was developed(8). This basket meets the nutritional requirements of a range of different family types based on the revised nutrient reference values, published by the Department of Health and Ageing, the NHMRC and New Zealand Ministry for Health in 2006(9). DAA would invite the ACCC to access and use existing tools and methodology in the inquiry.

Dietitians and nutritionists are concerned with the evidence emerging that the cost of healthy foods has increased more over time compared with unhealthy food items. Healthy foods, referred to in the Australian Guide to Healthy Eating as core foods, include fruits; vegetables; breads and cereals; meat and alternatives; and milk and milk products. Unhealthy foods, referred to as non-core foods, include those food which are energy dense (high fat, high sugar) and nutrient poor(10). DAA acknowledges that this is described in the background paper to this inquiry. However, other key research has also found this to be the case. Findings from Queensland suggest the cost of healthy foods has increased more over time compared with less nutritious foods (see attached)(6). Other data emerging from the use of healthy food basket surveys in different states of Australia suggest that:

- food prices vary significantly within states(11);
- food is more expensive in rural and remote areas compared to urban areas(6,7);
- competition may reduce food prices(12).

There is clearly a range of influences on the prices of food. Transport is often blamed for higher food costs in rural and remote areas however there is little evidence to substantiate this claim. The approach currently used within different states for collecting

and assessing food accessibility and cost using different tools and systems is not ideal. DAA would support the ACCC inquiry into the transparency of how food prices are calculated and the factors that influence food cost. We call for a national system of regular monitoring of food availability, accessibility and cost.

DAA supports the idea of providing unit pricing information at point-of-sale for all foods, as is done in a number of other countries. Currently, consumers can readily view the cost per kilogram of fruit, vegetables and meats on the supermarket shelves but have to calculate the cost per kilogram of processed foods. Lack of this information on the shelf-tag makes it difficult for consumers, especially those with low numeracy skills, to compare the cost of similar foods packaged in different weights and volumes. Having this information on the shelf-tag may in part address the misconception that some healthy foods are more expensive in relation to other food groups, which may in turn influence the consumption of these foods.

DAA supports wide consultation as part of this inquiry. The health sector is very interested in the issue of food cost and its links to health. The inquiry would benefit from including the health sector in its consultation. DAA can provide the avenue for consultation with accredited practising dietitians and nutritionists working in a range of different health areas. DAA recommends that consultations with public health nutrition departments in each state and territory also be made as part of the process.

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Development of a healthy food basket for Victoria

Abstract

Objective: Access to an affordable, nutritious food supply is an important determinant of population health. Healthy food basket surveys have been used across Australia as a tool to monitor food cost, quality and variety. The release of the revised Nutrient Reference Values, together with local interest in food security, highlighted the need to develop a Victorian Healthy Food Basket to reflect the food access issues of the Victorian population.

Method: The development took place at Monash University, Victoria, in December 2006. Demographic and food purchasing data were used to define the family types and foods in the healthy basket, respectively. The revised Nutrient Reference Values were used to benchmark the nutritional adequacy of the basket.

Results: A Victorian Healthy Food Basket consisting of 44 core and non-core foods was developed. The quantities of the 44 items in the basket were modified to meet the nutritional needs of four different family types most common in Victoria and those most vulnerable to food insecurity: two adults and two children; a single mother and two children; a single adult male; and a single elderly female.

Conclusion: Victoria has a local tool to monitor healthy food cost and accessibility that meets at least 85% of all individual nutrient requirements and at least 95% of all energy requirements for four family types for a fortnight.

Implications: The Victorian Healthy Food Basket provides an additional tool to monitor the cost and access to healthy food in Victoria.

Key words: Nutrition requirements; food analysis; healthy food; family characteristics.

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Access to an affordable and nutritious food supply has been recognised as an important determinant of people's nutrition and thus health outcomes.¹ While the Australian consumer price index monitors changes in food cost, no national tool exists to investigate the cost, availability or quality of healthy foods. Queensland,² the Northern Territory,³ the Illawarra area⁴ and South Australia⁵ have each developed different healthy food baskets to measure food access including cost, availability and quality. Some groups have used the Queensland Healthy Food Access Basket to assess food access in Victoria,^{6,7} but there has been criticism of its use in this context as the Victorian population does not share the same issues associated with food cost, access and availability in Queensland. The existing baskets may need to be reassessed for nutritional adequacy against the revised Nutrient Reference Values (NRVs) released in 2006.⁸

This report describes the development of a Victorian Healthy Food Basket (VHFB) based on the Queensland model, although modified to reflect the Victorian population in terms of family composition, food choices and food accessibility and to meet revised nutrient recommendations.

Development – the families

The VHFB was developed to reflect the nutritional needs for an array of family sizes and compositions. The selected reference families were also chosen based on those most affected by food insecurity.⁹ The composition of these families was determined by ascertaining the most common age and

sex characteristics of these respective family types from Australian Bureau of Statistics Family Characteristics Survey¹⁰ and Census of Population and Housing¹¹ data. This data indicated that 71% of households were families, with 84% of those being couple families and 60% of these families having children. Eighty-six per cent of dependent children in couple families were aged between 5-11 years and 50% of non-dependents were aged 18-24 years. The data indicated that 14% of families had one parent. Seventy-four per cent of dependent children in one-parent families were aged between 5-11 years and 40% of non-dependents were aged 18-24 years. The most common lone dweller was a female aged over 75 years and the most common age for a male living alone was between 33-44 years.¹⁰⁻¹¹

Four reference families were chosen to allow for varying nutritional needs. These were:

- 'Typical family' (44-year-old male and female, 18-year-old female, eight-year-old male).
- 'Single parent family' (44-year-old female, 18-year-old female, eight-year-old male).
- 'Elderly pensioner' (71-year-old female).
- 'Single adult' (adult male >31 years).

The estimated average requirements (EARs) from the new NRVs were used to determine the nutritional requirements of the individuals in the families.⁸ If an EAR was not available for a given nutrient then the adequate intake (AI) amount was used.⁸ Standard daily targets (SDTs) were also used for nutrients where recommended.⁸ The National Heart Foundation's recommendation

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that less than 10% of dietary energy be derived from saturated fat as well as a P:M:S ratio of 1:2:1 was also set.¹² The VHFB aimed to meet more than 80% of nutrient requirements for individuals and at least 95% of energy requirements for the reference families

for a fortnight (14 days). These nutrient and energy levels were chosen as they were the same as or greater than the levels used in the Queensland basket² and the Northern Territory's Nutritionist's Market Basket Survey.³

Table 1: Food quantities to meet nutritional requirements of the family members for a fortnight.

Victorian Healthy Food Basket	Product size	Typical family	Single parent family	Elderly pensioner family	Single adult family
Breads and cereals					
White bread	680 g	1.4 loaves	0.7 loaves	0.2 loaves	0.8 loaves
Wholemeal bread	680 g	5.8 loaves	3.6 loaves	1.3 loaves	2.3 loaves
Crumpets (rounds, 6pk)	300 g	3.1 packets	2.2 packets	0.9 packets	0.9 packets
Weet-bix	750 g	1.4 packets	0.9 packets	0.2 packets	0.5 packets
Instant oats	500 g	1.5 packets	1.2 packets	0.4 packets	0.4 packets
Pasta	500 g	1.7 packets	1.1 packets	0.4 packets	0.6 packets
White rice	1 kg	1.4 bags	0.9 bags	0.3 bags	0.6 bags
Instant noodles	85 g	9 packets	0.6 packets	2 packets	3 packets
Premium biscuits	250 g	1.3 packets	0.8 packets	0.2 packets	0.5 packets
Fruit					
Apples	1 kg	5.8 kg	4.3 kg	1.8 kg	1.4 kg
Oranges	1 kg	5.7 kg	4.6 kg	1.4 kg	1.1 kg
Bananas	1 kg	4.1 kg	2.8 kg	0.9 kg	1.3 kg
Tinned fruit salad, natural juice	450 g	9 tins	4.9 tins	1.8 tins	3.7 tins
Sultanas	250 g	0.84 packets	1 packet	0.2 packets	0.4 packets
Orange juice 100%, no added sugar	2 L	2.5 L	1.5 L	0.5 L	0.8 L
Vegetables, legumes					
Tomatoes	1 kg	4.7 kg	2.8 kg	1.1 kg	1.9 kg
Potatoes	1 kg	2.6 kg	1.7 kg	0.7 kg	1 kg
Pumpkin	1 kg	2.7 kg	1.7 kg	0.7 kg	1 kg
Cabbage	Half (500 g)	3.7 kg	2.8 kg	0.9 kg	0.9 kg
Lettuce	Whole	2.8 kg	1.8 kg	0.8 kg	1.1 kg
Carrots	1 kg	3.1 kg	2.2 kg	0.8 kg	0.9 kg
Onions	1 kg	1.2 kg	0.85 kg	0.3 kg	0.4 kg
Frozen peas	1 kg	1 kg	0.7 kg	0.3 kg	0.3 kg
Tinned tomatoes	400 g	8 tins	6 tins	2 tins	2 tins
Tinned beetroot	450 g	0.8 tins	0.4 tins	0.2 tins	0.4 tins
Tinned corn kernels	440 g	2.1 tins	1.6 tins	0.6 tins	0.6 tins
Tinned baked beans	420 g	9.5 tins	5.7 tins	1.9 tins	3.8 tins
Meat and alternatives					
Fresh bacon, shortcut, rindless	1 kg	0.75 kg	0.5 kg	0.2 kg	0.3 kg
Fresh ham	1 kg	0.54 kg	0.3 kg	0.12 kg	0.2 kg
Beef mince, regular	1 kg	1.1 kg	0.7 kg	0.34 kg	0.3 kg
Lamb chops, forequarter	1 kg	0.8 kg	0.4 kg	0.2 kg	0.4 kg
Chicken fillets, skin off	1 kg	1.3 kg	1 kg	0.3 kg	0.3 kg
Sausages	1 kg	0.9 kg	0.5 kg	0.3 kg	0.4 kg
Tinned tuna (unsat. oil)	425 g	2.8 tins	2.1 tins	0.7 tins	0.7 tins
Tinned salmon, pink (water)	210 g	2.9 tins	2.1 tins	0.7 tins	0.7 tins
Large eggs (min. 50 g, caged)	700 g dozen	1.6 boxes	1.2 boxes	0.4 boxes	0.4 boxes
Dairy					
Fresh full cream milk	1 L	2 L	1.5 L	0.5 L	0.5 L
Fresh reduced fat milk	2 L	13.8 L	10.4 L	3 L	3.4 L
Reduced fat flavoured yoghurt	1 kg tub	8.4	6.8 kg	2 kg	1.6 kg
Full fat long life milk	1 L	0.6 L	0.4 L	0.1 L	0.14 L
Cheese, block	500 g	2.1 blocks	1.2 blocks	0.5 blocks	0.9 blocks
Non-core foods					
Polyunsaturated margarine	500 g	1.4 tubs	0.8 tubs	0.3 tubs	0.5 tubs
White sugar	1 kg	0.1 kg	0.07 kg	0.03 kg	0.03 kg
Canola oil	500 ml	0.6 bottles	0.5 bottles	0.2 bottles	0.2 bottles

Development – the foods

The foods contained in the VHFB were based on the Queensland Healthy Food Access Basket² for potential comparative purposes but modified to suit Victorian purchasing trends. The ACNielsen Grocery Report¹³ and ABS Household Expenditure surveys¹⁴ were used as a more up-to-date source of information on food consumption (instead of the 1995 National Nutrition Survey) to arbitrarily devise the basket. The limitations of using this data are significant and noted by the authors. The final basket contains a total of 44 foods from the five core food groups and one non-core food group (see Table 1). A chocolate bar and a soft drink are included in the survey to provide a cost comparison but do not contribute to the nutritional analysis.

Seven-day menu plans using all and only foods from the VHFB were constructed for each of the five reference individuals. The *Australian Guide to Healthy Eating*¹⁵ was used as a guide for these menus, but manipulated to meet the revised NRVs. Energy requirements were estimated using self-reported height and weight data from the 2004/05 National Health Survey¹⁶ and Centre for Health Statistics growth charts.¹⁷ Although this data are known to under-represent overweight and obesity, the lower requirements

ensured the basket met nutritional requirements with less food quantity and therefore lower cost. Sugar was included in the menus as a 'honey' equivalent because of its similar energy (and nutritional) content.

The nutritional adequacy of the menus was assessed using the FoodWorks nutrient analysis program¹⁸ with the AusNut food composition database.¹⁹

Target individual nutritional requirements were predominantly derived from the 2006 NRVs, resulting in a total of 14 vitamin and 14 mineral target values and target values for fatty acids. The FoodWorks nutritional analysis program has the capacity to provide details for only six of the 14 vitamins, only seven of the 14 minerals, and cannot calculate the linolenic and linoleic fatty acid contents of foods. The menus and thus VHFB were found to meet at least 85% of all individual nutrient requirements and at least 95% of all energy requirements for the families for a fortnight. Assessment of the target macronutrient percentage energy contributions outlined in the NRVs for reducing chronic disease risk found that the VHFB menus were within these recommendations, and the Australian Heart Foundation recommendations for energy provisions from saturated fat was also met. Sodium values exceeded target values for all individuals, but salt-reduced versions of food items were not chosen to mimic the Queensland basket and to be realistic (see Table 2).

The instructions for use of the basket are based on those developed for the Queensland basket.² The total cost of the basket, including the total costs of each core food group for each of the four respective family types, can be calculated. The basket was pilot tested with three community nutritionists to tease out any data collection and analysis issues.

Table 2: Percentage of family types nutritional requirements met by fortnightly baskets.

%	Typical family	Single parent family	Elderly pensioner	Single adult
Energy ^a	95	97	96	96
Protein	190	202	154	185
Protein %EER	19 ^{b,c}	20 ^{b,c}	19.5 ^c	19 ^c
Fat %EER	25.5 ^{b,c}	26 ^{b,c}	27 ^c	27 ^c
Sat. fat %EER	8 ^{b,c}	9 ^{b,c}	9 ^c	9.5 ^c
CHO %EER	55 ^{b,c}	54 ^{b,c}	53 ^c	54 ^c
Dietary fibre	105	99	100	119
P:M:S	1:2:2	1:2:2	1:2:2	1:2:2
Vitamin A	289	292	311	307
Thiamin	170	157	146	206
Riboflavin	204	214	157	188
Niacin	144	134	132	170
Folate	93	88	85	113
Vitamin C	457	441	436	502
Calcium	110	113	88	140
Iron	159	134	202	253
Magnesium	106	107	104	109
Phosphorus	174	153	236	309
Potassium	102	101	106	100
Sodium	144	132	117	188
Zinc	109	141	133	99

Notes:

- (a) Estimated energy requirements (EER) calculated using Schofield equations with a activity level 1.2 (sedentary/maintenance).²⁰
 (b) EER calculated based on median height and weight data from the 2004/05 National Australian Health Survey.¹⁶
 (c) EER calculated based on 2005 Centre for Health Statistics growth charts using the 50th percentile values.¹⁷

Conclusions

The VHFB provides a new tool with which to monitor the cost and access to nutritious food in Victoria. The lack of current food composition data meant that the items included in the basket were arbitrarily assigned. A new National Nutrition Survey would provide valuable information to assist in choosing foods to be included. Because of the limitations of the AusNut food composition databases, the menus' nutrient analysis could only assess a limited number of the vitamins and minerals for which there are nutrient reference values, suggesting a need to update Australia's food composition tables. The VHFB sample menus also provide examples of dietary modelling for populations against the new nutrient recommendations, however the inconsistency between the NRVs and *Australian Guide to Healthy Eating* identified an urgent need to update core food group modelling using the revised NRVs. The development of a national healthy food basket is the next step forward to assessing national food security.

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Invited commentary:

It's time to determine the cost of a healthy diet in Australia

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Key words: Food, cost.

Economic factors are important determinants of food security. In terms of food access, financial resources determine an individual's ability to procure food; on the supply side, the cost of food is equally important. The interplay of these two factors, financial resources and cost, is perhaps the most immediate and important determinant of what people do (or do not) put into their shopping trolleys or purchase at the takeaway and ultimately eat – if you cannot afford it you cannot eat it even if you want to!

There have been a number of studies of food cost undertaken in Australia. The current paper, which describes the development of a Healthy Food Basket for Victoria, is the latest study in a body of research on this topic. The authors of all these studies need to be commended for grasping the nettle on this issue in the absence of any national initiative to assess and monitor the cost of healthy food in Australia. The proliferation of such studies, including the Healthy Food Access Basket Studies in Queensland,¹ the development and use of the Illawarra Basket in Wollongong,^{2,3} and basket studies in South Australia⁴ and the NT,⁵ highlight the need for a national consensus and approach to this important public health indicator.

The National Food and Nutrition Policy (1992)⁶ has as one of its basic tenets:

“to increase the availability of nutritious foods especially in remote areas, to increase the affordability of nutritious foods for economically disadvantaged people, and to increase the understanding of food and nutrition”.

In 2001, the Australian Health Ministers endorsed Eat Well Australia:⁷ the National Public Health Nutrition Strategy, and its Indigenous component, the National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan (NATSINSAP). These strategies support the need for national and individual food security; in other words, the need to assure the supply of and access to healthy, affordable and culturally appropriate foods for all Australians. Eat Well Australia identified a number of populations that were particularly vulnerable to food insecurity. These included “people on low incomes; people with disabilities; chronically ill people; frail older people; refugees; alcohol or drug

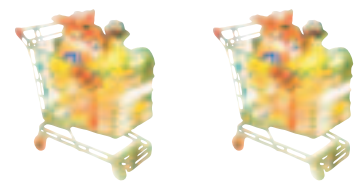
Key findings and recommendations

- The cost of the Healthy Food Access Basket (HFAB), which feeds a family of six for two weeks, has increased throughout Queensland since 2004. This difference was significant in all of the remoteness categories except *major cities*.
- In 2006 the mean cost of the HFAB statewide was \$457.46. From 2004 to 2006 the cost of the HFAB has increased statewide by almost \$51 (12.6%).
- The cost of the HFAB continues to be considerably higher in *very remote* stores throughout Queensland, especially in those towns more than 2000 kilometres from Brisbane. In 2006 the mean cost of the HFAB was \$107.81 (24.2%) higher in *very remote* stores in Queensland but \$145.57 (32.6%) higher in *very remote* stores more than 2000 kilometres from Brisbane compared with the same basket in *major cities*.
- The cost of healthy food has increased more than the cost of less nutritious alternatives.
- Inter-sectoral partnerships are needed to better understand food supply issues and to generate sustainable targeted strategies to address the high cost of healthy foods.
- National monitoring of food supply, as one component of a comprehensive nutrition surveillance system for Australia, is vital for coordinated strategic planning, priority setting and resource allocation.



Figure 1 : The 2006 Healthy Food Access Basket (HFAB) contents

HFAB survey



Introduction

The 2006 Healthy Food Access Basket (HFAB) survey is the fifth statewide cross-sectional survey of the costs and availability of a standard basket of basic healthy food items throughout Queensland.

The range and types of foods included in the HFAB represent commonly available and popular foods (Figure 1) consistent with the Australian Guide to Healthy Eating.¹ The foods selected provide 70% of the nutritional requirements and 95% of the estimated energy requirements of a hypothetical family of six people for a two-week period.² For cost comparison purposes, a number of less nutritious food items and tobacco items were also surveyed.

The variation in costs and availability of food in the basket is presented by the ABS Remoteness Structure³ using ARIA+⁴ by populated localities as the basis for the definition of remoteness (Figure 2). ARIA+ is the updated Accessibility/Remoteness Index of Australia categories and defines localities in terms of remoteness of geographical location as well as access to services.

Eighty nine stores in the five remoteness categories across Queensland were surveyed during May 2006. This report presents the cost comparison by remoteness category in 78 stores for the current HFAB survey year. The 11 additional stores in the 2006 HFAB survey were included to enhance comparison with the results of previous HFAB surveys.

Methods

Sample Selection and Data Collection

The 2006 HFAB survey included changes to its sample design. Unlike the previous HFAB surveys, towns for the 2006 HFAB were randomly selected based on their population size and one store for each town was then selected based on where most people would shop. The Urban Centre/Locality (UC/L) list⁵ produced by the Australian Bureau of Statistics (ABS) was used to obtain a distribution of where people live and to exclude towns that were very small. This list includes towns where population clusters are 200 people or greater. In

this report all urban centres and localities will be referred to as towns.

The towns were stratified to enable over-sampling in the remote areas and to limit the number of islands that were selected to control for survey costs. The towns were stratified by remoteness category. The remoteness categories include *major cities*, *inner regional*, *outer regional*, *remote* and *very remote*. The *very remote* category was further split into three strata - towns less than 2000 km from Brisbane, towns more than 2000 km from Brisbane, and islands. The sample sizes were chosen so that differences of 10% between remoteness categories could be detected at $p < 0.05$ and 90% power. Through this process a total of seventy eight towns were selected for the 2006 HFAB survey. These seventy eight towns included some towns sampled in previous HFAB surveys.

In 2006 the HFAB survey was conducted by the Office of Economic and Statistical Research whilst completing their Spatial Price Index (SPI) survey.⁶ The SPI survey was conducted in 61 Queensland regional centres to determine the price of a "basket of goods and services" based on Consumer Price Index (CPI) categories. As the SPI survey was conducted in 11 previously HFAB surveyed towns it was agreed to also conduct the HFAB survey in these towns to improve the sample size for crossover reporting purposes with the results of previous HFAB surveys. This resulted in a total of eighty nine towns surveyed during 2006 with a 100% response rate.

Stores were not advised of the specific date and time of surveys so that results reflect usual availability and cost for consumers. The survey is conducted at the same time each year in an endeavour to control for seasonality. Data collected included the prices of the cheapest brand available (including generic brands if no brand available) for the forty four HFAB food items, the six less nutritious food items (cream-filled biscuits, plain milk chocolate, ice cream, a packet of potato crisps, a soft drink and a meat pie) and the two tobacco items. As there were four additional less nutritious food items in 2006, only the 2 items surveyed since 1998 were used for crossover comparisons. The



six less nutritious food items and the two tobacco items are referred to as “unhealthy” items in this report.

Information regarding missing HFAB food items, the availability of fresh food items (vegetables and fruit) and the availability of “better nutritional choices” items was also collected. This data was collected and compared from 2000 onwards. Methods, including the complete list of the HFAB foods, are detailed in the 2000 HFAB Survey Full Report.⁷

Cost Comparisons

The mean cost of the total HFAB, the fruit, vegetables and legumes in the basket, the “unhealthy” items and the basic healthy food groups¹ were compared by remoteness category for the 78 stores surveyed in 2006. Changes in cost and availability of foods since the previous three surveys (2000, 2001 and 2004) were also analysed by remoteness category for the 47 stores included in all four surveys. Further comparisons of food prices were made for the 36 stores that were included in all five surveys (1998, 2000, 2001, 2004 and 2006), and increases were compared with the increase in the CPI for food in Brisbane over the same period.⁸ In a couple of cases the store surveyed changed to reflect changes in shopping behaviour. Because the product description for ham and cabbage changed after the 1998 survey, the total basket could only be compared from 2000 onwards.

The CPI for food is based on a wide range of commonly purchased items (including soft drinks, cakes, biscuits, confectionary, take-away and fast food) some of which incur the Goods and Services Tax (GST). Basic food items (such as those in the HFAB) that are required to support and maintain health are mostly exempt from this tax. All CPI figures, including price data for individual foods used to calculate the CPI, are available from the ABS for capital cities only.

Data Analysis

Results were analysed using Microsoft Access⁹ and SPSS.¹⁰ For missing items, the mean cost for the item in the corresponding remoteness category was used as the default price for that year. The

differences in mean costs of the HFAB contents were assessed by one-way analysis of variance and the differences in mean costs over time were assessed by paired t-tests. Kendall’s Tau was used to test for correlations between remoteness and cost.

To adjust for the different sampling fractions in the different strata, stores were weighted for the analysis. Weights were proportional to the population size for each stratum for the analysis of the 78 random stores surveyed in 2006. For comparisons with previous surveys, weights were proportional to population size for strata divided by the number of stores surveyed in that stratum.

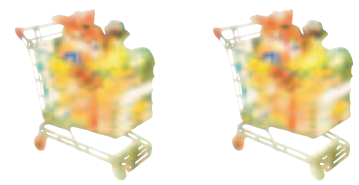
To compare changes between consecutive HFAB surveys, only those stores previously surveyed were included. As the time intervals between the five successive HFAB surveys were different, the percent change was “annualised” to allow for comparable time frames for assessing price change. This was done by calculating the square root of the ratio of the prices for the 1998 and 2000 surveys, the cube root of the ratio of the prices between the 2001 and 2004 surveys and the square root of the ratio of the prices between the 2004 and 2006 surveys. However, the cost change in dollars was not “annualised” and was shown as an average cost.

The 95% confidence interval (95% CI) of the mean is shown on the graphs and tables in this report. A 95% confidence interval of the mean is interpreted as a 95% chance that the confidence interval contains the true population mean. If confidence intervals do not overlap then the observed means are significantly different at the 95% confidence level.

Results

Costs in 2006

The 2006 HFAB survey results highlight the extra expenditure needed to purchase basic healthy food by families living in *outer regional*, *remote* and *very remote* areas compared to those living in *major cities* and *inner regional* centres. Figure 3 shows a trend of increasing food prices with increasing remoteness categories, with the exception of



the *remote* category. The cost of the HFAB in the *remote* category was marginally lower than the *outer regional* category, but the difference was not significant.

In the *very remote* category the cost of the HFAB was 24.2% (\$107.81) higher and the cost of fruit, vegetables and legumes in the basket was 20.6% (\$41.29) higher compared with the *major cities* category (Table 1 and Figures 3a & 3b). Furthermore, there were significant differences within the *very remote* category. For *very remote* stores greater than 2000 km from Brisbane (n=12), the cost of the HFAB was 32.6% (\$145.57) higher and the cost of fruit, vegetables and legumes in the basket was 29.5% (\$59.25) higher compared with the *major cities* category. For *very remote* stores less than 2000 km from Brisbane (n=10) the cost of the HFAB was 14.0% (\$62.50) higher and the cost of fruit, vegetables and legumes in the basket was 9.8% (\$19.74) higher compared with the *major cities* category (Figures 3a & 3b).

There were significant differences in the cost of all the basic healthy food groups by remoteness category as shown in Figure 4. The bread and cereals and the dairy groups were found to have greater differences between remoteness categories than the fruit and the vegetable and legumes groups.

To compare the price of the HFAB items with unhealthy alternatives, the cost of tobacco and some commonly purchased high fat/high sugar food items were also recorded.⁷ The cost disparity across remoteness categories for the “unhealthy” items surveyed was slightly less than for the total HFAB, with the costs of the “unhealthy” items in the *very remote* category being 22.8% higher than in the *major cities* category (Table 2).

Cost increases

There has been a significant increase in the price of basic healthy food in the 47 stores that have been surveyed since 2000 (Table 3 and Figure 5). Between 2004 and 2006, the Queensland average price of the HFAB increased by 12.6% (\$50.68). The *inner regional* category experienced the greatest cost increase for the HFAB (17.2%, \$68.00).

On an annual basis, the increase in the Queensland average price of the HFAB from 2004 to 2006 (6.1%, \$25.34 per annum) is comparable to the increase between 2001 and 2004 (5.3%, \$19.39 per annum) but remains marginal compared to the 13.2% (\$40.03 per annum) increase experienced for the HFAB between 2000 and 2001.

The Queensland average price of the fruit, vegetables and legumes in the basket increased by 17.4% (\$30.51) between 2004 and 2006 (Table 3 and Figure 5b). Differences in the price of the fruit, vegetables and legumes in the basket across the remoteness categories were greater than those seen for the total HFAB. As in the 2004 survey, price increases in 2006 were found to be the greatest for the fruit group (Figure 6).

The HFAB study attempts to control for seasonal influences by surveying at the same time of year (May). While the CPI data for food in Brisbane suggests fruits and vegetables are susceptible to price fluctuations, other fresh foods such as meat, milk and bread do not appear to be so variable (Table 4).

Annualised percent increases in costs for the 36 stores surveyed from 1998 to 2006 compared with the change in the CPI for food in Brisbane over the same period are shown in Figure 7a. While the largest change in food costs was observed between 2000 and 2001 when the New Tax System (NTS) was introduced, the cost of healthier foods has continued to increase more than the CPI for food in Brisbane in the majority of the remoteness categories. The 2004 – 2006 price changes for CPI for food in Brisbane were slightly higher than those for Australia as a whole (5.7% and 5.0% respectively).⁸

The 2005-2006 Brisbane food price increases are within the basic healthy food groups, driven mainly by the surge in fruit and vegetable prices according to the ABS (Table 4). Bananas accounted for most of the increase in fruit prices due to shortages created by Cyclone Larry in March 2006. Prices also rose for other fruit, in part reflecting increased demand for alternative fruit as consumers looked for a substitute for bananas. Transportation costs, through higher automotive fuel prices, may have



contributed to food price increases in general, as may have increasing distribution and packaging costs.⁸

Availability

To determine the access to healthy foods, the HFAB survey also measured the availability of fifteen of each of the most commonly consumed fruit and vegetables in addition to food items considered to be “better nutrition choices” (Table 5).⁷ To assess the number of basic healthy food items that were not available for purchase on the day of the HFAB survey, the number of missing HFAB items were also counted.⁷

Availability data are illustrated in Figures 8a, 8b, 9 and 10. Less variety of fruit and vegetables were available in the *very remote* compared to the *major cities* category, despite a modest (non-significant) improvement in the availability of vegetables in the *remote* and *very remote* categories (Figure 8a and 8b). Overall there was a wider variety of vegetables available compared to fruit, with a drop (non-significant) in the availability of fruit recorded in all remoteness categories. Availability of “better nutrition choices” declined with remoteness, although slight (non-significant) improvements were registered for the *remote* stores since 2004 and for *very remote* stores since 2001 (Figure 9).

The number of missing basic healthy food items continued to be high in 2006, in particular among stores in the *outer regional*, *remote* and *very remote* categories (Figure 10), with almost 9% of HFAB food items not available for purchase in stores from the *very remote* category. The most frequently missing HFAB items in all stores were bananas, wholemeal flour, powdered skimmed milk, tinned ham and dry biscuits. The most frequently missing ‘better nutritional choice’ items were 100% orange juice and wholemeal bread.

Implications of findings

Price increases recorded in all the remoteness categories since 2004 raise concerns about healthy food access for all Queenslanders. Higher prices and limited availability of healthy foods are barriers to healthy eating that can compromise

nutritional and health status and add to the burden of obesity and chronic disease.¹¹ Environmental influences, such as food access, remain major contributors to the higher death rates experienced by persons from more socioeconomically disadvantaged areas and remote regions.¹² Extreme socioeconomic disadvantaged areas are found across Queensland.¹³

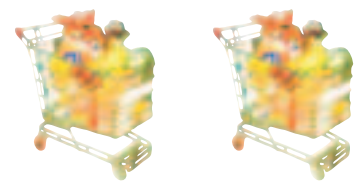
This inequality in access to healthy food is greatest in the most remote towns but exists throughout the state and reflects the lower cost of energy dense, nutrient poor food and drinks compared to healthy options in developed countries around the world.¹¹ With cost identified as the key factor in determining the purchasing choices of socially disadvantaged families,¹⁴ effective strategies to address this issue in all towns can only be developed by addressing the price differential between healthy food and unhealthy food at state-wide and national levels.¹⁵

Distance from food supply source appears to be a major factor contributing to the higher prices paid by the *very remote* communities located greater than 2000 km from Brisbane. Increasing transportation and distribution costs have been cited as factors contributing to this cost disparity.⁸ The substantially higher costs associated with distance from major centres exacerbate the difficulties for families in remote areas in making healthier choices. This is particularly an issue for socially disadvantaged families and Aboriginal and Torres Strait Islander peoples who suffer a disproportionate burden of poor health.¹³

The inequity in food price across the state is supported by the 2006 SPI results.⁶ The SPI survey results highlight the higher food prices in remote and very remote centres as a common feature with the findings of the 2006 HFAB survey.

The price of the “unhealthy” items is affected by remoteness category to a comparable level as the HFAB items (Table 2). This would imply that with increasing remoteness people simply pay more for food, no matter their choices.

The magnitude of food price increases since 1998 is captured in Figure 7a. The substantial cost



increase recorded between 2000 and 2001 remains the greatest impact on basic food items (as found in the HFAB) despite predictions of cost reductions secondary to the introduction of the NTS.¹⁶ Labour-intensive services such as transport, handling, distribution and retailing were previously cited as contributing to these cost increases.¹⁷ Recent adverse weather conditions in major fruit and vegetable growing areas in addition to increased fuel and packaging costs have been cited as contributing to latest price increases.⁸

The increase in the CPI for food in Brisbane in 2005-2006 was primarily secondary to fruit price increases (Table 4).⁸ While this has also had an impact on food costs of the 36 stores surveyed since 1998 (Figure 7), the HFAB cost increase continued to be higher than the CPI for food in Brisbane across all remoteness categories except *major cities* (Figure 7a). If CPI is the statewide economic benchmark this implies that the cost of foods for good health continues to be more expensive than less nutritious alternatives across the majority of Queensland. With price an important factor when deciding what food items to buy,¹⁸ the health of all Queenslanders, but particularly people of lower socioeconomic status and other vulnerable groups, may be compromised as a result.

Availability data reflects a decline in access to healthy food with remoteness (Figures 8a, 8b, 9 & 10). This fall is more apparent in the fruit compared to the vegetable varieties. The decline in fruit availability across all the remoteness categories since 2004 was associated with the banana shortages experienced during the 2006 survey period (Figure 8b). The improved vegetable variety since 2004 could be due to fruit and vegetable social marketing campaigns such as “Go for 2 & 5” (Figure 8a). Improvements in access to “better nutrition choices” in the *remote* and *very remote* stores may also be due to health promotion strategies such as store nutrition policies (Figure 9).

The decline in availability of basic healthy food items with increasing remoteness illustrates that

poor food security reduces the capacity of people living in remote locations to maintain good health.

Conclusion

The cost of healthy food has increased for all Queenslanders and, where data is available, by more than the cost of less nutritious alternatives.

Factors affecting the cost and availability of food are complex and largely lie outside of the health sector but impact upon nutrition and health. Solutions require joint commitment and partnerships across a range of sectors and at a range of levels (local, state and national).

Some current national initiatives to address food supply issues include:

- the national Remote Indigenous Stores and Take-away Project (RIST) which is developing and piloting a suite of tools designed to support the supply, promotion and sale of healthy food and drinks in remote stores and take-aways; and
- the Outback Stores initiative (OS) which aims to provide a retail management service for sustainable and “healthy” remote community stores across Australia. It is anticipated that OS will use the products of the RIST project.

In Queensland the joint Queensland Health and Aboriginal and Torres Strait Islander Policy (ATSIP) Nutrition Policy for ATSIP Community Stores and Take-Aways has recently been revised.

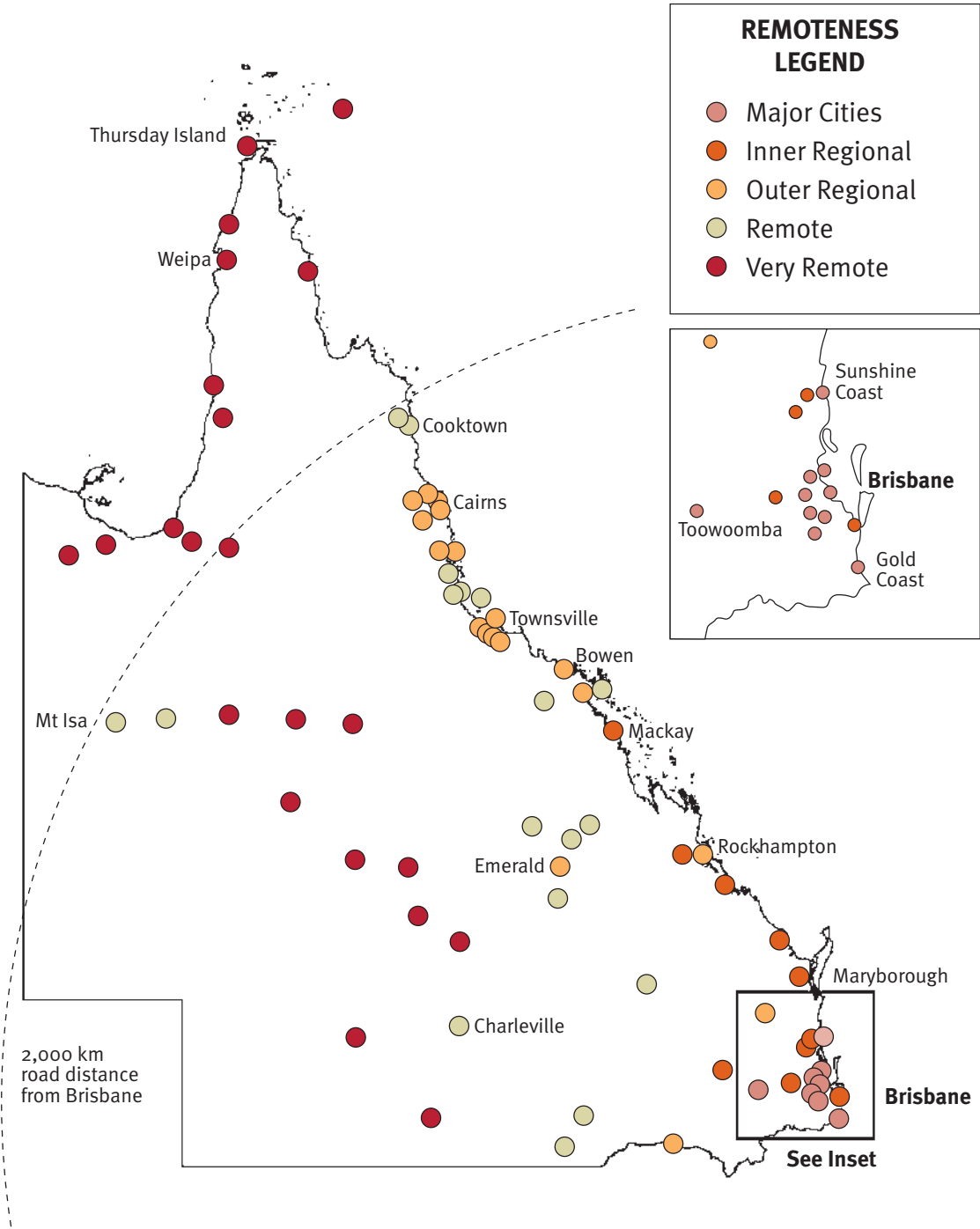
Work is currently underway to develop a national market basket survey.

The material for the Implications of Findings and the Conclusion sections was contributed by Queensland Health.

Locations



Figure 2 : Location and ABS remoteness classifications for the 78 stores in the 2006 HFAB survey



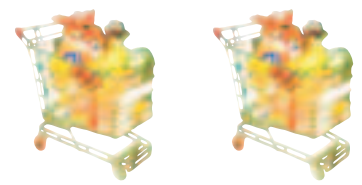
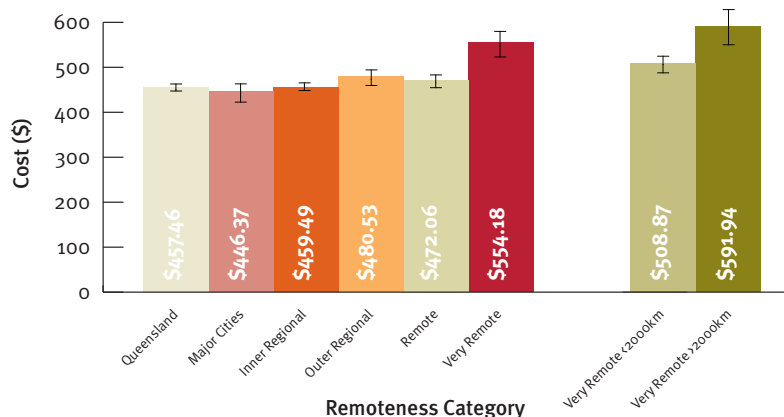
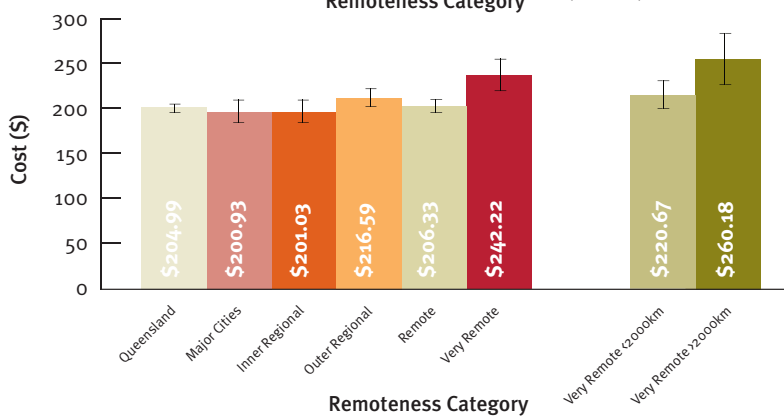


Figure 3: Mean cost (95% CI) of baskets in the 78 stores surveyed in 2006 by remoteness category^a



a) The Healthy Food Access Basket (HFAB)

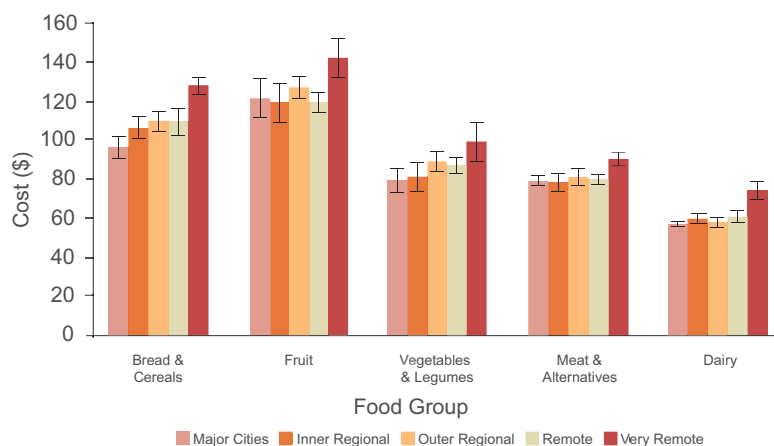
ANOVA $p < 0.001$
^a Weighting proportional to Queensland population size by each remoteness category



b) The fruit, vegetables and legumes in the basket

ANOVA $p < 0.05$
^a Weighting proportional to Queensland population size by each remoteness category

Figure 4: Mean cost (95% CI) of basic healthy food groups in the 78 stores surveyed in 2006 by remoteness category



ANOVA $p < 0.001$ Bread & Cereals, Fruit, Meat & Alternatives, Dairy
 ANOVA $p < 0.01$ Vegetables & Legumes

Results



Figure 5: Mean cost of baskets in 2000 and increase in mean cost from 2000-2006 in 47 stores by remoteness category^{a,b}

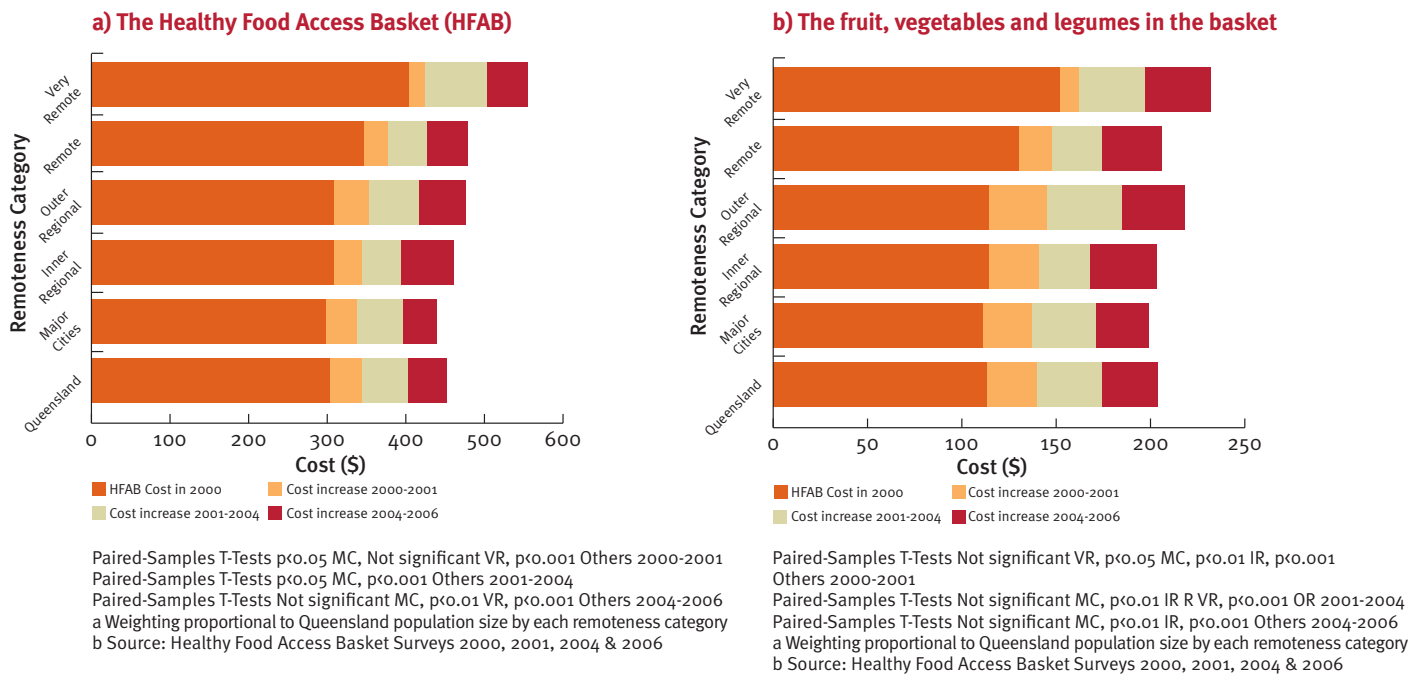
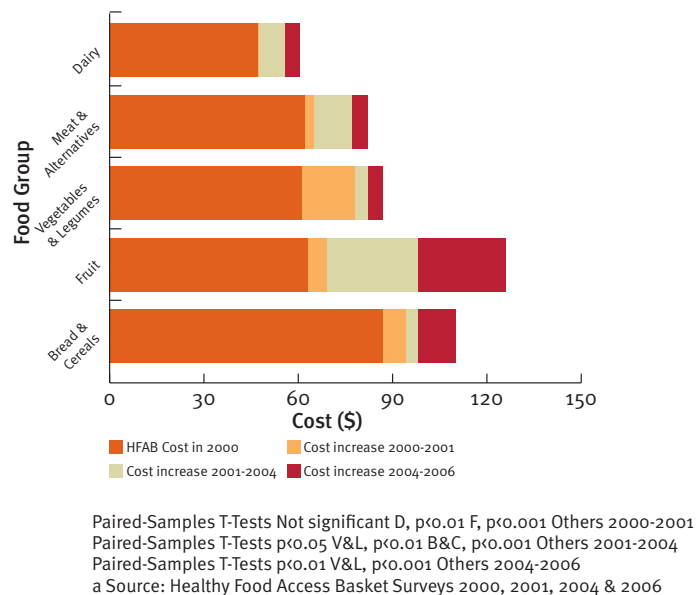


Figure 6: Mean cost of basic healthy food groups in 2000 and increase in mean cost from 2000-2006 in 47 stores^a



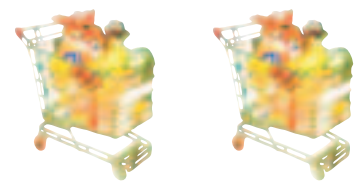
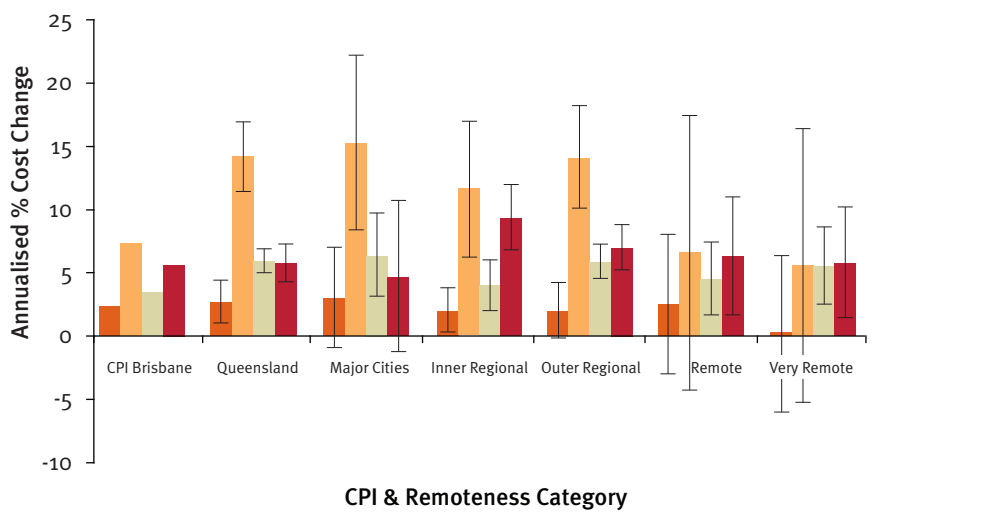


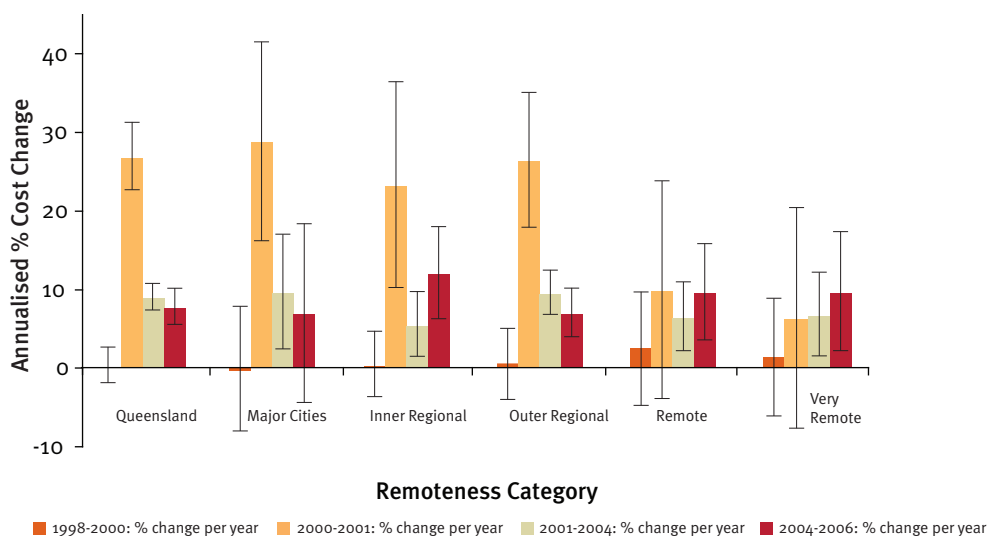
Figure 7: Annualised percent change in costs^a (95% CI) in the 36 stores surveyed between 1998 and 2006 by remoteness category^{b,c}

a) Annualised percent change in the costs of the Healthy Food Access Basket compared with the CPI for food in Brisbane^d



a Ham and cabbage excluded
 b Weighting proportional to Queensland population size by each remoteness category
 c Source: Healthy Food Access Basket Surveys 1998, 2000, 2001, 2004 & 2006
 d Source: Australian Bureau of Statistics⁸

b) Annualised percent change in the costs of the fruit, vegetables and legumes in the basket

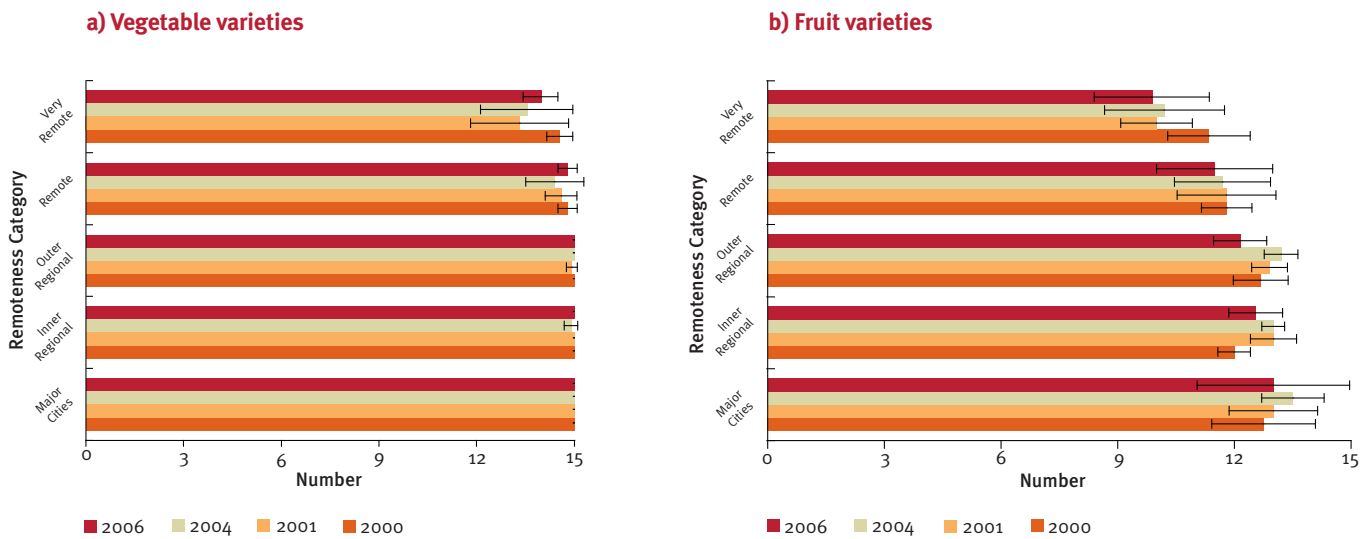


a Ham and cabbage excluded
 b Weighting proportional to Queensland population size by each remoteness category
 c Source: Healthy Food Access Basket Surveys 1998, 2000, 2001, 2004 & 2006

Results



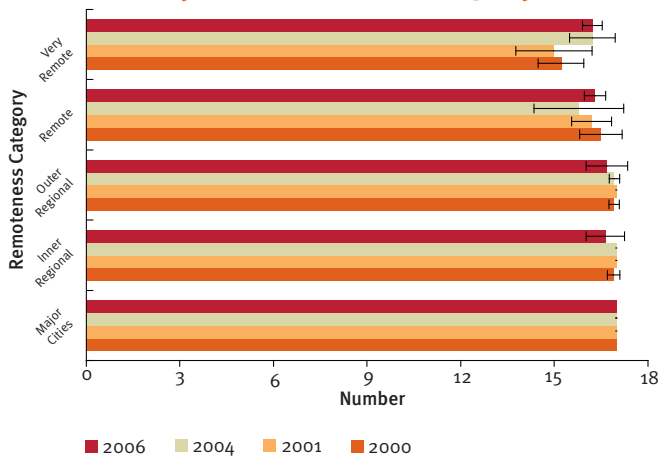
Figure 8: Availability of vegetable and fruit varieties (out of a total of 15) in the 47 stores surveyed from 2000-2006 by remoteness category^a



a Source: Healthy Food Access Basket Surveys 2000, 2001, 2004 & 2006

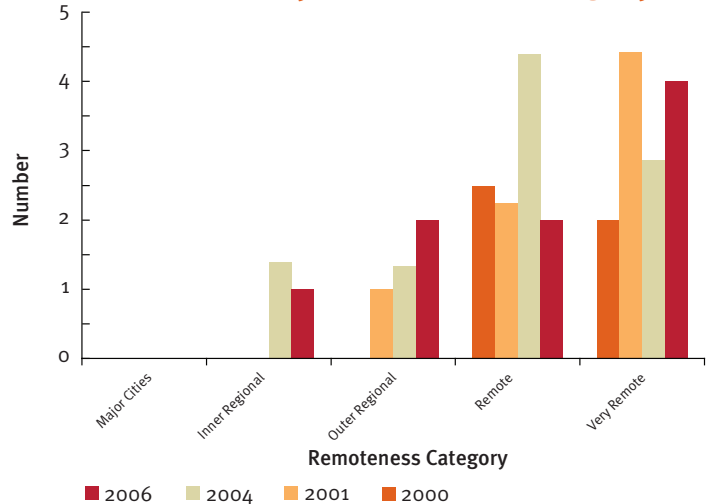
a Source: Healthy Food Access Basket Surveys 2000, 2001, 2004 & 2006

Figure 9: Availability of “better nutrition choices” (out of a total of 17) in the 47 stores surveyed from 2000-2006 by remoteness category^{a,b}



a Source: Healthy Food Access Basket Surveys 2000, 2001, 2004 & 2006
b List of “better nutrition choices”, Table 5 of this report

Figure 10: Number of missing HFAB items in the 47 stores surveyed from 2000-2006 by remoteness category^a



a Source: Healthy Food Access Basket Surveys 2000, 2001, 2004 & 2006

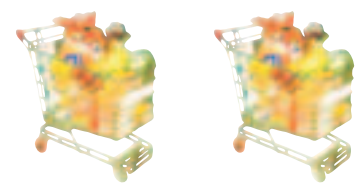


Table 1: Mean cost (95% CI) of baskets and the basic healthy food groups in the 78 stores surveyed in 2006 by remoteness category^a

	QLD (\$) (CI) n=78	Major cities (\$) (CI) n=10	Inner regional (\$) (CI) n=10	Outer regional (\$) (CI) n=18	Remote (\$) (CI) n=18	Very remote (\$) (CI) n=22	% (\$) increase in mean cost from Major cities to Very remote	Kendall's Tau p value
Cost of the Healthy Food Access Basket in 2006	457.46 (450.49- 464.44)	446.37 (427.57- 465.16)	459.49 (452.10- 466.87)	480.53 (464.29- 496.77)	472.06 (457.78- 486.34)	554.18 (526.22- 582.14)	24.2% (\$107.81)	<0.001
Cost of fruit, vegetables and legumes in 2006	204.99 (200.62- 209.35)	200.93 (188.00- 213.86)	201.03 (188.58- 213.47)	216.59 (206.79- 226.40)	206.33 (199.12- 213.53)	242.22 (223.72- 260.73)	20.6% (\$41.29)	<0.001
Cost of bread and cereals in 2006	101.52 (99.14- 103.90)	96.43 (90.88- 101.99)	105.85 (99.99- 111.71)	110.44 (105.82- 115.06)	110.29 (103.41- 117.18)	128.45 (123.94- 132.96)	33.2% (\$32.02)	<0.001
Cost of dairy in 2006	57.91 (57.01- 58.80)	56.98 (55.80- 58.15)	60.06 (56.91- 63.21)	58.19 (55.42- 60.97)	61.10 (58.00- 64.20)	73.43 (68.41- 78.46)	28.9% (\$16.45)	<0.001
Cost of meat and alternatives in 2006	79.88 (78.68- 81.08)	79.48 (77.16- 81.79)	78.39 (73.94- 82.85)	81.41 (77.30- 85.53)	80.33 (77.53- 83.13)	89.93 (86.37- 93.48)	13.2% (\$10.45)	<0.001
Cost of fruit in 2006	122.79 (119.90- 125.69)	121.77 (112.39- 131.16)	119.59 (109.64- 129.53)	127.10 (121.20- 132.99)	119.16 (114.09- 124.23)	143.02 (133.26- 152.77)	17.5% (\$21.25)	<0.001
Cost of vegetables and legumes in 2006	82.20 (79.90- 84.49)	79.16 (72.95- 85.37)	81.44 (74.26- 88.62)	89.50 (84.33- 94.66)	87.17 (83.38- 90.95)	99.21 (88.82- 109.59)	25.3% (\$20.05)	<0.001

^a Weighting proportional to Queensland population size by each remoteness category

Results



Table 2: Mean cost (95% CI) of the HFAB and the “unhealthy” items in the 78 stores surveyed in 2006 by remoteness category^a

	QLD (\$) (CI) n=78	Major cities (\$) (CI) n=10	Inner regional (\$) (CI) n=10	Outer regional (\$) (CI) n=18	Remote (\$) (CI) n=18	Very remote (\$) (CI) n=22	% (\$) increase in mean cost from Major cities to Very remote	Kendall's Tau p value
Cost of the Healthy Food Access Basket in 2006	457.46 (450.49-464.44)	446.37 (427.57-465.16)	459.49 (452.10-466.87)	480.53 (464.29-496.77)	472.06 (457.78-486.34)	554.18 (526.22-582.14)	24.2% (\$107.81)	<0.001
Cost of “unhealthy” items in 2006	44.77 (43.99-45.55)	43.57 (41.58-45.56)	45.38 (42.02-48.73)	46.74 (45.54-47.94)	49.12 (46.93-51.30)	53.48 (51.01-55.95)	22.8% (\$9.91)	<0.001

^a Weighting proportional to Queensland population size by each remoteness category

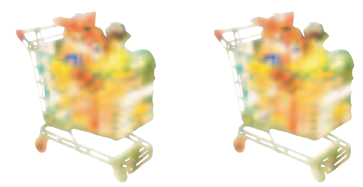


Table 3: Change in mean cost (95% CI) of baskets in the 47 stores surveyed from 2000 to 2006 by remoteness category^{a,b}

	QLD (\$) (CI) n=47	Major cities (\$) (CI) n=4	Inner regional (\$) (CI) n=11	Outer regional (\$) (CI) n=13	Remote (\$) (CI) n=10	Very remote (\$) (CI) n=9
Cost of the Healthy Food Access Basket in 2000	304.01 (289.79-309.25)	298.83 (280.50-317.16)	309.59 (303.41-315.77)	309.46 (301.92-317.00)	347.29 (327.01-367.57)	404.82 (373.74-435.90)
Cost of the Healthy Food Access Basket in 2001	344.04 (339.04-349.04)	339.56 (324.10-355.02)	345.17 (334.12-356.22)	353.59 (341.76-365.42)	377.58 (357.94-397.22)	425.29 (398.13-452.45)
% (\$) increase in mean cost 2000-2001	13.2%*** (\$40.03)	13.6% (\$40.73)	11.5% (\$35.58)	14.3% (\$44.13)	8.7%*** (\$30.29)	5.1%* (\$20.47)
Cost of the Healthy Food Access Basket in 2004	402.20 (395.50-408.90)	398.28 (366.97-429.59)	394.75 (383.07-406.43)	417.24 (406.77-427.71)	428.42 (416.47-440.37)	504.36 (479.72-529.00)
% (\$) increase in mean cost 2001-2004	16.9%*** (\$58.16)	17.3% (\$58.72)	14.4% (\$49.58)	18.0% (\$63.65)	13.5% (\$50.84)	18.6%** (\$79.07)
Cost of the Healthy Food Access Basket in 2006	452.88 (445.34-460.42)	443.00 (412.26-473.74)	462.75 (452.09-473.41)	478.27 (466.60-489.94)	480.56 (456.55-504.57)	556.40 (523.42-589.38)
% (\$) increase in mean cost 2004-2006	12.6%*** (\$50.68)	11.2% (\$44.72)	17.2%*** (\$68.00)	14.6%*** (\$61.03)	12.2%*** (\$52.14)	10.3%** (\$52.04)
Cost of fruit, vegetables and legumes in 2000	113.11 (109.44-116.78)	111.36 (91.97-130.75)	114.24 (107.72-120.76)	114.95 (108.32-121.58)	130.43 (120.17-140.69)	152.54 (139.25-165.83)
Cost of fruit, vegetables and legumes in 2001	140.38 (137.41-143.35)	138.15 (129.05-147.25)	141.84 (132.11-151.57)	146.65 (137.58-155.72)	149.08 (138.30-159.86)	162.59 (146.50-178.68)
% (\$) increase in mean cost 2000-2001	24.1%** (\$27.27)	24.1% (\$26.79)	24.2% (\$27.60)	27.6% (\$31.70)	14.3%* (\$18.65)	6.6% (\$10.05)
Cost of fruit, vegetables and legumes in 2004	174.45 (169.21-179.69)	172.54 (144.81-200.27)	169.57 (159.36-179.78)	186.65 (175.13-198.17)	175.62 (162.81-188.43)	197.62 (178.46-216.78)
% (\$) increase in mean cost 2001-2004	24.3%** (\$34.07)	24.9% (\$34.39)	19.5% (\$27.73)	27.3% (\$40.00)	17.8% (\$26.54)	21.5% (\$35.03)
Cost of fruit, vegetables and legumes in 2006	204.96 (200.15-209.77)	201.28 (176.70-225.86)	205.10 (194.13-216.07)	219.84 (212.87-226.81)	207.97 (195.70-220.24)	233.13 (211.51-254.75)
% (\$) increase in mean cost 2004-2006	17.4%*** (\$30.51)	16.7% (\$28.74)	20.9% (\$35.53)	17.8% (\$33.19)	18.4% (\$32.35)	18.0%* (\$35.51)

Paired-Samples T-Tests: * = p<0.05; ** = p<0.01; *** = p<0.001 significantly different from 2000, 2001, 2004 & 2006

^a Weighting proportional to Queensland population size by each remoteness category

^b Source: Healthy Food Access Basket Surveys 2000, 2001, 2004 & 2006

Results



Table 4: Annual percentage price change for selected food items (June Quarter 1997 to June Quarter 2006) in Brisbane^a

Items	97-98 %	98-99 %	99-00 %	00-01 %	01-02 %	02-03 %	03-04 %	04-05 %	05-06 %	00-06 %	98-06 %
CPI for food	2.8	2.4	2.2	7.3	4.8	4.1	1.5	2.7	8.7	32.5	38.8
Bread	3.4	6.5	2.2	8.4	3.4	2.9	-6.6	1.4	7.5	17.4	27.7
Bread and cereal products	1.9	2.3	1.8	5.7	3.9	5.4	-1.6	0.4	5.1	20.3	25.2
Dairy and related products	2.2	3.9	8.0	-1.2	7.3	3.8	0.8	4.5	3.9	20.5	35.3
Milk	2.2	3.4	11.5	-4.6	6.4	4.3	0.2	4.5	3.2	14.5	32.0
Fruit and vegetables	3.3	6.0	-0.8	11.4	0.7	9.0	2.6	-2.6	38.7	69.7	78.3
Fruit	-8.1	25.8	-17.7	18.2	13.3	-8.6	10.2	-4.9	65.5	112.3	119.6
Vegetables	12.6	-8.4	15.9	6.5	-9.4	26.9	-3.0	-0.7	15.9	36.6	45.1
Meat and seafood	0.7	-0.1	4.5	8.4	10.7	0.7	1.9	6.0	2.8	34.0	39.9
Soft drinks, water and juices	6.3	-1.5	-1.6	-1.3	1.4	0.2	0.6	4.9	3.0	8.9	5.6
Take-away and fast foods	3.0	3.1	3.6	11.1	3.7	3.7	3.0	3.2	3.8	31.8	40.8
Snacks and confectionery	4.2	5.0	1.8	5.5	5.7	4.9	2.0	3.7	6.2	31.4	40.5

^a Source: Australian Bureau of Statistics ⁸

Table 5: Vegetable and fruit variety and “better nutrition choices” checklists^a

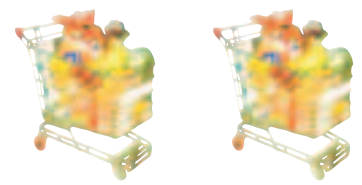
Vegetables	Fruit	“Better nutrition choices”
Broccoli	Apple	Wholemeal bread
Cabbage	Banana	Dried fruit
Capsicum	Grape	Dry biscuits, low fat ^b
Carrot	Kiwi fruit	Tinned fruit, in natural juice
Cauliflower	Mango	Monounsaturated oil like canola or olive
Cucumber	Orange	Fresh reduced fat milk
Green beans	Other citrus fruit	Yoghurt
Lettuce	Other stone fruit	Bottled water
Mushroom	Pawpaw	Baked beans
Onion	Peach	100% Orange juice
Potato	Pear	Diet cordial
Pumpkin	Pineapple	Diet soft drink
Sweet corn	Rock melon	Lean meat ^c
Sweet potato	Strawberry	Other dried legumes e.g. lentils, split peas, chickpeas
Tomato	Watermelon	Poly/mono-unsaturated margarine
		Red kidney beans
		Tinned bean mix

^a Source: The 2000 Healthy Food Access Basket (HFAB) Survey: Full Report ⁷

^b Low fat dry biscuits are biscuits which have less than 10g of fat per 100g

^c Lean meat determined by visual inspection: lean meat if little visible fat

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NSW HEALTHY FOOD BASKET

COST, AVAILABILITY AND QUALITY SURVEY

areas in NSW, current people in lower socio-economic groups and those living in more remote areas have fewer population groups may impact on their preferences for, and consumption of, this important food group. People in low population groups and vegetables of the same quality as is available to residents in metropolitan locations. Food budgeting programs as buying fruit and vegetables in season and using tinned and frozen alternatives, may be a useful strategy to reduce The Cancer Council NSW recommends that government price surveillance mechanisms be introduced, to ensure all families of a healthy food basket exists both within and between geographic and demographic areas in NSW. Current people of

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The purpose of this study was to determine the cost of a standard basket of healthy food across NSW, with a specific focus on the cost, availability and quality of fruit and vegetables. The three key indicators of cost, availability, and quality were examined by the SES and remoteness of localities.

KEY FINDINGS AND RECOMMENDATIONS

- » **Extensive variability in the cost of a healthy food basket exists both within and between geographic and demographic areas in NSW.**
.....
- » **Currently people in lower socio economic groups and those living in more remote areas have fewer fruit and vegetable varieties available. The reduced availability of fruit and vegetables for these population groups may impact on their preferences for, and consumption of, this important food group.**
.....
- » **People in lower socio economic groups and those living in remote areas deserve equal access to a variety of fruit and vegetables of the same quality as is available to residents in metropolitan locations.**
.....
- » **Food budgeting programs, which educate consumers on how to purchase appropriate and nutritious foods cheaply, such as buying fruit and vegetables in season and using tinned and frozen alternatives, may be a useful strategy to reduce the price burden of purchasing a healthy food basket.**
.....
- » **To prevent the impact of price variability The Cancer Council NSW recommends that government price surveillance mechanisms be introduced, to ensure all families can afford to purchase and consume a healthy food basket.**
.....

COST, AVAILABILITY AND QUALITY SURVEY

INTRODUCTION

Economic factors and access issues can affect people's consumption of healthy foods. Higher costs, lower availability and poorer quality of healthy food choices can have a negative impact on the nutritional quality of people's diets, their nutritional status and ultimately their health outcomes.¹⁻³

Healthy Food Basket Surveys conducted in other states of Australia, including Queensland,^{4,5} the Northern Territory,⁶ Victoria,⁷ and South Australia,⁸ have demonstrated that the cost of healthy food in remote areas is significantly higher than in metropolitan areas. As well, the quality and variety of fruit and vegetables declines with increasing distance from city centres.

To date, there have been no comprehensive surveys undertaken relating to the costs and availability of healthy foods across New South Wales (NSW), although some smaller surveys have been conducted in Sydney and Wollongong.^{9,10}

Studies on the differences in food costs based on the socio economic status (SES) of areas are more limited, although poorer consumption of fruit and vegetables and a higher prevalence of overweight and obesity among lower SES groups, are well documented.¹¹

METHODS

Sample selection

Volunteers and staff from each of the 10 Cancer Council NSW regional offices located throughout NSW (Central Sydney, Western Sydney, Central Coast, Hunter, Mid North Coast, Far North Coast, North Western NSW, Western NSW, South Western NSW and Southern NSW) were recruited to implement the survey.

A total of 157 stores were surveyed. Seven of these stores were excluded from analyses as they were either: Aldi stores (n = 3), as these stores are known to be considerably cheaper and would not represent usual cost, online supermarkets (n = 2), due to a small number of representative stores for this type of supermarket, or if they had missing data for more than 10 food items (n = 2). The final sample was 150 stores.

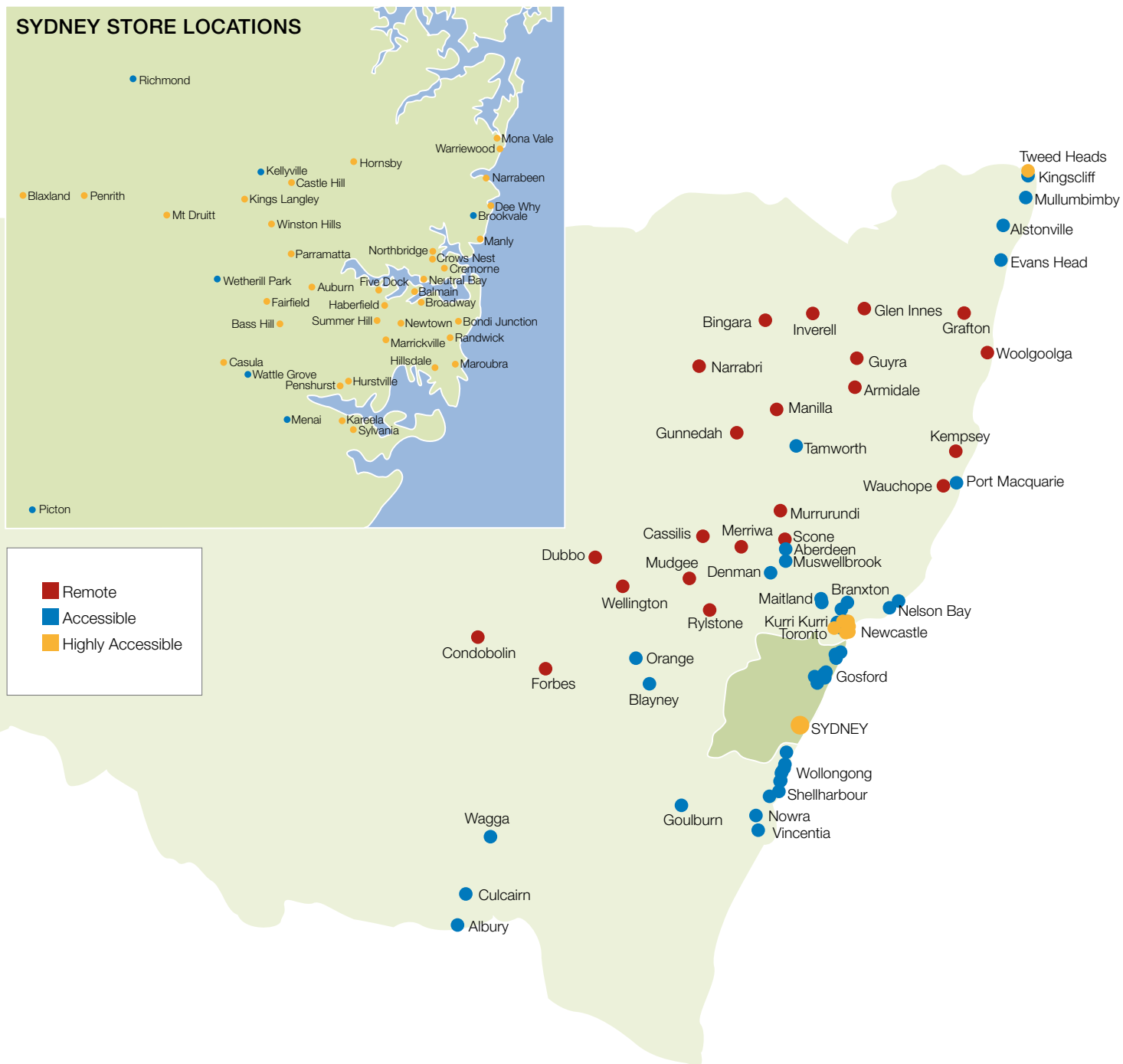
Selected stores were categorised by remoteness and SES. Based on postcode, the Accessibility/Remoteness Index of Australia (ARIA+) score was used as an estimate of remoteness and access to services.¹² ARIA+ scores were divided into tertiles: 'highly accessible', 'accessible' and 'remote'. Table 1 shows the breakdown of the number of stores in each category.

Similarly the Australian Bureau of Statistics Socio Economic Indicators for Areas (SEIFA) score, as determined by the Index of Relative Socio Economic Advantage/Disadvantage (IRSAD),¹³ was used as an estimate of the SES of localities. SEIFA scores were divided into quintiles (1-5), with quintile 1 representing the area with the lowest SES.

Data were collected over a two week period in December 2006.

NSW HEALTHY FOOD BASKET

STORE LOCATIONS MAP FOR NSW



COST, AVAILABILITY AND QUALITY SURVEY

Survey Tool

The healthy food basket represents commonly available and popular food choices selected to provide 95% of the estimated energy requirements of a reference family of six people over a two-week period. This reference family is based on two adults (male and female, >19 years), three children (2 boys, 4 and 14 years; 1 girl, 8 years) and an elderly woman (>61 years). The survey instrument was modelled on that used in the Queensland Healthy Food Basket.^{4,5}

The range of foods listed in the survey included breads and cereals; fruit, vegetables and legumes; meat and meat alternatives; dairy foods, and some energy dense 'extra' foods (Table 2).

Cost

Surveyors were instructed to price the cheapest non-generic brand, and record the brand name. Where the specified size was not available, the next smallest package size was priced and the weight was recorded. The recorded price was adjusted for portion size. The availability of each product was also recorded.

For fresh fruit and vegetables, the price per kilogram was recorded. However if the product was priced per unit (eg lettuce), the item was weighed and the price and weight were recorded.

Availability

The availability of 30 different fresh fruits and vegetables was recorded. The included survey items were based on those used in the Queensland Healthy Food Basket,^{4,5} and were selected according to the most commonly consumed fruit and vegetables. Surveyors recorded if the listed fruit and vegetables were available and the number of different available varieties of that particular fruit or vegetable.

Quality

Quality was assessed for 10 varieties of fresh fruit and vegetables using a five-point visual assessment method. Surveyors were instructed to subjectively rate the quality of these fruits and vegetables based on whether all, most, half, some, or few of that item on display were good against the combined criteria of whether the produce was not aged, bruised or mouldy. For each store, a maximum score of 50 (all good for all varieties) and a minimum of zero (few good for all varieties) were attainable.

Permission was not sought from the store owners to conduct the survey; the information collected was publicly available, and prior knowledge of the survey may have biased the results, as available produce at the time of the survey may not have reflected usual produce.

Data Analysis

Data were analysed using SPSS for Windows version 15.0. Linear regression, where SEIFA quintiles and ARIA+ tertiles were entered as categorical dummy variables, was used to determine the association of SES and remoteness with grocery cost and fruit and vegetable availability. The highest SES and highly accessible areas were used as the referent groups in all models. For missing items, the sample mean price for the item was used.

Quality of fruit and vegetables was assessed using the Kruskal-Wallis test (non-parametric ANOVA). Results were considered statistically significant at the $\alpha=0.05$ level.

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RESULTS

Overall Cost of the Healthy Food Basket

The overall cost of the healthy food basket ranged from \$337.29 (Blaxland, Western Sydney) to \$519.71 (Murrurundi, Hunter region), a difference of \$182.42 between the cheapest and the most expensive basket.

The mean price of the food basket was \$435.59 (95% CI: \$430.85 - \$440.34) (Figure 1). Over a 12-month period, it would cost a family of six \$11,325.34 for a standard basket of food to meet their nutritional requirements, however this could range from between \$11,202.10 and \$11,448.84.

The cost of the total food basket increased by remoteness (non-significant) (Figure 1). The mean cost of the food basket was \$184.86 more expensive per year in the remote locations, compared with the highly accessible locations.

There was no apparent trend between the cost of the total food basket and the SES of the location (Figure 1).

Cost of Food Groups Within the Food Basket

Fruit and vegetables contributed the largest component of the total food basket cost (44%), followed by breads and cereals (24%), meat and meat alternatives (18%), dairy foods (10%) and extras (4%). This ranking is consistent with the recommended dietary proportions for each food group in the Australian Guide to Healthy Eating.¹⁴ Of the 44 items in the healthy food basket, 15 items were fruits and vegetables (34%), including fresh, frozen and canned varieties.

Cost of Fruit and Vegetable Component

The mean cost of the fruit and vegetable component of the food basket was \$194.66 (191.40 – 197.92) (Figure 2).

The cost of the fruit and vegetables increased by remoteness, with those in remote areas paying \$256.36 more per year than those in the highly accessible areas. While the overall association between the remoteness of the area and the cost of fruit and vegetables was not statistically significant, fruit and vegetables were significantly more expensive in remote areas compared with highly accessible areas ($t_{146} = 1.96$, $P=0.05$) (Figure 2).

There was no apparent trend for the cost of fruit and vegetables according to the SES of the location (Figure 2).

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Cost of Other Food Basket Components

The cost of breads and cereals, dairy foods and extra foods decreased with remoteness (non-significant) (Table 3). The mean cost of breads and cereals was \$103.16, with those in remote areas paying \$50.18 less per year than those in highly accessible areas. The mean cost of dairy products was \$41.98, with those living in remote locations paying \$23.40 less per year than those living in highly accessible areas. Lastly, the mean cost of extra foods was \$15.96; with those people living in remote areas paying \$33.28 less per year than people living in highly accessible areas.

There was no apparent trend between the cost of meat and meat alternatives and remoteness.

Also, there was no apparent trend between the cost of any component food group within the healthy food basket and SES.

Variety of Fruit and Vegetables

The mean number of fresh fruit and vegetable varieties in NSW stores was 67 (63.8 – 69.7). This ranged from 23 (Wauchope, Mid North Coast) to 119 varieties (Armidale, North West).

There was a trend for a decreasing number of fruit and vegetable varieties available with increasing remoteness. Highly accessible areas had nine more fruit and vegetable varieties to select from (73, 69.45 – 77.5) compared with the accessible areas (64, 60.4 – 68.1), and 13 more than remote areas (60, 49.3 – 70.17) (Figure 3).

Similarly, there was a lower number of fruit and vegetable varieties available in the lower SES areas compared to the higher SES areas. Quintile 2 had five fewer varieties of fruit and vegetables to choose from (62, 57.0 – 67.2) compared with the

state mean. In contrast quintile 5, the highest SES areas, had 10 more varieties of fruit and vegetables to select from (77, 72.0 – 82.2) compared with the NSW mean (Figure 3).

The association between both SES and remoteness of localities, and fruit and vegetable variety was significant ($F_{(6, 143)} = 2.75, P = 0.015$). Together, both SES and remoteness are attributable for 10% of the variation in fruit and vegetable variety across the entire sample.

Quality of Fruit and Vegetables

The mean quality score for fruit and vegetables in NSW was 42 (40.24 – 43.10), out of a possible score of 50 points. The lowest score was identified in Guyra, North West, with a score of 10 points. The highest score was 50 points, which was identified in 19 stores across all areas.

Highly accessible areas scored an average of 4 points more for quality than the remote locations (43, 41.7 – 44.8; vs. 39, 33.6 – 45.3) (non-significant). Also, there was no significant association between the quality score for fruit and vegetables and SES (Figure 4). Quality was not associated with the cost of fruit and vegetables.

NSW HEALTHY FOOD BASKET

DISCUSSION

This study provides the largest analysis of cost, availability and quality of healthy foods in Australia, with a store sample of 150 food outlets. The unique position of The Cancer Council NSW, in that it has satellite centres dispersed around NSW, allowed for the collection of data from both a large number of stores, and from diverse areas across NSW.

Cost of the Healthy Food Basket

According to the Australian Bureau of Statistics *Household Income and Income Distribution* (2007) report, the average family income for two adults aged 44 years with dependent children is \$646 per week.¹⁵ According to the current healthy food basket survey, this family would need to spend 22% of their income on groceries to meet their energy and nutrient requirements. However, for people with below average incomes, a considerably higher proportion of their income would be spent on groceries. Households in the lowest quintile of income, earning an average of \$390 per week,¹⁵ would spend 56% of their income to purchase a healthy food basket.

One of the most striking findings from the current survey was the variability in the price of a healthy food basket across NSW. Across all stores surveyed there was a difference of \$182.42 between the cheapest basket (\$337.29 in Western Sydney) and the most expensive basket (\$519.71 in the Hunter region). Variability in the cost of the healthy food basket *within* regions was also considerable. The variability in the cost of the healthy food basket was not associated with the different supermarket chains. The high variability of grocery prices lends itself to recommendations for price monitoring across NSW. Proposals to strengthen the Australian Competition and Consumer Commission's role in monitoring the price of supermarket prices¹⁶ would help to ensure that all families pay a similar price for grocery items, regardless of where they live.

There was a positive linear trend for the increasing cost of the total food basket with remoteness (as areas became more remote, the cost of the healthy food basket increased). While the overall association between remoteness and cost of fruit and vegetables was not statistically significant, there was a significant difference in the cost of fruit and vegetables between highly accessible and remote areas. Those living in remote locations pay \$256.36 more per year for fruit and vegetables than those in the highly accessible areas. This trend has been identified in previous research.^{4,5} In the Healthy Food Basket surveys conducted in Queensland, the over-sampling of very remote areas revealed a significant difference in cost by remoteness. NSW has relatively few very remote areas.

In the 2006 Queensland Healthy Food Basket Survey,⁵ the cost of the overall basket was \$457.46; 5% more expensive than NSW, and the fruit and vegetable component was \$204.99; again, 5% more expensive than in NSW. In very remote Queensland areas, the cost of the total food basket increased to \$554.18, and fruit and vegetables increased to \$242.22.

The increased cost involved in transporting groceries to more remote areas, and subsequent increased fuel usage are likely to add to the cost of the grocery items; which is ultimately paid for by consumers in these remote areas.

There were no clear trends between the cost of the healthy food basket and the SES of localities. Similar findings between cost and SES have been identified in previous research from Adelaide, which indicated no clear trend between healthy food basket cost and SES of areas.¹⁷

COST, AVAILABILITY AND QUALITY SURVEY

Variety of Fruit and Vegetables Available

Overall, during the survey period there was a wide variety of fruits and vegetables available for purchase. A total of 30 different fruit and vegetable types were included in the survey tool, and of these an average of 68 different varieties were recorded across NSW, for example in some stores there were up to eight different varieties of apples available.

Both SES and remoteness were associated with fruit and vegetable variety, with lower SES and increasing remoteness being significantly associated with fewer available varieties. This trend for decreasing availability of fruit and vegetables varieties with remoteness has also been previously demonstrated in Queensland.^{4,5} These Queensland surveys were conducted between April and May, indicating that the disparity between remote and accessible areas is not simply a seasonal issue.

A recent systematic review of research relating to fruit and vegetable variety and consumption of this food group found that availability was positively associated with consumption.¹

Quality

Quality of food, in particular perishable items such as fresh fruit and vegetables, is a key factor in achieving food security; which refers to the ability of families to obtain nutritious food on a regular and reliable basis.¹⁸ The quality of fruit and vegetables determines its nutrient content, and will also affect its acceptability for purchase.

In the current survey, the overall quality of fruit and vegetables in NSW was reasonably good. The mean quality score for fruits and vegetables in NSW was 42, out of a possible score of 50 points. No one particular fruit and vegetable item was consistently of poorer quality, with the mean quality score for all survey items being 4 out of a possible 5 points. The areas with the poorest overall quality of fruit and vegetables were Guyra and Glen Innes in the North Western region; Mudgee in the Western region; Salamander Bay in the Hunter; and Warilla Grove in the Southern region. Each of these localities received a score of less than 15 points out of a possible 50.

While there was some difference in the quality of fruit and vegetables according to the SES of locations this association was not statistically significant; the low SES and mid SES locations had the poorest quality of fruit and vegetable available, each with a score of 40, and the high SES locations had the best quality fruit and vegetables available with a score of 43. Similarly there was no significant association between the quality of fruit and vegetables according to remoteness.

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CONCLUSION

This survey has identified potential barriers to the access to, and purchase of, a healthy food basket. Previous research on the cost of a healthy food basket in the Northern Territory⁶ and Queensland^{4,5} has shown a trend for increasing cost with remoteness. Findings from NSW indicate that whilst the cost of the total basket and fruit and vegetables appear to follow this trend, there was a large variability within different remoteness groupings.

The classification of areas according to SES, using postcodes as a proxy for location, may have obscured any trend in the cost of the healthy food basket according to SES. Postcodes, particularly in regional and remote areas often span large geographical areas.

Other barriers to the attainability of a healthy food basket, including the variety of fruit and vegetables available and the quality of these fruit and vegetables, appear to be more disparate between different demographic areas. However, while lower SES and remote areas offered fewer varieties of fruits and vegetables of poorer qualities than higher SES and more accessible areas, it cannot be said that these areas had few varieties or poor quality. In general the number of varieties and the quality of fruit and vegetables in these areas was reasonable, although there are no benchmark standards for variety and quality available for comparison.



RESULTS TABLES AND FIGURES

TABLE 1: CLASSIFICATION OF FOOD STORES IN THE SAMPLE.

Classification	Number of Stores
SEIFA score for socio economic status	
1 (very low)	27
2	32
3	35
4	31
5 (very high)	25
ARIA+ score for remoteness	
Highly accessible	52
Accessible	75
Remote	23





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We would also like to thank the Nutritionists, Aboriginal Nutrition Workers, Aboriginal Health Workers, and other community members involved for their assistance in surveying stores.

Disclaimer

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Executive summary

- Seventy four rural and remote stores in the Northern Territory (NT) were surveyed between April and June 2006
- A standard basket of foods was priced in each of the stores. This basket is sufficient to provide foods for a hypothetical family of six for a fortnight. A major supermarket and corner store in each of the district centres were surveyed for comparison of prices
- In addition to price, information was also collected on availability and variety of selected healthy food items, quality of fresh fruit and vegetables, store ownership, employment characteristics and other store management practices
- The average cost of foods was \$632 in remote stores, \$597 in district centre corner stores and \$522 in district centre supermarkets
- Barkly remote was the most expensive district (\$765) and Katherine remote the least expensive district (\$607)
- On average, the cost of the food basket in remote stores was 29 per cent more expensive than the Darwin supermarket, and 19 per cent more expensive than the Darwin corner store
- The cost of the food basket increased by 10 per cent in remote stores and increased by 16 per cent in district centre supermarkets compared to the same period last year. This is the largest annual increase since the survey commenced in 1998
- The per cent of family income required to purchase the basket of foods was 28 per cent in a Darwin supermarket and 36 per cent in the remote stores. This was an increase from the 2005 survey where the percent of income was 25 per cent from a Darwin supermarket and 34 per cent from remote community stores
- 60 per cent of people employed in remote community stores were Aboriginal
- The average number of fresh fruit choices available in remote stores was seven compared to eight in 2005
- The average number of fresh vegetable choices available in remote stores was 14 compared to 15 in 2005
- On average 94 per cent of items in the food basket were available, or usually available, in the remote stores surveyed.

1. Background

Poor nutrition is a major contributor to the ill health of Aboriginal people living in remote communities. It has been estimated that approximately 95 per cent of the foods eaten in remote Aboriginal communities are purchased from the community store¹. Community stores are therefore key players in eliciting and sustaining improvements in the health of Aboriginal people living in remote areas.

In 1995 the NT Department of Health and Community Services developed the NT Food and Nutrition Policy. One of the strategies identified in this policy was to develop a tool (the "Market Basket Survey") to monitor food cost, availability, variety and quality in remote community stores. The Market Basket Survey also enables information to be collected on: store management, employment of Aboriginal people, existence of a store nutrition policy, community development initiatives by the store such as sponsorship and donations, nutrition promotions and store worker training. The first Territory wide survey of remote stores was carried out in 1998 when 45 stores were surveyed².

The survey includes a basket of foods which meets the average energy and recommended nutrient needs of a hypothetical family of six people for a fortnight. The family was chosen to represent a cross-section of people who had important nutrient requirements because of their age and sex. The family consists of:

- a grandmother aged 60 years
- a man aged 35 years
- a woman aged 33 years
- a male aged 14 years
- a girl aged eight years
- a boy aged four years.

The foods that make up the basket to feed this family are shown in Appendix A. Model C from the Core Food Groups³ was used to determine the quantities of each food group required to meet 70 per cent of the Recommended Dietary Intakes. The 'basket' was then adjusted to include enough food to meet 100 per cent of the family's nutrient requirements and 95 per cent of the family's energy requirements for a fortnight.

The actual selection of brands, sizes was made by consultation with the leading grocery suppliers in the Northern Territory and with input from nutritionists regarding their observations in communities. The most commonly sold items were ones included in the 'basket'.

As part of the survey, a major supermarket and corner store in each of the district centres is also surveyed for comparison of prices. The corner store is a small suburban supermarket that provides a benchmark store with a similar buying power to the remote stores.

The income for the hypothetical family was determined by obtaining Centrelink and Family Assistance figures from the Centrelink website. Details of the family's income are shown in Appendix B.

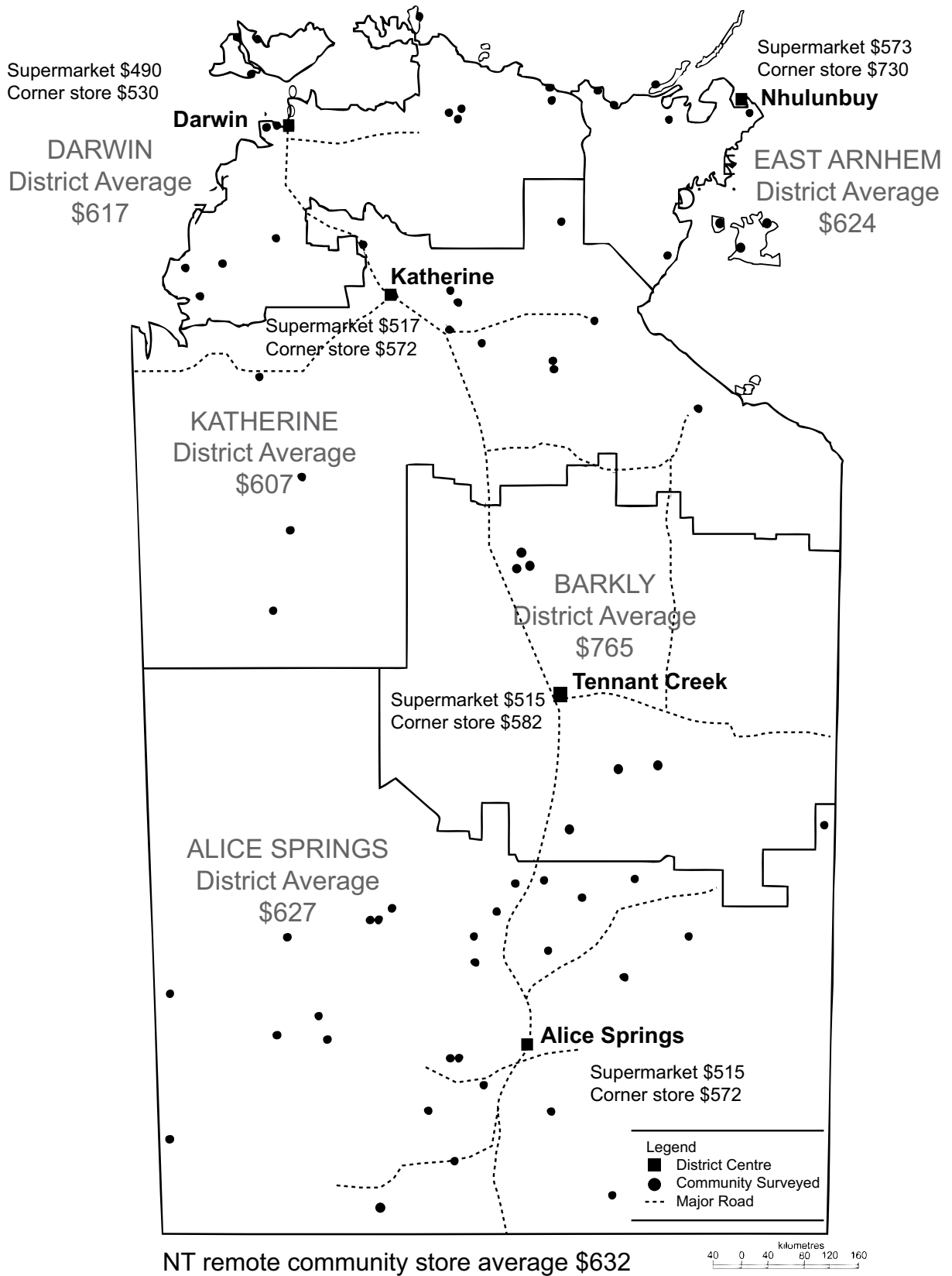


Figure 1: Location of stores surveyed and cost of food basket in each district

2. Results

2.1. 2006 Survey

Seventy four remote stores were surveyed between April and June 2006. Figure one on the previous page illustrates the locations of the stores surveyed and the average cost of the basket of foods in each district.

Table 1: Ownership/management characteristics in remote stores

	Darwin District	Katherine District	East Arnhem District	Alice Springs District	Barkly District	Total all Districts
*Ownership						
Community owned	10	8	5	21	1	45
Privately owned	2	5	-	5	5	17
Aboriginal Corporation eg. ALPA	2	1	4	0	0	7
Leased from community	1	1	0	1	0	3
Not recorded	1	0	0	1	0	2
Total Stores Surveyed	16	15	9	28	6	74
*Management Characteristics						
Store Committee	11	4	6	18	1	40
Nutrition Policy	3	8	4	4	1	20

- 61 per cent of stores surveyed were owned and operated by the community
- There was little change in ownership/management characteristics compared to last year's survey
- 27 per cent of stores stated that they had a Nutrition Policy although these were not cited for confirmation
- 54 per cent of stores surveyed had a Store Committee.

Table 2: Employment characteristics in remote stores

	Darwin District	Katherine District	East Arnhem District	Alice Springs District	Barkly District	Total all Districts
Stores with Aboriginal employees	14	11	9	20	3	57
Number of Aboriginal employees	105	43	103	63	8	322
Total employees	151	78	145	134	28	536
Percent Aboriginal employees	69%	55%	71%	47%	29%	60%
Total Stores Surveyed	16	15	9	28	6	74

- 60 per cent of employees in the remote stores surveyed were Aboriginal
- The proportion of Aboriginal employees was lowest in the Alice Springs and Barkly districts
- The proportion of Aboriginal employees was greatest in East Arnhem and Darwin stores where Aboriginal people made up 71 per cent and 69 per cent respectively of the workforce in stores.

*Note: Store Managers were asked about ownership of the store, and if they had a Nutrition Policy, and/or Store Committee. At the time the surveys were undertaken it was not stipulated what constituted a 'policy', a 'committee', or exactly how 'ownership' was to be defined. Therefore, in reading this report the information about Nutrition Policy, Store Committee and ownership are based on the information supplied. Further work needs to be done to define these terms to avoid misinterpretation.

Variety and quality of fruit and vegetables

Table 3: Comparison of the range of fresh fruit and vegetables available in remote stores

	Darwin District	Katherine District	East Arnhem District	Alice Springs District	Barkly District	All Districts
Average number fresh fruit choices	8	6	8	6	3	7
Range (Lowest - Highest)	5 – 14	1 – 17	3 – 15	0 – 11	1 – 5	0 – 17
Average number of fresh vegetable choices	17	13	13	13	10	14
Range (Lowest - Highest)	12 – 28	2 – 23	8 – 18	1 – 19	5 – 13	1 – 28
Total stores surveyed	16	15	9	28	6	74

- On average there were 7 different choices of fresh fruit and 14 different choices of fresh vegetables in remote stores
- Information was not collected on the quantities of fruit and vegetables available
- All stores had fresh vegetables available on the day of survey; one store had no fresh fruit available on the day of survey.

Table 4: Comparison of the quality of fresh fruit available in remote stores

	Darwin District	Katherine District	East Arnhem District	Alice Springs District	Barkly District	All Districts
Good	77%	97%	100%	78%	100%	86%
Fair	22%	3%	-	9%	-	9%
Poor	2%	-	-	3%	-	1%
Rotten	-	-	-	-	-	-
Not recorded	-	-	-	9%	-	3%

Table 5: Comparison of the quality of fresh vegetables available in remote stores

	Darwin District	Katherine District	East Arnhem District	Alice Springs District	Barkly District	All Districts
Good	79%	86%	88%	78%	97%	82%
Fair	17%	11%	11%	9%	3%	12%
Poor	2%	2%	1%	2%	-	2%
Rotten	1%	-	-	-	-	<1%
Not recorded	<1%	1%	-	11%	-	4%

- Overall 86 per cent of fresh fruit and 82 per cent of fresh vegetables were 'good' on the day of survey
- All of the fresh fruit in East Arnhem and Barkly districts was 'good' on the day of survey
- East Arnhem and Barkly districts had the highest proportion of 'good' fresh vegetables on the day of survey.

NB. - Rating quality of fresh food is difficult and very much dependent on the opinion of those undertaking the survey. Descriptive tables were included on the survey sheets to help reduce the variance amongst those undertaking the survey.
 - Due to the rounding of numbers, percentages shown in the tables four and five do not total 100 per cent in some instances.

District centre costs compared with remote store costs

Comparison of the cost of the food basket in different communities needs to be done carefully. It must be noted that in order to estimate the cost of a similar basket of goods for all communities it was necessary to 'cost' items even when they were not available in the community store. In cases when an item was not available in the remote store, the price of that item at the district supermarket was used. Consequently, stores that have a higher proportion of "missing" or unavailable items are likely to have a cheaper total basket of goods because the supermarket cost is used. If an item was out of stock but was usually carried by the store, the store price of that item was included in the survey. Thus the term 'availability' in the table below refers to the availability of a *price* from the store, not necessarily the availability of the item on the day of the survey.

Table 6: Availability of items in the food basket in remote stores

	Darwin District	Katherine District	East Arnhem District	Alice Springs District	Barkly District	NT Average
Average availability of items in the food basket	94%	94%	97%	93%	93%	94%
Range (lowest - highest)	85 - 100%	73 - 100%	88 - 100%	34 - 100%	73 - 98%	34 - 100%
Number of stores with 100% of items	3	2	3	1	0	9
Total stores surveyed	16	15	9	28	6	74

- On average 94 per cent of items listed in the basket were available, or usually available, in the remote stores
- 12 per cent (nine) of the 66 remote stores surveyed had, or usually had, all the listed items on their shelves at the time of the survey.

Table 7: Average cost of food basket in remote stores

	Darwin District	Katherine District	East Arnhem District	Alice Springs District	Barkly District	NT Remote Store Average
Bread & Cereals	\$96	\$95	\$96	\$91	\$100	\$94
Fruit	\$172	\$164	\$158	\$178	\$239	\$176
Vegetables	\$130	\$120	\$130	\$141	\$164	\$135
Meat & alternative	\$93	\$95	\$108	\$98	\$108	\$98
Dairy	\$100	\$107	\$103	\$93	\$119	\$101
Other foods	\$27	\$25	\$28	\$27	\$34	\$27
Total Basket	\$617	\$607	\$624	\$627	\$765	\$632
Number of Stores	16	15	9	27	6	73

- The average cost of the basket of foods ranged from \$607 in the Katherine district to \$765 in the Barkly district
- The average cost of the basket of foods in all remote stores surveyed was \$630
- One store in the Alice Springs district was excluded from the district and NT remote store averages as the availability of items was low (34 per cent).

NB. Due to rounding of numbers the sum of food groups does not equal the total basket cost in some instances in table seven.

Table 8: Cost of food basket in district centre supermarkets and corner stores

	Darwin	Katherine	East Arnhem	Alice Springs	Barkly	NT Average
Bread & Cereals						
Supermarket	\$75	\$75	\$89	\$60	\$64	\$73
Corner store	\$85	\$90	\$90	\$85	\$75	\$85
Fruit						
Supermarket	\$127	\$155	\$163	\$172	\$149	\$153
Corner store	\$141	\$156	\$160	\$192	\$209	\$172
Vegetables						
Supermarket	\$98	\$99	\$110	\$120	\$109	\$107
Corner store	\$120	\$103	\$188	\$96	\$118	\$125
Meat & alternative						
Supermarket	\$75	\$76	\$83	\$62	\$75	\$74
Corner store	\$81	\$90	\$101	\$78	\$81	\$86
Dairy						
Supermarket	\$97	\$95	\$107	\$85	\$97	\$96
Corner store	\$81	\$110	\$164	\$100	\$79	\$107
Other foods						
Supermarket	\$16	\$17	\$20	\$17	\$20	\$18
Corner store	\$22	\$24	\$26	\$20	\$20	\$22
Total Basket						
Supermarket	\$490	\$517	\$573	\$515	\$515	\$522
Corner store	\$530	\$572	\$730	\$572	\$582	\$597

Supermarket

- The average cost of the basket in the supermarkets was \$522
- East Arnhem had the most expensive supermarket food basket (\$573) and Darwin had the cheapest (\$490)

Corner store

- The average cost of the basket in the corner stores was 14 per cent higher in the corner stores than the district centre Supermarkets (\$597 compared to \$522)
- East Arnhem had the most expensive corner store food basket (\$730) and Darwin had the cheapest (\$530).

NB. Due to rounding of numbers the sum of food groups does not equal the total basket cost in some instances in Table 8.

Table 9: Percentage increase or decrease in cost of the food basket in remote stores (averaged) compared with a Darwin supermarket and Darwin corner store

	Darwin Remote	Katherine Remote	East Arnhem Remote	Alice Springs Remote	Barkly Remote	Average- NT Remote Stores
Bread & Cereals Supermarket Corner store	28% 13%	27% 12%	28% 13%	21% 7%	34% 18%	26% 11%
Fruit Supermarket Corner store	36% 22%	29% 16%	24% 12%	40% 26%	88% 70%	39% 25%
Vegetables Supermarket Corner store	32% 8%	22% 0%	33% 9%	43% 17%	68% 37%	37% 12%
Meat & alternative Supermarket Corner store	24% 15%	27% 18%	44% 33%	30% 21%	44% 34%	31% 21%
Dairy Supermarket Corner store	3% 23%	11% 32%	7% 28%	-4% 15%	23% 47%	4% 24%
Other foods Supermarket Corner store	67% 22%	59% 16%	76% 28%	69% 23%	10% 53%	71% 24%
Total Basket Supermarket Corner Store	26% 16%	24% 15%	27% 18%	28% 18%	56% 44%	29% 19%

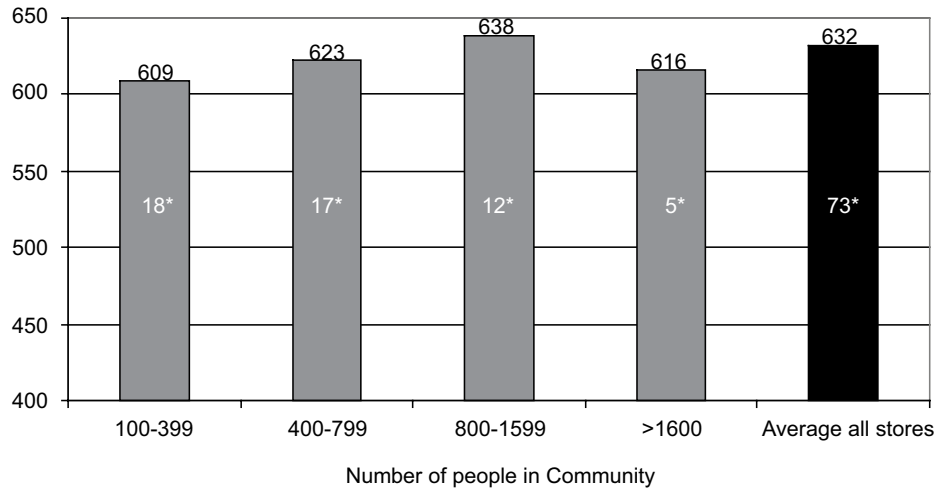
- Overall the prices in remote stores were 29 per cent higher than the same basket of goods bought in a Darwin supermarket, and 19 per cent higher than in a Darwin corner store
- Barkly remote stores were the most expensive, being 56 per cent and 44 per cent higher than the Darwin supermarket and corner store respectively
- Katherine remote stores were the least expensive, being 24 per cent and 15 per cent higher than the Darwin supermarket and corner store respectively.

Remoteness

The stores surveyed were classified using the ARIA remoteness index⁴ to determine the remoteness of the community. The average cost of the food basket in the stores classified as 'very remote' was \$637 (63 stores) and the average cost of the food basket in stores classified as 'remote' was \$598 (seven stores). The remaining three stores were in the 'moderately accessible' category and the average cost at these stores was \$596.

Population

Figure 2: Average cost of the food basket and population of community

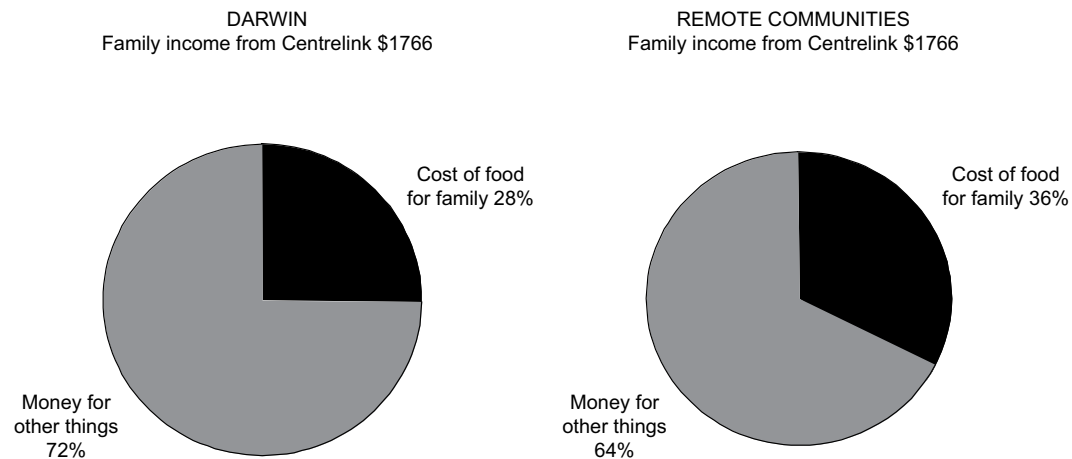


*Number of stores

There was little variation in the cost of the food basket with community size.

Relation between family income and the cost of the food basket

Figure 3: Relationship between cost of food basket and income in remote communities compared to Darwin supermarket



The above graphs show the amount of money a family of 6 needs to spend on the food basket for two weeks. The family's income has been determined as outlined in Appendix B. For every \$100 of income, a family in Darwin spends \$28 on the food basket, whereas a family in a remote community will spend approximately \$36 on the same basket of food. This was an increase from the 2005 survey where the percent of income was 25 per cent from a Darwin supermarket and 34 per cent from remote community stores.

2.2. Cost compared to last year's survey

Table 10: Changes (in per cent) in food prices in remote stores from 2005 to 2006

	Darwin Remote	Katherine Remote	East Arnhem Remote	Alice Springs Remote	Barkly Remote	NT Average
Bread & Cereals	7%	6%	-2%	4%	6%	4%
Fruit	24%	18%	20%	27%	38%	24%
Vegetables	14%	4%	14%	11%	16%	11%
Meat & alternative	5%	4%	9%	3%	2%	3%
Dairy	8%	8%	-3%	-6%	-3%	0%
Other foods	7%	2%	9%	8%	16%	5%
Total Basket	12%	8%	9%	9%	14%	10%

- Overall prices in the remote stores were 10 per cent higher than last year
- Barkly remote stores had the biggest (14 per cent) price rise of all the districts
- The fruit and vegetable portions of the basket had the greatest increase in price compared to last year (24 per cent and 11 per cent respectively)
- Dairy foods were the only portion of the basket not to increase from 2005 to 2006.

Table 11: Changes (in per cent) in food prices in district centre supermarkets from 2005 to 2006

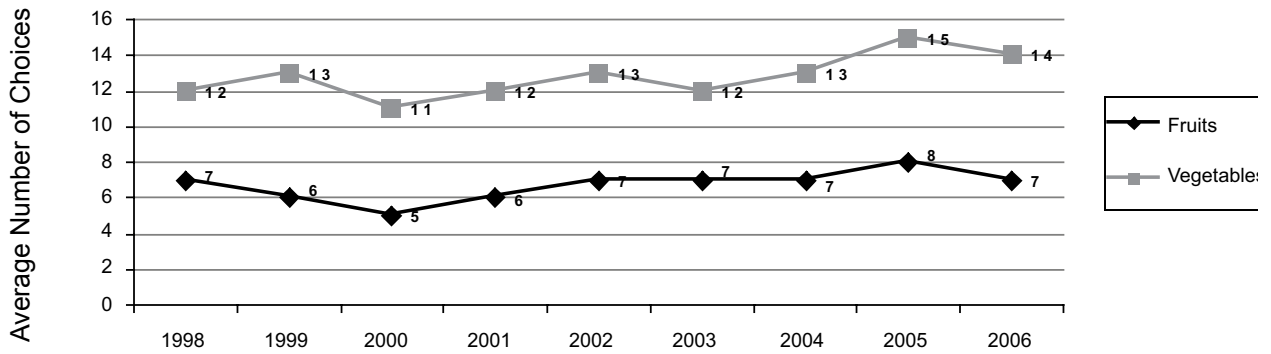
	Darwin Supermarket	Katherine Supermarket	East Arnhem Supermarket	Alice Springs Supermarket	Barkly Supermarket	NT Supermarkets Average
Bread & Cereals	4%	9%	7%	-14%	3%	2%
Fruit	32%	36%	22%	110%	43%	45%
Vegetables	8%	4%	11%	41%	22%	17%
Meat & alternative	12%	15%	-1%	-11%	6%	4%
Dairy	3%	3%	4%	-1%	3%	3%
Other foods	0%	6%	5%	6%	5%	5%
Total Basket	12%	14%	10%	26%	17%	16%

- The average price of the food basket in district centre supermarkets has increased by 16 per cent from last year
- The largest increase was in the Alice Springs Supermarket (26 per cent) and the smallest increase was in the East Arnhem supermarket (10 per cent)
- The increase was greatest in the fruit portion of the basket (45 per cent) and the smallest increase was in the breads and cereals (2 per cent) and dairy (3 per cent).

2.3. Comparison of surveys 1998 to 2006

Changes in variety of fresh fruit and vegetables

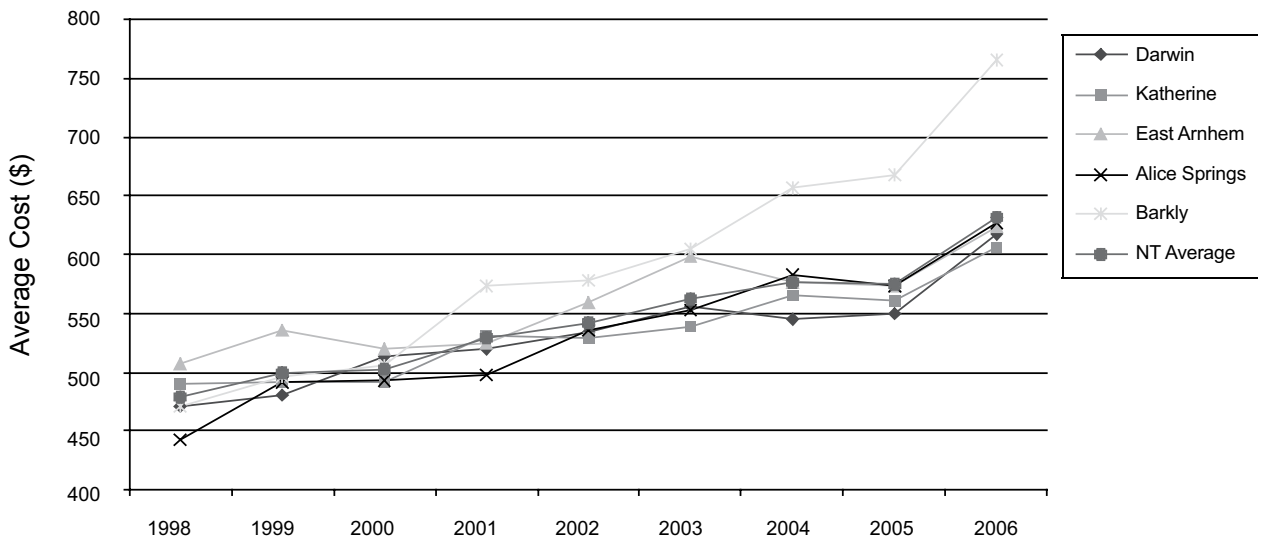
Figure 4: Average number of varieties of fresh fruit and vegetable in remote stores 1998 to 2006



The average number of varieties of fresh fruit and vegetables available in remote stores was highest in 2005.

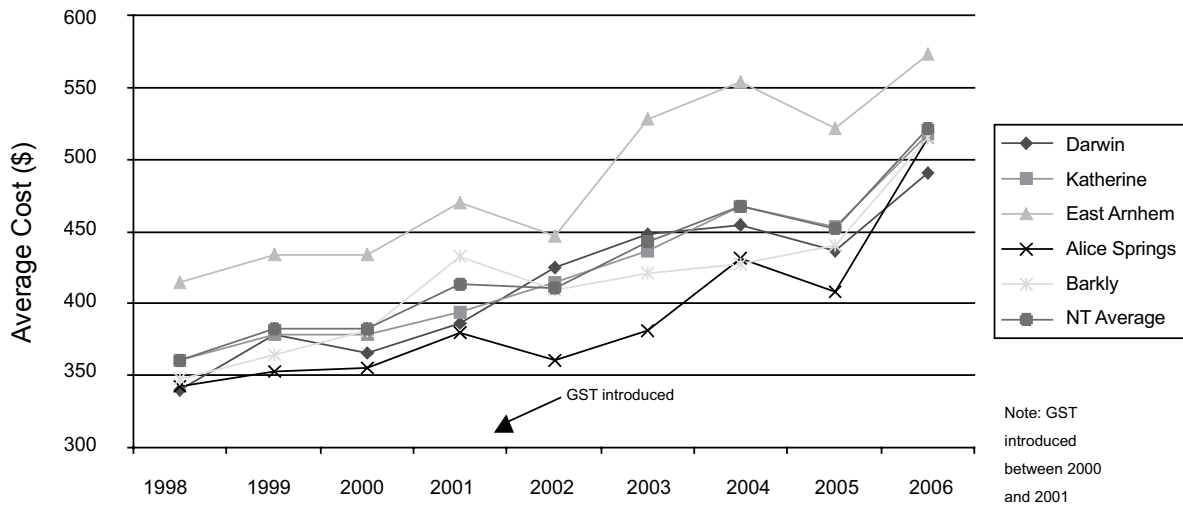
Price comparisons

Figure 5: Average cost of food basket in remote stores 1998 to 2006



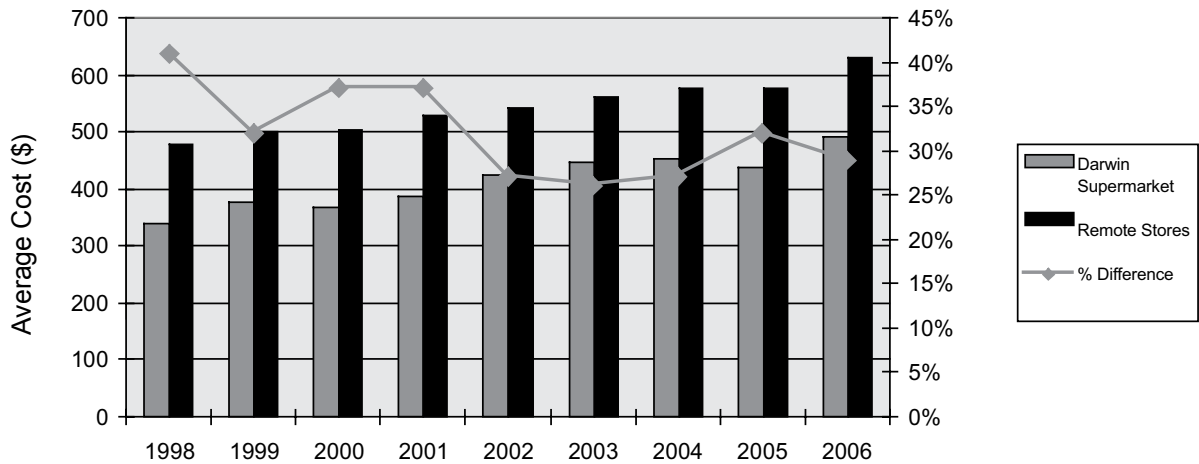
- East Arnhem remote stores were the most expensive from 1998 to 2000. From 2001 through to 2006, Barkly was the most expensive district with a marked increase in 2001, 2004 and 2006
- The average cost of the basket of foods in remote stores has increased each year except 2005 when there was a small decrease (-1 per cent) compared to the previous survey
- Overall the cost of the basket of foods increased by 31 per cent between 1998 and 2006.

Figure 6: Cost of food basket in district centre supermarkets 1998 to 2006



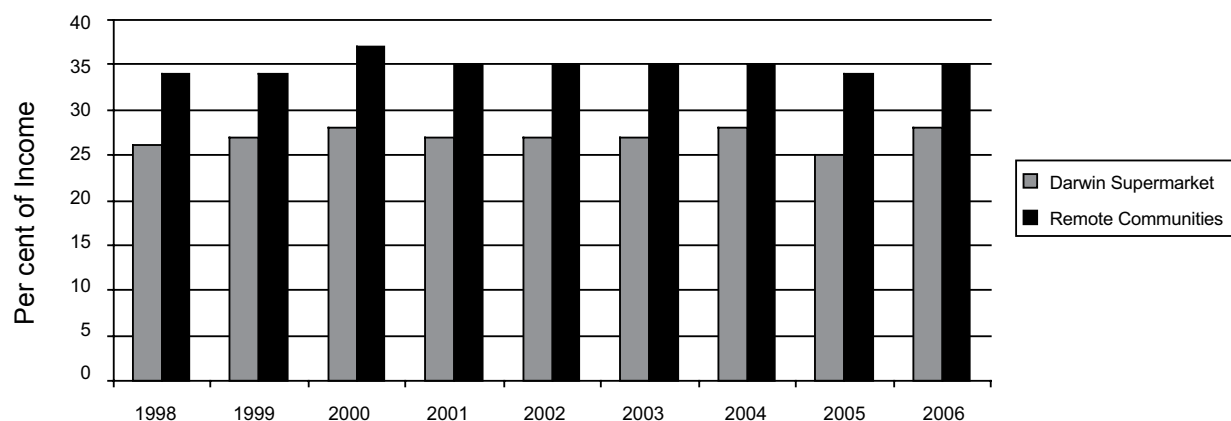
- The supermarket surveyed in East Arnhem has been the most expensive supermarket each year
- 2006 is the only year Darwin had the least expensive supermarket
- The average cost of the basket in NT supermarkets has risen by 45 per cent (\$361 to \$522) from 1998 to 2006.

Figure 7: Cost of basket of foods in remote stores compared with Darwin supermarket 1998 to 2006



- The relative cost of the basket in the remote stores greatest in 1998 when it was 41 per cent more than the Darwin supermarket
- The relative cost of the basket in remote stores was least in 2003 when it was 26 per cent more than the Darwin supermarket
- In 2006 the basket was 29 per cent more expensive in remote stores compared with the Darwin supermarket.

Figure 8: Per cent of income needed to purchase the food basket at Darwin supermarket compared to remote store.



- The proportion of income required to purchase the food basket from a Darwin supermarket was the lowest in 2005 (25 per cent) and highest in 2000 and 2004 (28 per cent)
- The proportion of income required to purchase the food basket from remote community stores was highest in 2000 (37 per cent) and lowest in 1998, 1999 and 2005 (34 per cent).

2.4. Additional analyses – bananas

In early 2006, Cyclone Larry destroyed banana crops in North Queensland. This resulted in a dramatic increase in the price of bananas throughout Australia. The effect of the increase in banana prices on the Market Basket Survey results is shown below.

	Year	Average cost (1 kg bananas)	% Contribution of bananas to total basket	Cost of basket without bananas	% Increase if bananas excluded
Supermarkets	2005	\$3.22	5%	\$430	7%
	2006	\$9.12	12%	\$460	
Remote stores	2005	\$5.11	6%	\$540	6%
	2006	\$8.41	9%	\$573	

On average, bananas increased by 183 per cent in NT supermarkets and by 65 per cent in NT remote stores between 2005 and 2006. If the contribution of the cost of bananas is removed from the survey results for 2005 and 2006 then the increase in the cost of the basket in NT supermarkets is 7 per cent (compared to 16 per cent with bananas) and the increase in remote stores is 6 per cent (compared to 10 per cent with bananas).

The availability of bananas in remote stores was also affected in the 2006 survey. In 2006 bananas were available in 36 per cent of remote stores, compared to 94 per cent of remote stores in 2005.

3. Discussion

Store characteristics

Community stores provide an important source of employment for people living in remote communities. The proportion of Aboriginal employees in stores was greatest in the East Arnhem district (71 per cent), where there are a large number of stores owned or managed by Arnhem Land Progress Association (ALPA). ALPA has a policy of employing local Aboriginal people to work in their stores. The proportion of Aboriginal people employed in community stores was lowest in the districts where there is a greater proportion of privately owned/leased stores.

The East Arnhem district also had a high proportion of stores with a nutrition policy and store committees. This is also due to the number of ALPA stores in the region.

Fruit and vegetables

There is strong evidence that an adequate intake of fruits and vegetables is protective against diseases such as coronary heart disease, hypertension, type 2 diabetes, stroke and some cancers. Results from national surveys have shown that Australians do not consume the recommended amounts of fruit and vegetables. People living in remote communities in the Northern Territory are faced with higher prices and limited availability of fruits and vegetables that may further compromise intake. For these reasons improving the availability, variety, quality and affordability of fruits and vegetables is a priority identified in both Territory and national nutrition policies and additional data regarding fruit and vegetables is collected in this survey.

The average number of varieties of fresh fruit and vegetables available in 2006 in remote stores was seven and fourteen respectively. Whilst there are no recommendations as to the number of varieties of fruit and vegetables that should be available, the Australian Guide to Healthy Eating⁵ lists seven different 'groups' of fruits (citrus, tropical, melons, berries, grapes, stone, apples and pears) and six different 'groups' of vegetables (dark green, orange, cruciferous, starchy, salad and legumes). These different types of vegetables and fruits provide more of some types of nutrients than others such as vitamin A, C and folate. The inclusion of variety within the food groups increases the likelihood that one's diet contains all the nutrients required for good health. Further analysis would be required to determine how many stores had at least one variety of fruit or vegetable available in each of these groups.

Basket Costs

A marked increase in the cost of the basket of foods was found in the 2006 survey, this increase was consistent across all regions and was evident in both district centre supermarkets and remote stores. The major driver of this was a dramatic increase in the fruit portion of the basket (24 per cent increase in remote stores and 45 per cent increase in NT supermarkets). This increase was due largely to the high cost of bananas following the destruction of banana crops in Queensland by Cyclone Larry in early 2006. It should be noted that the impact of the price of bananas on household food spending may not be as dramatic as the survey suggests as people may choose to buy lower cost fruits in place of bananas.

The Darwin supermarket and corner store were used as the benchmark for comparing prices in remote community stores in this report. The Darwin stores were chosen because the Darwin region is where the majority of Territorians live, and other states that conduct similar surveys also compare prices in remote stores to their capital city price. Corner stores are small suburban supermarkets that are thought to have a similar buying power to remote stores.

In this survey the Darwin supermarket and corner stores were the least expensive of the district centre stores. The cost of the basket of foods was 29 per cent higher in remote stores compared to the Darwin supermarket. This compares favourably with previous surveys where the cost in remote stores has ranged from 26 per cent to 41 per cent higher than the Darwin supermarket. The average cost of the basket of foods in remote stores compared to the Darwin corner store was 19 per cent higher.

Limitations of the survey

When interpreting the results described in the previous section a number of issues must be considered. Firstly, a letter was sent to each store manager prior to the survey period informing them that their store would be surveyed in the coming months, and in some instances the store manager may have been informed of the exact date of survey. Prior notice may have influenced store prices during the survey period. Secondly, it must be remembered that although this survey measures the variety, quality and availability of some healthy food items, it makes no attempt to measure the quantities of these foods available.

Comparisons with other surveys

The Northern Territory Treasury conducts a biannual survey of grocery prices in Darwin, Alice Springs, Katherine and Nhulunbuy supermarkets. The Grocery Price Survey for the June half-year 2006 found that Territory supermarket prices were cheapest in Alice Springs and the most expensive in Nhulunbuy (East Arnhem)⁶. In this survey the East Arnhem supermarket was also the most expensive, however the Darwin supermarket was the least expensive. The Grocery Price Survey also found a marked increase in the Fruit and Vegetable category of their basket that was attributable to an increase in the price of bananas.

4. Summary

Seventy-four rural and remote stores were surveyed in the Northern Territory between April and June 2006. These surveys looked at the cost, availability and quality of a 'healthy family basket' of food as well as collecting information of store ownership and management characteristics. Results from the 2006 survey showed that the cost of the healthy basket of foods was, on average, 29 per cent more expensive in remote stores than in a Darwin supermarket. The proportion of income required to purchase the basket of foods has remained similar from 1998 to 2006. The cost of the basket of foods increased by 10 per cent in remote stores and 16 per cent in NT supermarkets from 2005 to 2006, approximately 50 per cent of this increase was due to an increase in the price of bananas. As in previous surveys the majority of available fresh fruit and vegetables from the remote stores surveyed were of good quality.

5. References

1. Lee AJ, O'Dea K, Mathews JD. Apparent dietary intake in remote Aboriginal communities. *Aust J Publ Health*, 1994: 18(2).
2. McComb J, Price R, Priestly J, Freeman J, Trevaskis G, Rogers O, Lion R, Hobson V, Morley T, Cubillo B. Surveys of Food Availability, Quality and Price in Top End Rural and Remote Communities: The Dry Season (April to July 1998). Food and Nutrition Unit, Territory Health Services, 1988.
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4. Information and Research Branch of the Department of Health and Aged Care, and the National Key Centre for Social Applications of Geographical Information Systems, 'Accessibility/Remoteness Index of Australia (ARIA)', *Occasional Papers Series No. 6*, Canberra, 1999.
5. National Health and Medical Research Council, 'The Australian Guide to Healthy Eating', 2001
6. http://www.nt.gov.au/ntt/economics/publications/gps/gps_2006jun.pdf- Grocery Price Survey June half year 2006.

Appendices

Appendix A: Foods in the Market Basket Survey

Appendix B: Fortnightly income for hypothetical family of six

Appendix C: Survey results of the 2006 Market Basket Survey
by district and community

Appendix A: Foods in the Market Basket Survey

Breads and cereals

Flour	4 x 1 kgs packets
Bread	14 loaves
Wheat biscuit cereal	1 kg packet
Rolled oats	1 kg packet
Long grain rice	1 kg packet
Canned spaghetti	7 x 425g cans

Fruit

Apples	50 apples
Oranges	55 oranges
Bananas	55 bananas
Orange juice	7 litres
Canned fruit	7 x 440g cans

Vegetables

Potatoes	8 kilograms
Onions	3 kilograms
Carrots	4 kilograms
Cabbage	3 kilograms (1 large)
Pumpkin	3 kilograms
Fresh tomatoes	2 kilograms
Canned tomatoes	6 x 420g tomatoes
Canned peas	6 x 420g peas
Canned beans	7 x 440g beans
Baked beans	7 x 425g baked beans

Meat and Alternatives

Corned beef	7 x 340g cans
Meat and vegetables	7 x 450g cans
Fresh/frozen meat	1.5 kgs
Fresh/frozen Chicken	1 kg
Eggs, 55's	1 dozen

Dairy

Powdered milk	7 x 1 kgs tins
Cheese	3 x 250g packet

Other Foods

Margarine	4 x 500g packets
Sugar	4 x 1kg packets
Sugar	1 x 500g packet

Appendix B: Fortnightly income for hypothetical family of six – 2006*

Grandmother aged 60	
Pharmaceutical allowance	\$5.80
Remote area allowance	\$18.20
Single rate	\$499.70
Father aged 35	
New Start	\$370.50
Remote Area allowance (includes the children)	\$37.50
Mother aged 33	
Parenting payment	\$370.50
Family Tax Benefit A	
- for two children under 13yrs	\$274.12
- for one child 13-15 yrs	\$173.74
Remote Area allowance	\$15.60
TOTAL	\$1765.66

Note: The Remote Area allowance is based on age and marital status, and does not vary according to area of residence in the NT (eg. eligible persons receive the same amount in a remote community as they would in Darwin).

*Source: www.centrelink.gov.au, 28/03/06

Appendix C: Survey results of the 2006 Market Basket Survey by district and community

DARWIN

Code	Store Ownership*	Nutrition policy	Store committee	Aboriginal / non Aboriginal workers	Training in retail	Training in nutrition	Cost of basket	Availability	Fruit (fresh) variety	Fruit (fresh) quality	Fruit price	Vegetable (fresh) variety	Vegetable (fresh) quality	Vegetable price	Population
1	c	no	yes	3/2	0	0	\$ 514	93%	11	6 good, 5 fair	\$ 112	14	10 good, 4 fair	\$ 128	516
2	p	no	yes	0/4	0	1	\$ 544	95%	5	3 good, 2 fair	\$ 132	16	12 good, 3 fair, 1 rotten	\$ 105	335
3	c	no	no	5/1	0	0	\$ 551	93%	9	4 good, 4 fair, 1 poor	\$ 154	17	9 good, 6 fair, 1 poor, 1 rotten	\$ 113	480
4	c	no	yes	10/2	0	0	\$ 591	100%	9	9 good	\$ 162	18	16 good, 2 fair	\$ 134	N/A
5	a	yes	yes	8/2	4	1	\$ 596	93%	7	3 good, 4 fair	\$ 136	17	2 good, 11 fair, 3 poor, 1 not recorded	\$ 125	288
6	c	yes	yes	14/4	0	0	\$ 600	93%	8	5 good, 3 fair	\$ 178	18	13 good, 5 fair	\$ 111	N/A
7	c	no	yes	1/2	0	0	\$ 602	93%	3	2 good, 1 fair	\$ 125	14	9 good, 5 fair	\$ 159	241
8	c	no	yes	6/9	0	0	\$ 605	85%	14	14 good	\$ 188	28	25 good, 2 fair, 1 rotten	\$ 144	2321
9	?	no	yes	3/2	0	0	\$ 618	98%	6	5 good, 1 fair	\$ 187	12	12 good	\$ 137	267
10	c	no	no	11/4	0	0	\$ 619	88%	13	12 good, 1 fair	\$ 179	22	22 good	\$ 100	2321
11	c	no	no	7/4	0	0	\$ 621	95%	6	5 good, 1 fair	\$ 158	19	16 good, 3 fair	\$ 127	1324
12	p	no	no	0/5	0	0	\$ 625	100%	7	2 good, 4 fair, 1 poor	\$ 198	19	17 good, 2 fair	\$ 120	N/A
13	c	yes	yes	14/2	5	3	\$ 669	100%	8	8 good	\$ 203	21	20 good, 1 fair	\$ 128	N/A
14	c	no	yes	1/10	1	0	\$ 673	93%	13	11 good, 2 fair	\$ 165	15	13 good, 2 fair	\$ 118	2619
15	l	no	no	6/2	0	0	\$ 692	93%	5	5 good	\$ 220	13	10 good, 2 fair, 1 poor	\$ 168	1324
16	a	no	yes	16/1	0	0	\$ 757	93%	5	5 good	\$ 258	13	13 good	\$ 158	1324

*p = private, c = community, a = aboriginal corporation, l = leased from community

Average population	1113	Number of stores surveyed this year	16
Number of communities with 100-399 people	4	Number of stores surveyed last year	15
Number of communities with 400-799 people	2	Average availability	94%
Number of communities with 800-1599 people	3	Average price	\$617
Number of communities with more than 1600 people	3	Average fruit price	\$172
Aboriginal/non Aboriginal workers	105/46	Average vegetable price	\$130

Appendix C: Survey results of the 2006 Market Basket Survey by district and community

KATHERINE

	Store Ownership*	Nutrition policy	Store committee	Aboriginal / non Aboriginal workers	Training in retail	Training in nutrition	Cost of basket	Availability	Fruit (fresh) variety	Fruit (fresh) quality	Fruit price	Vegetable (fresh) variety	Vegetable (fresh) quality	Vegetable price	Population
1	c	no	yes	10/0	2	0	\$ 497	100%	6	6 good	\$ 108	11	11 good	\$ 97	N/A
2	p	no	no	3/2	0	0	\$ 534	85%	2	2 good	\$ 144	2	2 good	\$ 115	291
3	p	no	no	0/3	0	0	\$ 543	95%	1	1 fair	\$ 160	9	6 good, 3 fair	\$ 101	532
4	p	no	no	0/4	0	0	\$ 555	98%	9	9 good	\$ 163	17	14 good, 3 fair	\$ 100	304
5	c	yes	yes	6/1	1	0	\$ 558	95%	8	8 good	\$ 140	17	13 good, 2 fair, 2 poor	\$ 94	N/A
6	c	no	yes	4/8	1	0	\$ 563	98%	9	9 good	\$ 170	23	21 good, 2 fair	\$ 101	1847
7	c	no	no	5/1	0	0	\$ 567	98%	7	7 good	\$ 112	10	8 good, 2 fair	\$ 120	500
8	a	yes	yes	10/2	3	0	\$ 576	95%	10	9 good, 1 fair	\$ 163	20	12 good, 7 fair, 1 poor	\$ 119	756
9	c	yes	yes	5/1	5	0	\$ 609	100%	7	7 good	\$ 175	20	20 good	\$ 132	N/A
10	c	yes	yes	4/9	0	0	\$ 614	98%	9	9 good	\$ 182	21	21 good	\$ 118	913
11	p	no	no	0/3	0	0	\$ 650	93%	17	17 good	\$ 185	19	19 good	\$ 141	938
12	c	no	no	0/1	0	0	\$ 665	98%	2	2 good	\$ 151	9	7 good, 1 fair, 1 not recorded	\$ 150	277
13	l	no	no	5/0	0	0	\$ 697	73%	3	3 good	\$ 155	2	1 fair, 1 poor	\$ 131	N/A
14	p	no	yes	4/2	2	0	\$ 726	85%	3	3 good	\$ 228	8	7 good, 1 fair	\$ 139	N/A
15	c	no	yes	2/1	0	0	\$ 748	93%	2	1 good, 1 fair	\$ 223	6	6 good	\$ 130	N/A

*p = private, c = community, a = aboriginal corporation, l = leased from community

Average population	706	15
Number of communities with 100-399 people	0	17
Number of communities with 400-799 people	3	94%
Number of communities with 800-1599 people	3	\$607
Number of communities with more than 1600 people	3	\$164
Aboriginal/non Aboriginal workers	43/35	\$120
Number of stores surveyed this year	706	15
Number of stores surveyed last year	0	17
Average availability	3	94%
Average price	3	\$607
Average fruit price	3	\$164
Average vegetable price	43/35	\$120

Appendix C: Survey results of the 2006 Market Basket Survey by district and community

EAST ARNHEM

	Store Ownership*	Nutrition policy	Store committee	Aboriginal / non Aboriginal workers	Training in retail	Training in nutrition	Cost of basket	Availability	Fruit (fresh) variety	Fruit (fresh) quality	Fruit price	Vegetable (fresh) variety	Vegetable (fresh) quality	Vegetable price	Population
1	a	yes	yes	20/2	14	5	\$ 557	100%	15	15 good	\$ 124	18	15 good, 3 fair	\$ 114	1222
2	a	yes	yes	20/4	yes	yes	\$ 593	98%	8	8 good	\$ 148	13	11 good, 2 fair	\$ 126	1027
3	c	yes	no	1/10	0	0	\$ 606	95%	9	9 good	\$ 120	10	10 good	\$ 129	1077
4	a	yes	yes	14/2	yes	yes	\$ 612	100%	11	11 good	\$ 158	16	12 good, 4 fair	\$ 116	707
5	a	yes	yes	32/2	yes	yes	\$ 619	100%	9	9 good	\$ 158	15	12 good, 2 fair, 1 poor	\$ 121	1911
6	c	no	no	7/5	0	0	\$ 641	98%	5	5 good	\$ 201	11	11 good	\$ 128	1229
7	c	yes	no	2/10	0	0	\$ 652	88%	7	7 good	\$ 179	15	14 good, 1 fair	\$ 137	477
8	c	no	no	4/5	2	0	\$ 665	93%	3	3 good	\$ 170	8	7 good, 1 fair	\$ 145	875
9	c	no	no	3/2	0	0	\$ 667	98%	7	7 good	\$ 162	13	13 good	\$ 156	220

*p = private, c = community, a = aboriginal corporation, l = leased from community

Average population	971	971	971	971	971	971	971	971	971	971	971	971	971	971	971	971
Number of communities with 100-399 people	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of communities with 400-799 people	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of communities with 800-1599 people	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Number of communities with more than 1600 people	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Aboriginal/non Aboriginal workers	103/42	103/42	103/42	103/42	103/42	103/42	103/42	103/42	103/42	103/42	103/42	103/42	103/42	103/42	103/42	103/42
Average availability	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%	97%
Average price	\$624	\$624	\$624	\$624	\$624	\$624	\$624	\$624	\$624	\$624	\$624	\$624	\$624	\$624	\$624	\$624
Average fruit price	\$158	\$158	\$158	\$158	\$158	\$158	\$158	\$158	\$158	\$158	\$158	\$158	\$158	\$158	\$158	\$158
Average vegetable price	\$130	\$130	\$130	\$130	\$130	\$130	\$130	\$130	\$130	\$130	\$130	\$130	\$130	\$130	\$130	\$130

Appendix C: Survey results of the 2006 Market Basket Survey by district and community

ALICE SPRINGS

Store Ownership*	Nutrition policy	Store committee	Aboriginal / non-Aboriginal workers	Training in retail	Training in nutrition	Cost of basket	Availability	Fruit variety	Fruit (fresh) quality	Fruit price	Vegetable (fresh) variety	Vegetable (fresh) quality	Vegetable price	Population
1	c	no	1/2	1	0	\$ -	34%	1	1 fair	\$ -	1	1 poor	\$ -	N/A
2	c	no	0/9	0	0	\$ 502	95%	6	5 good, 1 fair	\$ 150	11	10 good, 1 fair	\$ 105	643
3	c	?	15/2	2	0	\$ 542	95%	11	9 good, 2 fair	\$ 157	17	17 good	\$ 124	700
4	l	no	2/1	2	1	\$ 548	80%	0	-	\$ 168	5	3 good, 2 fair	\$ 125	134
5	c	yes	4/1	1	0	\$ 556	98%	4	4 good	\$ 166	10	10 good	\$ 125	N/A
6	p	no	1/3	0	0	\$ 564	98%	6	6 not recorded	\$ 144	19	19 not recorded	\$ 121	N/A
7	c	no	1/2	0	0	\$ 572	98%	4	3 good, 1 fair	\$ 167	12	9 good, 3 fair	\$ 118	N/A
8	c	yes	3/3	0	0	\$ 577	95%	6	6 good	\$ 162	19	18 good, 1 fair	\$ 127	412
9	c	no	1/2	0	0	\$ 589	95%	9	7 good, 2 poor	\$ 164	12	10 good, 2 fair	\$ 125	295
10	c	no	3/2	1	1	\$ 592	90%	6	3 good, 3 poor	\$ 173	9	3 good, 4 fair, 2 poor	\$ 114	462
11	c	yes	3/1	2	0	\$ 598	98%	7	7 good	\$ 162	18	18 good	\$ 129	312
12	p	no	0/5	1	0	\$ 602	90%	3	3 fair	\$ 152	10	7 good, 3 poor	\$ 137	N/A
13	c	no	5/1	0	0	\$ 604	95%	6	6 good	\$ 165	14	14 good	\$ 146	249
14	c	yes	0/2	?	?	\$ 609	98%	8	8 good	\$ 169	17	16 good, 1 fair	\$ 151	197
15	c	no	?	?	?	\$ 609	98%	8	4 good, 4 not recorded	\$ 163	19	8 good, 11 not recorded	\$ 116	1372
16	c	no	2/2	?	?	\$ 610	95%	5	5 good	\$ 164	14	13 good, 1 fair	\$ 126	325
17	c	no	3/2	0	0	\$ 636	98%	6	3 good, 3 fair	\$ 167	15	14 good, 1 fair	\$ 147	252
18	c	?	1/3	0	0	\$ 638	95%	8	4 good, 4 not recorded	\$ 208	15	8 good, 1 fair, 6 not recorded	\$ 138	N/A
19	p	no	2/2	0	0	\$ 646	100%	-	-	\$ 213	-	-	\$ 137	1361
20	c	no	1/2	1	1	\$ 649	93%	5	5 good	\$ 168	6	2 good, 4 fair	\$ 168	400
21	c	no	2/2	0	0	\$ 657	98%	6	6 good	\$ 187	11	11 good	\$ 177	157
22	c	yes	3/2	0	3	\$ 660	95%	7	7 good	\$ 154	19	14 good, 4 fair, 1 poor	\$ 147	229
23	?	no	8/2	0	0	\$ 669	95%	6	6 good	\$ 179	8	8 good	\$ 135	322
24	c	no	0/8	0	0	\$ 671	90%	5	5 good	\$ 168	11	11 good	\$ 150	476
25	c	no	0/6	0	0	\$ 720	98%	5	5 good	\$ 282	17	13 good, 4 fair	\$ 124	N/A
26	p	no	0/2	0	0	\$ 738	85%	1	1 fair	\$ 192	5	5 good	\$ 165	N/A
27	c	?	2/1	0	0	\$ 752	93%	9	8 good, 1 fair	\$ 241	13	12 good, 1 not recorded	\$ 161	N/A
28	p	no	0/1	yes	0	\$ 812	98%	-	-	\$ 222	-	-	\$ 259	N/A

*p = private, c = community, a = aboriginal corporation, l = leased from community

Appendix C: Survey results of the 2006 Market Basket Survey by district and community

ALICE SPRINGS (continued)

Average population	461	Number of stores surveyed this year	28
Number of communities with 100-399 people	0	Number of stores surveyed last year	18
Number of communities with 400-799 people	10	Average availability	93%
Number of communities with 800-1599 people	6	Average price	\$627
Number of communities with more than 1600 people	2	Average fruit prince	\$178
Aboriginal/non Aboriginal workers	63/71	Average vegetable price	\$141

Appendix C: Survey results of the 2006 Market Basket Survey by district and community

BARKLY DISTRICT

	Store Ownership*	Nutrition policy	Store committee	Aboriginal / non Aboriginal workers	Training in retail	Training in nutrition	Cost of basket	Availability	Fruit (fresh) variety	Fruit (fresh) quality	Fruit price	Vegetable (fresh) variety	Vegetable (fresh) quality	Vegetable price	Population
1	c	yes	yes	5/1	6	0	\$ 724	98	4	4 good	\$ 251	12	11 good, 1 fair	\$ 164	495
2	p	no	no	1/3	0	0	\$ 733	98	3	3 good	\$ 225	11	11 good	\$ 141	524
3	p	no	no	2/3	0	0	\$ 738	95	3	3 good	\$ 254	10	10 good	\$ 176	N/A
4	p	no	no	0/8	0	0	\$ 771	98	5	5 good	\$ 232	13	12 good, 1 fair	\$ 179	524
5	p	no	no	0/2	0	0	\$ 798	95	4	4 good	\$ 242	9	9 good	\$ 187	N/A
6	p	no	no	0/3	0	0	\$ 823	73	1	1 good	\$ 231	5	5 good	\$ 138	524

*p = private, c = community, a = aboriginal corporation, l = leased from community

Average population	461	Number of stores surveyed this year	28
Number of communities with 100-399 people	0	Number of stores surveyed last year	18
Number of communities with 400-799 people	10	Average availability	93%
Number of communities with 800-1599 people	6	Average price	\$627
Number of communities with more than 1600 people	2	Average fruit price	\$178
Aboriginal/non Aboriginal workers	63/71	Average vegetable price	\$141