



CONTENTS

Acronyms	3
Key findings	4
Introduction	5
Executive Summary	5
Maize – ‘That Which Sustains Life’	7
A Brief History of Maize In Southern Africa	8
The introduction of maize as an African vegetable crop	8
The mining boom – maize becomes the nation’s staple	9
From the Act of Union to liberalisation	10
Liberalisation	11
Key Dates	12
Maize Cultivation in South Africa	13
Maize Value Chain	14
Concentration, margins and profits in the maize value chain	16
The producer/farm gate price	17
Handling and storage	18
Trading	19
Milling and retail	20
In summary	23
Inflation, Food and Maize Meal Costs in South Africa	23
Genetically Modified Maize in the Value Chain	25
History and overview	25
Regulation and risk	26
GM labelling	28
The Big Three	30
Premier foods	31
Tiger Brands	32
Tiger’s inconsistent stance on GMOs	33
Tiger Brands legal issues	34
Tiger Brands’ African expansions	34
Pioneer Foods	35
Data on Market Shares	37
Conclusion	40
Annex 1	41
References	42



The African Centre for Biosafety (ACB) is a non-profit organisation, based in Johannesburg, South Africa. It was established to protect Africa's biodiversity, traditional knowledge, food production systems, culture and diversity, from the threats posed by genetic engineering in food and agriculture. It has in addition to its work in the field of genetic engineering, also opposed biopiracy, agrofuels and the Green Revolution push in Africa, as it strongly supports social justice, equity and ecological sustainability.

The ACB has a respected record of evidence based work and can play a vital role in the agro-ecological movement by striving towards seed sovereignty, built upon the values of equal access to and use of resources.

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ACRONYMS

ACB	African Centre for Biosafety
CGCSA	Consumer Goods Council of South Africa
COSATU	Congress of South African Trade Unions
CPI	Consumer Price Index
DAFF	Department of Agriculture, Forestry and Fisheries
DTI	Department of Trade and Industry
FABCOS	Foundation for African Business and Consumer Services
FMCG	Fast Moving Consumer Goods
FPMC	Food Price Monitoring Committee
GMO	Genetically Modified Organism
IAASTD	International Assessment of Agricultural Knowledge, Science and Technology for Development
ISAAA	International Service for the Acquisition of Agri-biotech Applications
JSE	Johannesburg Stock Exchange
LSM	Living Standards Measure
NAMC	National Agricultural Marketing Council
NAMPO	National Maize Producers Organisation
NCM	National Chamber of Milling
OPV	Open Pollinated Variety
PESMC	Port Elizabeth Steam Mill Company (forerunner to Pioneer Foods)
PIC	Public Investment Corporation
SAARF	The South African Advertising Research Foundation
SAFEX	South African Futures Exchange
SAGENE	South African Committee on Genetic Experimentation
SAMCO	South African Milling Company
SANSOR	South African National Seed Organisation
USAID	United States Agency for International Development



KEY FINDINGS

- In 1998 South Africa became (and remains) the first country in the world to cultivate a genetically modified (GM) variety of its staple food. As of 2012/13, over 80% of the white maize planted in South Africa was from GM seed.
- Two companies (Monsanto and Pioneer Hi-Bred) control the domestic seed market; maize handling and storage is dominated by three companies (Senwes, NWK and Afgri, all former co-ops); Louis Dreyfus and Cargill, two of the four so-called 'ABCD' group of international grain traders, dominate the maize trade on the JSE. The white maize milling sector is dominated by three firms: Tiger Brands, Premier Foods and Pioneer Foods. This highly concentrated value chain feeds into an equally concentrated food retail sector, with four major retailers: Shoprite/Checkers, Pick n Pay, Spar and Woolworths dominating the market.
- Tiger Brands, Pioneer Foods and Premier Foods mill approximately 60% of the nation's white maize crop. Their brands, which include Ace, White Star and Iwisa super maize meal – all GM – constitute over 73% of the maize meal market.
- The South African government, through the Public Investment Corporation (PIC) is the single largest investor in Tiger Brands, though over 50% of the company's shares are held outside South Africa. Pioneer Foods' largest shareholder is Zeder, the agribusiness investment arm of the PSG group. Premier Foods is 80% owned by private equity firm Braite, listed on the Euro MTF market in Luxemburg but domiciled in Malta, both jurisdictions being notorious tax havens.
- These, and a select group of companies, have fixed the price of bread and maize meal, and have commandeered the entire value chain and continue to squeeze the poorest in our nation in the name of free enterprise and aspirations of attaining 'world class' status amongst their international peers.
- Global agribusiness has its sights firmly set on Africa, dubbed 'the last frontier in global food and agricultural markets'. South Africa's agribusiness firms are in the vanguard of this new onslaught; Tiger Brands, Premier and Pioneer have all expanded their operations

on the continent. Tiger Brands, which operates in 22 countries on the continent, has been identified as a key player in the establishment of a maize value chain in the Southern African region.

INTRODUCTION

This is a briefing about power and control in our food system, focusing chiefly on South Africa's staple food, maize. From its emergence in Mexico over 7,000 years ago, maize has simultaneously emerged as the staple food for hundreds of millions of the world's poorest and most marginalised, and as a lynchpin of a globalised, industrial food system. The story of maize has been shaped by the conquest of entire continents, of world wars and, closer to home, our own painful history of colonialism and apartheid.

More recently, maize has taken centre stage in a battle that will shape the future of how we feed ourselves, and who will make those decisions. In 1982 the US Supreme court passed a judgement with global ramifications; it gave legal backing to patents on life. Coupled with scientific advances at the time, this decision allowed a nascent biotechnology industry to isolate and transfer individual genes across the species barrier, and claim ownership, through patents, of the results. The maize plant has proved particularly amenable to these techniques of modern biotechnology, or genetic modification (GM), and GM maize is now one of the most important crops to the biotechnology industry, being grown on 55 million ha worldwide in 2012.¹

In 1997 the South African biosafety regulators authorised the cultivation of GM maize, and in the process became the first country in the world to grow GM varieties of its staple food – a status it still holds today. Adoption by our commercial maize farmers has been rapid, with 86% of the 2012/13 season maize crop being genetically modified. The vast majority of South Africans are completely unaware of this shocking state of affairs. Regulations for the labelling of GM food were meant to come into effect in October 2011, however, these have been virulently fought by the food and biotech



industries in South Africa and GM labelling remains unenforced.

During this period, acting as a consumer watchdog, the ACB has submitted several maize based food items for GMO testing, all of which recorded very high levels of GM content. The revelation that several popular brands of baby food were packed with GM maize and soya proved particularly damaging, forcing some of the largest food processors on the market, including Nestle and, after an initial period of intransigence, Tiger Brands, to pledge to go GM free. However, the major food companies have so far refused to countenance a GM free alternative for maize meal, the staple food of millions of South Africans, including families for which branded GM-free baby foods and formulas remain a prohibitively expensive luxury.

With this in mind, the ACB decided to focus in its latest round of GM testing exclusively on the most popular brands of maize meal in South Africa. The results indicate what we had long suspected, that the South African maize value chain is completely saturated with GM, robbing millions of South Africans of the freedom to choose what to eat. In such a scenario, a labelling system does nothing to alleviate this; it is like the sham election where everybody knows the winner before the first ballot is even cast.

Maize meal brand	GM content
Impala Maize meal	66% GM maize
Ace super maize meal	78% GM maize
Nyala super maize meal	87% GM maize
White Star super maize meal	72% GM maize
Premier Course Braai Pap	55% GM maize
Woolworths super maize meal	79% GM maize
Iwisa super maize meal	81% GM maize

This briefing will go on to show how these, and other companies operating the length and breadth of the maize supply chain, emerged largely from the mining boom of the late nineteenth century and firmly established themselves under the apartheid government.

During and after the transition to democracy they have been unleashed on unsuspecting South African consumers as fully-fledged modern agri-business companies who continue to dominate the milling sector, have fixed the price of bread and maize meal, and have worked in concert with the biotech industry to stifle the GM food labelling laws.

Last but not least, this model of industrial agriculture is being pushed as the means to deliver millions of Africans from poverty and hunger. This briefing illustrates that the current system is doing neither, but merely perpetuating centuries old inequalities that have wracked the continent.

EXECUTIVE SUMMARY

Maize, literally translated as 'that which sustains life' by the Aztecs and Incas, is said to have first been domesticated some 7,000 years ago in central Mexico. It was introduced to Africa some 500 years ago, though it would take another 200 years to become firmly established in southern Africa. Once established in what is now South Africa, maize (the word itself is thought to derive from the Portuguese *milho*) was widely used as a vegetable crop to alleviate hunger during the long cropping seasons for sorghum, which was the staple at the time.

The status of maize in South Africa would change forever with the discovery of diamonds at Kimberly in 1867, and gold on the Witwatersrand in 1886, metamorphosing maize into the grain that fed the thousands of migrant miners who flocked to the mineral fields from all over the sub-continent. This newly urbanising population began to consume maize as 'mealie' flour, rather than in its milky stage porridge, as had been the norm up until then. New varieties of maize seed, 'dents', were imported from America, which, in addition to out-yielding the traditional flint varieties, produced a soft starch, favoured by the new mechanised techniques being employed by the milling industry.



Following the Act of Union of 1910, white commercial agriculture's position in South Africa was consolidated through legislation, such as the 1913 Native Land Act, the 1939 Co-operative Societies Act and the Miele Control Act of 1935, culminating in the 1937 Marketing Act, which 'became the cornerstone of commercial agricultural policy'.² During this period the three major white maize millers of today, Tiger brands, Premier Foods and Pioneer Foods, had all firmly established themselves. From the 1960s to the 1980s the commercial seed industry underwent a period of 'maturity', consolidating around Pannar, Sensako, Asgrow, Ciba-Geigy, Saffola and Cargill Hybrid Seeds.

Beginning in the late 1970s, due to changes in the financial sector, South African agriculture started to undergo profound changes. Piece by piece, old legislation and state support for agriculture was chipped away until, by the mid-1990s, virtually all of the nation's former agricultural co-ops were privatised, state price controls had been removed and agricultural produce (including maize) was being traded on the Johannesburg Stock Exchange (JSE).

Today, maize is still South Africa's staple food. With the removal of price support for farmers, the cultivated area has shifted in a general north-easterly direction, towards areas of higher agronomic potential, and consolidated to an average area (over the last decade) of around 2.6 million ha. Together with continued improvements through conventional breeding and farming techniques, and an increased area under irrigation, average maize yields have improved up until the present, and ensured that maize surpluses are usually produced (though, as will be explained later, increased production is no guarantee of equitable access).

The liberalisation of agriculture in South Africa has resulted in an extremely concentrated maize value chain: two companies (Monsanto and Pioneer Hi-Bred) now control the domestic seed market; maize handling and storage is dominated by three companies (Senwes, NWK and Afgri, all former co-ops); Louis Dreyfus and Cargill, two of the four so-called 'ABCD' group of international grain traders, dominate the maize trade on the JSE. The white maize milling sector, which is the focus of this paper, is dominated by three firms, Tiger Brands,

Premier Foods and Pioneer Foods. This highly concentrated value chain feeds into an equally concentrated food retail sector, with four major retailers, Shoprite/Checkers, Pick n Pay, Spar, and Woolworths dominating the market.

Under the neo-liberal economic paradigm of the early 1990s, it was assumed that, with the liberalisation of the maize marketing channel, the removal of 'inefficiencies' would lower margins in the milling industry and lead to lower food costs. However, the opposite was found to happen. In the first four to five years after liberalisation milling/retail margins in South Africa rose from 20–40%, in stark contrast to the experiences in neighbouring countries such as Zimbabwe, Zambia, Mozambique and Kenya, who were undertaking similar policies at the time. During the 2001/02 food price hikes, the Food Price Monitoring Committee (FPMC) found millers and retailers, having raised their own prices in response to maize price increases on the South African Futures Exchange (SAFEX), had continued to sell at a higher price even after SAFEX prices dropped.

In 2009 an investigation by the Competition Commission revealed that, from 1999–2007, members of the so called 'maize cartel' (including Tiger Brands, Pioneer and Premier) held numerous meetings and telephonic discussions in which they agreed to fix the price of both wheat and white maize products and to create uniform price lists for wholesale, retail and general trade customers. As a result, Pioneer foods was fined a whopping R1 billion, while Tiger, who appealed for leniency in exchange for co-operation, settled on a fine of R98 million. Statistics from the National Agricultural Marketing Council (NAMC) reveal that since 2009 the miller-to-retail margin for super maize meal has actually increased, though it is difficult to attribute separate figures for millers and retailers. With the retail food industry being equally concentrated (and also subject to a Competition Commission investigation), clearly opportunities abound for profit extraction all along the maize value chain.

The maize value chain has been further complicated by the introduction of genetically modified (GM) maize in South Africa. To date,



South Africa remains the only country that has permitted GM cultivation of its staple food, despite a growing body of scientific evidence hinting at potential long term risk to human and environmental health. The Consumer Protection Act of 2011 has made the labelling of GM food mandatory. A move that, unsurprisingly, has seen a highly co-ordinated lobbying response from an industry, which, having already shown itself to be up to the task, has raised the spectre of increased food prices that labelling will entail. The familiar arguments of the necessity of GM crops in improving agricultural yields, despite a plethora of evidence to the contrary, have also been trotted out.

The three largest millers, accounting for approximately 60% of all white maize milling in South Africa, are in a position, should they choose, to change this. So far, they have point-blank refused to consider the possibility that their 'valued' customers should be afforded the option of a non-GM alternative. Appeals around food costs ring hollow when one considers their previous conduct, as well as the plethora of factors that influence the price of maize meal. Further, published financial statements from Tiger Brands and Pioneer Foods have shown the operating profit margins in their milling and baking divisions to be higher than their overall profit margins. In 2012 Tiger Brands' milling and baking division achieved a profit margin of 22%, compared to a 15% overall operating profit margin. Sakso, the milling and baking division of Pioneer, achieved a 9.5% profit margin, compared to an overall group margin of 6.2%.

Profit has always been the *raison d'être* of private enterprise, but the complicated ownership patterns of these three companies (consistent with wider trends in the agricultural sector) have increased the space between food producers, processors and consumers, and are now seen as lucrative avenues for capital accumulation by actors far removed from these firms' locales. For example, though the largest shareholder in Tiger Brands is the Public Investment Corporation (PIC), over 50% of its shares are now held outside of South Africa. Pioneer's largest individual shareholder is former agricultural Co-Op Kaap Agri, through an unlisted holding company called Agri-

Voedsel, who in turn are 44.7% owned by Zeder Investments, the agribusiness investment arm of the PSG group. Premier is 80% owned by private equity firm Braite, listed on the Euro MTF market in Luxemburg but domiciled in Malta, both jurisdictions being notorious tax havens.

This is especially significant when one considers how embedded the products of these companies are in the daily lives of South Africans. Market research from 2012 revealed that 25.3% of respondents reported having purchased Pioneer Food's White Star Brand, 22.5% reported purchasing Tiger Brands' Ace super maize meal, while Premier foods' Iwisa, Nyala, and Impala maize meal brands scored an overall 25.5% market share. With so many South Africans consuming these brands, it is imperative that pressure is exerted on these companies

MAIZE – 'THAT WHICH SUSTAINS LIFE'

For better or worse, modern genetic alchemy has transformed maize's personality from an obligingly adaptive vegetable crop into a hegemonic leviathan that dominates regional diets and international grain markets.³

Maize's phenotypes, pop (*praeceps*), pod (*tunicata*), sugar (*rugosa*), soft (*erythrolepis*), dent (*indentata*) and flint maize (*indurata*) all derived from a single ancestor first domesticated in Mexico some 7,000 years ago. Maize is currently grown in at least 164 countries worldwide, while the variability among its landraces is said to exceed that of any other crop. By the time of the Conquistadors, circa 1500 AD, the Aztec and Mayan civilisations had long been calling this plant's decedents 'maize', literally translated as 'that which sustains life.'⁴

Nutritionally and physiologically speaking, maize is a vegetable rather than a grain, containing Vitamins A, C and E but lacking in the lower B vitamins that characterise a



true grain such as sorghum or wheat. Given adequate water and nitrogen, maize as a grain yields more food per unit of land and labour than any other, yet without these two vital inputs it exposes those who cultivate it to 'walk a slender tightrope of risk'.⁵

Maize was used predominantly as a food crop throughout large parts of Latin America (and later in Africa), including as part of 'the three sisters' cropping system employed extensively throughout Mesoamerica.⁶ In Africa 95% of production is still used for this purpose (in southern and eastern Africa approximately 85% is used for food). South Africa is the continent's largest producer, averaging around 12 million tons per annum in recent years. Other major producers include Nigeria (9.4 million tons), Egypt (7 million), Ethiopia (6 million), Tanzania (5.1 million), Malawi (3.6 million), Kenya (3.6 million) and Zambia (2.8 million).⁷ Per capita consumption of maize ranges from 85 kg–140 kg per year in Kenya, Lesotho, Malawi, South Africa, Zambia and Zimbabwe.⁸

However, over the course of the twentieth century maize has become one of the world's most important tradable agricultural commodities. At the end of the Second World War the United States was left with massive surpluses of ammonium nitrate from the manufacturing of explosives. Ammonium nitrate is also an excellent source of nitrogen for plants. In one of the most significant agricultural developments of the twentieth century, in 1947 the huge munitions plant at Muscle Shoals, Alabama (which today is home to the International Fertilizer Development Centre) switched production from making bombs to chemical fertiliser.⁹

With maize cultivation no longer constrained by the natural nutrient cycle (involving animal manure, intercropping and leaving land fallow) farmers were free to plant maize year after year. The results have been startling. From 1962 to 2012 the global area planted with maize expanded by 71%, from 103 million ha to 178 million ha. In comparison, over the same period, the global areas planted to rice and wheat grew by 37% and 4% respectively.¹⁰ Today only around 10% of the global 'recorded'¹¹ global maize crop is used for food, with 57% (490 million tons in 2012/13) used for animal

feed and the remainder for industrial uses. In comparison, nearly 70% of the global wheat crop is used for food.¹²

The international trade in maize has become highly lucrative, being valued at \$36 billion in 2011.¹³ The major exporting nations in 2011/12 were the USA (39.2 million tons), the Ukraine (15.1 million tons), Argentina (15.7 million tons) and Brazil (8.4 million tons). Major importers for the same year include Japan (14.8 million tons) the European Union (6.3 million tons) and China (5.3 million tons).¹⁴

Maize production in the United States, the world's largest producer, is heavily subsidised, coming to some \$84 billion between 1995 and 2010.¹⁵ In 2012 subsidies to US maize farmers were greater than South Africa's entire agricultural budget.¹⁶ Additionally, a range of tax incentives (worth \$45 billion from 1980 to 2011)¹⁷ mean that now over 40% of annual maize production is used to produce ethanol, a prodigious waste of resources.¹⁸

The commodification of this sacred plant was further entrenched in 1996, when the first varieties of genetically modified (GM) maize were planted in the United States. Their adoption, albeit in a limited number of 16 countries, has been rapid. In 2012 over 55 million ha was planted worldwide, though the vast majority of this cultivation takes place in the United States, Argentina and Brazil.¹⁹ In 1997 South Africa became the first country in Africa to allow the cultivation of GM maize.

A BRIEF HISTORY OF MAIZE IN SOUTHERN AFRICA

The introduction of maize as an African vegetable crop

Maize was introduced to Africa from the 'New World' from the 1500s onward. Historic internal trade routes along the Nile Valley, the east-west Islamic *haji* and the Swahili caravan trade ensured that maize as a crop was well entrenched in both the Nile Valley and West Africa by the early 1700s. Maize's



most important early role in African farming systems was as a vegetable crop, cultivated in household gardens during the long hungry season that preceded the sorghum or millet harvest.²⁰

Maize would not appear in southern Africa until the late 1600s; after landing at the Cape in 1652, Jan van Riebeeck is reported to have requested maize seed to be sent from the Netherlands to test for its suitability for cultivation at the Dutch East Indies Company's newly established supply station. However, it is the Portuguese who are considered to have introduced maize into what is now South Africa. For example, *Cateto*, a yellow to orange flint maize variety from the uplands of Brazil was being cultivated by both Xhosa and Zulu farmers sometime after the first European encroachments, while the Afrikaans term *mealie* is generally thought to derive from the Portuguese *milho*.²¹

Once introduced, as in West Africa, maize was initially used as a hungry season vegetable garden crop, often as part of a complex cropping system. The Brazilian coastal flints introduced by the Portuguese were well adapted to the drier areas favoured by South African livestock-raising peoples and, while the yields did not challenge those of local drought resistant sorghum, fresh maize was edible earlier in the hungry season. It was also less susceptible to bird damage while in the field.²²

Evidence suggests that black South African farmers adopted the floury and flint maizes on their farms long before white settlers did. Even by 1914, just 2.25% of the Orange Free State was planted with maize, mostly by black sharecroppers.²³ The first maize millers and private maize seed companies began to emerge at this time, with the focus on maize breeding switching to the development of genetically homogenous, open pollinated varieties (OPVs) amenable to the milling industry. Crucial to this was the importation of higher yielding 'dent' varieties of maize seed from the USA, including the fabled 'Hickory King', which provided the foundation for hybrid maize breeding in South Africa.

The mining boom – maize becomes the nation's staple

The mineral discoveries of 1867 at Kimberly and 1886 on the Witwatersrand were to change the status of maize from a vegetable crop to a source of bulk and cheap calories, which could supply the growing cities and mine hostels of the area. Moreover, the new urban consumers ate their maize not as a milky snack, but as 'mealie' flour. This 'mealie' flour quickly replaced the former agricultural staples of sorghum, milk and cattle.²⁴

The first private seed companies were established in South Africa in the late 1890s,²⁵ and by the early 1900s commercial farmers were pressing the government of the day to organise agriculture along 'scientific' lines, leading to the establishment of a number of experiment stations by the department of agriculture to select and test foreign and local maize varieties. This spurred the importation of seed from established growers in the USA. The accidental hybridisation of two American varieties, Champion White Pearl and either Hickory King or Iowa Silver Mine, produced Potchefstroom Pearl, which would become the bedrock of the domestic hybrid maize seed industry.²⁶

In his voluminous tome on the early history of the maize industry in South Africa, Burt-Davy records a variety of maize species still being grown throughout South Africa, including varieties of pop maize (*praxox*), pod maize (*tunicate*), sugar maize (*rugosa*), soft (*erythrolepis*), dent (*indentata*) and flint maize (*indurata*). As well as the more famous Hickory King, Iowa Silver Mine and Salisbury White were evocatively named varieties such as Golden Eagle, Bloody Butcher and Wealth of Nations.²⁷

During this period cultivation shifted from a black smallholder's crop to a grain crop cultivated on South Africa's burgeoning 'Maize Triangle' in the Orange Free State and the Transvaal (and increasingly on the plateau of Northern and Southern Rhodesia). Commercial maize farmers, who were heavily involved in maize breeding and selection at the time, began to focus on producing genetically homogenous (Open Pollinated) maize lines



that had appeal to millers, international grain traders and shopkeepers. The large, flat, white grain produced by Hickory King and its offshoots was a particular favourite of the millers.²⁸

The foundations for the commercial seed industry were further strengthened by the promulgation of the Fertilizers, Seeds and Agricultural Remedies Act in 1907, which prohibited the sale of adulterated fertilisers, seeds and agricultural remedies. By 1917 associations for maize breeders, seedsmen, and nurserymen had been formed.²⁹

Burt-Davy reports that the African labour force on the Rand mines initially preferred yellow maize meal to white, but by the time of his book's publication in 1914 this preference had switched to white maize meal. The author opines that this could have been due to the wish of the African labour force to imitate the Europeans (who only ate white maize meal), and because the millers preferred to mill just one colour and, as white maize was cheaper than yellow maize in Johannesburg at the time, 'probably encouraged' this shift.³⁰

From the Act of Union to liberalisation

The period from the birth of the Union of South Africa in 1910 until the promulgation of the Marketing Act in 1937 would see the creation of several pieces of legislation that would profoundly influence the future direction of the country and its agricultural systems. The most significant laws passed in this period include the Land Bank Act of 1912, the Natives Land Act of 1913, legislation to establish the wine farmer's co-operative KWV, the Co-Operative Societies Acts of 1922 and 1939, the Natives Administration Act of 1927, and the Land Act of 1936, the latter of which sought the further exclusion of the African population by attempting to outlaw labour tenancy and sharecropping.³¹

The government also began to nurture the nascent domestic private seed industry in this period by initiating a hybrid breeding programme in 1925 and, under the newly created Maize Board, organising an official seed testing laboratory in 1944.³² From the early 1950s the largest South African maize millers

began to employ roller mill technology, which required vast quantities of uniform maize grain to operate to full potential, on a large scale.³³ Hybrid seed production was directly undertaken by the Maize Board at this time. Sensako were the first private company to establish a hybrid breeding programme in 1959, followed by Sabi in 1960, Schoeman and Pannar in 1962, and the Northern Transvaal Co-op in 1964.

South African seed companies had already begun to strike up research partnerships with international companies at this time, including those between DeKalb Genetics and Sensako in the early 1960s (both of whom would eventually be taken over by Monsanto), and Pioneer Hi-Bred and Pannar in 1968. The passing of the Plant Breeders' Rights Act in 1976 further strengthened the position of private breeders. In 1963 there were 16 hybrid and 37 open pollinated maize varieties on the official registration lists. By 1993 the number of registered hybrid varieties had increased to 284, though the number of registered OPVs had declined to 19³⁴ (as of March 2013, 491 conventionally bred and GM hybrid varieties were registered, compared to 32 OPVs)³⁵.

Around this time the area planted to maize began to expand rapidly through the introduction of mechanisation, as tractors and combine harvesters replaced traditional draught oxen. Preferential tax treatment from the late 1960s stimulated the introduction of combine harvesters, with the percentage of the maize crop being mechanically harvested rising from 16% in 1968 to 81% by 1977. As a result, average maize plantings for the periods 1970–1975 and 1980–85 topped 4.6 million ha, compared to an average area of 3.2 million ha for 1950–55.³⁶

By 1980 several multinational seed companies had entered South Africa, including Saffola in 1963, Asgrow during the 1960s, Ciba-Geigy in 1976 and Cargill Hybrid Seeds in the late 1970s. Virtually the whole South African maize crop was now planted with hybrid seeds, and the industry had consolidated around six companies: Pannar, Sensako, Asgrow, Ciba-Geigy, Saffola and Cargill Hybrid Seeds.³⁷ Just as the seed, and other agricultural industries, were becoming increasingly concentrated,



significant changes in the finance sector would have major repercussions for agricultural producers. First, the liberalisation of the financial sector led to a sharp decline in the value of the Rand, which increased the cost of farming inputs. Second, changes to the reserve requirements of the banking sector increased the cost of borrowing, as the Land Bank could no longer afford to subsidise the borrowing costs of farmers.³⁸

Though the 1984 White Paper on agricultural policy (tabled after the new 1983 Constitution) placed a heavy emphasis on food self-sufficiency, and the maize sector continued to be subsidised throughout the 1980s, Vink & Kirsten (2000) have argued that the liberalisation drive, ignited by financial sector reform, was gaining irreversible momentum.

Maize sector subsidies in South Africa

Year	Value (Rm)
1980	44.7
1981	59.5
1982	82.9
1983	69.9
1984	132.4
1985	215
1986	250
1987	151
1988	359
1989	79.9
1990	76
1991	100
1992	100

Source: Vink & Kirsten (2000)

The passing of the 1937 Marketing Act (and its subsequent amendment in 1968) was supposed to usher in an era of 'orderly marketing'. However, some have contended that, far from this, the Act favoured a few within the farming sector rather than the sector as a whole. Small-scale (African) maize farmers were twice affected by these arrangements: they were often forced to sell maize at a discount, either through a marketing arrangement in the former homelands, where

they had to wait longer for payment, or via a white farmer; and up to 95% of small-scale producers were net consumers of maize.³⁹

Under the regime of state supported agriculture consumers, too, were poorly represented on the Maize Board, in contrast to millers and producers and consumers of animal feeds, resulting in a substantial transfer from the former to the latter; the Congress of South African Trade Union's (COSATU's) anti-VAT campaign of 1992 is considered the only successful consumer action related to maize for the entire period of state supported agriculture.⁴⁰

The overriding economic orthodoxy of the time pointed towards substantial gains to be had by consumers and producers with the state's withdrawal from agriculture. However, it is debatable whether these processes have resulted in any substantial benefits to anybody outside of South Africa's highly concentrated milling and retailing sector. This will be discussed in more detail below.

Liberalisation

As stated above, it is difficult to pinpoint a single or exact date to the liberalisation of the South African agricultural sector. It could be argued that the process began in earnest in the late 1970s, before accelerating from the unbanning of the African National Congress (ANC) in 1990 up to the first free elections of 1994 and the promulgation of the Marketing of Agricultural Products Act of 1996. Over the period in question South Africa was also busily re-integrating itself into the global economy, after years of isolation. Under the Marrakech agreement on agriculture, South Africa reduced import tariffs on agricultural goods at a faster rate than was required under the agreement.⁴¹

In 1991 consumer price controls for bread, maize meal and dairy products were abolished, followed by the Co-Operatives amendment Act of 1993, which allowed co-ops to purchase land and expand their business with non-members and into the former homeland areas.⁴² The trade in agricultural produce underwent a fundamental shift in 1995, when the South African Futures Exchange (SAFEX) began trading maize for the first time. By 1997 the



majority of the nation's major agricultural co-operatives, including Senwes, Afgri (formerly the Oos-Transvaalse Landboukoöperasie) and NWK, had privatised. Plant breeding and research also came to be increasingly an activity undertaken by the private sector. For example, from 2000–2008 the private sector registered 482 varieties of maize, compared to 16 registrations by the public sector. In 2008, private R&D on seed in South Africa topped US\$19,000,000.⁴³

In the milling sector, Premier Milling (owned by Liberty at the time), with a 20% market share, and Tiger Brands (owned by Barlow Rand) with 25% found themselves well positioned under the new dispensation.⁴⁴ It was assumed at the time that deregulation would result in lower maize meal prices; in the immediate post deregulation period the reverse happened. From 1997 to 2003 the margins accruing to millers and retailers rose from 29% to 42%, while maize meal prices increased from 16–20% over the same period.⁴⁵

Bernstein (2012) summarises the post-1994 period in South African agriculture as one where (white) South African agribusiness, with the aid of the last apartheid government, was able to reposition itself economically, legally, and politically to enter the new dispensation in a very strong position.⁴⁶

KEY DATES

1867 – Diamond discoveries at Kimberly
 1882 – Port Elizabeth Steam Mill Company (PESMC) formed, the forerunner of Pioneer Foods
 1886 – Gold discovered on the Witwatersrand
 1890s – First private maize seed companies emerge in South Africa
 1891 – PESMC merges with Attwell's Bakery (Cape Town) to form the South African Milling Company, Limited (SAMCO)
 1900s – Dent maize varieties first imported from the USA
 1907 – Fertilizers, Seeds and Agricultural Remedies Act
 1909 – SAMCO appoints its first representative in the Transvaal
 1912 – Wesgraan co-op formed by Swartland

grain farmers in Malmesburg
 1912 – Establishment of the Land Bank
 1913 – Natives Land Act
 1917 – Maize Breeders Association established
 1920 – Tiger Brands logo registered
 1922 – Co-operative societies Act (amended in 1925)
 1925 – Jungle Oats launched
 1925 – Government hybrid maize seed programme initiated
 1927 – Natives Administration Act
 1934 – Sasko begins wheat milling operations
 1935 – Mielie Control Act; Maize Advisory Council appointed, regulation of the export of maize
 1936 – Land Act
 1937 – Marketing Act
 1938 – First mielie scheme established under the Marketing Act
 1944 – Tiger Oats and the National Milling Company are incorporated and listed on the Johannesburg Stock Exchange (JSE)
 1944/45 – Single channel marketing system for maize begins
 1953 – Establishment of the Maize Board stabilisation fund
 1959 – SAMCO's head office moves from Port Elizabeth to Isando, on the East Rand
 1961 – Foundation Seeds Act
 1964 – SAMCO merges with Premier Milling
 1968 – Marketing Act
 1971 – Retail maize meal prices deregulated⁴⁷
 1979 – Regulation on enrichment of maize meal with vitamin B⁴⁸
 1979 – Research into genetically modified organisms (GMOs) begins in South Africa
 1980 – Establishment of NAMPO (now Grain SA) as the exclusive commodity organisation for maize recognised by government
 1982 – Tiger Brands taken over by Barlow Rand (now Barlow World)
 1987 – Summer grain scheme became single channel pool scheme
 1989 – First field trials of GM crops in South Africa
 1991 – Consumer price controls for bread, maize meal and dairy products abolished
 1993 – Co-operatives Amendment Act: Co-ops allowed to purchase land and expand business with non-members and in the former homeland areas (including selling of maize meal)
 1993 – Tiger Brands unbundled from the Barlow Group
 1994/95 – Deregulation started by freeing



up domestic grain market by implementing a surplus removal scheme, single maize marketing channel abolished

1995/96 – Partial freeing of exports to trade

1995 – Maize traded on the South African Futures Exchange (SAFEX) for the first time

1996 – Marketing of Agricultural Products Act, No.47 of 1996

1997 – Bokomo and Sasko merge to form Pioneer Foods

1997 – Monsanto’s GM insect resistant maize variety (MON810) approved for general release in South Africa

1998 – General Food Industries purchased Premier Food industries and merged into Premier Foods Limited

1999 – GMO Act comes into force

2003 – Mandatory fortification of maize meal expanded to include Vitamin A, Thiamine, Riboflavin, Niacin, Pyridoxine, Folic Acid, Iron and Zinc

2008 – Pioneer Foods lists on JSE

2008/09 – More than 50% of South Africa’s maize grown from GM seed

2011 – Mandatory GM labelling introduced under the Consumer Protection Act

MAIZE CULTIVATION IN SOUTH AFRICA

With the withdrawal of price support for maize farmers following the transition in South African agriculture, the area planted with maize has diminished significantly from its high of 4.6 million during the early 1980s to an average of around 2.6 million ha over the last decade (subject to annual fluctuations depending on market price signals). During the 2012/13 cropping season South African maize farmers planted 2.7 million ha of maize. Of this, 1.6 million ha was white maize and just over 1 million ha was yellow. Total production for the year was 11.7 million tons, of which 5.5 million tons was white maize.⁴⁹ That more yellow maize was produced on a smaller area can be attributed to the drought conditions of the last season, which affected white maize cultivation (generally the western side of the maize area) more than the yellow maize area (which is predominantly on the eastern side of the maize area).

The maize area has also shifted in a general north-easterly direction, towards areas with higher rainfall and better soils.⁵⁰ The majority of cultivation takes place in the Free State, the North-West and Mpumalanga. There has been a huge increase in the amount of maize grown under irrigation over the last decade: from 100

Cultivation, production, imports and export (5 year averages)

Period	White maize ha ^a	Total maize ha ^a	White maize production (tons) ^a	Total maize production (tons) ^a	White maize imports ^b	White maize exports ^b
1987/88 – 1991/92	1 994 800	3 546 000	3 917 000	7 480 800	20 200	740 000
1992/93 – 1996/97	1 829 070	3 444 530	4 532 750	8 830 038	167 000	612 400
1997/98 – 2001/02	1 835 997	2 996 185	5 107 824	8 576 794	10 000	412 800
2002/03 – 2006/07	1 686 450	2 598 050	5 442 730	8 813 290	61 600	932 400
2007/08 – 2011/12	1 600 040	2 608 080	6 975 400	11 951 000	9,200	1 290 000

Source: a) Crop Estimates Committee; b) South African Grain Information Service (SAGIS)



000 ha in 2000/01⁵¹ to 242 500 ha in 2012/13. The Free State (60 000 ha) and the Northern Cape (51 500 ha) are the two largest producers of maize under irrigation, followed by the North-West (36 000 ha) and KwaZulu-Natal (25 500 ha).⁵²

In 2011/12 the gross income from maize production was R25.8 billion, an enormous 121.8% increase on the 2010/11 season. During the 2011/12 season, only the poultry sector had a higher value, at R34 billion (R26.8 billion for meat and R7.4 billion for eggs).⁵³

South Africa has long been a major exporter of white maize. Under the state controlled maize marketing system the Maize Board purchased all surplus maize in South Africa and channelled it for export. From 1976 until 1990 it accounted for approximately 50% of the world's total white maize exports.⁵⁴ Though Africa has historically been the largest purchaser of South African white maize, in 2010 the combination of a huge surplus in South Africa and the southern African region, and restrictions on the import of GM maize in many African countries, left South African maize producers and traders looking further afield for export markets. As can be seen in the table below, in an ironic turn of history, Mexico, the centre of origin of maize, has become South Africa's single biggest export market for white maize (the vast majority of which is GM).

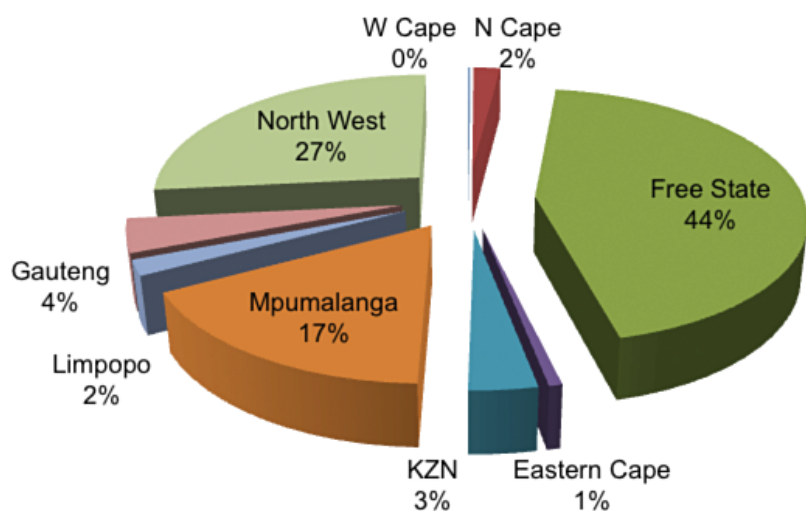
The value of the commercial seed market in

2012/13 was R3.4 billion, up from R1.3 billion in 2004/05.⁵⁵ South Africa remains the only country in the world that grows a genetically modified (GM) variety of its staple food. The first GM maize varieties were planted for commercial cultivation in 1998. According to the South African National Seed Organisation (SANSOR), 86% of the total 2012/13 maize crop was from genetically modified (GM) seed, while 80% of the white maize crop was from GM seed. GM seeds will be covered in more detail subsequently. The following section gives a breakdown of the maize value chain, from the seed and cultivation to milling and retailing. Some information is also given as to the relative levels of concentration and corporate power in each stage of the value chain, as this will impact upon its functioning.

MAIZE VALUE CHAIN

A value chain analysis seeks to break down and unpack the various stages of production and distribution inherent in a particular product (in this case a bag of maize meal on the shop or supermarket shelf). It allows for consideration and analysis of the various factors (e.g. climatic, technological, political, or economic) that influence each stage along the value chain and where and how interventions can be made, if desirable. Because historical information also exists for South Africa's maize sector before deregulation it is also feasible to compare the

Maize cultivation in South Africa, 2012/13



Source: Crop estimates committee



The South African maize seed market

Season	White maize seed market (R 000s)	Yellow maize seed market (R 000s)	Total	% maize seed sold GM	% of seed market for agronomic crops	Gross value of maize production (R 000s)
2012/13	1,755	1,721	3,476	86	80.9	
2011/12	1,047	823	1,870	72	80.4	24 512 412
2010/11	1,127	992	2,119	77	79.1	16 725 290
2009/10	1,106	839	1,945	58	79.9	13 485 988
2008/09			1,564	52	75.1	16 339 129
2007/08			1,571	42	83.8	21 926 055
2006/07			1,251	37	80.8	10 641 551
2005/06			790	23	71.2	7 418 730
2004/05			1,330	20	80.0	7 473 768

Source: SANSOR; DAFF.

South African white maize exports 2007/08–2013/14

marketing year	Imports (tons)	Exports (tons)	Major destinations (000 tons)
2013/14*	0	436 385	Mexico (190) Zimbabwe (71) Botswana (68) Zambia (46)
2012/13	10 562	1 399 986	Mexico (819) Botswana (159) Lesotho (135) Namibia (72) Mozambique (64) Italy (60) South Korea (50)
2011/12	113 771	1 733 711	Mexico (1 162) Botswana (150) Lesotho (139) Italy (68) Mozambique (65) South Korea (45)
2010/11	0	1 049 118	South Korea (203) Botswana (157) Italy (131) Lesotho (108) Namibia (80) Mozambique (73) Mexico (71) Swaziland (54)
2009/10	0	1 408 048	Kenya (837) Botswana (143) Lesotho (114) Mozambique (108) Zimbabwe (101) Namibia (75)
2008/09	0	1 899 463	Zimbabwe (525) Kenya (386) Mozambique (278) Botswana (277) Namibia (124) Lesotho
2007/08	46 350	396 832	Botswana (131) Lesotho (76) Namibia (55) Mozambique (47) Zimbabwe (45) Swaziland (39)

*Up to 4 October 2013

two maize value chain structures and see how agricultural organisations have responded to the political and economic changes that South Africa has undergone before, during, and after its transition to democracy. What follows is a very basic breakdown of the maize value chain to give a broad outline of the stages involved. A more detailed analysis of the structure of each

node in the value chain and the implications on the price of maize meal will be dealt with subsequently.

The seed appropriately enough forms the beginning of the maize value chain. The cumulative efforts that go into the maize seed planted by the farmers could be considered a

value chain in itself, encompassing research and development (in the laboratory or the field), seed production, processing, packaging, storage and distribution.⁵⁶ The introduction and widespread adoption of first hybrid and subsequently genetically modified (GM) maize seed has had a major impact on the functioning of the maize value chain in South Africa.

In South Africa virtually all commercial maize production (be it GM or non-GM) is from hybrid seeds. Unlike open-pollinated-varieties (OPVs), seed that is saved from a hybrid maize plant will not replicate the characteristics of its parent. This is not intentional, but due to physiological limits inherent in hybrid seeds. Nevertheless, for a farmer producing for a commercial market that demands uniformity (and who also needs the relative yield assurance of hybrids to cover production costs) there is an imperative to purchase fresh hybrid maize seed every year from a seed dealer, rather than re-use seed saved from the previous season's harvest.⁵⁷ Other inputs such as fertilisers and pesticides must also be purchased.

As the bulk of South Africa's maize crop is harvested from June to August, but the demand for maize meal will be constant throughout the year, harvested maize must be safely stored. Typically, this will be at one of the numerous grain storage silos that dot the South African countryside. There are 423 such silos in South Africa; 172 on-farm and 260 commercially owned.⁵⁸

With the abolishment of the State maize marketing channels private companies now act as intermediaries between the storage and processing of maize. In South Africa these comprise local and international grain traders (including Cargill, Louis Dreyfus, and Bunge). The major silo owners (such as Senwes or Afragri) also have grain trading operations (more details below).

Once received by the miller, the raw maize grain is either dry milled or wet milled. The wet milling process, which typically consumes less than 10% of South Africa's annual crop, is used to obtain pure starch from maize. The kernel is then separated into the husk, starch, gluten

and the germ. The husk, gluten, germ and the steep water used in the wet milling process are used for animal feed supplements. The starches and syrups derived from this process are put to a variety of end uses in the food industry (e.g. high fructose corn syrup – HFCS – and thickeners) and the manufacturing industry (paper, paint, textiles and medicines).⁵⁹

Super, special and sifted maize meals are produced by dry milling, which is produced using either single phase or roller milling. Single phase milling can include stone, plate, and hammer mills, which are generally of a much smaller scale than roller mills. Products that require a uniform, fine particle size (e.g. super maize meal) are processed in roller mills. These are highly mechanised, specialised plants that can process a wide range of products⁶⁰ (as well as being able to fortify super maize meal as required since 2003 by an Act of Parliament).

The process can be simplistically divided into three phases: physical separation of the pericarp germ/seed embryo and endosperm of the maize kernel from one another; sorting and classifying the particles into their respective groups; then sizing and reducing the endosperm particles to their required granulation as determined by the finished product. Different maize products have different extraction rates (the percentage of final product that is obtained from a quantity of raw maize grain). The higher the level of processing required, the lower the extraction rate. Thus, the extraction rate for super maize meal is said to be between 55% and 62.5%⁶¹, rising to 98% for ungifted maize meal.⁶²

Concentration, margins and profits in the maize value chain

The maize-to-maize-meal value chain in South Africa is extremely concentrated to the extent that the Competition Commission has investigated the markets for fertilisers, grain storage and trading, milling, and retailing. In addition, in 2010 the Commission prohibited the proposed acquisition of Pannar Seed, the largest remaining South African seed company, by Pioneer Hi-Bred, one of the world's largest seed companies and a subsidiary of the DuPont chemical corporation, over fears of reduced competition in the maize seed market



Concentration in the South African maize value chain

Node	Major players	Market share of major players
Inputs – seeds	Monsanto Pioneer Hi-Bred (DuPont)	65% (registrations) ⁶⁴
Inputs – fertiliser	SASOL Omnia Yara	86% ^a
Storage (all maize)	Senwes Afgri NWK	74%
Trading (all maize)	Cargill, Louis Dreyfus	70%
Milling (white maize)	Tiger Brands, Premier Food, Pioneer Food	60%
Retail (all food)	Shoprite/Checkers, Pick n Pay, Spar, Woolworths, Massmart (Wallmart)	60% ⁶⁵

a) Based on figures from 2008.

(a decision eventually overturned by the Competition Appeals Court in 2012).⁶³

The producer / Farm Gate price

The farm gate (or producer) price is the price the farmer receives for a set quantity of grain (expressed as a price per ton in the commercial maize market). It is derived from the South African Futures Exchange (SAFEX) spot (daily) price lagged by four months, minus the cost of transport to and storage at a grain silo. As a rule of thumb, it takes four months for the maize purchased by a trader or miller on any given day to end up on the retail shelf, hence the producer price is based on a four-month-old price.

The National Agricultural Marketing Council (NAMC) calculates the real farm value

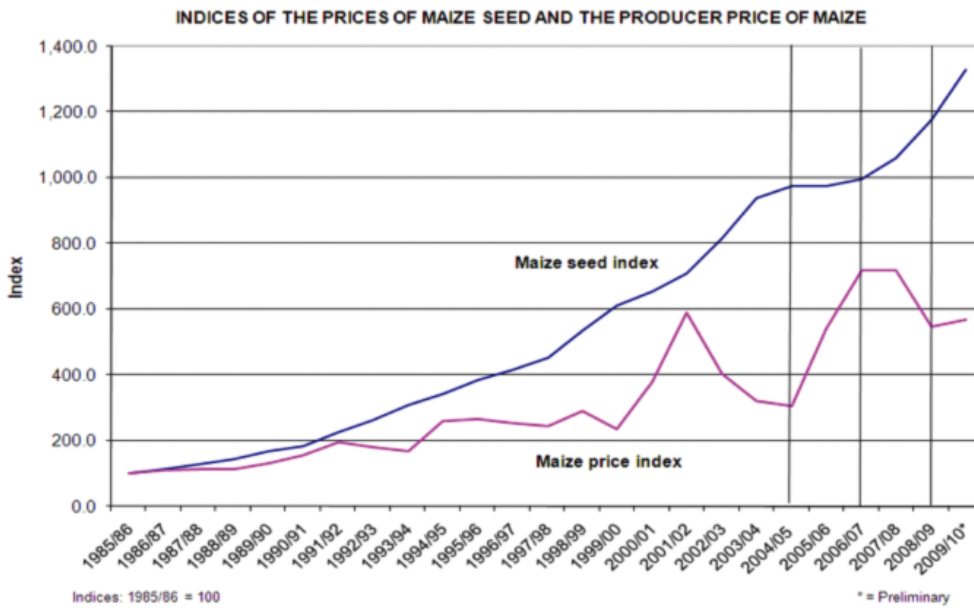
share of super and special maize meal in its quarterly food price monitor. As of July 2013, approximately 60% of the cost of super maize meal accrued to the farmer, a decline of 8.71% from July 2012 (when white maize prices were 10.88% higher). In early 2010, after a huge maize surplus was produced in South Africa, the farm value share of super maize meal fell to around 30%, not breaching 50% until early 2012. The share maize farmers receive of maize meal is generally much higher than the share received by wheat farmers, as there is another segment in the wheat value chain (baking) for profits to be shared around. However, the real farm value share for super maize meal is also much more volatile (as is the farm to retail price spread, which will be expanded upon later).⁶⁶

The real farm share does not take into account production costs, which have been

Maize seed variety ownership in South Africa

	Total registered varieties	Monsanto	Pioneer Hi-Bred (DuPont)	Klein Karoo (Zeder Investments)	Link Seed (Vilmorin)	Other	% owned by Monsanto / Pioneer
Yellow conventional	134	8	68	36	5		49.2
Yellow GM	119	17	78	14	0	10	79.8
White conventional	146	9	69	20	5	43	53.4
White GM	92	16	63	7	5	0	85.9
Total	491	50	177	77	15	81	64.7

Source: DAFF South African plant variety list, seed crops – March 2013



Source: Grain SA

rising steadily, and at a higher rate than the producer price for maize, for over 20 years. The three largest production costs for maize farmers are fertiliser, fuel, and seed (for farmers planting GM herbicide tolerant maize, herbicides are also a significant cost).⁶⁷ This has coincided with ever increasing concentration of the market for agricultural inputs. With the takeover of Pannar Seed by Pioneer Hi-Bred, there are now two seed companies that dominate the maize seed market in South Africa: Pioneer Hi-Bred and Monsanto. A 2008 report stated that 86% of the domestic fertiliser market, for which maize cultivation accounts for 40% of consumption, was controlled by Sasol, Yara and Omnia. In the interim, Yara's South African operation was sold to Kynoch, who were later taken over by Farmsecure. Current market shares are not available, though after a Competition Commission investigation in 2010, Sasol agreed to sell five of its regional blending plants and concentrate on the wholesale level.⁶⁸

Production data from Grain SA reveals how thin margins in maize production can be, and how sensitive production is to factors completely beyond the control of the farmers. The following example is based on production costs for GM insect resistant maize, in the central and northern Free State, and cannot be applied nationally. It is also dependent upon a number of assumptions and generalisations

based upon yield, the SAFEX price for maize, etc. Nonetheless, it is useful as a guide in assessing how much of the price of maize meal a farmer actually gets.

	Yield (ton / ha)		
	3.5	4.0	4.5
Seed (R/ha)	566.81	596.64	626.47
Fertiliser (R/ha)	1 453.7	1 749.7	1 985.4
Fuel (R/ha)	803.8	817.9	832.1
Total directly attributable costs	5,255	5,727	6,131
Total cost including physical marketing (per ton)	2,405	2,252	2,118
Current Safex price (per ton)	2,400	2,400	2,400
Profit (per ton)	-5	148	281

Source: Grain SA

Handling and storage

Though grain handling has been fully deregulated and privatised in South Africa, the bulk of grain storage infrastructure was built prior to this period. Under the old Co-



Operatives Act, competition was prohibited between the regional (farmer owned) co-operatives, resulting typically in one silo constituting its own market for up to 60 km in all directions. Thus, when the large co-operatives privatised during the 1990s, the new companies held de-facto storage monopolies across large swathes of South Africa's maize triangle. The three major silo owners, Afgri, Senwes, and NWK (who have all long since diversified into fully fledged agribusinesses) between them own 74% of South Africa's maize silo capacity.⁶⁹ Afgri emerged from the old Oos-Transvaal Ko-Op in present day Mpumalanga; NWK is the former Noordwes Ko-op; while Senwes' principle area of grain handling operations is in the Free State.

These three giants of South African agriculture have extensive interests throughout the value chain, and have formed a number of strategic partnerships among themselves and with other international agribusiness corporations. In 2011 Senwes announced a joint venture with Bunge, one of the world's largest grain traders.⁷⁰ In April 2012 Senwes and NKW merged their respective insurance businesses into one entity, while a year later the Competition Commission approved the merger of Afgri and Senwes' retail operations. In September 2013 logistics firm Grindrod acquired a 20% stake in Senwes for R444 million. Grindrod are 23.5% owned by Remgro,⁷¹ the R105 billion investment conglomerate founded and controlled by the Rupert family. Remgro's other investments in the food industry include Rainbow chicken, TSB sugar, and Unilever.⁷²

At the time of writing the future of Afgri remains unclear. In September 2013 it was announced that the company, the largest supplier of John Deere tractors on the African continent, was subject to a R2.6 billion bid from Mauritius based investment group AgriGroupe. According to AgriGroupe, about 70% of the investors in the proposed deal are based in North America.⁷³

Trading

Under the old single marketing channel, the Maize Board would buy all the maize at the time of harvest (at a guaranteed fixed price

to support the farmer) before selling to the various maize millers. This all changed in 1995, when maize began to be traded on the South African Futures Exchange (SAFEX), and the price of maize became subject to market forces, with private grain traders stepping into the role that had been left vacant with the dissolution of the Maize Board. As well as domestic and international supply and demand, the US dollar exchange rate also has a major impact on the SAFEX maize price (the United States is the world's largest producer and exporter of maize and therefore has a profound influence on the global maize market).⁷⁴

Grain on SAFEX must be traded in the form of a negotiable instrument that can be traded multiple times, an instrument referred to as a silo certificate. A maize silo certificate is issued when a farmer delivers 100 tons of maize to the silo (the maize could be delivered incrementally, but the certificate will only be issued at the 100 ton mark). While in storage the maize remains the property of the farmer, who can choose when to sell the certificate. On SAFEX, grain, including maize, trades on a 'spot' market (i.e. the price for that day) and a futures market. There are five futures options on SAFEX, each expiring on the sixth last business day of March, May, July, September and December.

Buyers (millers or traders) and sellers (farmers or traders) of maize use the futures market to 'hedge' against perceived risks in the future. For example, in November (the beginning of the growing season in South Africa) a farmer may be concerned that by July (when the maize harvest begins) the maize price will have dropped, and will therefore agree to sell a portion of their future harvest at the prevailing July futures price (if the maize price actually rises over the course of the season they will lose out, as they will be obliged to sell at the agreed lower price).

A miller, on the other hand, will always seek to buy at the lowest possible price. If, for example, during August the maize price is low, the miller, who needs to buy maize throughout the year, can purchase a November maize futures contract (the price of which will be determined by the lower spot price) and thereby protect themselves against any price increases. Again, if by November the maize price has fallen the



miller will lose out, as the November futures contracts they have will compel them to purchase at a higher price. As a rule of thumb, farmers typically sell 30% of their crop before the harvest, 30% at harvest, with the balance being carried for a longer term to sell later in the season.⁷⁵

There are 56 official traders listed on SAFEX⁷⁶, ranging from small local firms to the largest international financial institutions and traders. Many of these traders will never physically handle any maize, but are speculators seeking to profit from price movements over time; the electronic trade in silo certificates on SAFEX exceeds the physical quantities of maize traded by a factor of eight, while it is not unusual for a silo certificate to be traded up to 25 times.⁷⁷ Cargill and Louis Dreyfus, two of the so-called 'ABCD group' of international grain traders, 'dominate' maize trading on SAFEX⁷⁸ accounting for up to 70% of trades, according to some sources.⁷⁹

In any commodities market there are risks of speculators manipulating prices. During the 2001/2 maize price spikes, one firm in particular, W. J. Morgan and Associates, was alleged to have adopted a 'controversially large' position in support of higher maize prices. The firm's activities were further strengthened by its ability to trade on behalf of the Joint Municipal Workers Pension Fund. At this time there were no position limits⁸⁰ on white maize contracts on SAFEX. In their written submission to the Food Price Monitoring Committee (FPMC), SAFEX estimated that this lack of position limits increased the price of maize from 2–10%. As a result, positional limits on white maize were instituted from the July 1 2003.⁸¹ In October 2003 a SAFEX disciplinary committee fined and expelled W. J. Morgan and Associates, and its two directors, from the exchange.⁸²

This node of the value chain (that connects the farmer to the processor) is further complicated as some of the largest silo owners are also traders. For example, during 2003/04 Senwes and Afgri were estimated to account for more than 30% of the grain traded on SAFEX.⁸³ This is important as the price a trader will buy and/or sell maize at is based on the SAFEX price plus transport, storage and handling costs,

as well as their own commission. Transport costs (known as 'the transport differential') are calculated on the cost of transporting the maize, by rail, from the specific silo to Randfontein, where, historically, many processors were located. This method is not without its critics: Grain SA, who represents the interests of commercial grain farmers, has called for a review of the way the differential is calculated, a call that was rejected by the National Agricultural Marketing Council (NAMC).⁸⁴

Storage costs are also set by SAFEX, though there is some debate within the industry as to whether these tariffs are the result of negotiation between all relevant actors or merely the subject of a diktat from the silo owners. In February 2009, following over four years of investigations and hearings, the Competition Tribunal ruled that Senwes had abused its dominant position in the maize storage market by offering lower storage costs to farmers who agreed to sell maize to their trading division.⁸⁵

Handling and storage costs (as well as commissions paid during maize procurement) contribute to the 'mill door price', the price a miller will pay for a certain quantity of maize. As seen below, during 2011 (the latest available data) storage, handling and commission costs equalled 19% of the mill door price, which translated into 7.1% of the retail price for super maize meal.

	2003	2009	2010	2011
– Storage, handling (% of mill door price)	-	13	20	19
– Storage, handling (% retail price)	6.5	6.5	7.7	7.1

Milling and retail

From receipt of raw grain maize at the mill door to the retailing of super maize meal entails a number of processes and costs. These costs could be specific to the maize milling industry (such as the price of maize) or subject



to the vagaries of the wider economy (energy or fuel costs for example). Because this paper is primarily concerned with the behaviour of the largest white maize millers, this section will focus on milling rather than retail. It would, however, be counterintuitive to treat these two sectors as completely separate entities; the miller-to-retail margin of super maize meal (as calculated by the NAMC) is the clearest publically available indicator of profit margins in the milling and retailing of super maize meal, yet, within this margin lie the profits to the miller, the costs and profits of the retailer, and a host of complicated (and often confidential) agreements between the major food processors and retailers.

The millers' costs can be broadly divided into two categories: the cost of buying the maize grain (the 'mill door cost') and the cost of processing that grain into maize meal and distributing the final product to the retail space (the 'conversion cost'). In South Africa millers generally prefer to buy maize from registered silos because of quality control exercised by silo owners and because storage capacity at mills is generally limited.⁸⁶ The miller purchases maize from a trader who, as illustrated above, could also be a silo owner, at the 'mill door price'. This is the combined cost of the raw maize, as dictated by the SAFEX price, storage, handling, and commission costs, and transport costs (including the transport differential). The miller can recover some of this

initial cost by selling the leftover maize from the milling process to the animal feed industry as 'chop' (remember, on average only 63% of the raw maize purchased at the door will make it into a packet of super maize meal).

Information from the NAMC shows that the mill door price's overall contribution to the retail price fell from 2009 to 2011. It would appear that the falling cost of maize over this period would be the primary factor (it would be interesting to see the figures for 2012 when the maize price was generally higher. Sadly, this information was not available at the time of writing). Transport costs have also hovered between 10–12% of the mill door price over the period under review, and do not appear to have shifted since 2003. Again, it would be interesting to note the impact that the near continual increase in petrol and diesel prices in the interim have had.

Since 2009 the NAMC's has given two sets of figures regarding conversion costs, based on the assumptions of a more or less efficient production process, and the resultant savings for milling operations. Slight changes can be seen between the years under review. Looking at the two segments it is clear that transportation (both to and from the milling operation) contributes to approximately 20% of the retail cost. Reducing these costs is one of the major rationales behind the government's wish to establish a small scale maize milling

	2003	2009		2010		2011	
Mill door price as % of retail price	47.3	50		39.3		37.8	
– Grain (% of retail)	33.3	33		19.3		19.6	
– Storage, handling (% retail)	6.5	6.5		7.7		7.1	
– Transport (% retail)	10.5	10.5		12.3		10.9	
Cost scenario	–	Low	High	Low	High	Low	High
Conversion costs as % of retail price	35.7	33.1	36.6	38.4	42.5	36.4	40.2
– Manufacturing (% retail)	18	16.6	18.4	19.3	21.3	19	21
– Distribution (% retail)	7.4	8.2	9.1	9.5	10.5	8.2	9.1
– Capital costs (% retail)	10.3	8.2	9.1	9.6	10.7	9.1	10.1



industry in South Africa (see box p.25). The power of the major milling companies to influence the price of maize was spectacularly illustrated in 2003, when the Food Price Monitoring Committee (FPMC) found ‘asymmetric price transmission’ in the maize sector during the rapid price increases around that time. Even though there should have been a four month lag between the SAFEX (spot) price and the retail price, millers responded by transmitting price increases to the consumer immediately. When spot prices started to decline, these lower costs to the millers were not transmitted to consumers until much later.⁸⁷

Today the industry for white maize milling in South Africa is still dominated by three firms: Tiger Brands, Premier Foods, and Pioneer Foods, who mill approximately 60% of the nation’s white maize crop between them.⁸⁸ This level of concentration is in stark contrast to other countries with large, well developed agro-processing industries. The milling industry in the United States is fragmented, with the top 25 companies accounting for 25% of the industry’s revenue. In the UK there are around 30 companies, with the top accounting for approximately 40% of production and a further 20 companies producing ‘significant quantities’ of flour. In the European Union the number of flour milling companies exceeds 3,000, of which a large majority are small and medium enterprises.⁸⁹

The South African food retail sector is equally concentrated. The largest five companies, Shoprite / Checkers, Pick n Pay, Spar, Woolworths, and Massmart (Wallmart) control 60% of the entire food retail market. In the formal market this is even more pronounced, with Shoprite (36%), Pick n Pay, and Spar (both 28%) controlling 92% of the market.⁹⁰ Though the formal supermarket chains have only recently begun trading in South Africa’s townships, in competition with

thousands of informal spaza shops, in a survey conducted in Johannesburg, just over one third of respondents purchased food from supermarkets at least once a week, leading the study’s authors to conclude that supermarkets are predominantly used by the urban poor to purchase staple items, including maize meal.⁹¹

During 2009 and 2010 the Competition Commission investigated the retail of key staple foods, including maize, bread, poultry, and milk, by Pick n Pay, Shoprite/Checkers, Woolworths, and Spar, as well as the wholesale retailers, Massmart and Metcash. The investigation had been launched amid concerns over rising food costs, increasing farm-to-retail price spreads, high market concentration, significant barriers to entry and high profit margins of the major retailers. Though the Commission found insufficient evidence to show contraventions of the Competition Act, it noted with concern the impact that information exchange (via third-party market research companies such as AC Nielsen and Synovate) could have upon the supply level of the retail system. In addition, the investigation did little to alleviate the Commission’s concerns over barriers to entry of small suppliers to supermarkets.⁹²

As can be seen below, from 2009 to 2011 the miller-to-retail margin of super maize meal, even allowing for varying production cost scenarios, has clearly been rising.

Though no recent information on the miller-to-retail margin is available, recent price movements, together with the healthy operating profits reported by the three major millers (more below) suggest that these margins are unlikely to be falling. From July 2012 to July 2013 the SAFEX white maize price fell by 10.88%, yet the urban price of 5 kg of super maize meal only fell by 0.08%. The price of special maize meal actually rose, albeit by only 0.79%. In rural areas from April 2012 to July

	2003	2009		2010		2011	
Cost scenario	–	Low	High	Low	High	Low	High
Miller to retail margin (% of retail price)	17	17	13.5	22.2	18.2	25.9	22.1



The South African maize to super-maize meal value chain

	2003	2009		2010		2011	
Average monthly retail price (R / ton)	2964	4,17.6		3,874.4		4,528.3	
Mill door price as % of retail price	47.3	50		39.3		37.8	
– Grain (% of retail)	33.3	33		19.3		19.6	
– Storage, handling (% retail)	6.5	6.5		7.7		7.1	
– Transport (% retail)	10.5	10.5		12.3		10.9	
Cost scenario	-	Low	High	Low	High	Low	High
Conversion costs as % of retail price	35.7	33.1	36.6	38.4	42.5	36.4	40.2
– Manufacturing (% retail)	18	16.6	18.4	19.3	21.3	19	21
– Distribution (% retail)	7.4	8.2	9.1	9.5	10.5	8.2	9.1
– Capital costs (% retail)	10.3	8.2	9.1	9.6	10.7	9.1	10.1
Miller to retail margin (% of retail price)	17	17	13.5	22.2	18.2	25.9	22.1

Adapted from: NAMC (2009, 2010, 2011); Jooste (2012)

2013 maize product prices adjusted accordingly: 12.5kg (-19.13%), 5kg (+1.92%), 2.5kg (-0.91%), 1kg (-9.89%). Even allowing for a four month lag, this indicates that, as in the past, millers and retailers appear not to be passing on falling maize prices to consumers. Over the same period, the farm to retail price spread rose by 11.7%, while the real farm value share of super maize meal fell by 8.71%.⁹³

In summary

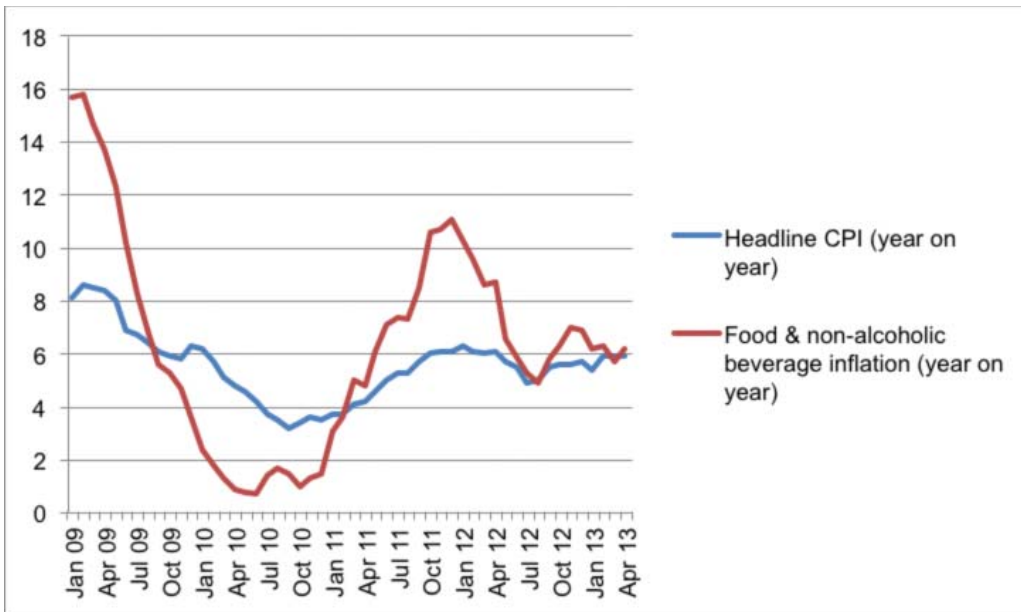
Looking at an overall picture, and taking into account fluctuations in other production costs, it appears as if South Africa's major millers and retailers have been making healthy profits from our staple food for a number of years, and that the liberalisation of the sector has failed to sufficiently reign these in.

INFLATION, FOOD AND MAIZE MEAL COSTS IN SOUTH AFRICA

In South Africa maize is considered a 'wage good'. These are commodities that account for such a large share of consumer expenditure that their price often influences the supply of labour and wage rates⁹⁴, as well as on the wider social landscape. Thus, sharp increases in the price of maize meal serve to aggravate the already appalling conditions that millions of South Africans live under. It cannot be a coincidence that two of the most violent periods in South Africa's post-Apartheid history, the xenophobic violence in 2008 and the Marikana massacre on South Africa's platinum belt, occurred after periods of prolonged food price increases.⁹⁵

As can be seen in the graph below, food inflation has, bar during 2010, been consistently



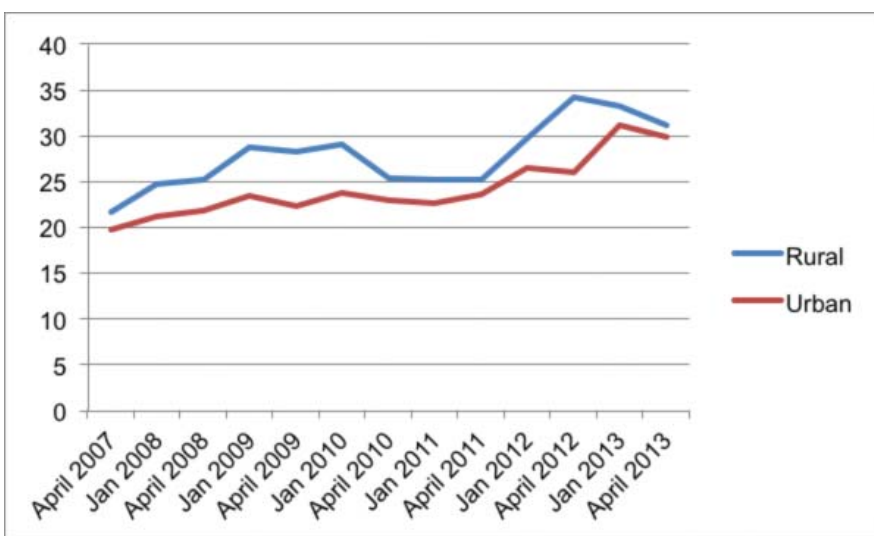


Source: Stats SA

higher than the headline inflation. This is particularly significant for the poor, who spend a far greater proportion of their income on food. According to the National Agricultural Marketing Council (NAMC), in April 2008, the poorest 30% of the population spent 28% of their income on an average 'food basket'.⁹⁶ By July 2013 this figure had increased to an astonishing 41.9%.⁹⁷

From April 2007 to April 2013 the average cost of a 5 kg bag of maize meal increased by 43.7% in rural areas, and 51.8% in urban areas. As can be seen in the graph below, rural consumers also typically pay more for maize meal than those residing in urban areas. In January 2009 a 5 kg bag of maize meal cost, on average, R5.42 more than in urban areas.⁹⁸ Though this gap has closed more recently, in January 2013 the gap was still R2.20.⁹⁹

Cost of 5kg bag of maize meal for urban and rural areas in South Africa (Rs)



Source: National Agricultural marketing council

Can small scale millers reduce maize meal costs?

Small scale millers are defined as those operating at a capacity below five tons per hour, using either stone, plate, or hammer mill techniques (the first two being the closest methods to those used by the first millers), as opposed to the highly mechanised roller milling technology employed by the likes of Tiger, Premier, and Pioneer. Their mode of operation consists two broad categories: the 'rural custom' or 'services mill', where small volumes of maize are milled for a fee, or production mills that buy, mill, and then sell on the maize meal to local customers.¹⁰⁰ Before milling industry regulations were implemented in the 1930s, between 1,500 and 2,000 such mills were in operation throughout South Africa.¹⁰¹

Though there has been a proliferation of small and informal millers since 1996¹⁰², for various reasons, including high transport and maize costs, inadequate storage facilities and consumer preferences for branded products,¹⁰³ the major milling companies still dominate the industry. More than 50 mills have closed in recent years. Previous research has also revealed that some commercial millers have admitted to 'dumping' special and sifted maize meal (which requires less processing and is therefore cheaper to produce for small-scale millers) into the Eastern Cape, to maintain market share, though the authors were cautious to state that further research would be needed on this.¹⁰⁴

Recognising the high levels of concentration and that 'domestic (maize) prices appear to be subject to anti-competitive behaviour', the Department of Trade and Industry (DTI) has prioritised the creation of a small-scale milling industry. At a recent stakeholder meeting in Johannesburg the DTI announced plans to launch 10 to 12 small scale milling projects over the coming year, hoping to reduce the cost of maize meal by at least 20% in the process.¹⁰⁵ The Agro-processing Business Unit (ABU) of the Department of Trade and Industry (DTI) has also signed a memorandum of understanding with Foundation for African Business and Consumer Services (FABCOS) and the Old Mutual Masisizane Fund to support six mills in the Eastern Cape to the tune of R260 million.¹⁰⁶ The National Chamber of Milling's (NCM) reaction to these proposals could be best described as lukewarm, calling the initiative 'an escalating threat to many millers' and wishing to work with government to find a 'prudent way forward'.¹⁰⁷

Companies operating in the private sector have also started to recognise the potential of small-scale, localised milling operations. KwaZulu-Natal, in which less than 7% of the province's annual consumption of one million tons is milled, is a case in point. Kuvusa mills, majority owned by African micro mills, has just commissioned a maize micro mill (2–3 tons/hour) in Riverhorse Valley, Durban, and hopes to be operational by February 2014. Kuvusa also plans to open micro mills in Harrismith, Kokstad and Jozini. The DTI has approved a grant for the Riverhorse Valley Mill worth between 20%–25% of the total capital costs of the project.¹⁰⁸

GENETICALLY MODIFIED MAIZE IN THE VALUE CHAIN

History and overview

Research into genetically modified (GM) crops has been taking place in South Africa since 1979 under the now defunct South African Committee on Genetic Experimentation (SAGENE). In 1989 SAGENE was given the mandate to advise on biosafety issues, and advised the Department of Agriculture when it received its first application for a GM field trial, for GM insect resistant (IR) cotton variety.

SAGENE continued to act as regulators until the GMO Act (which had principally been drafted by SAGENE members) came into effect on 1 December 1999. Many of SAGENE's members had close links with the biotechnology industry, such as AfricaBio members Muffy Koch and Jennifer Thompson, and Jane Morris, who was nominated onto SAGENE by the South African Chamber of Business.¹⁰⁹

With the approval of the first varieties of genetically modified (GM) crops for commercial cultivation in 1997, Monsanto's insect resistant (IR) varieties of cotton and maize (MON 810), South African agriculture ushered in a new era, the impacts of which only now are beginning to be understood. Monsanto's herbicide



GM maize varieties ('events') approved for general release in South Africa

Event	Trait	Company	Year Approved
TC 1507	Insect Resistant (IR) x Herbicide Tolerant (HT)	Pioneer Hi-Bred	2012
Bt 11 x GA 21	IR x HT	Syngenta	2010
MON 89304 x NK 603	IR x HT	Monsanto	2010
MON 89034	IR	Monsanto	2010
MON 810 x NK 603	IR x HT	Monsanto	2007
Bt 11	IR	Syngenta	2003
NK 603	HT	Monsanto	2002
MON 810	IR	Monsanto	1997

Source: Department of Agriculture, Forestry and Fisheries

tolerant (HT) soybean variety, 'Roundup Ready' under its commercial moniker, was approved in 2001. Since 1997, seven more GM maize varieties have been approved for general release (see table above), while numerous more varieties have been undergoing field trials (see appendix).

Of the seven varieties approved for commercial cultivation, four are for 'stacked' varieties that are both insect resistant and herbicide tolerant. A stacked GM variety is produced by breeding together (in a conventional manner) two (or more) GM maize varieties. For example, the stacked Monsanto variety MON 810 x NK 603 is produced by breeding together the GM varieties MON 810 and NK 603. The first stacked GM maize varieties released in South Africa (such as MON 810 x NK 603) offered a seed that combined insect resistance with herbicide tolerance. More recently, stacked varieties have combined two or more genes of the same 'trait', such as Monsanto's MON 89034, which contains the genes Cry1A.105 and Cry2Ab2 (both inferring insect resistance), as the original insect resistant variety MON 810 (containing Cry1Ab) has lost its efficacy. In the United States, Monsanto and Dow have released a GM maize variety, known commercially as 'Smartstax', which contains six genes inferring insect resistance. The issue of insect resistance to MON810 in South Africa is discussed at length in an ACB publication.

A similar process is underway in HT crop development, as millions of ha of farmland

in the United States (where HT crops have been grown the longest) are now covered in 'super-weeds' that have developed resistance to glyphosate. The response of the biotech industry has been to develop new varieties of GM HT crops tolerant to older and even more toxic herbicides based on chemicals such as 2,4-D, glufosinate, Dicamba and Isoxaflutol. In 2012 the South African regulators approved for import GM maize and soybean varieties tolerant to 2,4-D (see below), and a glufosinate tolerant GM maize variety from Pioneer Hi-Bred (due to health risks the use of glufosinate will be completely phased out in the European Union by 2017).¹¹⁰

The uptake of GM crops by South Africa's commercial farmers has been startling. From just over a quarter of the nation's white maize coming from GM seed in 2005/06, during 2012/13 fully 81% of the white maize seed sold was GM, with the GM white maize are covering over 1.3 million ha (the total GM maize area in 2012/13 was just under 2.4 million ha).¹¹¹

Regulation and Risk

Amazingly, the rapid spread of this highly controversial agricultural technology has taken place with the bare minimum of government oversight. Monsanto's *Bt* maize, MON810, grown extensively in South Africa for 15 years, has failed hopelessly as a result of massive insect resistance. In an effort to deal with the pest infestation, Monsanto has compensated South African farmers who experienced more



GM maize in South Africa

Season	GM seed as % of total white maize seed sold	GM white maize area (ha)	Stacked GM maize as % of area
2012/13	81	1,321	49
2011/12	72	1,126	41
2010/11	75	1,060	41
2009/10	70	1,212	16
2008/09	59	892	19
2007/08	56	975	5
2006/07	52	851	0
2005/06	27	281	0

Source: USDA (2013)

than 10% damage on their genetically modified (GM) insect resistant crops – some farmers experienced as high as 50% insect infestation. MON810 is now obsolete in SA and has been replaced with Monsanto's GM stacked variety, MON8903, which expresses two different cry proteins, Cry1A.105 and Cry2Ab. *Bt* technology was approved in SA before regulatory authorities were capacitated to regulate it properly. MON810 was not fit for commercial release and should never have been granted commercial approval. The necessary monitoring of insect resistance was not carried out and regulators did not ensure that farmers were carrying out the required insect resistance management (IRM) strategies, i.e. planting refuges.¹¹²

For nearly a decade the ACB has attempted to engage with the regulatory process around GM crops in South Africa, having written extensive critiques of the GMO Act¹¹³ and submitted more than 40 scientific objections¹¹⁴ to various applications to bring GM crops to the market. Summarising what has been written extensively and in detail elsewhere, the GMO regulatory regime in South Africa suffers from a worrying lack of transparency, minimal opportunities for interventions by civil society, and the reliance by our regulators on industry sponsored risk assessment data that does not stand up to independent scrutiny. As an example, during 2012 the ACB obtained non-confidential versions of several GM approval applications. In each application, reference was made to the obligatory animal feeding

study as proof of safety. However, much of the information required¹¹⁵ to independently verify these claims was missing.¹¹⁶ Following public outcry over the decision to approve a GM maize variety engineered by Dow to tolerate herbicides based on the highly toxic chemical 2,4-D, public hearings into the GMO decision making process were held at the South African Parliament on 13 September 2013.¹¹⁷

There is a large and growing body of scientific evidence pointing towards severe potential health risks of consuming GM crops, including maize. Animal feeding studies have shown *Bt* maize to cause liver and kidney damage in rats, mice, sheep¹¹⁸ and, most recently, severe stomach inflammation in pigs.¹¹⁹ Further, approximately 64% of the GM maize grown in South Africa is tolerant to glyphosate, a broad spectrum herbicide associated with a plethora of health risks to human, animal and environmental health. As plantings of glyphosate tolerant crops have increased in South Africa, so has use of the chemical itself. From 2005–2012, overall use of glyphosate increased from 12 million to 20 million litres annually, while from 2007–2011 glyphosate imports increased by 177%.¹²⁰ Though there are maximum residue levels permitted for glyphosate in maize in South Africa, research by the ACB in 2012 revealed a complete absence of testing for this (the Department of Health has subsequently pledged to begin a 'test run' for glyphosate residue measurement in maize and soya flour during 2012/13).

GM labelling

The majority of South Africans have been completely unaware of this state of affairs as, until recently, there has been no mandatory requirement that foods containing GM ingredients should be labelled. Regulations passed by the Department of Health in 2004 require the labelling of any foodstuff with GM ingredients that are significantly different to the norm in respect of the composition, nutritional value, and mode of storage, preparation or cooking, allergenicity or human or animal origin. As none of the GM crops currently grown in South Africa fulfilled these requirements, labelling did not apply.¹²¹

This all changed with the promulgation of the Consumer Protection Act (Act No. 68 of 2008), which came into effect on 1 April 2011. From 1 October 2011, draft regulations under the Act came into effect requiring food producers, importers and packagers to label all food items that contain ingredients that contain 5% GM content or more (e.g. a bag of maize meal where 5% of the maize is derived from GM maize, or a breakfast cereal containing both soya and maize flour, either of which could contain 5% GM ingredients).

In the intervening period, the food and biotechnology industry has engaged in a flurry of lobbying activity. AfricaBio, a pro-GM lobbying organisation with close ties to the bio-tech industry¹²², has, in its own words, 'forged a strategic partnership with the National Chamber of Milling (NCM) and the Consumer Groups Council of South Africa (CGCSA) in an attempt to put more pressure on the NCM, the Minister and to engage the Portfolio committee on Trade and Industry on these (GM labelling) issues'.¹²³ Tiger Brands and Pioneer Foods are both represented on the CGCSA.¹²⁴ As a result, the Department of Trade and Industry redrafted the regulations and published these for comments more than a year ago. However, at the time of writing, amended regulations were not yet promulgated.

Meanwhile, a concerted media campaign against labelling has claimed that GM labelling will cause food prices to increase by up to 10%.¹²⁵ Extensive studies from the European

Union indicated that, if implemented, an EU-wide GM labelling regime would result in price increases from between 0.01 and 0.17%.¹²⁶

The other oft heard argument in the debate is how GM crops are vital to improve agricultural yields in a sustainable manner. Considering that overall pesticide use has increased in every region that has adopted GM crops, from North and South America to South Africa¹²⁷, it is a wonder that these arguments can be made with a straight face. The landmark International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), the largest study of its kind ever undertaken, was dismissive of the impacts of GM crops on improving yields¹²⁸, while studies from the United States have put the lion's share of agricultural yield gains down to conventional breeding techniques.¹²⁹

While maize yields have increased over the last 20 years in South Africa, this has gone hand in hand with improvements in conventional plant breeding, agricultural management practices and a shift to areas with higher inherent production potentials. There has also been a huge increase in the amount of maize grown under irrigation over the last decade; from 100 000 ha in 2000/01¹³⁰, to 242 500 ha in 2012/13. Average yields for the last season under irrigation were 10.1 tons per ha, compared to 3.5 tons per ha for dry-land cultivation.¹³¹

That said, the implementation of GM labelling will have impacts along the whole value chain, and require the development of segregation, identity and testing systems along the chain. Though these would bring challenges, there are systems already in place that can be built upon. The ACB has previously written at length about the implications of GM labelling on the maize value chain in South Africa.¹³² Some South African companies have already chosen to source non-GM maize and soya for their products (Futurelife's recent announcement being a case in point¹³³). Others have gone, surreptitiously (Nestle) or publically (Tiger Brands, after much back-peddling), to go GM free on certain product lines. These decisions were driven largely by consumer pressure, following GMO testing carried out on food products by the ACB during 2012 and 2013.



ACB GMO testing on food products in South Africa

Year of test	Product	GM content
2012	Futurelife	100% GM maize, 37% GM soya
2012	Bokomo wheat free Pronutro	90% GM maize, 71% GM soya
2012	Nestle Cerelac infant cereal	76% GM maize
2012	Impala maize meal	66% GM maize
2013	Purity Cream of Maize	56% GM maize
2013	Purity Baby First	71% GM maize
2013	Ace super maize meal	78% GM maize
2013	Ace maize rice	70% GM maize
2013	Ace instant porridge	68% GM maize
2013	Lion samp and beans	48% GM maize
2013	Jungle Breakfast	41% GM maize
2013	Nyala super maize meal	87% GM maize
2013	White Star super maize meal	72% GM maize
2013	Premier Course Braai Pap	55% GM maize
2013	Woolworths super maize meal	79% GM maize
2013	Iwisa super maize meal	81% GM maize



What has become clear is that, labelling or not, for the majority of South Africans who eat maize meal on a daily basis there is no alternative to eating GM food.

THE BIG THREE

The three largest maize millers in South Africa are also among the largest food companies in the country, producing some 60% of the nation's maize meal between them. Tiger Brands is considered the largest fast moving consumer goods (FMCG) company on the African continent, where all three companies have been expanding their operations in recent years.

In March 2007 the Competition Commission initiated a complaint against all three companies, as well as Foodcorp, Pride Milling and Progress Milling in respect of alleged collusive activities in the maize milling industry. The investigation subsequently spread throughout the industry, to include: Blinkwater Mills, Godrich Milling, TKW Milling, Keystone Milling, Westra Milling, Carolina Rollermeule, Brenner Mills, Paramount Mills, NTK Milling, Kael Mills, Bothaville Milling, and Allem Brothers.¹³⁴

The Commission's investigations revealed that over an eight-year period, from 1999–2007,

cartel members held numerous meetings and telephonic discussions in which they agreed to fix the price of both wheat and white maize products and to create uniform price lists for wholesale, retail and general trade customers. They also agreed on the timing of price increases and their implementation. Premier was granted immunity from prosecution in exchange for co-operating with the Commission, while Tiger, who also co-operated, agreed to a fine of R98 million. Pioneer Foods, who chose not to co-operate, eventually settled with the Commission for a whopping R1 billion.¹³⁵

Following the Competition Commission's findings four major members resigned from the National Chamber of Milling (NCM) amidst concerns over information sharing. Consequently, the NCM, which represented 85% of the maize milling industry in 2003,¹³⁶ was forced to cease issuing monthly information on staple food trends in South Africa.¹³⁷ Though discussions between the NCM and the Competition Commission have been ongoing, and Premier Foods returned to the NCM in 2013, at the time of writing the issue remains unresolved.¹³⁸

In June 2013 a Constitutional Court judgement opened the way for a group of small bread distributors from the Western Cape to launch a class action against Pioneer, Premier, and Tiger Brands.¹³⁹

Revenue (R 000s), and profit margins (%) for Tiger Brands, Pioneer and Premier

Year	Tiger Brands			Pioneer Foods			Premier Foods	
	Total Revenue	Op. profit margin	Milling and baking profit margin	Total Revenue	Op. profit margin	Sasko (milling & baking)	Revenue	After tax profit
2012	22 771	15.3	22	18 609	6.2	9.5	5,731	-9
2011	20 479	15.9	22.3	16 853	7.3	9.7	4,896	203
2010	19 378	15.6	23.3	15 731	9.3	11.8	5,298	57
2009	20 643	15.5	18.5	16 283	7.4	10.4	5,575	80
2008	20 126	13.3	12.9	14 884	5.8	7.6	No data	No data

Source: company financial statements



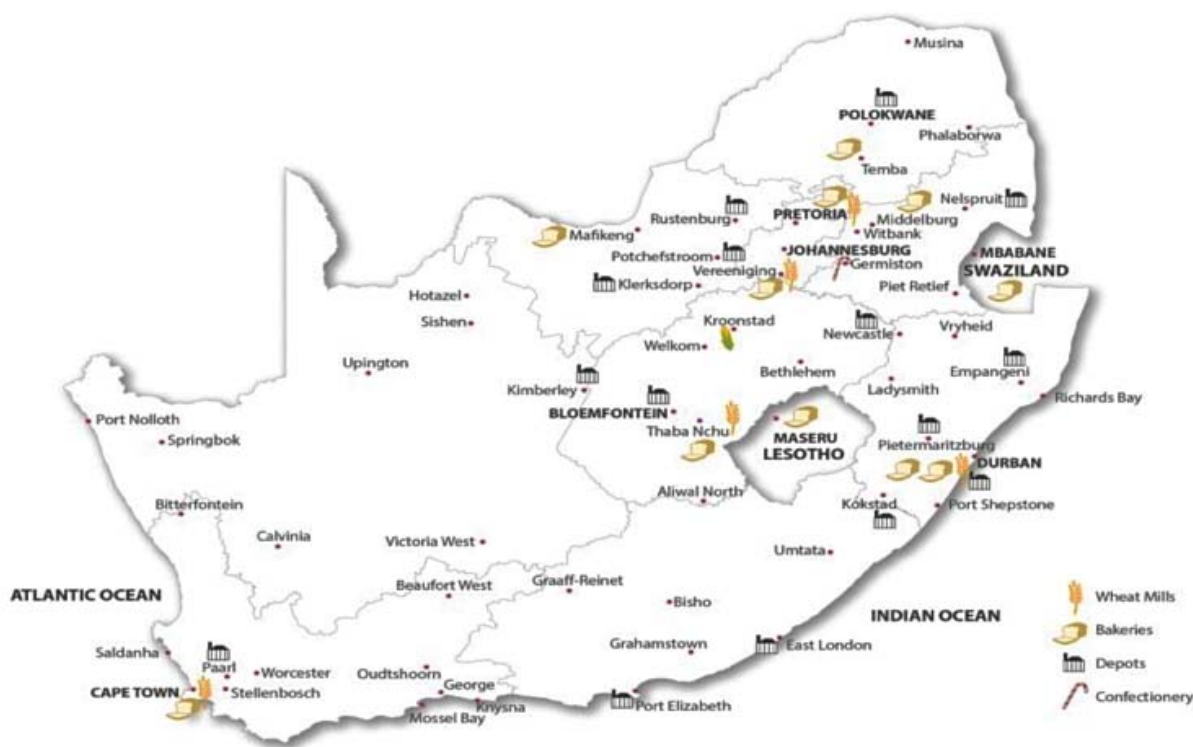
Premier Foods

Year	Revenue (R m)	After-tax profit (R m)
2012	5,731	-9
2011	4,896	203
2010	5,298	57
2009	5,575	80

Premier Foods operates in the bread and confectionary chain, operating 11 bakeries, 5 wheat mills, 1 maize mill and 16 distribution depots nationwide and delivers daily to over 28 000 customers through an independent network of more than 900 trucks. Its main activity is the milling, marketing, selling and distribution of branded maize and flour products, as well as the branding, marketing, selling and distribution of bread. Its flagship brands include Blue Ribbon bread, Snowflake flour and Iwisa super maize meal.¹⁴⁰ In September 2011 Premier consolidated its maize milling operations onto its Kroonstad site. With the capacity to deliver 1,720 tonnes of maize meal per day, it is the largest milling operation of its kind in the world.¹⁴¹

The Premier Foods story dates back to 1882, when the Port Elizabeth Steam Mill Company was formed. Two years later, newly erected mills were opened in PE, and the Snowflake brand was registered. In 1887 the company expanded into Cape Town, merging, in 1891, with Cape Town's Attwell's Bakery, to form the South African Milling Company Limited (SAMCO). The first advertisements for Snowflake flour appeared around this time. In 1909 SAMCO appointed its first representative in the Transvaal, and entered the shipping business a year later by buying an iron steamboat travelling from Cape Town as far as Walvis Bay. In the same year SAMCO also invested in the first delivery truck in South Africa, used in Cape Town. SAMCO relocated its head office from Port Elizabeth to its newly built Snowflake Flour mill in Isando, on the East Rand, in 1959, and merged with Premier Milling in 1964.¹⁴²

The newly merged entity continued to expand its milling operations, including construction of a wheat mill at Thaba N'chu in 1978 and Vereeniging in 1987, and a maize mill at its Isando premises in 1982. In 1998 General Food Industries purchased Premier Food Industries Limited and merged into Premier Foods Limited.¹⁴³



http://www.premierfoods.com/index.php?option=com_content&view=article&id=7&Itemid=11

From the late 1990s onwards Premier became subject to a procession of takeovers and restructuring. Between 1999 and 2001 Fabvest Investment Holdings, the investment arm of the Foundation for African Business and Consumer Services (FABCOS)¹⁴⁴, began to purchase tranches in Premier until, by 2001, it had acquired a 73% stake. Funding for the purchase was secured from Nedbank. However, due to poor financial results from Premier, by December 2003 Fabvest's debt to Nedbank had swelled to R666 million. Consequently, Fabcos' 73% stake was restructured into a new joint venture company, 'Fabcos Established Investment', 55% held by Fabcos and 45% by Nedbank.¹⁴⁵ In July 2005 Fabcos sold 50% of its holding in Tsogo Sun gaming to Cyril Ramaphosa's investment company, Johnnic Holdings, for R295 million, allowing it to redeem its outstanding debt to Nedbank and become the sole shareholder in Premier. In the process, Premier became the largest black owned company in South Africa.¹⁴⁶

However, Fabcos continued to struggle financially until, in 2007, it sold its interests in Premier to Brait Private equity, the private equity arm of the SA investment bank, Brait, for R1.5 billion.¹⁴⁷ Brait's primary listing is on the Euro MTF market in Luxemburg, a jurisdiction ranked third in the Tax Justice Network's financial secrecy index for 2011,¹⁴⁸ with a secondary listing on the Johannesburg stock exchange (JSE). It has operations in South Africa and Mauritius. In 2011 Brait re-domiciled from Luxemburg to Malta, another notoriously opaque tax jurisdiction. Though Malta's effective maximum tax rate is 35%, foreign companies who choose to domicile there can claim as much as 85% of this back in various refunds.¹⁴⁹ As of 31 March 2013 Brait held 79.9% of Premier. Brait also holds a 37% equity stake in Pepkor and 18.7% in UK supermarket group Iceland.¹⁵⁰ Christo Weise, who is the chairman and controlling shareholder of Shoprite Holdings, has an 18% shareholding in Brait, making him the private equity group's largest single shareholder.¹⁵¹

Beyond South Africa Premier Foods acquired controlling stakes in the two leading bread companies in Swaziland, Mr Bread and Swaziland United Bakeries (SUB), in 2012, resulting in the formation of Premier Swazi

Bakeries. The R85 million deals secured them a 75% share of Swaziland's bread market when combined and gives Premier operating quarters and distribution channels into Botswana and Mozambique. The whole distribution of Premier Swazi products comes from the kingdom. Recent reports say the company now has an eye on Ngwane Mills in Swaziland, though no further details of the deal are available at present.

In July 2013 it was reported that Premier Foods completed the R125 million acquisition of Manhattan's business from Kraft Foods as part of building a diversified food group. Manhattans has manufacturing plants in Port Elizabeth, Botswana, Swaziland, Kenya, Johannesburg, and Namibia¹⁵².

Tiger Brands

Tiger brands is considered South Africa's largest fast moving consumer goods (FMCGs) company; the company's brands accounting for nearly 15% of goods sold at every major retailer.¹⁵³ Its Primary listing is on the JSE, but is also traded on the Frankfurt and Berlin Stock Exchanges, the German Composite (all Germany), and the Grey market and PTC Pink (USA).¹⁵⁴ The company's business operations are divided into three main divisions: grains, consumer brands and exports, and international. Under these divisions are found the companies various brands. For example, Albany breads, Golden Cloud flour and Ace maize products fall under the milling and baking segment of the Grains division. In addition to its milling brands, Tiger owns some of South Africa's most popular consumer goods brands, including: Jungle Oats, Tastic rice, Koo, All Gold, Fatti & Moni's pasta, Ingram's Camphor cream, Maynards and Beacon, to name a few.

The company was established by Jacob Frankel, a German immigrant living in Johannesburg who earned a living selling toothpicks for Broude and Marks. Joffee Marks would provide funding to Frankel to help him establish Tiger Oats¹⁵⁵ from its original premises, opened in Newtown, and register Tiger Brand's logo, both in 1920. The Jungle Oats brand was launched in 1925. In 1944 Tiger Oats and the National Milling Company Limited were incorporated



Year	Total Group turn-over	After tax profit	Operating profit margin	Grains turn-over (Rm)	Op. income before abnormal items	Grains Op. margin	Milling and baking turn-over	Milling and baking profit	Milling and baking margin
2012	22 771	2,748	15.3	8,854	1,731	19.6	6,682	1,473	22.0
2011	20 479	2,578	15.9	8,349	1,746	20.9	6,192	1,382	22.3
2010	19 378	2,175	15.6	8,085	1,678	20.7	5,849	1,364	23.3
2009	20 643	2,479	15.5	8,793	1,414	16.1	6,267	1,158	18.5
2008	20 126	1,834	13.3	7,960	1,005	12.6	5,949	765.0	12.9

Source: Tiger Brands financial statements, 2008 – 2012.

and listed on the Johannesburg Stock Exchange.¹⁵⁶

In 1982 the company was taken over by Barlow Rand (now Barlow World), which went on to acquire Spar in 1988. In 1993 Tiger Brands was unbundled from the Barlow Group and during the 1990s Tiger acquired the pharmaceutical group Adcock Ingram, though both Spar and Adcock themselves were unbundled between 2004 and 2008.¹⁵⁷ In 2003 Tiger Brands acquired the remaining 50% shareholding of Enterprise Foods from Foodcorp, making Enterprise a wholly owned subsidiary of the company.

Major institutional shareholders

Unlike Pioneer and Premier, no individual shareholder owns more than 15% of the company. Unit trusts and mutual funds

account for 29.2% of shareholdings in Tiger Brands, followed by Pension Funds of 23% (the Government Employees Pension Fund – GEPE, managed by the Public Investment Corporation – PIC – is the largest individual shareholder), with other managed funds and black economic empowerment shares representing 12.8% and 11.2% respectively. Of all the Tiger Brand shareholders, 50.1% are outside of South Africa.¹⁵⁸

Tiger's inconsistent stance on GMOs

In April 2013 the ACB sent two of Tiger Brands' 'Purity' baby food products to an independent laboratory at the University of the Free State to test for the presence of GMOs. The results showed that Purity's Baby's First contained 56.25% GM maize while Purity Cream of Maize contained 71.47% GM maize. Neither of these

Tiger Brands major investors

Company / organisation	Stake	Listing / domicile
Public Investment Corporation (PIC)	10.11	South Africa
Colonial First Asset Management	8.99	Australia / United Kingdom
J. P. Morgan Asset Management	5.78	
Tiger Consumer Brands Ltd.	5.39	South Africa
Tiger Brands Black Management Trust	3.74	South Africa
Black Rock Inc.	3.17	USA
Investec Asset Management	2.73	UK (Primary), South Africa (secondary)
Coronation Asset Management Pty (Ltd)	2.3	South Africa

Source: <http://www.tigerbrands.co.za/invest.php>

products were labelled as containing GM, as required by law. The results placed Tiger Brands at the centre of a huge consumer backlash, with a petition signed by more than 1,000 consumers demanding the company to go GM free. Tiger's initial stance was to downplay the gravity of consumer fears, issuing a bland statement to the effect that the GM ingredients they used had been approved by the Department of Agriculture, Forestry and Fisheries (DAFF).¹⁵⁹

In the face of continuing consumer pressure, Tiger relented, announcing their intent to source non-GM maize for its 'Purity' range of baby food products.¹⁶⁰ However, further GMO testing conducted on five of their most popular staple products revealed the following results:

- Ace super maize meal 78% GM maize content
- Ace maize rice 70% GM maize content
- Ace instant porridge 68% GM maize content
- Lion samp and beans 48% GM maize content
- Jungle B'fast energy cereal 41% GM maize content

While showing a degree of flexibility regarding its baby food product, Tiger has, so far, refused point blank to entertain the thought of providing a GM free maize meal product, which is South Africa's staple food.

Tiger Brands Legal issues

In September 2010 the Advertising Standards Authority (ASA) of South Africa ruled that Tiger Brands had no justification for describing its Purity Brand as 'the baby experts'. The ASA's finding followed an earlier ruling of an advertising industry tribunal and the ASA appeal committee that the slogan, 'Purity, the baby experts', was unsubstantiated and misleading.¹⁶¹

In recent years Tiger Brands has aggressively pursued legal action against a number of individuals and organisations:

- In April 2011 Absolute Organix, a small distributor of organic products in operation since 2004, received a correspondence from Spoor and Fisher attorneys asking it to remove the word 'purity' from an advertisement for a Swiss brand of organic baby food, claiming it infringed upon Tiger's intellectual property.¹⁶²

- In March 2012 a carpenter based in Cape Town, calling his business 'All Wood', received a letter from Spoor and Fisher attorneys (acting on behalf of Tiger Brands) that if he did not stop using his logo he could 'expect legal proceedings to be instituted without any further warning or notice'.¹⁶³
- In February 2013 the Advertising Standards Authority (ASA) of South Africa rejected two complaints lodged by Tiger Brands against All Joy Foods Limited. In its complaints, Tiger claimed that the label for a particular brand of All Joy tomato sauce imitated Tiger's 'All Gold' label and that it 'was designed to take advantage of the complainant's (Tiger Brands) concepts'.¹⁶⁴

Tiger Brands' African expansion

Of the three companies under review, Tiger Brands has the most extensive African footprint. According to their website, Tiger Brands' 'approach to expansion, acquisitions and joint ventures has given traction to a distribution network that now spans more than 22 African countries'. They intend to increase the contribution to turnover from international business to at least 30% of total net sales by 2017.¹⁶⁵

In Africa, the company's priority zones are Angola, Mozambique, Botswana, Tanzania, Kenya, Gabon, Ivory Coast, Nigeria, Ethiopia, Benin, Ghana, Cameroon, the Democratic Republic of Congo, Uganda, Zimbabwe and Swaziland. It also exports products to several other countries in southern, western and eastern Africa, as well as Mauritius.¹⁶⁶ Tiger Brands has stakes in several food and consumer goods companies that target the African market, including:

- 100% of South African-based Langeberg & Ashton Foods, one of the world's largest global fruit companies, exporting mostly to the Far East, Middle East and European Union¹⁶⁷;
- 51% of Kenya-based Haco Industries (FMCGs, 2008);
- 74.7% in Chococam Cameroon (cocoa products, 2008);
- 49% UAC Nigeria (beverages);
- 63% Dangote Flour mills (2012);
- 100% acquisition of Deli Foods Nigeria (biscuits, 2011);



- 51% the East African Group based in Ethiopia, also manufacturers of FMCGs. The new joint venture is called East Africa Tiger Brands Industries;
- Tanzania has been identified as the next opportunity to 'establish and deepen distribution'¹⁶⁸; and
- The company has also invested in Chile and Peru through a partnership with Empresas Carozzi, a leading food company in the Chilean food industry¹⁶⁹.

Tiger Brands was identified as a key player in improving the maize chain infrastructure in southern Africa in a 2012 report from Southern African Trade Hub to the United States Agency for International Development (USAID). The commissioned report was on improving maize distribution chains in the region; the improvement of storage facilities was found to be a key weakness.¹⁷⁰ The proposed solution being the building of storage warehouses to allow farmers the ability to store maize and sell it when the market is good rather than sell immediately for whatever price is available or risk having it spoil during storage.

Tiger Brands African operations

Strategy continues to gain momentum

- Very encouraging progress
 - Exports – Excellent performance
 - Langeberg & Ashton Foods (L&AF) – Positive turnaround
 - Davita – Good result and on track
 - Cameroon – Excellent performance
 - Kenya – Excellent Performance
 - Ethiopia – Excellent progress
 - Nigeria – Challenging environment
- Route to market enhancement drives availability and visibility
- Fix, optimise, and grow remains a key theme



Source: TIGER BRANDS LIMITED INTERIM RESULTS PRESENTATION TO INVESTORS for the six months ended March 2012

Pioneer Foods

Pioneer's product catalogue includes the Bokomo breakfast cereals range, which has a 30% share of the South African cereals market¹⁷¹, Nulaid, South Africa's largest commercial egg enterprise, and Ceres beverages. Pioneer also has a 49.9% share in Heinz SA. The company's White Star maize meal brand, launched in 1999 as South Africa's first fortified super maize meal, is now the leading brand in its respective market. In 1997, when Pioneer was created through the merger of Sasko and Bokomo, Pioneer (Sasko) had a 2% share of the super maize meal market.¹⁷² Pioneer owns three maize mills; in the North-West, the Eastern Cape and KwaZulu-Natal. In 2012 maize meal contributed 22% of SASKO's total revenue of R10 billion.

Pioneer Foods' roots can be traced back to 1912, when a group of grain farmers from Swartland formed the Wesgraan co-operative in Malmesbury. To protect its members against price speculation, Wesgraan established a milling company in 1920 to mill the wheat and

Total Pioneer Foods				Sasko		
Year	Total revenue	Profit for year (after tax)	Operating profit margin	Revenue	Op. profit	Op. profit margin
2012	18 609	604	6.2	10 001	948	9.50%
2011	16 853	730	7.3	6,054	879	9.70%
2010	15 731	235	9.3	8,314	350*	11.8
2009	16 283	561	7.4	3,876	946	10.4
2008	14 884	452	5.8	8,143	622	7.6

other marketable products they produced. The company, the first of its kind in South Africa, was called Bokomo.

By the late 1920s the Great Depression and record droughts in the Cape threatened the future of wheat and grain farmers across the country, who responded by forming the Suid-Afrikaanse Sentrale Ko-operatiewe Graanmaatskappy Beperk (SASKO) to sell wheat centrally for co-operatives across South Africa. SASKO expanded its operations into wheat milling in 1934.

Though a co-operation agreement, which saw Sasko shareholders acquire 27% in Bokomo, was signed in 1942, the agreement was cancelled by 1948. It would take another 25 years for the two co-operatives to make official ties again, with the registration of the Sasko-Bokomo Central Co-operative in October 1973. In 1987 the partnership was deregistered, though the period of collaboration would play an important role in their eventual merger a decade later. With the ending of government regulation of the baking and milling industries in 1995, Bokomo and Sasko both converted from co-operatives to private companies in 1996, before merging to form Pioneer Foods in May 1997¹⁷³.

By the time Pioneer listed on the JSE in 2008 it had significantly expanded its operations. In 2002 Pioneer Foods acquired SAD Holdings Limited. SAD, founded in 1908, operated as a dried fruit farmer's co-operative until 1993, when the group, responding to the liberalisation of the agricultural sector, chose to expand through the acquisition of a number of other food businesses. At the time

of the merger the Competition Commission estimated that the acquisition would increase Pioneer's market share in the ready-to-eat (breakfast) cereal market from 35% to 44%.¹⁷⁴ In 2004 Pioneer acquired John Moir's (a division of Bromor Foods Ltd) Golden Lay Farms Ltd., Golden Lay Farms KZN, Golden Lay Foods and Accolade trading.¹⁷⁵

Bokomo's operations in Zambia and Uganda (both 100% owned by the parent company) focus on poultry, while its operations in Namibia and Botswana (both 50% owned) focus on egg production, wheaten flour, and maize meal.

Major institutional shareholders

According to its latest annual report, just under 15% of Pioneer Foods' shares are held by the company itself. The largest single investor is former agricultural Co-operative Kaap Agri, who, through an unlisted holding company, Agri-Voedsel, has a 30.7% 'economic interest'¹⁷⁶ in Pioneer. Agri-Voedsel was created as the result of an internal restructuring of Kaap Agri in 2011, whereby its operating business was unbundled from its investment in Pioneer; 44.7% of Agri-Voedsel is owned by Zeder Investments Limited, an investment company created in 2006 to house all of the agribusiness investments of PSG Group Limited. The PSG group (which also owns 28.5% of Capitec Bank) was established in 1996 by Jannie Mouton, dubbed the 'Boere Buffet', one of South Africa's richest individuals.¹⁷⁷

Aside from Pioneer (through Agri-Voedsel), Zeder also has significant interests in Cape Span (37.1%), Suidwes Investments (the



investment arm of Grain Trader Suidwes – 24.1%) and Agricol (92%), a seed company who also owns 49% of Klein Karoo Seed, one of South Africa’s largest remaining independent seed companies. Zeder has also expanded its interests beyond South Africa, purchasing a 73% stake in Chayton Africa for R375 million. Chayton Africa has developed extensive commercial grain operations in Zambia, covering some 4,100 ha under irrigation and has reportedly become Zambia’s second largest grain producer.

Other major shareholders in Pioneer include the Moorreesburg Wheat Farmers Co-Operative Society (MKB – 8.1%), Coronation Life Assurance, the Public Investment Corporation (5.3%) and Thembeke Capital Limited. As if to illustrate the financial complexities of agri-business ownership in South Africa, Thembeke, a BEE investment and private equity company, is 49% owned by PSG (through its private equity firm Paladin Capital), and itself has interests in the former agricultural Co-ops Overberg Agri (10%), Kaap Agri (20%) and NWK, one of South Africa’s largest grain handlers (1.67%).

DATA ON MARKET SHARES

In the absence of company sales data, consumer surveys provide a useful indicator of the relative popularity of maize meal brands in South Africa. The South African Advertising Research Foundation (SAARF) carries out regular household purchase surveys across a wide range of consumer goods, including maize meal.

Market research carried out by SAARF during 2012 showed the ‘Big Three’ to appear to dominate the domestic maize meal market. In a survey of over 14 000 respondents, ‘adult household purchasers’ were asked which brands they had purchased in the last four weeks. The highest scoring brands were Pioneer Food’s ‘White Star’ super maize meal at 25.3% and Tiger Brand’s ‘Ace’ super maize meal with 22.5%. Though Premier Foods’ flagship brand ‘Iwisa’ was noticeably less popular than White Star and Ace, with 13.3%, when combined with the results of Premier’s other brands (such as Impala maize meal and Nyala), it accounted

Pioneer Foods major investors

Company / organisation	Stake	Listing / domicile
Agri-Voedsel	30.7	South Africa
Moorreesburgse Koringboere (MKB)	8.1	South Africa
Pioneer Foods Limited	7.8	South Africa
Pioneer Foods Broad Based BEE Trust	4.6	South Africa
Pioneer Foods Share Incentive Trust	1.1	South Africa
Pioneer Foods Directors	1.2	South Africa
Coronation Life Assurance Co Ltd.	13.5 ¹⁷⁸	South Africa
Government Employees Pension Fund (PIC)	5.3	South Africa
Thembeke Capital Limited	4.0	South Africa
Allan Gray Unit Trust Management Ltd.	1.7	South Africa
Stanlib Asset Management Ltd.	1.12	South Africa
Mazi Capital (Pty) Ltd.	1.07	South Africa
Old Mutual Life Assurance Co. South Africa Ltd.	0.91	UK / South Africa

Source: <http://markets.ft.com/research/Markets/Tearsheets/Business-profile?s=PFJ:JNB>



for a 25.5% market share.¹⁷⁹ Though results from market research such as this are far from infallible, the 73.3% market share enjoyed by Tiger Brands, Pioneer and Premier roughly corresponds with previous reports stating that the three companies mill approximately 60% of the nation's white maize crop.

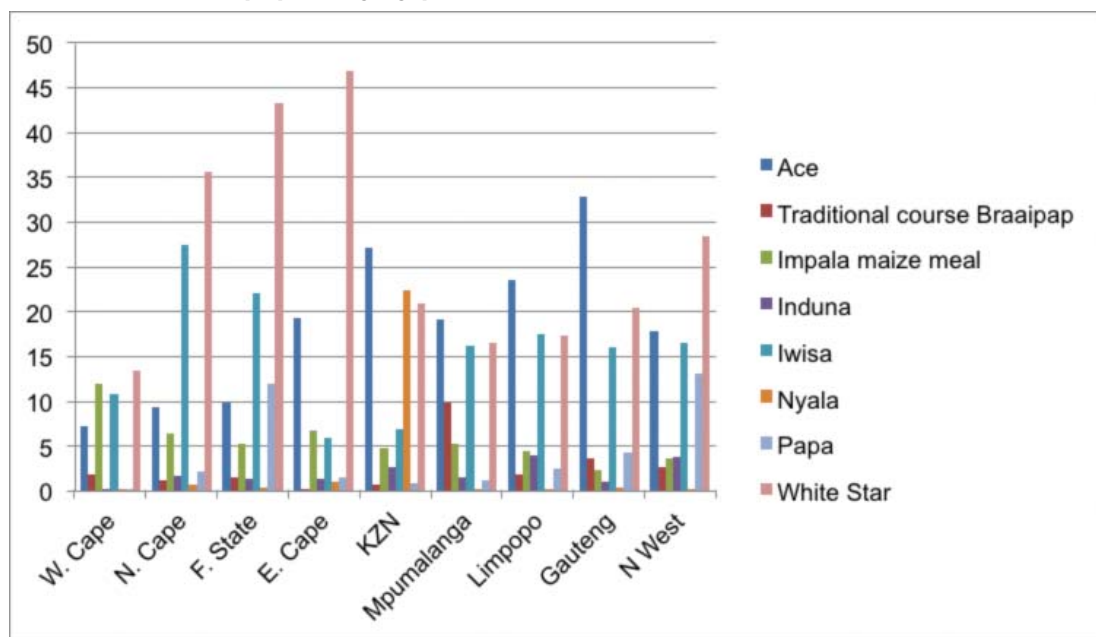
Looking in more detail at results in geographic and demographic terms reveals some interesting trends. By province, responses for purchases of any maize meal were above 75% in all provinces bar the Western Cape, which only recorded 40% of respondents having purchased any brand of maize meal in the preceding four weeks. The highest responses were in Limpopo (87.1%), the North-West (87.1%), and the Free State (86.6%). Looking at provinces by brand, White Star was the most popular brand in the Western and Northern Cape and the North-West, and significantly so in the Free State and the Eastern Cape. Ace appears to be the leading brand in KwaZulu-Natal, Limpopo and Gauteng. Nyala, a brand owned by Premier Foods, was the second most popular in KwaZulu-Natal, yet scored insignificantly elsewhere. In the North West 'Papa', an independently owned local brand¹⁸⁰, scored 13.2%. Interestingly, though, only 6.8% of correspondents overall reported purchasing 'another brand'; this rose to 16.8% in Mpumalanga and 22% in Limpopo, suggesting

a well-established network of independent millers (though this would need verification on the ground).

White Star's apparent popularity in the Eastern Cape and the Free State is reflected by a huge response of 50.2% of Xhosa speakers (as a first language) and 39% of Southern Sotho reporting buying White Star in the previous four weeks. Ace and Iwisa was purchased by 21.3% and 9.5%, of Xhosa speakers respectively. Of the respondents speaking Ndebele and Venda as first languages, 33.9% and 26.2% reported purchasing 'other brands' respectively. This appears to corroborate the provincial responses, much higher than average purchases of non- or locally branded maize meal in Limpopo and Mpumalanga.

Another important indicator used by the SAARF is its 'living standards measure' (LSM), which divides South Africa's population into 10 market segments (LSM groups) based on 29 variables, including income, level of education, occupation, car ownership and access to basic services. LSM 1–3 (17% of population) are considered marginalised consumers, LSM 4–6 (50% of population) as modern emerging consumers and LSM 7–10 as modern established consumers (33% of the population).¹⁸¹

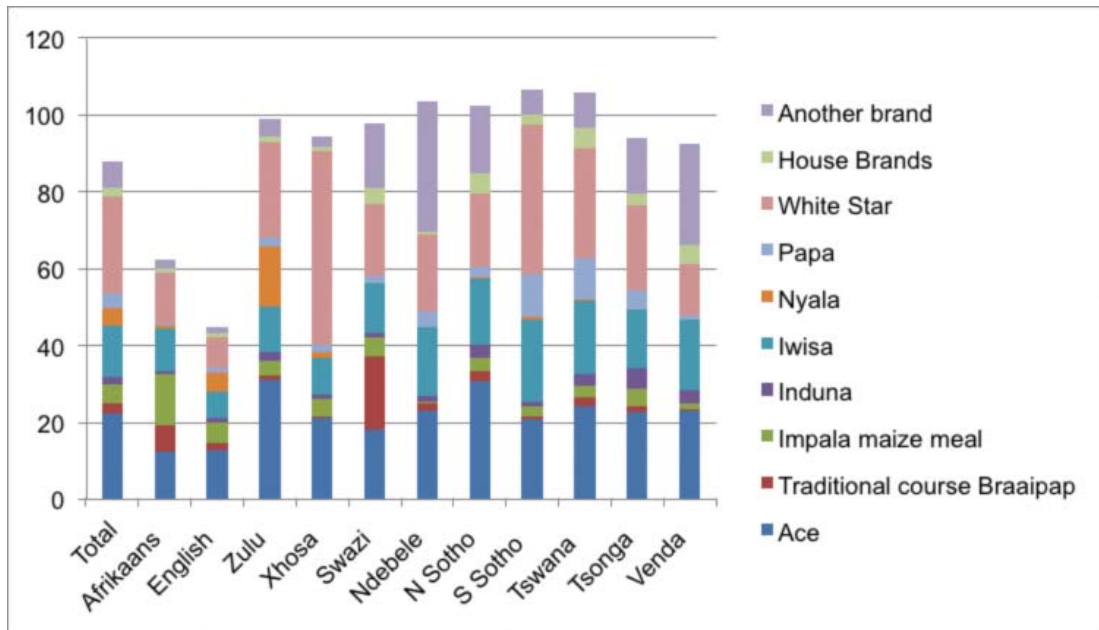
Maize meal brand popularity by province



Source: South African Audience Research Foundation

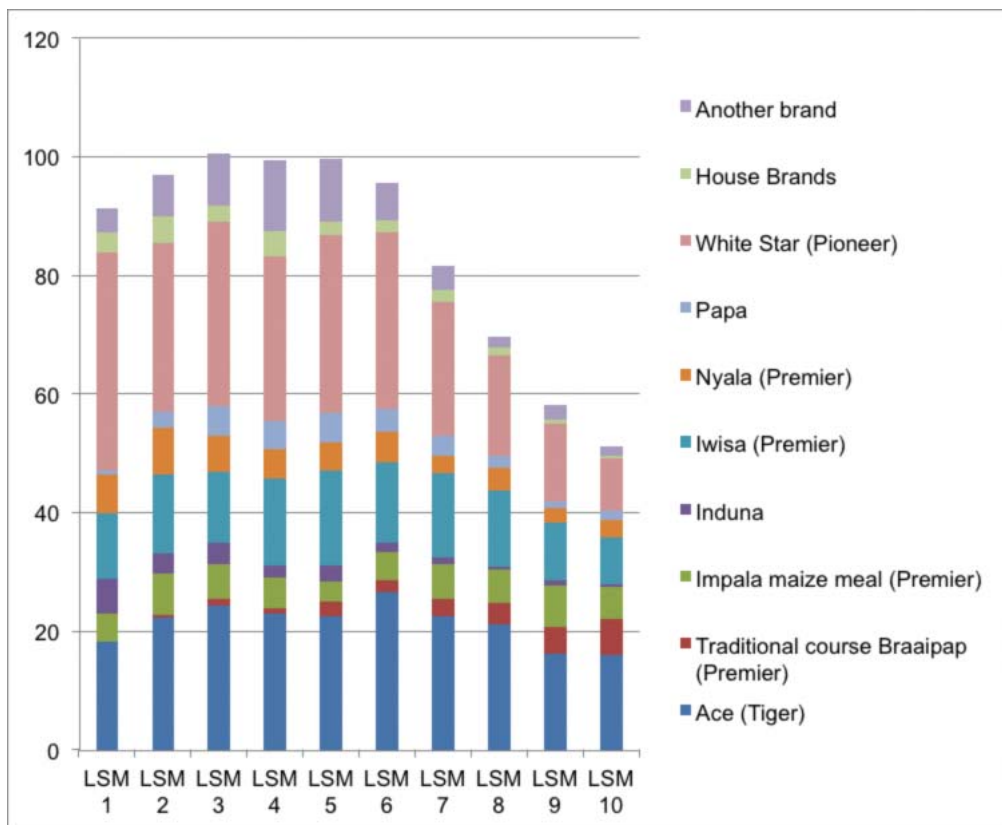


Maize meal brand popularity by first language'



Source: South African Audience Research Foundation

Maize meal brand popularity by LSM group



Source: South African Audience Research Foundation

White Star is comfortably the market leader in LSM 1–6; it scored 36.7% compared to Ace, the next highest, at 18.3%. However, there is a noticeable drop-off in the higher LSMs. In LSM 10, for example, it only scored 8.8%, compared to Ace (the most popular brand in this segment), who scored 15.9%. Both Ace and Iwisa appear to have relatively stable market shares across all LSM groups (their decline in responses in the higher LSM groups broadly correlating with a general decline in maize meal purchases in the higher LSMs). Also interesting to note is the clear lead in market share enjoyed by Premier Foods' combined brands in LSM 9 and 10.

CONCLUSION

The opening up of South Africa's agricultural sector has not been the boon to consumers as portrayed by their own marketing campaigns, or the business friendly media. With the help of the last apartheid government, large parts of South African agriculture were able to reposition themselves to enter the new dispensation in a much stronger position. The entire maize value chain has been commandeered by a select group of companies and individuals who continue to squeeze the poorest in our nation in the name of free enterprise and aspirations of attaining 'world class' status among their international peers.

Given this, it should come as little surprise that South Africa is the only country in the world that eats a genetically modified variety of its staple food and, for the poorest, there is no alternative choice. The stance taken by agribusiness, including the largest milling companies, in trying to derail the labelling law process and, even more callously, refusing to even countenance the provision of a non-GM alternative.

Having already gorged their profit margins on the poorest of the poor in South Africa, these corporate giants are now glancing covetously to the potential vast African market north of the Limpopo. Experiences from South Africa should serve as a stark warning.

Urgent action is needed to reverse this economic concentration, to address historical

inequalities and secure a just and equitable economic future for us all. We therefore call for the following:

- A paradigm shift in agricultural research and development in South Africa towards farmer controlled seed breeding and sharing of germplasm, anchored in agro-ecological methodologies;
- A ban on all further cultivation of genetically modified (GM) crops in South Africa, and use of their associated pesticides;
- The South African government to work hand in hand with local communities and other members of civil society to reverse the shockingly high economic concentration in the maize value chain, through the creation of de-centralised, locally owned maize storage, milling and retailing operations;
- The Competition Commission of South Africa to continue its investigations and to be given the full political backing to reign in the power of the South African agribusiness sector;
- The Department of Trade and Industry to continue to support the creation of a small-scale milling industry in South Africa;
- Organisations representing the genuine interests of South African consumers to be afforded equal representation and access to decision making processes as industry aligned bodies;



Annex 1

Field trials for GM maize varieties in South Africa, 2012–2013

Event	Trait	Company	Year
59122	IR	Pioneer Hi-Bred	2013
TC 1507 x 59122	IR x HT	Pioneer Hi-Bred	2013
MON 87460	'drought tolerance'	Monsanto	2013
DP-32138-1	Male fertility / Pollen infertility*	Pioneer Hi-Bred	2013
PHP 37048	IR x HT	Pioneer Hi-Bred	2012
PHP 36676	IR x HT	Pioneer Hi-Bred	2012
PHP 36682	IR x HT	Pioneer Hi-Bred	2012
DP-32138-1	Male fertility / Pollen infertility*	Pioneer Hi-Bred	2012
Bt 11 x MIR 162 x TC 1507 x GA 21	IR x HT	Syngenta	2012
TC 1507 x MON 810	IR x HT	Pioneer Hi-Bred	2012
TC 1507 x NK 603	IR x HT	Pioneer Hi-Bred	2012
TC 1507 x MON 810 x NK 603	IR x HT	Pioneer Hi-Bred	2012
TC 1507 x 59122	IR x HT	Pioneer Hi-Bred	2012
59122	IR	Pioneer Hi-Bred	2012
MON 87460	'drought tolerance'	Monsanto	2012
PHP 27118	IR	Pioneer Hi-Bred	2012

* This is not the 'terminator technology' which produces sterile seeds, but is a technique to speed up the process of crossing inbred parent lines to produce hybrid seeds.

Source: Department of Agriculture, Forestry and Fisheries



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