The South African Food Cost Review: 2006

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About this publication

In October 2002 the Cabinet approved the establishment of a food price monitoring mechanism (Food Pricing Monitoring Committee) in accordance with the Agricultural Marketing Act. The Food Pricing Monitoring Committee was appointed in January 2003 with specific terms of reference. A central part of the terms of reference related to the analysis of the price formation mechanism in supply chains of basic foodstuffs. After having conducted some extensive casual and empirical research, the Committee found that some South African food supply chains contained several asymmetries with respect to price transmissions:

(1) Changes in farm and wholesale prices are either not fully or more than fully transmitted to consumer prices.

(2) Changes in consumer prices are not related to short-term changes in farm prices and follow medium- and long-term changes with a time lag.

(3) Down stream changes in consumer prices show a longer time lag than upstream changes do. Depending on the market structure and the nature of the product, several possible explanations can be put forward to explain this asymmetry.

Of the three asymmetries, the one that appears to be of particular interest is the asymmetry in the adjustment process, namely whether agro-food processors and retailers pass on price increases, while decreases in price are not completely passed on to the consumer. Evidence from studies done elsewhere shows that this is in fact the case, particularly with agricultural products. One of the reasons price increases are passed on to the consumer faster than decreases is that firms react faster to decreases in profit margins than to increases. Another reason for the asymmetric price adjustments is the presence of search costs in locally imperfect markets. In particular, consumers may observe a price increase at one local retail outlet, but are uncertain if others have also increased their prices. Given this scenario, firms can quickly raise prices as upstream prices rise, and they can slowly decrease prices as the upstream prices decline.

The Committee concluded that the data base assembled by the Committee could form the basis for an annual "South African Food Cost Review", which could be updated and monitored on a regular basis to search for any "unjust increases" in prices and/or marketing costs.

The research output of the Committee provided a useful foundation upon which the state can monitor trends in food prices, food processing costs and farm–to-retail price spreads. Such a mechanism of continuous monitoring should not take the form of *ad hoc* arrangements, but should rather be incorporated in normal government structures, either within the Department of Agriculture or the National Agricultural Marketing Council.

This is the third publication of the South Africa Food Cost Review and it provides a specific overview of trends in food price inflation and food prices at retail level. The Report, furthermore, defines the methodologies, which are used in establishing the farm values and the farm-to-retail price spreads of products which have not been included in the previous edition. Secondly, the Report presents the estimates of food marketing costs, farm values, some marketing margins and farm-to-retail price spreads of a specific group of products.

July 2007

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1. A general overview of the economy in 2006 with specific focus on food prices

Africa maintained a strong real growth rate of around 5% in both 2004 and 2005. This seemed to continue in the early part of 2006, making it the strongest and most consistent growth performance in the recent history of the continent. The South African economy also recorded a real growth rate of almost 5% in 2005 (SARB, 2006).

The growth in real domestic expenditure in South Africa outpaced that in real domestic production over the past eighteen months. All components of domestic final demand recorded vigorous increases from mid-2005 onwards. Real disposable income, for example, was buoyed by rising employment and wage levels, high transfers from government to households in support of the poor, and some tax relief to the poor (SARB, 2006). The real gross domestic expenditure increased in the first three quarters of 2006 by 7.08%, compared to the 6% from a year earlier. The annual growth in aggregate gross domestic expenditure slowed down in the third quarter to 2%, while the second quarter boasted a rate of 7.50%.The Reserve Bank notes that only fixed capital formation increased in the third quarter of 2006 (SARB, 2006).

Real gross domestic expenditure accelerated to an annualised growth rate of 9.5% for the first half of 2006, after it recorded an annual growth rate of 6% for 2005. This higher expenditure growth reflects the buoyant real final consumption expenditure by households and the real gross capital formation. The real final consumption expenditure by households accelerated from an annualised growth rate of 6.5% in 2004 to 7% in 2005 and 7.25% in the first half of 2006. This strong performance in household consumption expenditure can be attributed to real outlays on durable and semi-durable goods, both of which continued to increase at double digit rates from around 2004 onwards (SARB, 2006).

The nominal effective exchange rate of the Rand fluctuated broadly in the first four and a half months of 2006. The 12th of May 2006 did, however, constitute a turn around in the Rand's trend. Against a group of currencies, the Rand lost more than 15% of its value within six weeks. This was mainly caused by the announcement by the US Federal Reserve at the June 2006 meeting of further possible interest rate increases. In addition to this, the depreciation of these currencies was driven by global risk aversion, rising interest rates in Western Europe and developed Asia, a decline in international commodity prices, as well as widening current account deficits in these emerging markets (SARB, 2006). The Rand fluctuated between a minimum value of R5.97 and a maximum value of R7.93 against the US dollar during 2006.

1.1 Food price inflation in South Africa: 1991 – 2006

This section presents general inflation trends in South Africa from 1991 up to 2006. Table 1 represents the weights with which Statistics South Africa compiles and disseminates a number of different Consumer Price Index (CPI) aggregates, each serving a number of different analytical purposes. The weights represented were compiled in 2000 and are currently being used in order to calculate the CPI - Food. The various CPIs calculated for South Africa include:

Consumer Price Index: This index is used to calculate the official or headline rate of inflation and consists of price increases for all goods and services in the main metropolitan areas of the country.

Core Index: Certain items are excluded from the CPI basket on the basis that their prices are highly volatile, subject to temporary influences, or affected by government policies. These exclusions are fresh and frozen meat and fish, fresh and frozen vegetables, fresh fruit and nuts, interest rates on mortgage bonds and overdrafts/personal loans, and changes in VAT and assessment rates, as well as a few other items. The Core Index is used to calculate core inflation and is a reflection of the underlying inflationary pressures in the economy.

CPIX: The CPI excluding interest rates on mortgage bonds (CPIX); a measure designed to assist with inflation targeting.

CPIF, or the Food Price Index: Only the food items appearing in the CPI basket are included. The CPIF is regarded as useful to assess the impact of price increases on poor households, since food is the single biggest item in the total basket for the CPI.

Table 1: The weighting of food items in the CPI for metropolitan areas.

Product	Weight
CPI	
CPI Excluding food	79.01
Food (total)	20.99
Grain products	3,81
Meat	5,66
Fish and other seafood	0,69
Milk, cheese and eggs	1,96
Fats and oils	0,76
Fruit and nuts	1,09
Vegetables	2,00
Sugar	0,50
Coffee, tea and cocoa	1,07
Other	3,45

Source: *Statistics South Africa, 2007.*

1.2 Past inflation trends

In March 2006 the CPIX was 3.8%. Towards the end of the year the CPIX increased to 5.1%. Its increases were mainly influenced by increases in food prices and the increase in the petrol price. On average, the CPIX was 4.6% and still within the inflationary bracket of 3 – 6%, but moved slightly towards the upper end of this bracket, spurring fears of higher interest rates. The headline CPI declined marginally from 3.4% in March 2006 to 3.3% in April 2006, but increased significantly towards the end of the year to reach 5.4% in August 2006 before slowing slightly to reach 5.3% in September 2006 (SARB, 2006). According to Statistics South Africa, the CPI increased to 5.8% in December 2006 and averaged 4.7% for 2006 (Statistics South Africa, 2007).

The increases in the CPIX have been largely influenced by the developments in the food and transport components of this index. The 2006 data reveals that the September year-on-year food price inflation increased by 7.9%, contributing 2% to the overall increase in CPIX (SARB, 2006). Increases in the transport component have been mainly driven by the increases in the fuel prices. These prices where extremely volatile, with 93 Octane unleaded

petrol selling inland at R5.39 per litre in March 2006, for R6.92 per litre in August 2006 and for R5.85 per litre in November 2006. The contributions of the transport component to the overall CPIX varied from 0.5% in April to 1.2% in August, before declining to 0.7% in September 2006. Besides these factors, there were no other major contributors to the overall inflation index, apart from the housing component (0.5 to 0.6 percentage points) and the fuel and power components, contributing 0.1 percentage points from March to June, 0.2 percentage points in July and August and 0.3 percentage points in September 2006 (SARB, 2006).
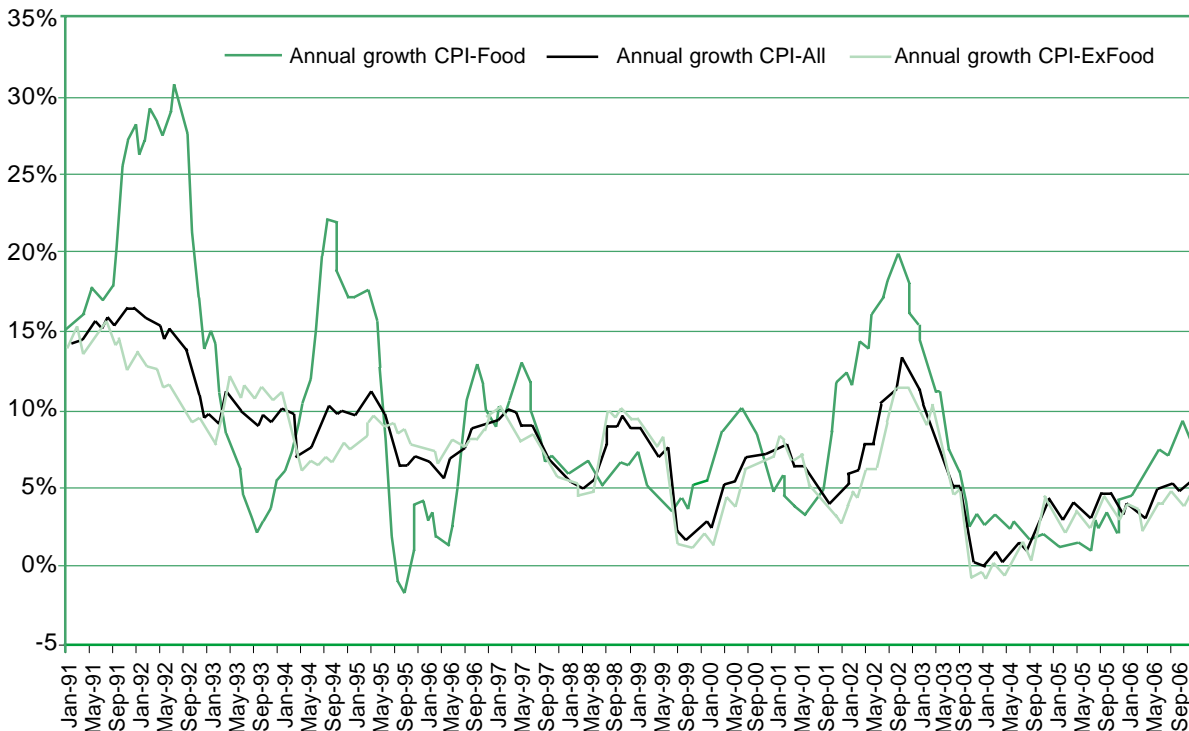
Figure 1: Change in CPI, CPI-food and CPI ex-food, January 1991 – December 2006.
Source: *Statistics South Africa, 2007.*

Figure 1 indicates that food price inflation, represented by the annual growth in CPI Food, has increased at a steady pace since the end of 2005. Food inflation almost reached a year-on-year increase of 9% in October 2006, after which it levelled off slightly towards an annual growth of 6%. The CPI for all items and the CPI excluding food items followed a slower increase, reaching 5% by the end of 2006. The NAMC found that food price inflation between December 2005 and December 2006 averaged 7.88% compared to the Statistics South Africa food inflation rate for historical metropolitan and other urban areas, which increased by an average of 7.7% over the same period.

Figure 2 displays the difference between overall inflation and the inflation excluding food items. As indicated in the Figure, this difference is higher than in 2005, and shows the increased contribution of food price inflation compared to inflation in general during the year under review.

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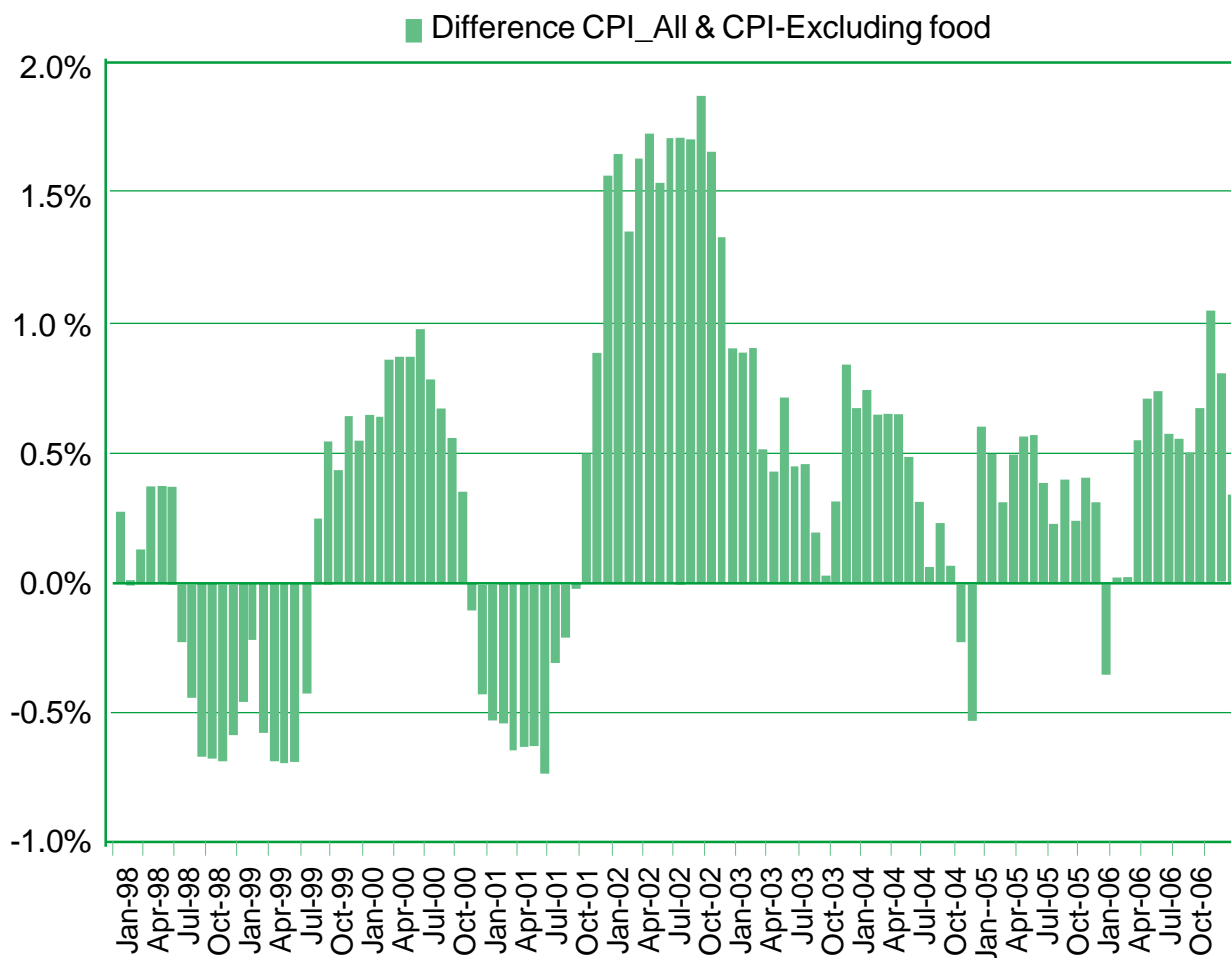
Figure 2: The difference between annual increase in CPI-all and CPI ex-food: January 1998 – December 2006 (% points).
Source: *Statistics South Africa, 2007.*

The CPI and the producer index for food are both depicted in Figure 3 below. Both followed a relatively similar trend, except for the fact that the annual changes in the Producer Price Index were a lot higher than the annual changes in the CPI. The Figure indicates that the PPI food has, for now, reached its peak and is steadily continuing on a downward trend.
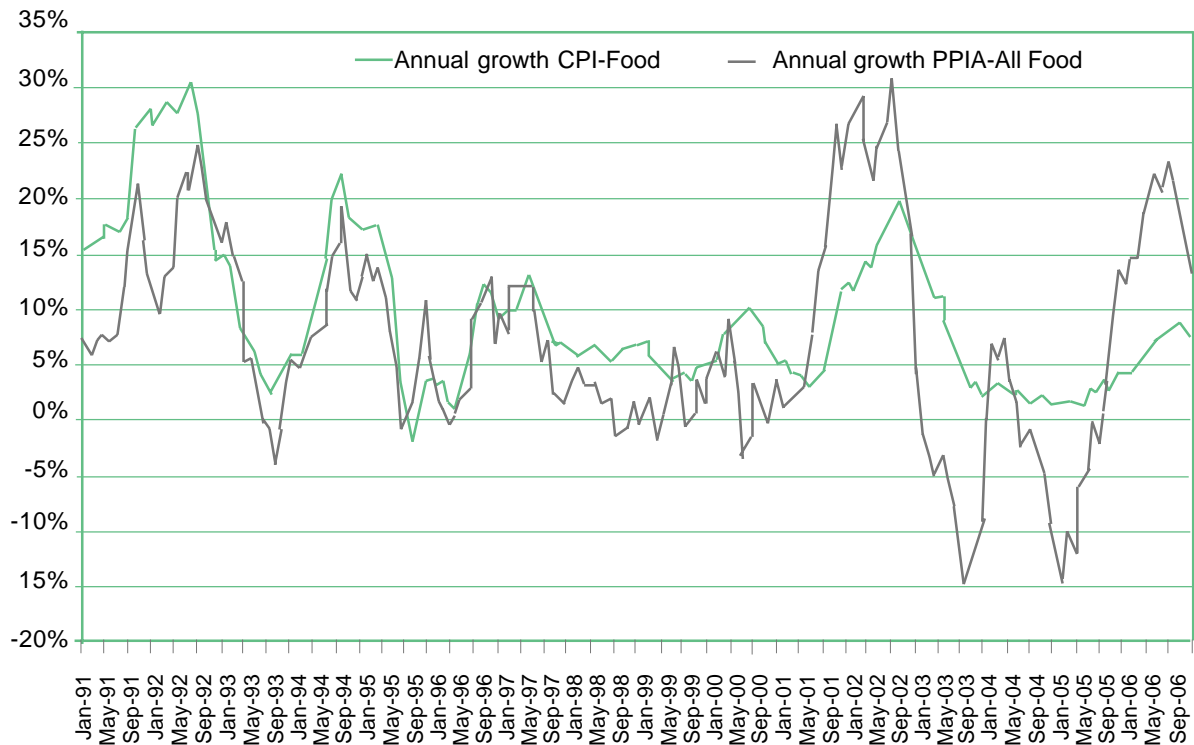
Figure 3: Annual change in CPI-food and PPI Agriculture-food: January 1991 – December 2006.

Source: *Statistics South Africa, 2007.*

1.3 Unpacking food price inflation of different commodities

During the past year the annual growth in the PPI for grains has increased by nearly 60%. The CPI grains on the other hand remained relatively constant, only increasing slightly towards the end of 2006. The increase in the index corresponds quite well to the overall increase in food price inflation. As the effect of higher food prices filters through the supply chain, one can expect the CPI grains to continue increasing as was the case in 2002 and 2003.
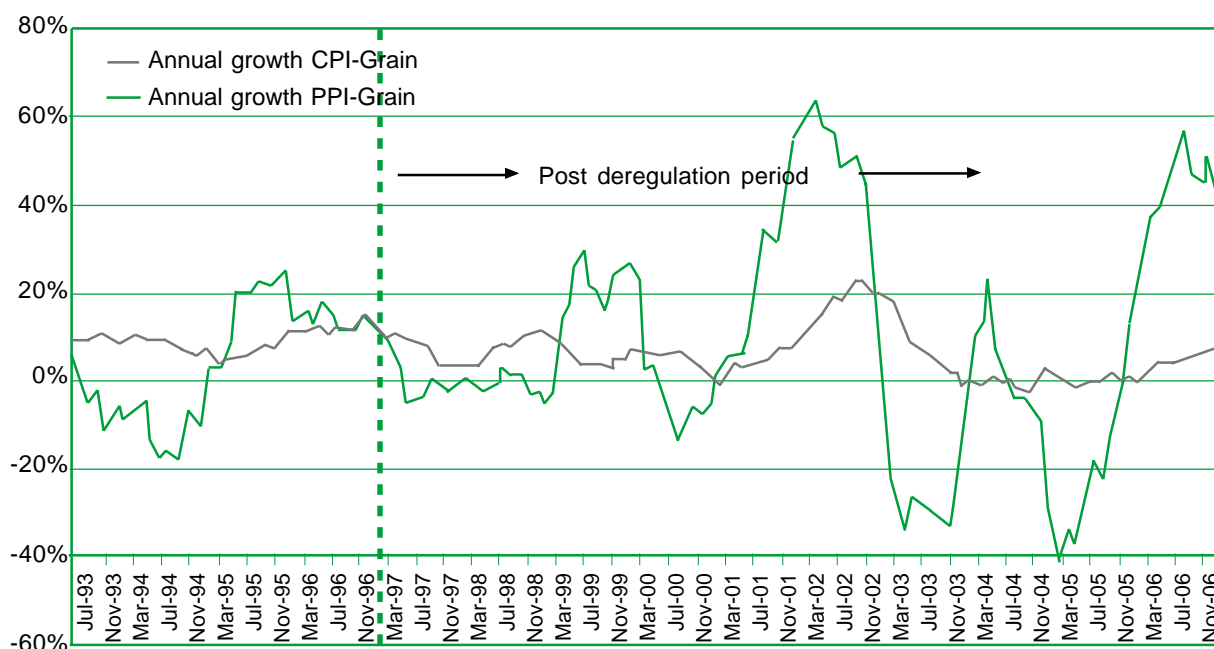
Figure 4: CPI and PPI for grain products: July 1993 – December 2006.
Source: *Statistics South Africa, 2007.*

The increase in the 2006 yellow and white maize prices were largely influenced by a lower supply, as well as a weakening Rand and an upward trend in the world maize price. In the first half of 2006, a weakening of the exchange rate placed upward pressure on the wheat price. An increase in the international wheat price, as well as a stronger demand for local wheat, influenced the SAFEX price even more. A strengthening of the exchange rate in April, May and August 2006 resulted in some downward pressure on the SAFEX price. This, together with a lower international wheat price, caused the local wheat price to decrease slightly (Van Zyl, 2006).

Figure 5 reveals that the consumer price inflation for fruits, nuts and vegetables followed a relatively constant trend during 2006. The CPI for vegetables experienced a slight increase early on in the year, but then levelled off again towards the end of the year. The CPI for fruits and vegetables also peaked early on in the year, but then levelled off to lower levels from mid-2006 onwards. The CPI for all items increased slightly in 2006.
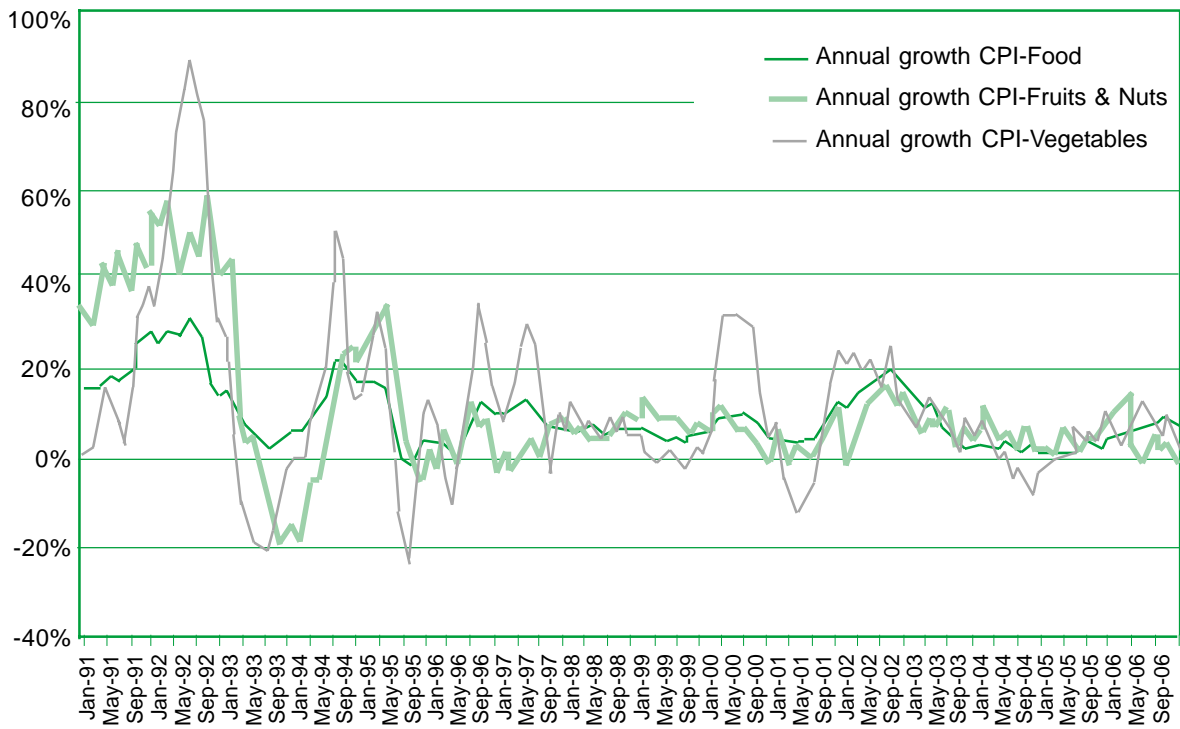
Figure 5: CPI for vegetables, fruits and nuts: January 1991 – December 2006.
Source: *Statistics South Africa, 2007.*

The CPI for sugar increased together with the CPI for food, but the annual growth in the CPI for teas, coffee and cocoa remained relatively constant at around 3%. It is interesting to note that these prices did not increase together with the general food price inflation. The CPI for sugar experienced a similar increase, as did the overall food price inflation, while the annual increase in the CPI for teas, coffee and cocoa remained relatively static at just above 0%.
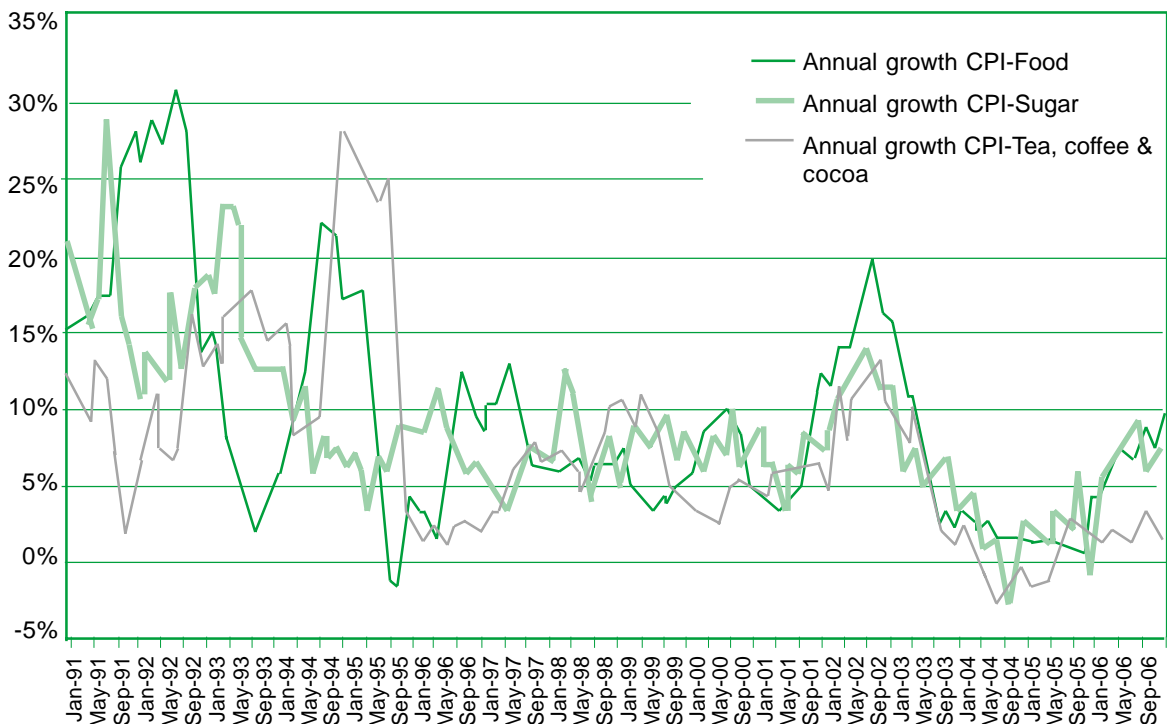
Figure 6: CPI for sugar, coffee, tea and cocoa: January 1991 – December 2006.
Source: *Statistics South Africa, 2007.*

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The annual growth in price indices for processed and unprocessed products seemed to have moved apart in 2006. The CPI for unprocessed products experienced a far greater growth tendency than the index for processed products and reached nearly 15% in September 2006, considerably higher than the 5% for processed products.
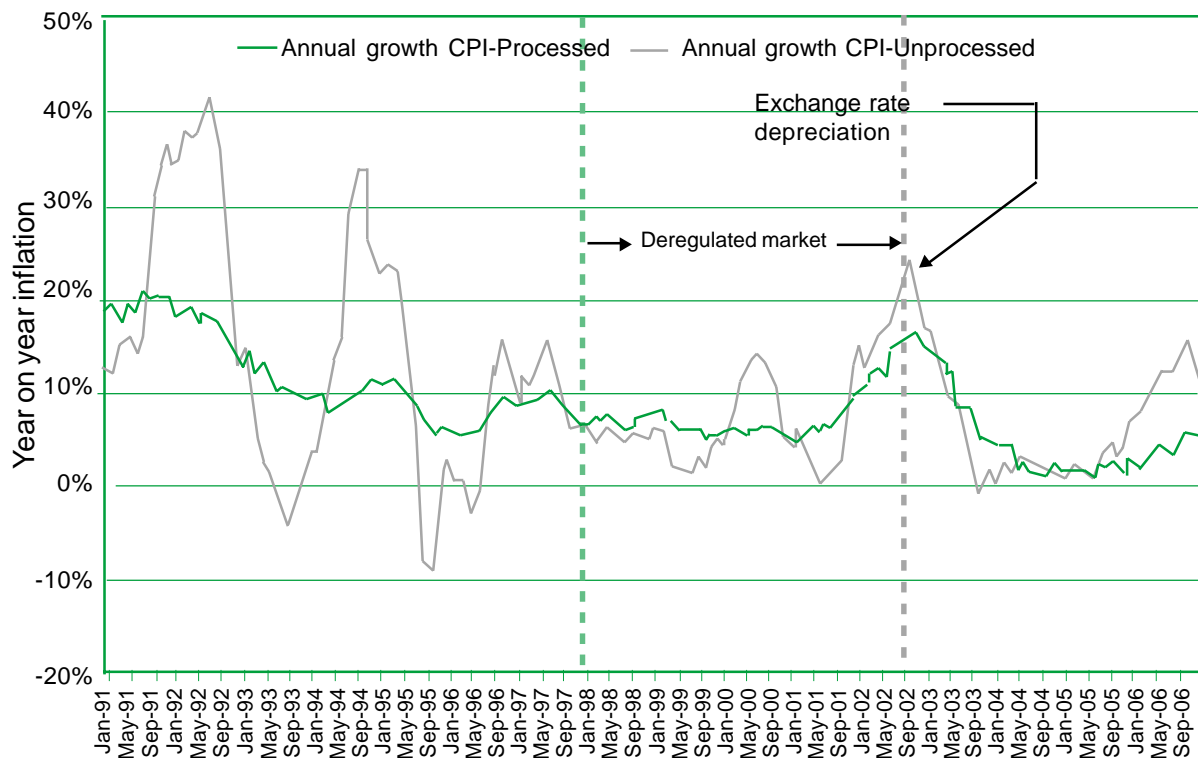
Figure 7: CPI for processed and unprocessed products: January 1991 December 2006.
Source: *Statistics South Africa, 2007.*

1.4 Food price inflation in rural areas

Table 2 shows the CPI for food items in urban and rural areas as provided by STATS SA. The CPI for food is generally higher in rural areas than in urban areas. The gap between the overall CPI for food between urban and rural areas has narrowed since January 2004 and January 2007. If one considers the percentage change in inflation on a year-to-year basis for total food, as well as for grain products, changes in prices were more in urban areas than in rural areas, except for the year-on-year increase between 2006 and 2007 in rural areas.

Table 2: The relationship between food price inflation in rural and urban areas.

	January 2004		January 2005		January 2006		January 2007	
	Urban	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**
CPI-food	135.4	139.1	137.2	139.7	142.9	143.7	155.4	156.2
Inflation: Total Food	2.73%	-0.57%	1.33%	0.43%	4.15%	2.86%	7.92%	8.00%
Inflation: Grain Prod	-0.61%	-10.48%	1.61%	-2.69%	-0.23%	-1.74%	7.04%	9.67%

Figures 8 to 11 represent a comparison of metropolitan and rural price indices for various commodities. The codes in the legends represent the code with which Statistics South Africa characterises the indices of the different commodities. VPI 30100 and VPR 30100, for example, represent the general food price indices for urban and rural areas in Figure 8. It is clear that the gap between the urban and rural price indices for food in general narrowed significantly since the latter part of 2005. In the case of grains, prices increased more in metropolitan areas than in rural areas for most of the time period depicted in Figure 9, except for 2002 and 2006.
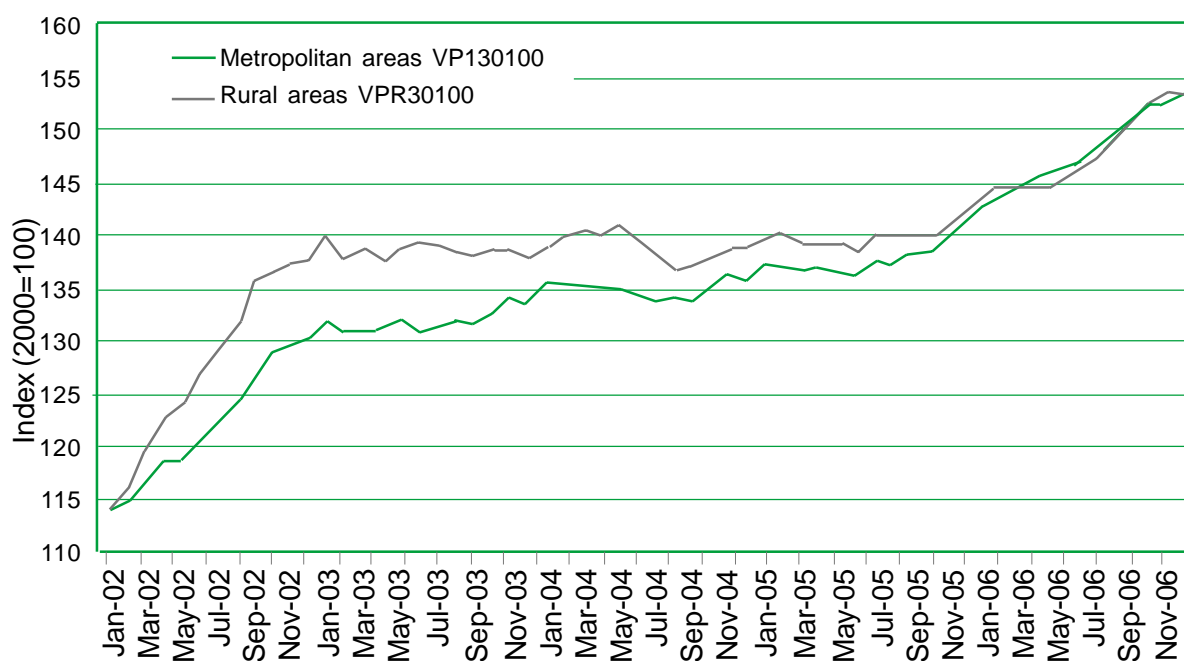
Figure 8: CPI Food for rural and metropolitan areas: January 2002 – December 2006.
Source: *Statistics South Africa, 2007.*
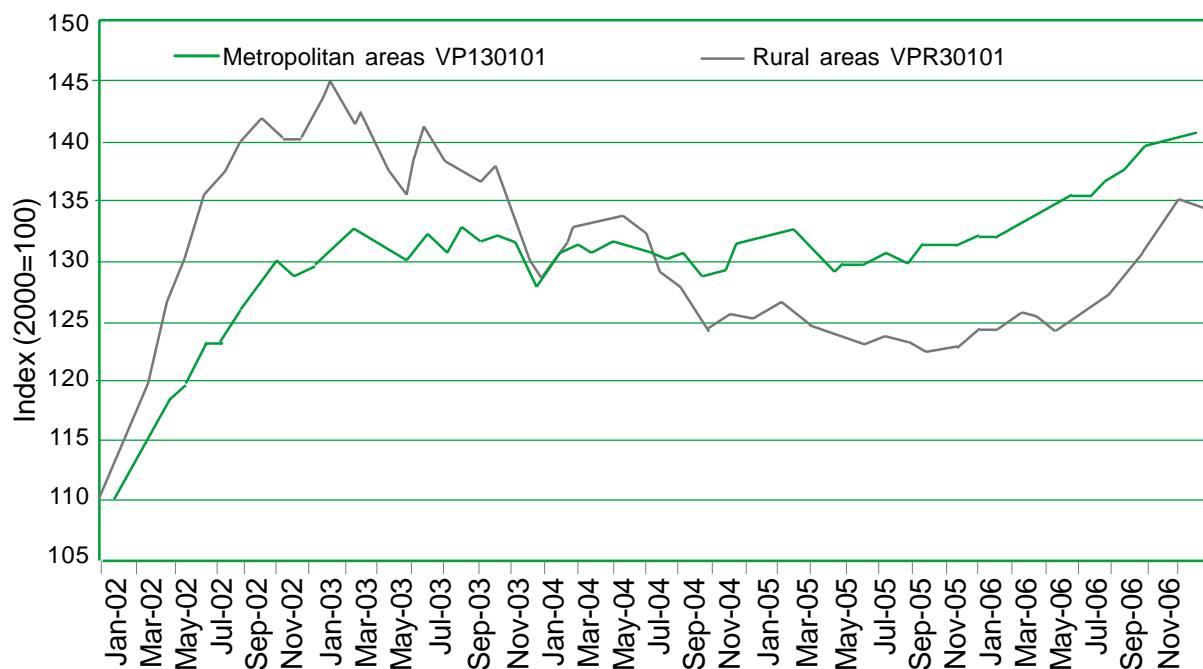
Figure 9: CPI grain products for rural and metropolitan areas: January 2002 – December 2006.
Source: *Statistics South Africa, 2007.*

Figure 10 shows that changes in prices for dairy products and eggs between metropolitan and rural areas were similar over the depicted period.
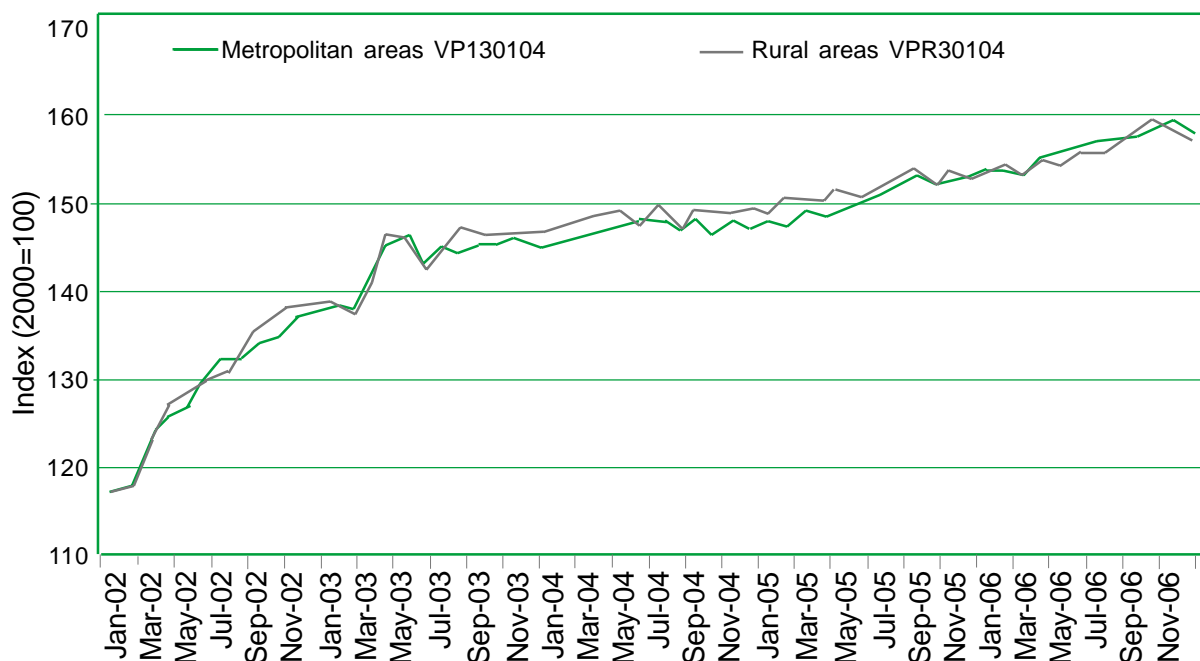
Figure 10: CPI dairy products and eggs for rural and metropolitan areas: January 2002 – December 2006.
Source: *Statistics South Africa, 2007.*

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Figure 11 shows the changes in prices for vegetables in metropolitan and rural areas. For most of the depicted period changes in prices were similar, except for most of 2002, where prices increased faster in rural areas and 2006, where prices changes were larger in urban areas.
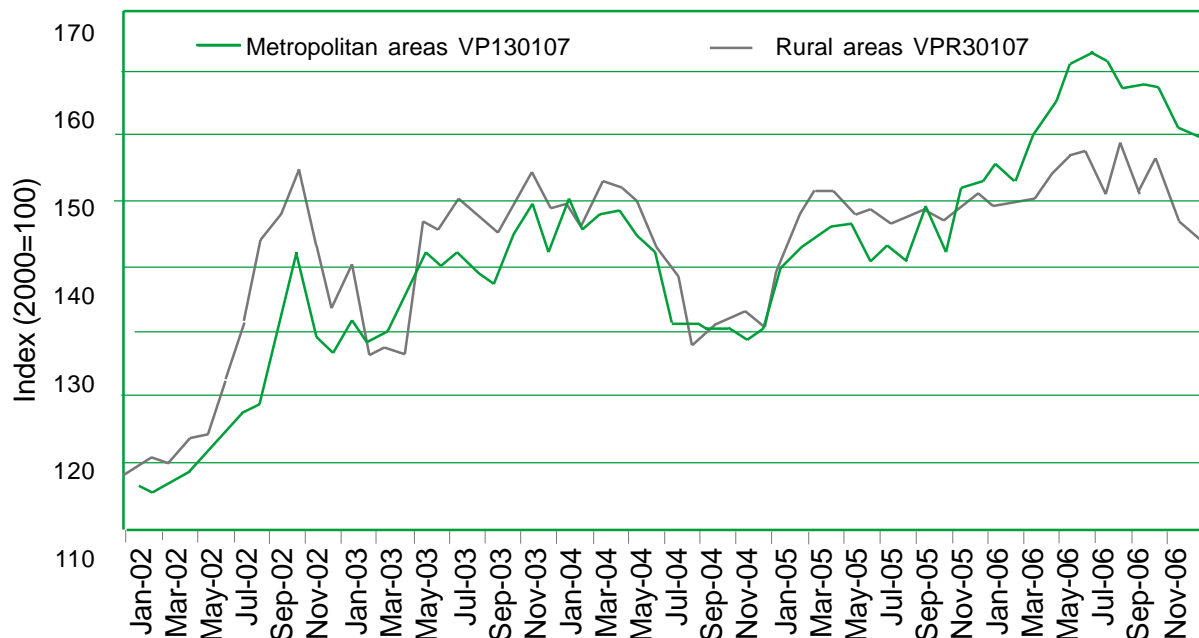
Figure 11: CPI for vegetables in rural and metropolitan areas: January 2002 December 2006.
Source: *Statistics South Africa, 2007.*

1.5 Monitoring rural food prices

Rural food price monitoring is one of the NAMC's responsibilities and is run in parallel with the on-going activity to monitor food prices in the metropolitan and urban areas. Co-workers in this project are the National Agricultural Marketing Council (NAMC), the National Department of Agriculture (DoA), Provincial Departments of Agriculture (PDAs), Statistics South Africa (STATS SA) and the outlet owners from whom prices are collected. The collection of prices in rural areas commenced in November 2006, and is completed monthly by the officials from the Provincial Departments of Agriculture.

The number of outlets in rural areas currently being monitored is as follows: Free State 29, Eastern Cape 17, Mpumalanga 16, Gauteng 16, Limpopo 21, North West 24, KwaZulu-Natal 27, Northern Cape 14 and the Western Cape 19. In total, prices of 26 food items are monitored at 183 rural outlets throughout the country. These products include maize meal, brown bread, white bread, chicken meat, beef meat, rice, samp, sorghum meal, pilchards, milk, eggs, apples, bananas, oranges, potatoes, onions, tomatoes, cabbages, butter beans, dried beans, sugar, tea, coffee, margarine, peanut butter and cooking oil.

This report provides only some selected national average rural food prices that were collected from rural areas and compares it with the national average prices of similar products in urban areas (See Table 3). Cognisance should be taken that individual food items are reported and should not be confused with a basket of similar food-stuffs as reported by STATS SA (see previous section).

From the information shown in Table 3 it is clear that prices of most of the food items in rural areas are more expensive than in urban areas, except in the case of margarine. This trend is expected since food is bought in the major consumption areas within provinces and transported to rural outlets. In some cases certain food items are produced in urban areas across provinces, e.g. bread and maize meal, while for other food items processing is centralised largely in metropolitan areas, e.g. tinned products, or close to production areas, e.g. sugar. One would expect the difference in prices between rural and urban/ metropolitan areas of these foodstuffs (i.e. those products processed in the latter areas) to be even larger due to higher transaction costs.

There are also only marginal price differences between rural and urban areas in the case of bread, more particularly brown bread. The price differentials between urban and rural areas for maize meal and sugar are quite big and a cause for concern. On the other hand the differentials are much smaller for peanut butter and pilchards in tomato sauce.

Also noteworthy is that maize meal prices in urban areas showed significant increases from January to May 2007, while increases in rural areas were much smoother over the same period. This translates into lower price volatility for maize meal in rural areas.

Having stated the above, care should be taken with the interpretation of the information presented since it is not directly comparable with the statistics released by STATS SA and due to the relative short period that prices are collected. Meaningful trends can largely only be extracted with longer time series data.

Table 3: Urban and rural food price comparison.

Product	Size	Urban prices					Rural prices				
		Nov 2006	Dec 2006	Jan 2007	Mar 2007	May 2007	Nov 2006	Dec 2006	Jan 2007	Mar 2007	May 2007
Loaf of brown bread	700 g	R 4.34	R 4.35	R 4.44	R 4.68	R 4.67	R 4.34	R 4.35	R 4.62	R 4.60	R 4.74
Loaf of white bread	700 g	R 4.78	R 4.78	R 4.70	R 5.18	R 5.24	R 4.92	R 4.98	R 5.10	R 5.19	R 5.47
Maize meal (average super and special)	5 kg	R 15.26	R 15.47	R 15.47	R 16.44	R 18.92	R 19.11	R 20.54	R 21.40	R 21.61	R 22.79
Cooking oil	750ml	R 6.90	R 7.16	R 7.30	R 7.11	R 7.49	R 7.96	R 8.15	R 8.38	R 8.51	R 8.51
Block type margarine	500 g	R 8.37	R 7.95	R 7.97	R 7.97	R 8.68	R 7.64	R 7.59	R 8.01	R 8.04	R 7.98
Full cream long life milk	1 l	R 6.50	R 6.51	R 6.48	R 6.71	R 6.95	R 7.12	R 7.00	R 6.85	R 7.14	R 7.47
Beans	420 g	R 3.94	R 3.83	R 3.86	R 3.83	R 4.29	R 5.75	R 5.58	R 5.84	R 5.80	R 5.87
Pilchards in tomato sauce	425 g	R 7.59	R 7.60	R 7.58	R 7.50	R 7.68	R 8.68	R 8.87	R 8.91	R 8.92	R 9.35
Peanut butter	410g	R 9.57	R 9.50	R 9.73	R 10.02	R 10.40	R 11.04	R 10.85	R 11.22	R 11.70	R 12.11
Sugar	2.5 kg	R 13.31	R 13.81	R 13.88	R 13.64	R 13.50	R 16.02	R 16.05	R 16.28	R 16.36	R 16.43

2. The farm value and the retail value of the products contained in the food basket

Consumers do not generally buy food directly from farmers. The price that consumers pay for food is invariably higher than that received by farmers. The farm- to-retail price spread is the measurement of the difference between what the consumer pays and what the farmer receives. The price spread also provides some indication of the various activities that take place along the supply chain until the product reaches the consumer's table – also known as the marketing bill. The annual food marketing bill is a descriptive macro-economic measure showing the absolute and relative size of aggregate expenditures for farm-originated foods, marketing costs, and farm values. Changes over time in the marketing bill may result from changes in food prices, the quantity of marketing services (the amount of transportation, processing and distribution by food sector firms), or the product mix or product quantities.

This section estimates and explains the farm value and the farm-to-retail price spread of each product category, as well as the eventual movement of the retail price of the individual products. A specific section is included to describe the costs of producing the various products and how these costs have changed over time.

With consumers mostly worried about retail prices and farmers being more directly affected by farm prices, why would either care about price spreads? Basically, producers can expect two things out of a price spread reporting system. Firstly, the system could help farmers with the marketing of their products and this can be achieved by improving their knowledge of what the consumer wants. Secondly, the producers can also measure the efficiency of the food marketing system and thereby ensure that they receive their fair share of the consumer expenditure on food products. Consumers are also concerned about the efficiency of the marketing systems, since they would prefer lower prices (Hahn, 2004).

In order to develop the process of calculating farm-to-retail price spreads, we need to understand a few key terms. These are explained in the following section.

Farm value: The farm value is the value of the farm product's equivalent in the final food product purchased by the consumers. Farm values are calculated by multiplying disappearance quantities on a farm-weight basis by prices received by farmers. The farm value does not include the value of by-products. The farm value share is computed by dividing the farm value by consumer food expenditures, and is reported as a percentage. Over time, the share reflects relative changes in expenditures for farm products, food marketing services and retail food products.

Farm-to-retail price spread: The farm-to-retail price spread is the difference between what the consumer pays for the retail food product and the value of the farm products used in that product. Price spreads measure the aggregate contributions of food manufacturing, distribution, wholesaling and retailing firms that transform farm commodities into final food products. The values of extraction rates, as well as those of by-products produced during processing, are all taken into account.

The market basket: The market basket concept is used to analyse the changes in grocery store food prices by separating the two major components of food prices, namely the prices received by farmers for food commodities and charges for marketing services. The South African market basket contains a number of commodities that are generally purchased by the everyday consumer for consumption at home. The retail values or retail prices of the different commodities are those which the consumers pay at retail level when they purchase the product. These are the prices from which the Consumer Price Index is derived.

2.1 Retail level price analysis

The first step in determining the farm-to-retail price spread is to determine the retail price levels of most of the commodities. This analysis reviews the changes in the retail prices of various important food items that form daily meals for the majority of South Africans. The analysis is based on 75 food items that have been monitored by the National Agricultural Marketing Council since 2004. The products are subdivided into various categories, namely wheat products, maize products, sunflower products, processed vegetables, fresh vegetables, red meats, chicken products, dairy and eggs, fruits, fish products and other products. Tables 4 to 13 show the prices for these products during April 2006, July 2006, October 2006 and December 2006. The tables present the overview of price changes during the periods December 2004 to December 2006 and December 2005 to December 2006.

Table 4: National average weighted retail prices for selected wheat products.

Wheat products	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*% change*	*% change*
White bread	700 g	4.64	4.62	4.73	4.71	4.75	4.78	2.98%	3.60%
Brown bread	700 g	4.18	4.22	4.30	4.29	4.49	4.35	4.16%	3.25%
Flour	2.5 Kg	10.96	10.57	10.89	10.64	10.99	10.92	-0.41%	3.31%
Spaghetti Plain	500 g	4.55	4.42	4.72	5.02	5.29	5.33	17.13%	20.73%
Macaroni Plain	500 g	4.55	4.43	4.76	5.04	5.36	5.30	16.46%	19.54%
Average								**8.06%**	**10.09%**

The price of white bread increased slightly from its level in December 2005. The price changed by 3.60% on a year-on-year basis, ending the year 2006 on R4.78 per unit. The retail price of brown bread experienced a similar, yet slightly lower, year-on-year price increase of 3.25%, ending 2006 with an average of R4.35 per loaf. The price of flour increased by a similar rate to the price of bread as it is a wheat-based product. The year-on-year price increased with 3.31%, ending 2006 with a price of R10.92 per 2.5kg packet. Spaghetti and Macaroni experienced price increases of around 20%. The reason for this is that these products are made from durum wheat which, in turn, is mostly imported.

The average SAFEX monthly wheat price increased from January 2006 up until October 2006 by 35%. This increase in the local wheat price was largely influenced by a slightly weaker Rand, higher international wheat prices and a stronger demand for local wheat. A slight strengthening of the exchange rate during mid-November and a lower international wheat price caused the local price to decline in November and December 2006 (Van Zyl, 2006).

Table 5: National average weighted retail prices for super and special maize meal.

Maize products	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	R/unit	R/unit	R/unit	R/unit	R/unit	% change	% change
Super maize meal	5 Kg	14.15	12.91	14.87	16.97	17.75	17.58	24.24%	36.16%
Special maize meal	5 Kg	10.60	11.09	11.18	14.73	13.00	13.36	26.04%	20.52%
Average								**26.40%**	**28.34%**

From December 2005 up until December 2006, the retail price of super maize meal increased year-on-year by 36.16%. In nominal terms the price increased from R12.91 per 5kg packet in December 2005 to R17.58 per packet in December 2006. Special maize meal, on the other hand, increased by 20.52% between December 2005 and December 2006. In December 2005 a packet of special maize meal retailed at R11.09, while a year later the same packet retailed at R13.36. Cold and wet conditions during April 2006 resulted in an increase in the local maize price. In addition to this, the local maize price was influenced by a weaker exchange rate and a higher international maize price. On average, imports of 1.235 million tons of yellow maize were required in order to meet local demand. This resulted in the yellow maize price moving closer to import parity which, in turn, influenced the white maize price, which also increased (Van Zyl, 2006). The SAFEX average monthly yellow maize price increased by 64.43% from January 2006 up until December 2006, while the SAFEX average monthly white maize price increased by 27.71% in that same period.

The retail price of sunflower cooking oil decreased from its December 2005 level to R5.79 per bottle in April 2006, but then increased steeply towards the end of the year. The overall year-on-year price increase for sunflower oil was 19.51%. Medium fat spread and margarine both increased year-on-year 2005/06 by 12.59% and 7.74%, respectively. During the first half of 2006, the SAFEX average monthly sunflower price increased due to a smaller local harvest, a weaker Rand and a stronger world sunflower oil price. From June 2006 onwards, the local sunflower price moved sideways as the positive effect of the higher international sunflower oil price was cancelled out by a declining international oil cake price and a slightly strengthening of the Rand (Van Zyl, 2006).

Table 6: National average weighted retail prices for selected sunflower seed derived products.

Sunflower seed derived products	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*% change*	*% change*
Cooking Oil	750 ml	6.14	5.99	5.79	6.07	6.85	7.16	16.61%	19.51%
Medium Fat Spread	1 Kg	11.64	11.49	11.45	11.23	12.71	12.94	11.18%	12.59%
Margarine brick	500 g	6.91	7.38	8.24	7.75	8.04	7.95	15.07%	7.74%
Average								**14.29%**	**13.28%**

Most of the processed vegetable products experienced similar price increases, with the exception of baked beans in tomato sauce. Butter beans in brine, chopped peeled tomatoes, tomato and onion mix and canned peas all experienced price increases of between 6.48% and 10.46% between December 2005 and December 2006. Prices of peeled tomatoes and tomato and onion mix increased by 10.46% and 6.48%, while butter beans and canned peas increased by 9.98% and 8.35%, respectively.

Table 7: National average weighted retail prices for selected processed vegetables.

Processed vegetables	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	R/unit	R/unit	R/unit	R/unit	R/unit	% change	% change
Baked Beans in Tomato Sauce	420 g	3.93	3.84	3.88	3.69	3.90	3.83	-2.51%	-0.26%
Butter Beans in Brine	410 g	5.93	6.29	6.33	6.34	6.89	6.91	14.27%	9.98%
Chopped Peeled Tomato	410 g	6.25	6.09	6.12	6.19	6.74	6.73	7.09%	10.46%
Tomato & Onion Mix	410 g	6.09	5.52	5.73	5.68	6.06	5.88	-3.50%	6.48%
Canned Peas	410 g	4.57	4.77	4.77	4.77	5.14	5.17	11.54%	8.35%
Frozen Green Peas	1 Kg	18.02	13.61	14.86	15.11	16.83	16.51	-9.12%	21.30%
Frozen Baby Carrots	1 Kg	19.79	20.77	22.38	21.96	23.50	23.37	15.31%	12.51%
Frozen Super Juicy Corn	1 Kg	18.70	19.86	17.47	17.35	19.35	20.58	9.17%	3.62%
Frozen Sliced Beans	1 Kg	19.54	21.03	21.04	21.72	22.42	22.21	12.04%	5.64%
Average								**6.03%**	**8.68%**

Frozen products experienced price increases of between 3.62%, in the case of frozen super juicy corn, and 21.30%, in the case of frozen green peas. The retail prices of frozen baby carrots and frozen sliced beans increased by 12.51% and 5.64%, respectively.

Table 8: National average weighted retail prices for selected fresh vegetables.

Fresh vegetables	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	R/unit	R/unit	R/unit	R/unit	R/unit	% change	% change
Carrots	1 Kg	6.27	5.80	6.80	5.80	5.31	6.05	-3.51%	4.43%
Onions	1 Kg	4.89	5.11	5.71	6.11	5.23	5.73	17.19%	12.15%
Potatoes BS	7 Kg	16.72	19.69	15.69	15.17	15.11	13.28	-20.53%	-32.54%
Tomatoes	/Kg	8.80	9.13	9.65	9.38	9.88	9.53	8.30%	4.36%
Sweet Potatoes	1 Kg	6.90	7.09	6.99	6.99	7.10	7.22	4.67%	1.75%
Average								**1.22%**	**-1.97%**

All fresh vegetable prices increased, except for the price of potatoes. The retail price of potatoes decreased by 32.54%, while the retail prices of carrots, onions and tomatoes and sweet potatoes increased by 4.43%, 12.15%, 4.36% and 1.75%, respectively. The decline in fresh vegetable prices was largely due to the decline in potato prices, which declined by 32.54%. The lower potato price was due to good production that resulted in an increase of 24% in the number of pockets sold on the fresh produce markets during November and December 2006.

Table 9: National average weighted retail prices for red meat and chicken products.

Red meat and chicken	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*% change*	*% change*
Meatballs in Gravy	400 g	7.98	8.32	8.46	7.93	8.27	9.23	13.59%	9.82%
Picnic Ham	300 g	13.74	14.91	15.44	15.31	15.67	15.05	8.70%	0.88%
French Polony	1 Kg	15.98	16.90	17.40	16.88	17.15	16.61	3.76%	-1.74%
Rindless Back Bacon	250 g	13.63	14.39	14.97	14.79	15.26	15.26	10.72%	5.73%
Streaky Bacon	250 g	12.60	12.65	13.83	13.28	13.86	14.14	10.90%	10.56%
Pork Chops	/Kg	37.61	32.78	25.57	30.36	36.13	36.43	-3.24%	10.01%
Lamb Chops	/Kg	44.02	50.64	43.15	49.88	48.28	59.25	25.69%	14.54%
Boerewors	/Kg	29.52	31.82	29.98	27.55	30.74	31.44	6.09%	-1.23%
Brisket	/Kg	25.92	30.82	31.45	31.70	35.83	41.09	36.91%	24.99%
Beef Mince	/Kg	26.88	28.88	31.60	30.36	33.08	33.17	18.95%	12.94%
Beef Stewing	/Kg	29.94	28.19	30.49	31.90	34.44	38.42	22.08%	26.63%
Chicken - Whole Frozen	Unit	16.92	18.24	18.55	16.66	20.92	27.76	39.04%	34.29%
Chicken - Whole Fresh	Unit	17.61	21.03	21.75	17.50	21.69	21.80	19.22%	3.56%
Average								**16.34%**	**11.61%**

The products within the red meat and chicken product category experienced average year-on-year (December 2005 to December 2006) price increases of 11.61%. This double digit increase was largely due to the increase in the prices of whole frozen chicken, stewing beef, brisket, lamb chops, pork chops and streaky bacon. The prices of these products increased, on average by, 34.29%, 26.63%, 24.99%, 10.56% and 10.01%, respectively. The increased inflation in the red meat prices is largely related to the current herd building

phase and hence lower off-take, lower imports due to disease risks and demand pull due to an increase in the size of the consumer base that can afford red meat (as well as an increase in general in disposable income).

Table 10: National average weighted retail prices for selected dairy and egg products.

Dairy products	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*% change*	*% change*
Butter	500 g	16.01	16.24	16.09	15.22	15.81	15.68	-2.10%	-3.47%
Cheese – Cheddar	/Kg	35.47	32.65	42.08	35.20	35.95	37.17	4.80%	13.83%
Fresh Milk Full Cream	2 L	9.49	9.71	10.05	10.27	10.24	9.93	4.64%	2.27%
Fresh Milk Low Fat	2 L	9.68	10.10	10.48	10.60	10.63	10.31	6.52%	2.08%
Fresh Milk Low Fat Sachet	1 L	4.62	4.79	4.90	4.95	4.95	4.77	3.23%	-0.46%
Fresh Milk Full Cream Sachet	1 L	4.35	4.58	4.69	4.79	4.64	4.53	4.12%	-1.19%
Skimmed Powder Milk	1 Kg	47.17	49.96	48.16	44.24	42.62	42.48	-9.94%	-14.98%
Long Life Milk Full Cream	1L	6.52	6.15	6.16	6.19	6.53	6.51	-0.12%	5.80%
Eggs 30's	30's	25.49	24.12	26.50	27.17	28.82	28.84	13.15%	19.59%
Average								**2.70%**	**2.61%**

In the dairy and egg products category, cheddar cheese and eggs were the only products to experience an above inflation year-on-year December 2005/06 price increase. On average, the prices for the products in this category only rose by 2.61%, with skimmed milk powder (-14.9%), fresh full cream milk sachet (-1.19%), fresh low fat milk sachet (-0.46%) and butter (-3.47%) being the products which experienced year-on-year price

decreases. Further, 2006 saw South African milk production reach a 14 year high of 2.42 billion litres, up 4.05% from its previous high of 2.32 billion litres. Historically, South Africa was a surplus producer of milk, but the Milk Producers' Organisation believes that the 2006/07 season will end with a shortage of around 18 million litres and resultant higher prices (MPO, 2007).

Table 11: National average weighted retail prices for selected fresh and processed fruits.

Fresh and processed fruits	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*% change*	*% change*
Sliced Peaches	410 g	5.46	5.04	5.52	5.93	5.87	5.65	3.50%	12.27%
Pears Halves	410 g	6.78	7.04	7.02	7.12	7.65	7.69	13.48%	9.29%
Strawberry Jam	450 g	10.23	9.99	9.45	9.20	9.77	9.78	-4.46%	-2.08%
Apricot Superfine Jam	450 g	7.72	7.24	7.36	7.46	7.81	7.85	1.69%	8.36%
Granny Smith Apples	1.5 Kg	8.53	9.59	8.56	7.85	7.14	9.29	8.82%	-3.20%
Oranges (Bag)	2.5 Kg	8.40	11.40	9.50	7.99	7.99	9.50	12.99%	-16.70%
Average								**6.00%**	**1.32%**

The fresh fruits and processed fruits category experienced an average price increase of 1.32%. Most of the processed fruits experienced price increases of above inflation magnitudes, while the fresh fruits, such as Granny Smith apples and a bag of oranges, experienced price decreases of 3.2% and 16.7%, respectively.

Table 12: National average weighted retail prices for fish products.

Fish	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*% change*	*% change*
Pilchards in Tomato sauce	425 g	6.04	6.41	6.98	7.37	7.60	7.60	26.00%	18.67%
Tuna Shredded in Brine	170 g	6.80	6.72	6.69	6.97	6.58	7.03	3.37%	4.72%
Average								**14.69%**	**11.70%**

Fish products increased by an average of 11.70% between December 2005 and December 2006. Pilchards in tomato sauce experienced a price increase of 18.67%, while the price of shredded tuna in brine increased year-on-year by 4.72%.

The prices of products in the other products category increased on average by 8.32%.

Table 13: National average weighted retail prices for other products.

Other products	Product size	Dec-04	Dec-05	Apr-06	Jul-06	Oct-06	Dec-06	Dec '04 - Dec '06	Dec '05 – Dec '06
		R/unit	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*R/unit*	*% change*	*% change*
King Korn	1 Kg	6.69	6.59	7.48	7.77	7.84	7.81	16.72%	18.51%
Jungle Oats	1 Kg	12.85	12.21	11.93	11.18	12.79	12.85	-0.06%	5.22%
Cornflakes	750 g	18.96	18.76	20.58	19.84	20.07	19.90	4.93%	6.09%
Rice Crispies	400 g	15.88	15.82	16.23	15.88	16.33	16.09	1.35%	1.69%
Sugar	2.5 Kg	12.16	12.26	12.92	13.17	13.11	13.81	13.59%	12.60%
Rice	2.5 Kg	8.44	8.85	8.79	9.00	9.77	9.90	17.36%	11.96%
Ricoffy Reguler	750 g	25.82	25.91	26.47	25.98	26.73	26.54	2.80%	2.45%
Glen Tea	100's	10.08	9.88	10.22	9.86	10.37	10.63	5.44%	7.57%
Coca Cola Regular	2 L	9.11	8.90	9.94	8.79	10.06	10.47	14.92%	17.55%
Peanut Butter Smooth	410 g	9.47	8.85	9.02	8.90	9.68	9.50	0.30%	7.34%
Soya Mince Tomato & Onion	200g	6.09	5.76	5.79	5.71	5.76	5.79	-4.85%	0.51%
Average								**6.59%**	**8.32%**

The products which experienced above inflation increases within this period are the 1kg King Korn packets, 2.5kg packets of sugar and rice, Glen tea 100s, 2 litre bottles of regular Coca Cola and smooth peanut butter. The price increases of all the products contained in this category varied between 18.51%, in the case of King Korn, and 0.51%, in the case of soya mince.

2.2 Farm value

The farm value is the measure of the return, or payment, which the farmers receive for the farm-product equivalent of the retail food item sold to consumers. In other words, the value of the quantity of raw maize required to manufacture 12.5kg of super maize meal. Before the farm value can be calculated, it is necessary to estimate the quantity of a farm product that must be purchased from the farmer to sell a unit of the product at retail level. The farm value is calculated by multiplying the farm price by the quantity of farm product equivalent of the specific food item sold at the retail outlet. The farm value usually represents a greater quantity than the retail unit because the product that farmers produce loses weight through storage, processing and distribution (USDA, 1997).

The farm values of the products discussed in our previous reports are updated. Readers are requested to refer to the 2004 and 2005 Food Cost Reviews for details on the farm value calculations for maize meal, bread, a selected variety of beef cuts and other fresh products such as fruits and vegetables.

2.2.1 Farm value – Dairy products

Milk is the raw input for a number of dairy products. This report focuses specifically on the dairy items contained in the South African food basket, namely fresh milk, both full cream and low fat, as well as cheddar cheese and butter.

Farm value of fresh, low fat and full cream milk

The number of milk producers decreased in most provinces during the period January 2006 – January 2007. According to the MPO, the Free State has seen the largest decline in milk producers, with 80 producers leaving the industry, followed by Mpumalanga with 60 producers, the North West with 53, the Western Cape with 51 and Gauteng with 30. In total, the number of milk producers declined from 4184 in January 2006 to 3899 in January 2007, adding to the reason why South Africa is currently, in 2007, experiencing a milk shortage. Other reasons for the shortage of milk are constant and slightly declining producer prices, as well as a drought in the summer rainfall areas of the country. Higher meat prices, together with lower producer prices, have forced farmers to sell off stock as they are able to receive a better return on investment by doing so. The drought in the maize producing areas has also led to the main feed input, which constitutes as much as 50% of the feed ration (maize), becoming very expensive and thereby suboptimal feeding, which in turn influences milk production, has occurred (MPO, 2007). The figure below represents the trends of the average monthly SAFEX maize price and the producer price of raw milk.
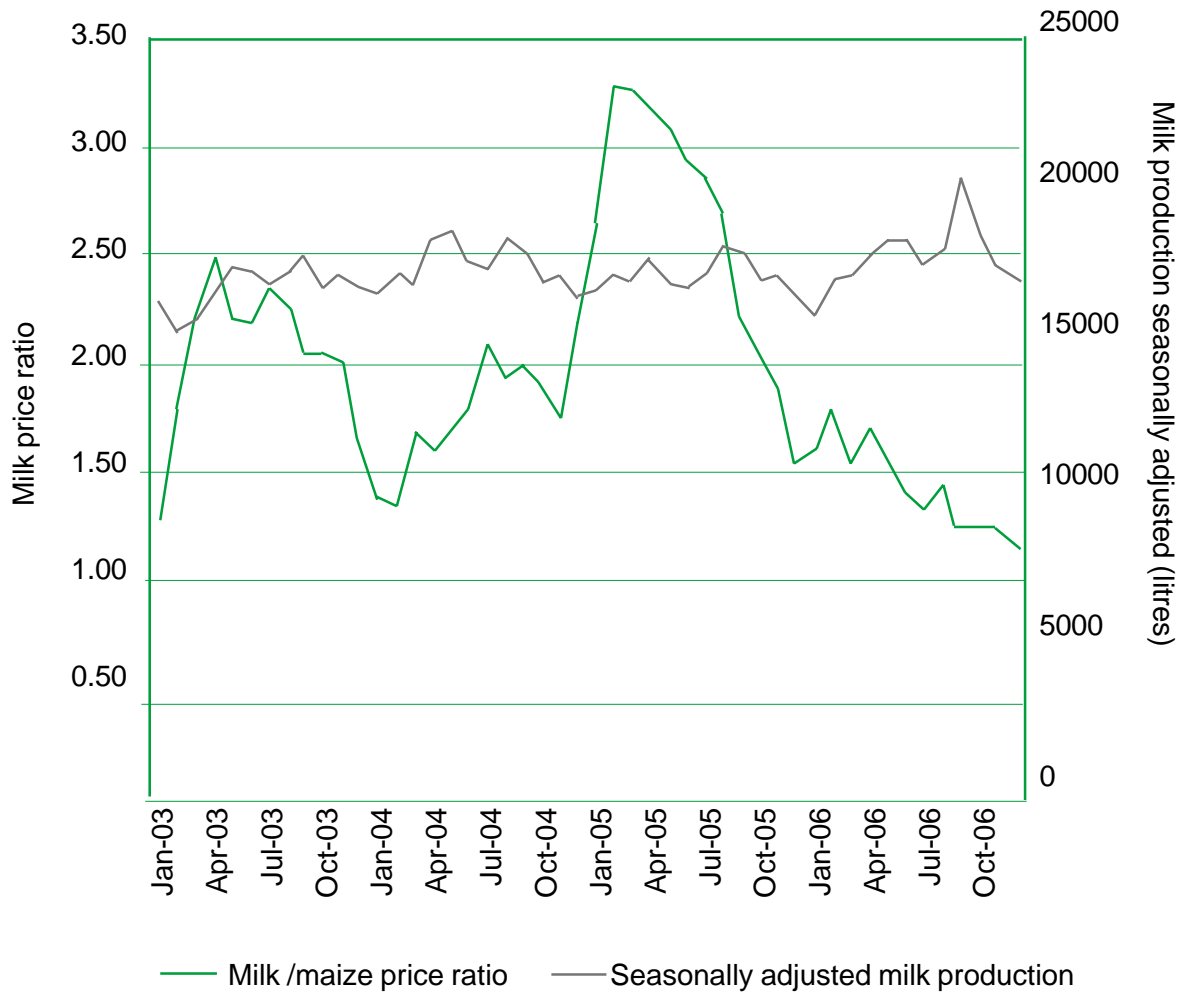
Figure 12: Trends in the milk/maize price ratio and the seasonally adjusted milk production. Source: *MPO, 2007.*

Figure 12 clearly shows that the producer price of milk has not kept up with the average SAFEX yellow maize price. The milk/maize price ratio, depicted in Figure 12, indicates a strong downward trend during 2006. This shows that the price of maize, which is the main feed input for milk production, increased at a faster rate than the increases in the producer price of milk. The ratio averaged 1.44 during 2006, decreasing from a high of 1.77 in February to 1.18 in December. The seasonally adjusted monthly milk production averaged 178 400 million litres in 2006, peaking at 203 000 million litres in September 2006.
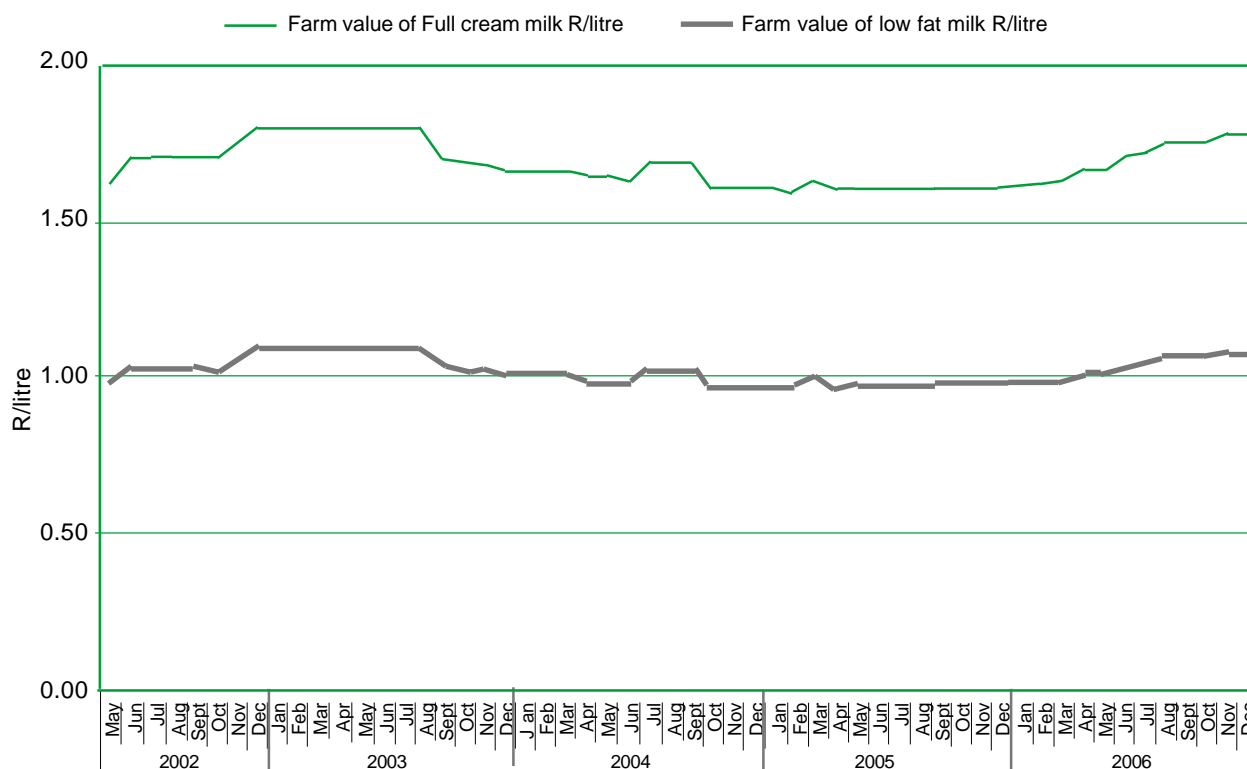
Figure 13: The farm values of full cream and low fat milk, 2002 – 2006.

The raw milk producer price, as recorded by the Milk Producers Organisation of South Africa (MPOSA), averaged R1.89 per litre in 2006 and increased by 10.1% year-on-year from December 2005 to December 2006.

At farm level there exists near perfect competition. Farmers are numerous; largely price takers selling a homogenous product and are subsequently subject to a perpetual cost price squeeze, while on the input and output side farmers are faced with companies operating under oligopolistic competition. This means that farmers are quite bound to the prices that they receive and they can only transmit prices to a very limited extent to either input suppliers or milk buyers. The only recourse that farmers have is to intensify their production process and to improve productivity.

Milk buyers, on the other hand, operate in an oligopolistic market. The industry is still dominated by four large buyers/processors. These dairy companies process approximately 74% to 78% of the total milk delivered to dairies. More recent estimates reveal that between 60% and 70% of the total delivered milk is processed by the four large companies. There are a few rounds of negotiations between milk buyers and producers that precede the formal notification of the buyers' price decision. Milk buyers prefer to negotiate the prices during autumn when milk flow is low. There are a wide variety of products which are processed from milk. These products have different demands for milk solids and volume. These product specifications are included in the negotiations and vary according to the market segment in which the buyer finds him/herself.

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Farm value of cheddar cheese

The farm value of cheddar cheese increased from its average level of R17.58 per kg in 2005 to a higher average level of R17.99 per kg in 2006. The farm value of cheddar cheese peaked at R18.70 per kg in July, but then decreased in December to end the year on R17.60 per kg in December 2006. It is clear from the figure that the farm value of cheese has been following an upward trend from 2004 onwards and that this trend can be expected to continue if the producer prices of milk continue to increase. An increase in the farm value of cheddar cheese means that farmers were better off in 2006 than what they were in 2004. In other words, the raw product equivalent of the final product increased by approximately R2 per kg since 2004.
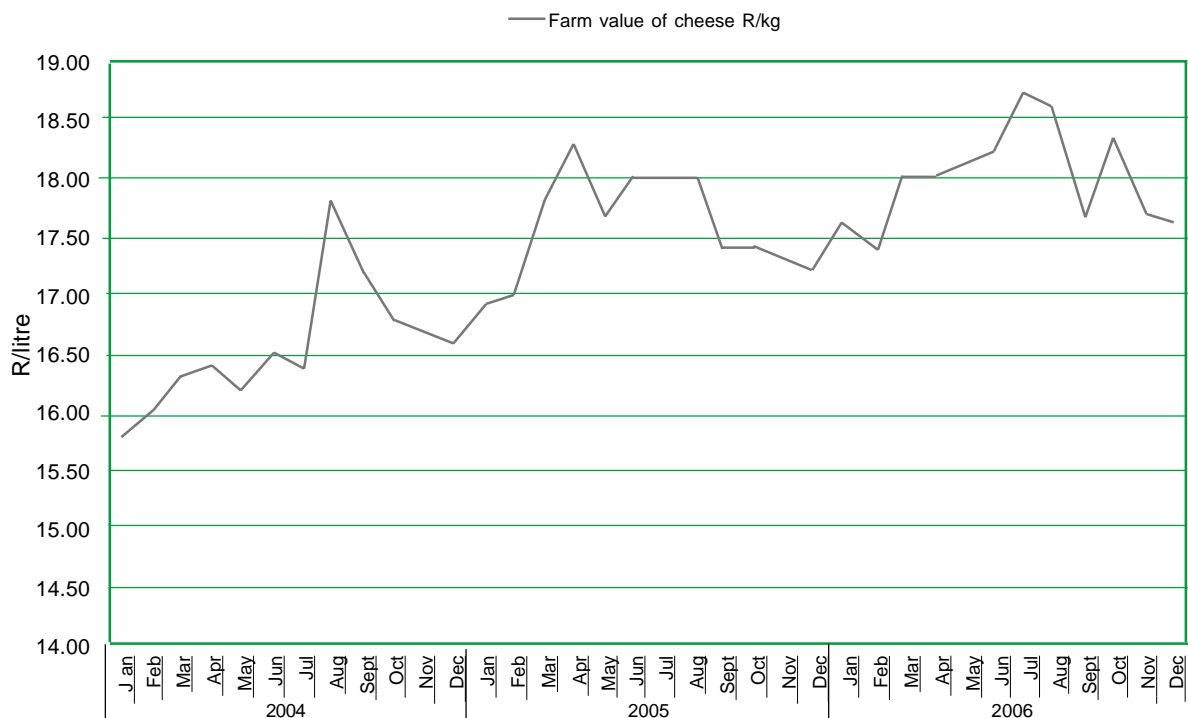
Figure 14: The farm value of cheddar cheese, 2004 – 2006.

Farm value of butter

The farm value of butter also followed an increasing trend, but at a slightly slower rate than in the case of cheddar cheese. The farm value of butter is somewhat higher than in the case of cheese, as more milk is required to produce 1kg of butter. The farm value of butter reached a maximum of R24.97 per kg in July 2006, with a previous high of this nature having last occurred in June 2003. Thereafter, the farm value was driven down and ended the year below the R24 per kg mark, on R23.50 per kg.
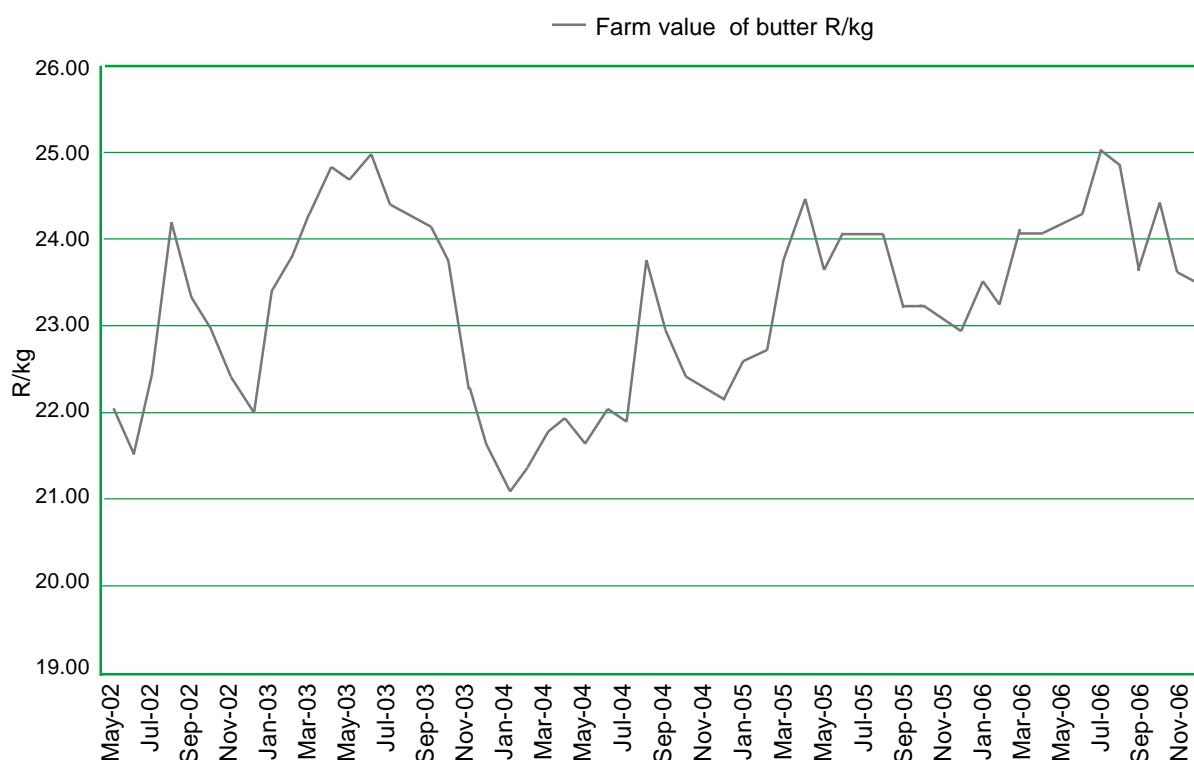
Figure 15: The farm value of butter, 2002 – 2006.

The farm values of both cheddar cheese and butter have been calculated from actual prices that farmers receive for their milk purchased for processing. These prices differ somewhat from the fresh milk producer prices depending on the local supply and demand situation in a specific production region, as well as the outcomes of the negotiations between farmers and processors. When comparing the processed dairy products' prices with those of fresh milk products of the MPO, it becomes clear that the price of the processed products in a specific area is lower than the national average producer price of fresh milk.

2.2.2 Farm value of poultry – fresh and frozen

The farm value of chicken continued its upward trend in 2006. The price series that has been used to calculate the farm value is less erratic as it represents an overall average and not a specific series as was previously the case. The 2006 series is based on of information gathered from popular magazines.
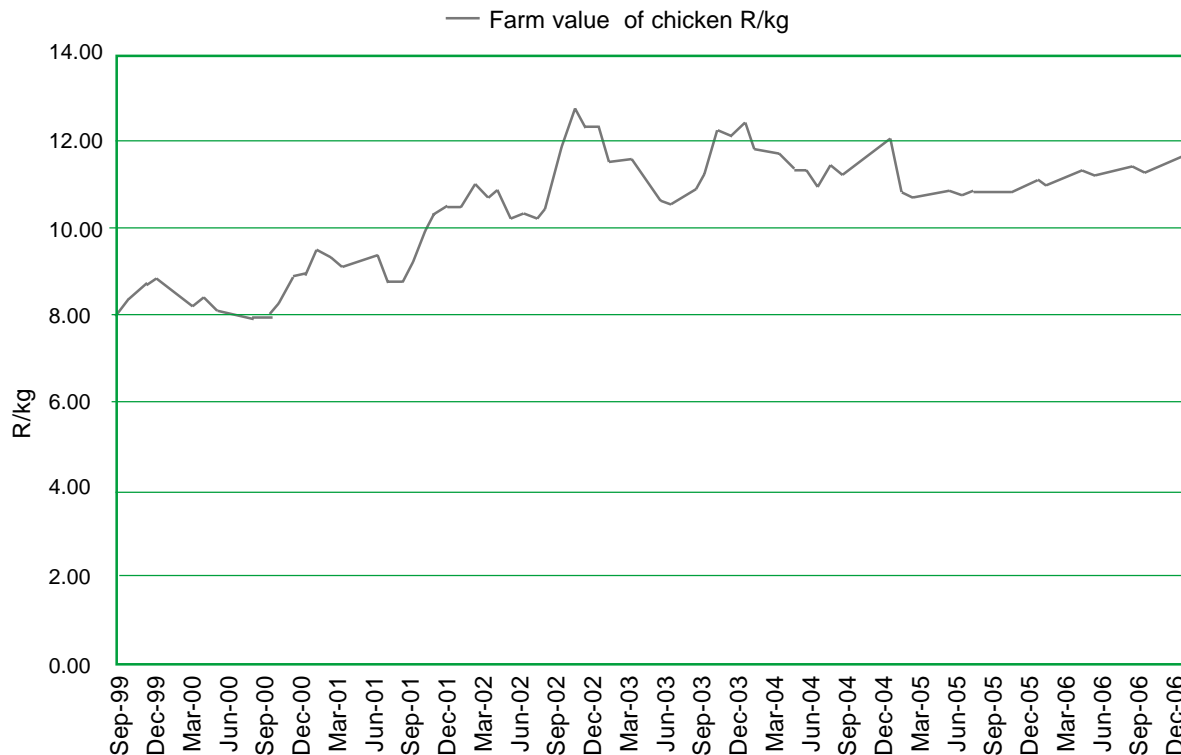
Figure 16: Farm value of chicken: September 1999 – December 2006.

2.2.3 Farm value – pork

The section concerning the farm value of pork can be found in Section 4 of this Report, together with the analysis of the pork supply chain and the farm-to-retail price spread.

2.2.4 Farm value – beef and beef cuts

The beef products in this Report are also different from those previously reported. The reason for this is that the price collection of the cuts previously reported has been discontinued and, as a result, a new set of cuts had to be considered and their farm values analysed. The products that are reviewed in the following section include brisket, beef mince and stewing beef. As previously reported, the methodology adapted to the South African context is to be applied to the products and, as a result, each of the above mentioned products receives a standard weight as a percentage of the entire carcass. Of the entire 220kg carcass, brisket has a weight of 17.67kg, beef mince 29.26kg and stewing beef 23.09kg (SAMIC, 2007; USDA, 1992). These weights are used to rebuild a portion of the carcass at retail level and provide an approximation of the price spread.

The figure below represents the trends of both the adjusted farm value and the adjusted retail value of the selected cuts for 2006. Both values seem to follow a relatively similar upward trend. The data does, however, reveal a slight increase in the retail value of the selected products during the first and second quarter of 2006. Thereafter, the values seem to follow a rather similar trend.
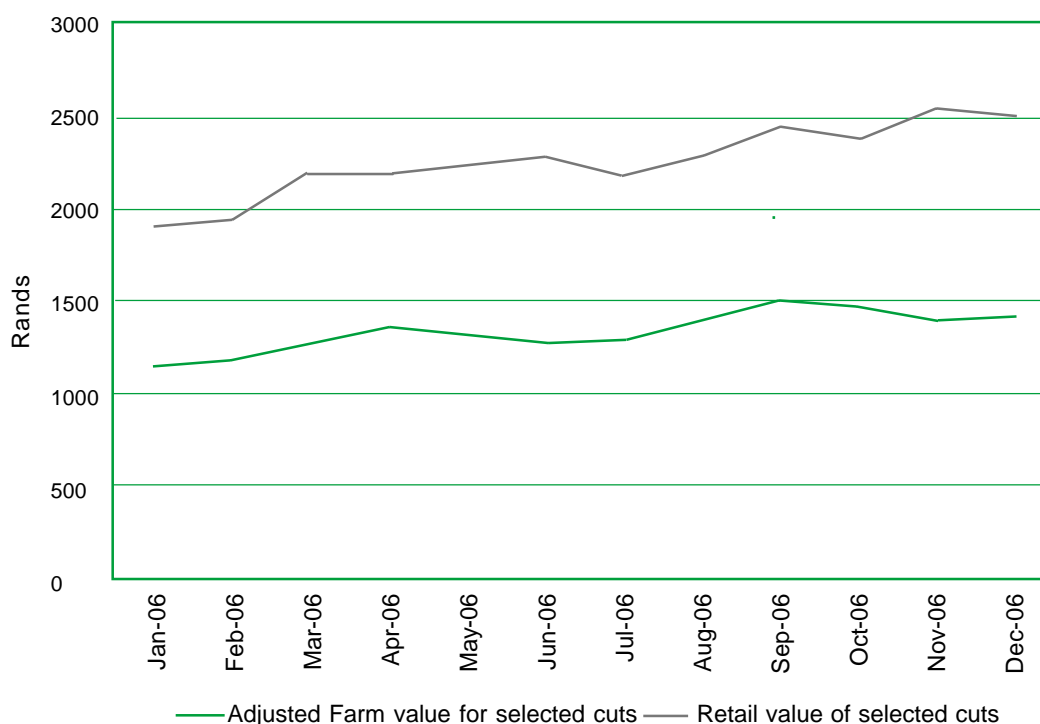
Figure 17:   Farm value of selected beef cuts (mince, stewing beef and brisket), 2006.

The calculation of the farm value of certain beef products has a few more aspects that need to be considered. This can be demonstrated by means of an example. According to the example provided by the South African Meat Industry Company (SAMIC) retailers could work on a margin factor of around 30% to estimate the price of different cuts at retail level. Note the margin at wholesale level may range between 7 and 30% depending on the nature of the sale (e.g. offal included or excluded, nature of further processing such as fat removal) and whether carcasses are sourced via preferred supplier relationships. These margin factors would include all the costs and profits within the supply chain. The costs typically include factors such as rental, wages, water, electricity, transport and wastes and losses (but exclude VAT in this example). In Table 14 below it is assumed that the retailer buys the carcass at R26/kg from the wholesaler (thus a margin of 30% between the producer price and the price at which the retailer buys includes, amongst others, distribution costs, further processing). This gives a R6/kg margin that must cover the costs mentioned and to make a profit at wholesale level. The retailer will use this price (R26/kg) as the base from which he/she will add on average 22 to 30% margin to cover costs and make a profit.

Table 14: Gross margin calculation example for beef excluding VAT.

Price description	Actual price	Total value (220 kg)
Carcass price	R20 per kg	R 4400
Wholesale price	R 26 per kg	R 5720
Margin (30%)	R 6 per kg	R 1320

In this regard it is important to take note that a fairly large percentage of the carcass attracts a per kilogram price well below the price at which the retailer buys the carcass. For example, 7.7%, or approximately 15kg, of the carcass is made up of bones, while the retail price for bones is approximately R4kg. What this means is that the retailer will lose R16/kg for 7.7% of the carcass as he/she purchased the carcass at a per kilogram price of R20 (note that bones together with trimmings, fat and kidneys constitute approximately 18.5% of a carcass). The retailer will try and make up for this loss by selling other cuts, especially the luxury cuts, such as fillet, rump and sirloin at a price higher than the average price of the carcass; that is why one finds prices for, for example, rump to be in the region of R60 to R70/kg currently. Depending on the season and the beef cycle, the retailer might aim for a margin of 30%, or one as small as 22%. Retailers say that their net margin varies anywhere between 1% and 2%.

2.2.5 Farm value – maize meal (super and special)

The farm value of super maize meal increased during 2006 to reach its maximum value of R2030.63 per ton in November 2006. During December, the year-on-year increase in the farm value was 127.03%. The trend in the producer prices, partly due to unfavourable weather conditions, is estimated to continue upwards in 2007 and, therefore, it can be expected that the farm value for 2007 will reach highs previously seen in 2002/03. The farm value of maize meal was calculated by using a four month lagged nearby contract SAFEX price and national average storage and transportation costs for maize grain.

Table 15: Farm value of super maize meal, monthly 2002 – 2006.

Month	2002 R/ton maize meal	2003 R/ton maize meal	2004 R/ton maize meal	2005 R/ton maize meal	2006 R/ton maize meal
January	1470.14	2660.08	1280.00	1285.10	1061.52
February	1557.92	2648.76	1252.80	1244.64	1155.50
March	1585.52	2722.96	1295.76	1375.20	1278.84
April	2340.17	2629.47	1588.80	1096.77	1576.24
May	2631.23	2289.38	1922.37	993.17	1539.81
June	2833.36	1594.64	1962.72	674.08	1385.04
July	3076.62	1268.80	1583.47	670.16	1599.81
August	2945.84	1107.65	1616.98	691.12	1561.35
September	2706.91	1243.81	1518.78	717.10	1654.47
October	2672.17	1257.60	1422.08	750.62	1887.78
November	2580.94	1166.40	1248.94	786.85	2030.63
December	2645.87	1212.80	1341.02	849.89	1929.53

The farm value of special maize meal followed a trend similar to that of super maize meal. The farm value of special maize meal experienced a year-on-year increase of 127.04%, as calculated in December 2006. The farm value of special maize meal also reached its peak in November 2006 at a value of R1612.63 per ton.

Table 16: Farm value of special maize meal, monthly 2002 – 2006.

Month	2002 R/ton maize meal	2003 R/ton maize meal	2004 R/ton maize meal	2005 R/ton maize meal	2006 R/ton maize meal
January	1167.52	2112.52	1010.17	1020.57	843.01
February	1237.22	2103.53	988.56	988.44	917.65
March	1513.28	2146.12	1022.68	1092.12	1015.59
April	1858.46	2088.21	1255.40	871.00	1251.78
May	2089.61	1818.12	1520.30	788.73	1222.85
June	2250.13	1266.39	1552.35	535.32	1099.94
July	2443.32	1008.77	1251.17	532.21	1270.50
August	2339.45	879.89	1277.78	548.86	1239.95
September	2149.71	987.78	1199.80	569.49	1313.91
October	2122.12	998.73	1123.00	596.11	1499.19
November	2049.67	926.30	985.50	624.88	1612.63
December	2101.23	963.15	1058.63	674.94	1532.35

2.2.6 Farm value - white and brown bread

The farm value of white bread increased to R2250.67 per ton in September 2006. The value declined suddenly thereafter as the farm gate prices dipped. It is important to remember that the SAFEX prices and the calculated farm gate prices are subject to a four months time lag. The farm value rose to above the R2000 per ton level in November and December. A similar assumption was made to that which is present in the calculation of the maize farm value. A four month lagged SAFEX producer price was used together with the national average transportation and storage costs for wheat.

Table 17: Farm value of white bread, monthly 2002 – 2006.

Month	2002 R/ton	2003 R/ton	2004 R/ton	2005 R/ton	2006 R/ton
January	1616.27	2515.98	2072.37	1515.39	1603.70
February	1719.79	2507.89	2114.47	1543.29	1585.33
March	1977.21	2231.70	2086.84	1537.23	1609.90
April	2380.12	2049.24	2098.68	1626.97	1718.88
May	2319.98	1905.50	2088.16	1715.85	1840.73
June	2221.64	1657.76	1868.42	1893.80	2039.78
July	2217.04	1718.33	1734.21	1905.14	2106.75
August	2298.75	1703.11	1735.71	1757.00	2129.01
September	2348.92	1671.67	1694.99	1848.57	2250.66
October	2285.32	1745.19	1672.22	1700.38	1685.83
November	2350.97	1843.06	1603.11	1748.44	2075.69
December	2435.53	2053.62	1501.25	1672.70	2113.28

The farm value of brown bread remained relatively constant throughout 2006, only increasing slightly towards the middle of the year. During September the value increased to a level above the R2000 per ton mark. Thereafter, it declined slightly, ending the year on R1982.82 per ton. It was the first time in 41 months that the farm value reached R2000 per ton.

Table 18: Farm value of brown bread, monthly 2002 – 2006.

Month	2002 R/ton	2003 R/ton	2004 R/ton	2005 R/ton	2006 R/ton
January	1516.50	2036.67	1944.44	1421.85	1504.70
February	1613.63	2353.08	1983.95	1448.02	1487.47
March	1855.16	2093.94	1958.02	1442.34	1510.52
April	2233.20	1922.74	1969.14	1526.54	1612.78
May	2176.77	1787.87	1959.26	1609.94	1727.10
June	2084.51	1555.43	1753.09	1776.90	1913.87
July	2080.18	1612.26	1627.16	1787.54	1976.70
August	2156.85	1597.97	1628.57	1648.54	1997.59
September	2203.93	1568.48	1590.36	1734.46	2111.73
October	2144.25	1637.47	1569.00	1595.42	1581.76
November	2205.85	1729.29	1504.15	1640.52	1947.56
December	2285.19	1926.85	1408.58	1569.44	1982.83

2.2.7 Farm value - sunflower oil

The farm value of sunflower oil steadily increased throughout the year and reached its peak in November 2006 at R5963.75 per ton. The farm value of sunflower oil averaged R5153.88 per ton in 2006, up R415.06 per ton from the 2005 average. The farm value is, however, R250.75 per ton below the 2004 average. The reason for this increase in sunflower farm value is that the local sunflower producer price increased on the back of a weaker Rand and a stronger sunflower oil world price during August 2006, after which the local price moved sideways as the positive effect of a higher sunflower world oil price was cancelled out by a strengthening exchange rate and a weakening sunflower oil cake world price (Van Zyl, 2006).

Table 19: Farm value of sunflower oil, monthly 2002 – 2006.

Month	2002 R/ton	2003 R/ton	2004 R/ton	2005 R/ton	2006 R/ton
January	5825.20	6574.36	4828.21	5105.49	4865.08
February	6093.36	6235.16	5582.31	5255.59	4608.85
March	6919.66	5867.21	6507.82	4589.26	4071.80
April	7121.68	5596.62	6999.77	4424.49	4148.72
May	6175.64	4733.33	6335.26	4728.21	4681.38
June	5867.34	4384.62	5641.95	3795.93	5258.16
July	5691.70	4041.03	5120.95	4146.86	5505.00
August	5590.21	3838.46	5200.85	4580.72	5284.62
September	6045.48	4300.00	4769.10	4815.38	5656.17
October	6227.42	4153.85	4241.15	4845.64	5895.80
November	6731.03	4058.97	4652.38	5310.81	5963.75
December	6659.87	4394.87	4975.85	5267.52	5907.29

2.2.8 Farm value - vegetables

The fresh vegetable and fruit prices were obtained from the fresh produce markets in order to establish a representative national average price for farmers who deliver their products to the markets. The prices were weighted according to the three biggest fresh produce markets in South Africa. The markets at which more commodities were sold within a specific year had a stronger representation in the final price compared to the other markets. As the products that are represented at retail level are fresh products, the assumption has been made that the produce does not lose any physical mass in the process and, therefore, the farm value is equal to the fresh produce market price.
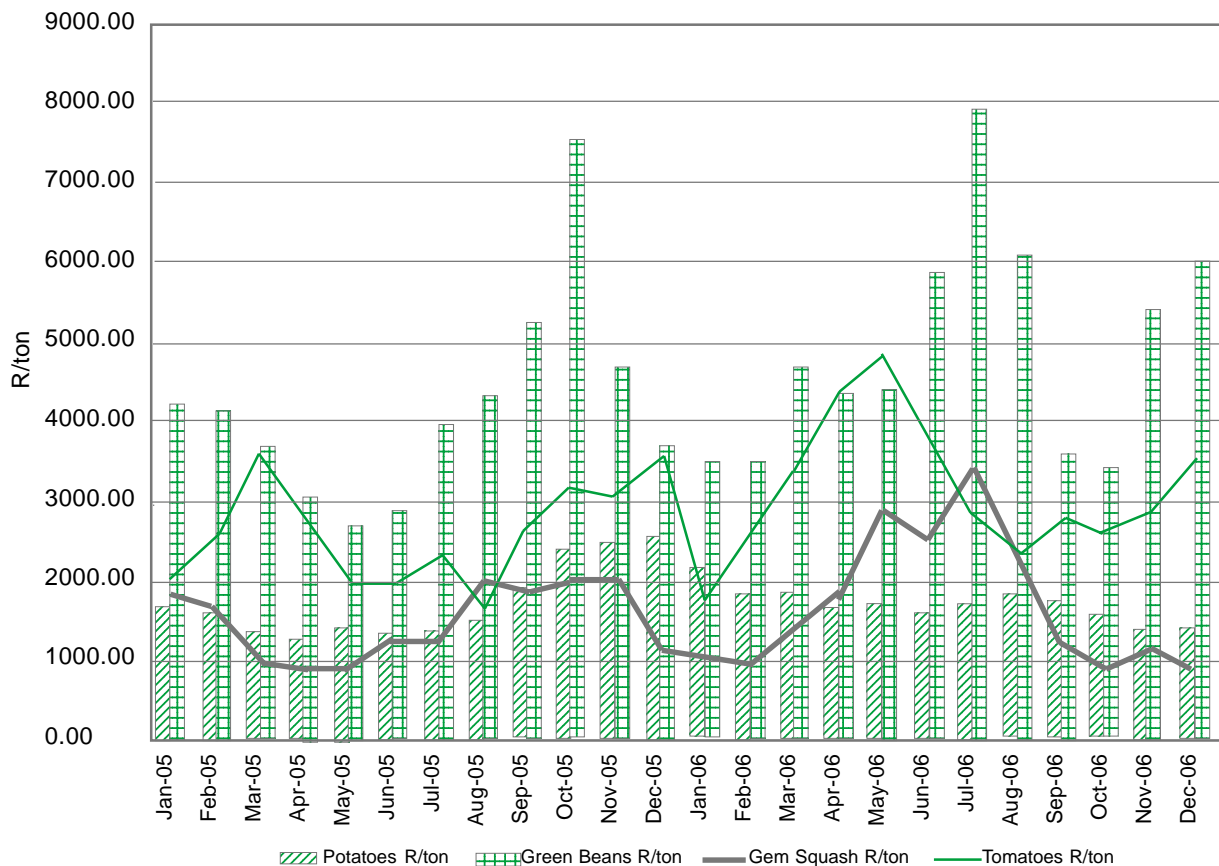
Figure 18: The fresh produce market prices of potatoes, green beans, gem squashes and tomatoes.
Source: *Calculations from DoA data, 2006.*

The fresh market prices of gem squashes and potatoes decreased slightly during 2006. The price of gem squashes dipped below the R1000 per ton level from its previous high of over R3000 per ton in July 2006. The price of potatoes remained well below R3000 per ton mark during 2006, peaking at around R2155 per ton in January 2006. The fall in potato prices towards the end of the year was due to excellent weather conditions and extremely good harvests in the production areas, especially in Limpopo, which resulted in a large harvest and, as a result, the prices were lower than in previous seasons. The producer prices of green beans and tomatoes increased towards the end of 2006, with green beans ending the year on R6000 per ton and tomatoes on R3500 per ton. Most of the variations in the prices were caused by external factors affecting the supply and demand chain within the industry.

Cabbages and pumpkins experienced similar price declines towards the end of 2006, while the producer prices of carrots and onions increased. The annual weighted average producer price for cabbages was R916.11 per ton and the price for pumpkins was R1099.51 per ton. The prices of carrots and onions were R1722.65 and R1446.28 per ton, respectively.
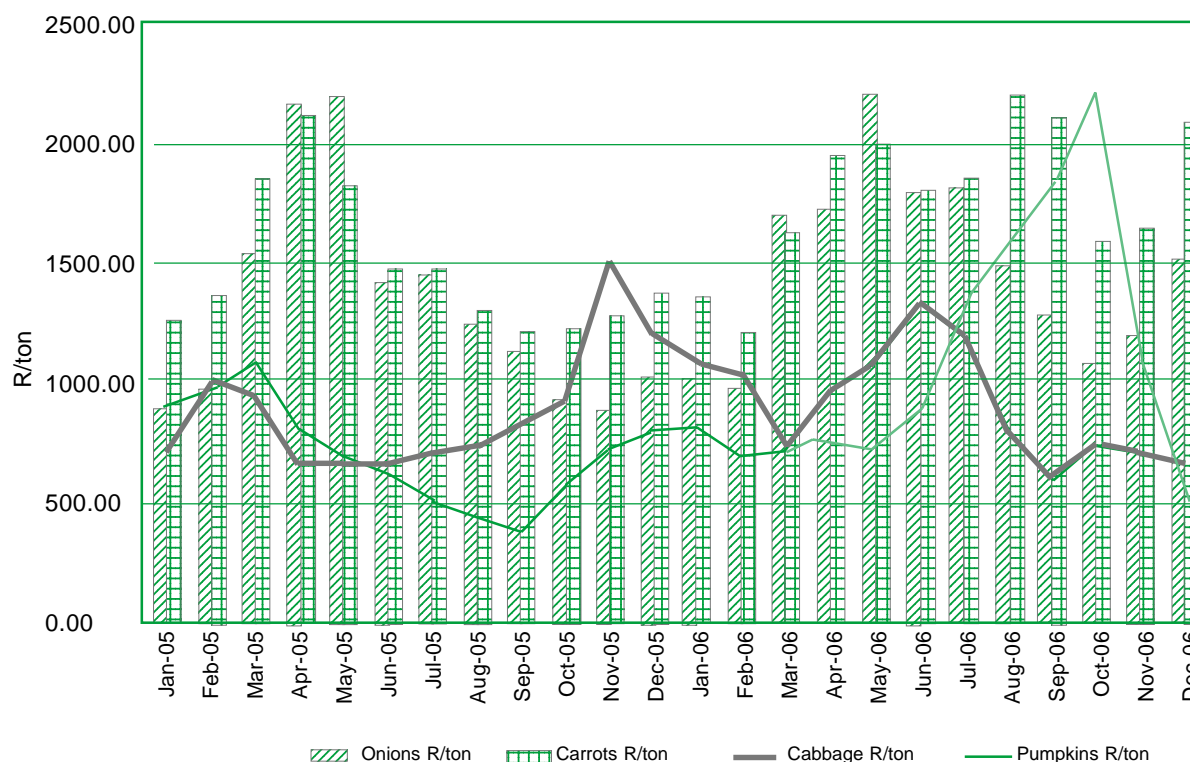
Figure 19: Fresh produce market prices of onions, carrots, cabbages and pumpkins.

Source: *Calculations done from DoA data, 2006.*

2.2.9 Farm value - fruits

The fresh produce market prices of apples, oranges and bananas are depicted in the figure below. The price of apples peaked in January 2006 at around R4565 per ton and then decreased during the rest of the year to end the year on R3199 per ton. The producer price of bananas peaked in July 2006 at a value of R3310 per ton. This price declined slightly and in December bananas were selling at R2859.82 per ton. Oranges follow a very cyclical pattern. From the graph it becomes clear that the price of oranges peaks when they are not being harvested, namely in December / January. The price of oranges reaches a low point at harvest time, namely in June / July. In January the producer price of oranges peaked at R2622 per ton. The producer price then declined as more of the products came into the market and then dropped to R819.9 per ton. The average price of oranges did not change dramatically from the average price of the previous year.
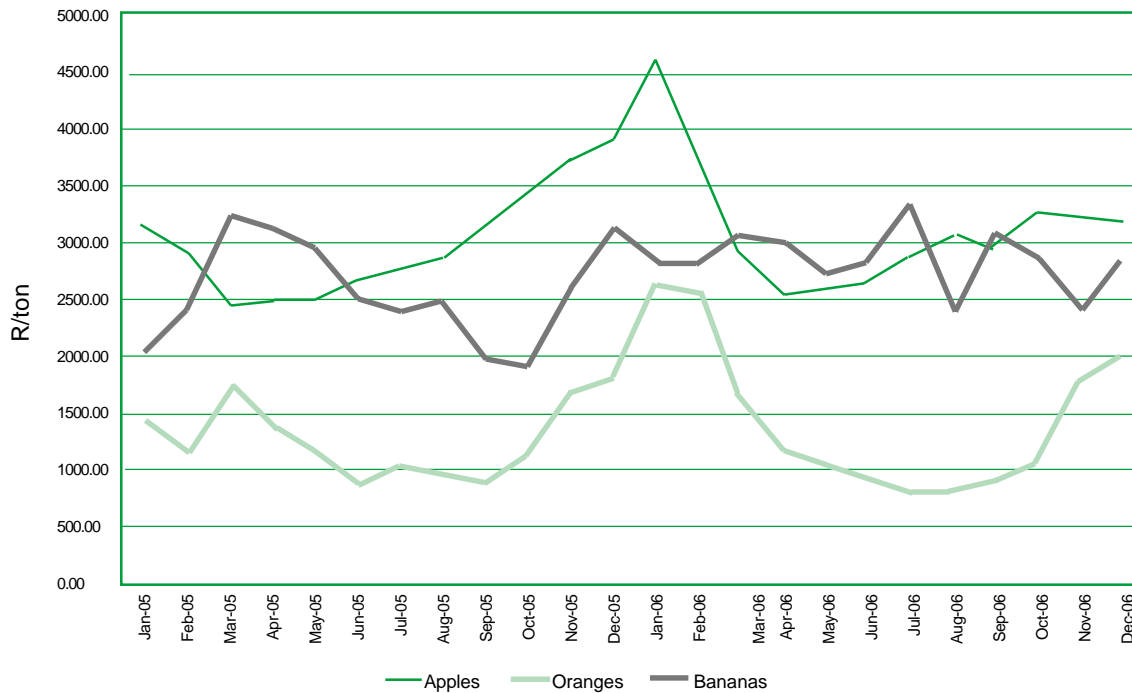
Figure 20: The fresh produce market prices of apples, oranges and bananas.

Source: *Calculated from DoA data, 2006.*

3. Farm-to-retail price spread and farm value share of products contained in the South African food basket

The farm-to-retail price spread is the difference between the farm value and the retail price. It represents the payments for all assembling, processing, transporting and retailing charges added to the value of the products after they leave the farm. Price spreads are sometimes confused with marketing margins. Marketing margins represent the difference between the sales of a given firm and the cost of goods sold. There is often a time lag between the receipts and the final sale of merchandise involved in the calculation of this figure. Spreads, on the other hand, represent the difference between the retail and farm prices of a specific product at a given point in time (USDA, 1997).

The farm value share is computed by dividing the farm value by the retail value, and is reported as a percentage. Over time, the share reflects relative changes in expenditures for farm products, food marketing services and retail food products.

3.1 Dairy products

The farm-to-retail price spread of dairy products differs among products. As discussed in the farm value section of this Report, the extraction factor differs among products depending on the degree of processing and, as a result, the farm value will differ from product to product.

The farm value share of full cream milk increased slightly between January 2005 and December 2006. This increase is due to the slight increase in the producer prices of raw milk. A similar trend is evident when analysing the farm value. The farm value of fresh full cream milk increased to 39.31% in December 2006, after being stagnant at 35% from February 2005 up until July 2006. The farm-to-retail price spread increased slightly at first, but then declined sharply as the increase in producer prices narrowed the spread. In December 2006, the price spread of full cream milk reached R2.75 per litre, its lowest level since December 2004. The farm-to-retail price spread in 2006 averaged R2.98 per litre - equal to the R2.98 average of 2005.
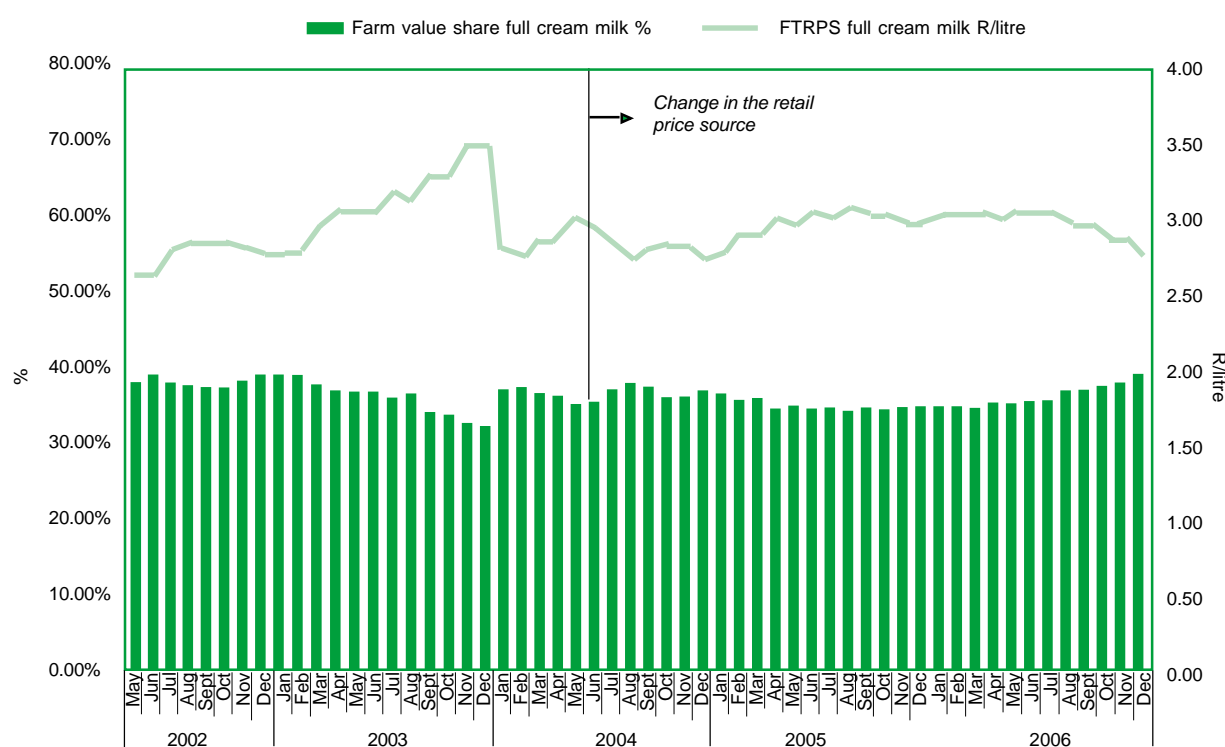
Figure 21: Farm-to-retail price spread and farm value share of full cream milk, 2002 – 2006.
Source: *Calculations done from MPO data, 2002 to 2007.*

The farm value share of low fat milk is lower than that of full cream milk, as less of the original product is contained within the final product. In other words, more of the fat is removed than in the case of full cream milk. The farm value share of low fat milk in 2006

averaged 21.12%, which is 1% higher than the farm value share of 2005 which averaged 20.15%. The farm-to-retail price spread of low fat milk declined slightly towards the end of 2006 after being stagnant at around R3.86 per litre from mid-2005 until mid-2006. In 2006, the farm-to-retail price spread averaged R3.85 per litre, decreasing to R3.69 per litre in December 2006.
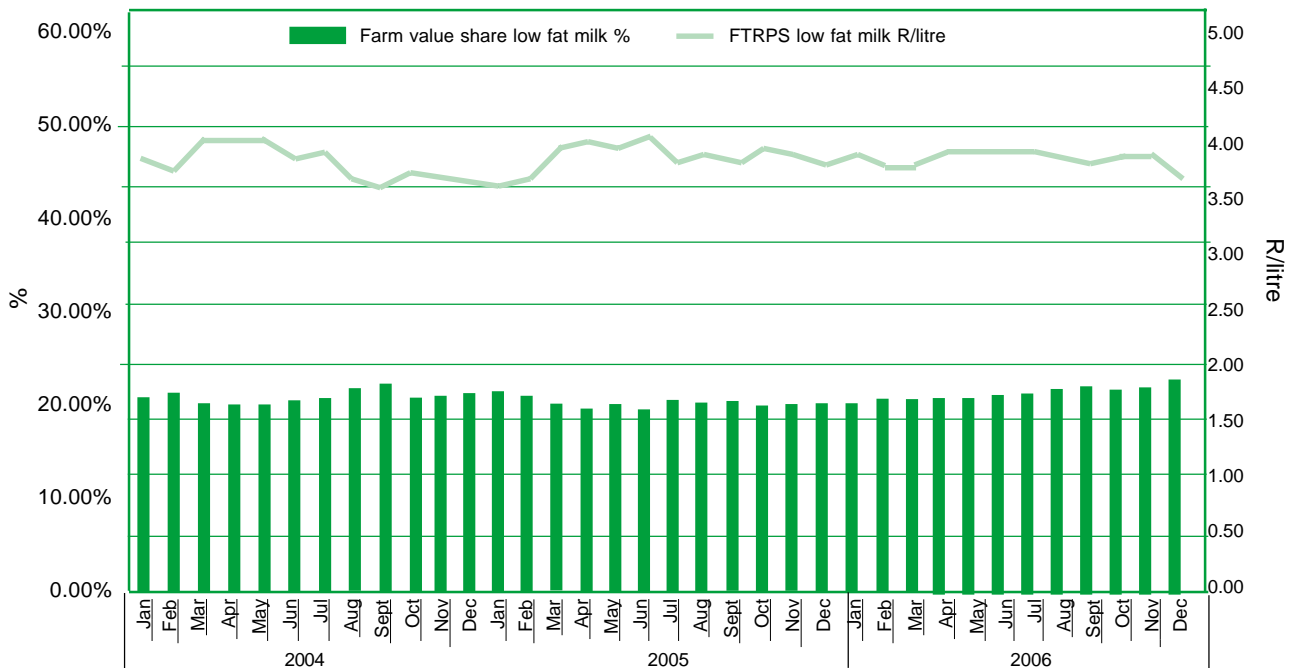
Figure 22: Farm-to-retail price spread and farm value share of low fat milk, 2002 – 2006.
Source: *Calculations done from MPO data, 2004 to 2007.*

The farm value share of cheese increased slightly in 2006 to average 48.55%. This represents a slight increase from the 2005 average of 47.38%. The farm value share of cheddar cheese was highest in August, at 53.60%, and lowest in April, at 40.01%.

The farm-to-retail price spread of cheddar cheese decreased as the farm value share increased. In 2006, the farm-to-retail price spread of cheese average R19.42 per kg, reaching a high of R26.99 per kg in April. The spread narrowed towards the end of the year, closing at R16.19 per kg in December 2006.

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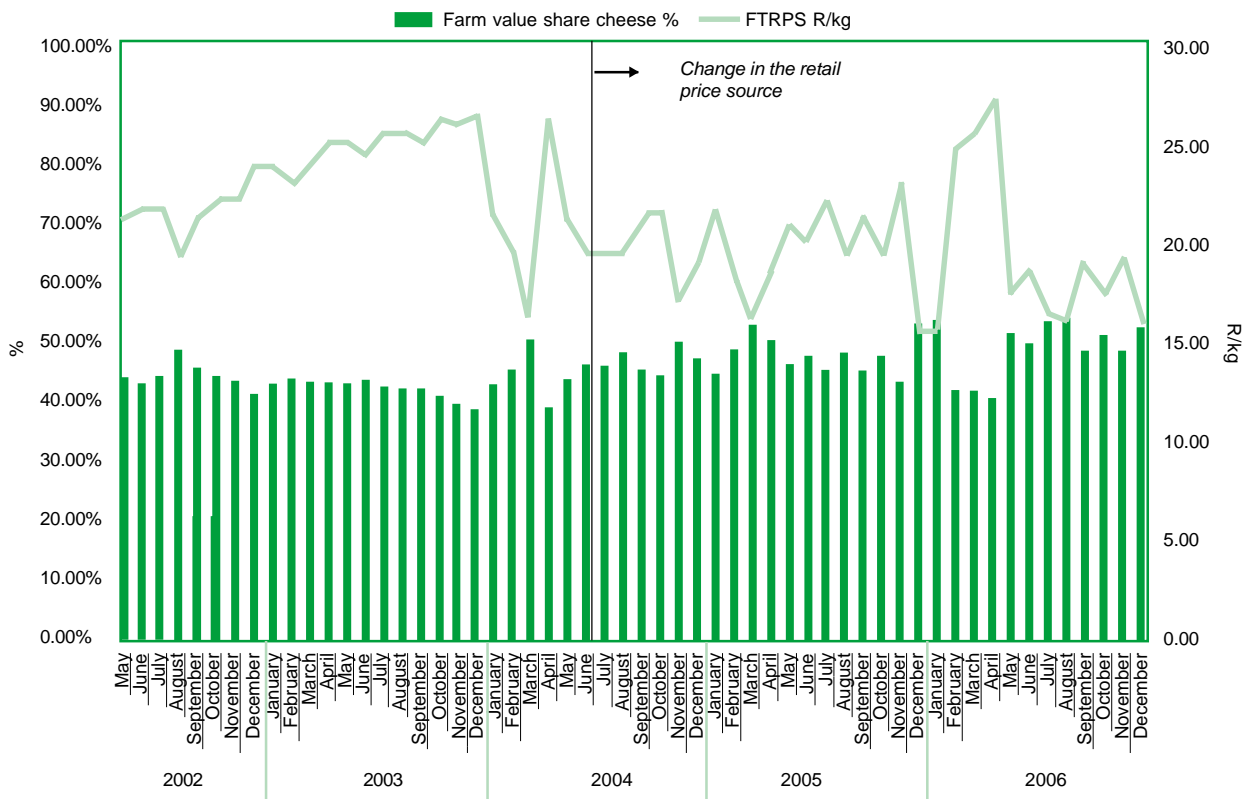
Figure 23: Farm-to-retail price spread and farm value share of cheddar cheese, 2002 – 2006.

Source: *Calculations done based on ACNielsen data for 2005 to 2007.*

The farm value share of butter averaged 76.64% in 2006. The farm value share of butter increased to 82.04% in July 2006 and then declined again towards the end of the year. The December 2006 farm value share was 74.95%.

Figure 24: Farm value share and farm-to-retail price spread of butter 2002-2006.

Source: *Calculations done based on ACNielsen data for 2004 to 2007.*

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The farm-to-retail price spread of butter declined during the first half of 2006, but then increased after July. The farm-to-retail price spread reached it lowest value in July at R5.47 per kg. The share increased thereafter to reach R7.85 per kg in December 2006.

3.2 Poultry

The farm-to-retail price spread of fresh and frozen whole chicken increased dramatically towards the end of 2006. Our estimates indicate that the farm-to-retail price spread of frozen chicken increased to as much as R9.56 per kg in December 2006, and that of fresh chicken increased to a value of R8.16 per kg in December 2006. This widening of the spread was largely caused by a slight increase in the farm value and an even greater increase in the retail prices of these products towards the end of the year. The increase in the retail price was largely driven by a higher maize price and an increase in demand. A strengthening in the international poultry price due to avian flu related export restrictions in some countries, as well as an increase in the world maize price, added to the increase in the local chicken price.
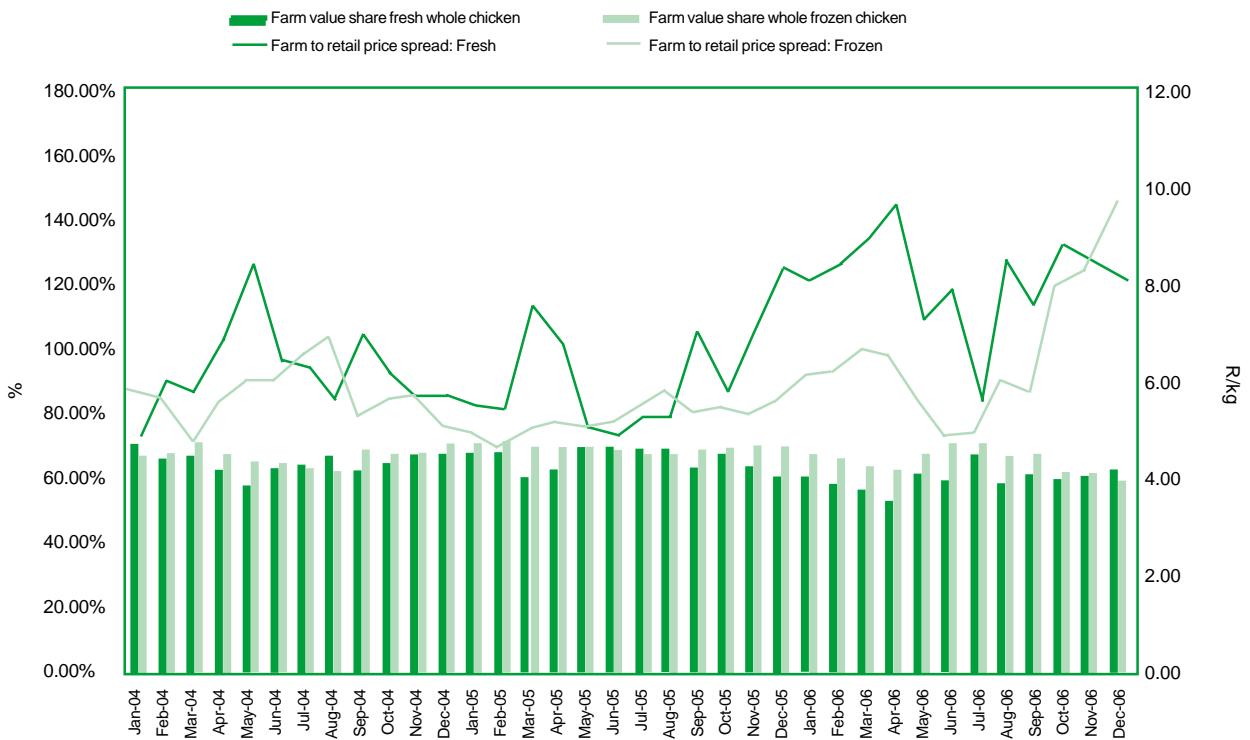
Figure 25: **Farm-to-retail price spread and farm value share of fresh and frozen whole chicken, 2004 – 2006.**
Source: *Calculations done based on ACNielsen data for 2004 to 2007.*

The farm value share of fresh and frozen chicken declined as the ratio between the producer and the retail prices widened. The average farm value share in 2006 of fresh chicken was 60.05%, while that of frozen chicken averaged 65.42%. The farm value share of both commodities reached their maximums in July at 67.38% and 70.77%, respectively.

3.3 Pork products

The farm-to-retail price spread analysis for pork products can be found in Section 4 of this Report.

3.4 Maize meal

The farm-to-retail price spread for super and special maize meal is depicted in the Figure below. In general, the farm-to-retail price spread continued with a static trend, but dipped towards the end of 2006. The farm-to-retail price spread of super maize meal averaged R1657.86 per ton, up by R103 per ton from a year earlier. The farm-to-retail price spread of special maize meal, on the other hand, averaged R1345.37 per ton, down by R15 per ton from the 2005 average.
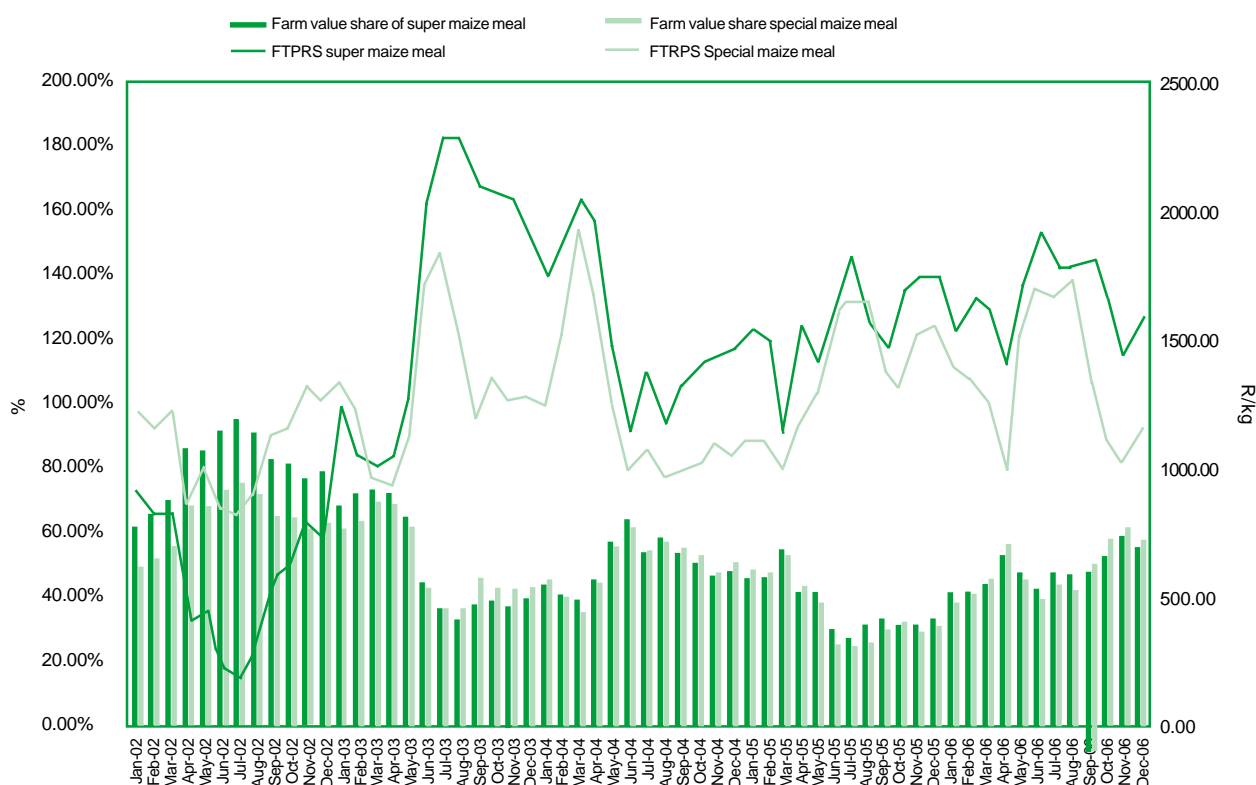
Figure 26: Comparison between the farm-to-retail price spread and farm value share of super and special maize meal.

Source: *Calculations done based on ACNielsen data for 2002 to 2007.*

3.5 Bread - white and brown

The table below indicates the farmers' share in the retail price of both brown and white bread. A set of assumptions based on the opinions of industry experts have been made in order to make this calculation possible. These assumptions are that 2135 loaves of white bread can be produced from one ton of white bread meal and 2275 loaves of brown bread can be produced from one ton of brown bread meal. As more grain is required to produce one ton of white bread meal and relatively less grain is required to produce one ton of brown bread meal, it seems rather logical that the eventual share which farmers will have in the retail price will be higher in the case of white bread than in the case of brown bread.

Table 20: Farmer's share in the retail price of white and brown bread.

Farmer's share	1990/91	1996/97	1998/99	2004	2005	2006
Farmer's share white bread	33.3%	24.2%	17.9%	19.47%	17.36%	18.87%
Farmer's share brown bread	32.4%	23.4%	16.7%	19.43%	17.07%	18.02%

Source: *NAMC, 1999 & 2006.*

In 2006, a farmer had a higher share in the retail price of a standard loaf of white bread compared to that in 2005. The farmers' share is, however, still below its 2004 value of 19.47% for white bread and 19.43% in the case of brown bread. The farmers' share in the bread's retail price has declined over time due to the deregulation process. The largest decrease in this share occurred during the first deregulation period, from 1990/91 to 1996/97. With deregulation, the percentage share of other stakeholders, not depicted in the table, increased. The retailers and the government realised the greatest increase in their share of the white bread price. The retailers' share increased from 3.3% in 1990/91 to 11.8% in 1998/99, while the government's share increased from 0% in 1990/91 to 12.2% in 1998/99. The stakeholders, who gained the most percentage share in the retail price of brown bread after deregulation, were the retailers and the bakers. In the case of brown bread, the retailers' share grew from 3.8% in 1990/91 to 20.3% in 1998/99, while the bakers share increased by 10% from 36.2% in 1990/91 to 46.3% in 1998/99 (NAMC, 1999).

The farm-to-retail price spread indicates a relatively constant trend during 2006, with a slight spike in the spread towards the end of the year. This spike in the trend, taking the four months time lag into account, can be attributed to a relatively low producer price during that time. The farm value share, as represented in Table 16, averaged 18.87% and 18.02% for white and brown bread, respectively. The farm value share of white bread increased well above the farm value share of brown bread, but both followed a slightly increasing trend throughout 2006.
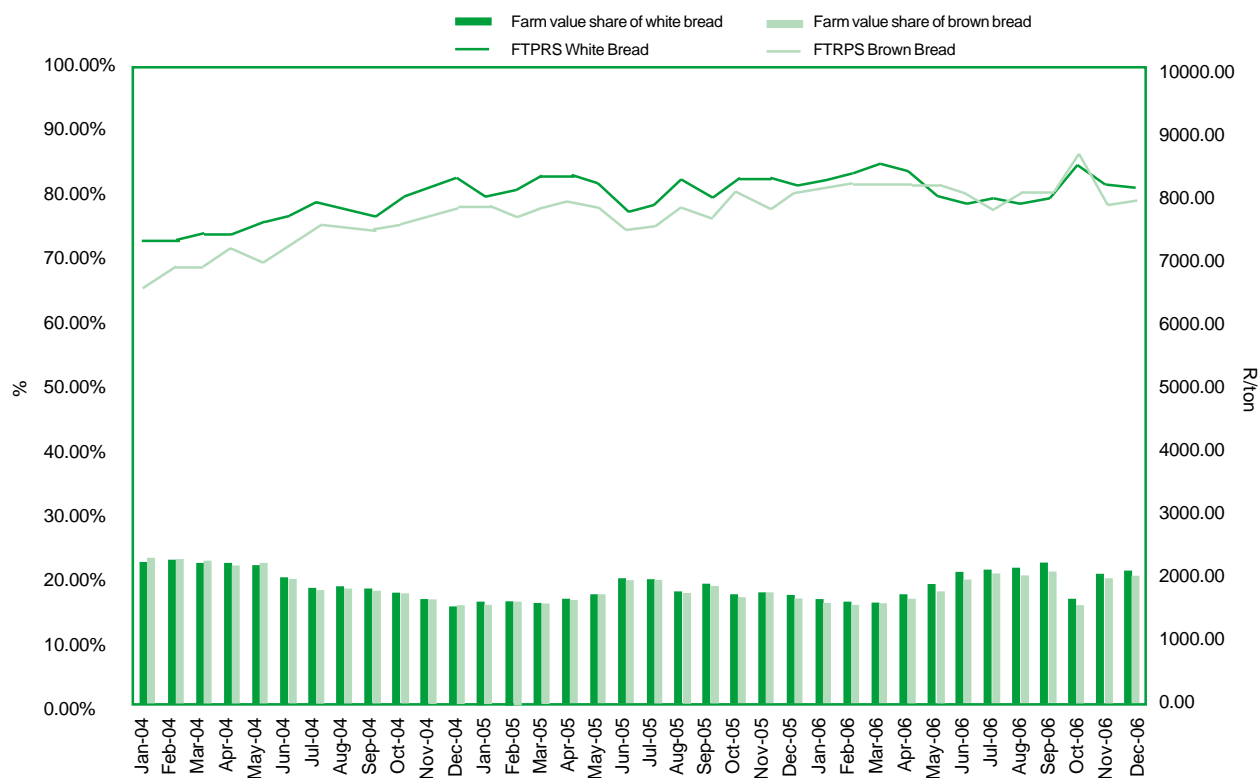
Figure 27: Farm-to-retail price spread and farm value share of white and brown bread, 2004 – 2006.

Source: *Calculations done based on ACNielsen data for 2004 to 2007.*

3.6 Sunflower oil

The farm-to-retail price spread of sunflower oil averaged R3861.33 per ton in 2006, compared to the average of R3614.64 per ton from the previous year. The farm-to-retail price spread also increased slightly towards the end of the year, widening to its greatest level of R4321 per ton since June 2005. The narrowest portion of the spread was experienced in June 2006, when it averaged a mere R3070 per ton.

The farm value share of sunflower oil seems to follow a cyclical trend, varying between a low value of 48.86% in March 2006 and a high value of 63.47% in July 2006. Interestingly enough, it seems as if this farm-to-retail price spread has been varying within this range, or in its close proximity, since the beginning of 2004.
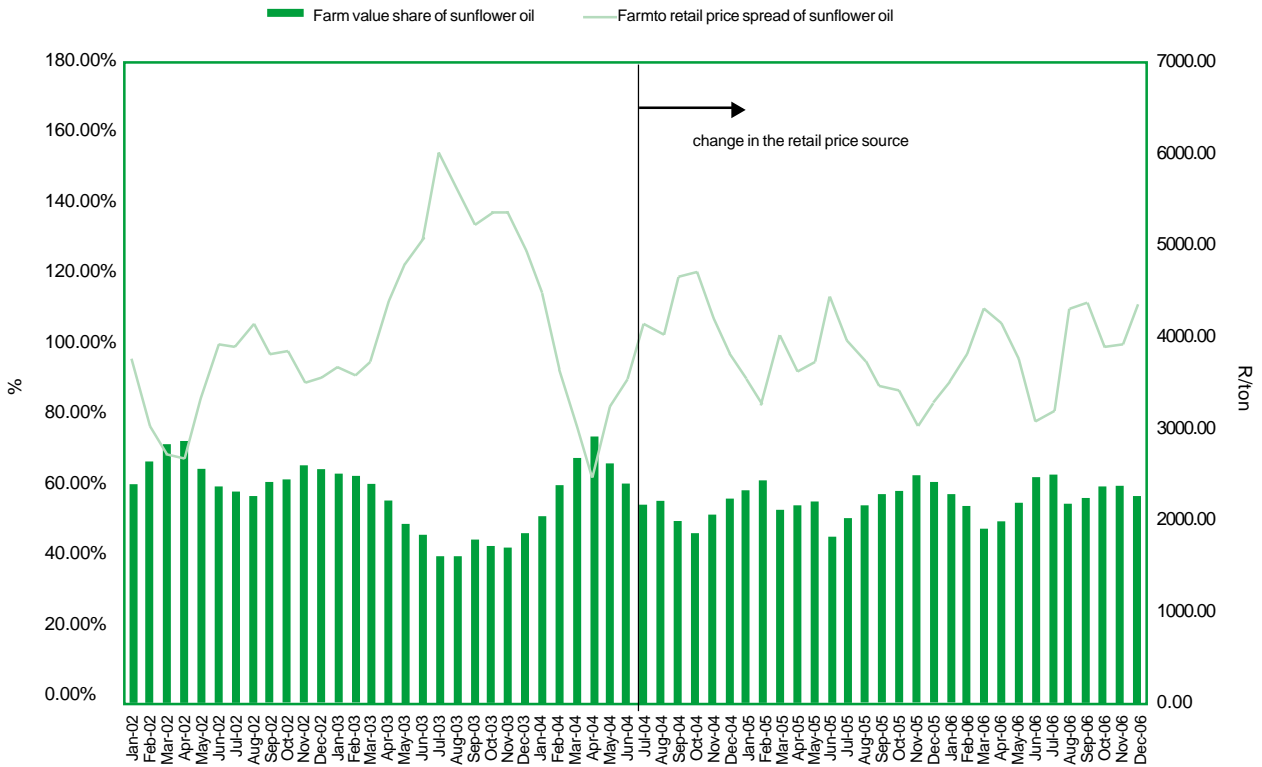
Figure 28: Farm to retail price spread and farm value share of sunflower oil.
Source: *Calculations done based on ACNielsen data.*

3.7 Beef

The farm-to-retail price spread and the farm value share of the selected beef products is represented in the figure below. The blue columns represent the products' farm value share, while the orange line depicts the products' farm-to-retail price spread. During 2006, the farm-to-retail price spread of the selected group of products increased, indicating that the difference between the farm and the retail value widened. The farm value of the selected cuts increased due to higher abattoir prices, increasing from around R16 per kg in January to R20 per kg in December 2006. The increase in the retail value, driven by the increases in the retail prices of the various cuts, was extensive. The retail prices of beef mince, brisket and stewing beef increased by 20.7%, 28% and 24.9%, respectively, from January 2006 to December 2006. This constitutes an average increase of 24.5% in retail prices compared to an increase of 20% at abattoir level. The increase in the maize price was cited as the main reason for the increase in meat prices. As a result of this increase, the farmers' share in the retail product declined. The farm-to-retail price spread averaged R1365 per ton, while the farm value share in 2004 averaged 40%.
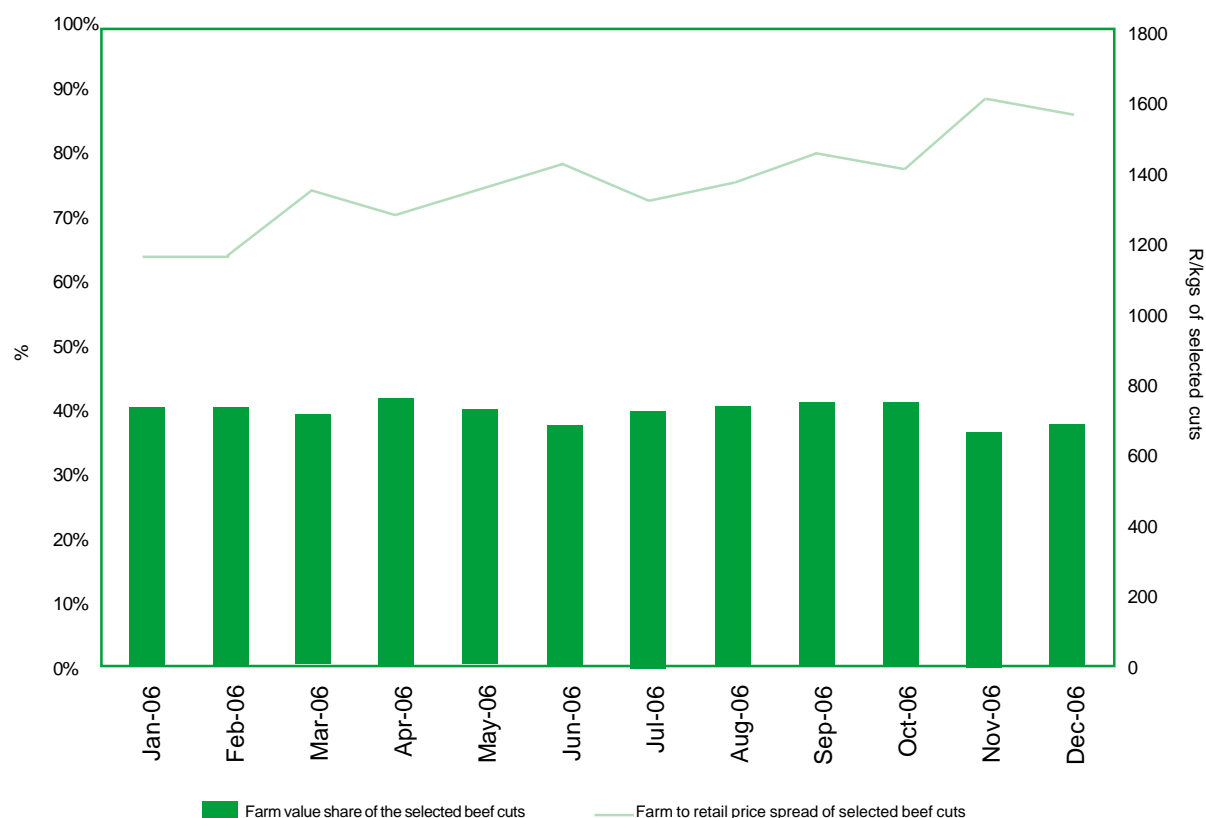
Figure 29: Farm-to-retail price spread and farm value share of selected beef cuts in 2006.
Source: *Calculations done based on ACNielsen data, 2007.*

4. Special section: An investigation into the South African pork supply chain

4.1 Introduction

A gradual increase of the retail prices of pork products has led pork producers to wonder why their producer prices are not exhibiting the same trend. In order to address these perceptions and concerns, this section, therefore, provides a more comprehensive discussion of the farm value, the farm-to-retail price spread and the farm value share of processed and fresh pork products since June 2004. As defined earlier, the farm-to-retail price spread represents the difference between the farm value of a product and the retail value of a product, including all payments for all assembling, processing, transporting and retailing charges added to the value of the products after they leave the farm.

4.2   Farm value and farm-to-retail price spread analysis of pork products

The farm value of pork, as reported in the previous edition of the Food Cost Review, has been revised and refined to represent a clearer and more accurate figure. In addition, the revised methodology has also been applied to include a number of processed meat products such as streaky and back bacon, ham and pork chops. These products are sold in fixed weight packages and are reworked so that a standard weight and value of that fixed weight can be applied to the product.

As advised by industry experts, it is assumed that a 75kg baconer carcass, which is mostly used in the production of bacons and hams, would produce 8% shoulder bacon, 5% belly bacon and 10% ham. A porker carcass, on the other hand, is mainly used in the production of fresh meats such as the various types of ribs and rib related products. As per previous assumption, rib chops make up 10.58% and loin chops 7.4% of the porker carcass (SAMIC, 2005).
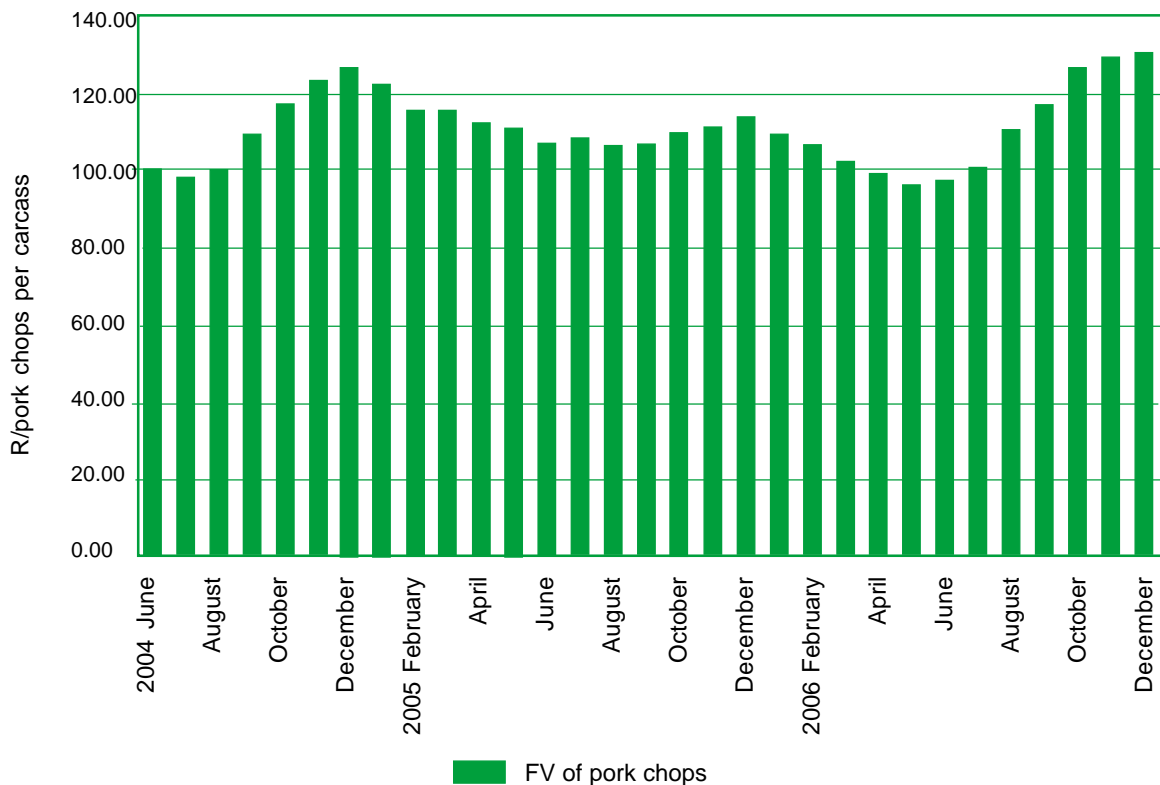
Figure 30: Farm value of fresh pork chops contained in a standard carcass.

There are in essence two separate branches of the pork supply chain which warrant some analysis. The baconer supply chain relates primarily to the processed meats, while the porker supply chain is more concerned with the production of fresh and relatively healthier pork products. Figure 30 represents the farm values of fresh pork chops, while the farm value of the processed pork products is represented in Figure 31. The figures

indicate that the farm value of pork chops decreased to its lowest level in June 2006, when it reached R96 per carcass and increased towards the end of 2006. The farm value for pork chops was R130.06 per carcass at the end of 2006.
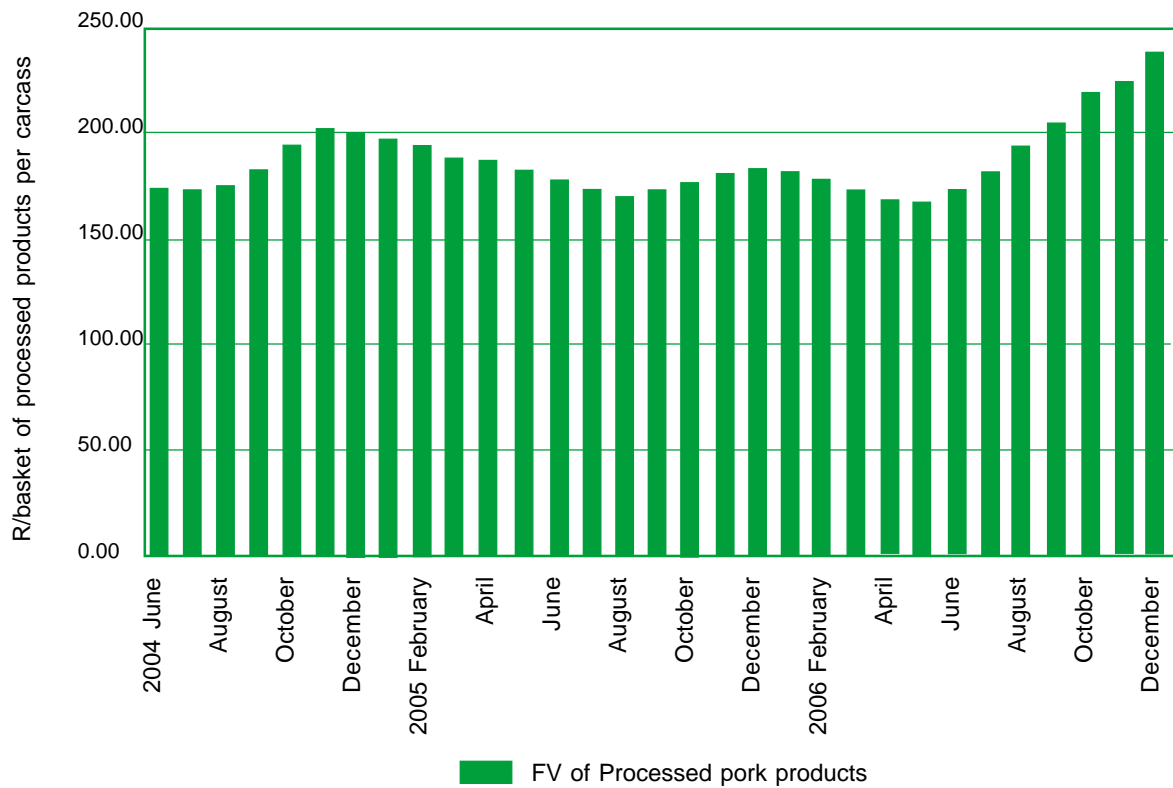
Figure 31: The farm value of a basket of processed pork products calculated for a standard carcass.

As the above figure indicates, the farm value for the processed pork cuts was well below R200 per carcass for the selected processed products at the end of 2005, while it seemed that the farmers were relatively better off towards the end of 2006. The farm-to-retail price spread and the farm value share indicate that the farmers' share in the final product increased when the spread between the products actually widened at some stage of the production season.

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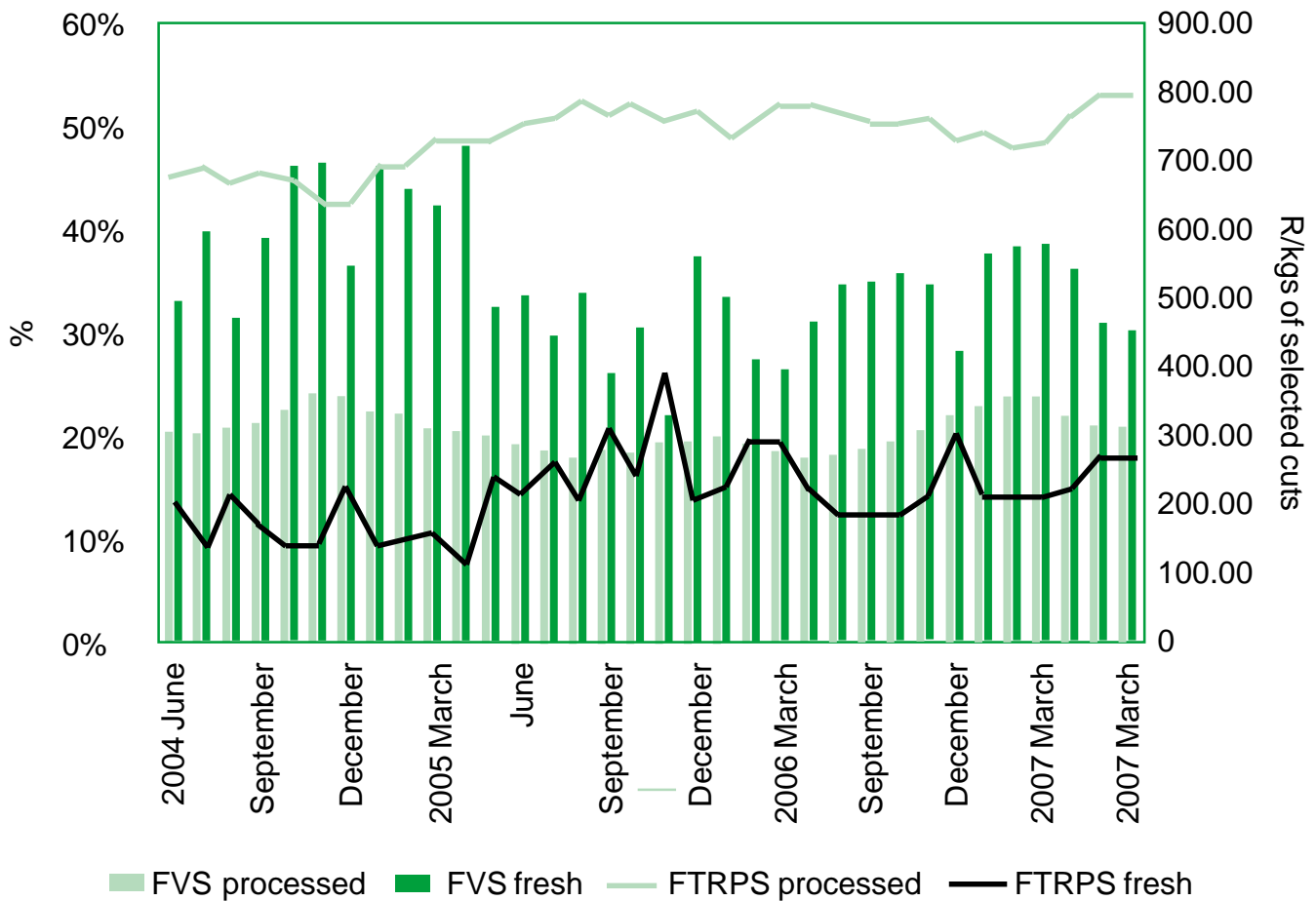
Figure 32: The farm-to-retail price spread and farm value share of fresh and processed pork products.

The farm-to-retail price spread of pork products is calculated for the two different sections of the supply chain. The farm-to-retail price spread and farm value share for the processed commodities is presented in Figure 32 and indicates that this farm value share is considerably lower than the farm value share of the fresh meats. In other words, the product loses part of its original physical value as it is being processed and, in the case of ham, value is being added to it. Ultimately, less of the product remains than in the case of the fresh meats and, therefore, farmers ultimately have a smaller share in the retail price of processed products than in the retail price of fresh meats. The trend of the farm value share in the processed meat products is, however, increasing and the farm-to-retail price spread is decreasing, meaning that farmers gained a bit more ground in the latter part of 2006 compared to in the first half of the year.

The trend in the fresh meat value chain is somewhat different. The farm-to-retail price spread appears to have remained static, with two slight peaks; the one in February and the other in September 2006. This means that the farmers' share of the retail price remained relatively static and that they have not earned a greater share of the final value than previously earned.

The farm-to-retail price spread of the basket of processed pork products widened slightly during 2005, but then remained relatively constant throughout the year, indicating that there is no huge discrepancy within the processed product chain as to how the prices between the farm and retail level move. The fresh pork products did, however, exhibit a somewhat different trend. The spread widened sharply in the second half of 2005, peaking at R395 per kg for the selected cuts in a carcass. The spread increased by 70% from its level in April of that same year. In 2006, the spread fluctuated mostly between R200 per kg and R300 per kg, peaking in March and September. The increase in the spread and the resultant lower farm value share indicate clearly that both farm and retail prices within the fresh cut supply chain did not only move together, but also moved apart for six months. There are a number of factors that can influence this widening of the spread and these are discussed in the following section.

The farm value share of fresh pork meat averaged 33.3% in 2006, while the farm value share of processed pork meat averaged 20.2% for the same period. The farm-to-retail price spread of fresh meat cuts averaged R223.7 per kg of selected cuts, but varied between R181.3 per kg on the low end of the scale and R298.1 per kg on the high end of the scale. The farm-to-retail price spread of processed products averaged R753.9 per kg for the entire period, but ranged between R720.3 per kg on the bottom end of the scale and R781.4 per kg on the high end of the scale.

4.3 The supply chain

This section provides some explanation of the factors that influence the quality of the pork that is sold in the retail store. The figure below represents the cost and steps that influence a supply chains' efficiency, depending on the products that are being analysed.

Production cost

    Breeding

    Feeding | Porker, baconer, sausager |

    Maintenance

    Handling | On farm and during haulage |

Transportation cost

| Abattoir price – Baconer, sausager, porker and PORCUS classification |

Abattoir cost

    Short term pre-slaughter treatment (lairage and waiting time)

    Stunning method

    Slaughtering and bleeding

    Skinning

    Cleaning

    [Classification]

    Cooling/refrigeration

    -     *Fifth quarter income*

Transportation cost

Processing cost   **Processing cost**

Supermarket   ←   **transportation cost**   ←   **Processing companies**

Cooling/refrigeration   *Cooling/refrigeration*

Packaging and Branding   *Techniques*

Retailing [shelf space, marketing]   *Technology*

                                 Spicing

                                 Packaging and branding

                                 Wholesaling

Niche Butchery | **Wholesale price** |

Cooling / refrigeration

Techniques

Technology

Spicing

Packaging

Retailing

| **Consumer, Hotels and Restaurants** |

General industry funded marketing

Figure 33: Supply chain of fresh and processed pork products.

4.3.1 Pork chops

The pork supply chain is a complex process which involves multiple enterprises that require coordination to deliver consumer value. This section of the pork chop supply chain is investigated in closer detail and in the following paragraphs the prices and costs that are incurred along the supply chain are discussed together with the influence that these will have on retail prices and resultant profit margins.

Level 1: Transport of the porkers to the abattoir. This process involves the cost of transporting the animals from the farm to the abattoir. The process also involves the cost of handling the animals while they are being loaded and off-loaded and the cost incurred when animals are lost. One of the most important factors is that the farmer receives a per kilogram price once the animal has been delivered to the abattoir. This price is based on the quality of the carcass as per PORCUS classification. The farm gate price is calculated by subtracting the cost involved in transporting to and handling of the animals at the abattoir from the price that the farmer receives at the abattoir.

There are important factors that need to be considered at this level of the supply chain. Pre-slaughter handling includes the mixing of unfamiliar animals, the loading, transport to the abattoir and lairage, and if this is done incorrectly, it can have undesired results. Pre-slaughter stress induces high levels of psychological or physical stress in the animals. It has been researched that if pigs are introduced into new groups, they start to fight. This occurs as pigs in new groups need to set a social hierarchy and in so doing, become stressed. Pre-slaughter stress can adversely affect the quality of pork (Warris *et al*, 1998a). There are mainly two types of stress into which pre-slaughter stress can be divided. These types include long-term stress, such as farm handling, mixing, loading and transport, and short-term stress, which includes lairage conditions and driving to the stunner. Long-term stress mainly leads to meat quality associated with Dark, Fort and Exudative (DFE) meat, while short term-stress mainly leads to Pale, Soft, Exudative (PSE) meat.

Level 2: After the animals have been purchased by the abattoir and they are handled and stunned. The individual carcasses are slaughtered and the pricing mechanism is determined according to the carcass composition. Different carcass compositions, in terms of fat percentage and fat layer, determine different prices. The latest SAMIC classification is presented in the table below.

Table 21: Pork meat classifications.

% Meat	mm**	Class
e" 70	d" 12	P
68 – 69	13 - 17	O
66 – 67	18 – 22	R
64 – 65	23 – 27	C
62 – 63	28 – 32	U
d" 61	> 32	S
No specifications in respect of % meat apply in the case of Rough, Sucking pig (d" 20kg) and sausage pig (e" 100.1kg). ** In case of Intrascope		

Source: *SAMIC, 2007*

The fat and muscle thickness is measured between the second and third last rib and 45mm from the carcass midline. The carcasses are further classified by conformation: Very flat, flat, medium, round and very round receiving a ranking of 1 to 5, respectively. The damage, if any, to the carcass is also classified into three categories: slight, medium and severe, which are ranked according to extent of the damage.

Based on weight, the pork carcass is allocated to the production of different commodities. Porkers, for example, are mainly used for the production of lean, high quality products, while sausagers are purely used for highly processed commodities, such as pork sausages. Pork chops are produced from porkers and, as a result, only the class P porker prices are reflected in this section of the supply chain. A standard porker carcass is made up of approximately 17.98% chops. Of these 17.98% chops, 10.58% are made up of rib chops and 7.4% are loin chops.

Level 3: Once the live animal has been processed into a carcass, there are basically a number of options. The abattoir can either process the carcass further depending on the products that it wants to produce and sell them directly to the consumers or it can, as is the case in many instances, sell the entire carcass to supermarkets and retailers that wish to produce their own products. Most major supermarkets in South Africa have their own butcheries located within the store. This gives the consumer the impression that the meat sold in the store is fresh.

Level 4: Consumer perceptions of a product have been identified as the key factors for the successful development of today's meat industry. Consumers are confronted with alternative choices when they buy pork chops. Their decision-making process is characterised by the use of information, evaluation of available alternatives, development of a preference and a final choice, with a high probability of purchasing the preferred chop.

Attributes can be divided into intrinsic and extrinsic. Intrinsic attributes are inextricably bound up with the core product, while extrinsic attributes are related to the product without being part of it. Search attributes are available at the moment of shopping, while experience attributes can be evaluated only upon consumption. In addition to these attributes, consumers can rely on "credence" attributes to assess meat quality. These attributes are of concern to the consumer, but no intrinsic cues are directly accessible in the process of buying and consuming (Hugas, Garriga & Monfort, 2002).

Consumer preferences, together with the retail price, will determine whether the products will be purchased or whether the consumer will make an alternative choice. The retailer attempts to promote his products and would like to sell as much of the product as possible.

4.3.2 Ham, streaky bacon and rindless back bacon

Level 1: The farmer faces a similar challenge, as explained in the previous section. The baconers have to be transported from the farm gate to the abattoir. The farm gate price is the price that the farmer receives for his animals, given the SAMIC classification system, less the cost of transporting and handling the animals.

Level 2: The price that the farmer receives at the abattoir is based on the SAMIC classification system. The heavier the animal and the lower the percentage of total meat in the entire carcass, the lower the farmer's price will be.

As baconers are used for the production of processed meats, such as bacon and ham, it is unlikely that the abattoir will sell the carcasses directly to supermarkets. Meat processors, such as Eskort and Enterprise, to name a few, are one of the industry role-players which have contracts with farmers and purchase carcasses directly from them. They sell the processed products to retailers.

As in the case of pork chops, a yield of bacon per baconer needs to be established. Industry experts estimate that approximately 5% streaky bacon is obtained from an average sized baconer, while 8% is the approximate yield for back bacon. The yield of both back and streaky bacon determines how profitable retailers will be if they produce this type of product. Ham has an average yield of 10% per standard baconer carcass.

In the case of sausagers, nearly the entire carcass is used for sausage production. Most of the meat is trimmed off the bones and is processed for the inner filling of the pork sausages.

Level 3: The abattoir needs to decide if the meat will be processed on site or if the meat is to be sold to a butcher. Processing costs and other production costs play an important role, as these will determine how profitable it will be to produce either one of the products. The more efficient the processors can be, the greater the potential for increasing their margin.

When the carcass is processed on site, the abattoir has the option of branding its products. In most instances, the meat is processed on site and branded with the company's name, for example, Enterprise or Eskort. The meat is transported as final products to the supermarkets, which then sell the products directly to the consumers.

In other instances, the abattoirs sell products directly to niche butcheries, which process the carcasses into the final products and sell them directly to the public. The products are not necessarily branded and are sold to the public as general meat products. Consumers buy the homogenous products, and in so doing, attribute a certain image to them.

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6. Appendix:

Table 22: Farm-to-retail price spread of apples, bananas and oranges.

Month	Apples (R/1.5kg) FTRPS	Bananas (R/kg) FTRPS	Oranges (R/kg) FTRPS
January 2003	3.02	1.44	5.76
February	4.21	1.46	5.70
March	3.90	1.67	7.18
April	3.32	1.22	4.99
May	3.32	1.34	5.07
June	3.76	1.38	5.10
July	3.36	1.32	3.79
August	2.26	1.35	3.85
September	2.95	1.48	3.78
October	2.66	1.49	3.76
November	2.45	1.45	3.87
December	2.18	1.83	3.69
January 2004	4.15	2.19	3.61
February	4.15	2.31	5.45
March	5.90	2.13	6.01
April	2.54	2.36	5.65
May	2.64	2.21	4.94
June	2.43	2.23	4.23
July	2.59	1.90	4.31
August	1.70	2.10	3.73
September	3.83	2.36	3.54
October	2.55	2.13	3.82
November	4.23	2.50	4.58
December	5.07	2.58	4.56

cont/..

Month	Apples (R/1.5kg) FTRPS	Bananas (R/kg) FTRPS	Oranges (R/kg) FTRPS
January 2005	3.91	2.41	4.58
February	4.36	2.01	5.50
March	5.39	1.50	5.91
April	2.42	1.91	5.98
May	3.08	2.28	5.10
June	2.97	2.86	4.70
July	2.61	2.59	4.30
August	2.87	2.72	4.46
September	2.68	2.68	4.53
October	2.55	2.82	4.35
November	2.94	3.17	4.23
December	3.73	3.15	3.44
January 2006	3.79	2.83	2.39
February	5.79	2.83	2.03
March	6.75	2.73	2.54
April	4.93	2.60	2.59
May	3.00	3.68	2.46
June	3.15	3.82	2.36
July	3.54	4.17	2.38
August	3.12	5.41	2.35
September	3.03	4.39	2.26
October	2.27	6.08	2.15
November	3.83	6.50	1.99
December	4.49	6.02	1.81

Source: *Data used for calculations from Statistics South Africa and ACNielsen, 2006.*

Table 23: Farm-to-retail price spread of selected vegetables.

Month	Potatoes (R/1.5kg) FTRPS	Bananas (R/kg) FTRPS	Carrots (R/kg) FTRPS	Cabbage (R/kg) FTRPS
January 2003	3.18	5.28	2.74	3.04
February	3.25	3.97	2.91	2.98
March	3.09	2.86	2.71	3.11
April	3.10	3.45	2.76	3.40
May	3.05	4.05	3.40	3.21
June	3.29	3.96	3.40	3.25
July	2.80	3.68	3.20	3.36
August	3.05	4.26	3.10	3.48
September	2.78	3.20	3.26	3.29
October	2.49	4.82	3.21	3.08
November	2.70	5.85	2.97	2.84
December	2.80	5.43	2.62	3.02
January 2004	2.88	7.85	4.64	3.75
February	3.17	7.08	4.92	3.73
March	3.24	7.54	3.01	2.15
April	3.43	6.37	4.72	3.69
May	3.89	5.82	4.78	2.15
June	3.60	6.19	4.73	3.15
July	3.29	6.77	4.98	2.65
August	3.46	7.83	4.87	2.87
September	3.02	7.56	5.06	3.08
October	3.01	7.92	4.99	2.90
November	3.02	7.56	5.16	3.29
December	2.65	6.54	4.86	3.02

Month	Potatoes (R/1.5kg) FTRPS	Bananas (R/kg) FTRPS	Carrots (R/kg) FTRPS	Cabbage (R/kg) FTRPS
January 2005	2.91	7.18	5.10	2.94
February	3.14	6.70	5.51	3.37
March	3.39	5.97	4.73	1.63
April	3.44	7.24	4.50	3.91
May	3.38	7.41	4.79	3.72
June	3.68	6.54	5.12	3.97
July	3.28	6.31	4.34	2.44
August	3.17	6.96	4.99	2.80
September	2.74	6.57	3.30	2.96
October	2.43	6.05	4.73	2.16
November	2.58	6.00	4.57	3.68
December	2.60	5.61	4.43	3.29
January 2006	2.62	7.23	4.63	4.11
February	2.87	6.42	4.67	4.20
March	2.99	5.66	3.94	4.14
April	3.27	5.27	4.69	3.83
May	3.33	5.95	4.13	3.71
June	3.44	6.36	4.93	2.43
July	3.34	6.52	3.96	3.02
August	3.13	7.26	3.94	3.32
September	3.20	6.65	3.95	3.27
October	3.41	7.25	3.73	3.85
November	3.50	6.67	4.18	2.02
December	3.45	6.01	3.98	2.33

Source: *Data used for calculations from Statistics South Africa and ACNielsen, 2006.*

Table 24: Farm-to-retail price spread and farm value share of Super and Special maize meal.

Month	Super maize meal (R/ton) FTRPS	Farm value share of Super maize meal(%)	Special maize meal(R/ton) FTRPS	Farm value share of special maize meal(%)
January 2003	1243.42	68.15%	1326.19	61.43%
February	1050.25	71.61%	1219.56	63.30%
March	1007.24	72.85%	958.84	69.12%
April	1036.76	71.72%	949.63	68.74%
May	1270.08	64.32%	1129.35	61.68%
June	2027.58	44.02%	1716.22	42.46%
July	2278.16	35.80%	1808.72	35.80%
August	2290.00	32.61%	1533.09	36.46%
September	2105.79	37.13%	1177.37	45.62%
October	2080.52	37.67%	1340.56	42.69%
November	2041.16	36.36%	1273.62	42.11%
December	1894.30	39.03%	1278.34	42.97%
January 2004	1752.00	42.22%	1257.84	44.54%
February	1889.20	39.87%	1521.44	39.39%
March	2052.24	38.70%	1929.32	34.64%
April	1959.20	44.78%	1658.60	43.08%
May	1473.63	56.61%	1243.70	55.00%
June	1137.28	63.31%	991.65	61.02%
July	1368.53	53.64%	1066.83	53.98%
August	1171.02	58.00%	964.22	56.99%
September	1321.22	53.48%	990.20	54.79%
October	1399.92	50.39%	1015.00	52.53%
November	1433.06	46.57%	1094.50	47.38%
December	1466.98	47.76%	1035.37	50.56%

cont/..

Month	Super maize meal (R/ton) FTRPS	Farm value share of Super maize meal(%)	Special maize meal(R/ton) FTRPS	Farm value share of special maize meal(%)
January 2005	1528.90	45.67%	1097.43	48.19%
February	1493.30	45.46%	1107.56	47.16%
March	1150.80	54.44%	991.88	52.41%
April	1546.93	41.49%	1168.14	42.71%
May	1416.51	41.22%	1300.58	37.75%
June	1610.69	29.50%	1606.15	25.00%
July	1829.27	26.81%	1646.92	24.42%
August	1568.49	30.59%	1660.79	24.84%
September	1470.71	32.78%	1353.13	29.62%
October	1672.96	30.97%	1313.29	31.22%
November	1731.94	31.24%	1536.64	28.91%
December	1731.80	32.92%	1542.39	30.44%
January 2006	1545.02	40.73%	1394.84	37.67%
February	1653.23	41.14%	1331.99	40.79%
March	1614.72	44.20%	1234.93	45.13%
April	1397.05	53.01%	983.37	56.00%
May	1704.61	47.46%	1504.49	44.84%
June	1901.25	42.15%	1703.23	39.24%
July	1793.90	47.14%	1676.02	43.12%
August	1788.64	46.61%	1734.14	41.69%
September	1808.29	47.78%	1319.35	49.90%
October	1662.60	53.17%	1100.69	57.66%
November	1439.31	58.52%	1021.49	61.22%
December	1585.71	54.89%	1139.97	57.34%

Source: *Data used for calculations from Statistics South Africa and ACNielsen, 2006.*

Table 25: Farm-to-retail price spread and farm value share of white and brown bread.

Month	Wheat (White bread) (R/ton) FTRPS	Farm value share of white bread (%)	Wheat (Brown bread) (R/ton) FTRPS	Farm value share of brown bread (%)
January 2004	7283.01	22.15%	6548.05	22.90%
February	7314.48	22.43%	6836.61	22.49%
March	7385.73	22.03%	6836.71	22.26%
April	7404.95	22.08%	7150.85	21.59%
May	7534.51	21.70%	6968.92	21.94%
June	7636.43	19.66%	7213.09	19.55%
July	7846.00	18.10%	7487.51	17.85%
August	7771.01	18.26%	7462.09	17.91%
September	7677.19	18.09%	7438.82	17.61%
October	7950.97	17.38%	7524.36	17.25%
November	8126.46	16.48%	7668.79	16.40%
December	8300.36	15.32%	7774.37	15.34%
January 2005	7974.84	15.97%	7823.09	15.38%
February	8055.54	16.08%	7654.58	15.91%
March	8255.43	15.70%	7830.11	15.56%
April	8294.61	16.40%	7906.94	16.18%
May	8171.16	17.35%	7796.54	17.12%
June	7764.57	19.61%	7476.30	19.20%
July	7869.62	19.49%	7468.99	19.31%
August	8261.63	17.54%	7809.38	17.43%
September	7987.60	18.79%	7666.65	18.45%
October	8282.79	17.03%	8040.09	16.56%
November	8291.71	17.41%	7790.54	17.39%
December	8182.62	16.97%	8020.29	16.37%

Month	Wheat (White bread) (R/ton) FTRPS	Farm value share of white bread (%)	Wheat (Brown bread) (R/ton) FTRPS	Farm value share of brown bread (%)
January 2006	8253.20	16.27%	8084.64	15.69%
February	8361.71	15.94%	8179.35	15.39%
March	8520.61	15.89%	8157.87	15.62%
April	8379.14	17.02%	8174.62	16.48%
May	7997.33	18.71%	8159.31	17.47%
June	7861.58	20.60%	8029.01	19.25%
July	7943.07	20.96%	7781.13	20.26%
August	7881.16	21.27%	7968.90	20.04%
September	7948.72	22.07%	8013.50	20.86%
October	8464.84	16.61%	8639.72	15.47%
November	8125.31	20.35%	7922.57	19.73%
December	8096.76	20.70%	7918.77	20.03%

Source: *Data used for calculations from Statistics South Africa and ACNielsen, 2006.*

Table 26: Farm-to-retail price spread of dairy products.

Month	Milk full cream (R/l) FTRPS	Farm value share of full cream milk (%)	Milk low fat (R/l) FTRPS	Farm value share of low fat milk (%)
January 2004	2.81	31.78%	3.85	17.72%
February	2.78	32.40%	3.76	18.28%
March	2.88	32.28%	3.99	17.77%
April	2.88	32.55%	4.00	17.87%
May	3.02	31.19%	4.01	17.62%
June	2.96	32.25%	3.88	18.46%
July	2.85	32.55%	3.91	18.13%
August	2.75	36.13%	3.68	20.64%
September	2.80	34.52%	3.60	20.29%
October	2.84	33.95%	3.73	19.44%
November	2.83	33.82%	3.68	19.53%
December	2.74	34.31%	3.64	19.58%
January 2005	2.78	34.62%	3.60	20.11%
February	2.87	34.20%	3.67	19.97%
March	2.90	35.33%	3.93	19.72%
April	3.01	35.69%	4.01	20.02%
May	2.97	34.72%	3.94	19.61%
June	3.04	34.78%	4.05	19.52%
July	3.03	34.91%	3.81	20.52%
August	3.09	34.44%	3.89	20.15%
September	3.04	33.64%	3.84	19.70%
October	3.04	33.71%	3.92	19.39%
November	3.00	33.84%	3.88	19.42%
December	2.98	33.74%	3.82	19.56%

Month	Milk full cream (R/l) FTRPS	Farm value share of full cream milk (%)	Milk low fat (R/l) FTRPS	Farm value share of low fat milk (%)
January 2006	3.02	34.80%	3.88	20.08%
February	3.02	34.89%	3.80	20.51%
March	3.06	34.75%	3.83	20.47%
April	3.02	35.49%	3.89	20.58%
May	3.06	35.25%	3.88	20.61%
June	3.05	35.76%	3.90	20.91%
July	3.07	35.86%	3.91	21.04%
August	2.99	36.98%	3.87	21.55%
September	2.97	37.14%	3.82	21.78%
October	2.89	37.76%	3.89	21.48%
November	2.89	38.15%	3.87	21.80%
December	2.75	39.31%	3.69	22.62%

Source: *Data used for calculations from Statistics South Africa and ACNielsen, 2006.*

Table 27: Farm-to-retail price spread and farm value share of cheese and butter.

Month	Cheese (R/kg) FTRPS	Farm value share of cheese (%)	Butter (R/kg) FTRPS	Farm value share of butter (%)
January 2004	21.44	42.43%	11.66	64.40%
February	19.65	44.88%	11.43	65.14%
March	16.17	50.20%	9.93	68.68%
April	25.95	38.72%	10.97	66.62%
May	21.21	43.30%	9.71	69.02%
June	19.58	45.74%	9.61	69.62%
July	19.52	45.66%	10.24	68.14%
August	19.45	47.79%	8.25	74.24%
September	21.17	44.83%	9.33	71.11%
October	21.45	43.92%	8.36	72.84%
November	16.99	49.57%	9.75	69.58%
December	18.87	46.80%	9.86	69.21%
January 2005	21.39	44.13%	10.53	68.19%
February	18.18	48.32%	9.50	70.50%
March	16.04	52.60%	8.85	72.87%
April	18.41	49.86%	7.94	75.48%
May	20.89	45.86%	8.85	72.75%
June	20.10	47.25%	8.64	73.56%
July	21.94	45.06%	8.04	74.93%
August	19.62	47.85%	8.43	74.04%
September	21.38	44.87%	8.33	73.61%
October	19.51	47.14%	8.50	73.22%
November	23.01	42.92%	8.96	72.04%
December	15.45	52.68%	9.52	70.70%

cont/..

Month	Cheese (R/kg) FTRPS	Farm value share of cheese (%)	Butter (R/kg) FTRPS	Farm value share of butter (%)
January 2006	15.44	53.28%	8.76	72.85%
February	24.65	41.38%	8.01	74.37%
March	25.52	41.36%	7.80	75.50%
April	26.99	40.01%	7.56	76.07%
May	17.18	51.30%	6.55	78.67%
June	18.54	49.54%	6.48	78.95%
July	16.50	53.12%	5.47	82.04%
August	16.10	53.60%	6.75	78.62%
September	19.10	48.10%	7.66	75.53%
October	17.65	50.91%	7.19	77.26%
November	19.20	47.96%	7.94	74.85%
December	16.19	52.09%	7.85	74.95%

Source: *Data used for calculations from Statistics South Africa and ACNielsen, 2006.*

Table 28: Farm-to-retail price spread and farm value share of   processed and fresh pork products.

Month	FTRPS selected processed pork products	FVS of selected processed pork products	FTPRS of selected fresh pork products	FVS of selected fresh pork products
June 2004	682.41	20.3%	201.97	33.0%
July	686.65	20.0%	149.08	39.6%
August	672.06	20.6%	217.25	31.5%
September	686.65	20.9%	168.73	39.3%
October	676.42	22.3%	136.11	46.3%
November	643.44	24.0%	141.49	46.5%
December	646.94	23.6%	222.30	36.3%
January 2005	693.53	22.1%	143.02	46.0%
February	689.82	21.9%	146.55	44.0%
March	728.46	20.5%	155.61	42.4%
April	732.00	20.3%	121.22	48.1%
May	731.24	19.8%	233.87	32.2%
June	756.15	19.0%	211.71	33.5%
July	765.05	18.3%	258.84	29.5%
August	787.87	17.7%	207.98	33.8%
September	766.88	18.5%	303.14	26.0%
October	790.34	18.2%	251.35	30.4%
November	762.89	19.1%	395.62	21.9%
December	772.16	19.1%	190.25	37.4%

Month	FTRPS selected processed pork products	FVS of selected processed pork products	FTPRS of selected fresh pork products	FVS of selected fresh pork products
January 2006	741.76	19.7%	216.26	33.6%
February	761.41	19.0%	283.13	27.2%
March	781.22	18.1%	288.62	26.1%
April	781.43	17.7%	219.91	31.0%
May	769.82	17.9%	182.89	34.4%
June	760.37	18.5%	181.71	34.8%
July	756.07	19.3%	181.32	35.6%
August	762.96	20.3%	207.95	34.6%
September	736.28	21.7%	298.14	28.1%
October	747.21	22.6%	208.87	37.7%
November	720.26	23.7%	208.10	38.2%
December	728.14	23.7%	207.71	38.5%

Source: *Data used for calculations from Statistics South Africa and ACNielsen, 2006.*

Table 29: Farm-to-retail price spread and farm value share of fresh and frozen broilers.

Month	Broilers (frozen) (R/bird) FTRPS	Farm value share of frozen birds (%)	Broilers (fresh) (R/bird) FTRPS	Farm value share of fresh birds (%)
January 2004	5.78	66.93%	4.83	70.81%
February	5.55	67.76%	5.96	66.17%
March	4.74	71.12%	5.71	67.15%
April	5.51	67.42%	6.79	62.70%
May	5.94	65.50%	8.31	57.59%
June	5.95	64.94%	6.42	63.18%
July	6.46	63.60%	6.24	64.38%
August	6.78	62.35%	5.56	66.86%
September	5.14	68.82%	6.89	62.21%
October	5.54	67.60%	6.18	65.17%
November	5.58	67.72%	5.62	67.56%
December	4.97	70.63%	5.66	67.84%
January 2005	4.79	70.84%	5.46	68.05%
February	4.56	71.43%	5.39	67.92%
March	4.94	69.61%	7.40	60.46%
April	5.02	69.61%	6.82	62.77%
May	4.98	69.85%	5.02	69.67%
June	5.11	69.13%	4.85	70.22%
July	5.49	67.86%	5.16	69.19%
August	5.72	67.33%	5.25	69.18%
September	5.34	69.06%	6.89	63.37%
October	5.37	69.34%	5.82	67.63%
November	5.27	70.19%	6.95	64.08%
December	5.51	69.81%	8.30	60.55%

Month	Broilers (frozen) (R/bird) FTRPS	Farm value share of frozen birds (%)	Broilers (fresh) (R/bird) FTRPS	Farm value share of fresh birds (%)
January 2006	6.05	67.08%	8.03	60.55%
February	6.13	65.70%	8.36	58.42%
March	6.62	63.39%	8.86	56.40%
April	6.48	62.51%	9.58	52.99%
May	5.56	67.99%	7.31	61.75%
June	4.84	70.68%	7.82	59.84%
July	4.87	70.77%	5.71	67.38%
August	5.93	67.01%	8.42	58.88%
September	5.69	67.76%	7.56	61.26%
October	7.97	61.90%	8.74	59.70%
November	8.31	61.38%	8.48	60.89%
December	9.56	58.81%	8.16	62.58%

Source: *Data used for calculations from Statistics South Africa and ACNielsen, 2006.*