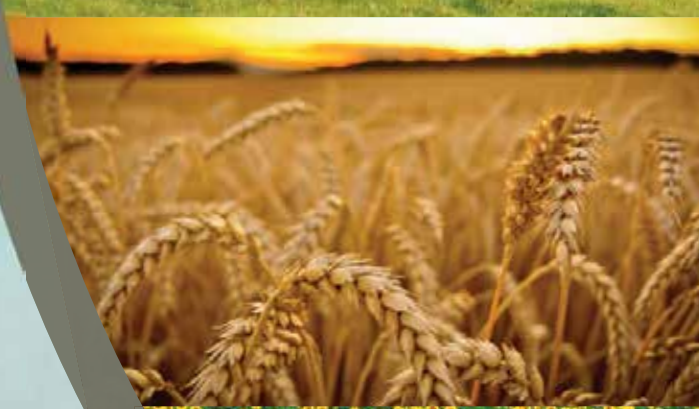
Bureau for Food and Agricultural Policy
BFAP

BFAP BASELINE

Agricultural Outlook

2017 - 2026



MANAGING AGRICULTURE'S FOOTPRINT IN AN UNCERTAIN ENVIRONMENT

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FOREWORD

The Bureau for Food and Agricultural Policy (BFAP), founded in 2004, is a non-profit organisation. BFAP exists with the sole purpose to objectively inform and support decision-making by stakeholders in the agro-food, fibre and beverage sectors of Africa. It provides independent, rigorously tested, research-based market and policy analyses. With a vast and deep network consisting of 45 employees and associates spanning the African continent, BFAP has developed a firm reputation of delivering upon its commitment of informing and supporting decision makers in government, industry bodies, NGO's, and private sector. BFAP has offices at the University of Pretoria, the University of Stellenbosch, the Western Cape Department of Agriculture, and the Grain HUB in South Africa. BFAP collaborates with various internationally acclaimed institutions including the FAO, FAPRI, the OECD, BER and is a founding partner in the Regional Network of Agricultural Policy Research Institutes (ReNAPRI) in Eastern and Southern Africa.

BFAP acknowledges and appreciates the tremendous insight of numerous industry specialists and collaborators over the past years. The financial support from the Western Cape Department of Agriculture and ABSA Agribusiness towards the development and publishing of this Baseline is also gratefully acknowledged.

Although all industry partners' comments and suggestions are taken into consideration, BFAP's own views are presented in this Baseline publication.

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CONTEXT AND PURPOSE OF THE BASELINE

The 2017 edition of the BFAP South African Baseline presents an outlook of agricultural production, consumption, prices and trade in South Africa for the period 2017 to 2026 and relates these to the agricultural sector's footprint, and hence contribution, in the South African economy. The information presented is based on assumptions about a range of economic, technological, environmental, political, institutional, and social factors. The outlook is generated by the BFAP system of models. A number of critical assumptions have to be made for baseline projections. One of the most important assumptions is that normal weather conditions will prevail in Southern Africa and around the world; therefore yields grow constantly over the baseline as technology improves. Assumptions regarding the outlook of macroeconomic conditions are based on a combination of projections developed by the International Monetary Fund (IMF), the World Bank and the Bureau for Economic Research (BER) at Stellenbosch University. Baseline projections for world commodity markets were generated by FAPRI at the University of Missouri. Once the critical assumptions are captured in the BFAP system of models, the Outlook for all commodities is simulated within a closed system of equations. This implies that, for example, any shocks in the grain sector are transmitted to the livestock sector and vice versa. Therefore, for each commodity, important components of supply and demand are identified, after which an equilibrium is established through balance sheet principles by equalling total demand to total supply.

This year's baseline takes the latest trends, policies and market information into consideration and is constructed in such a way that the decision maker can form a picture of equilibrium in agricultural markets given the assumptions made. *However, keep in mind, markets are extremely volatile and the probability that future prices will not match baseline projections is therefore high. Given this uncertainty, the baseline projections should be interpreted as one possible scenario that could unfold, where temporary factors (e.g. weather issues) play out over the short run and permanent factors (e.g. biofuels policies) cause structural shifts in agricultural commodity markets over the long run.* The baseline, therefore, serves as a benchmark against which alternative exogenous shocks can be tested and interpreted. In addition, the baseline serves as an early-warning system to inform role-players in the agricultural industry about the potential effects of long-term structural changes on agricultural commodity markets, such as the impact of a sharp increase in input prices or the impact of improvements in technology on the supply response.

To summarise, the baseline does NOT constitute a forecast, but rather represents a benchmark of what COULD happen under a particular set of assumptions. Inherent uncertainties, including policy changes, weather, and other market variations ensure that the future is highly unlikely to match baseline projections. Recognising this fact, BFAP incorporates scenario planning and risk analyses in the process of attempting to understand the underlying risks and uncertainties of agricultural markets. Some of the boxes in the publication present results of a number of specific or commissioned analyses through the past 18 months. Farm-level implications are included in the commodity specific sections and the scenarios and risk analyses illustrate the volatile outcome of future projections. Additional stochastic (risk) analyses are not published in the baseline, but prepared independently on request for clients. The BFAP Baseline 2017 should thus be regarded as only one of the tools in the decision-making process of the agricultural sector, and other sources of information, experience, and planning and decision-making techniques have to be taken into consideration.

EXECUTIVE SUMMARY AND IMPLICATIONS

The South African agricultural and agro-processing industries as a whole are currently facing a mixed bag in terms of current and future prospects. Following the severe drought of 2015 and 2016, it is clear that despite the all-time record harvests being achieved for maize and soybeans in the current season, the recovery from the drought in the summer rainfall region will take more than one season. This is especially true in the livestock sector, where herd numbers will have to be rebuilt and a recovery in pasture quality takes time. While the summer rainfall regions are at different stages of recovery, the situation in the Western Cape remains dire with major long-term impacts due to severe restrictions on the availability of water for irrigation of high-value export industries. In the informal sector, there has been a general increase in economic activity, with approximately 300 000 more households who are involved in crop farming on less than 20 hectares since 2010. This translates to an additional 75 000 hectares added in rural areas, boosting supplies into informal value chains. However, these households have also been severely affected by the drought and apart from the farmers who are linked to well-structured support programs, the recovery from the drought will take some time.

Looking ahead, one has to consider the outlook for the South African agricultural sector in the global context. The world is awash in grain and oilseed stocks. The USA, along with South America, produced above average crop volumes on the back of higher acreage, but also above average yields. This resulted in soft commodity prices, with global prices hovering near 10-year lows for most of 2015 and 2016. In South Africa, during 2016, the impact of low global soft commodity prices was negated by the combination of drought impact and a rapidly weakening and highly volatile Rand. During 2017, however, reality set in with much improved weather conditions in the summer rainfall areas along with a rapidly strengthening Rand. The result is a return to export parity levels and South Africa catching up with the global lower price cycle.

The low grain and oilseed prices create significant risk to grain and oilseed producers, but offer opportunities for the intensive livestock industries to recover. Even though yields are exceptionally good in the summer rainfall areas, grain producers are experiencing immense pressure on their cash flow and payment ability given the low grain and oilseed prices and the prior impact of the drought. On the other hand, the intensive livestock operations such as broilers, pigs and dairy are finally catching a breather. Following two seasons of record high grain and oilseed prices, and hence exceptionally high feed costs, feed costs have shown a significant decrease. Feedlot operations are also faced by much lower feed prices, but weaner prices have shot up due to a lack of supply in the weaner market, which has curbed potential profit margins to some extent. The good news is, however, that beef exports are growing consistently and South Africa has in the past five years become a net exporter of beef. Lamb and wool prices have also increased sharply following the aftershocks of the drought and in all of these extensive livestock industries, significant growth can be unlocked mainly by means of improved productivity, especially in the informal rural areas.

In the Western and Eastern Cape, producers of all agricultural products are holding their breath to see whether the current season will provide sufficient rain. Given the continuation of the drought in these areas, grain, livestock, fruit, vegetable and dairy producers are facing severe pressure and the risk of significant production failures. Even though most horticulture crops as well as other long terms crops showed significant growth over the past decade, it is expected that these industries will face severe pressure in the short-term due to the lack of water, but also the costs associated with water and electricity. Expectations are therefore that growth is set to slow down in these industries, at least until water availability has returned to normal.

In terms of horticultural products, the rapid expansion in industries such as blue berries, macadamias and pecan nuts is worth noting. BFAP already flagged these industries in the NDP matrix in 2011 as high-growth labour intensive industries and growth over the past five years has been phenomenal. These are highly capital intensive and export orientated commodities and for growth in these industries to continue, the investment climate will have to remain positive.

Food prices are one of the key drivers of food security in the country. The recent drought has had a major impact on the affordability of staple maize, with the cost of a single serving of maize meal increasing by 43%, while the cost of the staple food basket increased by 22%. The good news is that the rate of staple food price inflation is projected to decline by 16% on the back of the improved weather conditions and the appreciation of the exchange rate. Yet, this rate is measured from a higher base and therefore, in absolute terms, staple food prices remain high.

What are the implications of all of this?

South African agriculture is moving out of a commodity-super cycle and, as in the rest of the world, a consolidation phase is on the cards. Under the assumptions of the baseline, rapid growth in the sector is not on the cards and the true level of competitiveness and sustainability of the South African agro-food system on the global stage will be tested properly. In terms of the OECD's Producer Support Estimate (PSE), South Africa counts among the five countries in the world with the lowest level of producer subsidies. Achieving the targets that have been set by the NDP are simply not achievable in this environment. Productivity, economies of scale, access to cutting edge technology, access to finance, access to information and knowledge, access to markets, and the ability to manage and mitigate risk, will count more than ever before. Those who don't have full access to these support services are unlikely to survive, whether it be commercial, developing, or small-scale producers. The same holds

for other players in the value chain. Those who are not highly efficient and competitive, and who are not positioned correctly in terms of their value add to the chain, are likely to disappear quite quickly. Players who don't manage costs and risk properly won't survive. The survival and growth of the industry will require significant public and private sector investment across the board. In terms of public sector funds, the investment in the maintenance and expansion of water infrastructure, producer support programs and education and training will have to feature right at the top of the priority list. Investment in agriculture is widely recognised as a key precondition in achieving goals related to improving food security, creating jobs, creating wealth, and thereby reducing poverty. The will to invest hinges on one basic tenet, namely the belief that there will be growth in the future. Currently, this belief in the future is significantly tainted by the increasing political uncertainty.

In terms of the broader food system, the main concern over the outlook period remains the slow economic growth rate and unemployment. In terms of class mobility, South Africa has managed to reduce the percentage of the population living in the low income brackets (LSM 1-3) from 32 percent to 8 percent since 2005. This has not only boosted the overall demand for food but also led to a dietary change. However, this class mobility rate has declined significantly and over the next ten years the growth rate in the demand for food is projected to slow down considerably. Furthermore, this growth will be more concentrated due to the increased rate of urbanisation and the demand for competitive formalised value chains will rise. Food prices in rural areas remain higher than in urban areas, which will provide the opportunity for competitive and entrepreneurial informal value chains to expand. Therefore, industries, value chains, and players who can set themselves up correctly to be truly globally competitive, and without direct support from government, are likely to find significant opportunities during the next decade. In the higher income brackets, consumer tastes and preferences are clearly changing towards healthier alternatives, but also value for money options. This implies that significant opportunities will arise for intensive livestock industries. The same holds for fruit, wine, beverages, and other value add products. Demand for grain will remain stable, but grain producers need to find ways to either add value to their base commodities or to dilute costs in order to sustain margins. It will boil down to correctly structured value chains, well positioned players with the ability to compete properly on the global stage, and with the necessary support by government in the form of well-structured trade agreements, market access, and well-structured and well managed sanitary and phytosanitary regulations.

The implications for land reform and developing producers are significant. The industry as a whole needs to put realistic targets and plans in place, and then jointly execute these plans. A fragmented, ideologically driven, and uncoordinated approach will fail. The success of developing producers and land reform will hinge on the ability to allow producers to express their entrepreneurial potential. Simply supporting people without allowing them to thrive and grow through innovation, will not lead to success. This implies access to cutting edge knowledge and expertise; access to land but with ownership vesting with the producer to allow them to leverage the value of the asset to access finance and to allow them to increase the size of their operations to gain economies of scale; access to cutting edge technology and genetics to allow them to produce proper yields and good quality products that can be sold to both formal and informal markets; and lastly a nimble and supportive government that creates a playing field whereby developing producers and land reform beneficiaries can truly unlock the economic potential vested in themselves and the resources they gain access to. Dreams of success that do not take into account these realities will remain just dreams.

OVERVIEW

With the launch of operation Phakisa in September 2016, agriculture and agro-processing have rarely enjoyed as much centre stage attention from the Department of Planning Monitoring and Evaluation (DPME).

MANAGING AGRICULTURE'S FOOTPRINT IN AN UNCERTAIN ENVIRONMENT

When realism sets in

Investment in agriculture is widely recognised as a key precondition in achieving goals related to improving food security, creating jobs, creating wealth, and thereby reducing poverty. The returns to agricultural investment, defined as achieving these developmental goals, not only depend on the scale of investment but also the quality of such investment. The will to invest hinges on one basic tenet, namely the belief that there will be growth in the future. If growth occurs, it implies that there are positive income streams that can be used to pay off borrowed capital, pay the accumulated interest, as well as meet the opportunity cost of own capital invested in a venture. This is a very basic idea, but critically important for any debates regarding the future of the agricultural sector and the country.

In the National Development Plan 2030 (NDP), agriculture, forestry and fisheries have been identified as the key sectors to drive inclusive growth in rural economies with significant job creation opportunities. The key focus of the NDP lies on access to better opportunities by rural communities to participate fully in the economic, social and political life of the country. In other words, although the performance of the industry is typically measured as its contribution to GDP, the principle that agriculture has a much broader footprint in the economy and society, and therefore plays a critical role in the future of the country, is generally accepted. In fact, with the launch of operation Phakisa in September 2016, agriculture and agro-processing have rarely enjoyed as much centre stage attention from the Department of Planning Monitoring and Evaluation (DPME).

With this in mind, the BFAP Baseline 2017 provides a detailed analysis of the current state of the sector and critically assesses its ability to meet the expectation and the role that is envisaged in the NDP.

The projected overall growth in the sector over the next decade puts the reality of the current state of the sector into context. Figure 1 compares the real agricultural gross income to the real gross domestic product of the country since 1990 and also provides a ten-year outlook under the baseline assumptions. The message is clear; the agricultural sector has experienced unprecedented growth over the past two decades, yet over the outlook, there is little growth with mostly a sideways movement. This is similar to the period of the early nineties.

To understand this cycle, one need to understand the different periods of growth and decline during the past three decades. First, agricultural growth was ignited by strong growth in the South African economy and the increase in social grants in the early 2000's, boosting per capita disposable income and resulting in a sharp increase in the demand for higher valued products such as chicken meat. This trend was also coupled with the benefits of the liberalisation of agricultural markets that provided rapid access and growth in export markets for wine and fruits. In 2005 the commodity super cycle was kick-started with the introduction of the biofuels industry in the US as well as strong growth in the Chinese economy. Grain and oilseed prices spiked and extensive dryland farming of grains and oilseeds became highly profitable. It is important to note that while the global area under grain and oilseed production expanded to meet the growing demand, the area in South Africa consolidated as marginal land fell out of production and producers focused on driving productivity on their farms. The economic meltdown in 2009 introduced a cycle of slower economic growth rates and the South African economy did not escape this trend. In fact, after a short recovery, the South African economy has been following a declining trend and the first indications of a recession were confirmed recently with the release of the economic indicators for the first quarter of 2017.

While the world commodity markets were starting to build stocks from 2014 as supply had caught up with demand and surpluses were driving down prices, South Africa experienced one more exogenous shock in the form of two consecutive droughts, with the 2015/16 production season marking the worst drought in 112 years. For two years, our agricultural commodity markets were out of sync with the global cycle, but it was only a matter of time before local markets caught up with the global trend. This happened in the current production season on the back of much improved weather conditions; South Africa is in the process of harvesting an all-time record maize crop with record average yields. This will bring much relief to the staple maize meal prices, and lower feed costs will support intensive livestock operations such as the broiler, pork and dairy industries to be more competitive and resilient against cheaper imports.

The reality is that under the assumptions of the baseline, fast growth in the sector will not be handed on a tray and the true level of competitiveness and sustainability of the South African agro-food system on the global stage will be tested properly. Global and local economic growth rates are slow, consumers' disposable income is under pressure, and commodity prices are low. Commodity cycles will eventually turn positive again but faster economic growth rates are generally required to fuel higher commodity prices.

Despite this subdued outlook, there are still opportunities where investment can unlock future growth in the South African agro food industry, but public and private sector investment ranging from infrastructure, research and development, to skills, training and extension services, is critical to ignite this growth. In short, the answer rests in investment in activities that will drive productivity growth for all farmers ranging from subsistence to commercial farmer, but also productivity growth throughout the value chain, both in terms of domestic value chains and export value chains. Most of these areas were already identified in the National Development Plan (NDP) where BFAP developed a matrix that maps a combination of commodities that have significant potential for growth and employment until 2030.

Figure 2 provides an overview of the actual growth rates that have been achieved by these sectors over the past five years since the launch of the NDP. Although the canola, citrus and soybean industries have performed well, most of the larger industries have grown by around 2% per annum over the past five years. Dryland crop production, especially white and yellow maize, has been affected negatively by the drought conditions that already started in the western parts of the summer rainfall areas three years ago. However, the tremendous resilience of the sector to recover from the severe drought and produce an all-time record harvest was proven in the current production season. The strong growth rate in the beef industry over the past five years has to be interpreted with caution, since the national cow herd has been reduced by as much as 15% due to the drought, which has increased slaughtering and therefore production will be negatively affected over the next two to three years. Most of the high-value, irrigated and labour intensive industries have posted solid growth over the past five years, yet overall the growth rates have been slow. Key reasons that have been identified for the slower growth includes a lack of

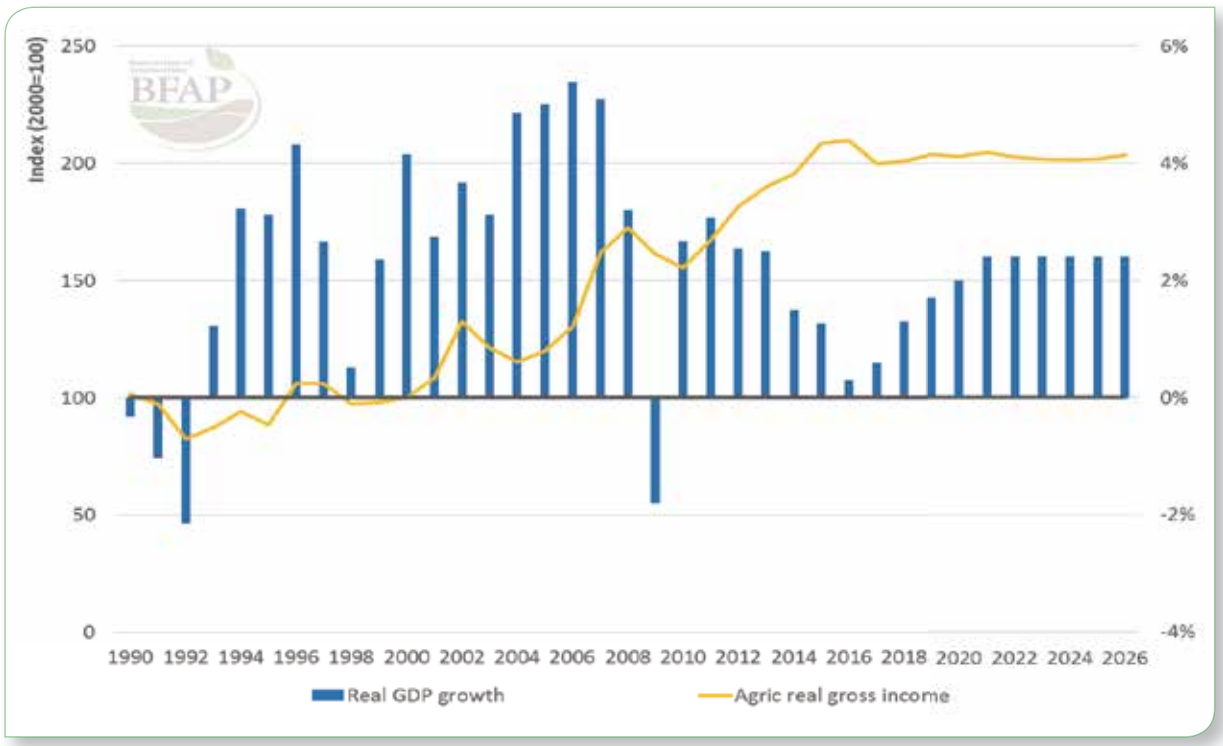


Figure 1: Agricultural real gross income and agricultural GDP growth, 1990-2026
Source: Abstract 2017 and BFAP Baseline

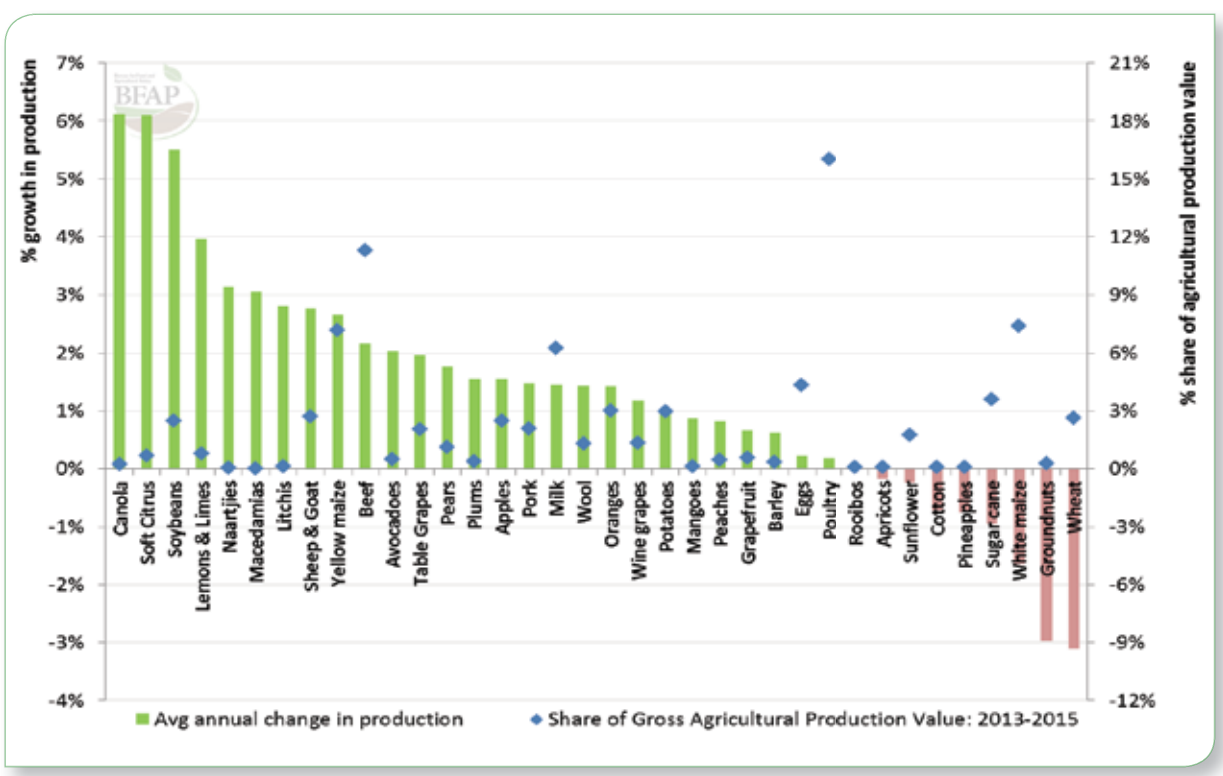


Figure 2: Agricultural performance: growth in production (2011-2015) and share of agricultural production value of selected industries (2013-2015)

enhanced market access, a general lack of investment in water infrastructure, and an inefficient process in issuing of water licences (especially to new farmers who did not have access to water in the past).

Figure 3 compares the net trade account of the agricultural sector to the net trade account of all products in the South African economy. The agricultural sector has outperformed the rest of the economy when it comes to earning foreign exchange, with a net export position that has strengthened over time.

Following the NDP, the directorate of International Trade at the Department of Agriculture, Forestry and Fisheries (DAFF) developed an international market opportunity profile of the South African fruit industry. Furthermore, the introduction of the Fruit Industry Value Chain Roundtable has provided a platform for industry to engage with government and to identify key limiting factors of growth. The challenge now is to link and coordinate this positive momentum to actions as well as to other initiatives across directorates and ministries. In terms of the regional focus, the importance of the African markets cannot be overemphasised. Equally important remains the selection of commodities where South Africa has a comparative and a competitive advantage. For example, Figure 4 plots South Africa's share of the value in world export of high-value produce. Since 2001, the share of South Africa's citrus exports in the value of total world exports has doubled from 4% to 8%. In 2015, citrus was also the country's largest agricultural export product.

Apart from its contribution to the economy and the trade balance of the country, agriculture's vital role in the overall food security status and therefore also the political stability cannot be overstated. Food security is measured in terms of the accessibility and affordability of food. The recent drought has had a major impact on the affordability of staple maize, with the cost of a single serving of maize meal increasing by 43%, while the cost of the staple food basket increased by 22% (Figure 5) from April 2015 to April 2016. The average year-on-year inflation rate from April 2016 to April 2017 varied between about 7% and 18% and was the most significant for sugary foods (+17.7%), followed by fruit (+16.0%), bread & cereals (+14.3%), fats & oils (+12.4%), vegetables (+11.0%), dairy & eggs (+9.0%) and meat (7.2%). The good news is that the rate of staple food price inflation is projected to decline by 16% on the back of the improved weather conditions and the appreciation of the exchange rate. Yet, this rate is measured from a higher base and therefore, in absolute terms, staple food prices remain high.

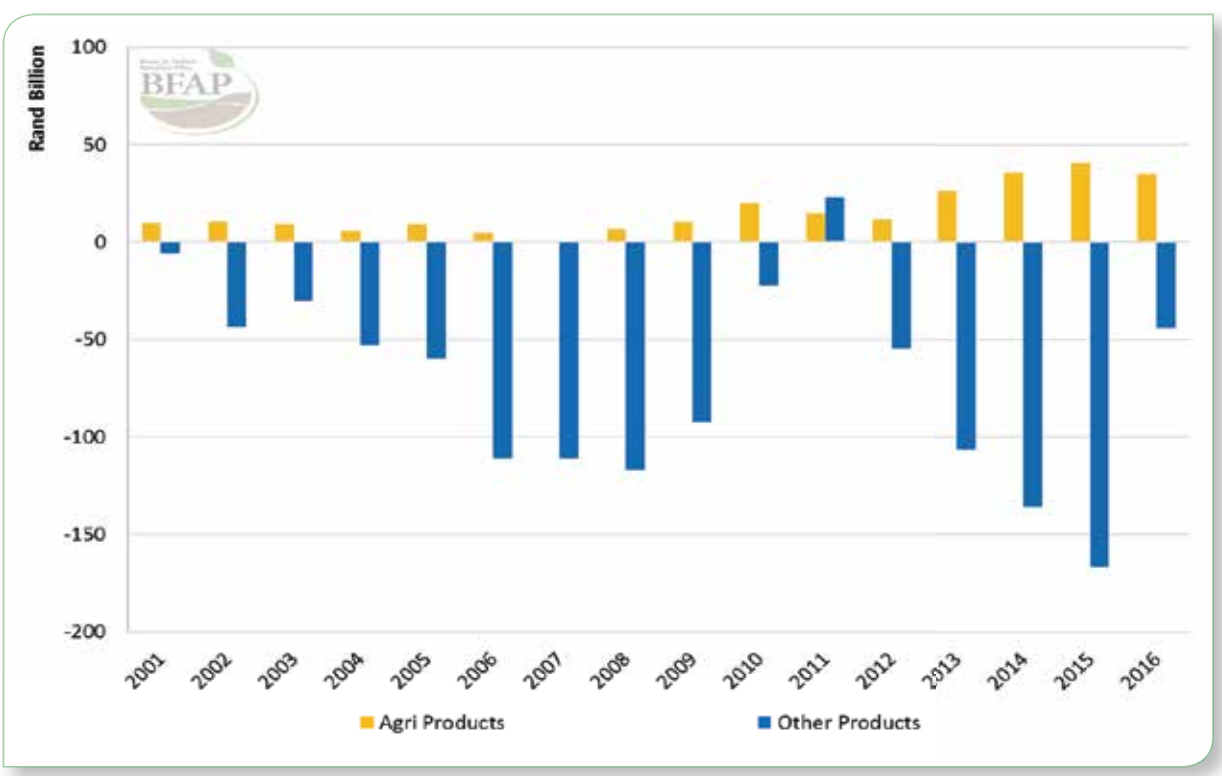


Figure 3: South Africa Net Exports, 2001-2016
Source: ITC's Trade Map

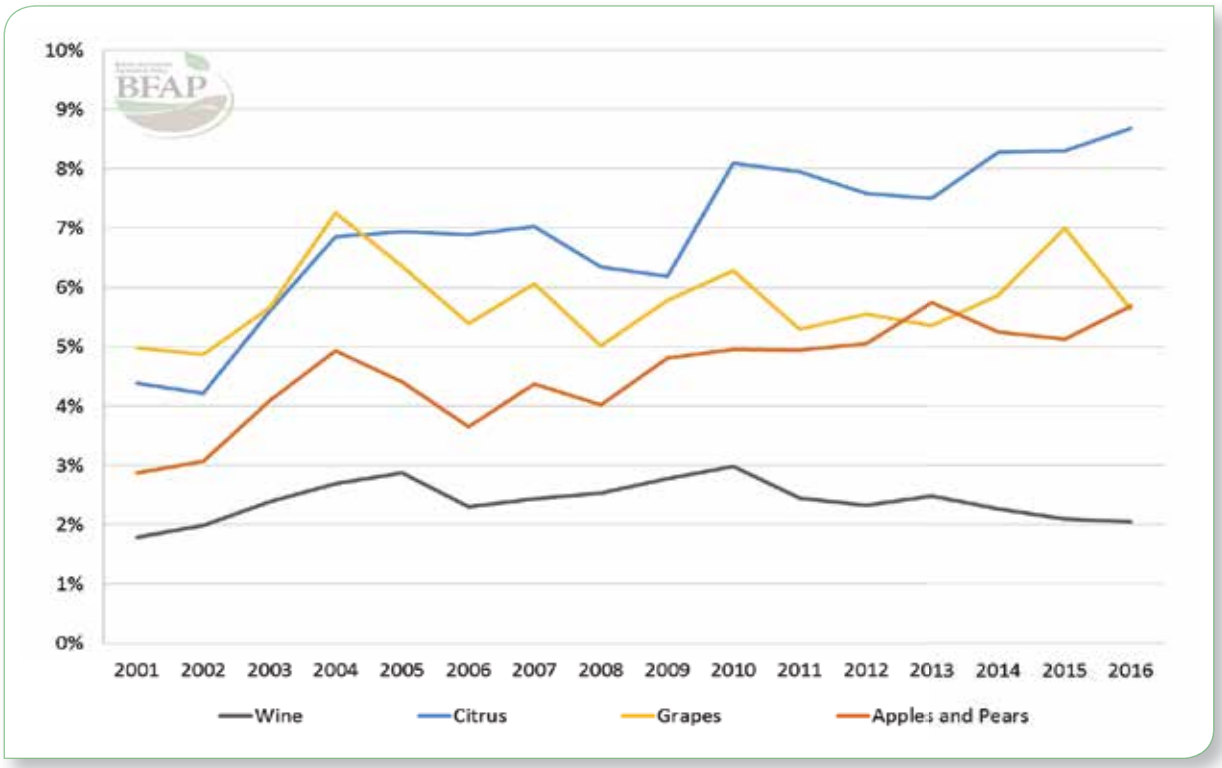


Figure 4: South Africa's share in world agricultural commodity exports by value, 2001-2016
Source: ITC's Trade Map

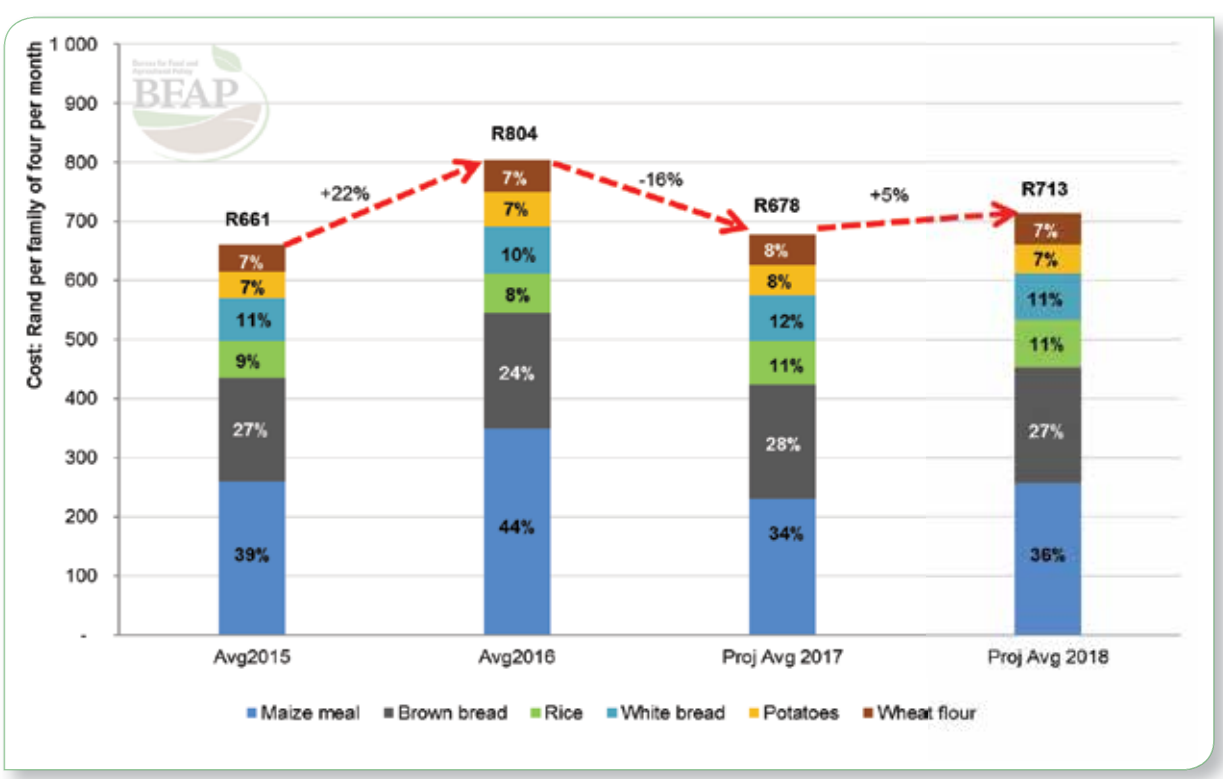


Figure 5: Staple component costs of the thrifty BFAP balanced food basket for a family of four

The agricultural footprint: Land, labour and capital

Land, labour and capital (and entrepreneurship) are the key production factors that drive agricultural output. Since the deregulation of the sector in the nineties, the area under commercial dryland production has shrunk considerably as marginal production regions have become economically unsustainable. The total area under dryland production has stabilised over the past decade, mainly due to the commodity super cycle that has caused agricultural prices to increase in real terms. Furthermore, there have been significant productivity gains with higher yields and improved production practises. Figure 6 clearly illustrates that the gradual switch in area from grains (mainly white maize and wheat) to oilseeds (soybeans, sunflower and canola) that BFAP has been projecting for several years, is taking place and is expected to continue over the outlook period. Despite the sharp recovery in 2017 of the area under white maize production following the drought, the area under production is projected to decline again over the long run.

Important to note, both commercial hectares under production and rural areas identified in the NDP and successfully revitalized, have a significant footprint in the economy. The revitalization of under-developed rural areas has therefore been identified in the NDP as one of the key areas of growth. Figure 7a shows the number of households in South Africa who are involved in crop farming on less than 20 hectares, who are located in the former homeland areas, and where the household head is a black person. It shows that the total number of households engaged in these activities increased from 1.6 million to 1.9 million between 2010 and 2015. This increase translates to an additional 75 000 hectares added during this period, most of which falls within the bottom tier who use less than half a hectare (GHS, 2015).

Despite the increased agricultural activity in former homeland areas, Figure 7b illustrates that government grants and salaries (including wages and commission) were the two main income sources for these households with 37.4% and 37.1% respectively. Only 0.2% of all rural household stated that income generated from the selling of farm produce was a main source of income. When the sample only includes rural household that are engaged in agricultural activities, this percentage rises marginally to 0.52%, highlighting the fact that smallholder households mainly engage in agricultural activities in the form of subsistence to provide additional food to the family. This is confirmed by the same survey that indicates that only 10% (187 000 of 1.87 million households) of all agricultural households in rural South Africa sell any of their produce. Furthermore, 75% of the households that sell their farm produce sell to informal, local markets, while only 6% sell to formal markets in South Africa.

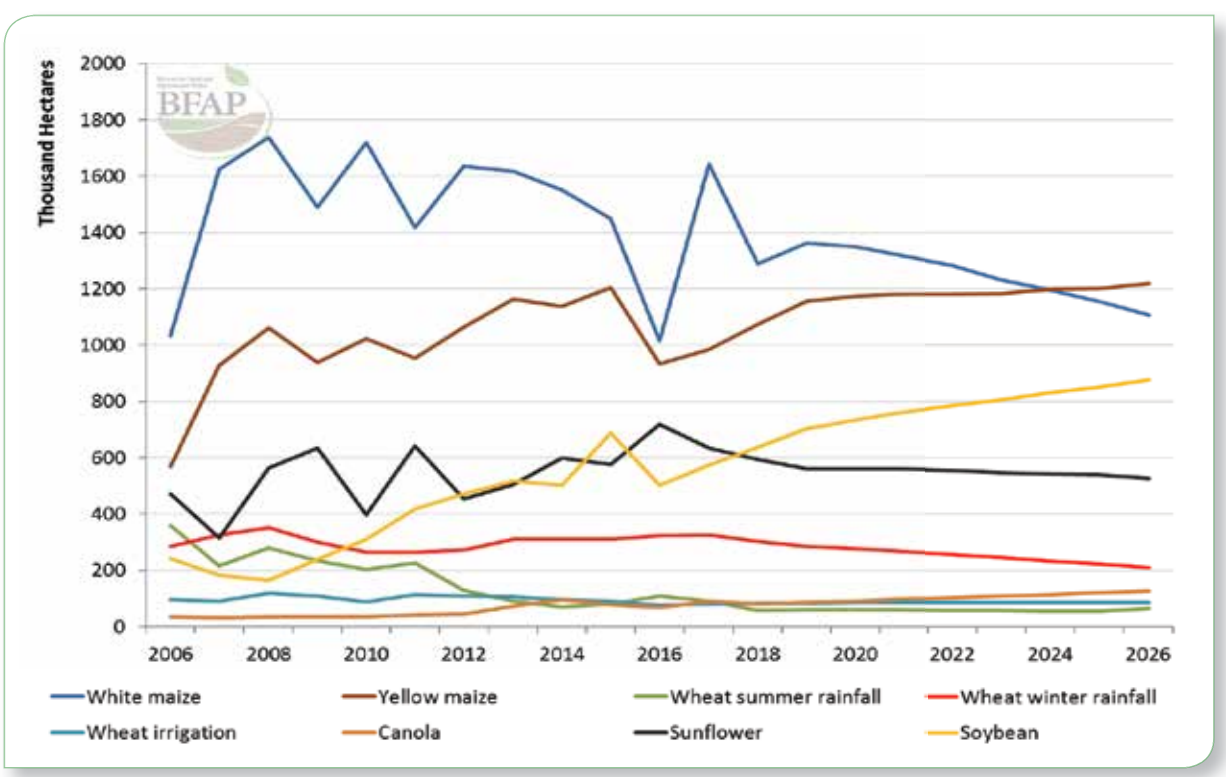


Figure 6: Area under commercial grain and oilseed production

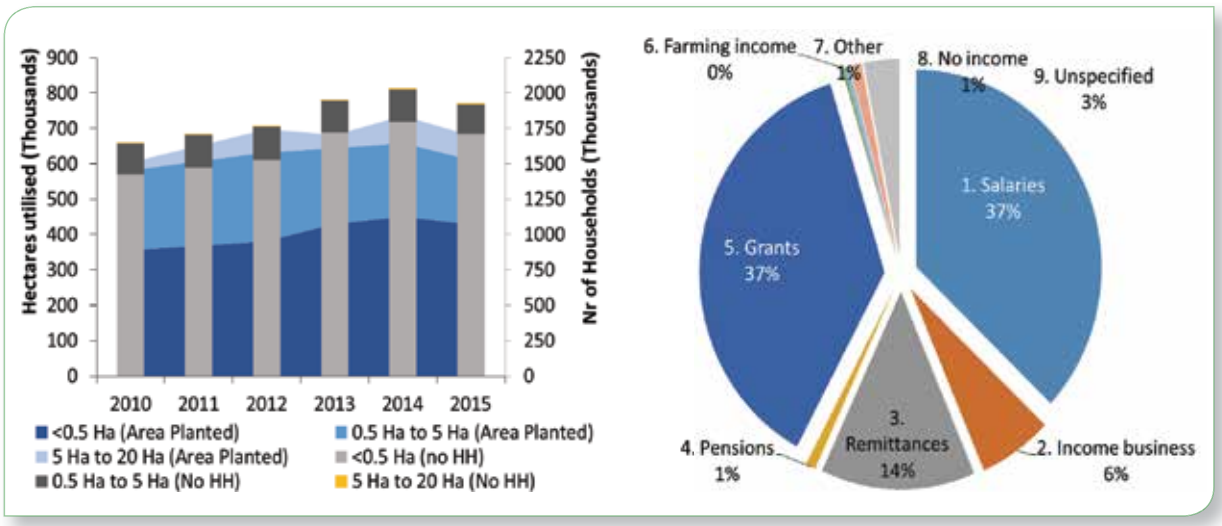


Figure 7

a) Agricultural activity of black agriculturally active households in South Africa's former homelands, Stats SA General Household Survey, 2010-2015

b) Sources of income for rural households from StatsSA General Household Survey, 2016

Source: L. Pienaar, Western Cape Department Agriculture and data from GHS, 2010 – 2015

In other words, despite the increase in the number of households engaging in agricultural activity, these areas are characterised by low productivity, lack of access to finance, and lack of access into more formalised value chains. Food prices in these rural areas are generally significantly higher in absolute terms than in urban centres. Furthermore, vast tracks of land remain under- or unutilised, which also includes idle irrigation schemes. Lastly, the majority of farmers have not been able to access more formalised value chains. This makes it undisputedly the biggest area of growth for the agricultural sector over the next decade, but it will only be unlocked by well-designed plans and support programs and the effective execution thereof. Effective public-private partnership programs will fast track the results of such services. Again, this is not a new concept and the NDP target for this category (crop farming on less than 20 hectares) is 323 000 jobs out of the total target of 1 million jobs by 2030.

Over the past few years a number of initiatives have proven that it is possible to unlock this latent potential of rural households. Figure 8 provides a high-level overview of survey results that BFAP generated in partnership with the private sector and through a new spatially integrated monitoring platform referred to as IVIS (Integrated Value Information System). Figure 8a illustrates the impact on yields and gross margins per hectare for farmers who have received farm and extension service support, compared to farmers with traditional farming methods in KwaZulu-Natal. The impact is at least a threefold improvement in gross margins. Figure 8b presents the main sources of income from rural households that are linked to farmer, or farm dweller support programs. The results are pooled from 1045 surveys across three distinct projects that are typically set up in the form of public-private sector partnerships where the key focus is to provide effective extension services, access to finance and inputs use and to link these emerging farmers to formalised valued chains. Although grants and other sources of income still make up the largest share, the income from farming activities for these rural households amounts to 32%, which represents a major departure from the reality that the majority of rural households in South Africa are facing. These households are not only producing for themselves but are selling agricultural produce into formal and or informal value chains.

This leads to the question of inclusive value chains. Under DAFF's Agricultural Policy Action Plan (APAP) the aim is the revitalisation of value chains. In order for value chains to be sustainable, they have to be competitive and for this a bottom up approach has to be followed. It is also crucial to point out that not all value chains have to link into the formal industry. To the contrary, results from BFAP's analysis of formal and informal poultry value chains (Figure 9) suggests that smaller chicken producers have higher production costs per bird, yet the market prices in the informal fresh markets are much higher than in

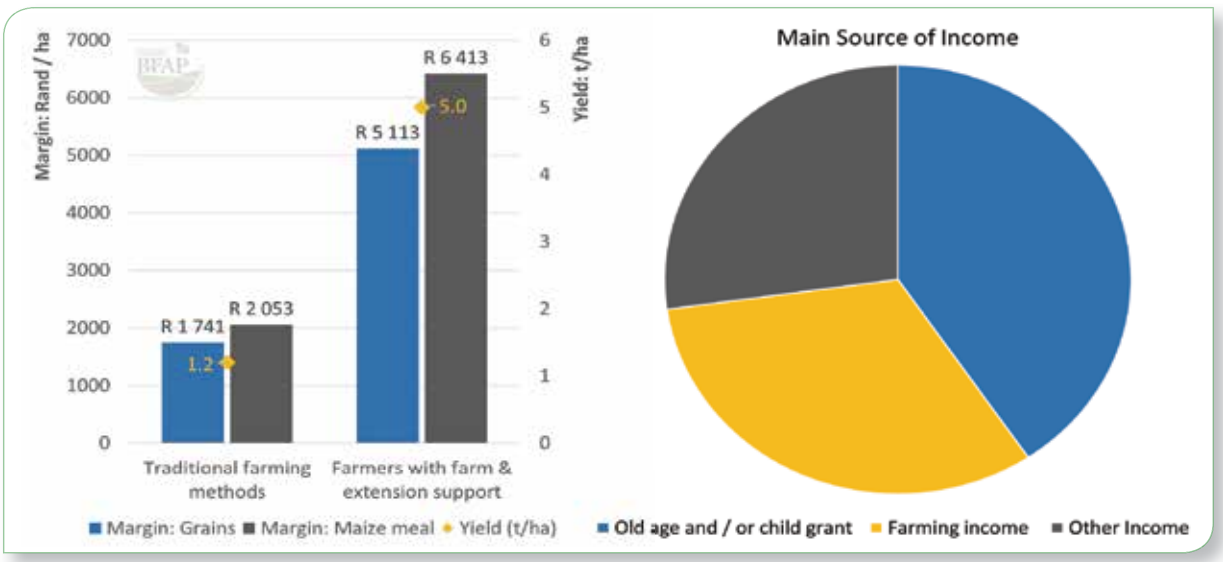


Figure 8:

a) Traditional farming versus farmers with extension and support in public-private sector support programs. Source: BFAP&IVIS, 2017.

b) Main sources of income of rural households linked to public-private sector support programmes. Source: BFAP&IVIS, 2017.

the formal integrated value chains and therefore small-scale poultry production in rural areas can be quite profitable whilst playing an important role in the market. Building a sustainable value chain has to involve all role players within the chain and any interventions at one level will have implications for the other stakeholders in the chain. Therefore, for any strategic interventions or investment to stimulate growth and speed up the transformation of the industry, for example the agri-parks, economic realities have to be taken into consideration with a clear understanding where in the chain the incentives and the investments need to be made.

Over the past year, the sustainability of these operations has been widely debated in the media. The production cost and revenue of these large-scale broiler operations is presented at the bottom of Figure 9. BFAP has also been reporting in detail on the relative competitiveness of this industry and its vulnerability to cheap imported chicken meat during periods of high feed costs due to a drought. Local producers in the formal market are faced with significant competition from frozen, bone-in chicken cuts, especially from EU origin, which can be imported duty-free under the old Trade Development Cooperation Agreement (TDCA), which was later replaced by the Economic Partnership Agreement (EPA). This question of competitiveness of the value chain can be linked all the way back to the productivity at the farm gate of grain and oilseed producers. To be more specific, at what costs can the South African farmers produce a ton of maize or soybeans and at what costs can this ton be processed for the poultry industry? To this extent, South Africa is a net importer of soybean cake and over the past few years, investors took the opportunity to invest in more than 2 million tons of soybean crushing capacity. This investment is supporting the overall drive to expand soybean production over the past few years (Figure 10): despite this expansion, however, the local crop is currently estimated at just over 1.3 million tons, which implies that local crushing plants' profitability remains under pressure as high fixed costs due to lower utilisation have to be balanced with high costs of imported soybeans to supplement the shortage in local availability.

It is apparent from this illustration of the various broiler value chains, the feed processing plants and primary soybean production that the basic principles of investment mentioned in the introduction still hold, whether it is an informal chain selling in rural areas or a large-scale operation competing with highly competitive and in some instances subsidised imported chicken meat.

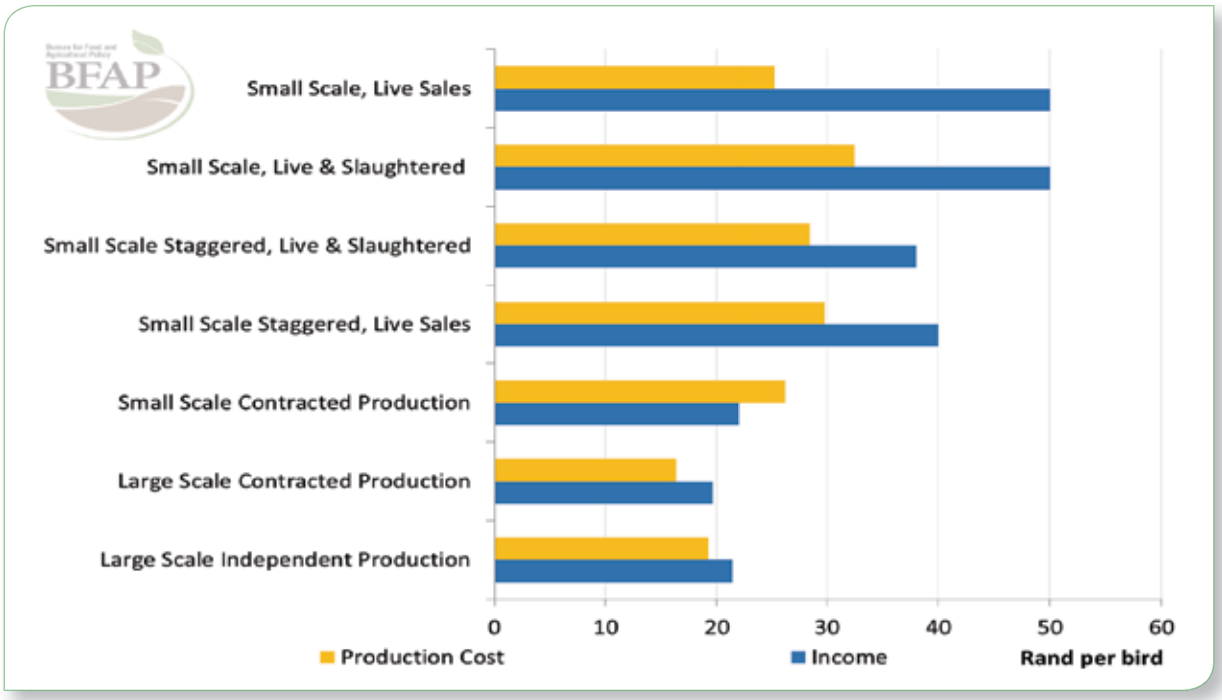


Figure 9: South African broiler production: cost and income of different scale producers
Source: BFAP, 2015

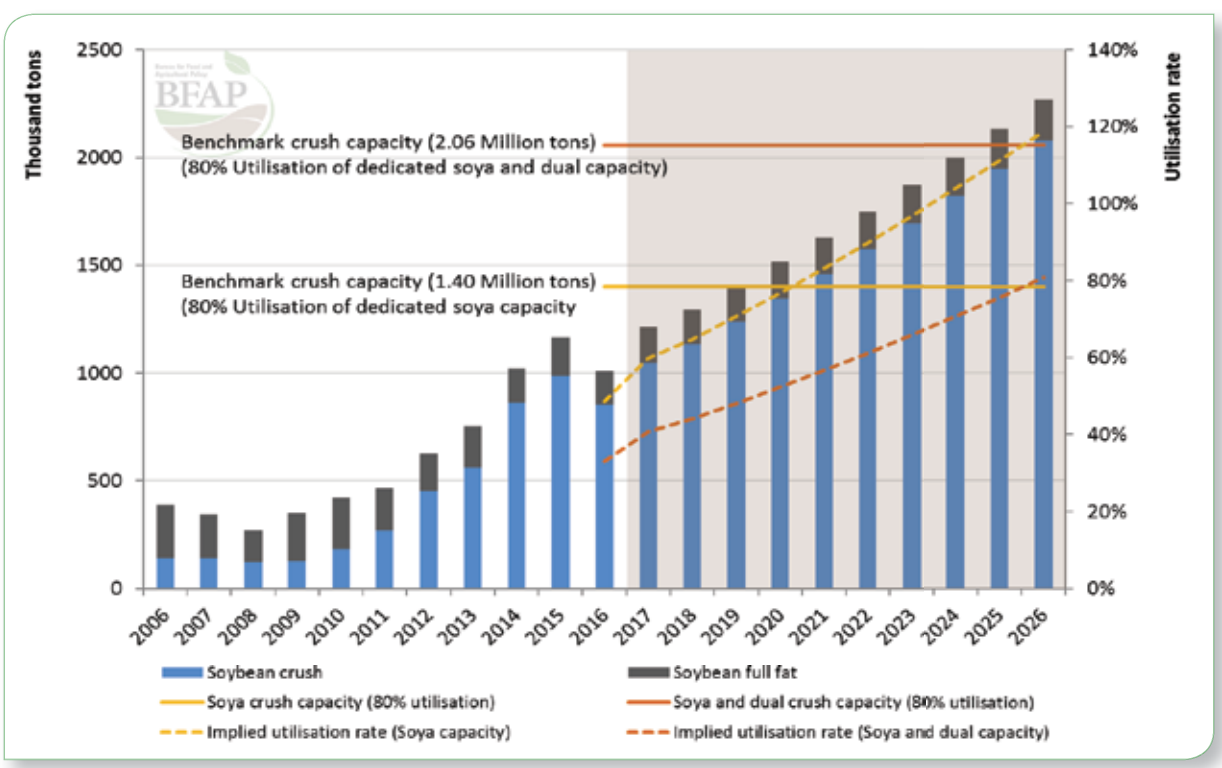


Figure 10: Capital investment in local processing

Lastly, the assessment of growth naturally also involves questions related to jobs in the sector. Figure 11 portrays the quarterly trend in employment in the agricultural sector since 2008 as the number of general workers, machine operators and agricultural workers who work in the primary sector. This includes workers in forestry and fisheries. The interpretation of the results needs to be treated carefully due to the change in the survey sample in the first quarter of 2015. The solid line portrays total agricultural employment adjusted for the change in the sample. The dotted graph shows the unadjusted employment numbers as portrayed in the respective QLFS reports. Given the adjustment, the figure shows a continued decline from 2008 until the start of 2011, after which the sector added jobs, principally because of the weakening in the exchange rate that increased the competitiveness of South African horticultural exports. This trend was reversed by the more than 50% increase in the minimum wage in 2013.

Land Reform and Water – it is make or break

At the heart of the challenges facing agriculture lies South Africa's increasing levels of inequality in a dualistic system. Although there are pockets of growth, the rural economic transformation that is envisaged in the NDP has not kick-started. The challenges of the growing demand for food and the increasing rate of urbanisation have to be addressed in conjunction with the massive unemployment rate, rural poverty and a major imbalance in land ownership and lack of transformation in the sector. The 2011 Green Paper on Land Reform already refers to this challenge as "land reform pursued with minimal disruption to food production based on agrarian transformation". Although the agricultural sector has a significant role to play, especially in rural economies, it is clear that it will not be able to solve the major challenges facing the country on its own.

Policy uncertainty and misalignment between various departments has been identified by a number of stakeholders as one of the main exogenous drivers hampering growth and transformation of the industry. It is usually the small things, which require no further requests to Treasury, but merely a realignment of resources in government, which will bring the biggest returns by unlocking the growth potential of the sector. There are enough entrepreneurs – black and white – who will jump at greater policy certainty, improved incentives, security of tenure, secure water use rights, and stability in the sector. Positive and inclusive agricultural growth is a prerequisite for successful transformation of the sector, and positive growth can only occur through continued public and private sector investments. New entrants and land reform beneficiaries

Figure 11: Agricultural employment - Machine operators, producers and general workers
Source: StatsSA QLFS reports (2016)

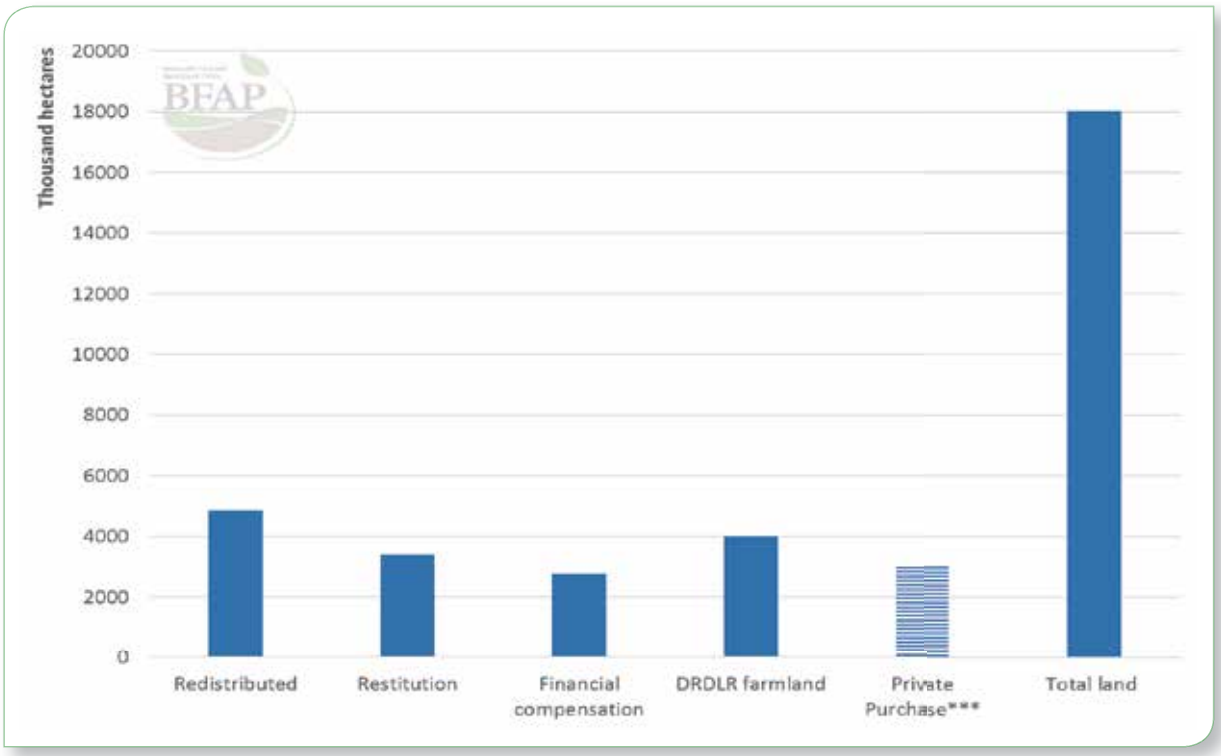


Figure 12: Total estimated land transferred or compensated
Source: DRDLR, Agbiz and own estimates ***

will only succeed if the fundamental enabling framework of government is in place. The successful completion of the land reform programme is necessary to address duality in the sector and to ensure a stable and growing agricultural and rural economy.

There is widespread concern in South Africa that land reform has not been successful. However, there is little consensus on what actually constitutes successful land reform in our circumstances: by what metric would we be prepared to declare success, and over what period of time? These are important questions, because they influence the state of mind of prospective land reform beneficiaries and hence whether they will be willing to invest in, develop, and nurture the long-term viability of the assets they obtain. Figure 12 presents an overview of the total estimated land that has been transferred from white to black ownership or where there has been financial compensation for the land that was taken under the apartheid regime. These numbers present a combination of official statistics recently reported by the Department of Rural Development and Land Reform (DRDLR) and assumptions around the amount of land transferred from white to black ownership by means of private transactions on the open market. Based on these numbers and the interpretation of what the definition of land reform really means, the country is much closer to the initial target of 30% that was initially set for land reform, with at least more than 20% (18 million ha out of 82 million ha) of the farmland already transferred or financially compensated for.

The mixture of statistics presented in Figure 12, due to lack of a common reliable source, highlights the biggest challenge to land reform - the so called "elephant in the room": the fact that we don't really have accurate reliable information to assess the current state of land reform, the success or failure of policies and actions, and hence we are not in a position to adjust plans and policies to achieve "success" on land reform. A comprehensive land audit and agricultural survey that covers smallholder farmers has been imminent for many years. Without measuring our progress, we can never claim "success".

Furthermore, and most importantly, success cannot only be measured against the amount of land that is transferred. Success should also be measured against the performance of the transferred land in terms of production, and what it implies for the beneficiaries in terms of jobs, wealth and hence prosperity. The liberalisation of foreign trade and deregulation of domestic markets that occurred in South African agriculture during the 1990s was unfortunately accompanied by a dismantling of farmer support services (in the form of access to financial services, extension, research and development, infrastructure,

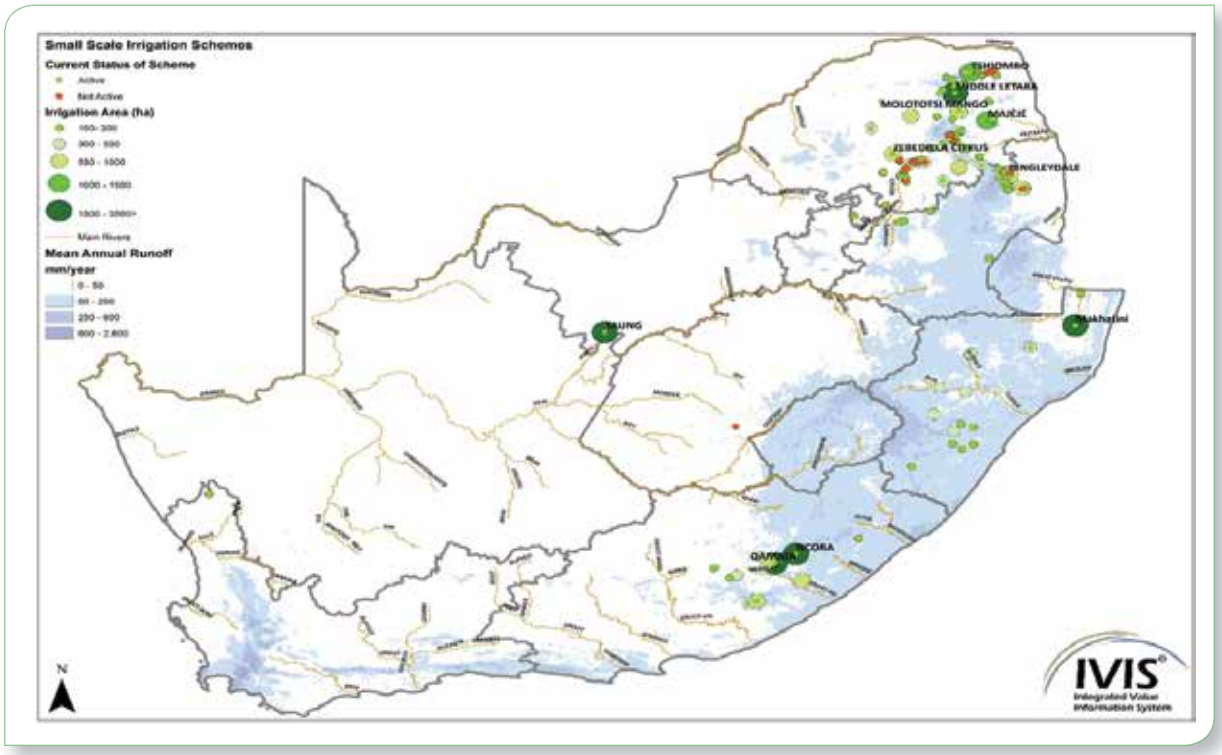


Figure 13: Smallholder irrigation scheme
Source: BFAP IVIS, 2016

water, markets, property rights, etc.), which is key to support land reform beneficiaries.

Apart from land reform, another issue that can also be classified as a mega factor that can change the future of food production in South Africa is water. The severe impact of the recent drought has again brought the importance of irrigation to the forefront. The country would have been dumped into a much worse position had irrigation not supplemented dryland production, not only to boost food production, but also to provide vital support with respect to employment in the industry. Although the summer rainfall area has received good rains and most of the dam levels have risen to more than 80 percent, the Western Cape Province is in dire straits with dam levels well below 20 percent. In collaboration with the Department of Agriculture in the Western Cape, BFAP estimated the potential impact of the drought on irrigated crops under the Bergrivier and Riviersonderend irrigation schemes. The total area affected amounts to 45 000 hectares, implying more than 36 000 jobs are at stake.

In the current environment of large scale and rapid urbanisation and the pressure to create employment opportunities that result in sustainable and dignified livelihoods, agricultural water use has had a rather low priority. With an increasing demand for water in industries such as mining and electricity generation, and the rapid growth in demand by domestic/urban growth, agriculture finds itself in a tight space within government's new National Water Resource Strategy 2 (NWRS-2) framework of water allocation, taxes and quotas. This puts forward the current debate between conflicting parties competing for water in South Africa and the need to fully evaluate the impact of water as a key component in the agro economic sector.

In its initial research for the planning commission, BFAP showed that the actual water required to expand the total area under irrigation by 142 000 ha in order to contribute to a million job opportunities by 2030 was manageable, despite the major challenges the country faced with respect to water resources. This expansion was based on the assumption of a comprehensive implementation of the Water Administration System (WAS) on 600 000 ha under irrigation schemes. The Water Research commission (WRC) has already proven that savings in excess of 10 percent are achieved at irrigation schemes where WAS has been implemented.

In the meantime, the Directorate of Water Use and Irrigation Development of DAFF has developed an irrigation strategy that identified approximately 110 000ha of irrigated land which requires revitalization and a further water availability was

identified for a 34 000ha irrigation expansion. Figure 13 portrays some of these small-scale irrigation schemes where there is significant idle potential under smallholder farmers that have water rights and the land. The basic motivation for expansion of land under irrigation remains the same, however recent reports from DAFF point to the need to better understand the factors that influence the success of revitalised irrigation schemes and the way these programs are structured. The Irrigation Strategy, therefore, seeks to practise irrigation within the confines of limited suitable natural resources to unlock the potential of people as well as land (DAFF, 2015). This does, however, not compensate for the fact that the National Water Investment Framework of DWS will require an investment of R855 billion over the next ten years to maintain the current infrastructure and expand capacity in order to meet the increasing demand for water.

Conclusion – Government's role in moving plans to practice.

In response to the challenges set by the NDP, the Department of Agriculture, Forestry and Fisheries (DAFF) in partnership with the Department of Rural Development and Land Reform (DRDLR) developed the Agricultural Policy Action Plan (APAP), which was approved in March 2015. The overarching implementation of the NDP and APAP is captured in the Medium Term Strategic Framework through implementation actions, targets and indicators tracking performance. Although it is still too early to draw any conclusions on the progress and more important the execution of these plans, it is fair to conclude that the key underlying challenges of the sector have not changed over the past five years. Rural areas are still characterised by poverty and inequality and despite increased spending on overall support programs for smallholder farmers, the overall performance and productivity of this sector remains low and the opportunities for these producers to participate in the broader agro-food system is limited. This was confirmed by the impact assessments conducted by the Department of Planning, Monitoring and Evaluation (DPME), which found the lack of coordination by government as a cross-cutting limitation, coupled with inefficiencies in government processes.

The diagnostic report of the NPC envisages a "capable state". "It is not perfect, but it is sufficiently capable and effective that people broadly have faith in the services it delivers. Further, services are of consistent standard for all South Africans." Chapter 13 of the NDP argues that there is unevenness in capacity between various organs of state as a result of, inter alia, unstable leadership, erosion of accountability and skills deficits. The NDP also identifies a tendency to jump from one quick fix or policy fad to the next. In other words, policies and interventions implemented without a solid theory of change and objectives to be achieved. Furthermore, a policy initiative is not brought to its full conclusion before it is dropped.

Any section on challenges in the government system will be incomplete if the efficacy of public resources is not discussed. In the most recent Auditor General's report (for the 2014/15 financial year) it was found that 131 (28%) of entities at national and provincial level received a clean audit, 224 (48%) received an unqualified with findings audit result, 68 (14%) a qualified, 3 (1%) an adverse, 14 (3%) were disclaimed and 28 (6%) audits could not be completed. In reaction to unfavourable audit results, to combat corruption and in compliance with PFMA/MFMA prescripts, the supply chain requirements faced by organs of state annually become stricter. This is making it increasingly difficult to implement plans, achieve objectives, reach targets and to work with other actors in the agricultural environment.

Unfortunately, as already mentioned the real challenge ("elephant in the room") with respect to the evaluation, analysis and assessment of the performance and the value of the agricultural sector remains the availability of reliable data. The general state of information (especially on smallholder farmers, land ownership, labour, water, irrigation schemes, livestock statistics etc.) in the agricultural sector is very poor and does not provide a sound basis for policy and strategic decision making that will drive investment and growth. The good news is that there could potentially be a strong drive under Operation Phakisa to develop better information systems and many divisions within the various departments have made significant progress. However, despite these good initiatives and knowledgeable personnel driving it, they often end up operating in silos causing major institutional barriers in terms of information and knowledge sharing between departments and institutions such as the ARC and the CSIR.

Hence, the final challenge remains: Is government currently in a position to steer the implementation of plans (e.g. Phakisa implementation plans)? How should the "silos" in civil service be removed to ensure a greater team effort, and how should coordination, execution, and monitoring/control take place without further stifling service delivery (e.g. more committees and reports without achieving tangible results that leads to inclusive prosperity)?

KEY BASELINE ASSUMPTIONS

Policies

The baseline assumes that current international as well as domestic agricultural policies will be maintained throughout the period under review (2017 – 2026). In a global setting, this implies that all countries adhere to bilateral and multilateral trade obligations, including WTO commitments, as well as stated objectives related to biofuel blending mandates. On the domestic front, current policies are maintained. With the deregulation of agricultural markets in the mid-nineties, many non-tariff trade barriers and some direct trade subsidies to agriculture were replaced by tariff barriers. In the case of maize and wheat, variable import tariffs were introduced. The variable import tariff for wheat was replaced by a 2% ad valorem tariff in 2006. However, in December 2008 the original variable import levy system was re-introduced, and the reference price that triggers the variable import levy on wheat was adjusted upwards from $157/ton to $215/ton. Following the sharp increase in world price levels in 2012, the industry submitted a request for a further increase in the reference price, which was accepted in 2013, increasing the reference price to $294/ton. Having initiated a review of the tariff structure in April 2016, ITAC recently adjusted the reference price downward to $279. The annual quota of 300 thousand tons of wheat that can be imported duty free from the EU from 2017 onwards has been introduced in this year's baseline.

Global maize prices have traded significantly higher than the reference price in recent years and international prices are not projected to fall below the reference price of $110 per ton over the next decade. Consequently, no maize tariff is applied over the Outlook. In contrast, wheat prices have already fallen below the reference price and consequently the import duty on wheat was already triggered in 2015, remaining in place over the course of the Outlook as the projected world price for wheat remains below $279/ton. Ad valorem tariffs are applied in the case of oilseeds. In the case of meat and dairy products, a combination of fixed rate tariffs and/or ad valorem tariffs is implemented. General duties on imported chicken were increased substantially in October 2013, however a significant share of total imports originate from the European Union and therefore carry no duty under the TDCA, which was recently replaced by the new EPA. Furthermore, South Africa applies anti-dumping duties of R9.40 per kilogram on bone-in chicken pieces originating from the United States. In June 2015, it was announced that this anti-dumping duty would be removed for a quota of 65 thousand tons of bone-in portions. The projected tariff levels, as derived from the FAPRI projections of world commodity prices, are presented in Table 1.

Table 1: Key policy assumptions

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
R/ton											
Maize tariff: (Ref. price = US$ 110)	0	0	0	0	0	0	0	0	0	0	0
Wheat tariff (Ref price = US$ 279)	1572	1566	1167	909	768	742	740	775	795	801	822
Wheat tariff (300 000 ton quota: EU Origin)	0	0	0	0	0	0	0	0	0	0	0
Sunflower seed tariff: 9.4 % of fob	572	489	527	522	536	540	529	530	529	533	523
Sunflower cake tariff: 6.6 % of fob (4.95% for MERCUSOR origin)	201	151	156	153	152	143	139	141	140	143	139
Sorghum tariff: 3 % of fob	74	53	64	66	68	69	69	70	70	71	71
Soybean tariff: 8 % of fob	434	411	433	434	444	448	437	437	439	440	440
Soybean cake tariff: 6.6 % of fob (4.95% for MERCUSOR origin)	315	299	308	305	306	302	297	298	300	304	304
Tons											
Cheese, TRQ quantity	1199	1199	1199	1199	1199	1199	1199	1199	1199	1199	1199
Butter, TRQ quantity	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167	1167
SMP, TRQ quantity	4470	4470	4470	4470	4470	4470	4470	4470	4470	4470	4470
WMP, TRQ quantity	213	213	213	213	213	213	213	213	213	213	213

Table 1: Key policy assumptions (continued)

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Percentage											
Cheese, in-TRQ	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0
Butter, in-TRQ	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
SMP, in-TRQ	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
WMP, in-TRQ	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2	19.2
c/kg											
Cheese, above TRQ rate	500	500	500	500	500	500	500	500	500	500	500
Butter, above TRQ rate	500	500	500	500	500	500	500	500	500	500	500
SMP, above TRQ rate	450	450	450	450	450	450	450	450	450	450	450
WMP, above TRQ rate	450	450	450	450	450	450	450	450	450	450	450
Beef tariff: max(40 %*fob,240c/kg)	1806	1552	1569	1521	1541	1610	1655	1712	1758	1795	1939
Lamb tariff: max(40 %* fob,200c/kg)	2095	1963	2038	2037	2106	2175	2190	2227	2264	2299	2334
Chicken tariff (Whole frozen): 82%	112	112	115	119	121	123	125	127	128	129	136
Chicken Tariff (Carcass): 31%	1855	1699	1841	1862	1936	2015	2041	2077	2114	2150	2280
Chicken Tariff (Boneless Cuts): 12%	311	285	309	312	324	338	342	348	354	360	382
Chicken Tariff (Offal): 30%	183	168	182	184	191	199	201	205	209	212	225
Chicken Tariff (Bone in portions): 37%	398	364	395	399	415	432	438	445	453	461	489
Chicken tariff: EU Origin	0	0	0	0	0	0	0	0	0	0	0
Chicken: Bone in portions EU Origin – Safeguard 13.9%	204	221	223	232	241	245	249	253	258	273	204
Pork tariff: max (15 %* fob, 130c/kg)	226	205	230	240	255	266	265	262	258	256	353

Macroeconomic assumptions

To some extent, the baseline simulations are driven by the outlook for a number of key macroeconomic indicators. Projections for these indicators are mostly but not exclusively based on information provided by the OECD, the IMF and the Bureau for Economic Research.

Table 2: Key macro-economic assumptions

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Millions											
Total population of SA	55.9	56.4	56.8	57.2	57.6	58.0	58.4	58.7	59.09	59.43	59.8
US $/barrel											
Brent Crude oil	45.1	54.0	57.3	58.6	59.0	60.8	62.7	64.6	66.5	68.4	70.4
SA cents/Foreign Currency											
Exchange rate (SA cents/US$)	1469	1356	1423	1399	1423	1454	1452	1462	1473	1483	1494
Exchange rate (SA cents/Euro)	1768	1473	1545	1520	1562	1597	1612	1623	1653	1684	1697
Percentage Change											
Real GDP per capita	-1.40	-0.23	0.52	0.96	1.29	1.72	1.75	1.78	1.80	1.81	1.83
GDP deflator	6.80	5.70	4.90	4.70	5.20	5.70	5.50	5.00	5.00	5.00	5.00
Percentage											
Weighted prime interest rate	10.41	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50

OVERVIEW

The analysis includes general information on the demographic characteristics of South African consumers and dynamic changes in South Africa from a socio-economic perspective.

SOUTH AFRICAN CONSUMER PROFILE

This chapter presents an overview of the dynamic South African consumer landscape which underpins the modelling projections presented in the 2017 edition of the BFAP baseline. The analysis includes general information on the demographic characteristics of South African consumers and dynamic changes in South Africa from a socio-economic perspective.

Demographics of the South African Consumer

The Living Standards Measure (LSM®) segments that have been developed by the South African Audience Research Foundation is commonly used to describe the socio-economic characteristics of South African households. The segmentation basis for these segments is consumers' access to various amenities such as durables, household location, and dwelling type (www.saarf.co.za).

Unfortunately, the last survey which generated the LSM data was conducted in 2015, although a new system (the "Establishment Survey") is under development. In the interim, however, updated data is hard to come by.

A summary profile of the South African consumer market (AMPS 2015) is presented in Figure 14 and Table 3. Four lifestyle levels could be defined within the LSM spectrum as illustrated by Figure 14.

From a spatial perspective Figure 14 presents the distribution of the LSM segments within the various provinces of South Africa:

- Marginalised consumers (LSM 1 to 3) reside mainly in the Eastern Cape, KwaZulu-Natal and Limpopo. The marginalised consumers in these provinces represent about 75% of the total number of marginalised consumers in South Africa.
- Middle class consumers (LSM 4 to 6) reside mainly in Gauteng, KwaZulu-Natal, Limpopo and the Eastern Cape. The middle class consumers in these provinces represent about 66% of the total number of middle class consumers in South Africa.

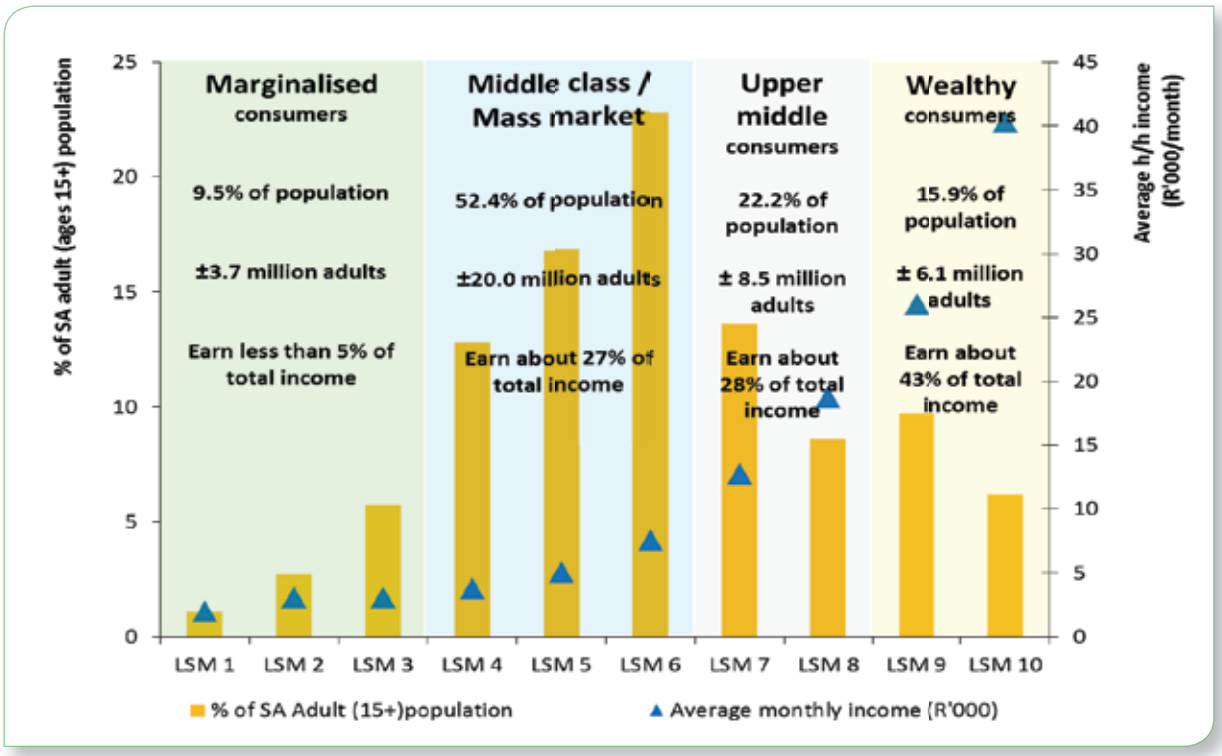


Figure 14: The SAARF LSM Segments: Proportion of SA adult population and average monthly household income in 2015
Source: SAARF All Media and Products Survey (AMPS) 2015AB

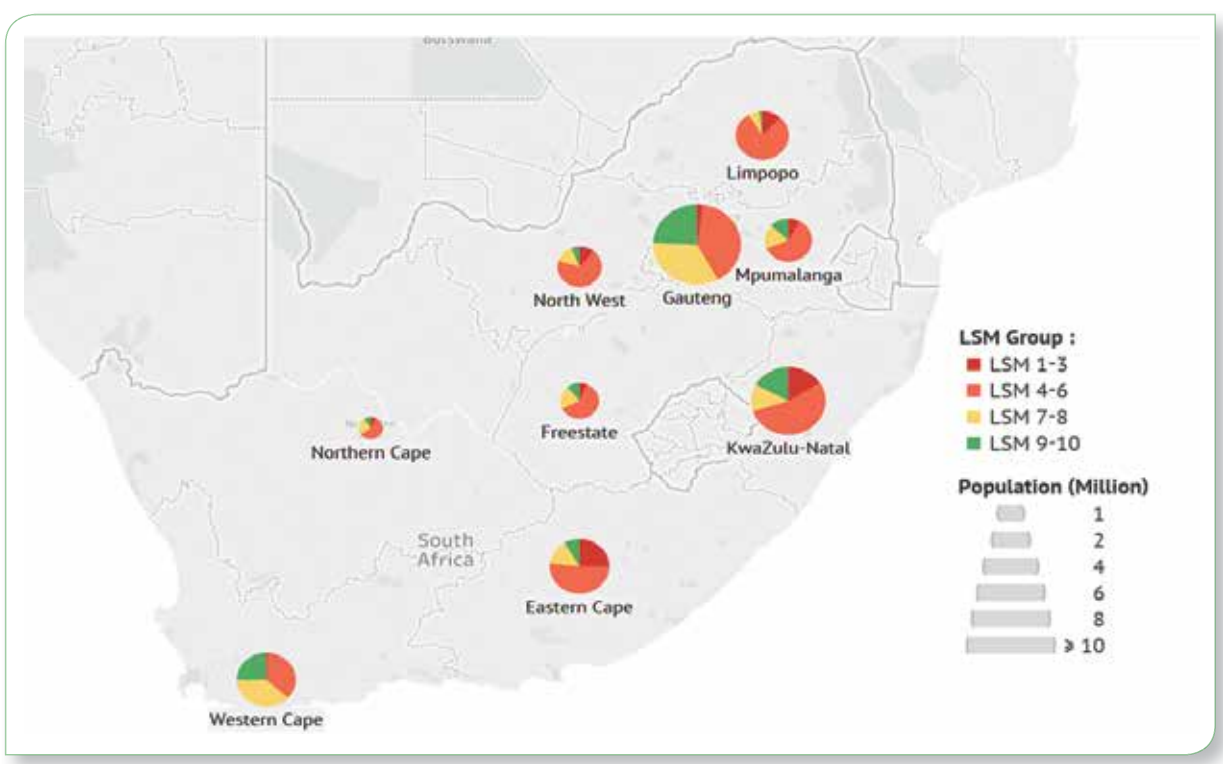


Figure 15: Distribution of the SAARF LSM Segments within the nine provinces of South Africa during 2015
Source: SAARF All Media and Products Survey (AMPS) 2015

Table 3: A summary of the South African consumer profile in 2015 based on the SAARF LSM segments

LSM:	% of SA adults (15+) (2015):	Average household monthly income (2015):	Dominant age groups **:	Dominant education level**:	Dominant location (rural/ urban)*:	Dominant Provincial location*:	Unemployment Share - self reported*:	Dominant dwelling type**:	Electricity in home *:	Tap water in home/on plot***:
1	1.1%	R1 968	50+ & 35-49	Up to primary completed & Some high schooling	100% to plus minus 90% rural	E Cape KZN Limpopo	Up to 44%	Traditional hut & House/ cluster house/ town house	34% to 78%	0% to 29%
2	2.7%	R3 095	50+ & 15-24							
3	5.7%	R3 082								
4	12.8%	R3 798	15-24 & 50+	Some high schooling & Matric	plus minus 83% to 86% rural	Gauteng KZN Limpopo E Cape	plus minus 44% to 34%	House/cluster house/ town house & Matchbox/ Improved matchbox	95% to 99%	52% to 97%
5	16.8%	R5 047	15-24 & 25-34							
6	22.8%	R7 550	25-34 & 35-49							
7	13.6%	R12 789	25-34 & 35-49	Matric & Some high schooling	plus minus 95% urban	Gauteng W Cape KZN	plus minus 26% to 18%	House/cluster house/ town house & Flat	100%	100%
8	8.6%	R18 728	50+ & 25-34							
9	9.7%	R26 037	35-49 & 50+	Matric & University / Technicon	plus minus 95% urban	Gauteng W Cape KZN	plus minus 13% to 5%	House/cluster house/ town house & Flat	100%	100%
10	6.2%	R40 337								

Sources: *AMPS 2015; **AMPS 2014; ***AMPS 2013

- Upper-middle class consumers (LSM 7 to 8) reside mainly in Gauteng, Western Cape and KwaZulu-Natal. The upper-middle class consumers in these provinces represent about 71% of the total number of upper-middle class consumers in South Africa.
- Wealthy consumers (LSM 9 to 10) reside mainly in Gauteng, KwaZulu-Natal and Western Cape. The wealthy consumers in these provinces represent about 79% of the total number of wealthy consumers.

Dynamics in the South African consumer environment: HOUSEHOLD INCOME

According the South African Reserve Bank the per capita disposable income increased by 5.8% in nominal terms from 2015 to 2016, which implies a decline of 0.2% in real terms. This follows a real increase of 1.2% from 2014 to 2015 (Figure 16).

Statistics South Africa's most recent household income and expenditure data is based on the 2014/2015 Living Conditions Survey (LCS). Figure 16 presents a comparison of the average annual household income per expenditure decile, relating data from LCS 2014/2015 to the Income and Expenditure Survey (IES) 2010/2011. For the country on average, household income increased by 15.6% in nominal terms. However, accounting for CPI headline inflation implies a negative growth of 8.4% in average household income levels.

From the household income of the various expenditure deciles[1] presented in Figure 17 for 2011 and 2015, it is clear that the most significant nominal household income growth was observed for expenditure deciles 3 to 7. This correlates roughly to the lower- and upper- middle class consumer segments. Deflating these nominal growth figures with CPI headline inflation yields negative growth rates for most of the expenditure deciles – particularly for very poor and very wealthy consumer segments.

Considering income from an alternative perspective, Table 4 presents an overview of the 2015 tax season of the South African Revenue Service (SARS), illustrating that the largest group of taxpayers (65% of those with an income above zero) fell within the income bracket of R70 001 to R350 000 per taxpayer per year. The average annual income for a taxpayer in this group was R193 112 or R16 094 per month. This bracket corresponds roughly to a single source household income for households in expenditure deciles 6 to 9 (in LCS 2014/2015).

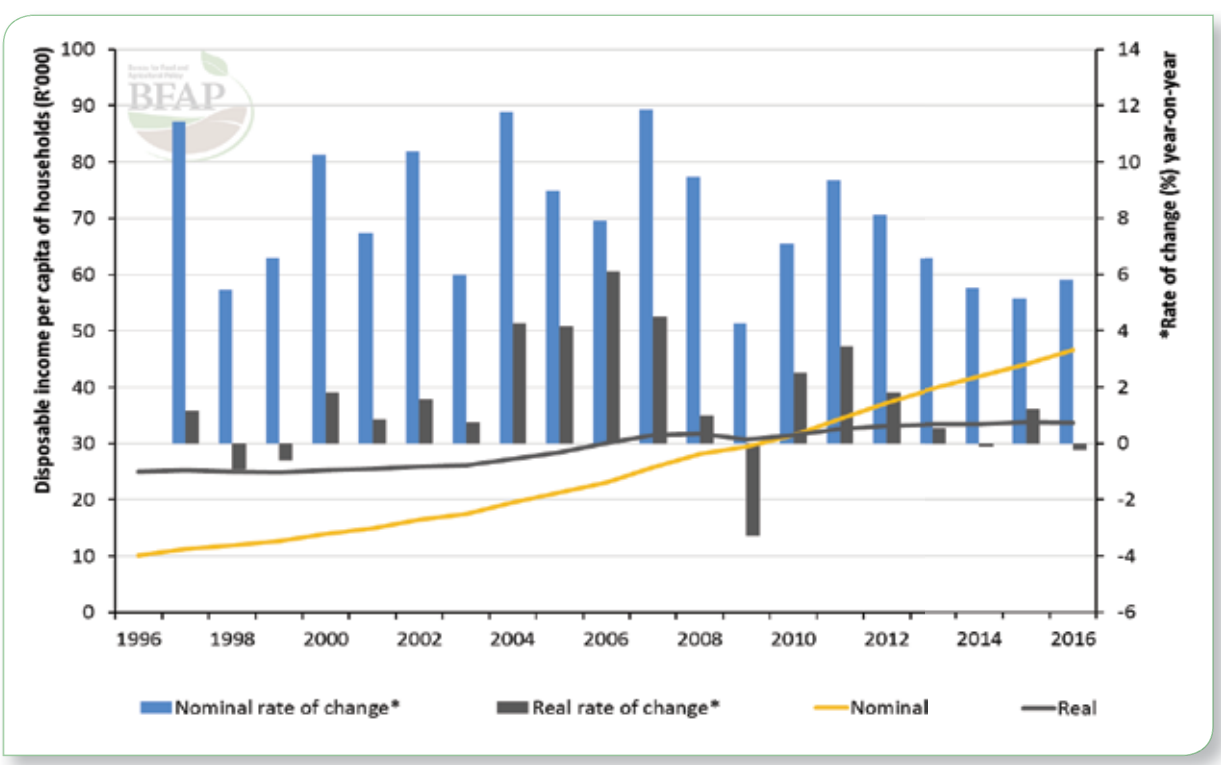


Figure 16: Disposable income per capita of households 1996 to 2016
Source: SA Reserve Bank (series KBP6272)

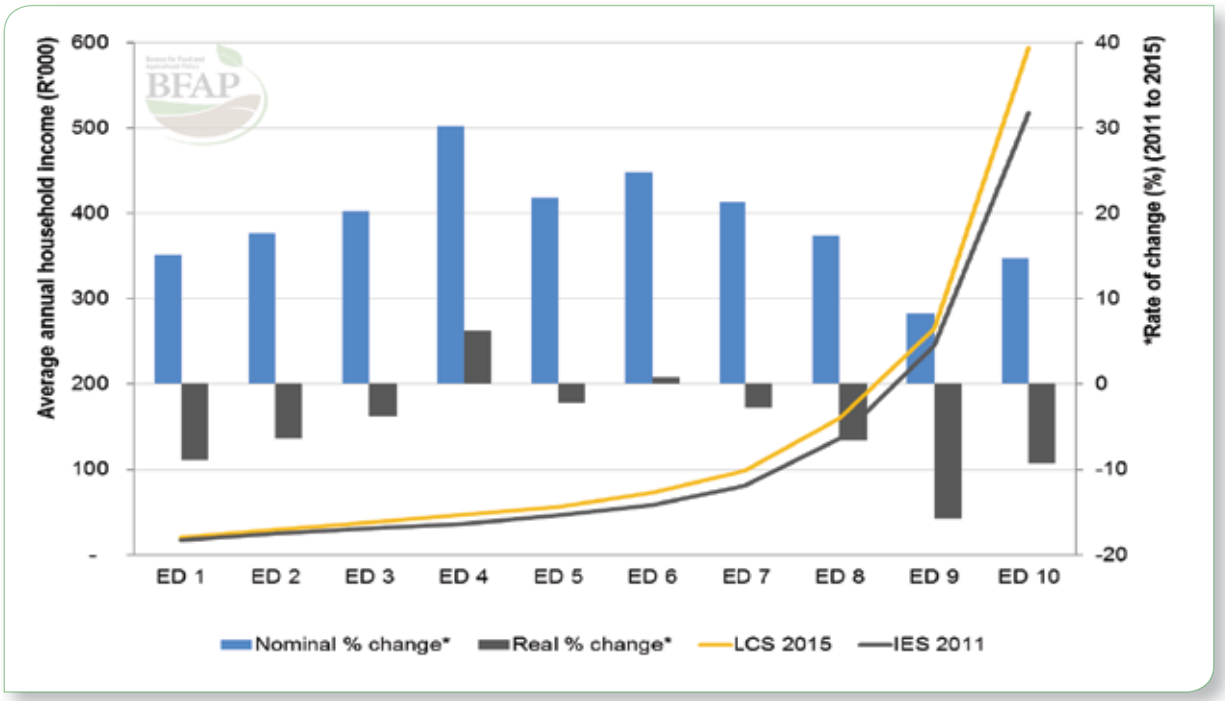


Figure 17: Average annual household income per expenditure decile comparing data from LCS 2014/2015 to IES 2010/2011
Source: StatsSA IES 2010/11; LCS 2014/2015

Table 4: Overview of the 2015 tax season by SARS in terms of income groups, average income and number of taxpayers

Income group (R/annum)	Average annual income per assessed taxpayer	Average monthly income per assessed taxpayer	Number of taxpayers	Share of taxpayers with income >R0
1 – 70 000	R37 825	R3 152	478 495	10%
70 001 – 350 000	R193 122	R 16 094	3 012 171	65%
350 001 – 500 000	R413 878	R34 490	527 958	11%
500 000 +	R973 109	R81 092	638 600	14%

Dynamics in the South African consumer environment: CLASS MOBILITY

Class mobility, defined as the movement of consumers towards higher LSM groups, has been a key feature of the South African consumer landscape for many years. From 2005 to 2015 the following major changes occurred in terms of the share of South African adults within various socio-economic sub-groups (Figure 18):

- The marginalised consumer group (LSM 1-3): 70% decline
- The lower middle-class (LSM 4-6): 23% increase
- The upper middle-class (LSM 7-8): 65% increase
- The wealthy consumer group (LSM 9-10): 32% increase

In recent years the class mobility rate has been variable, but generally slower in 2014/2015 compared to 2013/2014 following a general high point in 2011/2012. The class mobility rate also slowed down from 2007/2008 up to 2009/2010 due to recession impacts.

The lack of AMPS LSM data for 2016 inhibits calculation of the actual class mobility rates for 2015/2016. However, BFAP estimated the composition of the consumer market in 2016 by taking into consideration the average actual class mobility rates for 2013 to 2015, the 2015 LSM composition of the population and the 2015 StatsSA mid-year population estimate figures.

[1] Each expenditure decile represents 10% of households in South Africa

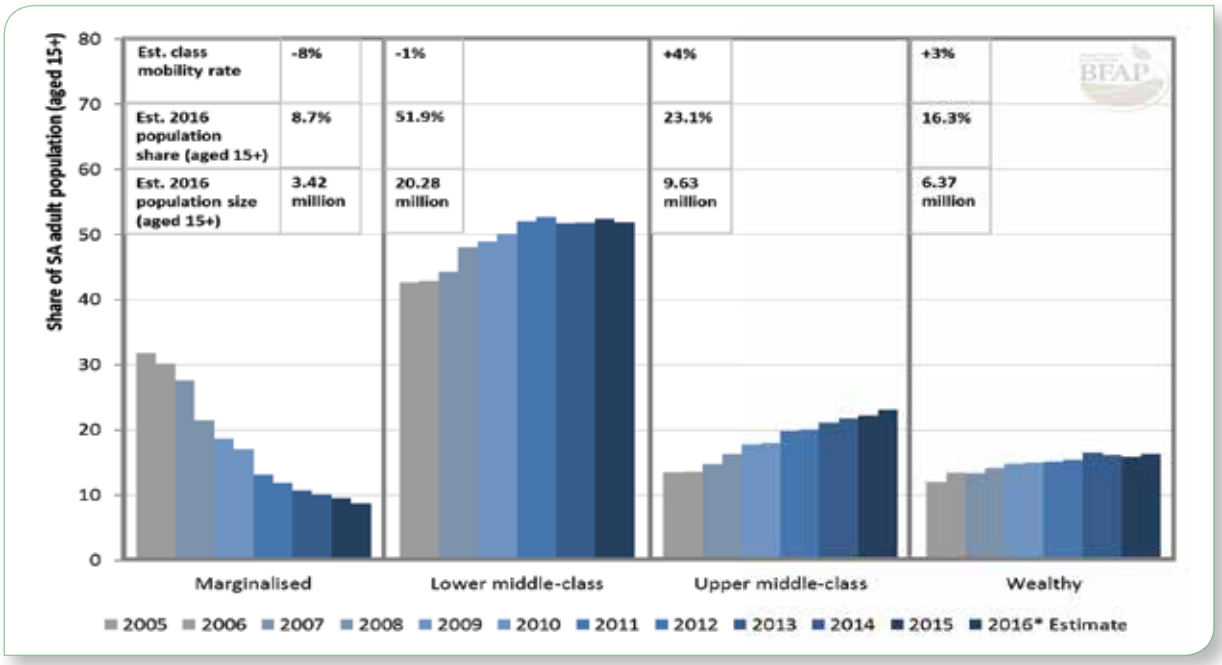


Figure 18: LSM class mobility: All adults for the period 2005 to 2015; Including projection values for 2016.
Source: SAARF All Media and Products Surveys (AMPS) 2005 to 2015

Dynamics in the South African consumer environment: URBANISATION

Data on the level of urbanisation in South Africa varies between sources, but lies somewhere between 60% and 70%, for example:

- Statistics South Africa Census 2011: 62%
- Statistics South Africa Income and Expenditure Survey 2010/11: 67%
- SAARF AMPS 2015AB: 65%

Urbanisation is associated with the 'nutrition transition' where consumer move towards a diet containing more processed food (e.g. cereals, edible oils and fats, sugar) and animal protein foods (driving the demand for animal feed).

Dynamics in the South African consumer environment: AGE DISTRIBUTION

South Africa has a relatively youthful population with 48% of the population under the age of 25 and 66% of the population being younger than 35 years of age in 2011 (StatsSA mid-year population estimates 2016). Median population age data indicates that the population is gradually ageing; the median population age has increased from 23 years according to Census 2001 to 25 years according to Census 2011. The StatsSA mid-year population estimate data presented in Figure 18 also confirms the gradually ageing population in South Africa. In 2010, people aged 35 and older represented 31.4% of the total population, increasing to 33.7% in 2016. From 2010 to 2016 the number of people in South Africa aged 35 and older grew by 20%.

Dynamics in the South African consumer environment: UNEMPLOYMENT

Unemployment data can be obtained from different sources, a summary of which is presented in Table 6. In the fourth quarter of 2016, at provincial level the lowest unemployment levels were found in Limpopo (19.3%), Western Cape (20.5%) and KwaZulu-Natal (23.9%), while the highest unemployment levels were found in the Free State (34.7%), Northern Cape (32.0%), Mpumalanga (31.0%) and Gauteng (28.6%) (Stats SA Quarterly Labour Force Survey, February 2017). The relatively low unemployment rate in the Limpopo province seems unlikely, but could possibly be attributed to most of the working age population migrating to more urbanised provinces (e.g. Gauteng) leaving only those younger than 16 and older than 65 behind.

In the fourth quarter of 2016, the highest unemployment levels were found among adults aged 15 to 24 years (50.9%) and 25 to 34 years (31.9%). These age groups represent about 36% of the total population in South Africa (Stats SA Quarterly Labour Force Survey, February 2017).

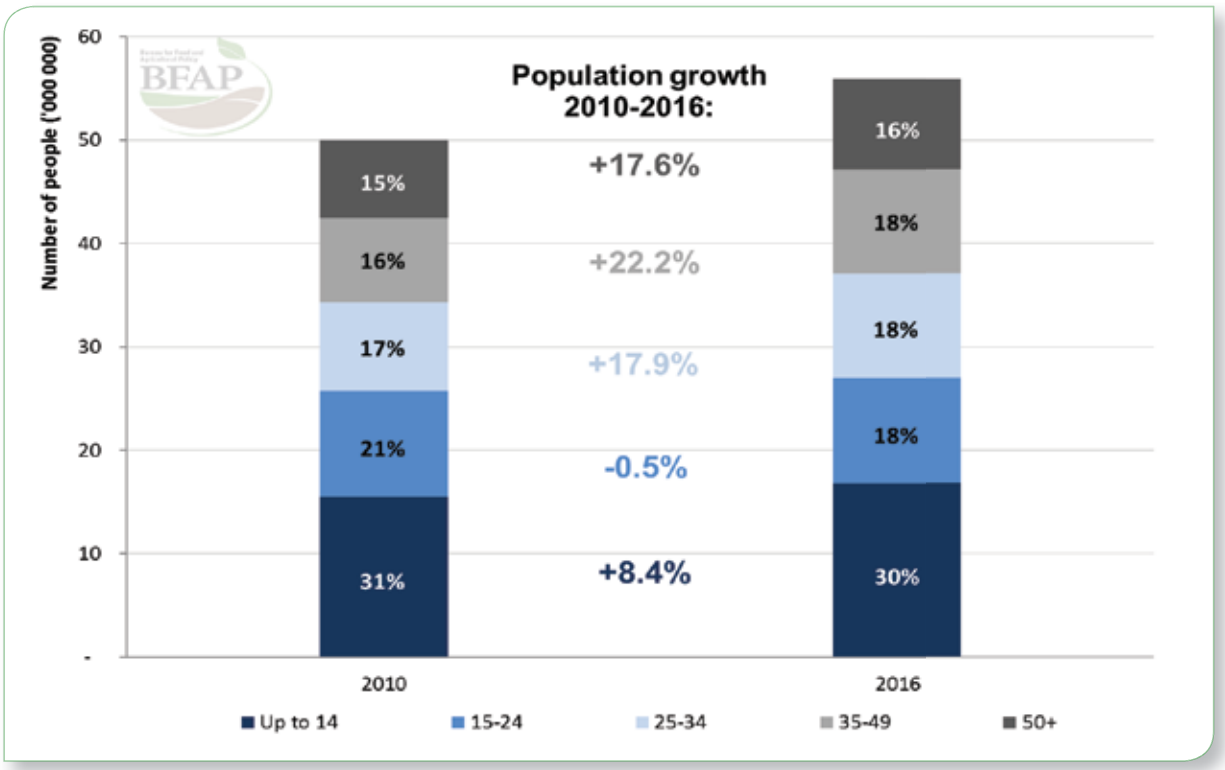


Figure 19: The dynamic age distribution in South Africa – a view on 2010 & 2016
Source: StatsSA mid-year population estimates 2010 and 2016

Table 5: Unemployment in South Africa

Source:	Unemployment rate:		Comments
	Past value:	Most recent value:	
Census data	2001: 41.6%	2011: 29.8%	Decreasing trend in all provinces
Stats SA Quarterly Labour Force Survey	Q1 2016: 26.7%	Q4 2016: 26.5%	Somewhat lower than the high point of 27.1% in Q3 2016

Source: StatsSA

Dynamics in the South African consumer environment: DEBT

South African consumers have been moving consistently deeper into debt toward the fourth quarter of 2016, with the following changes occurring from early 2009 (National Credit Regulator statistics):

- The value of the gross debtor book increased by 48.3% to R1 692 billion, representing the highest value since the first quarter of 2009 (Figure 20).
- The number of accounts in the gross debtor book increased by 12.6% to 39 million, representing a lower level than the highest level of 41.6 million in the first quarter of 2015 (Figure 20).
- The number of credit applications received increased by 84.6% to 10.5 million - lower than the high level of 12.1 million reported for the second quarter of 2015.
- The credit application rejection rate increased from 43.9% to 52.4%, being lower than the high level of 59.0% reported for the first quarter of 2014.
- In the fourth quarter of 2016, credit granted to consumers with less than R5500 income per month made up about 10% of total credit granted in value terms but about 43% in terms of total number of credit facilities granted.

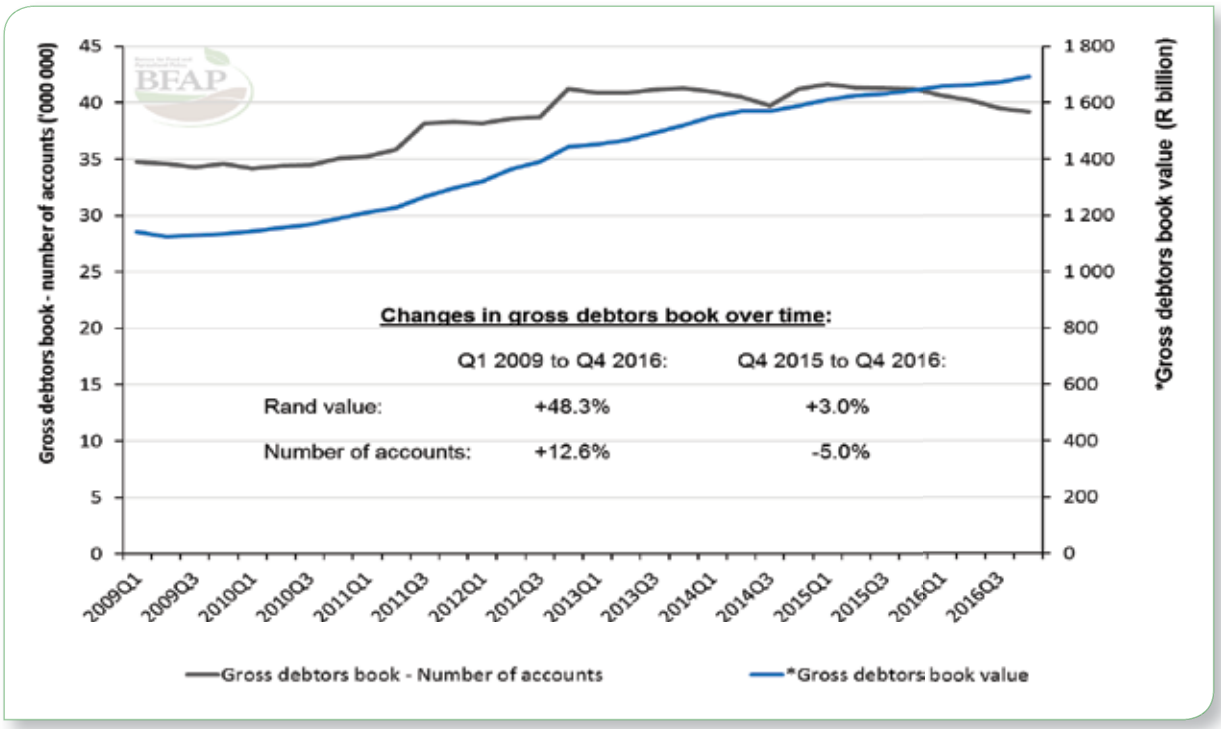


Figure 20: Consumer debt in South Africa from a gross debtors book perspective
Source: National Credit Regulator statistics

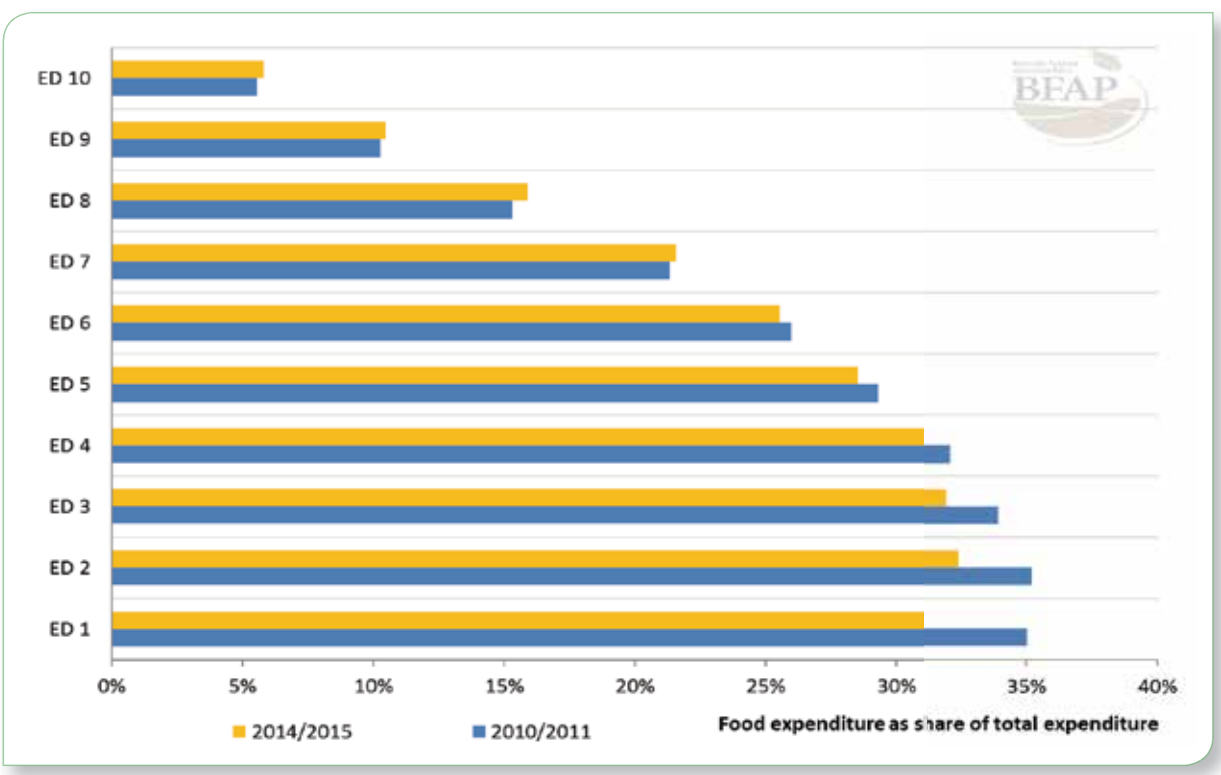


Figure 21: Food expenditure as share of total expenditure across the ten expenditure deciles – comparing LCS 2014/15 with IES 2010/11
Source: StatsSA IES 2010/11 & LCS 2014/15

Food expenditure patterns of South African consumers – Preliminary observations from a comparison of LCS 2014/2015 with IES 2010/2011

Food expenditure as share of total expenditure (Figure 21):

- Food expenditure as share of total expenditure ranged between 31.1% (for the poorest ED) to 5.8% (for the wealthiest ED) according to LCS 2014/15, while the range was 35.0% to 5.6% according to IES 2010/11 data.
- Based on LCS 2014/15 data similar levels of food expenditure as share of total expenditure are observed for the poorest 50% of the population (just above and just below 30%).
- Based on LCS 2014/15 data relative to IES 2010/11 - food expenditure as share of total expenditure decreased for ED's 1 to 6 and increased for ED 7 to 9.

Share contribution of food groups to total food expenditure among the main consumer segments (Figure 22):

- Very similar shares were observed for most food groups and socio-economic consumer segments comparing 2010/11 to 2014/15 data.
- The only major differences involve:
  - Increases in the share contribution of animal protein foods to the food expenditure baskets of lower middle-class, upper middle-class and wealthy consumer segments.
  - Increases in the share contribution of non-alcoholic cold beverages (which includes carbonated beverages) to the food expenditure baskets of marginalised and middle-class consumer segments.

Food expenditure on different food groups relative to inflation - LCS 2014/2015 vs. IES 2010/2011 (Figure 23)

Figure 23 and Table 6 present summaries of changes in the food expenditure on the main food groups by the four main socio-economic sub-groups comparing data from IES 2010/2011 with LCS 2014/2015, and illustrate the following:

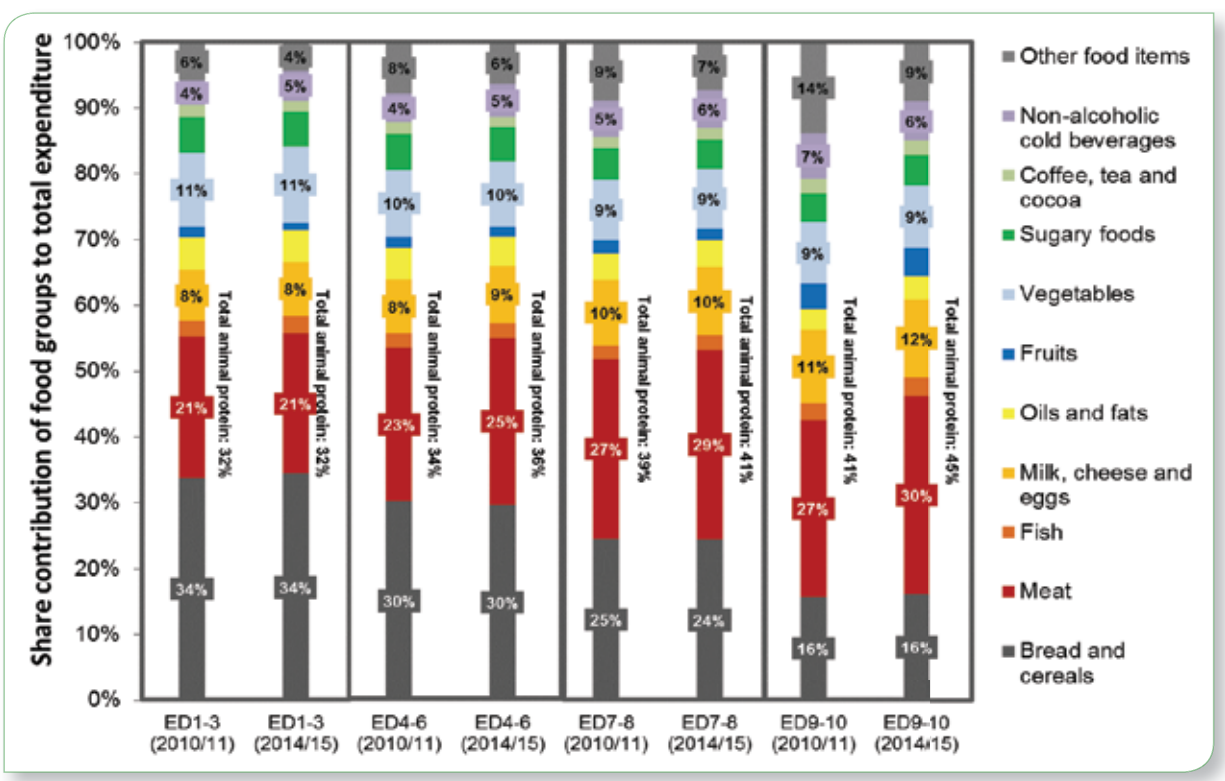


Figure 22: Share contribution of food groups to total food expenditure among different expenditure deciles (ED) that comprise the four main consumer segments – comparing LCS 2014/15 with IES 2010/11
Source: StatsSA IES 2010/11 & LCS 2014/15

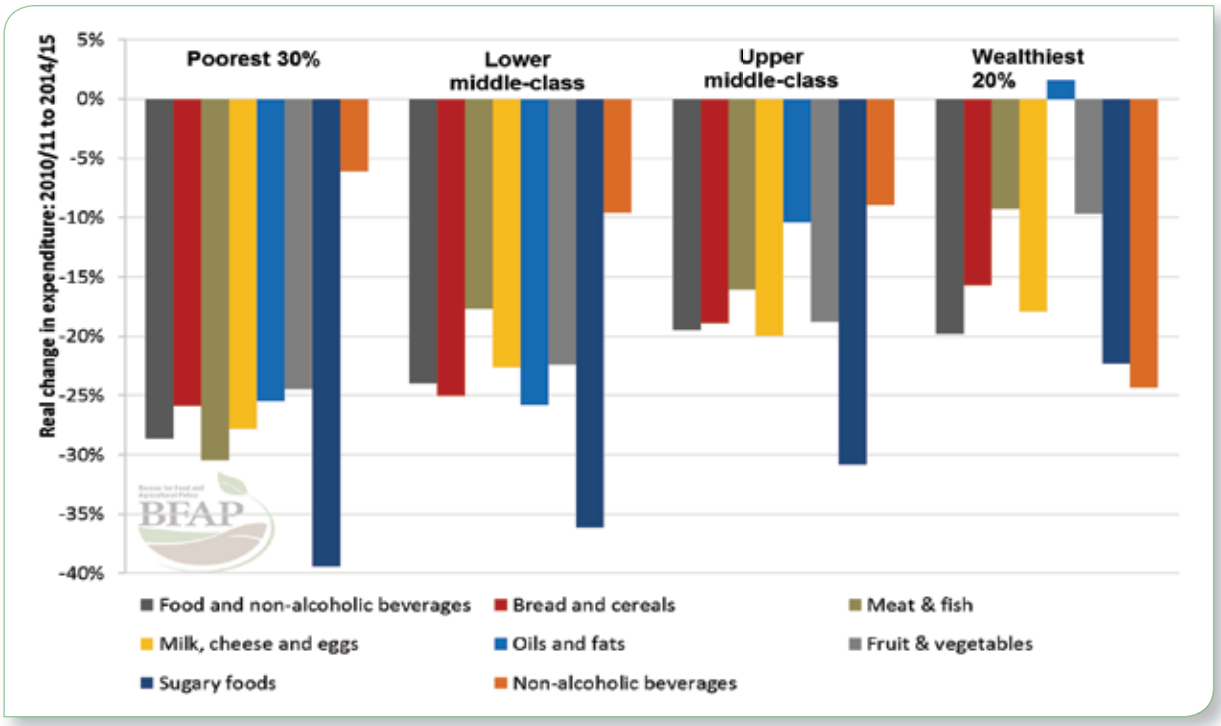


Figure 23: Real changes in food expenditure: LCS 2014/15 versus IES 2010/11
Source: StatsSA IES 2010/11 & LCS 2014/15

- **Household expenditure on food and non-alcoholic beverages:**
    - Positive nominal increase for all income segments, even though the nominal increases for upper middle-class and wealthy segments (+11% and +12%) were significantly higher than for the poorer consumer groups (+2% and +7%).
    - After accounting for inflation none of the income segments had positive expenditure growth, with the poorest 50% of the population being significantly worse off than the wealthier segments.
- **Household expenditure on specific food groups:**
    - Looking at all the consumer segments and all food groups, most food groups revealed some level of nominal expenditure growth.
    - Accounting for inflation and expressing these expenditure changes in real terms reveal significant negative real growth across income segments and food groups – implying that a reduced quantity of food was purchased, as neither consumers' income levels or food expenditure levels kept track with inflation. These observations pose risks to food security, both from a staple food and dietary diversification perspective.

Nutrition trends

In April last year the United Nations General Assembly proclaimed 2016 - 2025 the UN Decade of Action on Nutrition. The Food and Agricultural Organisation called this a major step towards mobilising action around reducing hunger and improving nutrition around the world.

Access to healthy food is a constitutional right of all South Africans, but despite economic growth, undernutrition and food insecurity remain at unacceptably high levels. At the same time, diet-related non-communicable diseases and obesity have increased exponentially.

With this in mind – what are the current nutrition trends in South Africa?

Dietary diversity is a much commended guideline in the fight against both over- and undernutrition. This demands more high valued, nutrient-rich products such as meats, dairy, fruits and vegetables in the diet.

A continued interest in the health benefits of protein has

Table 6: Changes in food expenditure (main food groups) by the main socio-economic sub-groups comparing data from IES 2010/2011 and LCS 2014/2015

	Food group:	R/hh/month (2010/11)	R/hh/month (2014/15)	Nominal change	Real change
Poorest 30% of households	Food & non-alch beverages	464	475	2%	-29%
	Bread and cereals	157	164	4%	-26%
	Meat & fish	111	114	3%	-30%
	Milk, cheese and eggs	36	39	7%	-28%
	Oils and fats	23	23	-1%	-25%
	Fruit & vegetables	60	60	1%	-24%
	Sugary foods	26	25	-1%	-39%
	Non-alcoholic beverages	25	30	18%	-6%
Lower middle-class (ED 4-6)	Food & non-alch beverages	908	971	7%	-24%
	Bread and cereals	275	289	5%	-25%
	Meat & fish	231	268	16%	-18%
	Milk, cheese and eggs	75	85	12%	-23%
	Oils and fats	43	42	-1%	-26%
	Fruit & vegetables	107	111	3%	-22%
	Sugary foods	50	51	2%	-36%
	Non-alcoholic beverages	56	64	14%	-10%
Lower middle-class (ED 4-6)	Food & non-alch beverages	1 241	1 384	12%	-19%
	Bread and cereals	304	338	11%	-19%
	Meat & fish	365	430	18%	-16%
	Milk, cheese and eggs	123	142	15%	-20%
	Oils and fats	50	57	14%	-10%
	Fruit & vegetables	141	150	7%	-19%
	Sugary foods	58	62	7%	-31%
	Non-alcoholic beverages	90	103	15%	-9%
Wealthiest 20% of households	Food & non-alch beverages	1 784	1 985	11%	-20%
	Bread and cereals	280	320	14%	-16%
	Meat & fish	525	654	25%	-9%
	Milk, cheese and eggs	200	234	17%	-18%
	Oils and fats	57	71	26%	2%
	Fruit & vegetables	235	273	16%	-10%
	Sugary foods	80	92	16%	-22%
	Non-alcoholic beverages	162	161	0%	-24%

stimulated interest in flexitarian/vegetarian lifestyles. Animal protein foods are richer in leucine and consequently more effective to influence anabolic protein metabolism. Plant proteins such as rice, pea, hemp and pumpkin are included into new products by smart food manufacturers. However, an increased demand for protein is in conflict with sustainability targets.

Personalized nutrition - the idea that each body responds differently to food is gaining favour. Accurate evaluation of protein and amino acid intake considering quality, digestibility, daily distribution and individual characteristics is called for. The dietary protein role in different clinical nutritional conditions and some physio-pathological perspectives are current and hot topics for discussion.

Healthy food is defined in part by what it does not contain, rather than what it does contain. For instance, gluten free, grain free, non-GMOs flours coming from ancient grains such as buckwheat, lentil, spelt and quinoa is threatening wheat's position in the market. Consumers aspire to weight loss or weight management as a health benefit they would like to receive from the foods they eat.

As a result of increasing evidence, national policies to assist in the improvement of the nutrition have recently been introduced. A tax on Sugar-Sweetened Beverages (SSBs) will take effect later in 2017 to help reduce excessive sugar intake of the population in an attempt to reduce obesity. Other measures already implemented include stricter label and advertising regulations; the reduction of sodium in certain foodstuffs and regulations relating to trans fat in foodstuffs.

CRISPR is a form of biotechnology and is shorthand for "clustered regularly interspaced short palindromic repeats". The CRISPR system was first demonstrated in food production and large-scale fermentation. The technology, which edits an organism's genes in a targeted way rather than splicing in genes from other organisms, comes without the stigma of other biotechnology applications and may gain consumer acceptance. The U.S. Department of Agriculture in 2016 determined it does not need to approve individual applications of CRISPR because transgenics are not involved. Translation of this technology to improve nutrient content similar to biofortification is an exciting new field to follow.

Public awareness of the importance of sustainable and healthy nutrition is on the increase. However, putting this willingness into simple every day actions isn't obvious. There is no shortage of knowledge available, but it is dispersed, conflicting and sometimes untranslatable for the consumer. Individuals also need the skills and confidence to put their knowledge into practice. Ensuring sustainable food systems in Africa in the face of a changing climate and growing urbanization forms part of the discussion.

OUTLOOK FOR FIELD CROPS

Globally, maize prices remain weak following another record harvest in 2016/17. Production increased in all major exporting countries and despite higher demand, particularly from the animal feed sector, stock levels are expected to increase once more to reach an all-time peak

SUMMER GRAINS

Global maize situation and trends

Globally, maize prices remain weak following another record harvest in 2016/17. Production increased in all major exporting countries and despite higher demand, particularly from the animal feed sector, stock levels are expected to increase once more to reach an all-time peak. A modest decline in area is expected in 2017/18, due to planting area reductions in the USA,

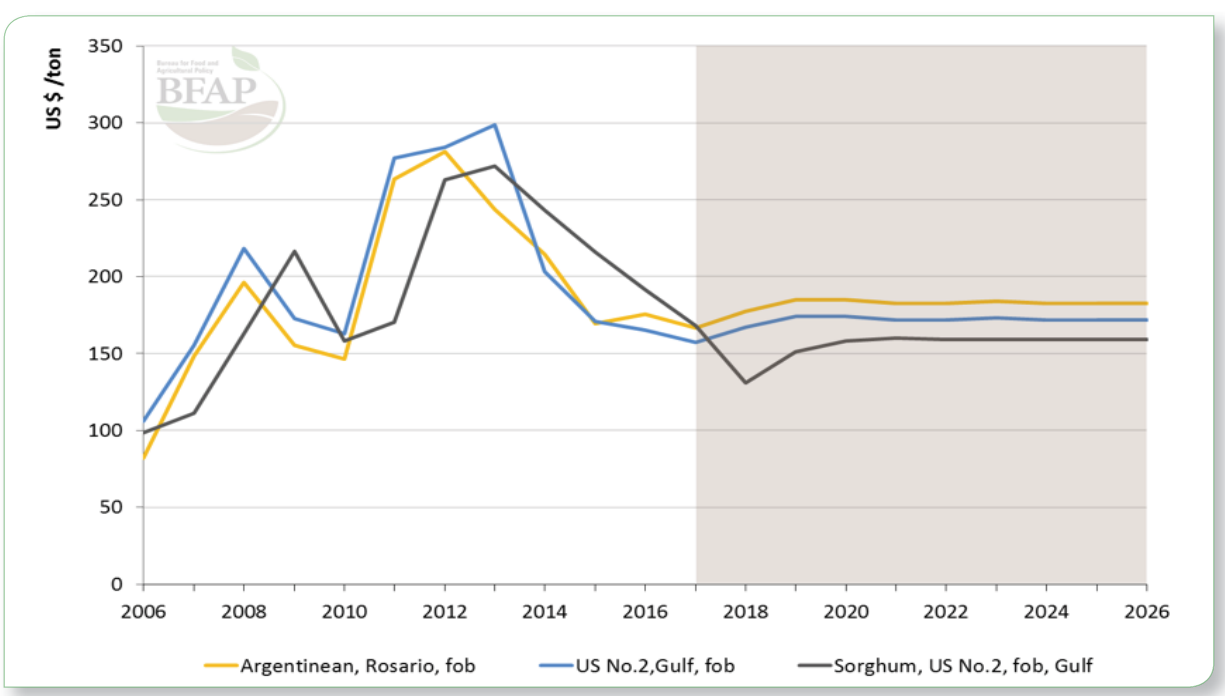


Figure 24: Yellow maize and sorghum world prices
Source: FAPRI & BFAP

China and Brazil which more than offset marginal expansions in the EU and Canada. Given the expected reduction in the global crop, prices are expected to bottom out at 2017 levels with a modest price recovery expected in 2018. Nonetheless, demand growth is expected to slow in the coming decade relative to the past and barring extreme weather conditions and related supply shocks, prices are expected to stabilise at a level similar to 2009 – well below the peaks of 2011 to 2013 (Figure 24).

Domestic summer grain situation and trends

South African maize markets did not follow world prices downwards in 2015 and 2016 due to the impacts of poor rainfall and the resultant below average crops. While global harvests reached record levels, the 2016 maize crop in South African was the smallest since 2007. The South African crop was affected by a reduction in area (Figure 25) owing to unfavourable weather conditions through the planting period, as well as yield reductions across key summer producing regions due to poor rainfall during the growth period (Figure 26). All areas were well below their respective average yields with the North West, Northern- & Western Free State reporting yields below or close to 3 tons per hectare. Despite dry conditions, yields in Mpumalanga were still close to 5 tons per hectare thanks to sporadic rainfall occurences during critical times in the growth period. In light of the domestic production shortfall, South African maize prices traded at import parity levels and contrary to global trends, domestic prices reached record highs. Considering limited procurement options for white maize in the global market, the average premium for white maize over yellow maize through the 2016 season reached unprecedented levels of more than R1000 per ton. Consequently, the white maize area expanded by more than 60% year on year in 2017 - 23% above the 3-year average. The yellow maize area also increased marginally year on year, but remained well below the three-year average (Figure 25).

Weather conditions improved significantly in 2017 and with substantial areas having remained fallow in 2016, the Crop Estimates Committee (CEC) expects a record maize yield in 2017. Combined with the area expansion, this results in the fourth production estimate of the CEC projecting a more than 100% increase compared to 2016 in commercial maize production to equate to an all-time record of 15.6 million tons. Consequently, prices have declined to export parity levels, implying that South Africa caught up with the global cycle of low commodity prices.

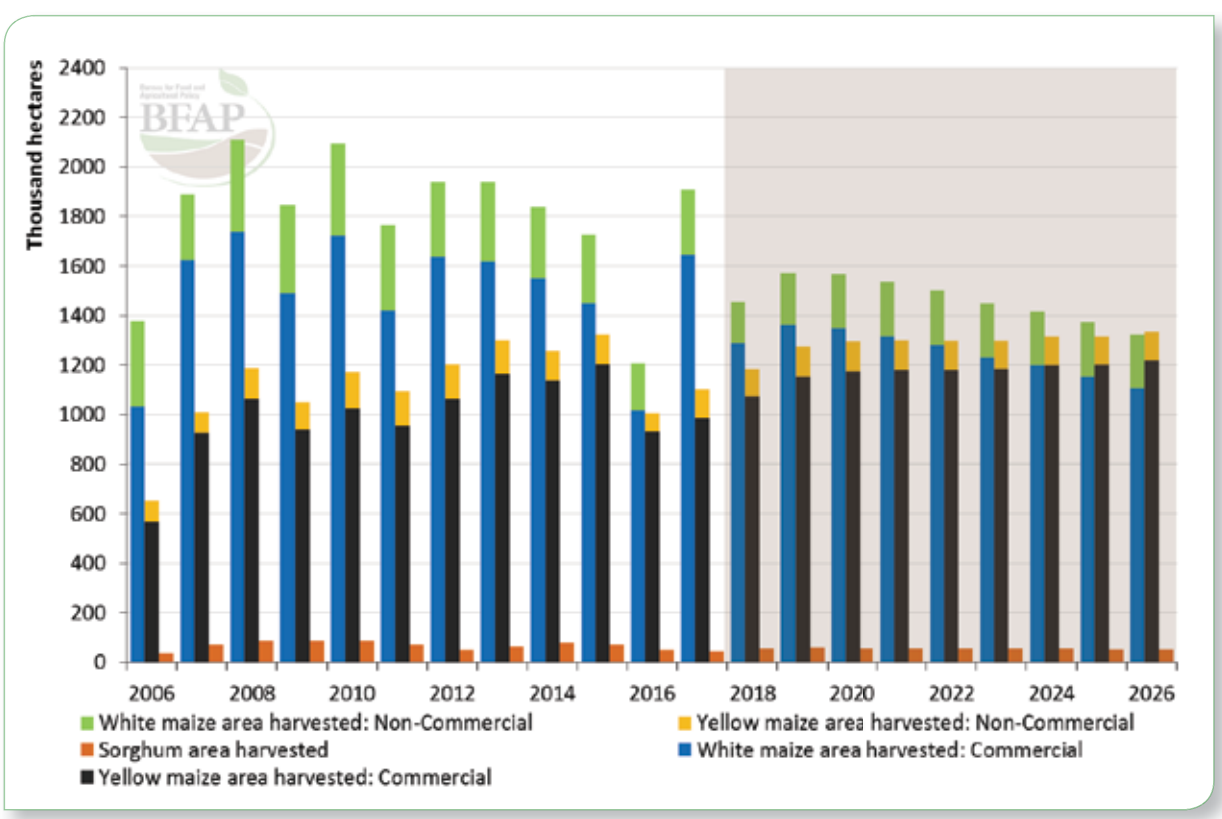


Figure 25: Summer grain area harvested

More than 60% of the expected crop is likely to be white maize, which represents a small share of the global market and is in reality more of a regional market in Africa (Box 1). Within this context, South Africa is a much larger player in the global white maize market than is the case with yellow maize and the size of the South African surplus has the potential to impact the premium obtained for white maize in the global context. Hence white maize prices are expected to fall much further than that of yellow maize and the more than R1000 per ton premium realised for white maize relative to yellow maize in 2016 is expected to turn into a discount of more than R200 per ton during the 2017/18 season. In the short term, significant quantities of white maize are likely to shift into the animal feed market as a result of this discount, but the share of white maize in animal feed is somewhat limited by technical constraints and is not expected to exceed 45%. This will still leave a significant exportable surplus, the bulk of which will need to enter the African market (Box 1).

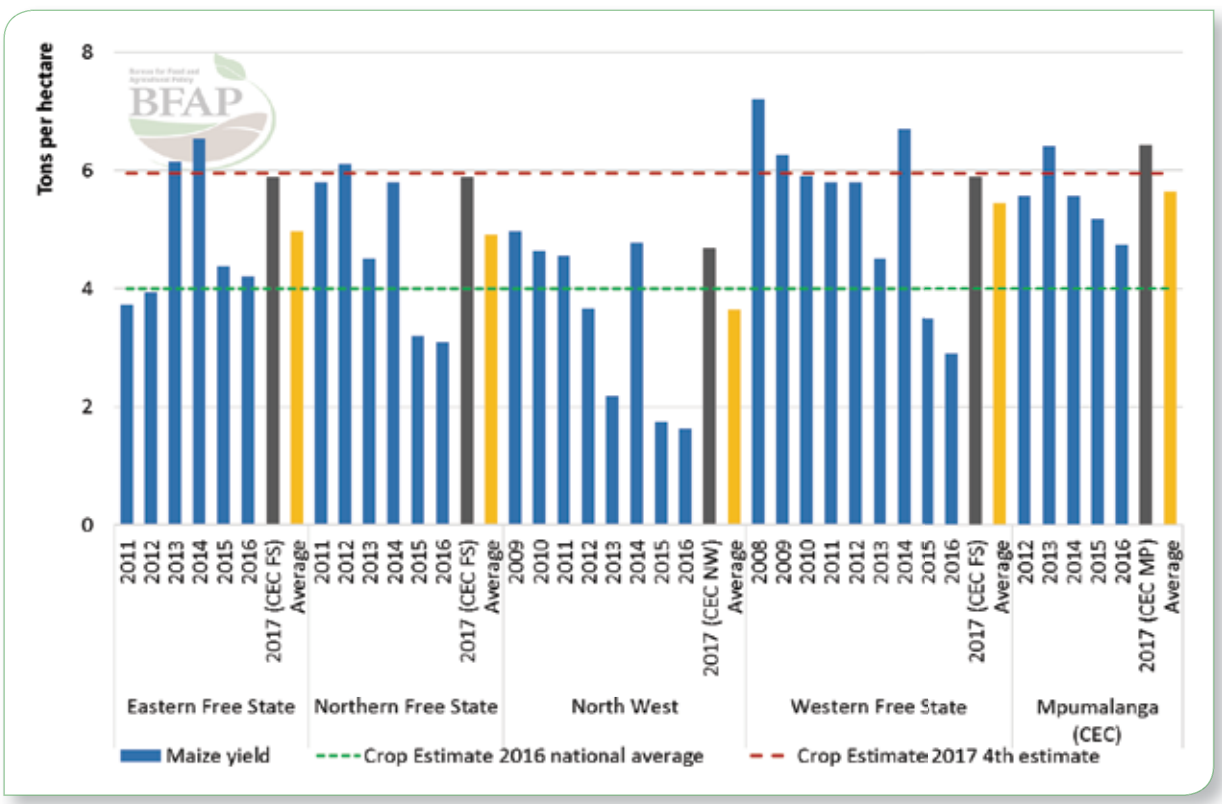


Figure 26: BFAP proto-type maize farms: Yield trends
Source: BFAP & CEC, 2017

BOX 1: White maize exports – a regional perspective

The record maize crop expected in 2017 has marked a complete turnaround in domestic markets. It will be sufficient to replenish stock levels completely and despite increased demand arising from lower prices, will still provide a significant exportable surplus. Given that the share of white maize in total production is expected to be the largest since 2010, significant quantities of white maize are likely to be shifted into the animal feed market to allow higher yellow maize exports. Nonetheless, technical factors limit the extent of white maize use in animal feed and substantial volumes of white maize will also need to be exported. The market for white maize exports is however more limited than that of yellow maize, which tends to dominate in the global context.

Traditionally, white maize had found a regional market in Sub Saharan Africa, with Mexico the only significant consumer outside of the African region. Mexico tends to import the necessary quantities of white maize from the USA and, apart from 2012, when the drought in North America resulted in large volumes of white maize being shifted into Mexico, the bulk of South African exports have accrued to the rest of Southern Africa (Figure 27). Most of these markets however prefer non-GM maize and the emergence of Zambia as a fairly consistent surplus producer has provided increasing competition. In addition to producing non-GM white maize, Zambia faces a favourable transport differential to Malawi and Zimbabwe, where it has captured an increasing market share in recent years.

In light of South Africa's dependence on regional demand for its white maize exports, the surplus in 2017 should be considered within the context of regional demand. Weather conditions have improved across Southern Africa in 2017 and record harvests are expected in Zambia, with an exportable surplus of more than 1 million tons expected. Malawi is expected to produce a surplus above its domestic demand and even Zimbabwe is expected to produce sufficient maize to satisfy domestic demand for the first time since 2001.

East Africa is currently suffering from severe drought conditions and significant imports are expected in Kenya, as well as traditional surplus producers such as Tanzania and Uganda (Figure 28). Despite high prices, the GM status of South African maize will remain a challenge limiting the extent of exports into Kenya and Tanzania. High prices could however attract some exports from Zambia, limiting the competition with South African maize in Southern markets such as Mozambique.

Namibia and Botswana. Regional dynamics support a substantial decline in white maize prices and suggest that South Africa therefore may need to look wider than the regional market as destination for its surplus white maize.

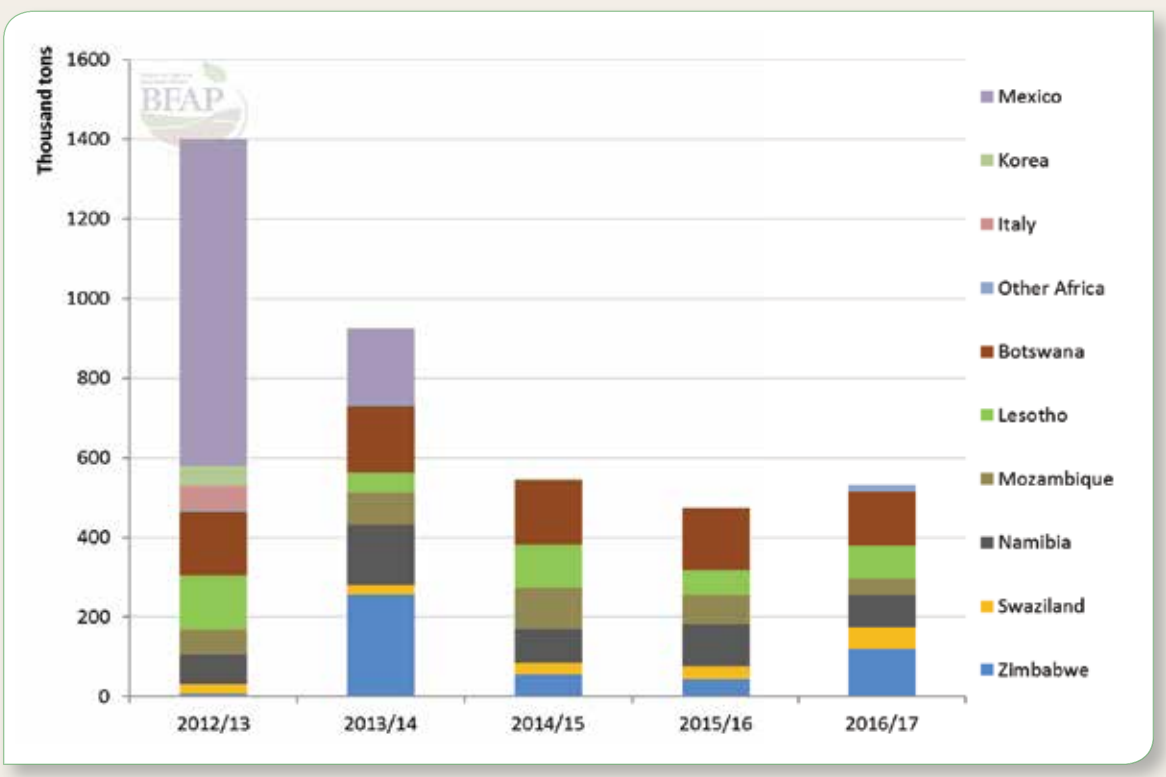


Figure 27: White maize exports to neighbouring countries
Source: SAGIS, 2017

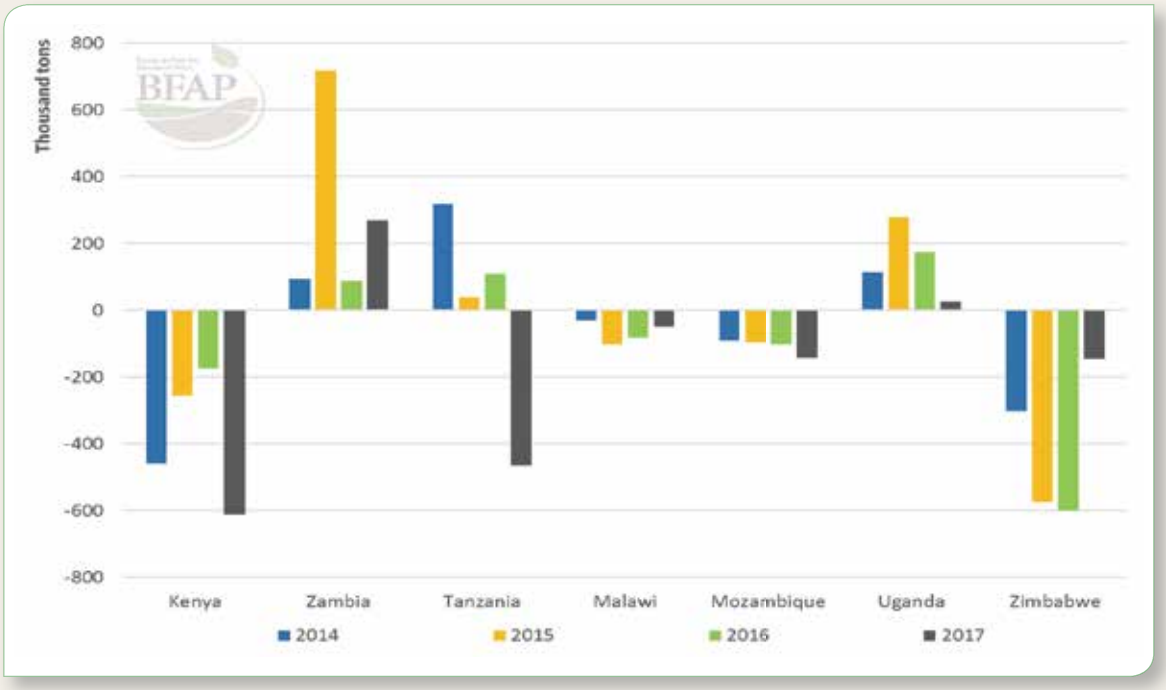


Figure 28: Net trade of predominantly white maize in selected regional markets

As a result of the price dynamics, white maize area is expected to reduce once more in 2018, and over the course of the outlook, a return to the long-term trend is projected (Figure 25). This implies that total maize area continues to decline, reaching 2.7 million hectares by 2026, of which 2.3 million hectares will be cultivated in the commercial sector and the remainder by small scale producers. The composition of this area is also expected to continue changing, as yellow maize and oilseed area continues to expand at the expense of white maize. This enables commercial yellow maize area to exceed that of white maize in the later years of the outlook period.

Box 2: Maize production – How small is big 'enough'?

Discussions on profit and related income levels rarely enter the political retoric surrounding maize focussed rural development and land reform in South Africa. Most smallholder farmers plant maize more out of necessity than commercial intent, and it is rational for these resource poor farmers to utilise their households' land and labour to produce green mealies; enough to provide for themselves and possibly sell a couple of bags, but not too much to require expensive inputs or put strain on the often elderly and female labour force.

Nevertheless, for emerging farmers who have earmarked maize production as their main income generating activity, the potential of maize farming to actually generate income is important – and this is where the weather comes in as the most important factor. In the 2015/16 production year, for example, few dryland farmers outside of Mpumalanga (whether commercial or emerging) made money from maize production despite the high producer price. Furthermore, the good weather that was experienced means that, even though 2016/17's average national maize yield will be close to 6 t/ha, and maize farmers will in all likelihood produce the largest maize crop in SA's history, many maize farmers will be worse-off than in 2015/16, unable to cover input costs at the low maize price. Given these very real weather risks and the concomitant low margins, scale and therefore land size becomes the inherint limiting factor. In order to shed light on the income generating potential of maize farming, consider the 2014/15 season and the number of hectares neccesary to earn an income comparable to that of other industries.

Table 7 presents three typical developing farmer types and gross margin calculations based on their yields and input cost structure in 2014/15: Farmer (A) makes use of a traditional minimum input production system, Farmer (B) makes use of improved inputs but struggles due to lack of training and support, and Farmer (C) is more skilled, and makes use of improved inputs which she uses more optimally. Two production system scenarios are presented, with mechanisation becoming necessary as the maize field size and the pressure on household labour increases.

Table 7: Comparison of three production systems with 'normal' weather conditions

	Farmer A	Farmer B	Farmer C
Area (ha)	1	1	1
Yield (t/ha)	1.20	2.50	5.00
Grain farm gate price (R/ton)	1 900	1 900	1 900
Gross revenue: Grains	2 280	4 750	9 500
Direct Expenses			
Seed	19	650	1 045
Fertilizer	520	850	2 726
Plant protection	-	350	616
Mechanisation			
Rip			440
Disk	150	150	150
Plant	450	450	450
Spray		180	360
Harvest		450	450
Total cost	1 139	3 080	6 237
Margin (no mechanisation and only own labour)	1 741	2 900	5 113
Margin (with mechanisation contractor)	1 141	1 670	3 263

Table 8 summarises the 2014/15 salary levels for farm workers, hospitality workers, taxi drives and entry level mine workers. Employment in these industries can be considered to be relatively risk free compared to farming, so employees can be quite certain that they will receive a salary at the end of the month, and they can be even more certain that they will not be indebted with unrecouped input costs after working for six months. This is in contrast to agriculture where adverse weather and a considerable drop in prices (from the planting date) are not uncommon.

Table 8: Salary indications for four relatively entry level occupations in 2015

Sector	Monthly income (R)	Income for 6 months (R)
Farm worker (minimum wage)	2 420	14 520
Hospitality secor (minimum wage)	2 751	16 506
Taxi driver (minimum wage)	2 847	17 082
Entry level Mine worker	6 000	36 000

Figure 29 illustrates the hectares of land neccesary to earn an income from maize equal to that of 6 months remuneration in the other four occupations. While it is possible that in a good rainfall year a farmer can enjoy a yield of over five tonnes per hectare, yielding much more than six would require additional plant nutrition and thus also increase the input cost; a rather risky bet on dryland.

It is clear that even a moderately successful farmer in a season with reasonably good rainfall requires 11 hectares of maize to earn the same as an entry level mine worker for the six month period of the maize production season. For a year's gross margin a farmer would thus need 22 hectares in a 'normal' production year. If we average this out over the past three years, a farmer would require more than 66 hectares to 'earn' an amount equivalent to a mine worker given that the past two years would not have rendered much of an income. Following this same line of thought, a successful farmer would require 27 hectares to earn the same as a minimum wage level farm worker, while an improved input using but struggling farmer, with a yield of 2.5 t/ha, would require 52 hectares.

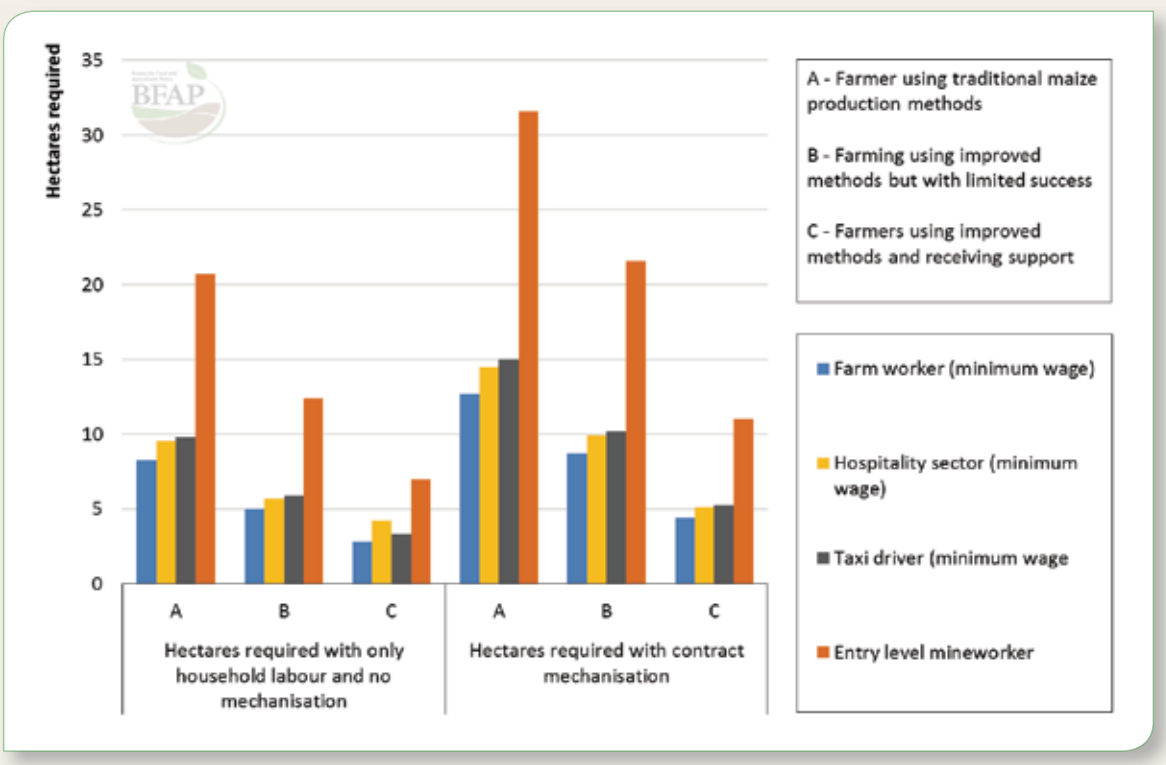


Figure 29: Maize hectares required to equal 6 months income level

Demand for white maize, which is mainly consumed in the human market, has remained fairly stagnant in the past, declining on a per capita basis. The combination of weaker income growth and significantly lower prices is expected to support demand in the short run, but over the medium term, as income growth recovers, per capita demand is expected to return to a long-term decline. Continued population growth will however support total demand, which remains fairly constant over the outlook period. As in the past decade, yield growth is expected to be sufficient to offset the bulk of the area decline and in the absence of weather induced shocks, South Africa is expected to produce an exportable surplus over the next 10 years. This is typically sold into neighbouring countries such as Mozambique, Namibia and Botswana. As evident from the exports into these regions through the drought period in 2015 and 2016 when South Africa was importing from outside the region, these countries have almost become an extension of the domestic market in South Africa. Increasingly, South Africa is also finding stiff competition from non-GM Zambian maize in these markets (Box 1). Hence prices are expected to trade at export parity levels in 2017 and 2018, but in the longer term, as area declines, to trade

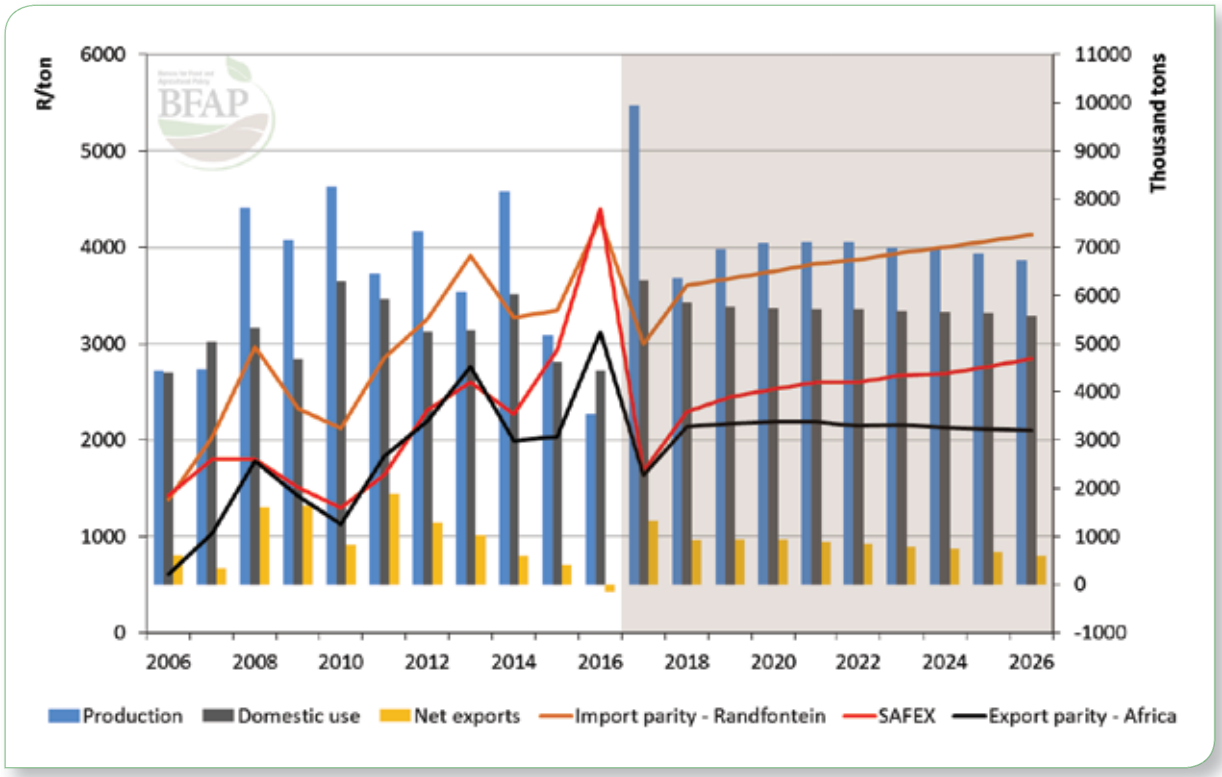


Figure 30: White maize production, domestic use, net trade and prices

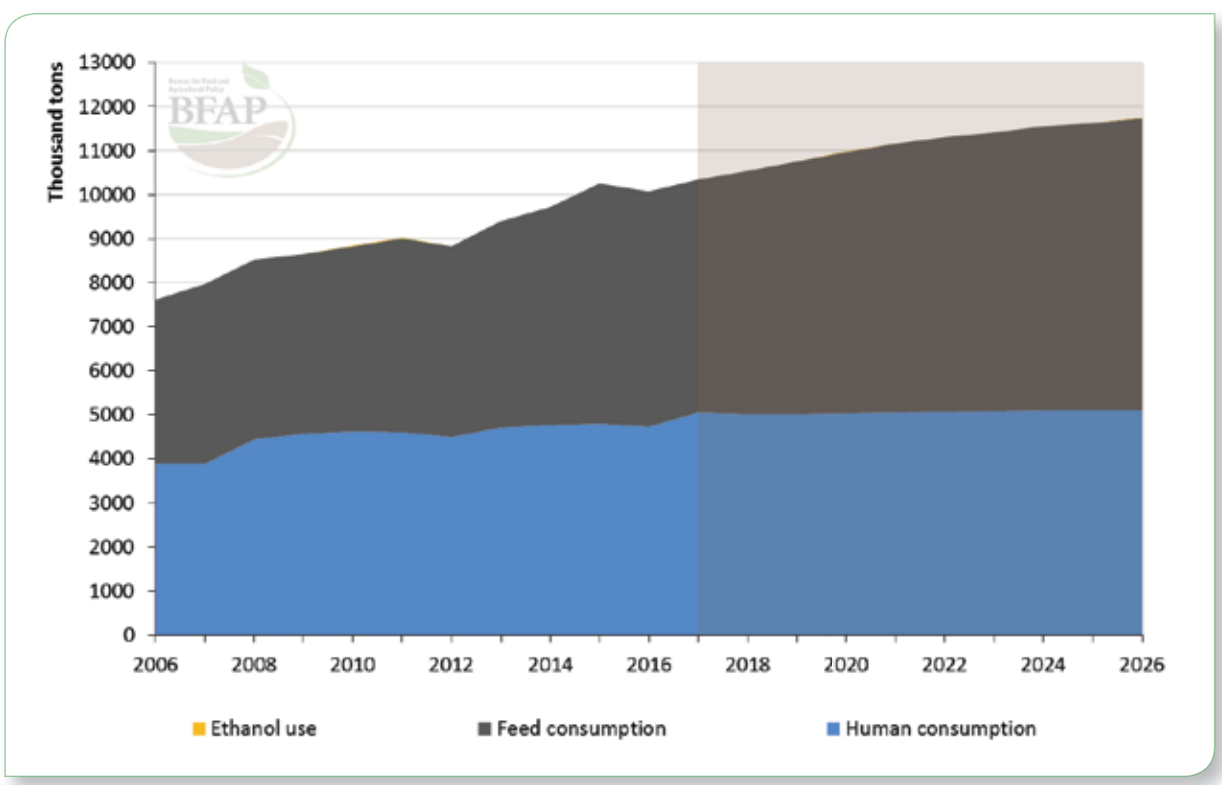


Figure 31: Maize consumption towards 2026

close to export parity levels only for short periods of the year. As the share of exports in the total crop reduces over time, annual average prices start to move away from export parity levels.

While white maize is primarily consumed in the food market, yellow maize tends to dominate the animal feed market. Given that lower maize prices are expected to restore profitability to intensive livestock production, the demand for yellow maize as animal feed is expected to increase much faster than that of white maize over the projection period. This trend was also evident over the past decade and with sectors such as beef having become a competitive net exporter in recent years, demand for maize as animal feed is expected to increase by an annual average of 2.3% per annum over the next 10 years, to exceed 6.5 million tons by 2026 (Figure 31).

In addition to stronger demand for animal feed, the shift into yellow maize production is also supported by it being easier to trade in the global market, which tends to make prices less volatile. The past two seasons have provided an enduring example - yellow maize prices increased by 27% year on year in 2016, compared to an increase of 50% in white maize prices and similarly in 2017, yellow maize prices are expected to decline by 43% year on year, compared to a decline of 62% in white maize prices. Owing to the combination of area expansion and yield growth, yellow maize production is projected to increase by an annual average of 3% over the next decade to exceed 8.5 million tons by 2026. This implies that stable weather conditions will still result in an exportable surplus by 2026, though the size of the surplus is expected to reduce over the 10-year period. The 2017 harvest will be sufficient to replenish stock levels and in the short term, yellow maize prices are expected to trade at export parity levels. Over the course of the outlook however, the smaller exportable surplus is not expected to be sufficient to keep prices at export parity levels for the entire year. As the share of exports in domestic consumption reduces, annual average prices are expected to move away from export parity levels, but remain significantly below import parity and will continue to be influenced by domestic supply and demand conditions (Figure 32).

For agribusiness, an understanding of differences in profitability across commodities and regions is critical to identify opportunities and manage risks. Such differences in relative profitability can be evaluated in terms of gross value of production, which reflects total production volume multiplied by the average price per crop per annum. It is important to note that crop input expenditures must still be deducted from the revenue figures to illustrate margins. Figure 33 highlights the relative gross production value per crop at national aggregate level. In the short term, relative to 2016 levels, overall total gross revenue for maize is expected to decrease by 2% in 2017, as lower prices more than offset the increased output volume. Yellow maize output did not decline to the same extent as white maize in 2016 and therefore the recovery in volume is smaller than that of white maize in 2017, with prices still falling closer to

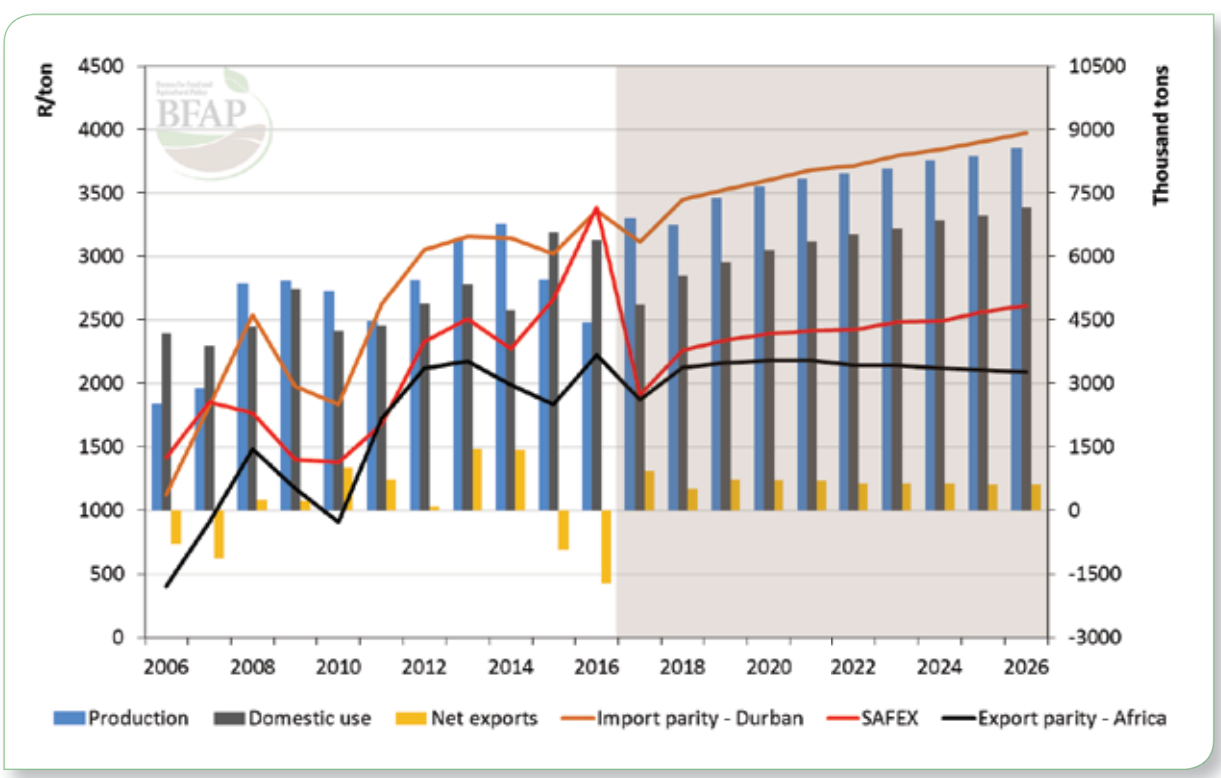


Figure 32: Yellow maize production, domestic use, net trade and prices

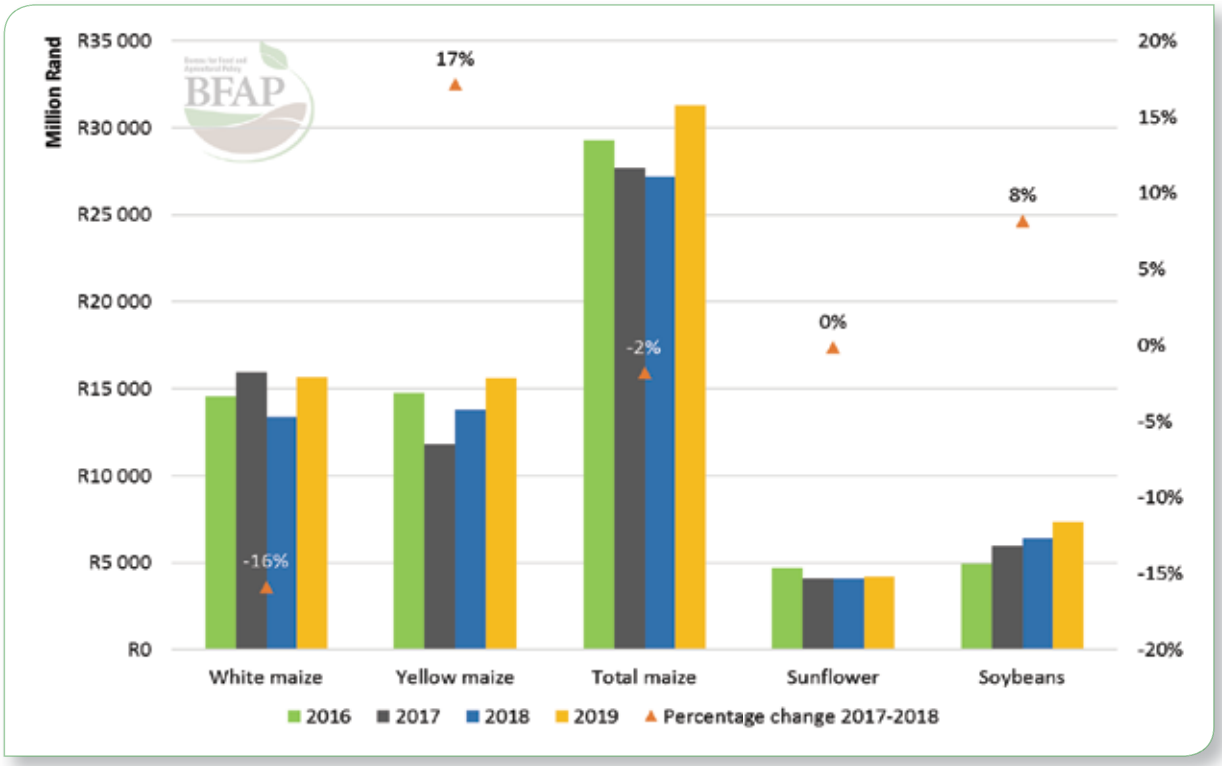


Figure 33: Key summer grain & oilseeds: Gross production value: 2016-2019

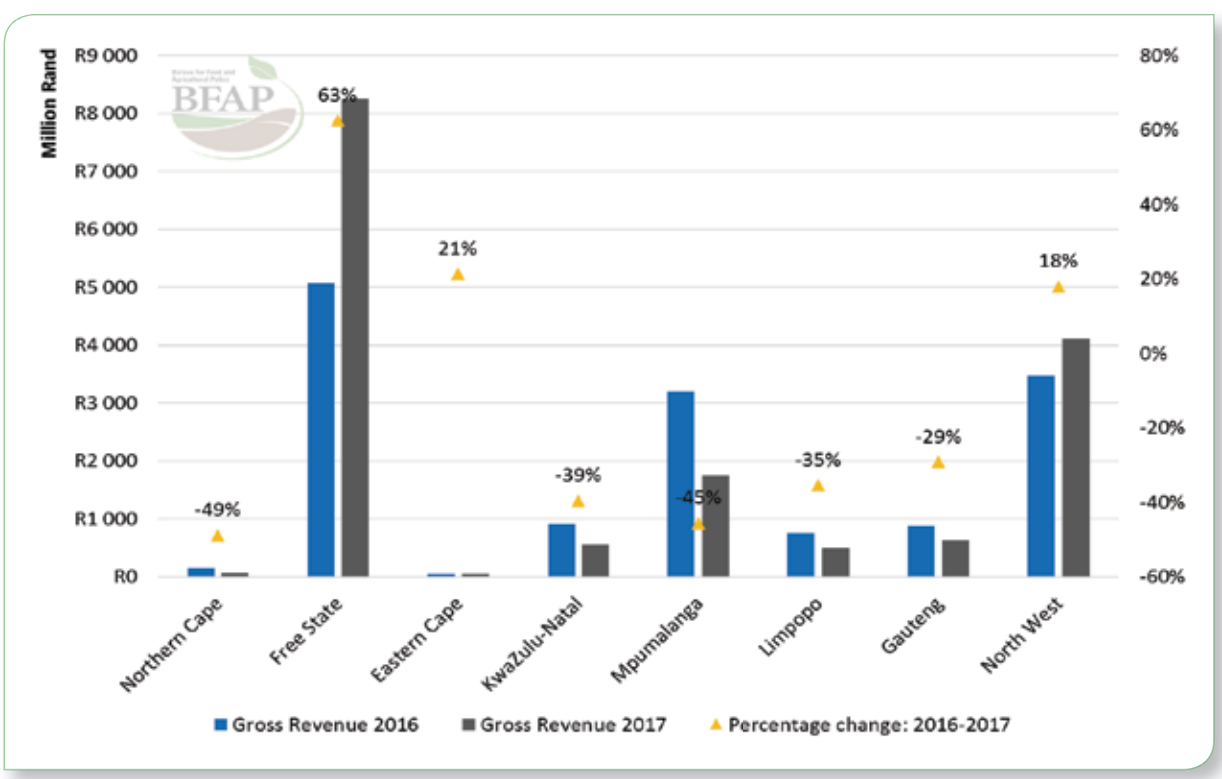


Figure 34: Provincial gross production value[2]: 2016 & 2017

[2] Gross Production Value is calculated by multiplying production volumes by average annual price. Commodities included are white maize, yellow maize, sunflower, soybeans and sorghum. No costs have been deducted and figures only represent gross revenue.

export parity levels. In the long term, the gross revenue for all the commodities recover towards 2018, except for sunflower. This is in response to relative price movements and area adjustments to the decline in prices in 2017 and assumes stable weather conditions. The return to the longer-term trend of reduced white maize area in favour of yellow maize supports growth in yellow maize revenue. Going forward, yellow maize revenue is expected to recover in 2018 as a result of increased volumes and marginally higher price levels where white maize is projected to decrease by 16%.

Figure 34 provides a more regional view and considers the combined gross production value of key summer crops[2]. Despite significant spikes in commodity prices, certain regions experienced severe financial pressure in 2016 owing to the combination of area decline and low yields. Despite lower expected prices in 2017, gross revenue in the Free State and North West is expected to recover significantly thanks to substantial increases in volumes. Gross production value in the Free State, Eastern Cape and North West is projected to increase by 63%, 21% and 18% respectively from 2016 to 2017. However, the lower price cycle will affect all remaining regions where revenue is projected 40% lower than in 2016, on average.

Considering yield expectations, Figure 35 presents the break-even prices for maize in important production regions. The estimated farm-gate prices exceed break even prices in all regions at the moment, but in the Northern Cape, as well as the Western Free State, margins are tight and hence producer profitability will in many instances depend on successful marketing strategies to obtain the best possible prices. The low anticipated margins will prolong cash flow pressure for those producers heavily affected by the 2015 and 2016 droughts.

In light of differences in yield potential and input cost structure, significant regional variation is expected in the 2017 season – particularly given the large price variations through the season. Hence differences in marketing strategies could cause significant deviation from baseline levels. Figure 36 presents projected gross margins under a set of relevant scenarios in key maize production regions. The yellow bars illustrate the baseline gross margin projection and the blue bars, the alternative scenarios. Generally, scenarios relate to above average yields given favourable climatic conditions, whilst price ranges are low. Selected lower yield scenarios however relate to intra-regional variation, with some producers experiencing drier conditions in January and excessive precipitation in February. Pricing strategies are also unclear, with the general consensus being that few producers marketed early in the season, limiting the possible benefit from higher prices at a time when exchange rates were weaker and 2017 crop prospects not yet clear. For the few producers who were able to lock in prices early, the benefit is clear in Mpumalanga, where it yielded R1800 per hectare more than in the baseline.

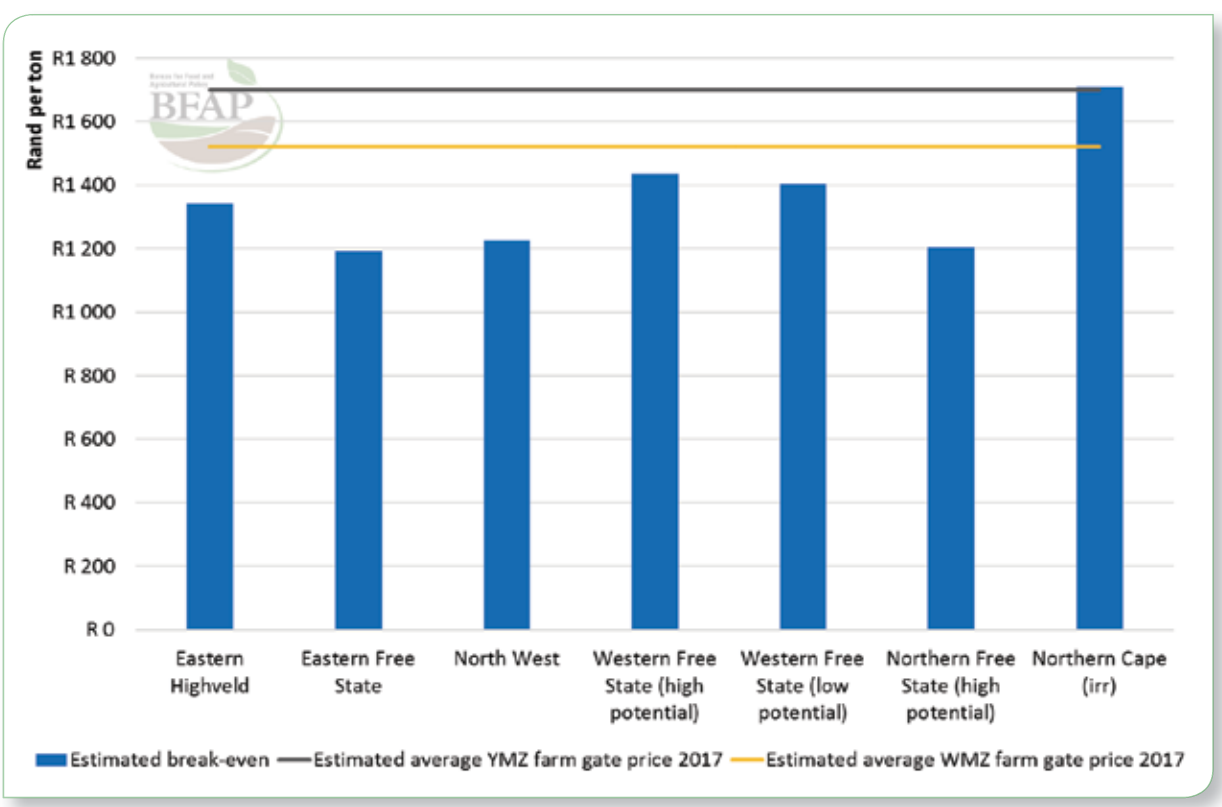


Figure 35: Maize break-even calculations: 2017

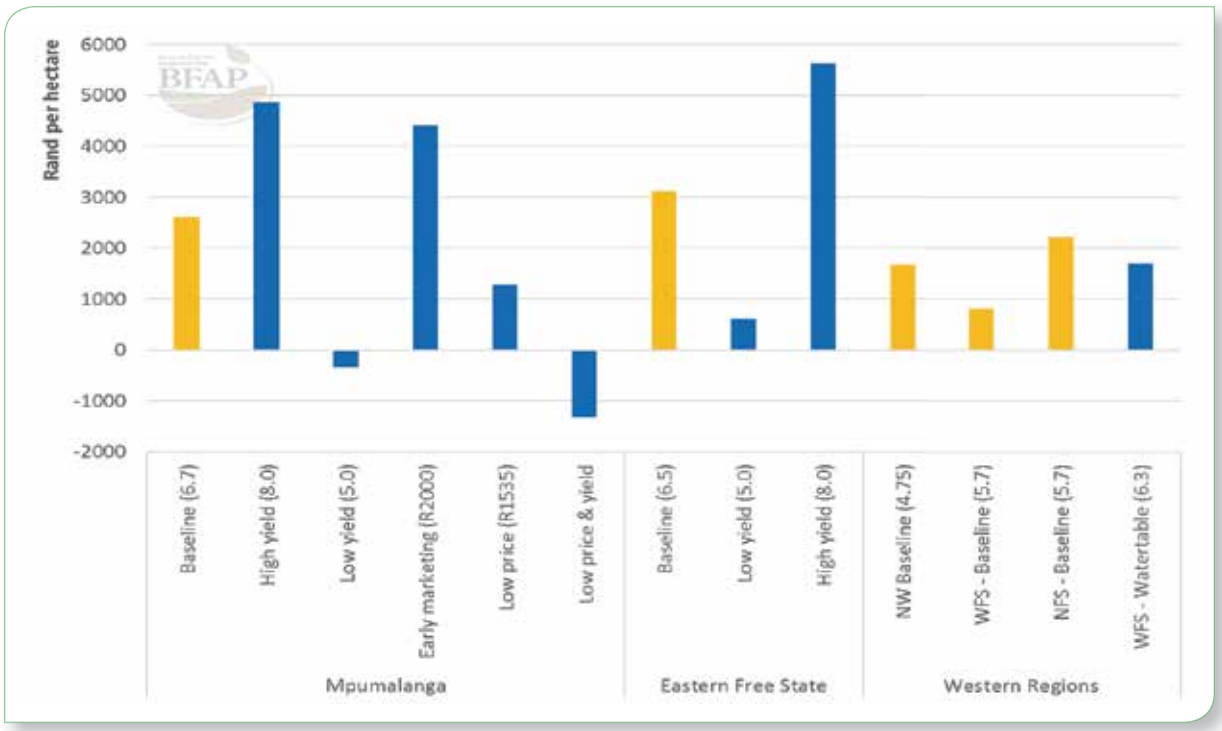


Figure 36: Maize gross margin under alternative scenarios: 2017

Box 3: Case Study – North West Farm Economics & Recovery After 2016 Drought

The Western producing regions have faced a number of exceptionally challenging years ranging from severe droughts and low associated yields followed by low price cycles as a result of surplus production. The North West region experienced dry spells in 2012, 2013, 2015 and 2016, with low maize prices experienced in 2014 and 2017. This often raises concerns on the financial well-being of farming businesses as a result of these consecutive negative occurences. A case study representing a low road scenario is presented below on the financial performance of a prototype farm in the North West province and illustrates return on invest (ROI) in recent years, a cash flow recovery scenario after the 2016 drought and a risk simulation on probability of positive cash flow based on alternative possibilities of yield and price.

Key assumptions: The case study farm produces mainly white maize and sunflower but also includes a livestock component. For 2016, based on actual yields achieved on the prototype farm, the yield for white maize is set at 1.63 tons per hectare and 1.15 tons per hectare for sunflower. Another key assumption is that the area under production in 2017 has increased. Lastly, from a finance perspective, the farm is assumed to enter 2017 with a negative cash flow position.

The analysis indicates that despite higher maize yields in 2017, prevailing farm gate prices causes even lower gross margins relative to 2016. Figure 37 illustrates the financial pressure as a result of low yields and price combination in recent years. Net farm income in 2013 and 2015 were negative and the ROI only exceeded CPI inflation in 2012. Going forward, more favourable income is projected, which is in line with CPI from 2019 and onwards.

Figure 38 illustrates the cash flow recovery analysis for the farm business after the recent drought and further indicates the importance of marketing strategies by introducing an early marketing scenario, with the respective cash flow implications, in 2017. In both scenarios, it is assumed that carry-over debt was not restructured into medium term alternatives. The baseline cash flow scenario is based on a maize farm gate price of R1575 per ton in 2017 and the projection indicates that a positive cash flow will only realise in 2019. The alternative scenario assumes a maize farm gate price of R1750 per ton as a result of an

Figure 37: North West Return on Investment (ROI)

earlier marketing strategy. It illustrates that the farm's cash flow position would have recovered at the end of the 2018 harvest. An earlier marketing strategy however could be risky should the crop not materialize due to drought, as was the case in 2016. It is important to note that carry-over debt levels into 2017 will fluctuate among farming businesses which entails that the cash flow position could recover faster.

Figure 38: North West Cash Flow Scenario

The risk simulation on the probability of generating a positive cash flow position, as presented in Figure 39, accounts for uncertainty in the production and price environment based on historic variation in yields and price. The model generates 500 iterations on different yield and price combinations and calculates the respective enterprise gross margins, followed by deductions of direct and overhead costs, which include interest and principal payments of short, medium and long term debts. From the 500 iterations, the probability of a positive or negative cash flow outcome is reflected in the stoplight chart (Figure 39). The green bars indicate the total percentage of outcomes where the cash flow outcome is positive and the red bars, the percentage of outcomes generated where cash flow is negative. As expected, cash flow in both 2016 and 2017 are negative. In 2018, the majority of the simulations resulted in a negative cash flow position with 43% of the iterations resulting in a positive cash flow. In 2019 and onwards the probability of generating a positive cash flow is more favourable which increases to 66% in 2020.

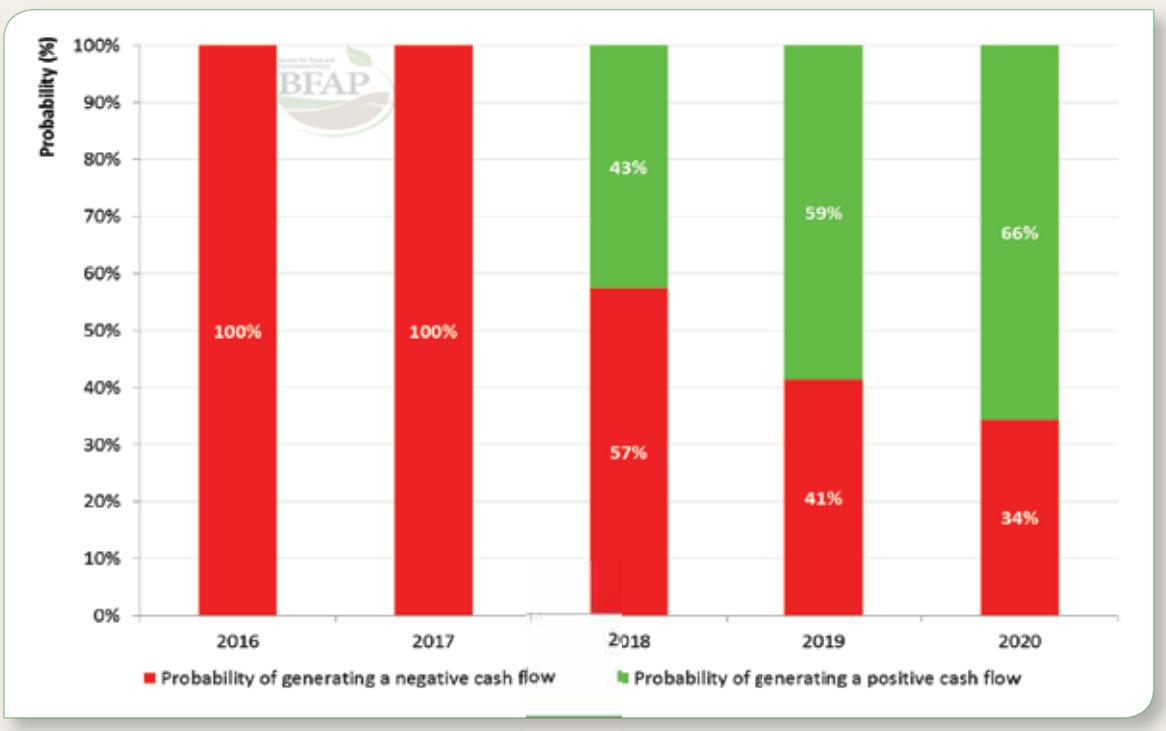


Figure 39: Probability of generating a positive / negative cash flow

Conclusion: Western producing regions often experience more volatile conditions compared to other summer crop producing regions. The supply response in 2017 illustrated the ability of the region to change the country's position from a deficit to a surplus, which is also associated with a substantial decline in prices. The simulation results indicated that the low road scenario suggests an extented cash flow recovery period, driven mainly by lower expected farm gate prices in 2017. Despite an expected recovery in the financial outlook after 2018, it will remain essential for producers to keep pushing productivity to compensate for lower price cycles and input cost inflation, to increase efficiency at farm-level, to structure carry-over debt correctly to assist cash flow, to stay informed on market developments in both domestic and global agriculture, to pursue best marketing strategies according to available information and what cash flow and risk appetite allows, and to persistantly engage into risk mitigation strategies both in an agronomic and financial context.

Domestic sorghum situation and trends

Having peaked in the mid-eighties at more than 300 thousand hectares, sorghum has lost significant hectares to maize production over the past decade. Since 2010 the average area planted to sorghum has declined to a mere 65 thousand hectares. The most important reason for losing hectares is that sorghum yields have failed to increase at the same rate as mainly yellow maize yields, resulting in less competitive gross margins per hectare. This gap continues to widen and whereas sorghum yields have remained fairly stagnant over the past decade, yellow maize yields have increased by an annual average of more than 2%, benefitting from an increasing share of irrigated production and GM plant technology.

Sorghum demand remains inelastic and prices have been exceptionally volatile, switching often between import and export parity levels based on the size of the domestic crop. Trading at import parity levels from 2012 to 2014, sorghum prices achieved a significant premium over maize, supporting an expansion in area from 50 thousand to 80 thousand hectares, providing sufficient stocks to supply the deficit in 2015 when drought conditions reduced production. This will not be the case in 2016 however, as the combined effect of reduced area and disappointing yields result in an expected year on year decline of more than 25% in sorghum production. Thus, more than 50 thousand tons of imports will be required to supply domestic demand of just over 200 thousand tons (Figure 40).

Over the course of the next decade, demand for sorghum remains fairly stable, increasing by less than 1% per annum as a result of population growth rather than rising per capita consumption. Area is projected to consolidate at approximately 60 thousand hectares, with production expansion arising from yield growth rather than any large scale area expansion. The market will remain finely balanced and from 2018 onwards, limited trade is projected under stable weather conditions, with prices maintaining a premium over maize. Given inelastic demand and a finely balanced market, any weather induced supply shocks will likely result in continued price volatility. Sorghum has been considered as a possible feedstock for bio-ethanol production, which could induce a shift in demand, impacting production and trade volumes.

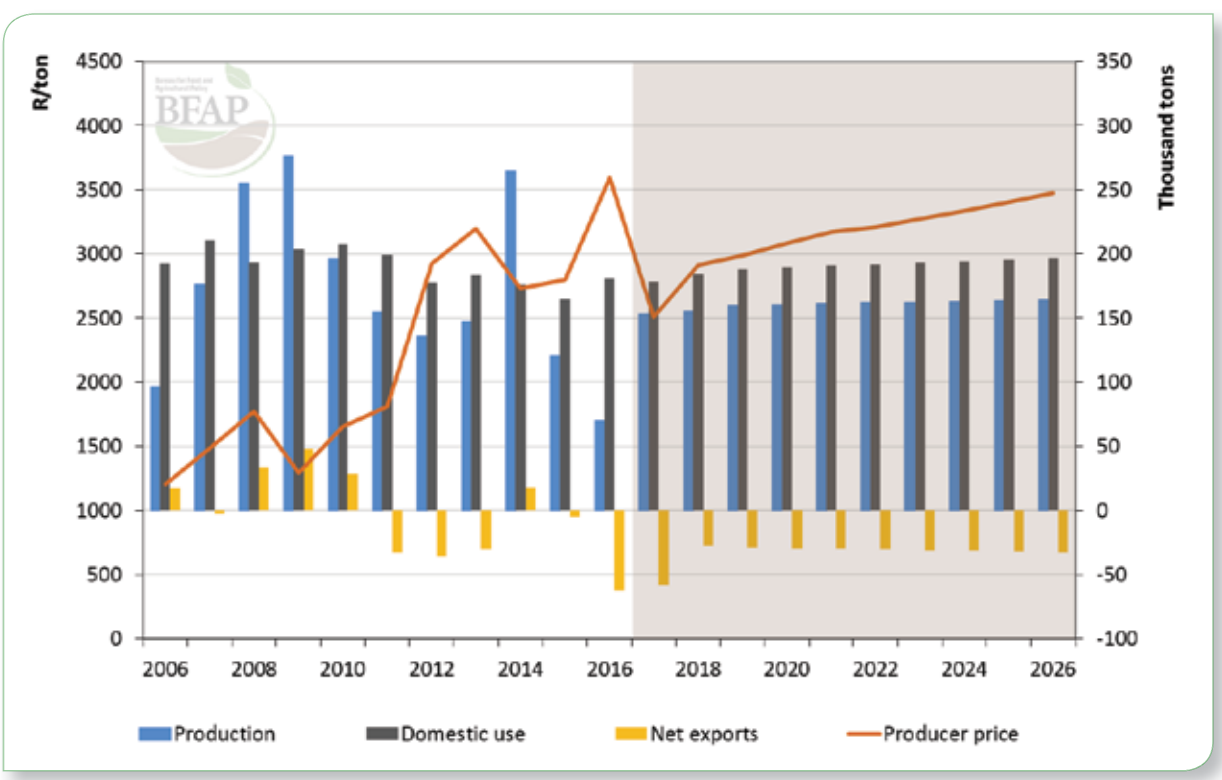
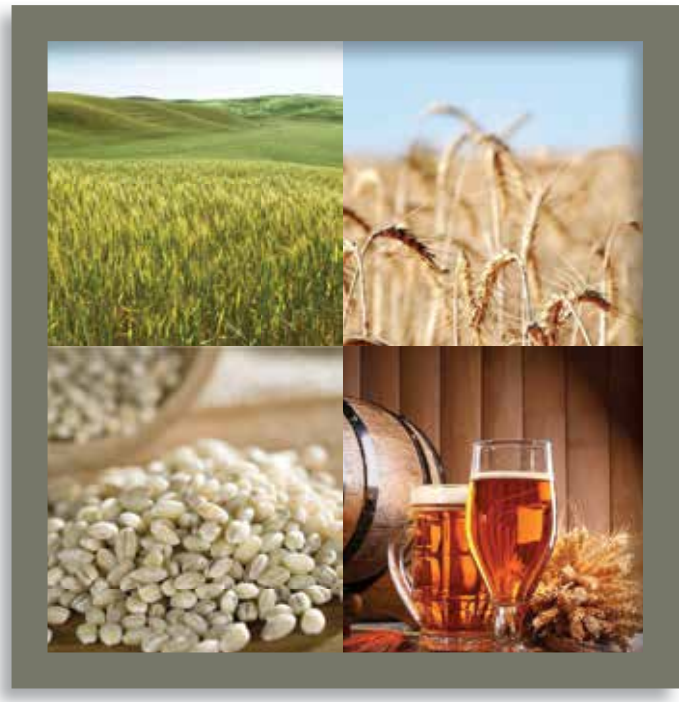


Figure 40: Sorghum production, domestic use, net trade and prices

OUTLOOK FOR FIELD CROPS

Despite a reduction in area harvested, global wheat production increased by 2% in 2016/17 on the back of excellent yields achieved by most major producers, but particularly in Russia, North America and Australia.



WINTER GRAINS

Global cereal situation and trends

Despite a reduction in area harvested, global wheat production increased by 2% in 2016/17 on the back of excellent yields achieved by most major producers, but particularly in Russia, North America and Australia. The all-time record harvest is expected to raise already ample stock levels further, despite record consumption. Traditionally, the demand for wheat has not been as strong as that of feed grains such as maize, as it is mainly consumed as food. However, 2017 sees projected feed use at a five year high due to competitive prices and trade volumes supported by strong Asian demand. In light of rising stocks, prices remained under pressure and the price of US Hard Red Winter traded below $200 per ton for long periods in early 2017. With production expected to decline in 2017/18, prices are expected to bottom out in 2017 (Figure 41), but given the magnitude of current stock levels following years of oversupply, a complete recovery to historic price relationships with other grains is expected to take at least 2 to 3 years.

Global barley production remained unchanged year on year in 2016/17, implying another above average crop and another year of stock building. Consumption is also expected to remain fairly stable, implying little year on year change in prices. A return to average yields would mean lower production in 2018, but prices are expected to improve only marginally due to continued high stock levels. Having declined in recent years, demand for malting barley is expected to remain fairly stable over the outlook and despite area consolidation, prices are expected to stabilise only marginally above 2006 levels, trending in line with wheat (Figure 41).

Domestic winter grain situation and trends

The share of South Africa's wheat produced in the winter rainfall regions of the Western Cape has increased steadily over the past decade, owing to a continued decline in cultivated area in the Free State. Changing rainfall patterns which increased the risk associated with dry land wheat production, combined with the more competitive return from soybeans reduced wheat area in the Free State from 360 thousand hectares in 2006 to a mere 80 thousand hectares in 2016. The drought conditions which inhibited maize plantings in 2016 resulted in some expansion

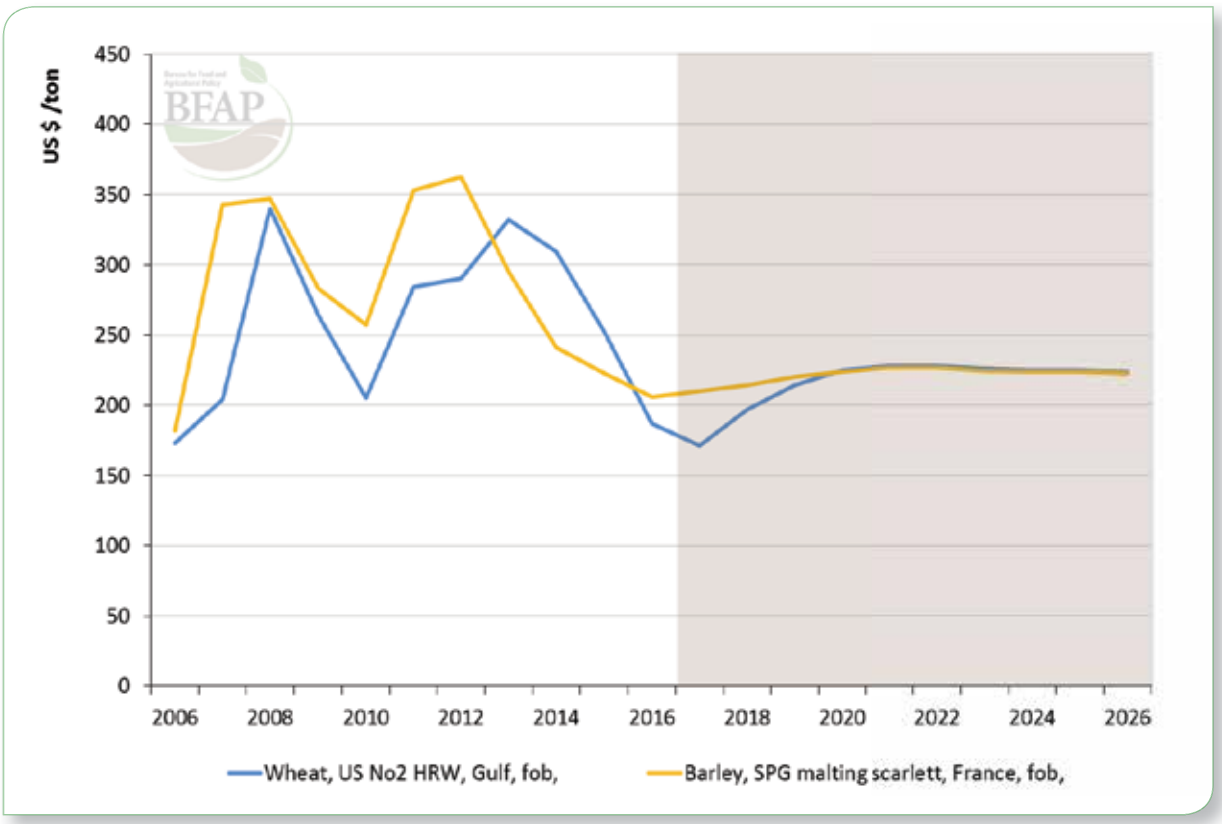


Figure 41: World winter grain prices
Source: FAPRI & BFAP

of wheat, but the share of total area planted in the Free State remained less than 22% in 2016, from almost 50% in 2006. By contrast, the share of total area planted in the Western Cape increased from 39% in 2006 to almost 65% in 2016.

As a result of the area dynamics, as well as differences in market price formation, the impact of the 2016 drought on wheat markets was almost insignificant relative to summer grains. In fact, the combination of total area increase and above average yields in the Western Cape supported a more than 30% year on year increase in the total harvest. While this increase is relative to below average volumes in 2015, the total output of 1.9 million tons is still 13% above the three-year average. Because South Africa is a significant net importer of wheat, prices tend to be derived from import parity and were therefore supported by the combination of the variable import tariff and exchange rate depreciation, leading to favourable gross margins in the Western Cape. Hence, despite continued uncertainty related to possible changes to the structure of the wheat tariff support throughout late 2016, early intentions to reduce total wheat area appear to be marginal in 2017. The decline is predominantly in the Free State, where more favourable weather conditions support a return to traditional summer crops. In the Western Cape, area is expected to remain fairly constant, assuming that weather conditions permit planting. A small expansion is expected in the irrigated regions in the central and northern parts of South Africa.

In the long term, wheat area is expected to consolidate just above 400 thousand hectares, of which approximately 65% will be cultivated in the winter rainfall regions of the Western Cape. Only limited hectares remain in the Free State, which is expected to account for approximately 14% of total area over the Outlook period. Area under irrigated wheat is also expected to remain fairly constant, facing continued competition for area and water from long term crops. The barley area in the Western Cape has expanded rapidly over the past three years, to reach 84 thousand hectares by 2016. Early intentions suggest an increase to approximately 90 thousand hectares in 2017, including some expansion into the Swartland region. Over the course of the Outlook, the area cultivated to barley in the Western Cape is expected to continue expanding at an annual average of 1.4%. Irrigated production in the summer rainfall area has declined sharply in the past 2 years and following a marginal recovery in 2018 is expected to continue on a downward trend to decline by 0.5% per annum. The decline is driven by increased competition for both land and water from long term crops.

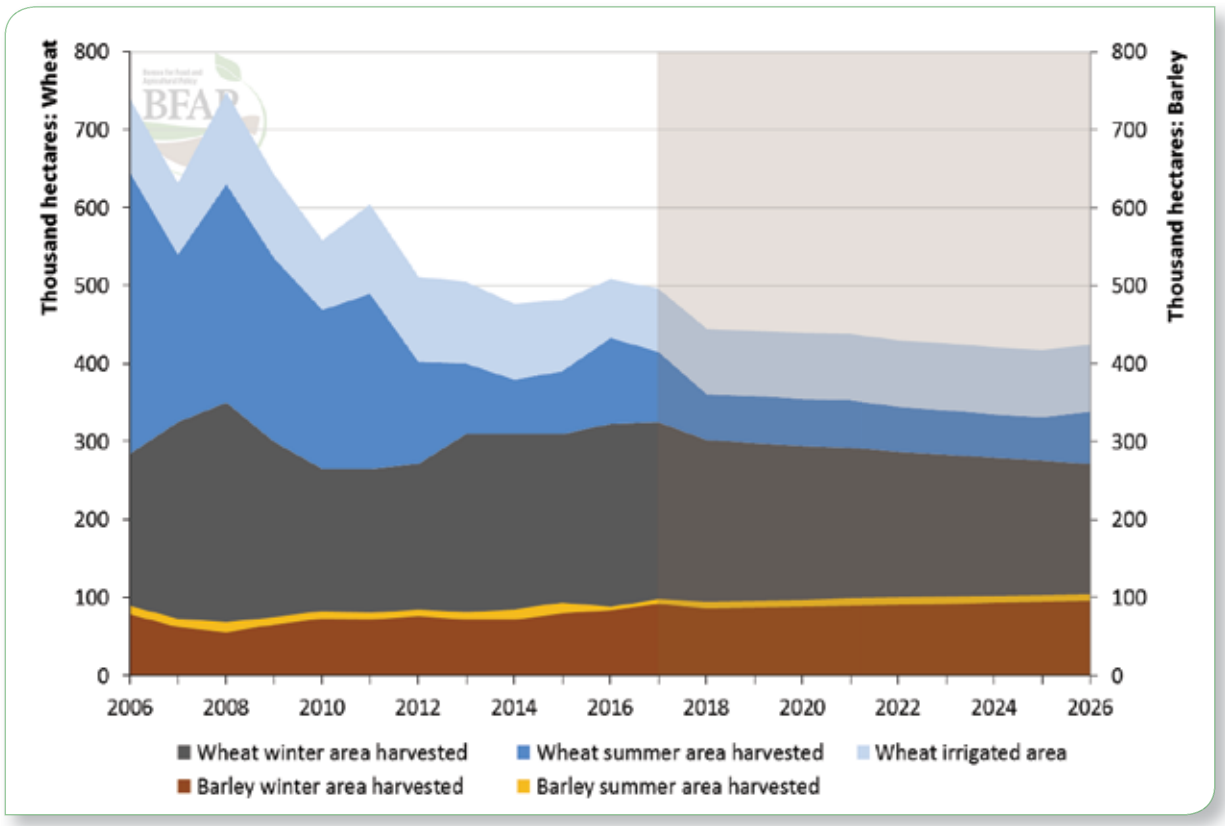


Figure 42: Winter grain area harvested

Wheat prices increased by 10% year on year in 2016, supported by a 15% depreciation in the exchange rate and the variable import tariff which exceeded R1000 per ton for most of the year. Wheat prices tend to trade at import parity levels and the variable import tariff shielded domestic producers from declining international trends. The introduction of the tariff and particularly the increase in the dollar based reference price to $294 in 2013 was a significant factor in stabilising wheat area, particularly in the Western Cape where it forms part of a rotational strategy with canola, barley and pasture. Given the magnitude of the tariff in 2016 and the associated impact on consumer prices for wheat products, the tariff structure was placed under review by the International Trade Administration Commission of South Africa (ITAC) in April 2016. The combination of reducing the reference price to $279 and appreciation in the exchange rate will reduce the price of imported wheat, as well as the magnitude of the tariff in 2017. Combined with the quota of 300 thousand tons that can be imported duty free from the European Union under the new EPA, this results in the expectation of a 7% decline in wheat prices in 2017. Over the course of the projection period, prices are expected to increase by an annual average of 1.2% per year (Figure 43), mainly due to exchange rate depreciation as world price levels imply that the import tariff will remain active over the 10-year period. This implies that accounting for general inflation results in declining real prices, which represents a return to the long-term trend.

The current drought conditions experienced in the Western Cape have raised concerns about the 2017 crop, but indications are that producers have planted the intended area, even if weather was not ideal in the planting period. Even on the assumption that normal winter rain will occur, the domestic crop is still expected to be smaller than 2016, which was characterised by above average yield levels in the Western Cape. Over the course of the next decade, production is expected to increase by an annual average of less than 1% to around 1.7 million tons by 2026. Growth is a result of continued productivity gains which offset a very marginal area reduction. It remains insufficient to supply demand growth of 1.4% per annum accruing from small per capita gains and continued population growth. Consequently, imports will increase over the course of the 10-year period and from 2018 onwards will exceed domestic production. This was also the case in 2015 and, by 2026, South Africa is projected to import almost 2 million tons – just about the level imported under the 2015 drought conditions (Figure 43).

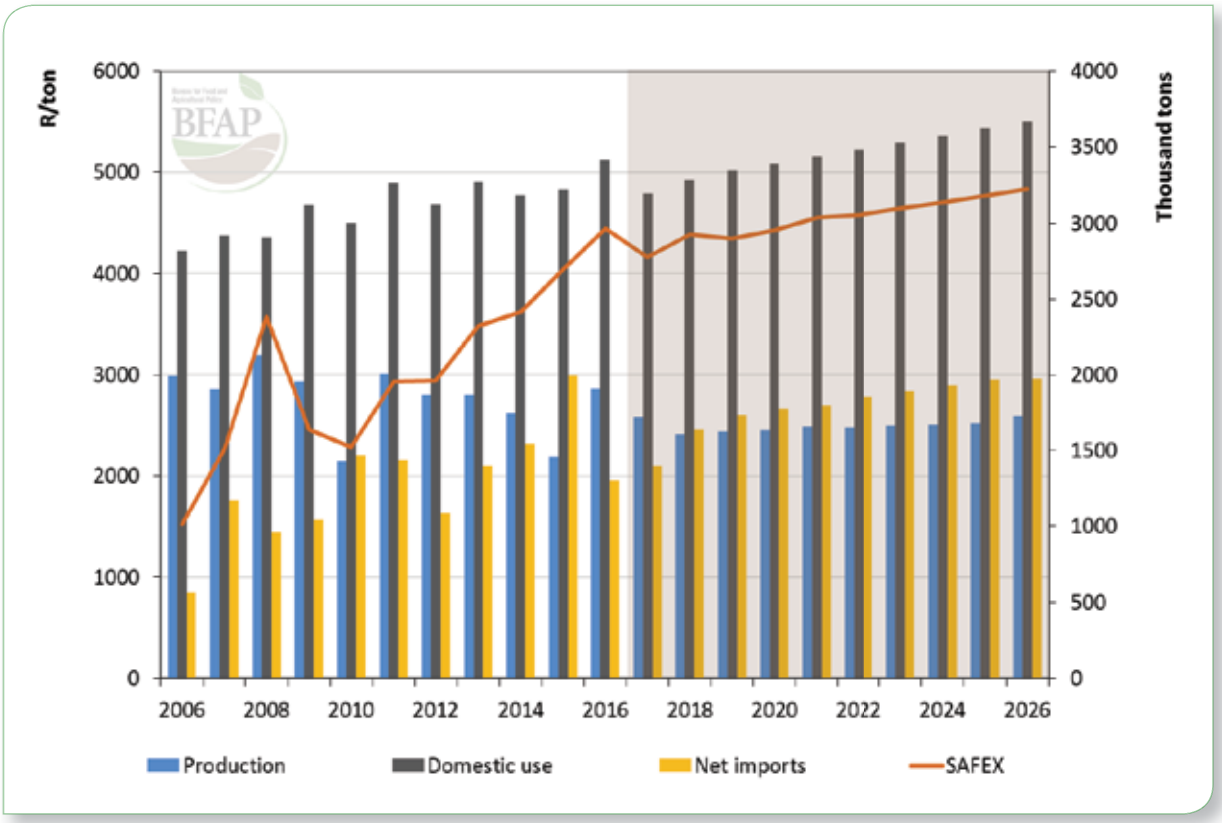


Figure 43: Wheat production, consumption, trade and price

Domestic barley situation and trends

The combination of yield expansion in the Western Cape and favourable yields resulted in a 3% increase in barley production in 2016, despite a more than 60% reduction in the area cultivated to barley under irrigation. Expansion of malting facilities at Alrode implies that the demand for malting barley will be strong over the coming years with domestic maltings replacing imports. In order to ensure sufficient barley production however, barley production must be competitive with alternative crops such as wheat. In this regard, the extent to which the current price link to wheat is maintained, as well as the relative premiums in different production regions will be critical factors influencing production decisions.

Figure 44 summarises historic gross margin performance between winter crops in the Overberg region compared to the international average for more than 10 countries. The results indicate that internationally, canola is outperforming wheat and barley on a per ton and per hectare basis while in the Overberg barley outperformed wheat and canola on a per hectare basis. The international sample further illustrates that wheat is more profitable over the long term relative to barley production.

Given uncertainties related to yield levels arising from volatile weather conditions, Figure 45 provides additional information related to crop competition in the Western Cape, by considering gross margins for wheat, barley and canola under different yield scenarios. Over the long term, wheat yields in the Overberg region remained above barley, however in 2016 barley outperformed wheat (Figure 46). The combination of a higher farm gate price and lower direct expenditure associated with barley production favours gross margins above wheat and canola in the Overberg region. Canola will remain a key rotational crop in the Western Cape region and yield scenarios indicate that a marginal increase in canola yield could increase margins to similar levels than wheat and barley.

Given area and yield dynamics, total barley production is expected to increase by an annual average of just over 2% over

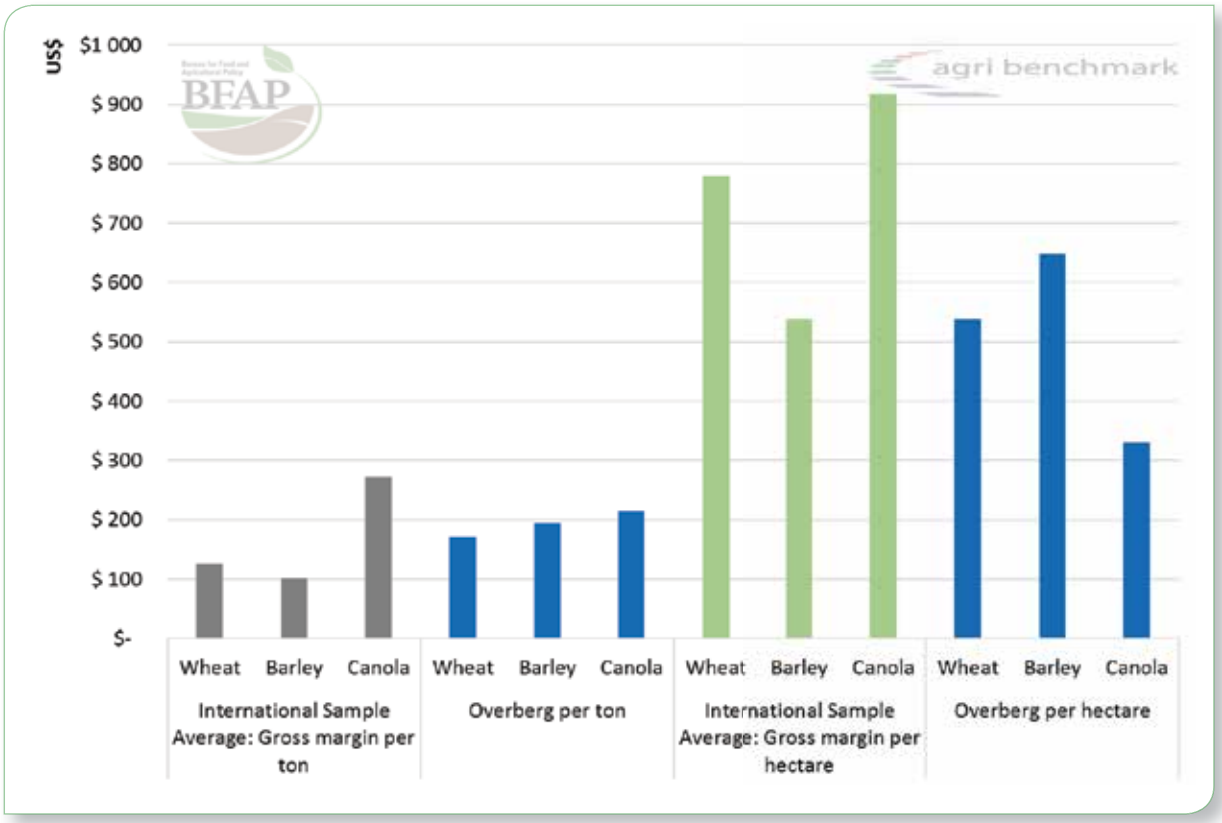


Figure 44: Gross margin comparison – International & Overberg winter crops (per ton and per hectare)
Source: BFAP & agri benchmark, 2017

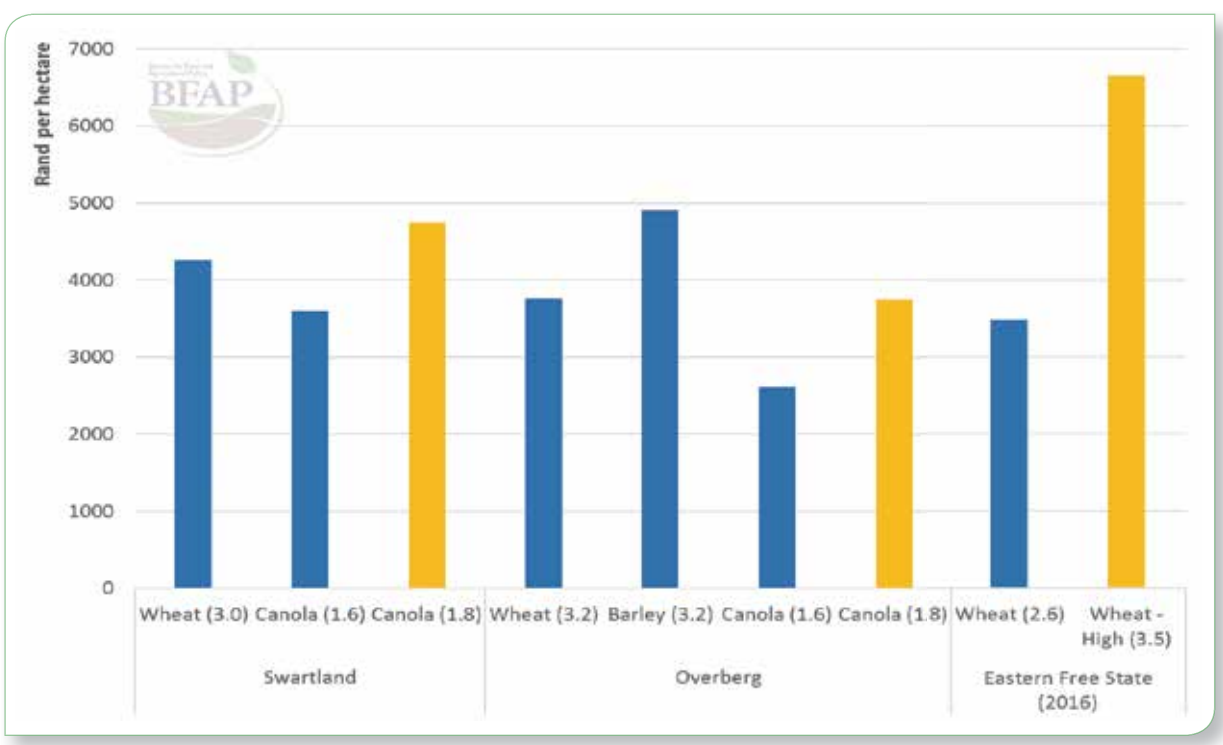


Figure 45: Winter Grains- & Oilseeds margin comparisons: 2017

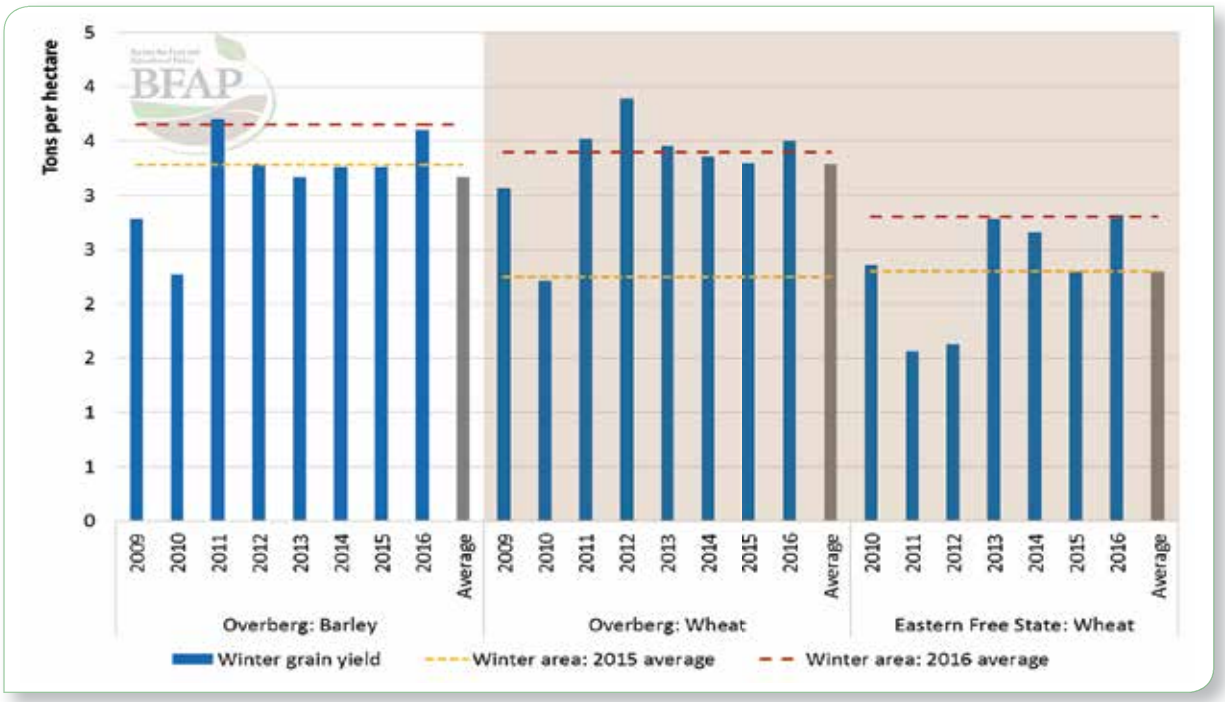


Figure 46: Winter grains yield trends

the baseline projection (Figure 47), but relative to the past 3 years, an increasing share is expected to be produced in the Western Cape. Following the initial step change caused by the Alrode expansion, demand for malting barley is expected to grow at just under 2% per annum over the projection period. This implies a lesser reliance on imported barley relative to the past decade, with imports stabilising below 50 thousand tons per annum. ABInBev's recent acquisition of SAB Limited implies that the barley projections presented in Figure 47 remain subject to uncertainty. The projections assume that the current pricing and contracting strategy is maintained and that the historic levels of research and development in the sector will be continued. Changes in the current strategy could lead to a significantly different outlook.

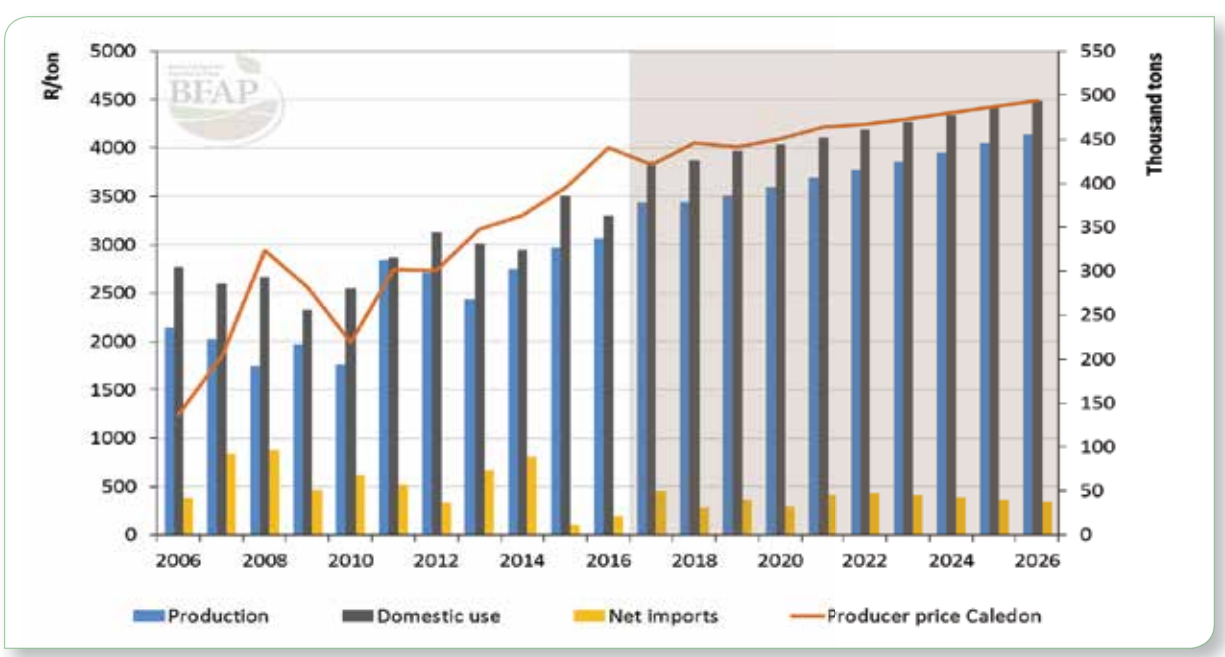


Figure 47: Barley production, consumption, trade and producer price

Box 4: Consumer trends and implications for alcoholic beverages

Since 2006 BFAP has presented an analysis of the food trends addressed by new food products in the South African market, by analysing the new food products entered into the Symrise / Food Review New Product Competitions for the various years. In 2016 the major trends related to:

- Health (e.g. dieting – trimmed of excess fat; no added sugar / colourants / flavourants / preservatives).
- Convenience (e.g. serving size packaging, product usage versatility, pre-prepared food items).
- Indulgence (e.g. bold / exquisite / unique / tasty flavour options; influences from foods of other Cultures).

Clean labels have appeared on the South African horizon involving foods with few and simplistic ingredients (usually sold at a price premium to wealthier segments).

Table 9: Consumer food trends addressed by the NPC products, 2006 – 2016*

	Share of new products in specific year										
Main trend:	**2016 (n=16)**	**2015 (n=30)**	**2014 (n=22)**	**2013 (n=16)**	**2012 (n=20)**	**2011 (n=6)**	**2010 (n=20)**	**2009 (n=6)**	**2008 (n=8)**	**2007 (n=9)**	**2006 (n=10)**
Health	56%	63%	64%	75%	55%	83%	50%	83%	38%	33%	60%
Convenience	69%	80%	77%	75%	85%	67%	75%	67%	38%	56%	70%
Indulgence	100%	97%	82%	94%	95%	83%	80%	67%	50%	89%	80%
Local	19%	7%	32%	13%	10%	33%	20%	33%	25%	11%	-
Sustainability	19%	13%	18%	6%	15%	17%	20%	17%	-	-	10%
Clean labels	31%	-	-	-	-	-	-	-	-	-	-

* Percentages in columns add up to more than 100% due to 'double-positioning' in food products.

Adding more excitement to alcoholic beverages...

Alcoholic beverages have been a prominent feature among the 2015 and 2016 new food products having a strong emphasis on enhancing consumers' indulgence experience of alcoholic beverages, for example: apple cider / Tequila combination, premium single malt variety beer, chocolate milk stout, whisky infused with honey, premium Italian-style Grappa, natural pinotage wine using indigenous Rooibos and Honeybush wood during various stages of the winemaking process. The emergence and growth of the craft beer market further supports this trend.

The craft beer boom in South Africa

Changing consumer tastes in the beer market has been driving some movement from mass-produced beer towards craft beer alternatives, often representing qualities such as a unique and superior taste experience, honest artisan manufacturing, localism (in terms of brewing setting and sourcing of ingredients), naturalness and sustainable production methods. Despite the artisanal nature of craft beer, consistency in quality and taste is critical.

The social context of consumption is also a major driving force behind the growth of the craft beer industry in South Africa, with craft beer drinking often being associated with beer and other festivals, concerts, sports events or craft beer tasting at brewpubs and local markets. The number of artisanal beer breweries in South Africa increased dramatically from a number in the thirties in 2013 to over 200 in 2017, with the bulk of these found in the Western Cape (48%), Gauteng (21%), Eastern Cape (10%) and KZN (9%) (CraftBru, 2017). Some sources estimated the magnitude of local craft beer production at about 8 million to 10 million litres in 2016 with predictions of 20 million litres per annum for 2017.

Despite phenomenal growth over the last few years, craft beer might not grow to mass market appeal – mainly due to product affordability considerations. Craft beer could cost more than double the price of mass-produced beer.

OUTLOOK FOR FIELD CROPS

Global oilseed production is projected to grow slightly in 2017/18 to more than 570 million tons. Soybean production is projected to decline marginally from the current season's record level as a return to trend yields for major producers such as Brazil and the United States results in year-on-year production declines despite increased area.

OILSEEDS AND OILSEED PRODUCTS

Global oilseed situation and trends

Global oilseed production is projected to grow slightly in 2017/18 to more than 570 million tons. Soybean production is projected to decline marginally from the current season's record level as a return to trend yields for major producers such as Brazil and the United States results in year-on-year production declines despite increased area. Meanwhile, all other major oilseed crops are expected to increase for 2017/18. Following the decline in production observed in 2016/17, global canola production should rebound in 2017/18 on the back of a 9% increase in total area. Global sunflower seed production is projected to grow slightly to 46.1 million tons while a large increase in palm kernel production is expected in 2017/2018.

China's soybean crush demand leads global oilseed consumption, hence increases are projected for 2017/18. Domestic consumption of soybeans in China is rising faster than production, leading to declining stocks. Other oilseed consumption is also projected to increase; increased soybean demand will likely drive increases in global oilseed trade for 2017/2018, especially in China, the EU, Southeast Asia and Egypt. The 2016/17 record crops in the United States and Brazil will assure sufficient supply in carry-over stocks to match the extent to which demand growth exceeds production growth in 2017/18. Brazilian exports of soybeans are expected to exceed that of the United States for the second consecutive year with both countries expected to export record quantities.

With the exception of sunflower, oilseed prices are expected to increase marginally in 2017, having bottomed out in 2016. In the short term, price ratios at farm level are favourable relative to grains, supporting area expansion and thereby limiting the extent of price increases going forward. As is the case with grains, prices are projected to stabilise around 2009 levels under the assumption of stable weather conditions (Figure 48).

Domestic oilseed situation and trends

Due to its resilience in drought situations and late planting window relative to maize, sunflower area increased by 25% in the severely drought affected 2016 season. Thus the 11.5% reduction in sunflower area in 2017 merely brings it in line with the 3-year average at 635 thousand hectares. Area cultivated to soybeans increased by 14% to 574 thousand hectares in 2017. The extent

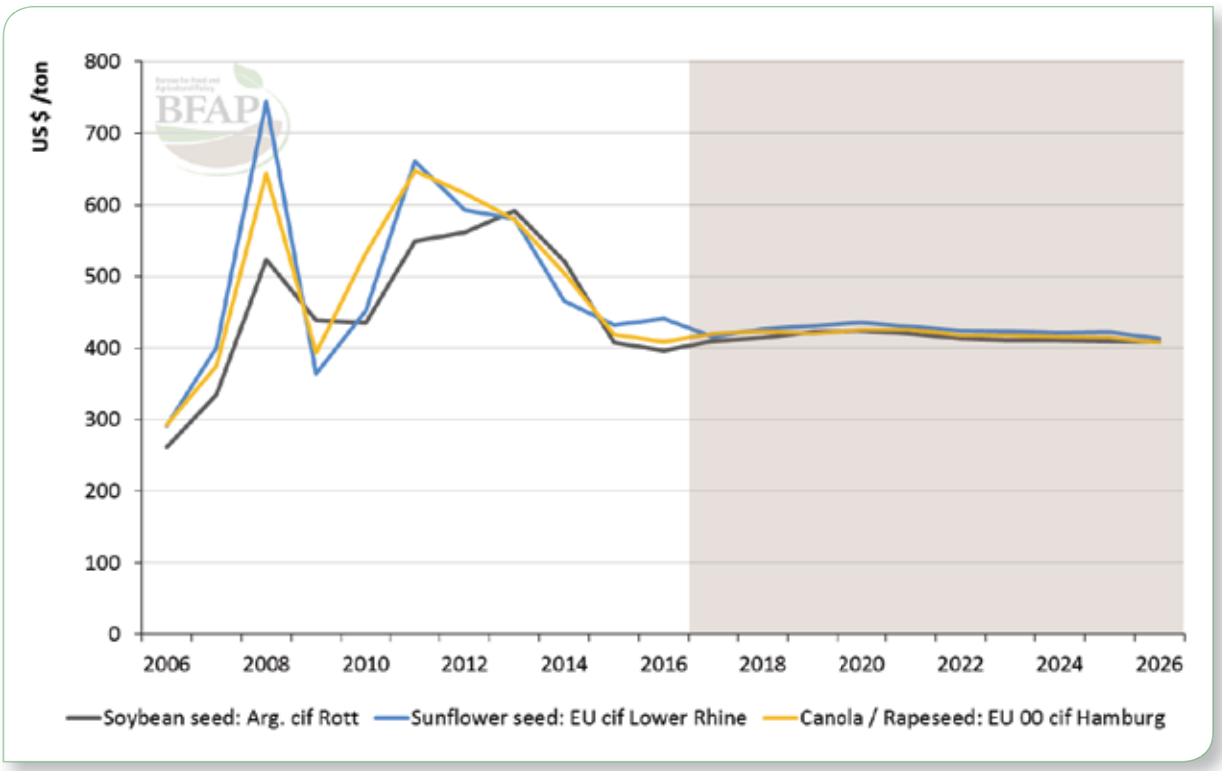


Figure 48 – International oilseed prices
Source: FAPRI and BFAP, 2017

of the expansion in soybean area and retraction in sunflower area suggests that producers opted for lower risk alternatives following the impact of the drought. Over the outlook period, soybean area is expected to increase at an average of 4% per annum to just under 900 thousand hectares in 2026. This suggests that producers continue to respond to high crushing demand, but not as aggressively as in 2015. Sunflower area is projected to decrease at an average annual rate of 1.5% to just under 530 thousand hectares in 2026.

Since peaking at 95 thousand hectares in 2014, the area cultivated to canola declined for two consecutive years to 68 thousand hectares in 2016. However, initial intentions suggest that canola area will increase back to 90 thousand hectares in 2017. Canola is grown in the winter rainfall regions in the Western Cape and while the demand for canola products, gained from the crushing process, competes with that of sunflower and soybeans, it also competes with winter grains such as wheat and barley for production area.

Given that wheat and barley prices are supported by the variable tariff on imported wheat, gross margins have tended to support winter grain production as opposed to canola. This was further aided by cultivar development, the adoption of conservation tillage practises and improved rainfall conditions in the Southern Cape, which supported significant yield gains for wheat and barley that have not been attained by canola. Canola however does remain important in rotational cropping systems, implying its area is unlikely to decline continuously against wheat and barley.

Despite low yields for canola over the past few years, Figure 50 points to significant scope for improvement in domestic canola yields. Agri benchmark data illustrates the potential for local development in yield gaps through improved seed varieties and other technologies. Figure 50 illustrates that domestic canola yields lag behind key international counterparts with an average of 1.5 tons per hectare since 2008. The international sample average is calculated at 3.3 tons per hectare with countries such as Denmark, Germany, Sweden and the United Kingdom reporting yields above 4 tons per hectare. Considering the assumption that domestic canola yields will start to improve significantly due to the introduction of better adapted high yielding canola varieties, as well as the associated benefits of including canola as part of a winter crop rotation, the area planted to canola is projected to increase by an annual average of just over 6%, exceeding 120 thousand hectares by 2026 (Figure 49).

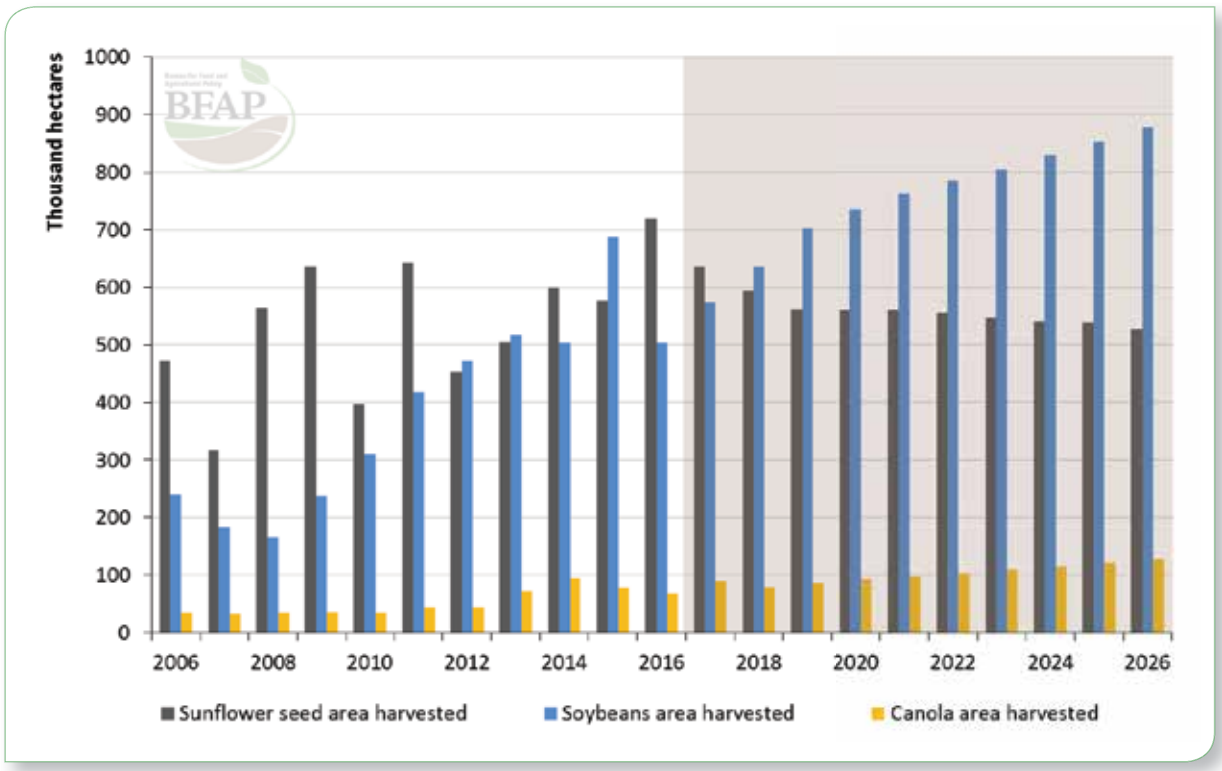


Figure 49 – Oilseed area harvested: 2006-2026

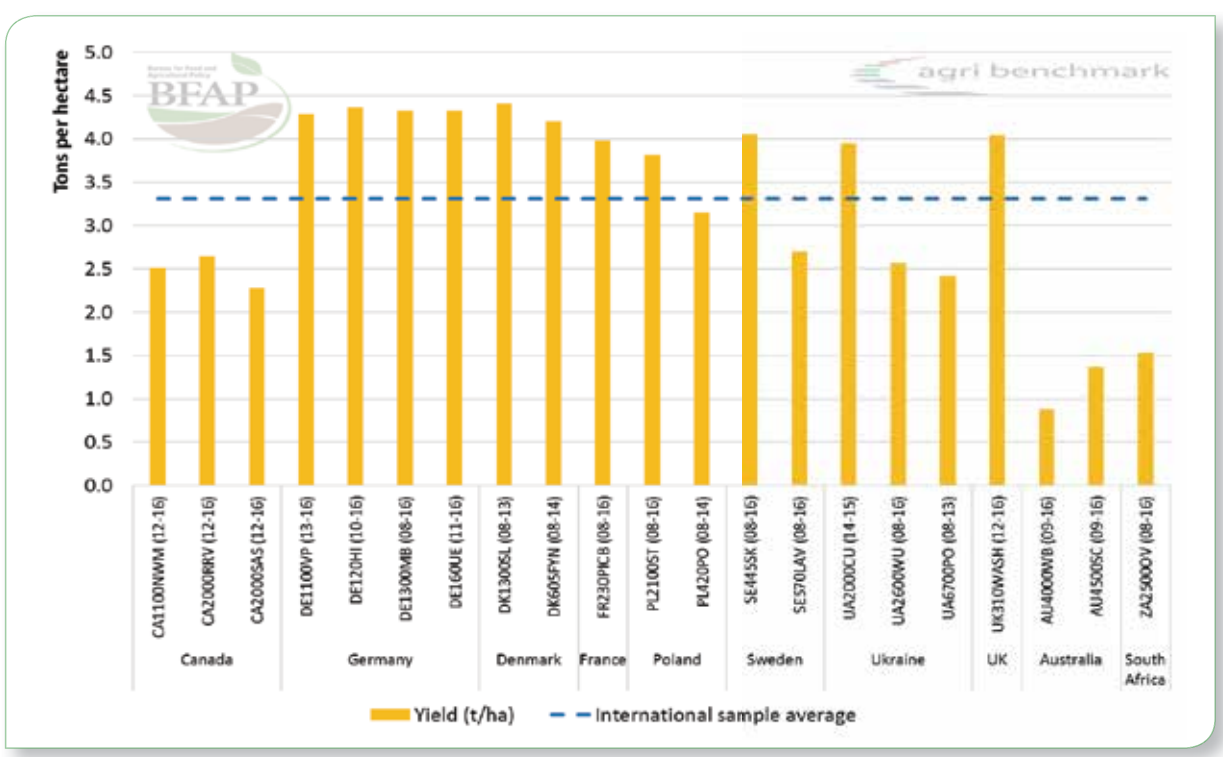


Figure 50 – International canola yield comparison
Source: agri benchmark & BFAP, 2017

Following the area and yield resulting from the 2016 drought, sufficient and well-timed rainfall through most of the summer grain area has set the scene for an all-time record soybean crop in 2017. Total production is estimated to increase by 80% to more than 1.3 million tons in 2017, almost 300 thousand tons more than the previous record of 1.07 million tons in 2015. The 2015 soybean crop was produced at an average yield of 1.56 tons per hectare, whereas the 2017 crop expectation implies a national average yield of 2.3 tons per hectare. Following the introduction of endpoint royalties that will support the availability of new technology to South African producers in a few years, the average yield is projected to increase at an annual rate of 4.4% over the outlook period, amounting to a total soybean crop of 2.1 million tons by 2026.

Having expanded rapidly since 2013, South Africa's maximum theoretical soybean crushing capacity is estimated at 1.75 million tons. Inclusion of dual capacity plants able to crush soybeans or sunflowers increases this theoretical threshold to 2.5 million tons. South African producers have been unable to supply this rapid expansion and even before the 2016 drought, imported beans were required to supplement domestic production. Consequently, soybean prices have broken away from traditional export parity levels. Despite dipping closer to export parity due to the combination of an unexpected high supply in the favourable 2017 season and downtime at some crushing plants, soybean prices are expected to trade close to its implied value derived from the prices of its sales products namely soybean meal, soybean oil, hulls and screenings going forward.

Given the rapid expansion but continued shortage of domestically produced beans, South African soybean crushers have not benefitted from the same improvement in bean to meal ratio evident in international markets in recent years, although soybean meal and soya oil continue to trade at import parity levels. Since domestic soybean prices are expected to trade below import parity levels, this implies some room to create a level of profitability if a crusher is efficient and capacity is utilized to the maximum. To date, utilisation rates have rarely been high enough, remaining well below the international industry benchmark of 80%. At lower utilisation rates, the fixed cost component within total production costs increases and undermines profitability. Hence, assuming increased utilisation rates coupled with improved plant efficiencies compared to global best in class standards over the course of the outlook, reduced fixed cost per ton of produce should allow crushers to be profitable even when soybean prices trade above export parity levels.

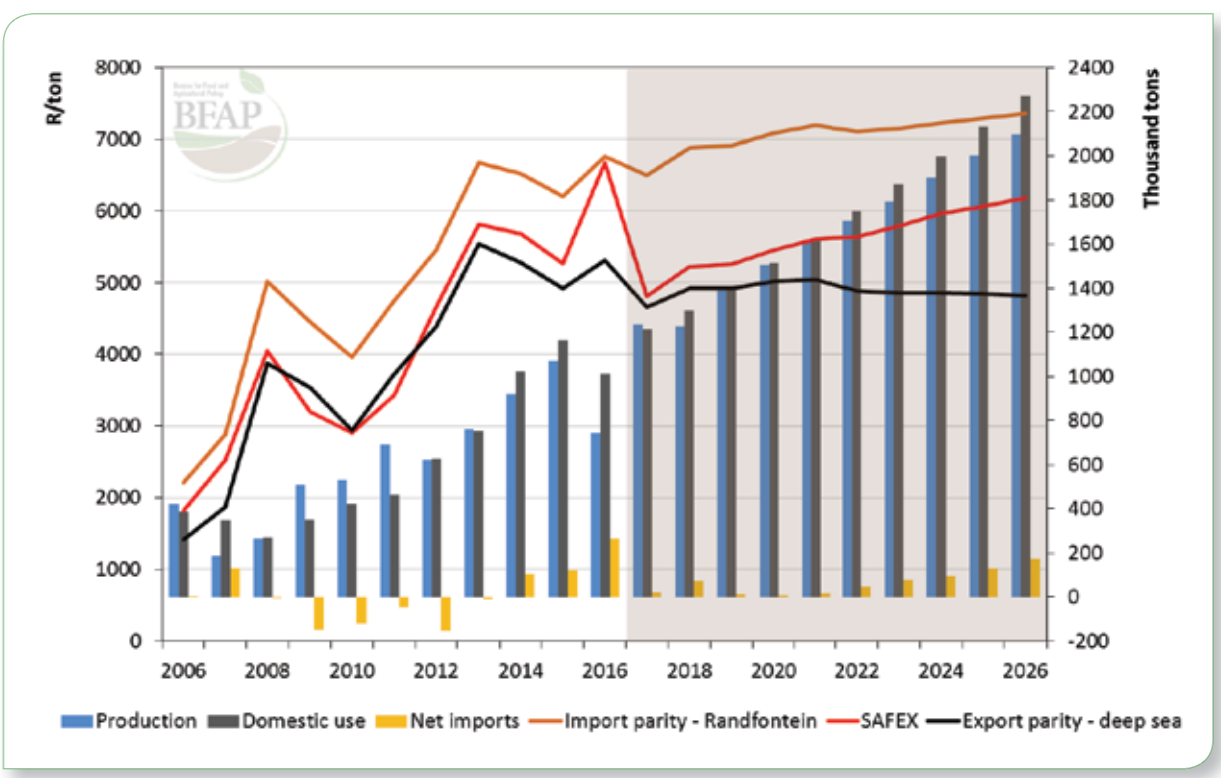


Figure 51: Soybean production, consumption, trade and prices: 2006-2026

In order to reach the industry benchmark utilisation rate of 80% over the next few years, some soybeans will have to be imported, but crushers are expected to manage a fine balance between utilisation rates and more expensive imported soybeans in the short term. Imports are expected to increase slightly over the second half of the outlook when crusher utilisation gets consistently higher and dual crushing plants begin to enter the soybean market. By 2026, almost 2.3 million tons of soybeans are projected to be crushed domestically, implying that both the dedicated soya crushing plants and the dual capacity plants will be utilised for soybeans at the benchmark rate of 80% (Figure 52). Accounting for some full fat soya utilised in the animal feed market and stock changes, it implies that 7% of the crushed soybeans is projected to be imported by 2026.

The contraction of 11% in sunflower area in 2017 was off-set by a 28% increase in average yields, resulting in more than 850 thousand tons of sunflower seed harvested in 2017; 13% more than in 2016. Although area is projected to decrease at an average annual rate of 1.5% over the outlook period, sunflower yields are projected to increase by an average of 2.5% annually resulting in a crop of just over 810 thousand tons in 2026.

The production and crushing demand for sunflower seed is projected to remain in a fine balance over the course of the outlook period, with imports of around 20 thousand tons projected by 2026. Net exports are projected in 2017 due to a temporary surplus of sunflower seeds, hence the sunflower price trades closer to export parity. Going forward however, net imports are projected to remain positive but below 10% of crush demand, therefore prices are expected to trade between import and export parity levels, largely derived from the price of oil and meal.

The shift toward sunflower production in the recent past has also been evident in the BFAP network of prototype farms. While the sharp area increases in 2016 were partly due to the late planting window for sunflower relative to maize, area remained well above the 5-year average level in 2017 as producers opted for low risk alternatives. The various gross income scenarios presented in Figure 54 however suggest that, under most scenarios, soybean margins outperform sunflowers in 2017 – which supports the expectation of reduced sunflower hectares in 2018 in favour of soybeans.

Multiple factors have the ability to influence yield levels for

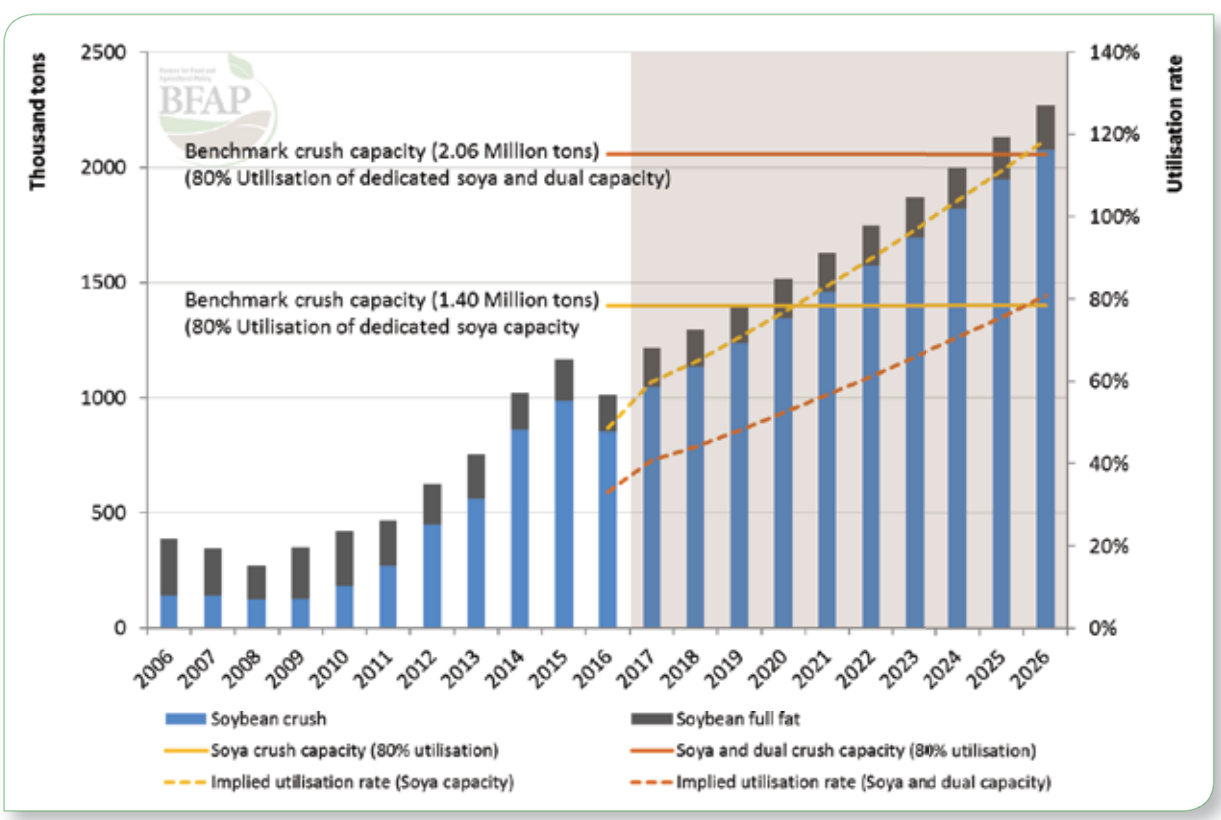


Figure 52: Soybean utilisation and crushing capacity in South Africa: 2006 - 2026

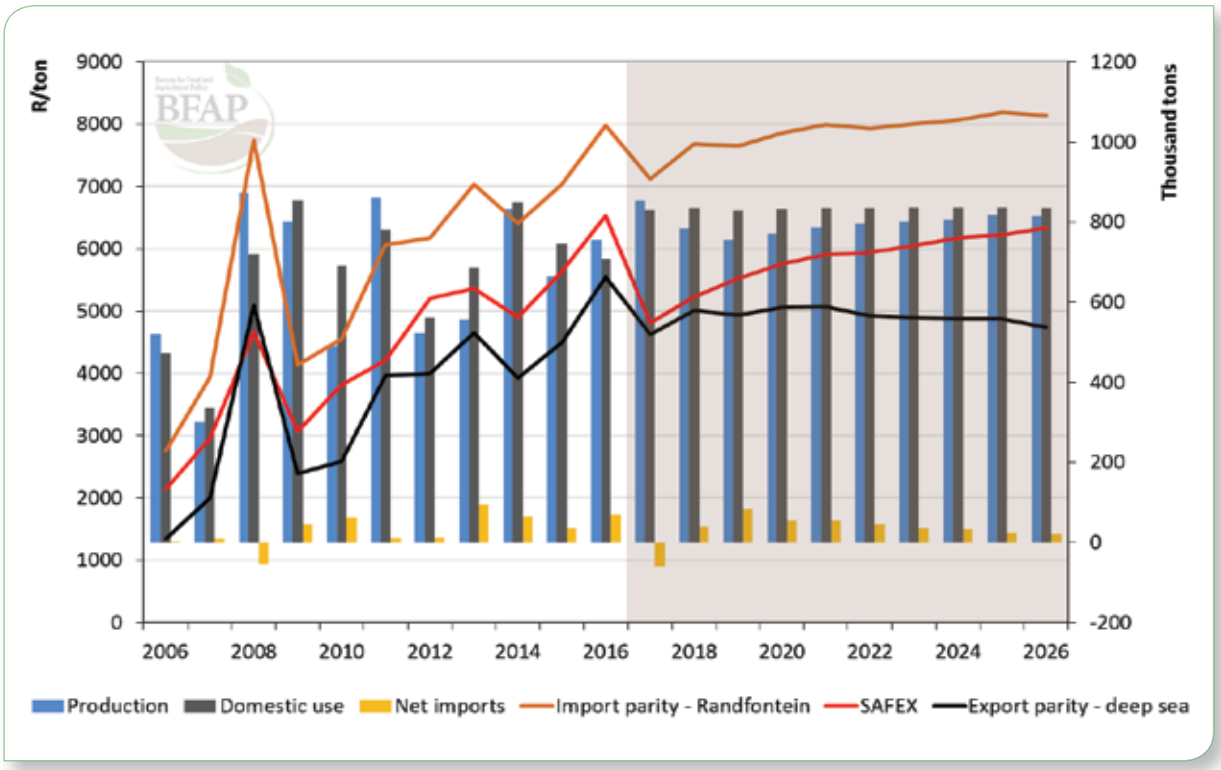


Figure 53: Sunflower production, use, trade and prices: 2006 – 2026

soybeans and sunflower in 2017, including inherent potential in different regions and rainfall distributions. For oilseeds, Sclerotinia has been reported in some areas, which could potentially affect soybean and sunflower yields. In such instances, the low price and low yield scenario becomes a real possibility. In general, however, under most scenarios, oilseeds are expected to perform better than maize in 2017.

Contrary to the summer grain production region, the Western Cape (particularly the Western parts) is still battling with extreme drought conditions and like sunflowers, canola also maintains reasonable performance in these conditions. Timely rainfall has occurred in large parts of the Southern Cape however, suggesting that normal yields are possible and following the expansion in area, 2017 could yield a crop of more than 130 thousand tons. Over the course of the outlook projection, yield growth of more than 3% per year is projected in line with the expected introduction of new varieties. With area under canola production also projected to increase over the outlook, the canola crop is projected to exceed 200 thousand tons by 2024 and increase up to 230 thousand tons by 2026. BFAP projections (Figure 55) show that the canola market will maintain a fine balance going forward. Production and crushing demand are projected to increase to 230 and 220 thousand tons respectively by 2026. Over the outlook period the canola price is projected to shift away from export parity, creating the incentive for producers to increase area at the expense of wheat.

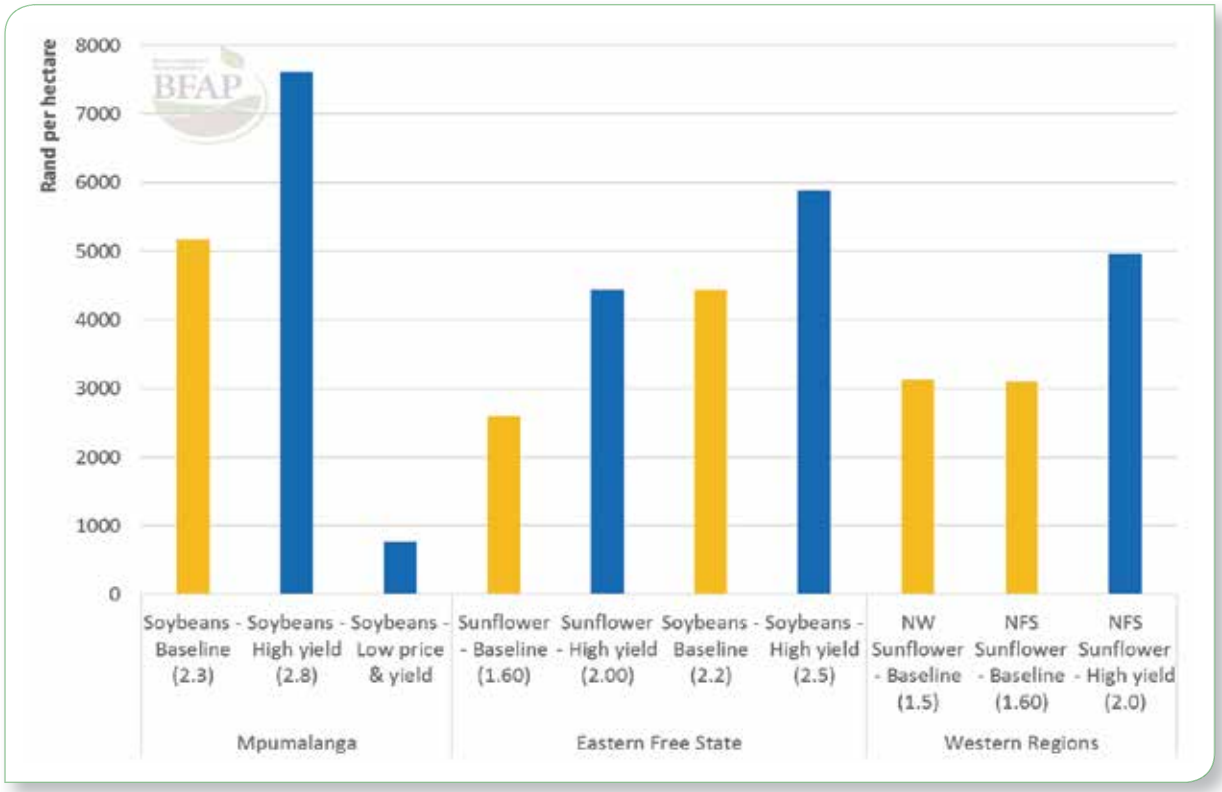


Figure 54: Gross margins for oilseeds in 2017

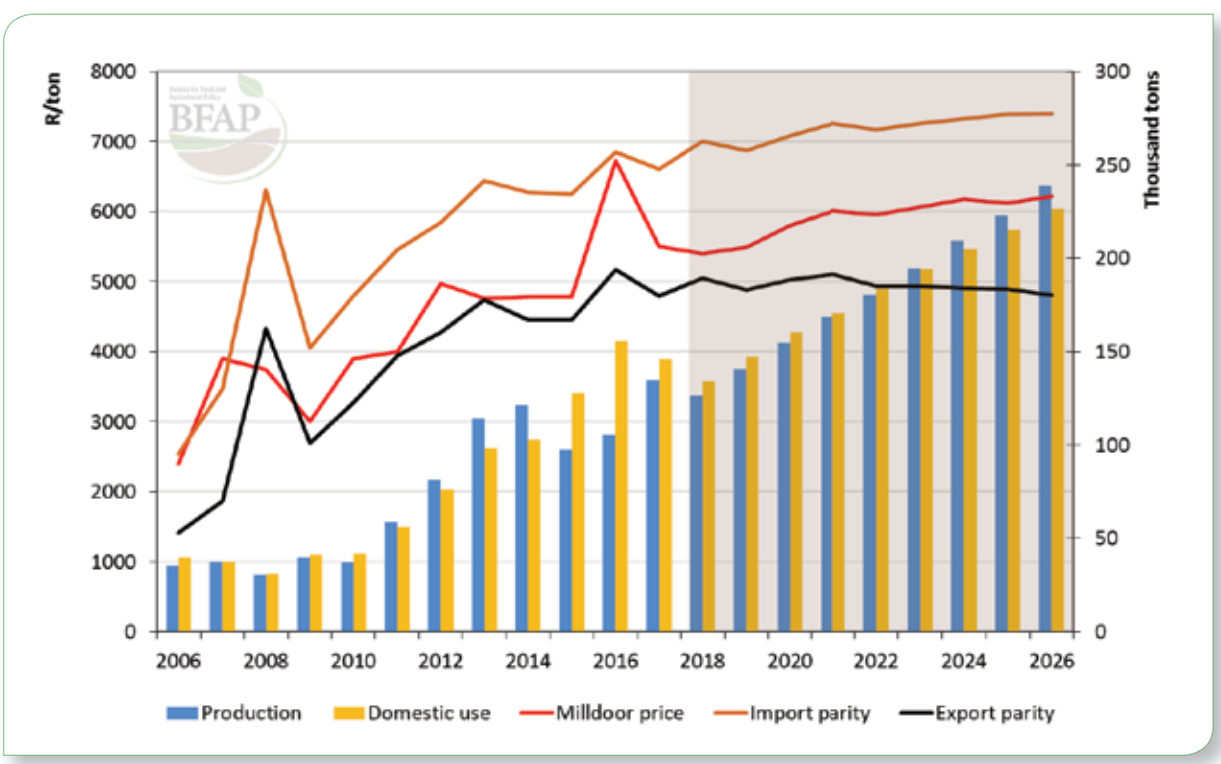


Figure 55: Canola production, consumption and prices: 2006 - 2026

Global oilcake situation and trends

Global oilcake production is expected to rise significantly in 2017/18 on higher crushing at lower raw material prices. Demand growth is led by strong expansion in livestock and poultry consumption in regions such as Asia and the Middle East. Protein meal trade is expected to grow by 3% with soybean exports forecast to increase over the next year. Argentina will remain the leading soybean oilcake exporter, however some uncertainty exists regarding producers' willingness to sell in light of the progressive reduction in export taxes expected to begin in 2018. A decline in soybean oilcake stocks will drive an overall decline in total global oilcake stocks, given soybean cake's large share in total stocks.

Following the decline in oilseed and feed grain prices, protein meal prices are also expected to remain under pressure over the baseline projection, despite firm demand for livestock feed. Having already declined sharply in recent years, prices are expected to trade largely sideways over the coming decade (Figure 56).

Domestic oilcake situation and trends

The demand for soybean oilcake is primarily driven by the feed industry. This is particularly true for soybean oilcake, which exhibits the highest protein content. Given the increase in domestic soybean production, the domestic soybean oilcake production in 2017 is expected to increase by 23% to 840 thousand tons. Apart from the drought affected 2016 season, domestic soybean oilcake production has exceeded imported oilcake since 2014 and is projected to increase to over 1.8 million tons by 2026. This represents an average annual increase of 9%, continually replacing imports so that only 250 thousand tons, or 13% of domestic soybean oilcake use is projected to be imported by 2026. Given the continued shortfall in domestic production, soybean oilcake prices will likely continue trading at import parity levels. As the domestic crushing industry's utilisation rates and soybean availability improve, product quality and consistency is expected to improve to be in line with imported products on a consistent basis.

The bulk of domestic sunflower seed production is crushed to produce sunflower oil and oilcake. Sunflower oilcake production is projected to increase to 350 thousand tons in 2017 – a year on year increase of 25%. In line with sunflower seed, oilcake production is projected to increase to just under 350 thousand tons by 2026. Additional growth in demand will need to be supplied through imports, which are projected to reach 70 thousand tons by 2026. Similar to soybean oilcake, the

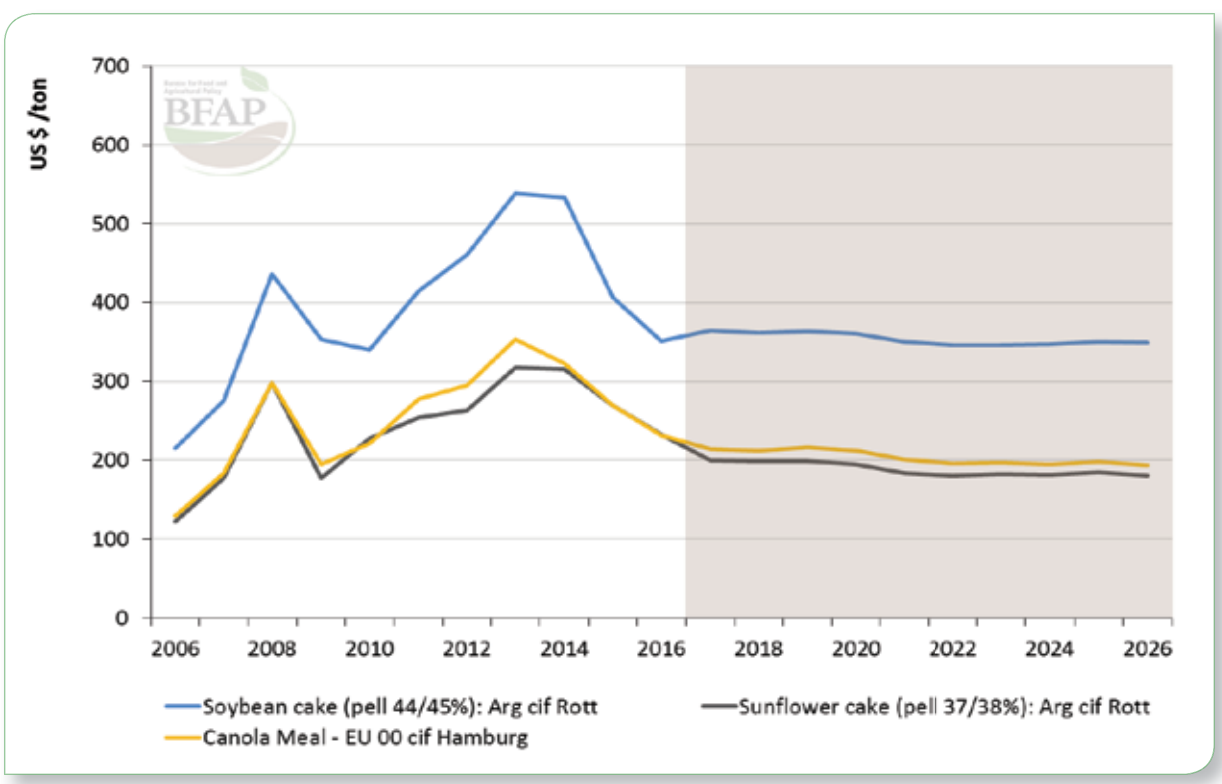


Figure 56: International oilcake prices: 2006 - 2026
Source: FAPRI & BFAP, 2017

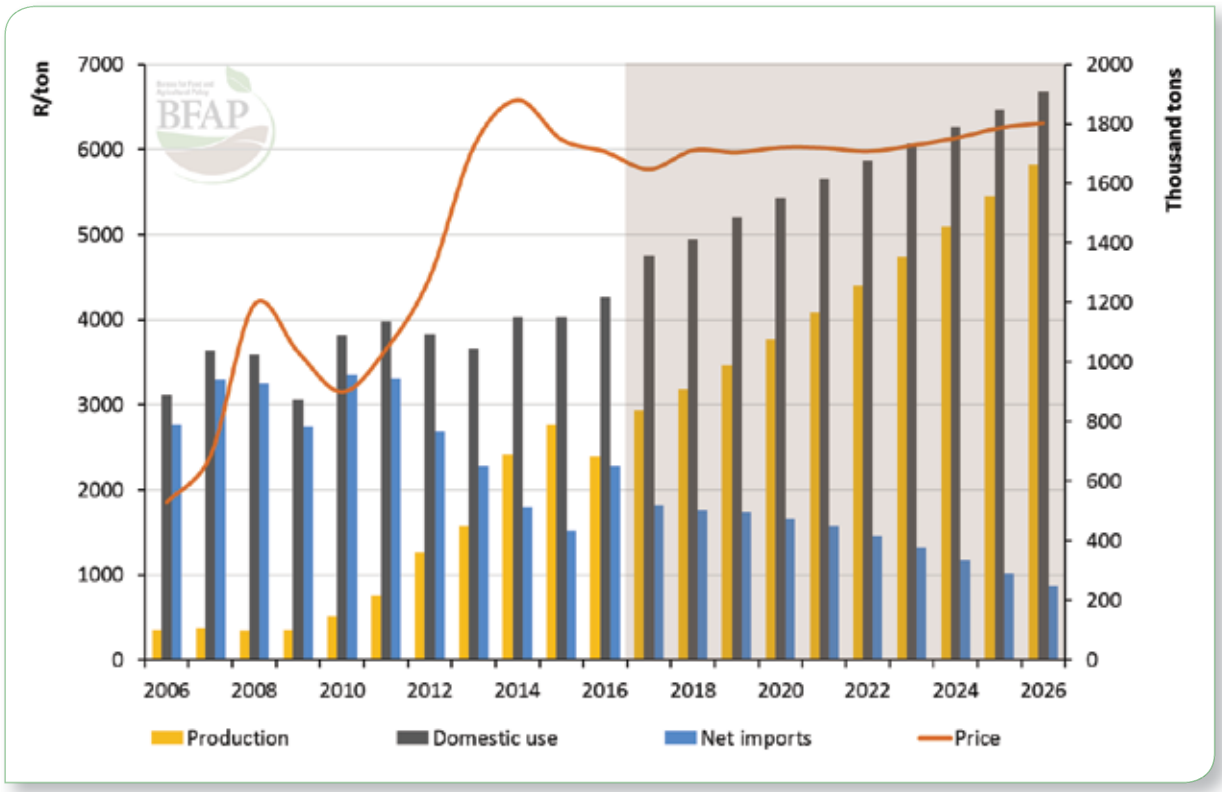


Figure 57: Soybean oilcake production, consumption, trade and price: 2006 - 2026

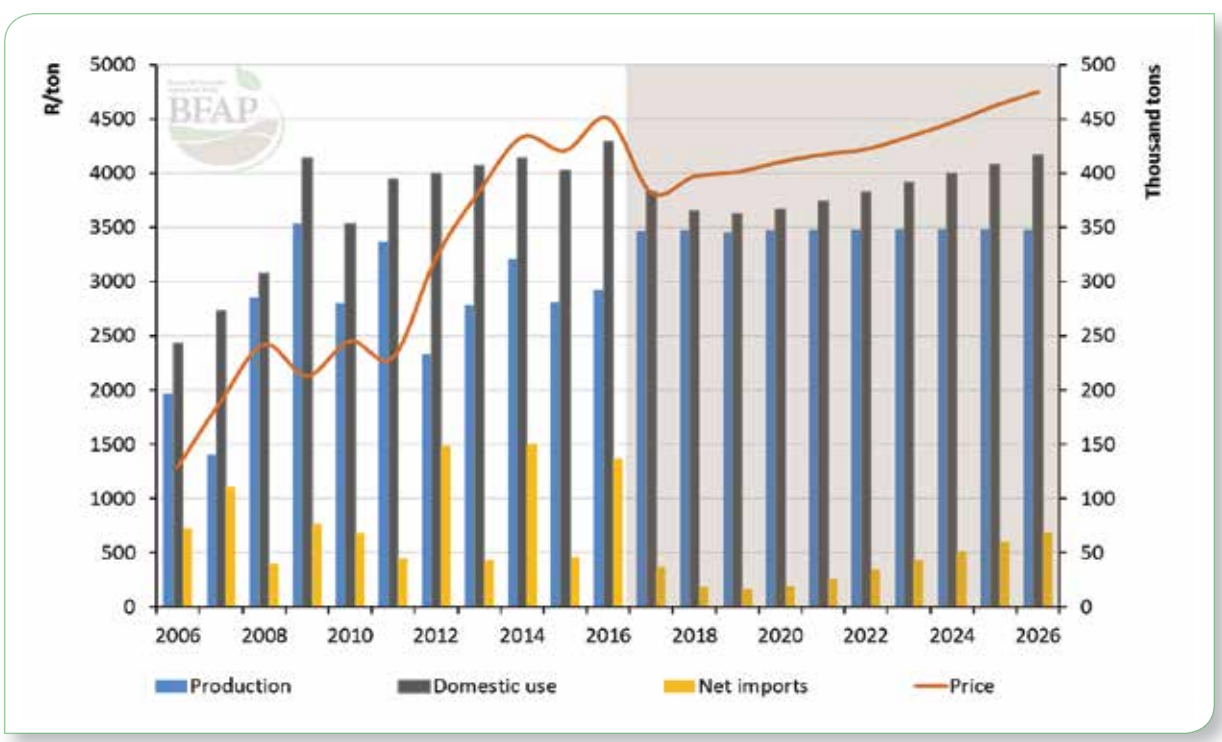


Figure 58: Sunflower oilcake production, use, trade and price: 2006 - 2026

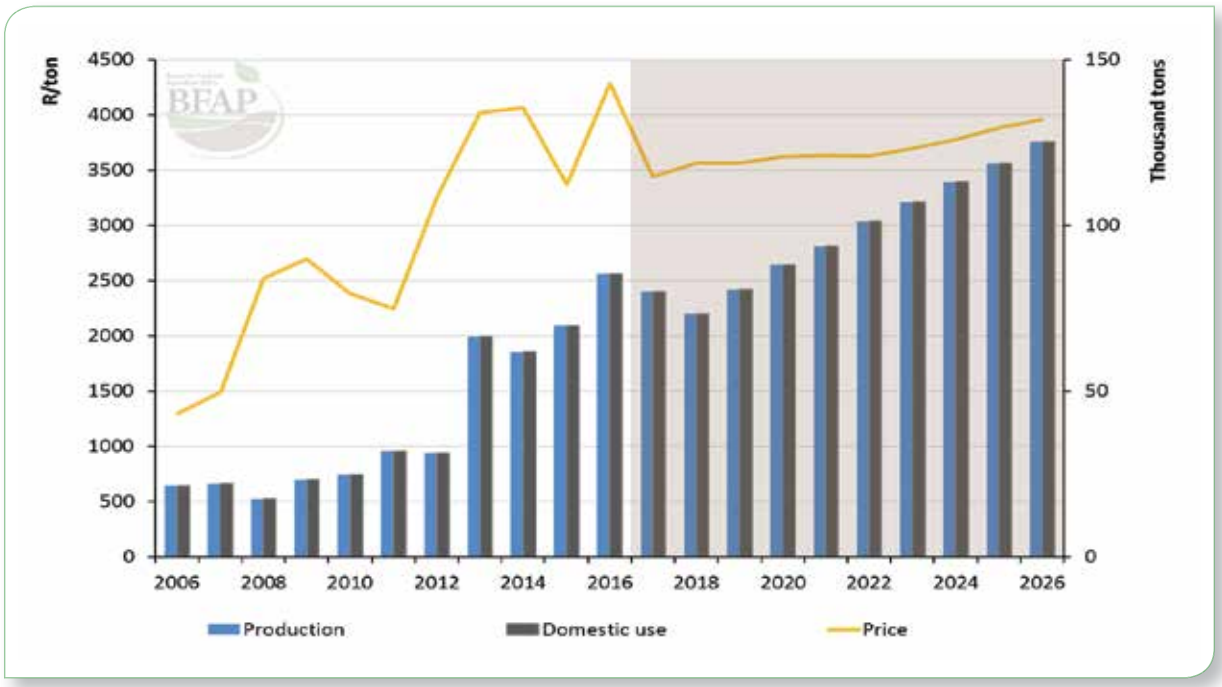


Figure 59: Canola oilcake production, consumption and price: 2006 - 2026

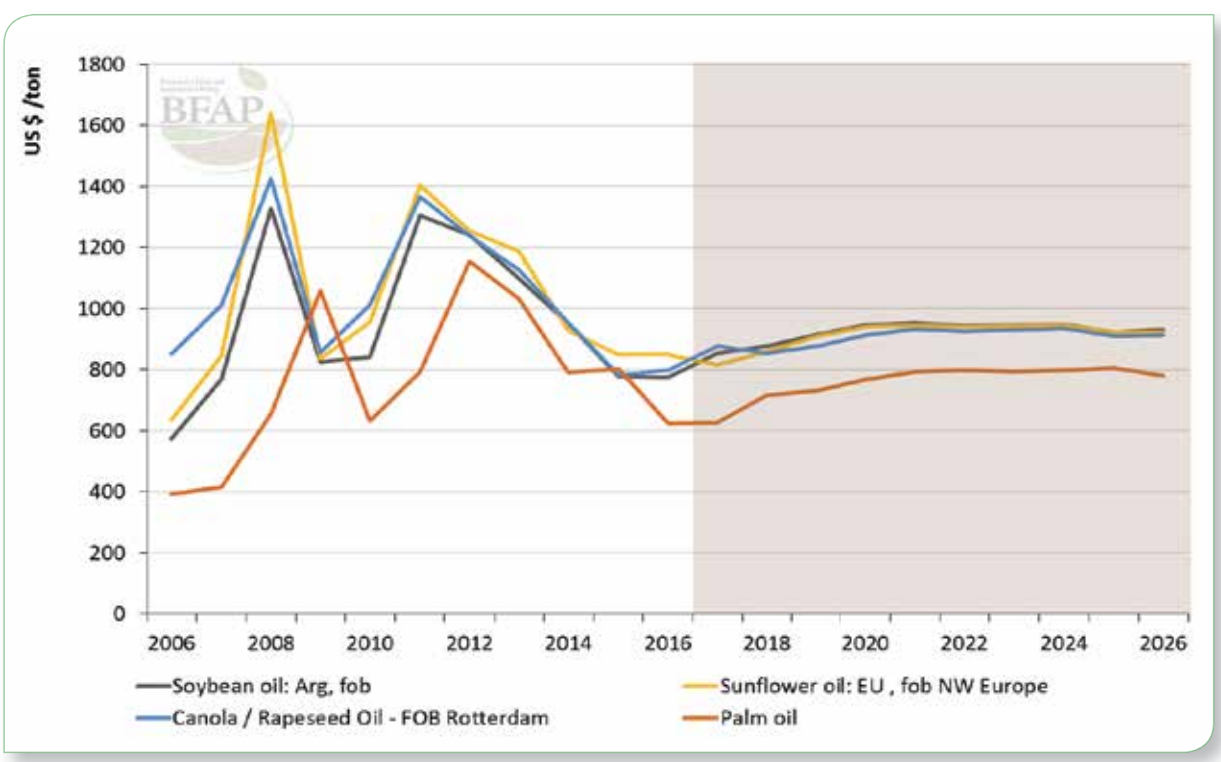


Figure 60: International vegetable oil prices
Source: FAPRI & BFAP 2017

sunflower cake price trades in line with import parity over the outlook period.

The canola price also increases with import parity over the baseline period. Given that SOILL, as the single largest off taker of canola in South Africa, strives to incentivise canola production in order to optimise crushing capacity, oilcake production increases in line with canola production. The high fibre content and lower level of bypass protein, which is important in many ruminant feeds, constrain the utilisation of canola oilcake, and therefore competitive substitution for soybean oilcake only occurs at exceptionally low prices. It has however been successfully used in the dairy industry and with production projected to expand by almost 40 thousand tons over the next decade, dairy farms in the Western Cape will represent the bulk of the canola oilcake market.

Global vegetable oil situation and trends

Population and GDP growth in emerging economies is a key driver in increased vegetable oil consumption forecasts. Palm and soybean oil will contribute most towards growing food use, followed by sunflower oil. Soybean meal demand spurs increased soybean crushing which in turn stimulates the production of soybean oil. Other vegetable oil production is also projected to increase in 2017/18, especially palm oil, which rebounds following the recent reductions associated with the strong El Nino event. Strong demand for golden oils is expected to outpace production resulting in small stock drawdowns of soybean, canola and sunflower seed oils.

Vegetable oil prices have declined sharply in recent years, in line with oilseeds and crude oil, which typically provides a floor to vegetable oil prices due to the flexibility of biodiesel production. The dampened oil price path in this baseline is however insufficient to induce a significant switch to biofuels. Prices of soybean and canola oil are expected to increase marginally in 2017 while sunflower and palm oil prices trade largely sideways. Over the course of the Outlook, prices are expected to trade in line with historic relationships, stabilising well below the peaks of 2011 – 2013 at levels last observed around 2010.

Domestic vegetable oil situation and trends

In light of the expected bottoming out of international prices in 2016, domestic soybean and canola oil prices are expected to increase marginally in 2017 (Figure 61). On the other hand, since sunflower seed production and consequently also sunflower oil production increased significantly in 2017, sunflower oil prices are expected to follow international prices downwards,

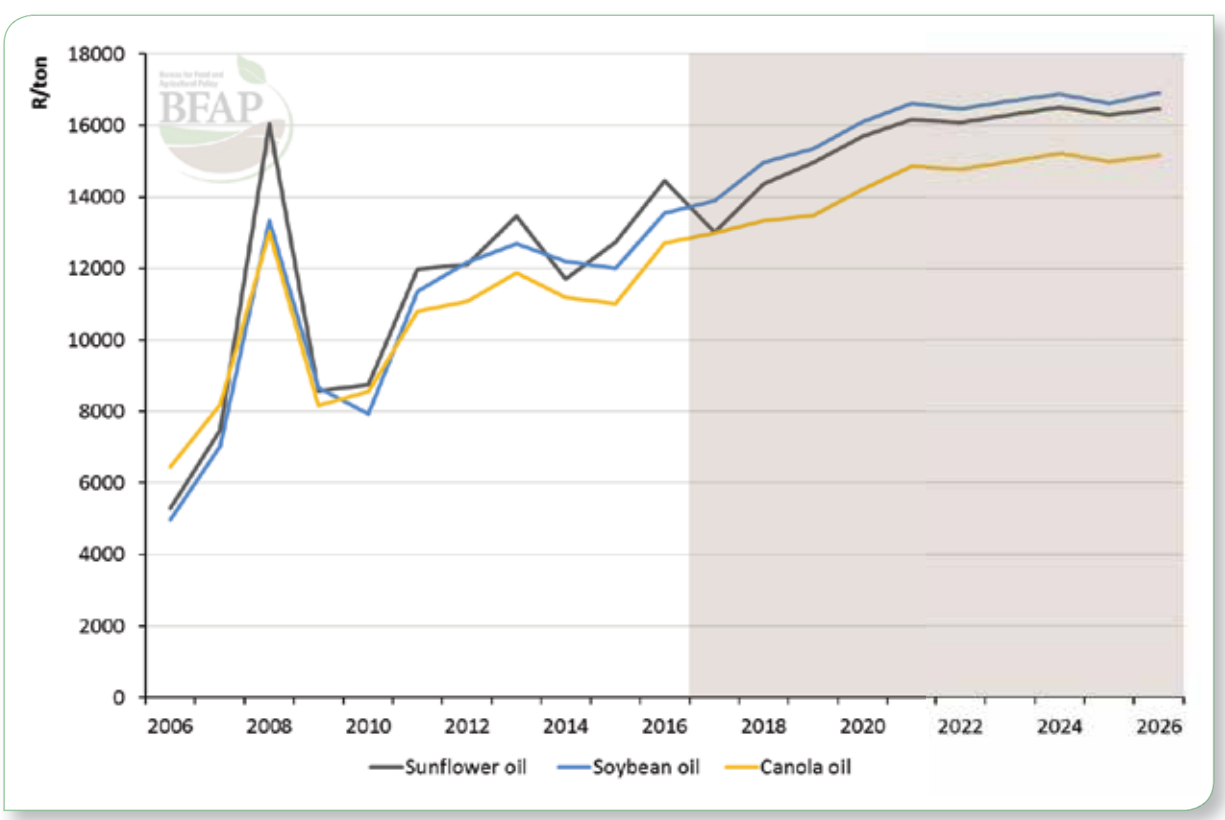


Figure 61: Domestic vegetable oil prices: 2006 - 2026

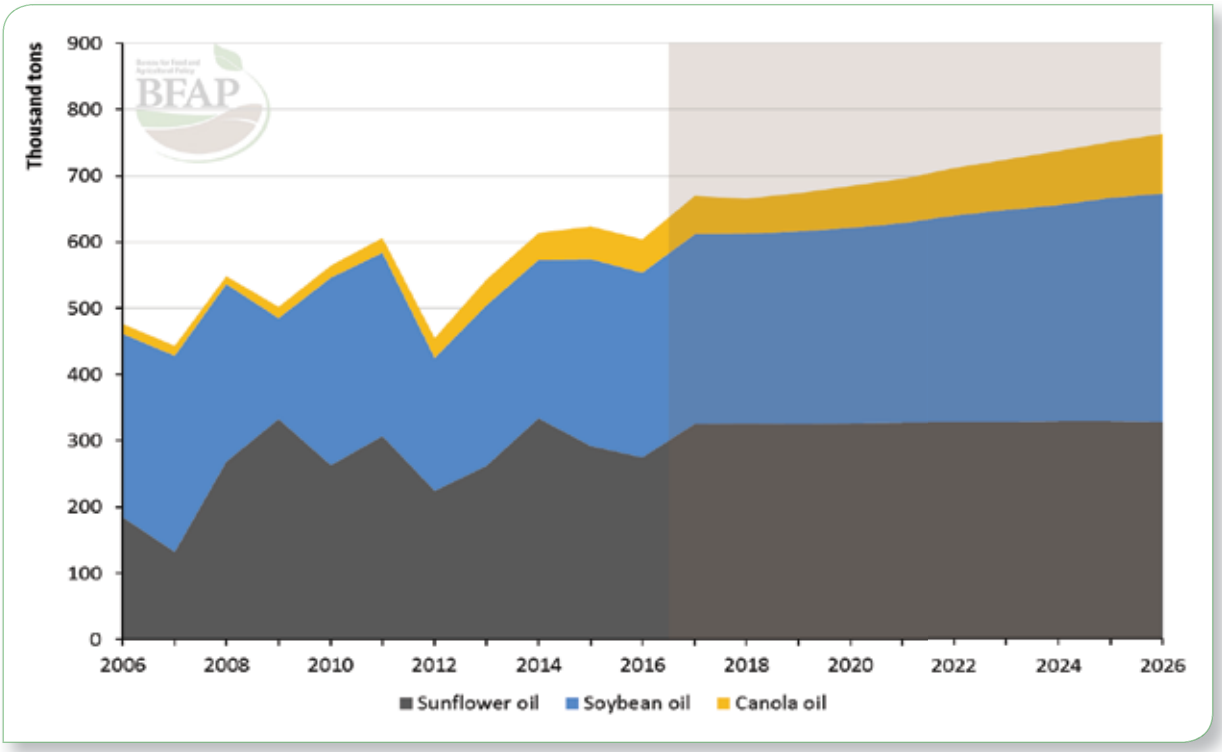


Figure 62: Vegetable oil production in South Africa: 2006 - 2026

hence decrease by 10%. South Africa remains a net importer of vegetable oils and therefore domestic vegetable oil prices continue to trade in line with import parity levels over the outlook. As such, volatility will to a large extent be driven by international price movements and exchange rate fluctuations.

Domestic production of vegetable oils is projected to increase in 2017, in line with the increase in oilseed production and resultant crushing volumes. Over the outlook period vegetable oil production is projected to increase by an annual average of 1.7% (Figure 62). Furthermore, as soybean production and crushing expands, the share of soybean oil in domestically produced vegetable oil increases at the expense of sunflower oil over the outlook period. The share of canola in domestically produced vegetable oil remains fairly constant around 10%.

Domestic consumption of palm oil has increased rapidly over the past decade, due to its favourable trans-fat characteristics and competitive price relative to alternative vegetable oils. Combined consumption of palm, sunflower, soya and canola oil is estimated at more than 1 million tons in 2016, of which palm oil comprised approximately 41%. For South Africa, as a net importer of all vegetable oils, palm oil represents a less costly option, making it popular as frying oil in the fast food industry in particular. Canola oil is currently still marketed as a niche product in South African supermarkets, mainly due to the small volume produced domestically, as well as its favourable qualities as household cooking oil, since it has the lowest saturated fat content of all vegetable oils. Apart from its consumption as oil and oil blends (such as the canola olive oil blend), canola is also processed into margarine and mayonnaise. Domestic consumption of canola oil is projected to increase from 51.7 thousand tons in 2016 to just over 80 thousand tons in 2026 (Figure 63).

The increase in oilseed and vegetable oil production is projected to offset a large share of the soybean and canola oil imports over the next decade (Figure 64). Soya oil imports are projected to decrease from 160 thousand tons in 2017 to merely 50 thousand tons by 2026. South Africa is projected to become a net exporter of canola oil by 2026. South Africa has become a net exporter of sunflower oil and is projected to remain so over most of the outlook. Since palm oil is not produced locally, it is sourced from Malaysia and Indonesia and all consumption growth over the next decade will be imported. Being the cheapest option on the international market, palm oil use and consequently imports are expected to increase consistently over the next decade.

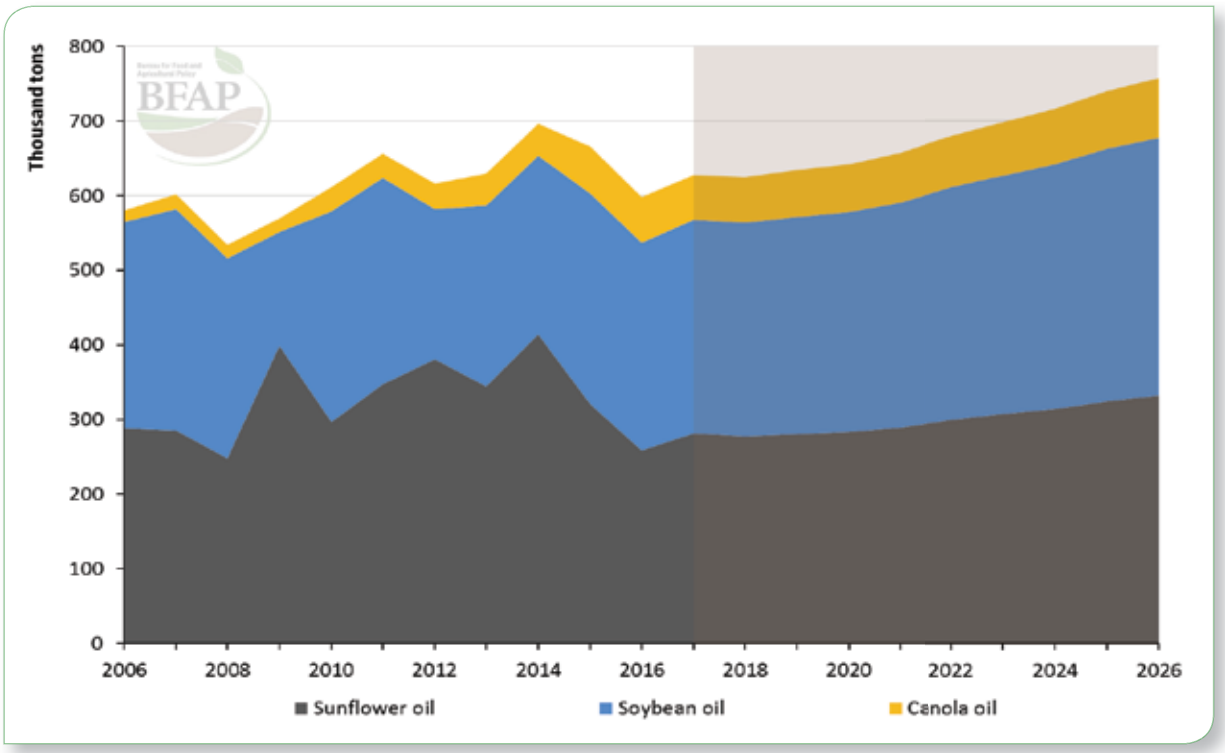


Figure 63: Vegetable oil use in South Africa: 2006 - 2026

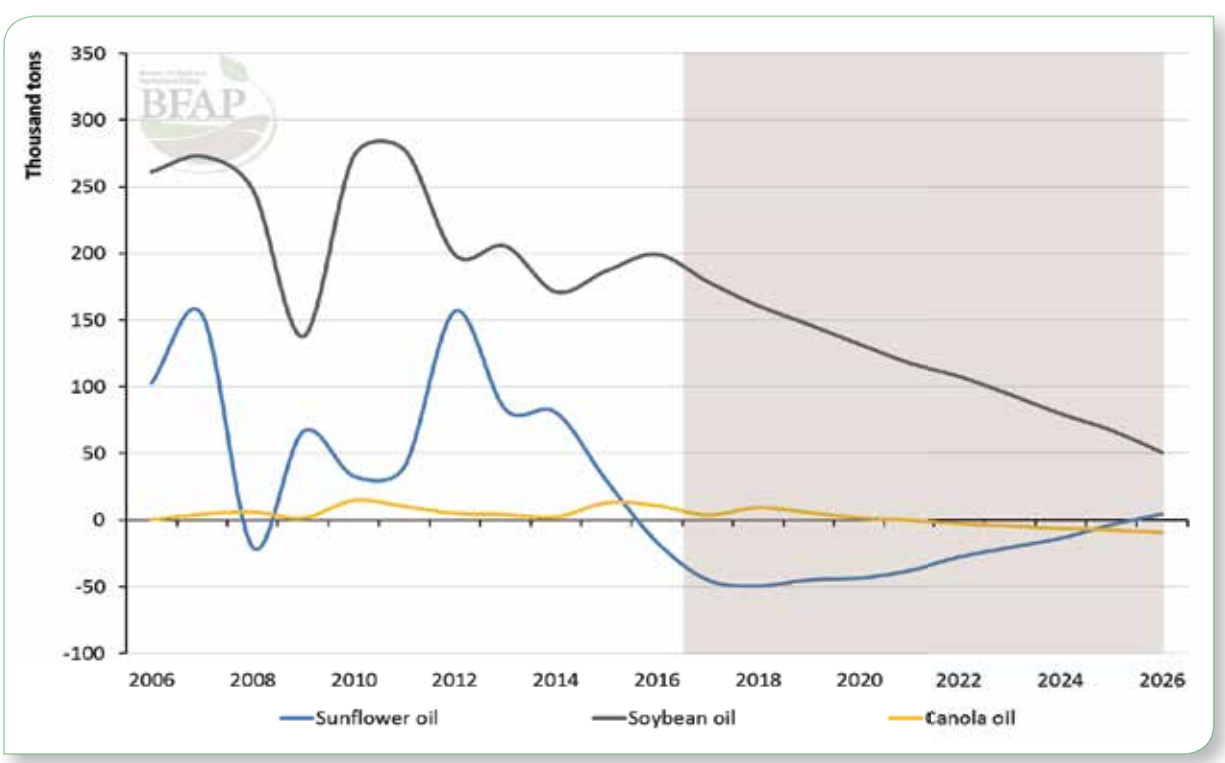


Figure 64: Net trade of vegetable oil: 2006 - 2026

OUTLOOK FOR FIELD CROPS

Though 2016/17 has seen the return of more 'normal' rainfall, it was too late to have a substantial impact and the season ended on 15.04 million tonnes. This harvest was only enough to provide for the local market and no sugar was exported.

SUGARCANE AND SUGAR

The South African sugar industry is faced with a range of challenges, threatening the health and longer-term sustainability of the industry. These challenges include, but are not limited to:

- A number of seasons of below average rainfall in the sugar production regions resulting in low yields and in some cases need for replanting
- Pressure on water availability for cane production on irrigation schemes
- A low world price driven by:
  - Decreased demand for sugar as sweetener
  - Low oil price and decreased demand for ethanol
- Increased sugar production in other African countries
- Potential impacts of sugar quota abolition in Europe
- Potential increased use of high fructose corn syrup in Europe
- Potential increased use of high fructose corn syrup in South Africa
- Implementation of a sugar tax on sugar-sweetened beverages in South Africa
- Increasing labour costs
- Spreading of the African sugarcane stalkborer (Eldana saccharina) from the Coastal production regions into the Midlands
- Increasingly dated and underutilised milling capacity leading to inefficiencies in the milling process
- Limited investment in planting or replanting of cane or soil nutrition and correction due to land claims

All these factors will and already have impacted on the industry in one way or another. Though 2016/17 has seen the return of more 'normal' rainfall, it was too late to have a substantial impact and the season ended on 15.04 million tonnes. This harvest was only enough to provide for the local market and no sugar was exported. However, a considerable amount of 'cheap' sugar was imported in late 2016 early 2017 when the import tariff was not triggered due to the average price being higher than the dollar based reference price of US$ 566 and the subsequent delay in implementing the duty when the price

fell below the reference price. Individuals in the sugar industry suggest that a more effective sugar import duty system could bring more equitable benefits to the total country than a tax on sugar sweetened beverages.

The outlook for the sugar industry is a bit more positive, mainly due to the assumption of 'normal' weather. It is expected that the crop will return to 18 million tons, which is in line with historic norms. The crop is expected to stay relatively stable with limited crop expansion in communal areas (driven by milling companies) being offset with commercial farmers ceasing to replant marginal fields and where possible converting to other crops. This is not expected to reduce area dramatically over the short term, but will influence longer term trends. Increased efficacy in the control of the cane borer (Eldana) with new chemicals and methods will likely have a positive impact on cane yields. For Coastal farmers this improved pest control technology does not only mean higher yields but also higher Recoverable Value (RV) percentages as they might now again be able to harvest mature cane instead of immature cane with higher non-sucrose sugars. The average projected price for 2017 will however be lower than in 2016 when no sugar was exported due to the small crop.

Exposure to the subsidised world market remains an area of concern and in the baseline, which assumes that the current pricing mechanism is maintained, imports are expected to increase continuously over the 10 year projection period. The sugar market basically still operates as a single market, where notional sugar prices continue to escalate at an inflationary rate. This trend exposes the industry to competitively priced imports. With limited growth in domestic consumption, increased volumes then have to be exported at a lower world price, resulting in a sideways trend in the recoverable value. Changes to the current tariff structure would result in a different outcome. The local market for sugar is expected to grow more slowly in future as food processors come under pressure from the market (consumers) and government to reformulate their recipes and reduce the sugar content in their products. The sugar market in SA is expected to remain relatively flat over the outlook period. However, with beverage producers already starting to reformulate drinks and with suggestions of 'shrinkflation' (smaller size but same price), this could be revised downward in future.

While Midlands and northern irrigation (Mpumalanga) cane farmers have a number of crop alternatives, for many farmers planting cane in the sandy and sloped coastal regions, crop alternatives are limited. Even though the sugar demand outlook is less than rosy, alternative markets for sugar cane in South

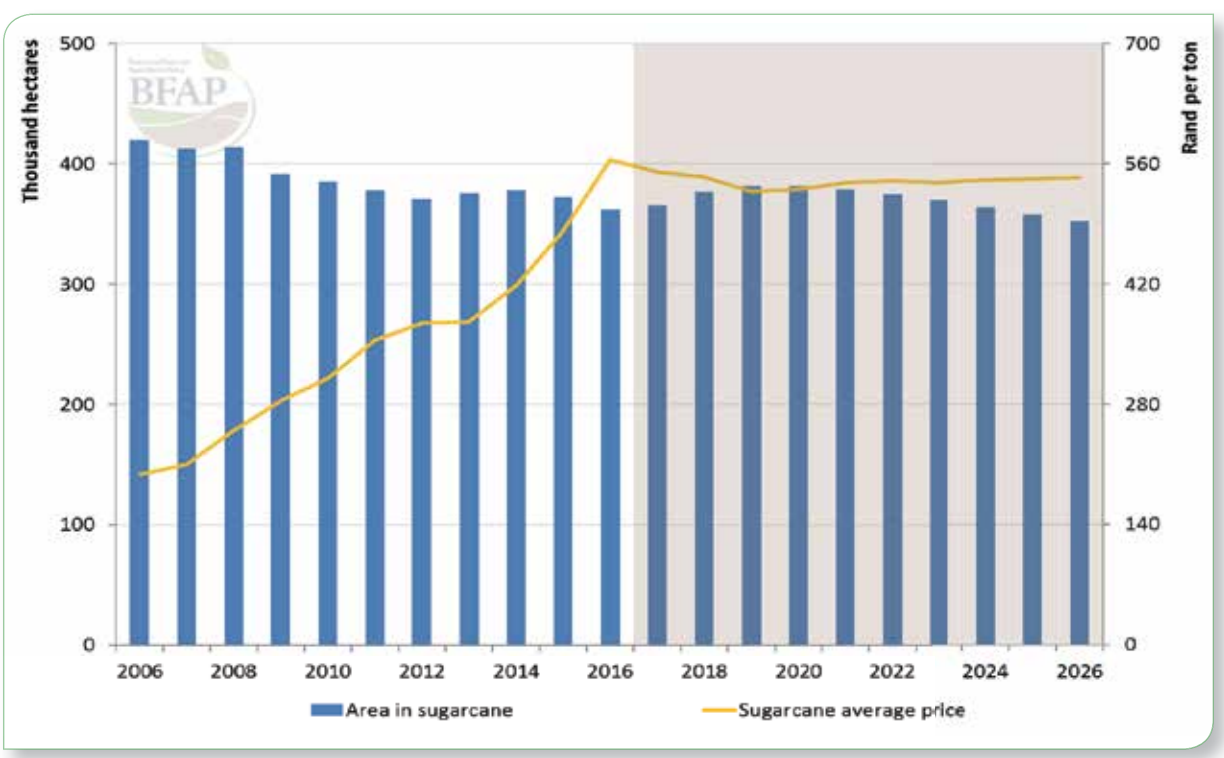


Figure 65: Sugarcane area and price: 2006 - 2026

Africa, specifically for ethanol and cogeneration of electricity is currently not viable. The SA government's ethanol production programme has for all practical reasons come to a halt and will likely only resurface if oil prices return to US$100 levels. With load shedding for now forgotten, and Eskom focussing on seemingly more pressing matters, renewable energy and cogeneration is not a priority and the cogeneration tariff announced by the Department of Energy is too low to justify investment by independent parties.

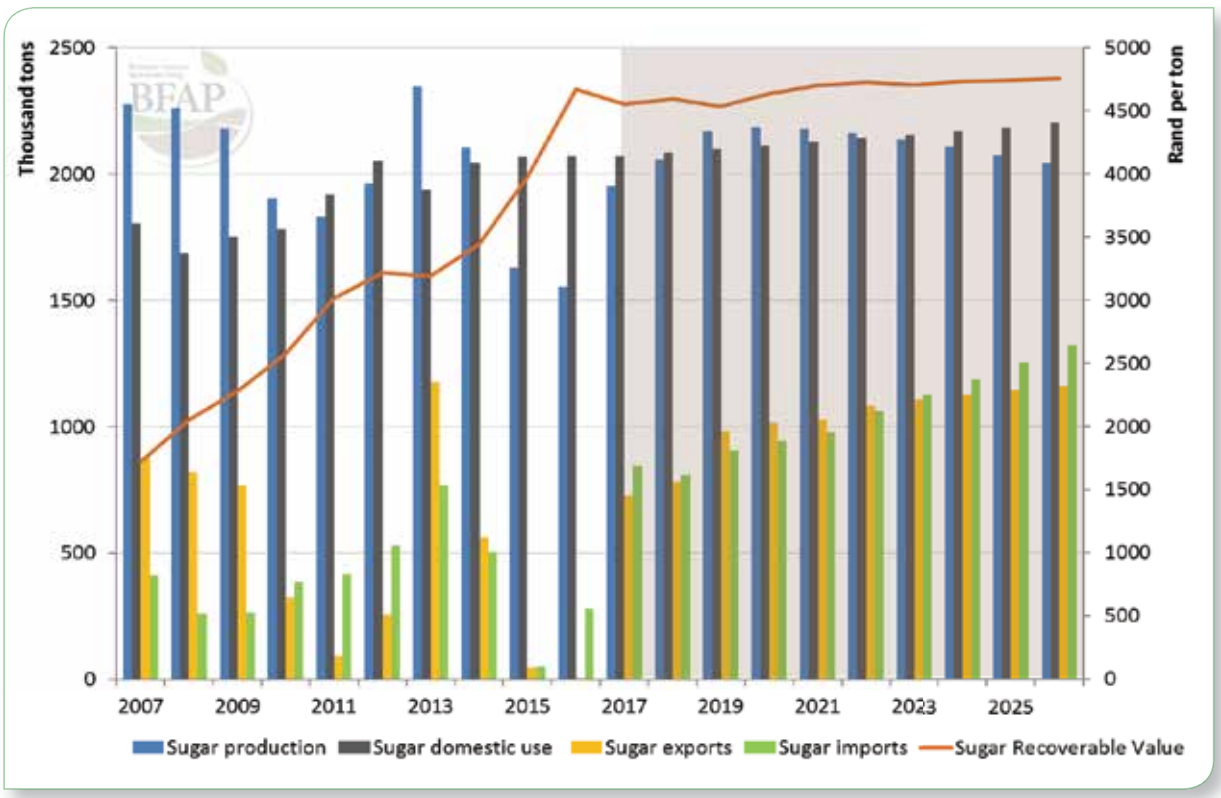
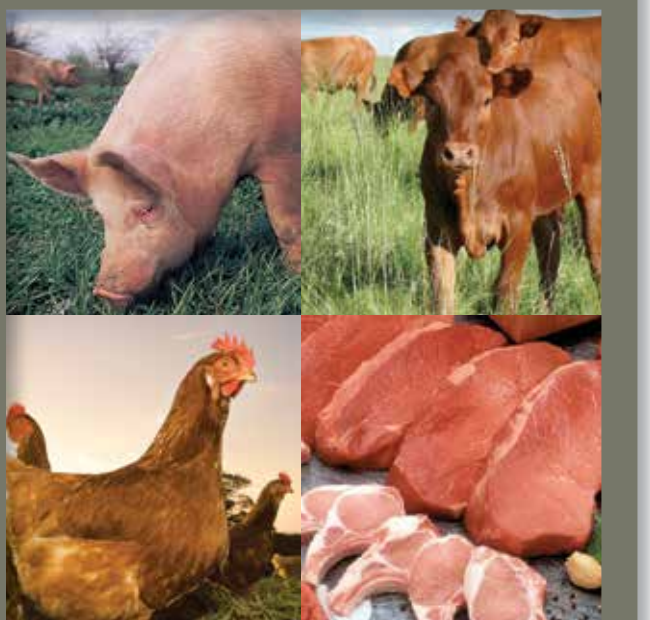


Figure 66: Sugar production, consumption, trade and the RV price: 2007-2026



OUTLOOK FOR ANIMAL PRODUCTS

After an extended period of high and volatile feed prices globally, the cycle has swung firmly in favour of livestock industries over the past 3 years.

MEAT

Meat – global

After an extended period of high and volatile feed prices globally, the cycle has swung firmly in favour of livestock industries over the past 3 years. However, the extent and timing of the supply response remains governed by the length of the production cycle associated with individual meat types. Beef prices for instance have declined since 2015, but the decline is slow given the time required to rebuild liquidated herd numbers in key production regions. International beef prices remain in a downward cycle and are expected to bottom out in 2020, before increasing marginally over the second half of the projection period. By contrast, pork and particularly poultry producers were able to respond much quicker to improvements in profitability, resulting in a quicker and sharper price decline from the peaks of 2014. In these markets, prices are expected to bottom out in 2017, in line with most major feed grains, before trending moderately upwards over the course of the outlook period (Figure 67).

The OECD-FAO expects global meat production to increase to almost 40 million tons by 2026, an increase of approximately 12% relative to the 2014-2016 base period. The bulk of growth will occur in developing countries that face fewer constraints related to environmental regulations, and have greater availability of natural resources for production. Poultry is most efficient at converting feed to meat and will account for the greatest share of additional meat production, overtaking pork as the most produced meat globally. Global meat consumption is expected to increase by an annual average of more than 1% over the 10-year period, supported by rising income levels, but also higher population growth rates and rapid urbanisation in the developing world.

The OECD-FAO argues that animal disease outbreaks and trade policies remain the core uncertainties surrounding meat market projections. This is increasingly true in an environment where export markets are becoming more and more concentrated – evidenced by the fact that Brazil and the United States account for more than 60% of the projected growth in global meat exports over the next ten years. The implementation of various trade agreements over the outlook period could increase and diversify meat trade.

Meat and eggs – South Africa

Over the past decade, growing income levels, sustained trends of urbanisation and improved living standards have supported dietary diversification in South Africa, resulting in the inclusion of more protein in typical diets and rapid growth in meat

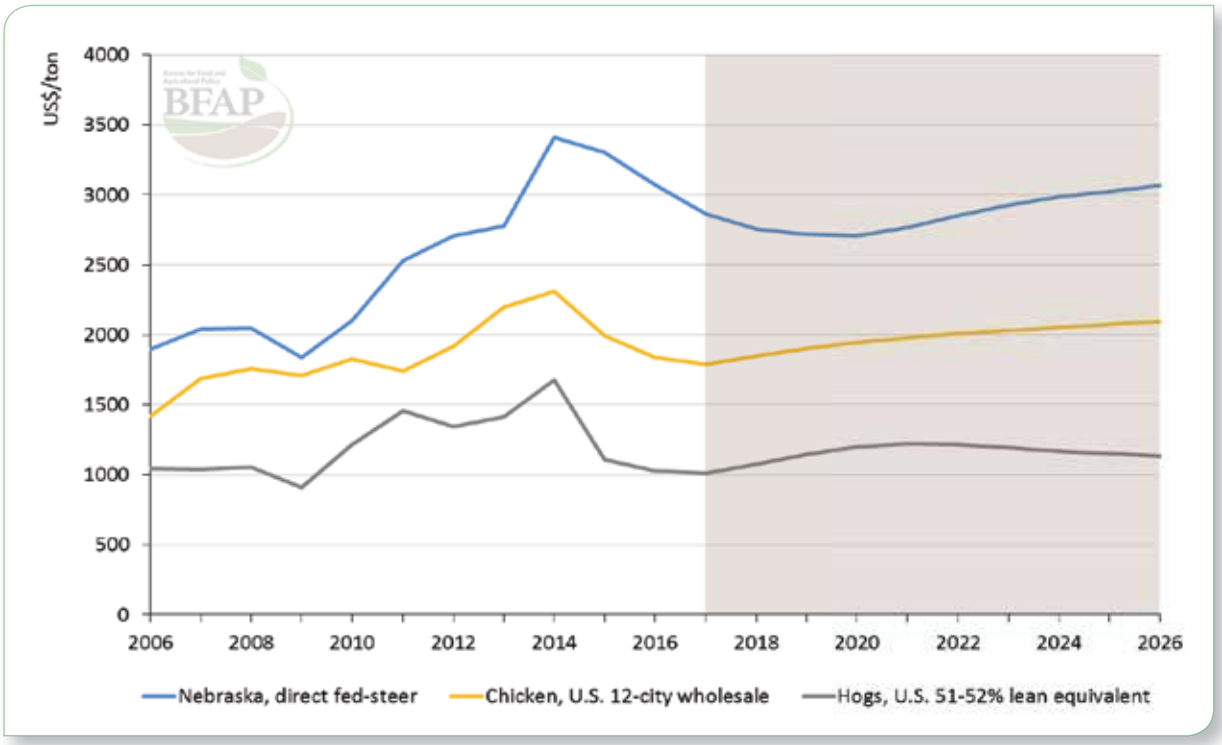


Figure 67: World meat prices
Source: FAPRI & BFAP, 2017

consumption. This is particularly evident in the poultry sector, which represents the most affordable source of meat. Total consumption of chicken increased by more than 2% per annum over the past decade, compared to growth of 1.6% per annum in the beef industry. In the coming decade however, income growth is projected to slow significantly, even declining on a per capita basis in the short term. As a result, consumption growth is expected to slow relative to the past decade for all meat types (Figure 68).

In a lower income environment, affordability is key and thus chicken consumption is expected to expand by an annual average of 1.9% over the ten-year period. This implies that almost 450 thousand additional tons of chicken meat will be consumed by 2026 relative to the 2014-2016 base period, an expansion of 23%. Eggs also provide an affordable alternative and consumption is expected to expand by 22% over the ten-year projection period. By contrast, sheep meat represents the most expensive meat option and consumption is expected to grow by a mere 5% relative to the 2014-2016 base period. However, meat cannot simply be categorised based on affordability ex abattoir, as a wide range of products of different value is sold at retail level. Some beef cuts for instance provide affordable alternatives to chicken when meat consumption starts to diversify, whereas higher value cuts compete more directly with lamb. Within the higher value red meat products, higher income consumers are less sensitive to economic factors, with demand also influenced by tastes and preferences. Total beef consumption is expected to expand by 19% over the 10-year period, with 140 thousand additional tons of beef being consumed in 2026 relative to the 2014-2016 base period. Pork is another meat type which provides an affordable alternative when sold fresh, but more than half of the market at retail level comprises products where significant value has been added. Consumption is projected to expand by 30% - a similar rate to the past decade. Expansion is off a small base however and implies that an additional 74 thousand tons will be consumed by 2026 relative to the 2014-2016 base period (Figure 68).

The extent to which domestic production will need to be supplemented with imported products in order to meet demand growth, will depend on South African producers' profitability and how well they compete in the global context. Figure 69 indicates that South African meat to grain price ratios have moved counter to international cycles in recent years due to the drought. It illustrates meat to maize price ratios in the domestic and global market as an indicator of the profitability of livestock production. The cycle swung firmly in favour of livestock producers in the global market post 2014, but in South Africa, profitability came under immense pressure as feed costs spiralled. Profitability is however expected to return to intensive livestock production in 2017, as feed prices

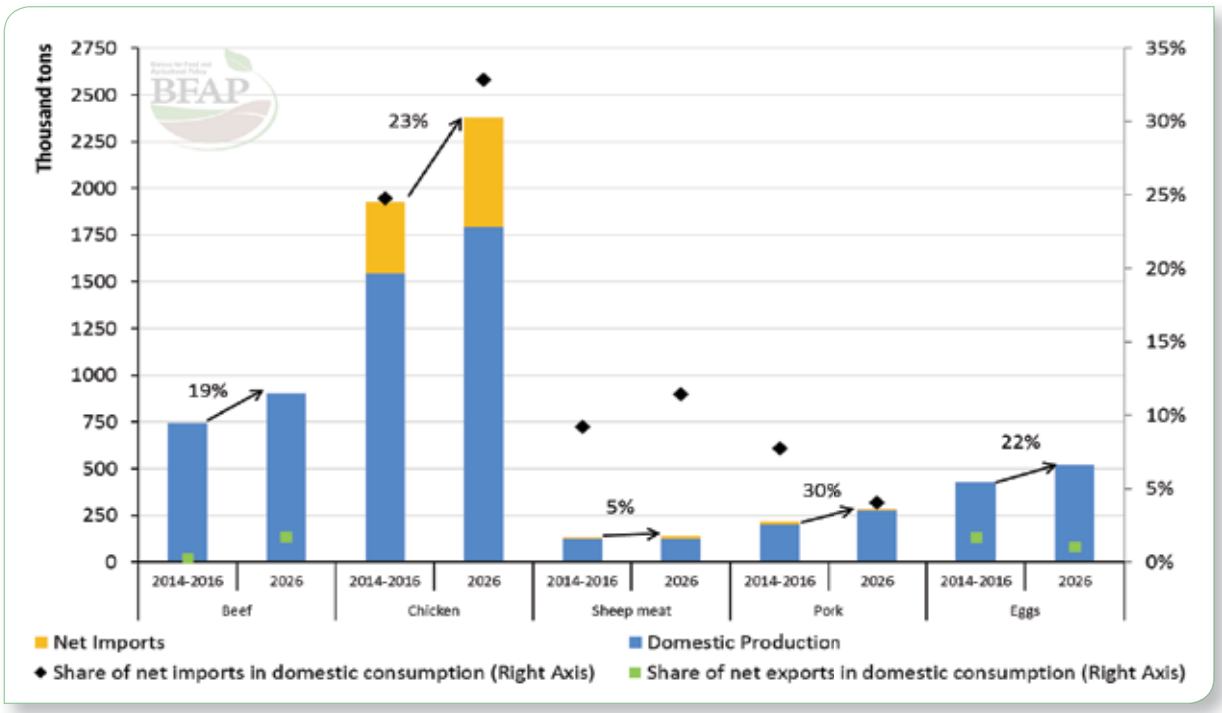


Figure 68: South African meat consumption – 2026 vs. 2014-2016 base period

decline on the back of a record harvest. At the same time, meat prices remain high, supported by limited availability of particularly beef following herd liquidation through the drought period. The domestic beef to feed price ratio increases well above international ratios over the projection period, implying that South Africa will be competitive relative to the global equivalent, therefore supporting the rising share of net exports in domestic consumption (Figure 68). Profitability in poultry production also improves, but the South African ratio remains below international counterparts. This supports the rising share of imports in domestic consumption, even if the rate of import growth slows significantly relative to the past 3 years.

The impact of the drought over the past 2 seasons, as well as the extent of South African producers' response to improvement in profitability now that feed prices have declined, is dependent on differences in price formation, feed use intensity, as well as the length of the production cycle inherent to different livestock subsectors. Profitability in beef production has increased, but indications are that the national cow herd was reduced by up to 15% relative to 2013 through the drought. Herd rebuilding takes time and it typically takes 2 to 3 years for supply to start increasing, which further reduces the number of cattle available for slaughter in the short term. This impact is already evident in historic slaughter numbers – Figure 70 indicates that slaughter volumes were well above historic norms through the second half of 2015 and 2016, before decreasing in the first four months of 2017. Within typical cyclical trends, slaughter volumes are expected to remain at lower levels for the remainder of 2017, resulting in a decline of 15% year on year, before increasing by 5% in 2018. The impact on production volumes will be smaller however given that lower feed costs will enable producers to increase slaughter weights substantially.

The effect of reduced supply is already evident in the market, with beef prices expected to increase by almost 23% year on year in 2017. A further increase of just over 2% is projected for 2018, before entering a marginally downward trend as the effect of current herd rebuilding becomes evident in the market. Over the 10-year projection period, production is expected to expand by 20% relative to the 2014-2016 base period, to reach almost 900 thousand tons by 2026. This will be sufficient to supply domestic demand growth and retain exports at current levels (Figure 71). Rapid growth in export volumes following South Africa's declaration as free of Foot and Mouth disease has been an important factor in beef markets through the drought period. Firm export demand for high value cuts in premium markets in the Middle East supported prices despite increased slaughters and, contrary to historic drought periods, prices increased in 2015 and 2016.

While rapid growth in exports (Figure 72) have created a structural shift in beef markets, it has also resulted in South African markets trading closer to global trends than has been the case historically. South African producers will therefore also be exposed to the decline in global beef prices over the

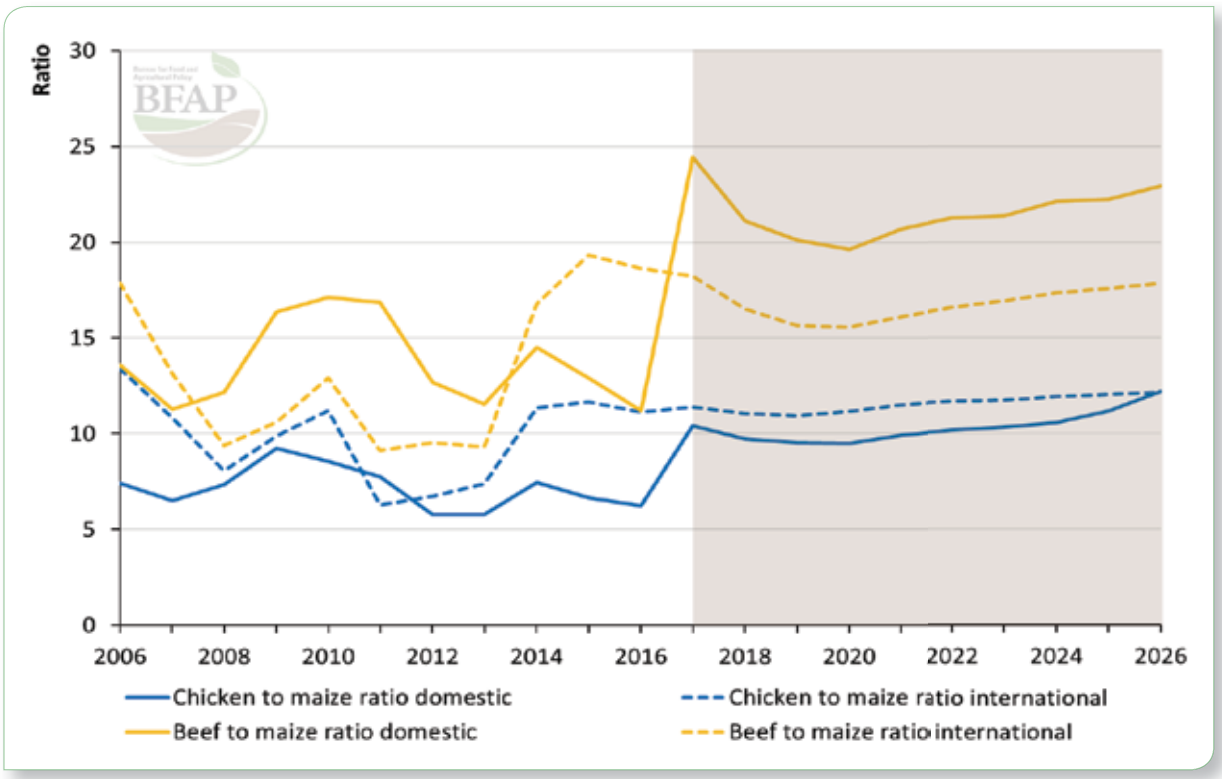


Figure 69: Meat to maize price ratios: South Africa vs. United States

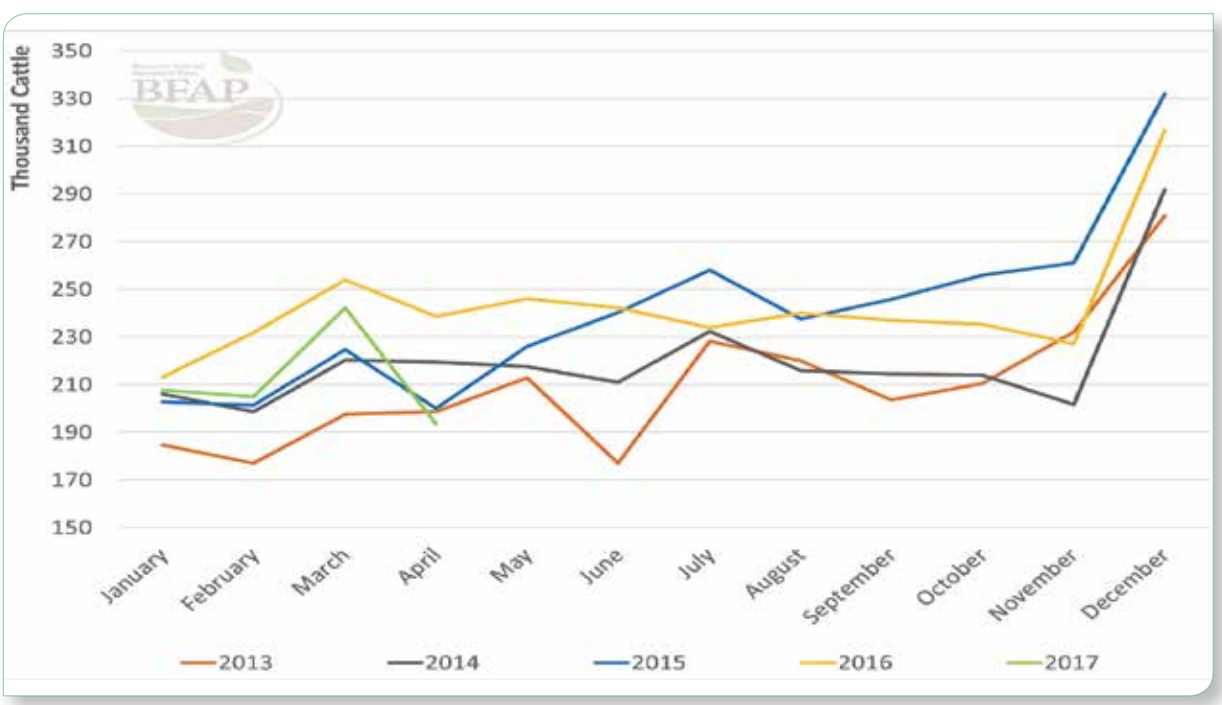


Figure 70: Cattle slaughters in South Africa: 2013-2017

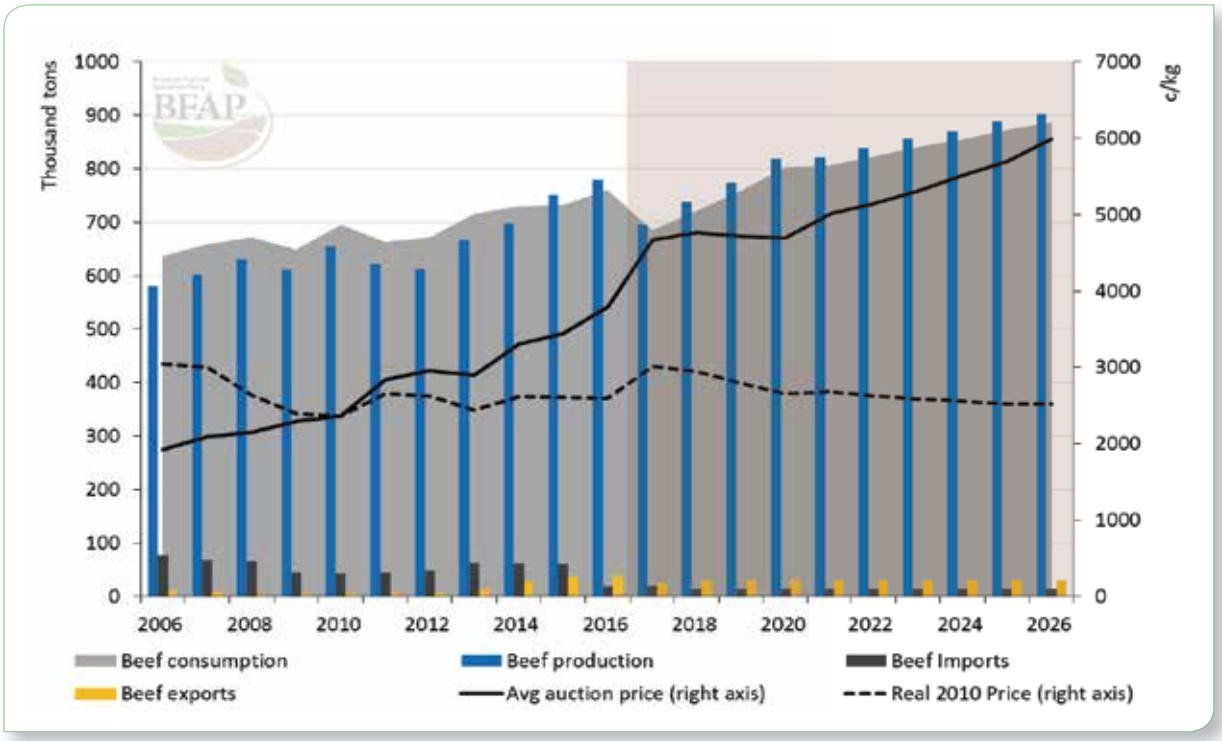


Figure 71: SA beef production, consumption and price

next 3 years through greater competition in the export market, and following the sharp increase in domestic prices, export growth is expected to slow. Nonetheless, volumes are projected to stabilise well above pre-2014 norms and South Africa is expected to remain a net exporter of beef over the next 10 years. The combination of additional supply and the reduction in world prices will however curb further price increases over the projection period and the annual average increase of 4.4% is not enough to exceed general inflation. Consequently, prices are set to decline in real terms post 2017.

The drought conditions also influenced weaner calf production, both directly through increased supply under poor pasture conditions, and indirectly through weaker demand in the face of increased feed costs. Supported by strong exports, demand for calves did not weaken to the same extent as previous drought years and hence calf prices also sustained its levels fairly well. Nonetheless, the year on year increase of 4% in calf prices was less than half of the 10% increase evident in beef prices. 2017 represents a typical year where reduced maize prices also influence the calf market. Prices are supported by strong demand as a result of lower feed costs and supply is restricted in the face of herd rebuilding efforts. Supply limitations are further exacerbated by maize producers who also manage livestock enterprises, as they would typically aim to realise a higher value for their maize by feeding it to calves which are not marketed immediately. This combination of supply and demand dynamics is expected to support an increase of more than 50% in weaner calf prices in 2017 to more than R30 per kg (Figure 73). Thus, the calf to maize ratio also increases to levels last witnessed in 2010. In the medium term, firm demand from feedlots support calf prices to increase marginally faster than beef, resulting in a slightly increasing trend in the calf to beef price ratio towards 2026.

As the largest contributing sector to gross agricultural production value, the South African chicken industry is important within South African agriculture. It has found profitability under pressure for a number of years due to the combination of spiralling feed costs and rising import levels. The bulk of the increase in imports have been very specific cuts, imported duty free from the EU. These cuts of EU origin represented 38% of total imports in 2016, relative to a mere 2% in 2010 (Figure 74). The premium obtained in the EU for high value cuts allows producers to sell bone-in portions, for which domestic demand in the EU is more limited, at very competitive prices in other parts of the world whilst remaining profitable. South African producers' ability to compete with these cuts was further hampered by the drought induced high feed prices domestically – during a period of declining feed prices globally.

Chicken prices are expected to increase in 2017, due to a

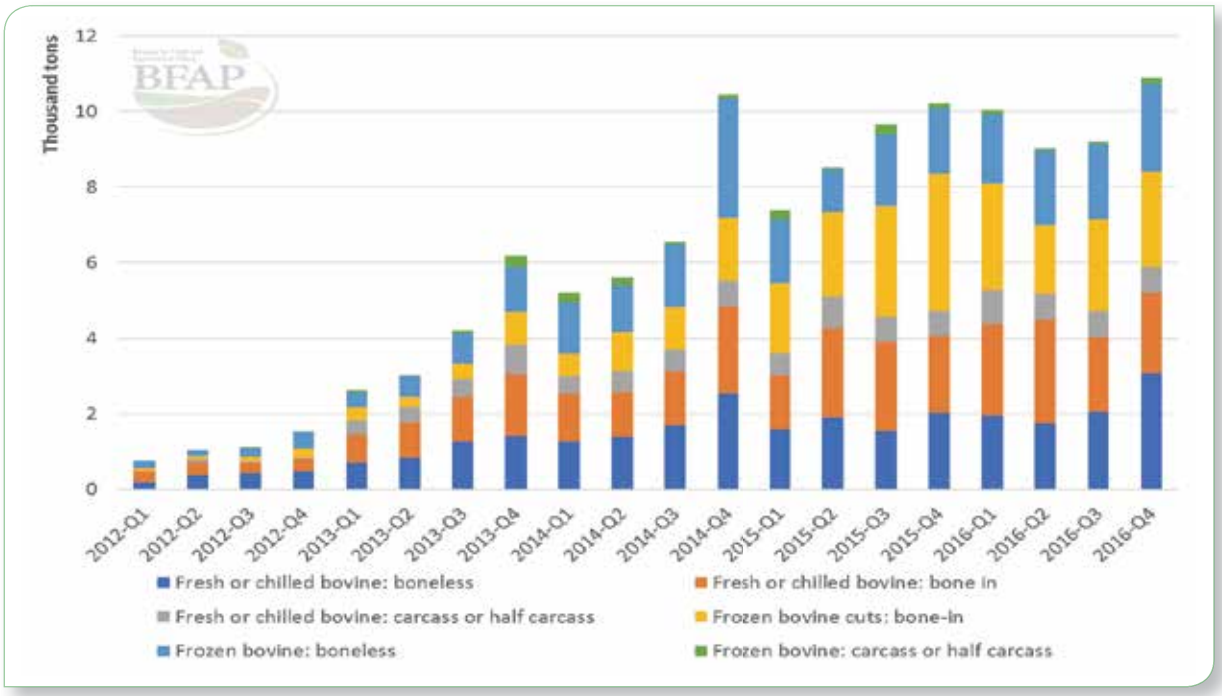


Figure 72: Growth in South African beef exports

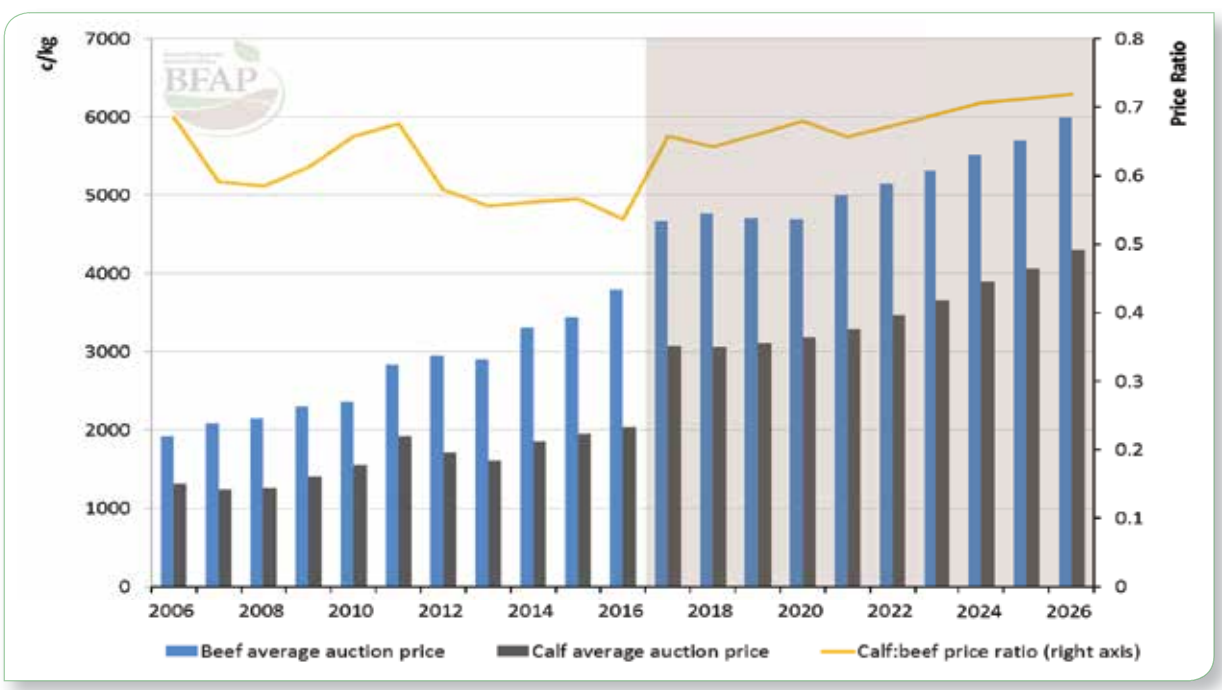


Figure 73: SA beef price versus calf price

combination of high beef prices and the short-term reduction in imports from the EU resulting from the Highly Pathogenic Avian Influenza (HPAI) outbreak in Europe. Combined with the reduction in feed prices on the back of a record maize harvest, profitability indicators have improved greatly. Over the course of the Outlook however, the challenge posed by imported cuts is unlikely to go away, even if the preliminary safeguard duty introduced by ITAC is retained at the conclusion of the dumping investigation. Thus, even under the assumption of stable weather conditions, the chicken to maize price ratio is expected

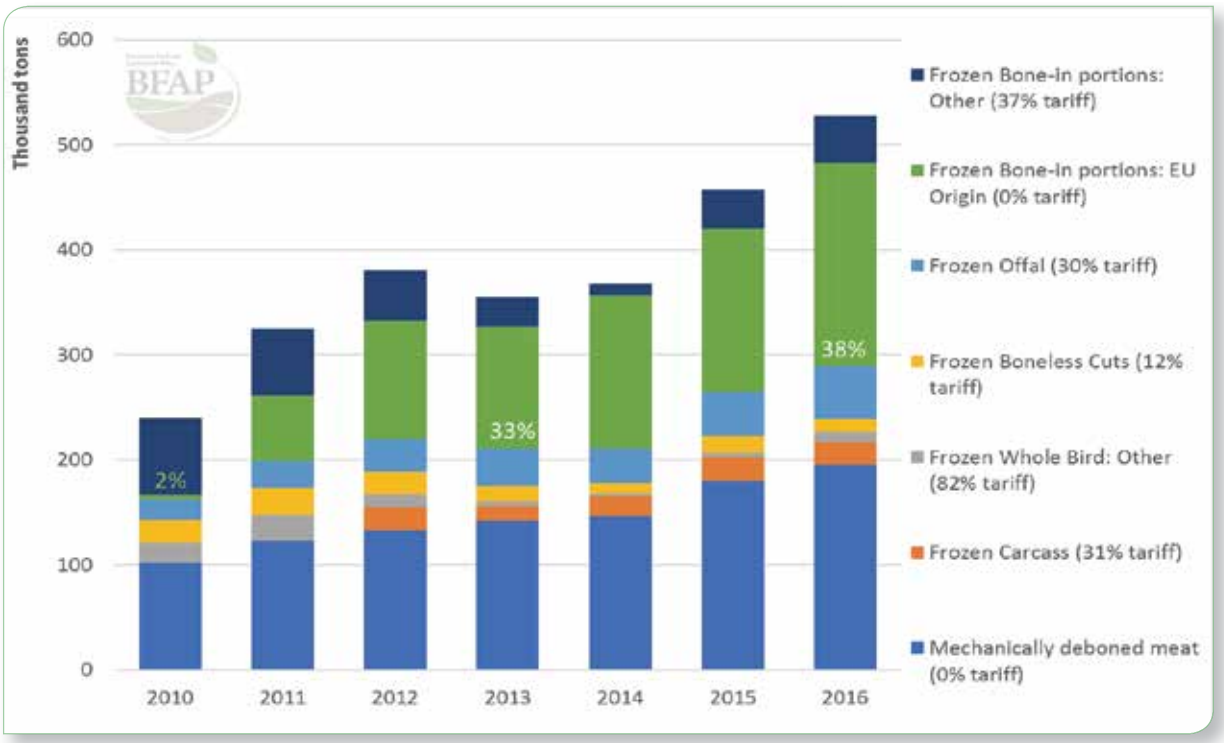


Figure 74: South African chicken imports: 2010 - 2016

Box 5: Importance of food safety AND country-of-origin to consumers

The Brazilian meat scandal in March 2017 caused some concerns among South African consumers regarding the safety of Brazilian meat exported to our country. From a legislative point of view, the Consumer Protection Act 68 of 2008 specifies that the origin and content of meat products have to be communicated to the consumer. In order to protect consumers, South African authorities have to set up or improve food safety and quality systems and audits which, at the minimum, are at a similar level to what is expected of South African meat producers.

How important is meat safety and origin to South African meat consumers?

Recent consumer research conducted for Red Meat Research and Development SA tested consumers' valuation of certain meat attributes among a representative sample of South African consumers. Table 10 presents a summary of the share of the different sub-samples viewing certain meat attributes as 'very important'. Price and food safety were very important to most consumers in the study – stressing the importance of affordable and safe meat to local consumers. For country-of-origin, about 40% of middle- and high-income consumers viewed the attribute as 'very important' decreasing to about 30% for the traceability attribute. However, a potential food scare linked to the safety of imported meat could rapidly increase consumers' awareness of and need for country-of-origin labelling and traceability systems that they can trust.

Considering a scenario where South African consumers develop a significant distrust in imported meat, which is often the most affordable option available on retail shelves, it would be interesting to understand how much of consumption would shift to locally produced meat options – even though it will come at a higher price.

Table 10: Share of consumers in recent RMRD-SA study viewing price, food safety, country-of-origin and traceability as 'very important' when buying meat

	Low-income sample:	Middle-income sample:	High-income sample:
Price	95%	89%	91%
Food safety	95%	79%	94%
Country-of-origin	-	39%	44%
Traceability	-	32%	27%

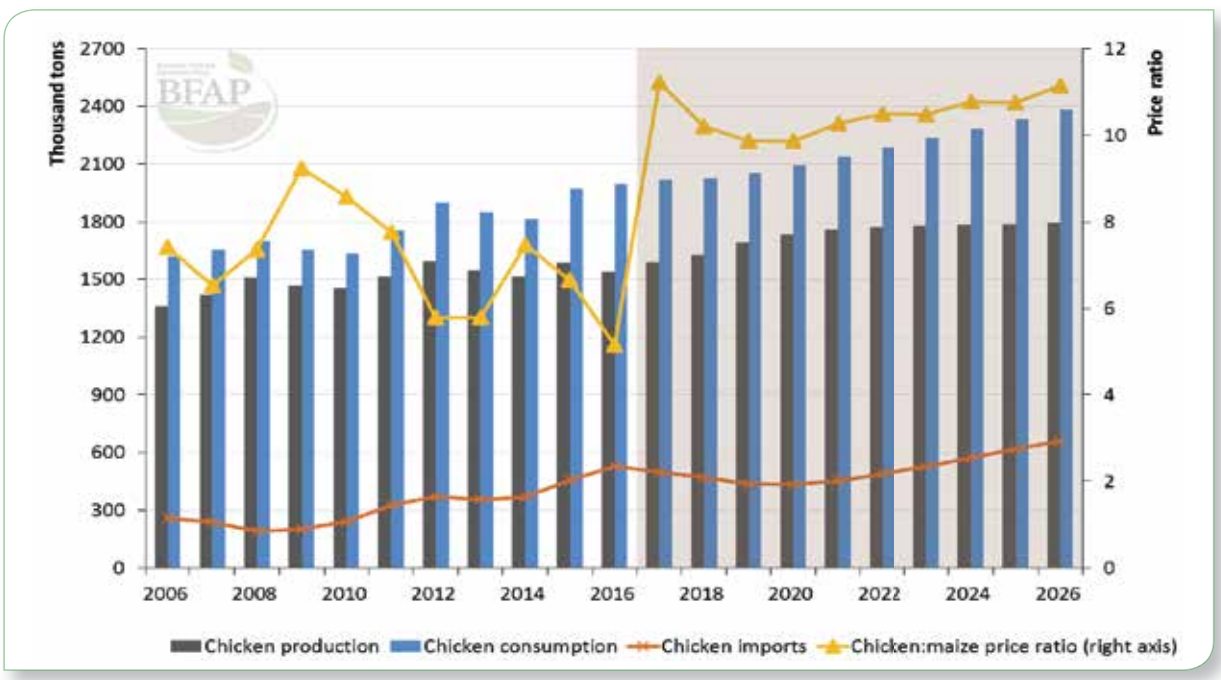


Figure 75: SA chicken production, consumption, imports and chicken-maize price ratio

to decline once more in 2018 and 2019, but over the course of the outlook, it is still projected to stabilise at favourable levels relative to the past decade. It does however not reach the levels attained in 2004, which induced large scale expansion of chicken production. The return to profitability will support the wider agricultural sector, as chicken production provides the greatest offtake in the animal feed market and is therefore a key driver of maize and protein meal demand.

Over the course of the projection period, chicken meat production is expected to expand by almost 1.5% per annum to reach 1.8 million tons by 2026. This remains insufficient to supply all the demand growth, resulting in rising import volumes, but at a much slower rate relative to the past 3 years. South African producers' ability to compete with imported cuts will depend on the extent to which they are able to maximise carcass value going forward. Individually Quick Frozen (IQF) pieces represent the bulk of the domestic market, but imports of bone-in portions are likely to continue and strategies that reduce exposure in the IQF market will reduce the impact of such imports on profitability. The industry is also exploring the possibility of growing exports, a strategy that has been very successful for beef producers in recent years. In order to do so, competitiveness in the global context is critical.

A review of South Africa's technical and economic efficiency relative to other global producers, conducted by BFAP in collaboration with Wageningen University in the Netherlands, suggests that South African producers compete well on a technical basis, but are challenged when costs are included. Figures 76 and 77 compare total broiler production costs in South Africa to a number of leading producers globally. Figure 76 shows actual production costs in 2015 overlayed with actual imports by country of origin, whereas Figure 77 highlights the deviation in total production costs per country relative to South Africa in 2013 and 2015. It suggests that South African

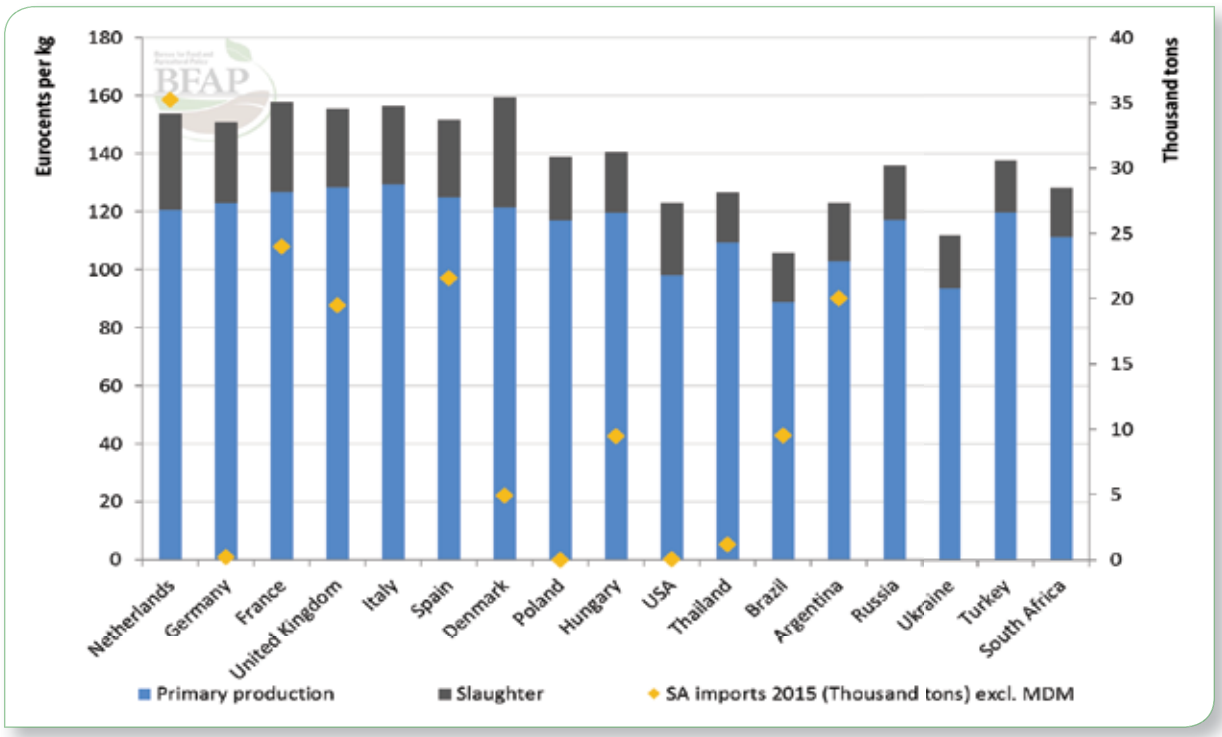


Figure 76: Chicken production costs in South Africa relative to selected global producers

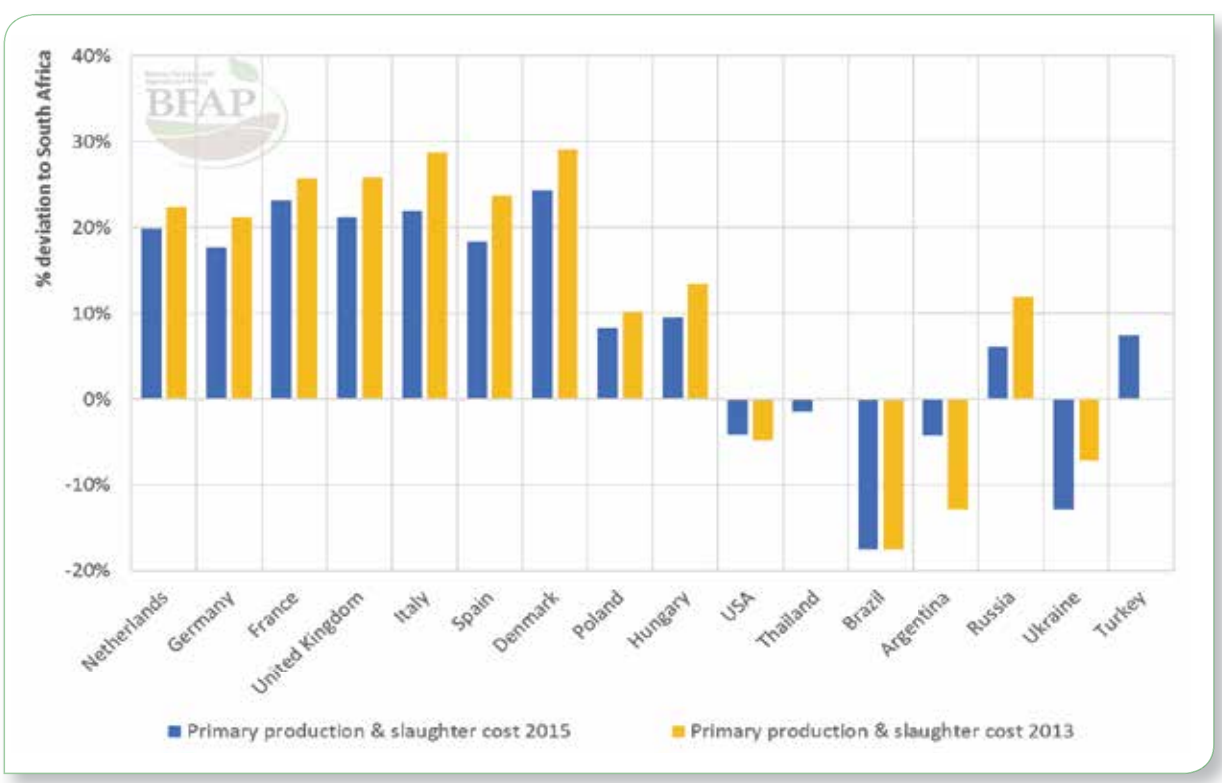


Figure 77: Deviation in total chicken production costs of selected global producers relative to South Africa

producers are able to compete with EU producers on the cost of producing a whole bird, but production costs in the USA, Brazil, Argentina and Ukraine remain below that of South Africa. These countries are net exporters of key feed materials such as maize and protein meal and therefore have a significant advantage in the cost of feed, and hence also the cost of day old chicks. It suggests however that successful exports will require a favourable transport differential or preferential trade access relative to these producers. Presently, the industry is exploring opportunities in the Middle East.

Eggs provide another important source of affordable protein to South African consumers, but contrary to chicken production, trade accounts for a limited share of the South African egg market. Hence the impact of international price movements is more limited compared to meat markets. Its reliance on intensive feed grain use however also makes the sector vulnerable to high feed costs, which have impacted on profitability in the recent past. Following a recovery in the egg to maize price ratio in 2014, egg production increased in 2015 for the first time since 2012, yet the impact of the recent drought resulted in stagnant production in 2016. Following the reduction in feed prices in 2017, the egg to maize price ratio increases well above that of the past 6 years, resulting in a 4% increase in production year on year and a further expansion in 2018. Following an initial decline on the back of a reduced maize crop in 2018, stable weather conditions over the outlook allows egg prices to expand faster than that of maize and hence the egg to maize ratio is projected to increase over the projection period. This is expected to induce an average annual expansion of 1.8% in egg production over the course of the next decade. Whilst slower than the 2.8% achieved over the past decade, production growth is sufficient to match demand growth and South Africa is expected to remain a small net exporter of eggs by 2026.

Pork represents a small industry in the South African meat complex, accounting for less than 8% of total meat consumption from 2014 to 2016. Being a smaller industry, prices tend to be led by substitute meat types such as beef and poultry, but the feed intensive nature of production makes profitability particularly sensitive to rising feed costs. Consequently, profitability also came under pressure over the past 2 years as a result of the drought, despite a 7% year on year increase in pork prices in 2017. Maize represents the core energy source in the feed ration and the pork to maize price ratio can be considered a basic indicator for profitability. While maize prices have declined as a result of the bumper harvest, pork prices have found support from higher beef prices and the pork to maize price ratio is expected to improve drastically in 2017 to mark a return to profitable production. Even after the downward adjustment over the next 2 years, the pork to maize price ratio remains well above the recent past, supporting expansion to exceed 270 thousand tons by 2026 (Figure 79). This is sufficient to supply rising demand and over the course of the Outlook, the share of imports in domestic consumption continues to decline, reaching 7% by 2026 from 11% in 2016. Most of these imports tend to originate from Europe.

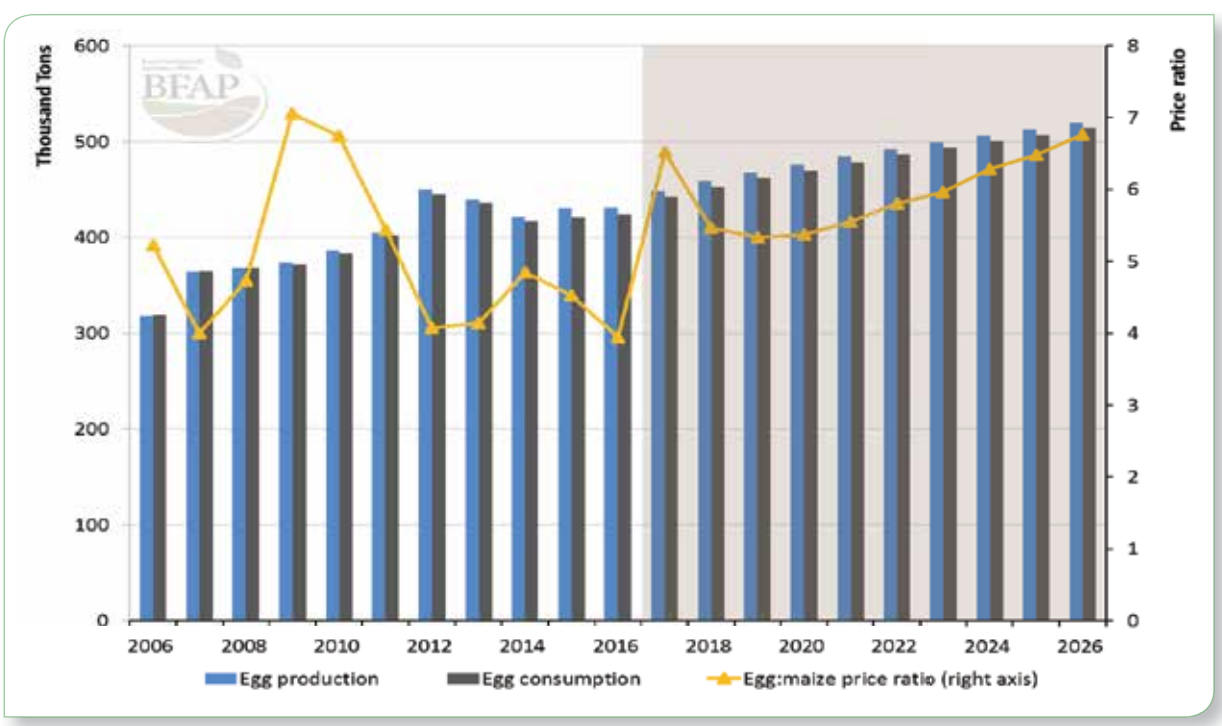


Figure 78: SA egg production, consumption and egg-maize price ratio

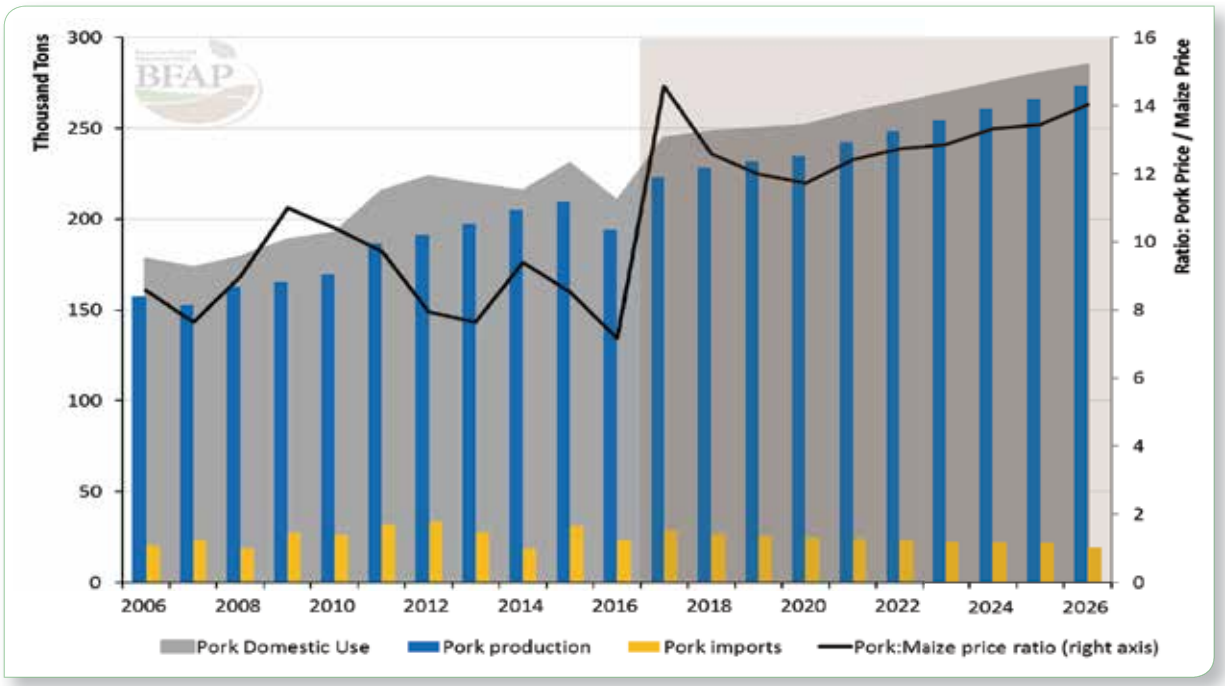


Figure 79: SA pork production, consumption, imports and pork to maize price ratio: 2006 - 2026

Figure 80: Relative production costs of selected global producers in 2015

South Africa is a very small player in the global context, but producers have access to top genetic material and an evaluation of production costs in selected global producers suggests that South African producers compete well with European counterparts. Figure 80 illustrates the cost structure of the finishing enterprise in South Africa relative to leading global producers in 2015, as obtained by the international agribenchmark initiative. Feed accounts for the greatest share of total costs and given that 2015 was a dry year in South Africa and good harvests in Europe, South African producers position could typically improve in a year of more normal harvests. Despite South Africa's competitive position, the composition

of imports, which consist mainly of ribs and ham, suggests that they have a balancing role to play in the market and are therefore unlikely to disappear completely.

Lamb and mutton production are also sensitive to weather impacts as a result of it being produced in an extensive, pasture based system. The reliance on imported products to supplement domestic consumption also makes the market sensitive to market impacts from major exporting regions such as Australia and New Zealand. Globally, lamb prices have been on a declining trend since mid-2014, but exchange rate depreciation has mitigated much of this impact in domestic markets. Consequently, lamb prices increased by 10% year on year in 2016, despite higher slaughter volumes through late 2015 and early 2016. Indications are that the national sheep flock was reduced by almost 11% year on year as a result of drought induced slaughters.

As is the case with beef, flock rebuilding takes time, even when conditions have improved significantly. However, the sheep production cycle is shorter than that of beef and, following an initial reduction of 11% year on year in 2017, the first increase in production is expected in 2018. Production is projected to increase slowly but consistently through the projection period to reach 125 thousand tons by 2026. This remains insufficient to cover additional demand, leading to rising imports from 2022 onwards. In the medium term, nominal lamb prices are projected to increase by an annual average of just under 5%, led by import parity levels. Accounting for general inflation implies a marginal decline in real terms.

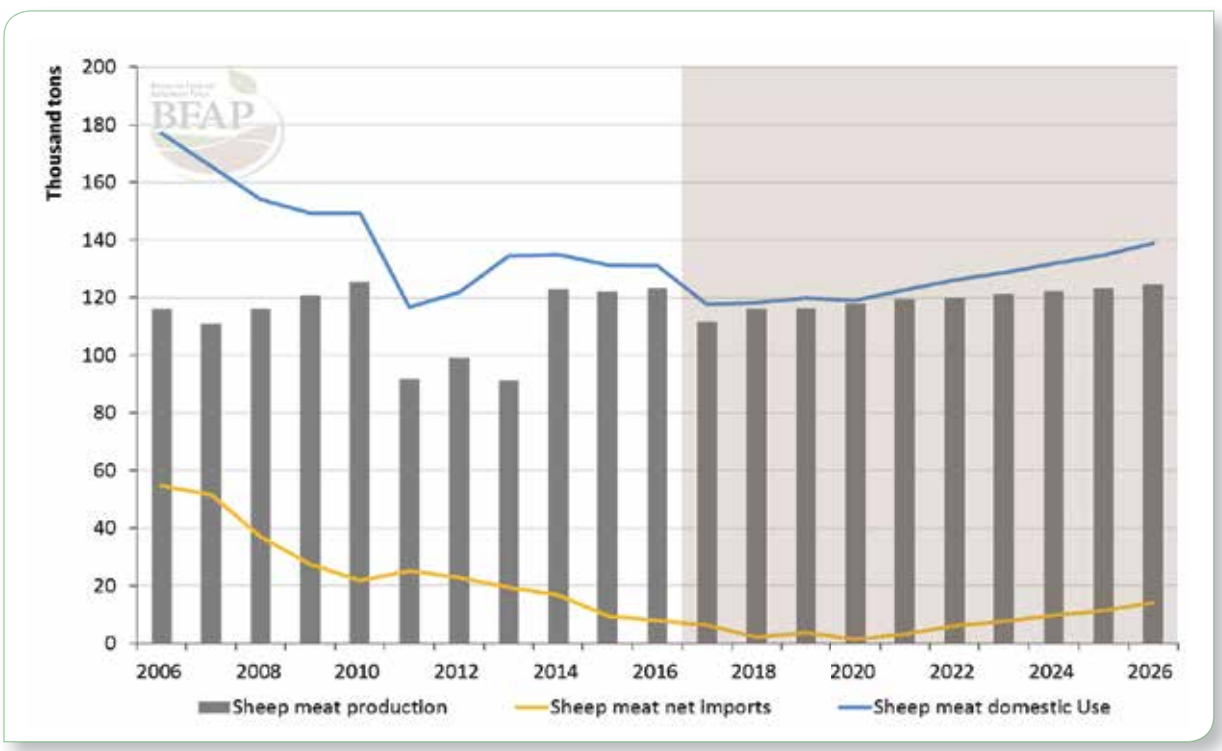


Figure 81: Sheep meat production, consumption and imports

Box 6: Wool production in South Africa – success for small scale production programs

Within the total SA agricultural sector, wool production is a relatively small industry, contributing about 1.5% of gross agricultural production value in 2016. Nevertheless, the industry added almost R3.4 billion to the South African economy and provided 3.4% of total agricultural export value in 2016. With the decline of the SA textile industry, more than 90% of the wool produced in SA is exported.

Globally, the demand for wool has grown significantly over the past decade. From 2006 to 2016, the total value of wool imports worldwide has expanded by an annual average of 3.5%. As in many agricultural commodities, growth was underpinned by rapid expansion in China, where total import demand increased by an annual average of 6.4% over the same period. Impressive economic growth in China supported growing affluence in the general population, underpinning the demand for

wool products, which is perceived as luxury products. While growth in the Chinese economy has slowed in recent years and is projected to slow down more in the coming decade relative to the past, the conscious shift to a more consumer based economy is expected to support the demand for wool going forward.

SA is the 11th largest wool producer in the world and supplies just under 3% of global export value (almost 6% of global export volume). The bulk of such exports are destined for China (Figure 82), where SA has been able to capture a significant share of the demand growth. After Australia, SA is the second largest exporter into China and from 2006 to 2016, South Africa's share in total Chinese import value has increased from 2% to 8.4%. Domestic price trends also show a close correlation to Chinese import prices.

Figure 82: Value of South African wool exports and prices: 2005 to 2016
Source: ITC Trademap, 2017

The fact that SA exports almost all of its wool production into a growing world market suggests that there exists substantial opportunity for production growth. Wool trading facilities in the Eastern Cape are sufficient to handle a substantial increase in sales volume, but wool production growth in South Africa has increased by only 1.3% per annum over the past decade. In some regions however, growth has been faster. For example: The Eastern Cape, which is South Africa's poorest province but produces more than 30% of the national wool clip, has expanded by an annual average of 2.3% per annum over the same period. Production in Gauteng and the North West has also expanded rapidly, by more than 6% per year, but from a much smaller base. By contrast, growth was much slower in the Western and Northern Cape at 0.7% and 1% p.a. respectively, while it declined in the Free State (Figure 83). Challenges to faster growth include livestock theft and predation, while rift valley fever had a substantial negative impact on the SA flock from 2008 to 2011.

A significant share of the growth in the Eastern Cape has also come from smaller producers farming with sheep in communal areas, which supports the assertion that the industry has significant potential for inclusive growth, rural development and utilisation of more marginal land. In 1997/98 communal farmers produced 222 610 kg of wool valued at R1.5 million. By 2014/15 the contribution of these communal farmers had increased to 3.58 million kg of wool, valued at R130 million.

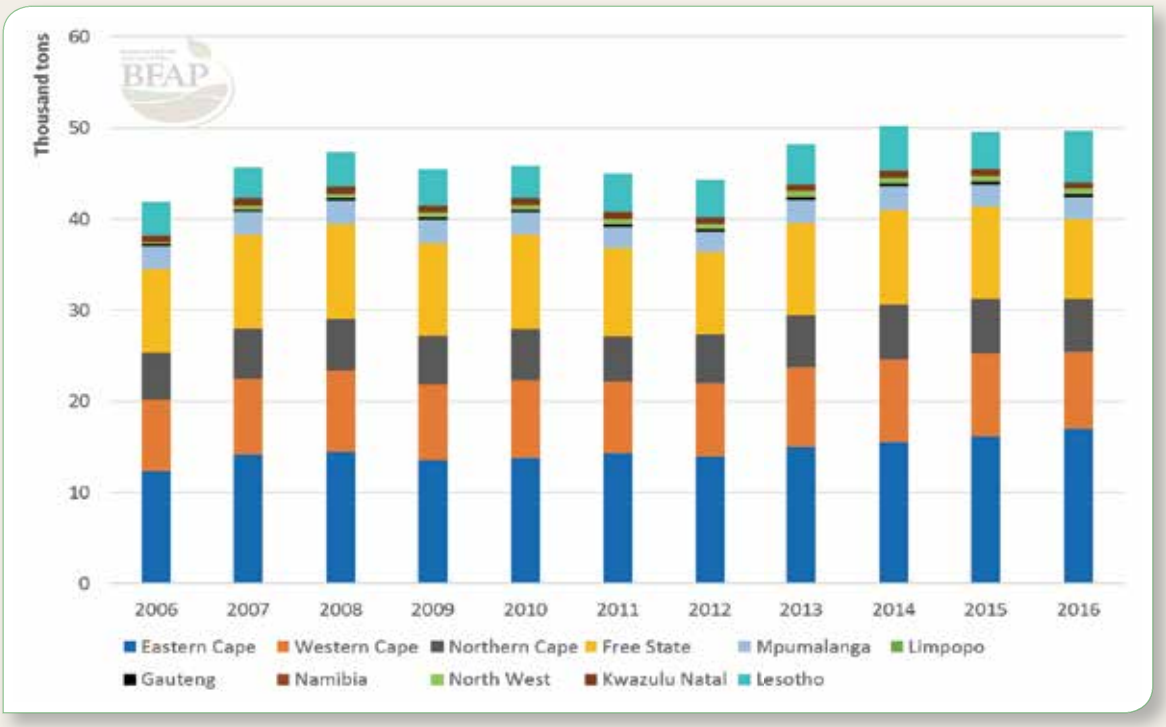


Figure 83: South African wool production trends: 2006 to 2016
Source: Capewools, 2017

In this regard, the extension program of the National Wool Growers Association (NWGA) has been very successful. Through this program, the NWGA has been supporting wool growers in communal areas in the Eastern Cape since 1997 in collaboration with DRDLR. This Training and Development for Communal and Emerging Wool Farmers programme has directly assisted over 24 480 small-scale farmers between 1997 and 2014. The main focus of the programme is to improve management and shearing infrastructure, training of farmers, and genetic improvement of communal sheep flocks through introduction (swopping) of rams with better genetics. In 2015/16, 2 973 rams were introduced, benefitting 308 communities. Since 2002, more than 40 000 rams have been introduced.

OUTLOOK FOR ANIMAL PRODUCTS

Dairy prices are notoriously volatile, owing to its sensitivity to erratic weather conditions, both directly through productivity gains under ideal climatic conditions and indirectly through increased feed use during periods of lower feed grain prices

MILK AND DAIRY PRODUCTS

Milk and dairy – Global

Global trade in dairy products grew strongly at an annual average rate of 6% from 2009 to 2014, before stagnating in 2015 on the back of weaker purchases from China and the embargo by the Russian Federation on imports from several countries. This decline in import demand was accompanied by unprecedented increases in production on the back of sharply reduced feed costs and the removal of the EU milk quota. Consequently, the FAO dairy price index, which provides a measure of world dairy product prices, declined sharply to reach the lowest point in 7 years by April 2016. Supported by the removal of some excess export supplies in the EU and anticipation of tightening supplies, prices have recovered somewhat since and, in April 2017, reached levels last seen at the end of 2014. Dairy prices are notoriously volatile, owing to its sensitivity to erratic weather conditions, both directly through productivity gains under ideal climatic conditions and indirectly through increased feed use during periods of lower feed grain prices. Accentuated by the influence of macroeconomic fluctuations and the resultant demand impacts, as well as policies such as the embargo on imports by the Russian Federation and the abolision of the EU milk quota, the typical dairy price cycles have been particularly steep in recent years.

Further supply increases are expected to moderate over the course of the outlook period. Producers in the EU are expected to adjust to current market signals, but environmental constraints are also expected to limit growth possibilities in parts of Europe. The OECD-FAO expects global milk production to grow by 22% over the next decade, more than half of which will come from the developing world. With supply already responding to the weak prices of the past 2 years, prices of all dairy products are expected to increase by between 14% (Cheese) and 23% (WMP) in 2017 before stabilising at levels similar to 2012. Nonetheless, given that dairy markets are particularly sensitive to changes in a few countries, short term imbalances in supply and demand remain likely. Thus, while the price projection in Figure 84 reflects the assumption of stable weather conditions, significant volatility could ensue as a result of inevitable climatic fluctuations or changes in demand patterns from significant buyers such as China, Russia and the Middle East.

Milk and dairy – South Africa

As in the global market, South African milk production is also very sensitive to climatic fluctuations, which influence production directly through productivity, as well as the price and resultant intensity of feed product use. Such climatic fluctuations have been particularly prominent over the past 3 years. Contrary to the global cycle of declining feed grain prices and associated increases in milk production, the drought experienced in 2015 and 2016 resulted in reduced milk production in 2016. The perishable nature of fresh milk however implies that a small share of the market is traded and at the same time, the impact of low world prices was offset by depreciation in the value of the Rand. Hence milk prices responded to reduced supply, increasing by 8% year on year. This increase

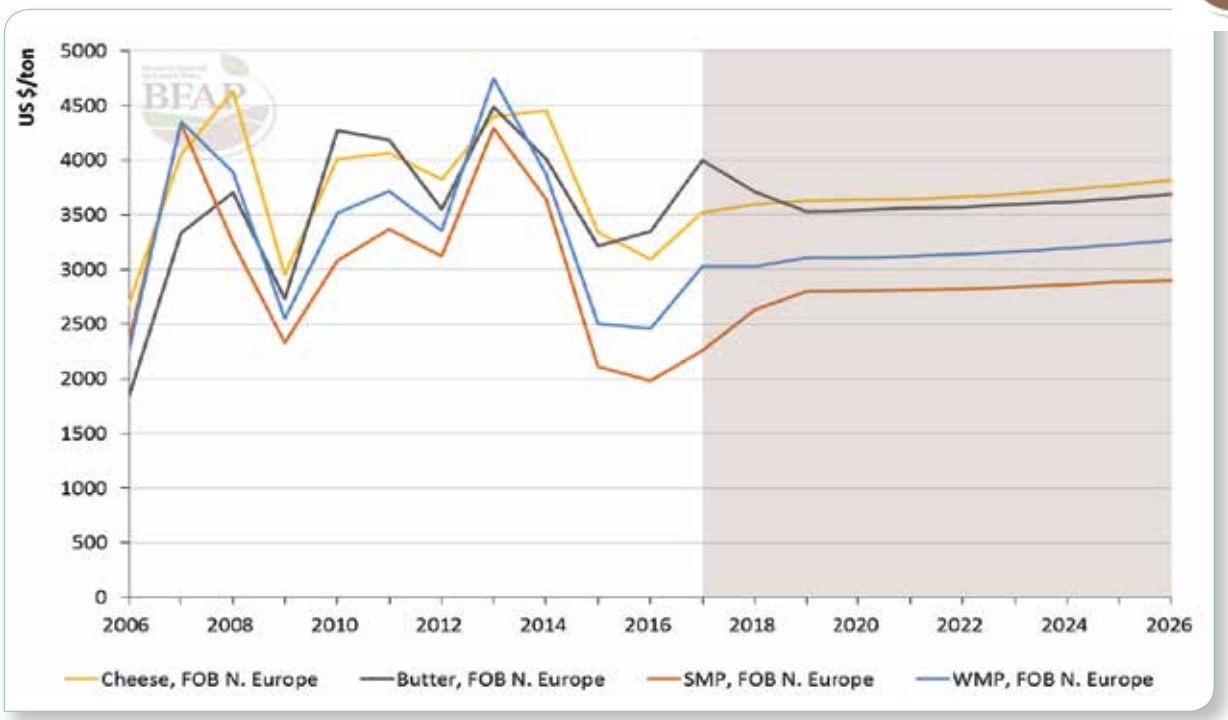


Figure 84: Global dairy prices
Source: FAPRI and OECD-FAO (2006-2026)

is small however in comparison to yellow maize prices which increased by 27%. Consequently, the milk to maize price ratio, which can be seen as a simple indicator of profitability, declined to the lowest level since 2001. 2017 marks a distinct turnaround however, as the reduction in feed prices following the bumper maize crop supports a significant recovery in the milk to maize price ratio. Milk production is expected to respond, increasing by 1.4% year on year. Over the 10-year projection period, the milk to maize ratio stabilises at favourable levels relative to the past decade and milk production is expected to grow by 23% relative to the 2014-2016 base period (Figure 85).

Milk production in South Africa is utilised in 2 different market segments. Liquid milk products (including pasteurised milk, UHT milk, yoghurt and buttermilk) account for just over 60% of total dairy consumption, while concentrated products (including

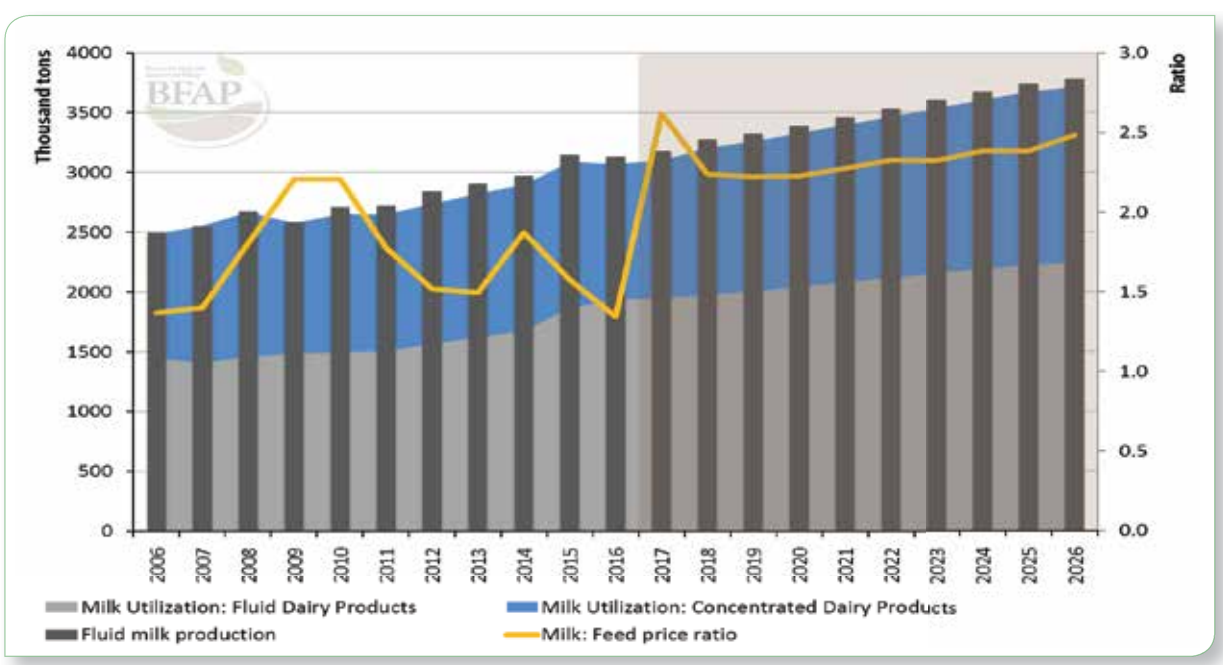


Figure 85: SA milk production, utilisation and milk to maize price ratio

cheese, butter, milk powders and condensed milk) make up the balance. The share of liquid products in total consumption has increased constantly over the past 5 years. This trend is expected to continue over the course of the next decade, as the consumption of liquid milk products is expected to grow marginally faster than that of concentrated products. Total milk consumption is expected to increase by almost 23% by 2026 relative to the 2014-2016 base period. By implication, the market will continue to trade in a fine balance between supply and demand, and, given the sensitivity to climate and macroeconomic factors that influence demand, prices are likely to remain volatile going forward.

Historically, concentrated dairy product prices have been less volatile than that of raw milk. This is evident in an average coefficient of variation over the past 34 years of just over 80 for concentrated dairy products such as cheese, butter, SMP and WMP, compared to 105 for fresh milk over the same period. Reduced volatility results from the increased role of trade in balancing the domestic market during period of supply and demand fluctuations. This also implies that concentrated dairy products are also more exposed to competition from international markets. The decline in international dairy product prices was offset by exchange rate depreciation and hence prices of concentrated products also increased year on year. In 2017, appreciation in the exchange rate is expected to moderate some of the increase in international prices and with domestic milk production also expected to rise, a much smaller price increase is expected in 2017 relative to 2016. In the medium term, dairy product prices are projected to continue trending upwards in nominal terms, but not enough to outpace general inflation, resulting in marginally declining real prices over the course of the next decade.

Led by cheese, the demand for dairy products expanded rapidly over the past decade. Supported by rising income levels and swift urbanisation, cheese consumption more than doubled over the past 10 years. Growth is expected to slow in the coming decade as a result of more subdued income growth projections, but is still expected to expand by 42%. This amounts to more than 40 thousand tons of additional cheese consumption by 2026 relative to the 2014-2016 base period. Butter is also becoming increasingly popular as an alternative to vegetable oil based spreads and its consumption is projected to expand by 27% over the next 10 years. It is however a much smaller market than cheese and growth amounts to just over five thousand tons of additional butter consumption by 2026 relative to the 2014-2016 base period (Figure 86). Some of the growth in total consumption can also be attributed to population growth, but even in per capita terms, both cheese and butter consumption is expected to increase by an annual average of almost 2% over the 10-year period.

The nature of the production process means that the market for milk powders is strongly influenced by the price and production levels of other dairy products that are produced simultaneously. Consequently, consumption of milk powders has been characterised by exceptional volatility over the past decade. Powders also remain a small share of the concentrated dairy market, with consumption of SMP reaching 0.07 kg/capita by 2016, compared to 0.17 kg of WMP consumed per capita in the same year. Consumption of both products declined sharply in 2016, but from 2017 onwards, SMP and WMP consumption is expected to grow by an annual average of 6% and 3% respectively. This is still only sufficient to reach per capita consumption levels of 0.11 and 0.21 kilograms of SMP and WMP respectively by 2026.

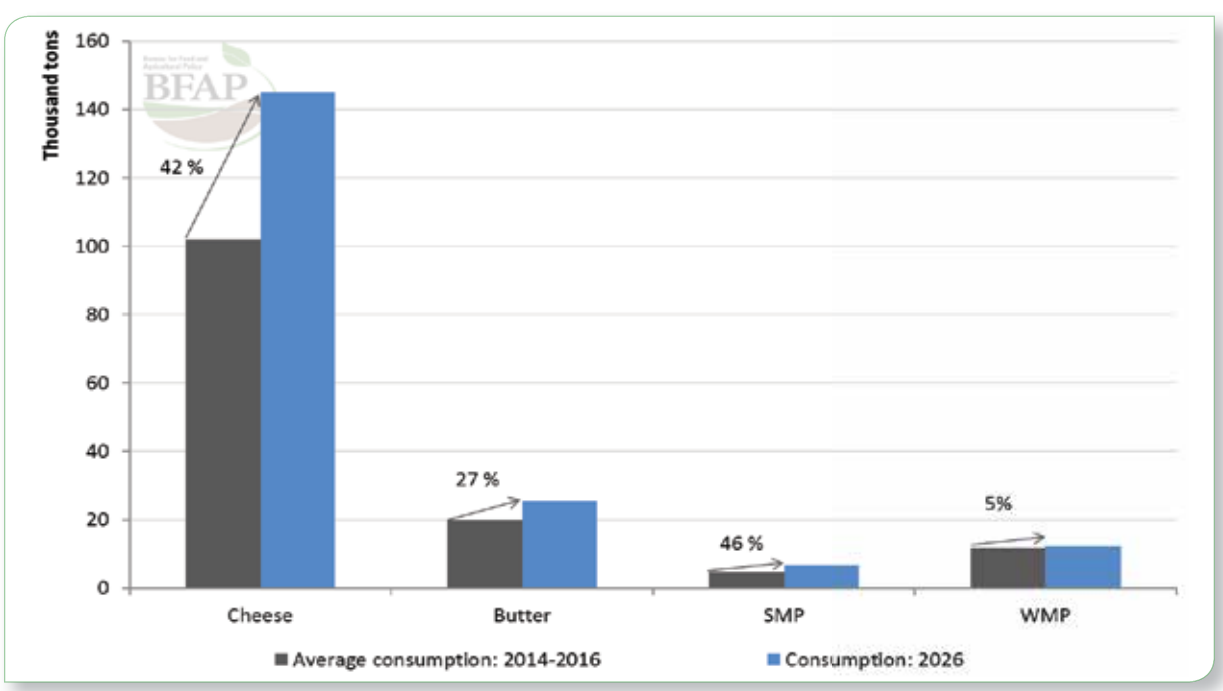
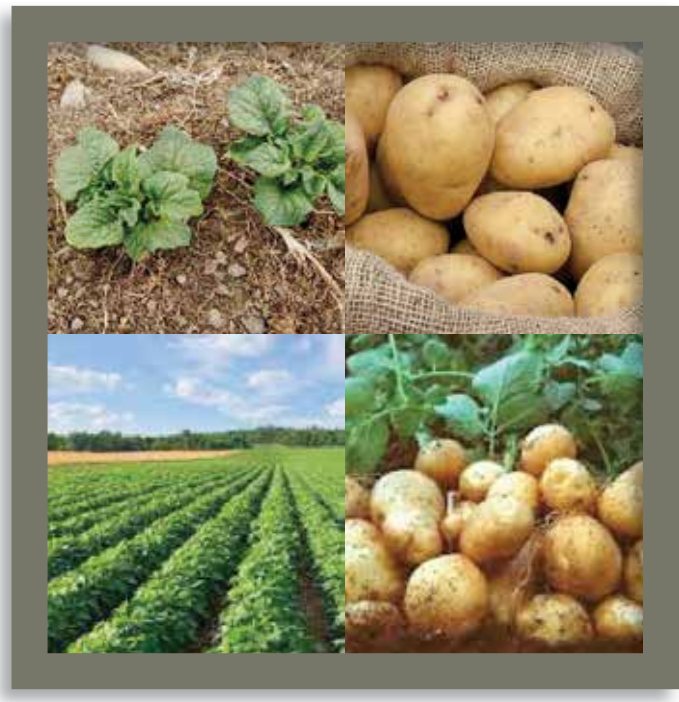


Figure 86: SA consumption of dairy products

OUTLOOK FOR HORTICULTURAL PRODUCTS



The combination of lower rainfall and above average temperatures in 2016 resulted in exceptionally high potato prices. With more favourable weather conditions throughout the summer rainfall area, potato production is expected to increase in 2017 - resulting in a reduction in the projected average market price.

POTATOES

The total potato area in South Africa has fluctuated around 50 to 55 thousand hectares over the last 20 years, but total production has increased by 43% during the same period. Potato area is projected to increase marginally over the next 10 years, assuming the continued availability of irrigation water. During 2016, potato production decreased by 344 thousand tons (14%) from a record harvest of 2.5 million tons in 2015. An increase of 8% is projected for 2017, implying a total potato harvest of 2.35 million tons.

The Eastern Free State (EFS) region typically contributes approximately 10 000 dryland production hectares to the national area. Although the EFS area remained at these levels during 2016, production in the region decreased by 34% due to a much lower average yield. In 2017 a projected 32 million 10kg bags will be harvested off 10 600 hectares in the EFS (32.9 t/ha), representing a 38% increase in production year on year. The Northern Cape is also significant, as a record harvest is projected in 2017 on the back of a 33% increase in area planted in the region. This implies that it will contribute 5% of the total harvest in 2017. Limpopo, Eastern Free State, Western Free State and the Sandveld regions are projected to contribute 21%, 15%, 15% and 14% to national production in 2017 respectively.

Potato production is projected to increase over the outlook period to just over 2.6 million tons in 2026 (Figure 87), driven mainly by higher yields. It is assumed that factors such as research on cultivar development, improved production practices and improved plant protection will result in an average yield gain of 2% per annum over the 10-year period. The average yield for 2017 is projected at 44 tons per hectare; an increase of 10% from 2016's average of 40 tons per hectare. Dryland yields decreased more severely (37% average yield reduction in the EFS) than irrigation yields in 2016.

In 2016 the average market price for potatoes increased by 63% to R47.80 per 10kg bag. Because of the increase in production in 2017, the national average potato price is projected to decrease by more than 20% to R34.40 per 10kg bag. Figure 88 provides the outlook for market prices, in real and nominal terms, towards 2026. Real prices are projected to trade sideways over the outlook.

Case Study: National Minimum Wage increase and the impact on labour-intensive sectors

The increase of more than 50% in the minimum wage for the agricultural sector in 2013 had a significant impact on labour-intensive commodities. This increase followed a period of prolonged increases in the prices of other inputs such as fertilizer, diesel and electricity. The cost of these inputs has since increased even further together with the most recent

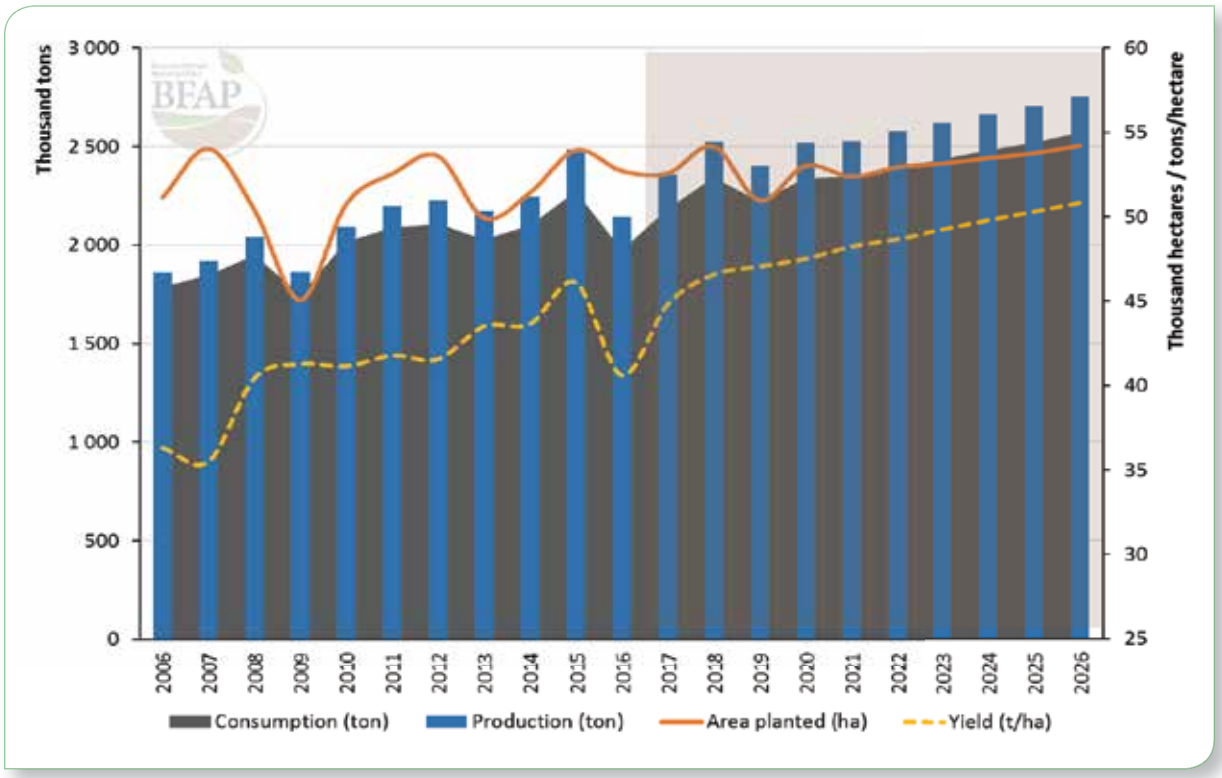


Figure 87: Potato production, consumption, area and yield in South Africa: 2006 - 2026

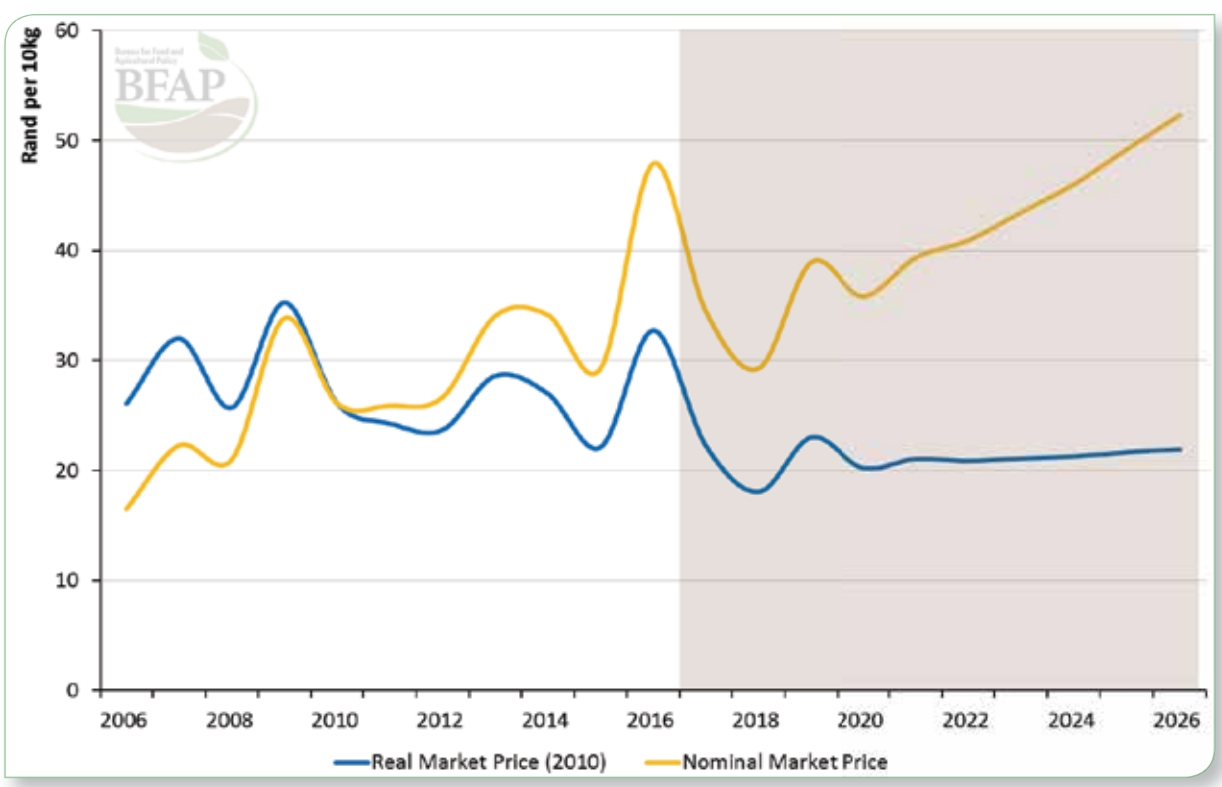


Figure 88: Outlook for potato prices in real and nominal terms: 2006 - 2026

announcement of a possible 17% increase in the minimum wage for farmworkers in 2018 (Figure 89). As required by the agreement reached, this brings agricultural wages to 90% of the new national minimum wage of R20 per worker per hour.

The newly imposed minimum wage will affect labour-intensive industries in particular. Financial simulation results from prototype potato farms in Limpopo (irrigation), Sandveld (irrigation), KwaZulu-Natal (seed production) and the Eastern Free State (dryland) indicates that labour expenditure will increase on average by R150 000 per farm from 2016 to 2017, and a further R360 000 per farm from 2017 to 2018 (given the 17% increase in the minimum wage). Assuming that farms do not cut back on labour, the immediate increase from 2017 to 2018 implies a R540 000 increase in Limpopo, between R300 000 and R350 000 for the Sandveld and KwaZulu-Natal and a R241 000 increase for the Eastern Free State. Figure 90 illustrates the increase in the farm wage bill over the period from 2012 to 2018 and represents on average an increase exceeding 87%. These increases mean that a Limpopo potato farmer could pay up to R1.8 million (R580 000 in real 2010 terms) more for labour in 2018 as opposed to 2012, R1.2 million (R435 000 in real 2010 terms) for a KwaZulu-Natal seed producer and between R750 000 (R220 000 in real 2010 terms) and R850 000 (R195 000 in real 2010 terms) for an Eastern Free State and Sandveld producer.

To estimate the total impact on a farm's cost structure, one has to consider the movement of other input costs as well. The weak Rand-US Dollar exchange rate and slight increase in Brent crude oil costs drive an average increase in fertilizer and diesel costs of 12% and 7% respectively in 2018. The effect of increased input costs on gross margins (income less directly allocable costs) on the Eastern Free State prototype farm is illustrated in Figure 91. Despite higher yields, profitability decreases over the next two years due to the higher cost structure and lower price projections in 2017 and 2018.

Conclusion

The expected increase in labour- and other input costs, together with lower price projections can have a negative impact on the financial viability of labour-intensive commodities such as potatoes. The volatile macro- and political environments, together with decreased medium-term economic growth projections emphasize the importance of solid decision-making at farm-level, especially regarding marketing, input purchases and technology investments.

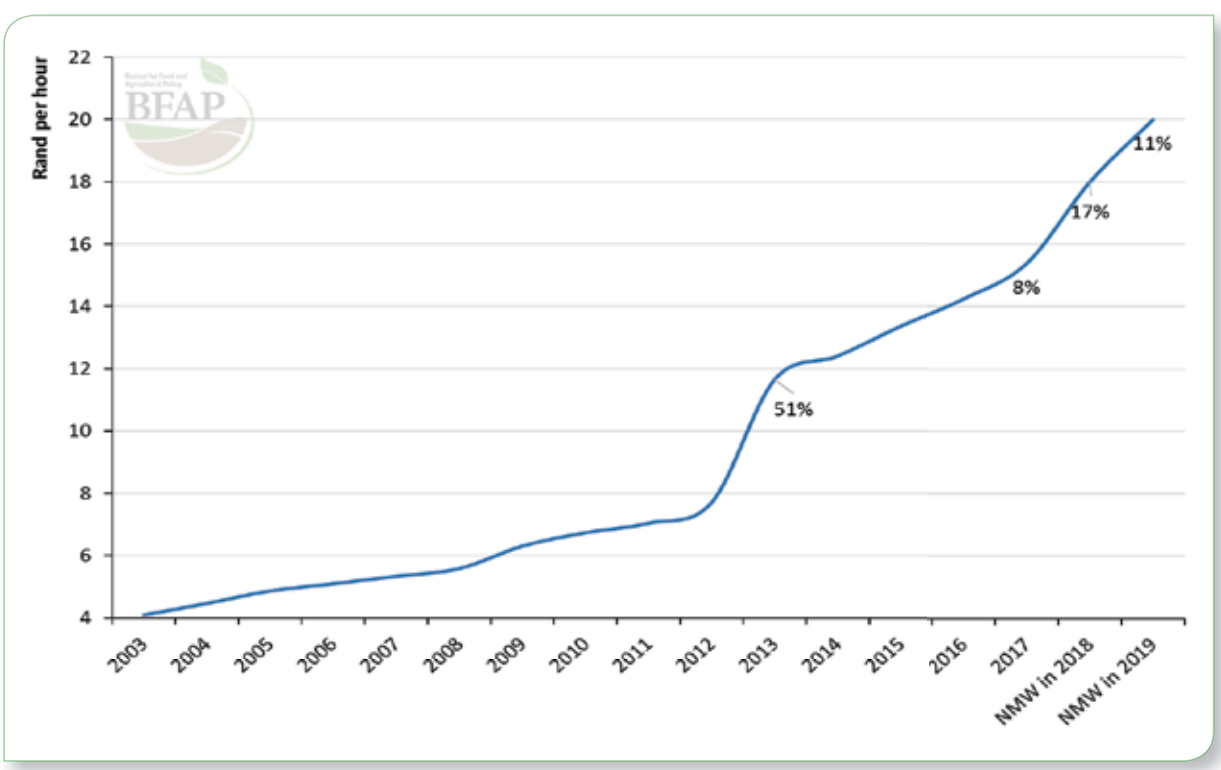


Figure 89: Hourly minimum wage applicable to the agricultural sector

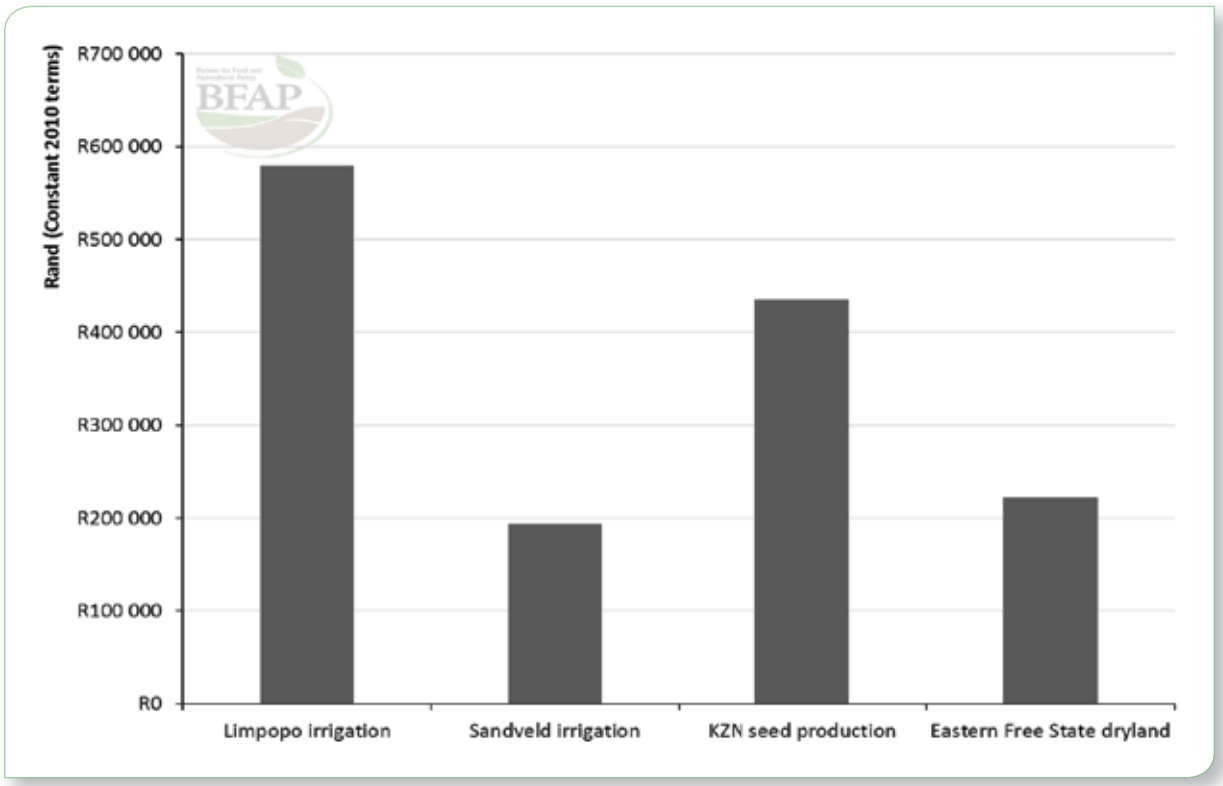


Figure 90: Financial implications of new national minimum wage: Real (2010) additional wage expenditure in 2018 relative to 2012

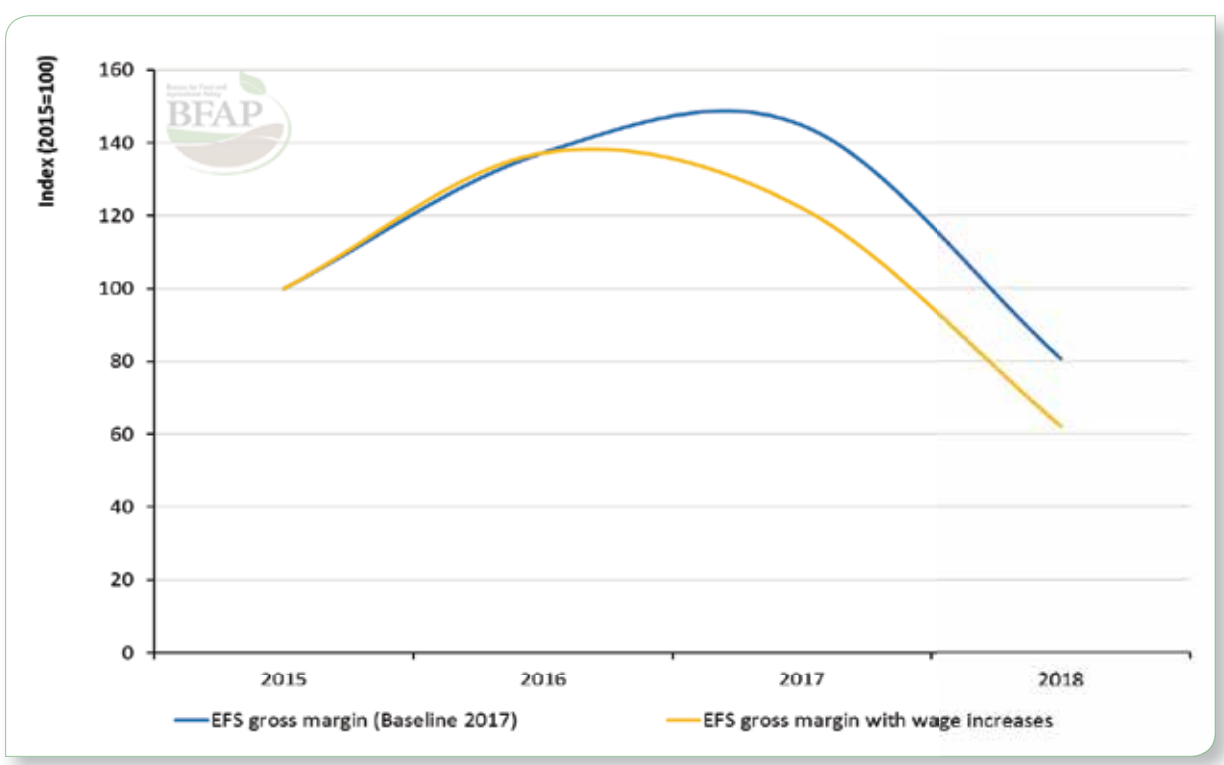


Figure 91: Impact of increases in input costs in the Eastern Free State

OUTLOOK FOR HORTICULTURAL PRODUCTS

The 2016 production season was associated with favourable returns for investors. This was mainly because of a sharp depreciation of the South African Rand at the end of 2015, as well as firm demand for South African pome fruit in international markets.

APPLES AND PEARS

Introduction

Following the exceptional 2013 pome fruit crop, weather conditions deteriorated. Hailstorms affected large parts of major production regions in 2014, affecting the yield and quality of fruit. Harvest bearing spores of the 2015 crop were also affected. Since then, prolonged periods with limited water for irrigation has been a common problem facing the industry.

The 2016 production season was associated with favourable returns for investors. This was mainly because of a sharp depreciation of the South African Rand at the end of 2015, as well as firm demand for South African pome fruit in international markets. The industry does however also face significant challenges, chief among which are the water restrictions. In combination with high temperatures, it has resulted in decreased production and quality related issues such as colouring and fruit size during the 2017 season. Internationally, the season commenced with ample stocks and pressure on demand due to disposable income pressure experienced by consumers globally. This was particularly apparent in Middle-Eastern and some African markets, which are highly dependant on oil exports for income growth and have stagnated as a result of lower oil prices. As a result, prices remain under pressure. However, major European producers, especially Poland, faced severe frost conditions during the flowering period affecting 55% of their 180 000 hectares under production. In the light of this, there might be significant opportunities for South African products to gain export momentum later in the season.

Production

South Africa produced 16.7% and 27.3% of the total Southern hemisphere crop for apples and pears respectively in the 2016 season, a slight increase year on year from 2015. Over the past 6 years, South Africa produced roughly 1.15% of global apple production. Pear production, in turn, accounts for 1.72% of global production. This is a 0.15% increase over the past 6 seasons. (USDA 2017; WAPA, 2017).

Pome fruit production in South Africa presented a constant upward trend since 2007, as bearing hectares increased from 18 582ha to 22 776 ha. This was driven by favourable financial returns at farm level. Apple production increased by 29.9% over this period from 710 173 ton to 922 740 ton, whilst pear production increased by 25.0% from 345 737 ton to 432 185 ton (Figure 92). Expansion of pome fruit area remains constrained by the availability of water for irrigation purposes and chilling requirements. Climatic conditions experienced during developmental periods, are also a factor that is impeding expansion. Consequently, the apple bearing hectares are projected to increase only marginally (3.08%) over the

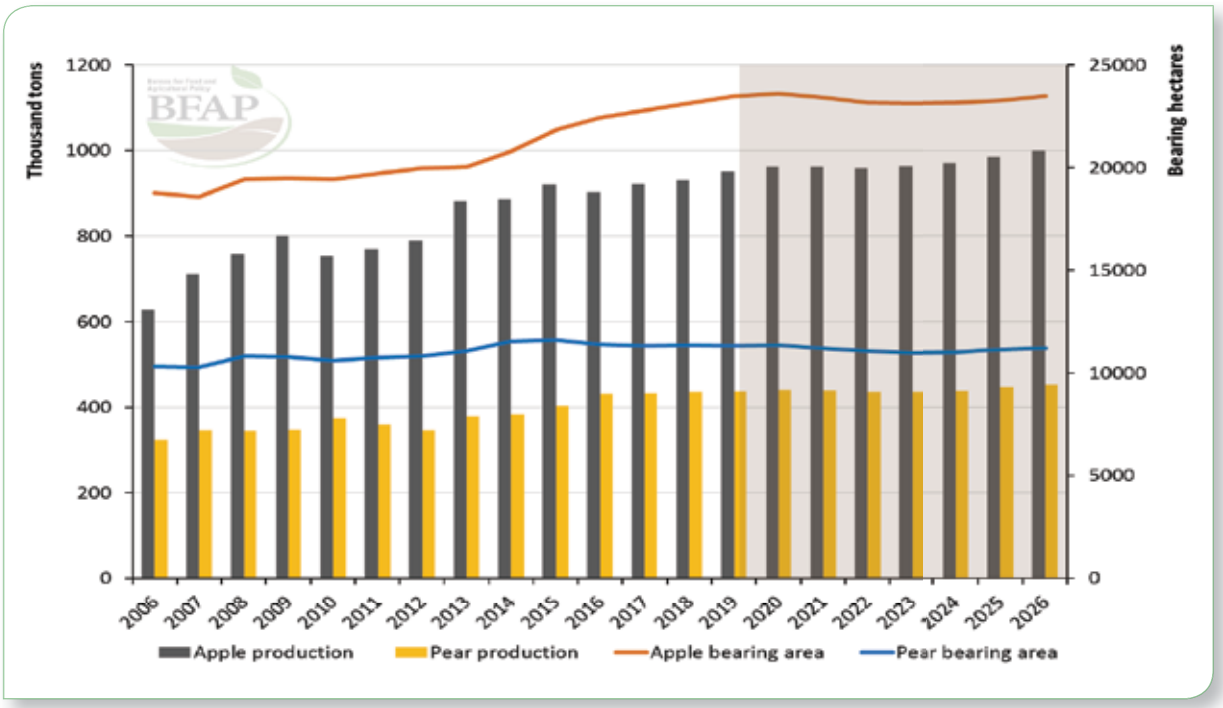


Figure 92: Bearing hectares & total production of South African pome fruit: 2006 - 2026

outlook period. Nevertheless, production is projected to sustain a slight upward trend as a result of continuous technological innovations on farm level. These innovations include improved irrigation practices, efficiency increases due to improved water management, and improved plant material. By 2026, an approximate 8% increase in production is projected, given the large area under newly established plantings

Market distribution

Over the past decade, exports represented the highest value market and have consequently been the focus of fruit producers in general. As a result, quality, consistency and continuity is paramount. The negative impact of drought is however evident in the export levels of both apples and pears. This is illustrated in Figure 93 and Figure 94. As mentioned earlier, hail also damaged a large share of production in 2013/14.

The 2016 season showed a 47.15% share of total apple production earmarked for exports. A 4.2% decrease in the share of exports is however anticipated for the 2017 season. This decrease can be largely ascribed to the impact of drought conditions, which resulted in poor colouring and sunburn. The outlook in Figure 93 presents apple crop distribution channels. The apple crop distribution ratio in 2026, assuming stable weather conditions, is projected to be 44% exports, 26% domestic sales and 29% processed.

Arguably, the pear industry is even more focussed on exports. Since 2010, the share of domestic pear production entering the export market has been stable, remaining relatively constant at 49% (Figure 94). The outlook period presents a share ratio of exports: domestic market: processed[3] of 49%: 9%: 42%. The expected decrease in the domestic market share is absorbed by the processing industry, as South African processors outperform large fruit processing countries such as China, Italy, Chile and France. The same phenomenon pertaining to processed fruit prevails within the apricot and peach canning industries, where SA is gaining market space compared to competitors.

Exports

The 2013 season was associated with remarkable export volumes at lucrative prices. Unfortunately, the following seasons saw extreme drought conditions, although the 2016 season was supported by a significant weakening of the ZAR posing competitiveness opportunities.

Export returns served as an investment incentive for the pome industry. However, in 2017, export demand, especially in Middle-Eastern and African countries, is under pressure. Although situated in the northern hemisphere, Russia and other Eastern European countries like Croatia, Serbia, Macedonia, Montenegro, Kazakhstan and Uzbekistan are investing heavily in pome fruit

[3] Canned, dried, juice and pulp.

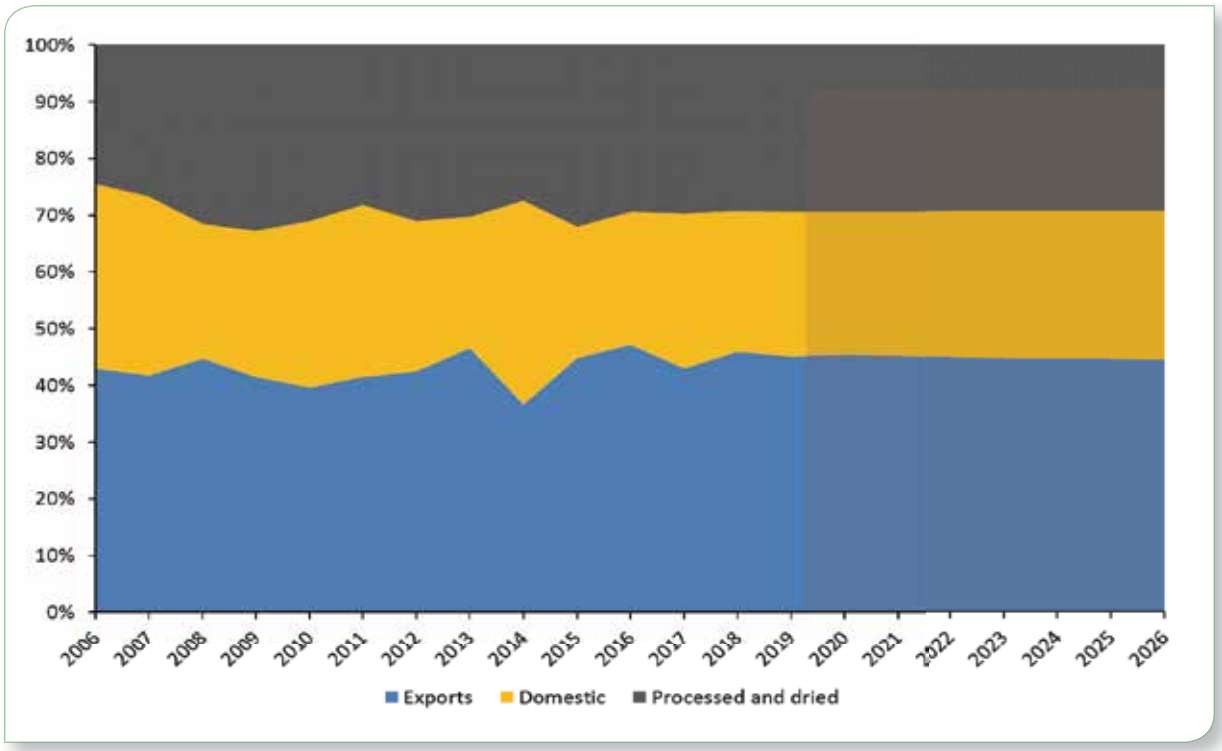


Figure 93: Production distribution of Apples: 2006 - 2026

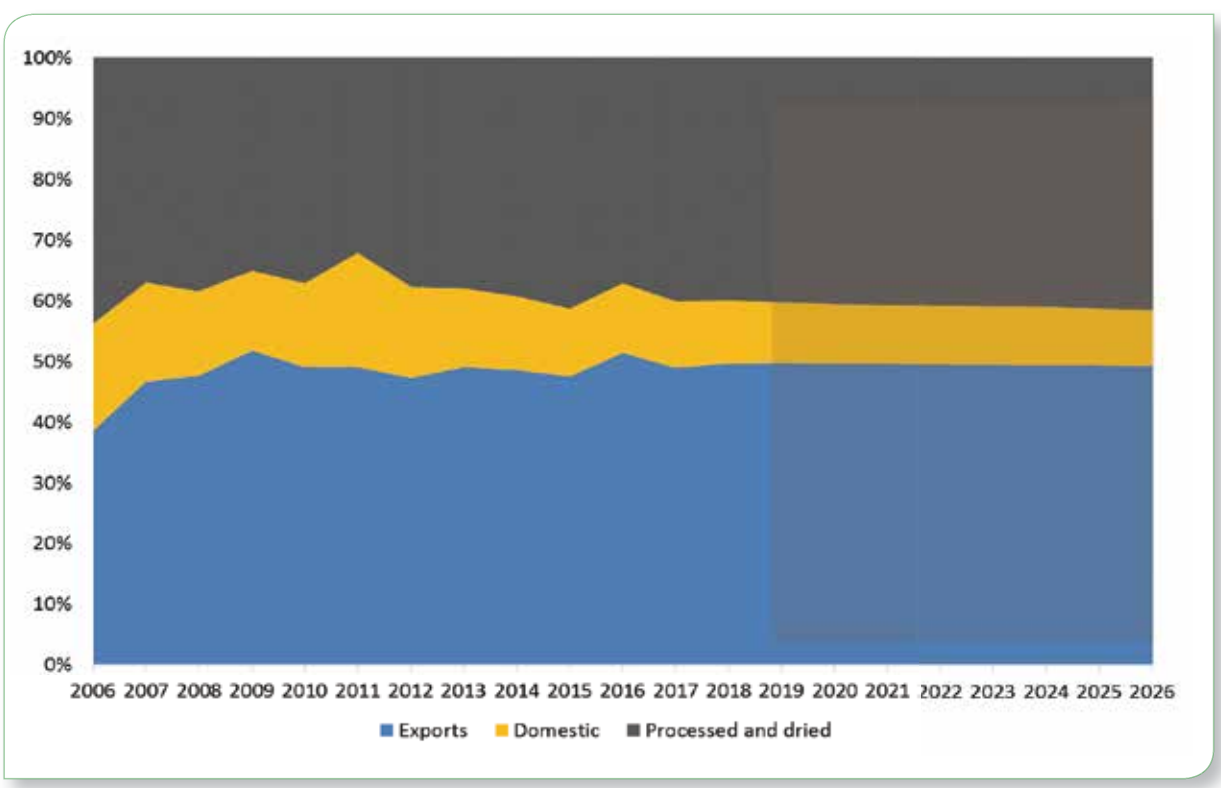


Figure 94: Production distribution of Pears: 2006 - 2026

production. This will hopefully result in strong demand for new-season fruit from the southern hemisphere during their off-season.

Horizontal real price movements are projected for the outlook period. This is supported by export volumes recovering from the drought and new established orchards reaching full bearing capacities. Apple exports are projected to increase by 12.29%, from 396 000 tons to 445 000 tons from 2017 to 2026. For the pear industry, a marginal increase in exports of 5.23%, from 212 000 tons to 222 000, is projected (Figure 95). This shows that the continued efforts by the Fruit Industry Value Chain Round Tables, in conjunction with mobilised industry (organised fruit industries) and the national government, on initiatives to support market access and facilitate trade negotiations, seems to be bearing fruit.

Domestic consumption

It is evident that the domestic market for apples is more elastic than pears, as presented in Figure 93 and Figure 94. In the case of apples, a larger share of produce not fit for exports can be absorbed by a growing domestic market. It is projected that local consumption will increase from 253 000 tons to 261 000 tons by 2026. This represents a 3.24% growth (Figure 96 and Figure 97). Consumption of pears is projected to decrease marginally from 47 000 tons to slightly above 42 000 tons over the outlook period. This represents a decrease of 10.2%.

The outlook for market prices, both locally and internationally, presents marginal relief from the producer perspective as slight real price increases are projected over the 10-year period (Figure 95 and 96). The fluctuating exchange rate impacts negatively on US Dollar derived inputs and specialised technology, crucial in the efforts to combat the current issues with water management and the enduring price-cost-squeeze that producers have to face.

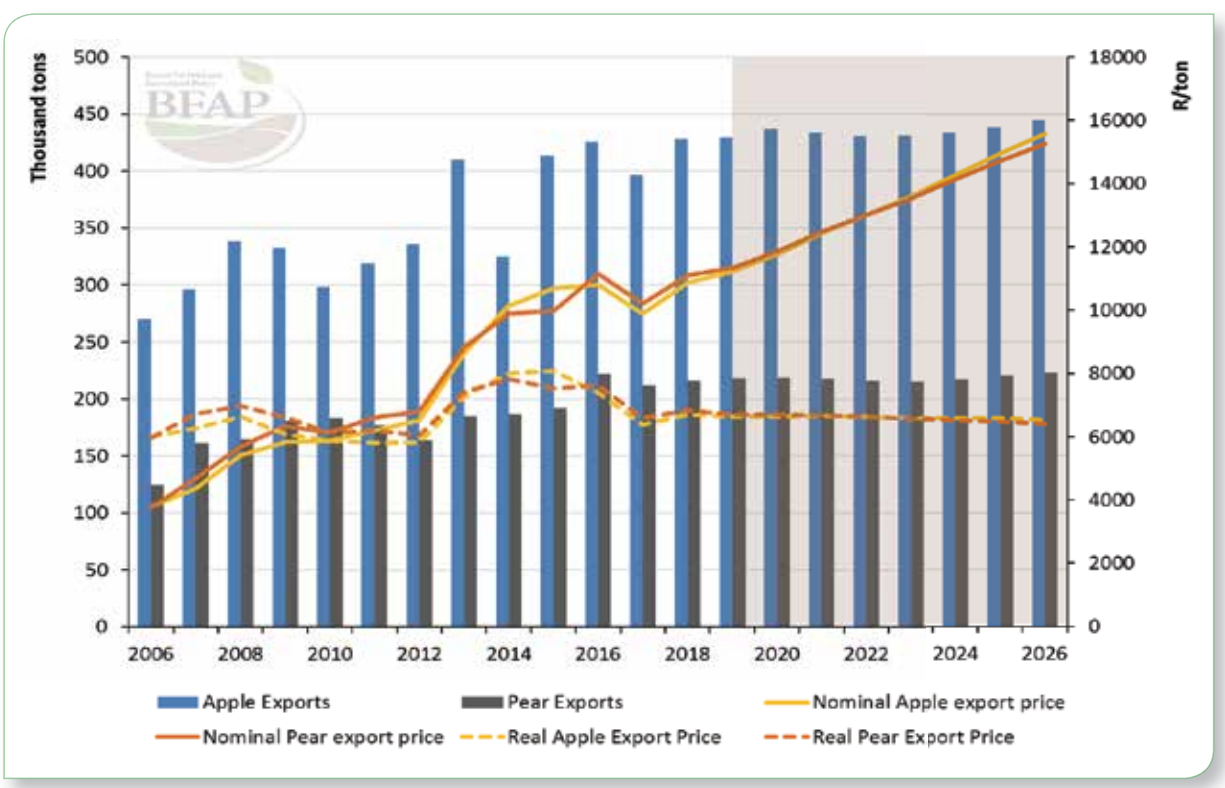


Figure 95: Pome fruit export volumes and prices: 2006 - 2026

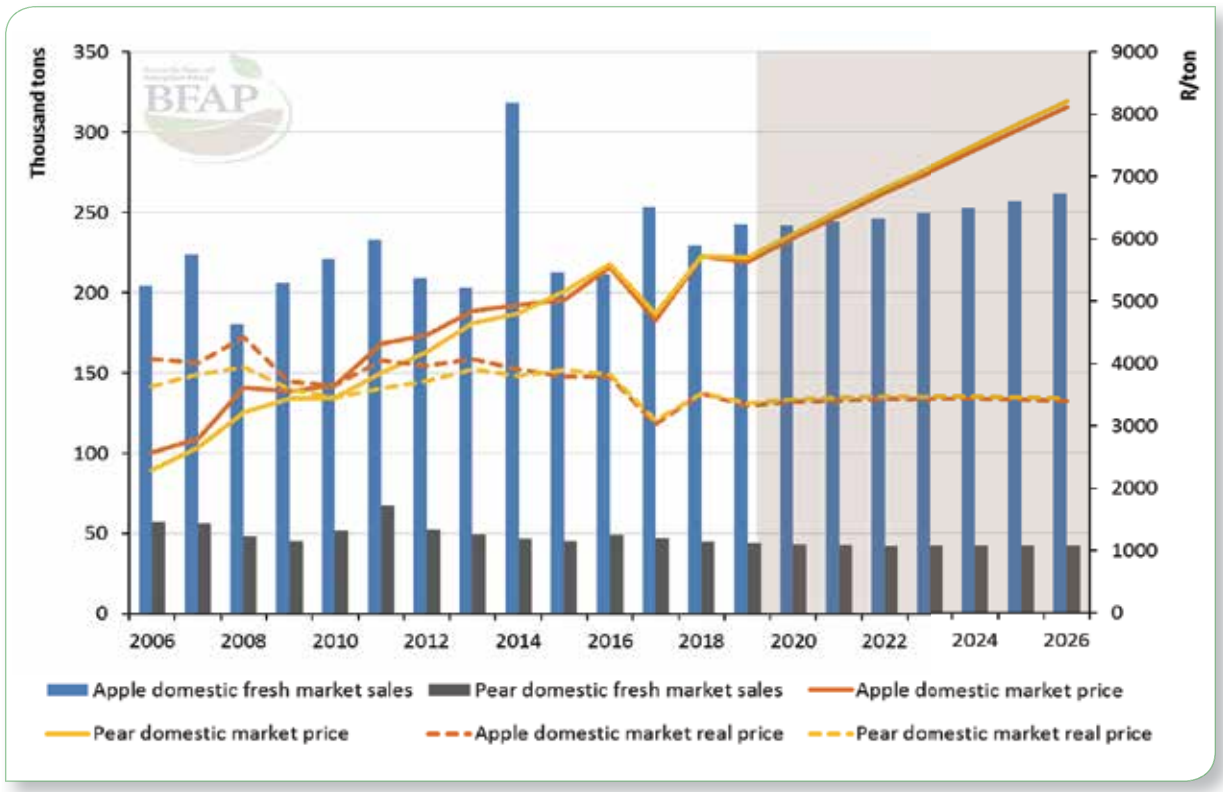


Figure 96: Domestic market supply and prices: 2006 - 2026

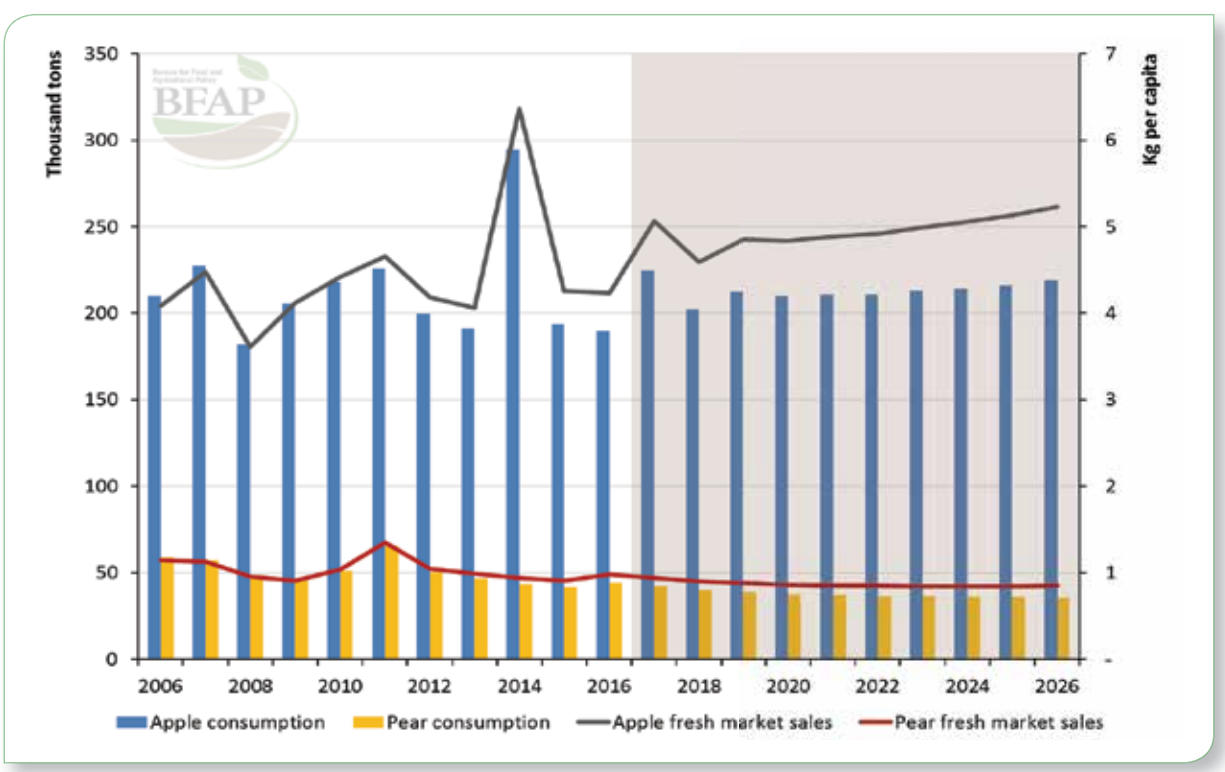


Figure 97: Domestic consumption and sales: 2006 - 2026

Box 7: Fresh and healthy for wellbeing

Consumer demand for fruit, vegetables and fruit juices could benefit from various initiatives by the South African government to promote healthier consumption habits and lifestyles. Examples of these include the Healthy Food Options Initiative (driven by the Consumer Goods Council of South Africa along with the Department of Health and other food industry associations), as well as the 'Western Cape on Wellness' (WoW!) initiative aimed to reduce physical inactivity and promote healthy eating.

Fruit juice (specifically 100% fruit juice) could also benefit from the recently enforced tax on sugar-sweetened-beverages, as 100% fruit juice and milk are presently excluded from the sugar tax. For example, a random retail price check in May 2017 indicated the following prices: 200ml cola (R7.50), 200ml 100% fruit juice (R6.83 to R7.99), 200ml full-cream milk (R4.83) and still water (R4.29/500ml). The least expensive 100% fruit juice option is about 10% less expensive than the carbonated beverage – which could motivate consumers to switch some consumption away from carbonated beverages towards 100% fruit juices. This is however dependent on the brand chosen by the consumer, as some of the premium fruit juice brands are more expensive than the carbonated beverage option.

A major factor limiting the adequate intake of fresh produce, especially among poorer and middle-class consumers, relates to affordability. Based on April 2017 retail prices (as monitored by StatsSA for urban areas) BFAP estimated that an individual aiming at a daily intake of 2 single servings units of fruit and 3 single serving units of vegetables needs to spend about R280 per month (assuming a combination of apples, bananas, oranges, tomatoes, cabbage and pumpkin as an example). For a 4-person household earning about R2000 per month it is quite clear that it is impossible to spend R1 120 per month on fresh produce. This simplistic example stresses the importance of appropriate policy interventions to improve the affordability of healthy food, particularly for lower-income consumers in South Africa.

Farming systems analysis: Commercial deciduous fruit farming in SA

Pome Fruit production systems in the Western Cape

South African pome fruit producers are continuously confronted by forces of change, whether it's less than favourable weather conditions, introduction of dynamic technological innovations, the dependence on sustainable and lucrative export markets and ever-changing national and international regulations and legislation. Within this changing environment, the competitiveness of pome fruit farming systems will henceforth be influenced by economically rational and strategically sound financial decision making. Anticipation of various scenarios is crucial to guide strategic decision making given the uncertainties of market forces, the desire for a more stable political climate and the recurring droughts. This is particularly true in the Western Cape - the major producer of pome fruit in South Africa – where dam levels currently remain critically low.

Financial Simulation (FinSim) modelling: Building blocks and setup

The FinSim farm level model is capable of analysing a given farm business and then projecting financial and economic performances in the forthcoming years. The pome fruit FinSim model is based on specific assumptions regarding various controllable parameters such as farm size, enterprise composition, age of first bearing and full bearing, as well as variable annual yields, variable production practices, and variable input and product prices. Various categories or classes of output for apples and pears can be accounted for to accommodate the various cultivar prices in the respective market segments. The farm level model is linked to the market outlook for the apple and pear industries, as well as the macro-economic assumptions associated with the Baseline.

This section includes an analysis of a typical pome fruit farm based on the 2015/16 production statistics and market information, as well as a simulation of the implications of the Baseline projections. These projections were simulated stochastically (accounting for risk) for the period 2015 to 2024. The description and characteristics of this hypothetical farm is based on Hortgro Services (2017) data and adjusted by means of focus group discussion with producers. This typical farm therefore still relates to a specific set of assumptions described in Table 11, Table 12 and Table 13. This typical or prototype farm is not considered representative of the entire apple and pear industry in South Africa. Furthermore, the results should be viewed in the context of certain "what if" scenarios and not as forecasts. The strategic decision maker should be creative and pro-active in evaluating the effect of alternative actions and implement those actions that utilize opportunities and follow practices that contribute to a financially and economically competitive farming system.

The production area and composition of apple and pear cultivars, as well as the respective full bearing yield for each cultivar of this prototype farm for two scenarios, are presented in Table 11. Scenario 1 presents a slightly lower price realisation and yield than scenario 2. The area of each specific cultivar was further modelled into three orchards of different ages to ensure a representative age distribution of orchards over the specified lifespan of the respective orchards.

For both apples and pears, the total yield per cultivar is further divided into various market segments, with corresponding 2016 prices per market segment, as shown in Table 12 for both scenarios. However, crop distribution remains constant to highlight the farm's exposure to price and yield decreases in the light of drought conditions. These prices are farm gate (net) prices with the postulation that packaging is an off-farm activity.

Table 13 states the assumptions related to the production practices and assumed production cost of this typical pome fruit farm. The specified directly allocable variable costs exclude packaging cost.

Table 11: Cultivar, area and yield on typical pome fruit farm (2015/2016)

Type/Variety	Area		Full Bearing Yield	
APPLES	**Ha**	**%**	**Scenario 1**	**Scenario 2**
Braeburn	2.4	2%	78	83
Pink Lady	18	15%	61	76
Sundowner	3.6	3%	73	79
Fuji	14.4	12%	52	61
Top Red	18	15%	51.6	57
Gala	21.6	18%	53	59
Jazz/Kanzi	2.4	2%	53	55
Golden Delicious	27.6	23%	72	77
Granny Smith	12	10%	63	67
Total	**120**	**100**		
PEARS				
Forelle	12	40%	55	56
Bon Chretien	1.8	6%	57	58
Abate Fetel	3	10%	52	57
Beurre Bosc	0.9	3%	55	62
Cheeky/Rosemarie	0.9	3%	45	48
Packham's Truimph	10.5	35%	70	73
Doyenne du Comice	0.9	3%	40	44
Total	**30**	**100**		

Table 12: Market segmentation and farm gate prices on the typical pome fruit farm (2015/2016)

Type/Variety	Crop Distribution %				Scenario 1: Price (ZAR/t)				Scenario 2: Price (ZAR/t)			
APPLES	**Export**	**Local**	**Juice**	**Canning**	**Export**	**Local**	**Juice**	**Canning**	**Export**	**Local**	**Juice**	**Canning**
Braeburn	40%	35%	25%		R3 500	R2 000	R1 300		R4 350	R2 150	R1 350	
Pink Lady	40%	40%	20%		R5 300	R3 500	R1 300		R6 520	R3 520	R1 350	
Sundowner	50%	30%	20%		R4 800	R3 500	R1 300		R6 870	R4 230	R1 350	
Fuji	45%	25%	30%		R4 900		R1 300		R5 810	R3 320	R1 350	
Top Red	25%	55%	20%		R3 700		R1 300		R4 690	R3 100	R1 350	
Gala	60%	25%	15%		R5 200		R1 300		R5 460	R3 690	R1 350	
Jazz/Kanzi	50%	25%	25%		R5 000		R1 300		R6 140	R3 440	R1 350	
Golden Delicious	50%	30%	20%		R4 000		R1 300		R4 150	R3 200	R1 350	
Granny Smith	35%	35%	30%		R3 750		R1 300		R4 700	R2 350	R1 350	
PEARS												
Forelle	60%	20%	20%		R5 500	R3 300	R1 200		R6 520	R3 450	R1 250	
Bon Chretien	25%	0%	25%	50%	R4 500	R –	R1 200	R2 450	R4 500	R –	R1 250	R2 450
Abate Fetel	45%	25%	30%		R3 500	R2 300	R1 200		R5 360	R2 650	R1 250	
Beurre Bosc	50%	30%	20%		R3 300	R1 750	R1 200		R4 050	R1 980	R1 250	
Cheeky/Rosemarie	50%	25%	25%		R4 600	R2 150	R1 200		R6 140	R3 440	R1 250	
Packham's Triumph	50%	25%	25%		R3 900	R2 900	R1 200		R4 870	R3 150	R1 250	
Doyenne du Comice	50%	25%	25%		R4 900	R1 850	R1 200		R5 230	R1 850	R1 250	

Table 13: Assumptions related to apple and pear production practices and costs on the typical pome fruit farm (2015/2016)

Characteristic	Apples	Pears
Age of first bearing (year)	3	4*
Age of full bearing (year)	7	9**
Replacement age (year)	30	30
Establishment cost (ZAR/ha)	R290 033	R270 652
Directly allocatable variable cost (excluding packaging) (ZAR/ha)	R122 046 ***	R113 834***
Fixed and other variable cost for the typical farm (including typical labour) (ZAR)	R7 843 606****	

NOTES
* Bon Chretien, Beurre Bosc and Packham's Triumph year 3
** Bon Chretien, Beurre Bosc and Packham's Triumph year 8
*** Full bearing
****Excluding interest on capital, rent and entrepreneurial remuneration

Outlook projections for a typical pome fruit farm

Performance of the typical pome fruit farm over the projection period is illustrated by various measures. For each year, nominal values are simulated stochastically over 1 000 iterations, allowing for the calculation of maximum, mean and minimum values, as well as the probability distributions of these performance measures for both scenarios. Selected results are illustrated in Figures 98 – 102. The simulated annual gross margin, calculated as the gross production value minus the directly allocable variable costs per hectare for apples and pears for both scenarios are presented in Figure 98, noting that Scenario 2 considers increased production values and realised prices.

It is evident that the corresponding enterprise gross margins per hectare obtained for apples and pears varies between corresponding seasons over the projection period. The differences in the shape, trend and absolute value of the simulated gross margins are attributed to differences in cultivar composition, age of orchard blocks, assumed yields of various cultivars of apples and pears and the market and price structure of the various cultivars on this farm. The decline in the enterprise gross margins of apples for both scenarios in 2021 and 2022 is not due to a projected decline in nominal prices, but can be ascribed to the other factors mentioned, such as orchard replacements. Similar for the pear enterprise in the years, 2019 and 2023.

The price-cost-squeeze effect is evident as the operating cost to income ratio increases for both scenarios, where scenario 1 surpasses the 1:1 ratio from 2021 onwards as farm gross margin declines as portrayed in Figure 99.

Net farm income (NFI) is a performance measure used in profitability assessment and represents the reward to capital, land and the entrepreneur. All other cost items are thus deducted from the gross farm income, except for interest paid on borrowed funds, interest earned on own capital, land rent, land lease and entrepreneurial remuneration. A negative NFI thus implies that the three production factors, namely land, capital and entrepreneurial input receive no reward. The maximum, mean and minimum simulated annual NFI per hectare are illustrated in Figure 100, indicating the range between which the different iterations of the simulated NFI values varied of each specific year for both scenarios. The general trends tend to follow the projected gross margin for apples presented in Figure 98, which is attributed to the fact that apples represent the main enterprise (80% of the 150 planted hectares in this farm).

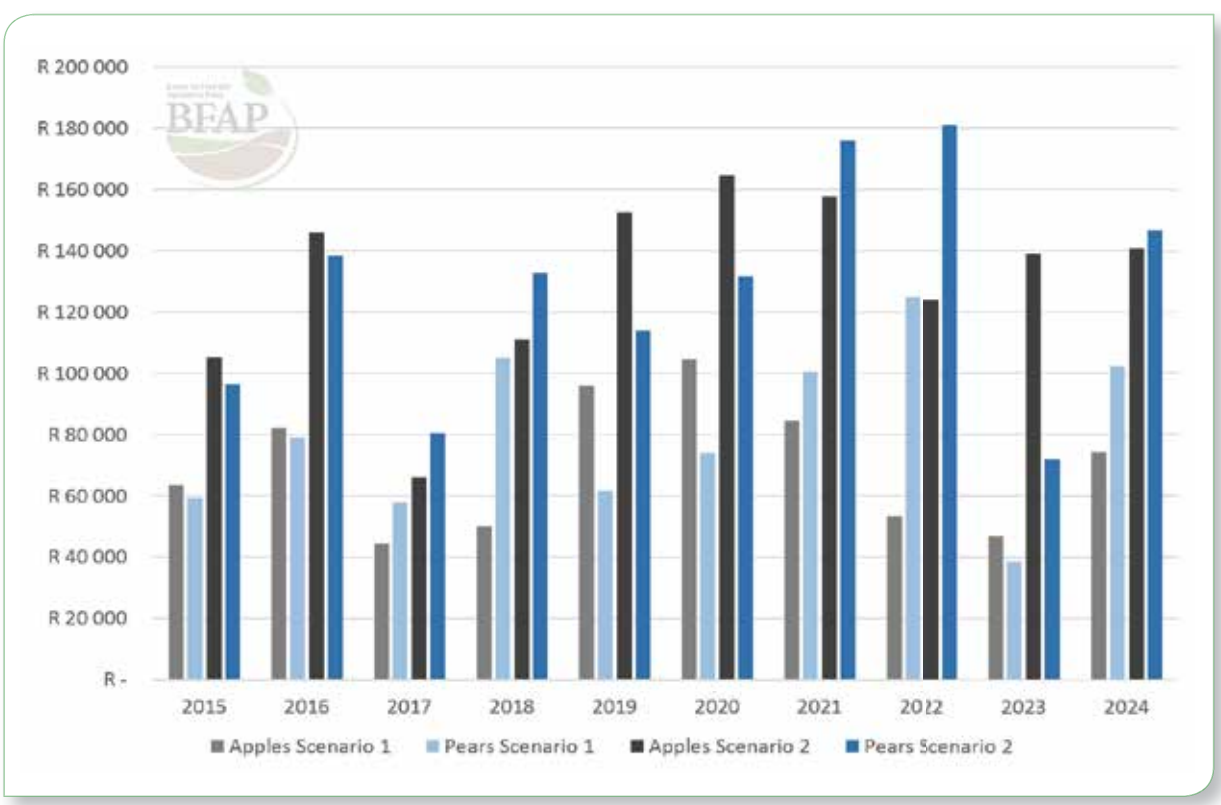


Figure 98: Simulated enterprise gross margins per hectare

Figure 99: Simulated farm gross margins relative to the ratio of operating cost to income

Figure 100: Maximum, mean and minimum simulated annual net farm income (NFI) per hectare on the prototype pome fruit farm

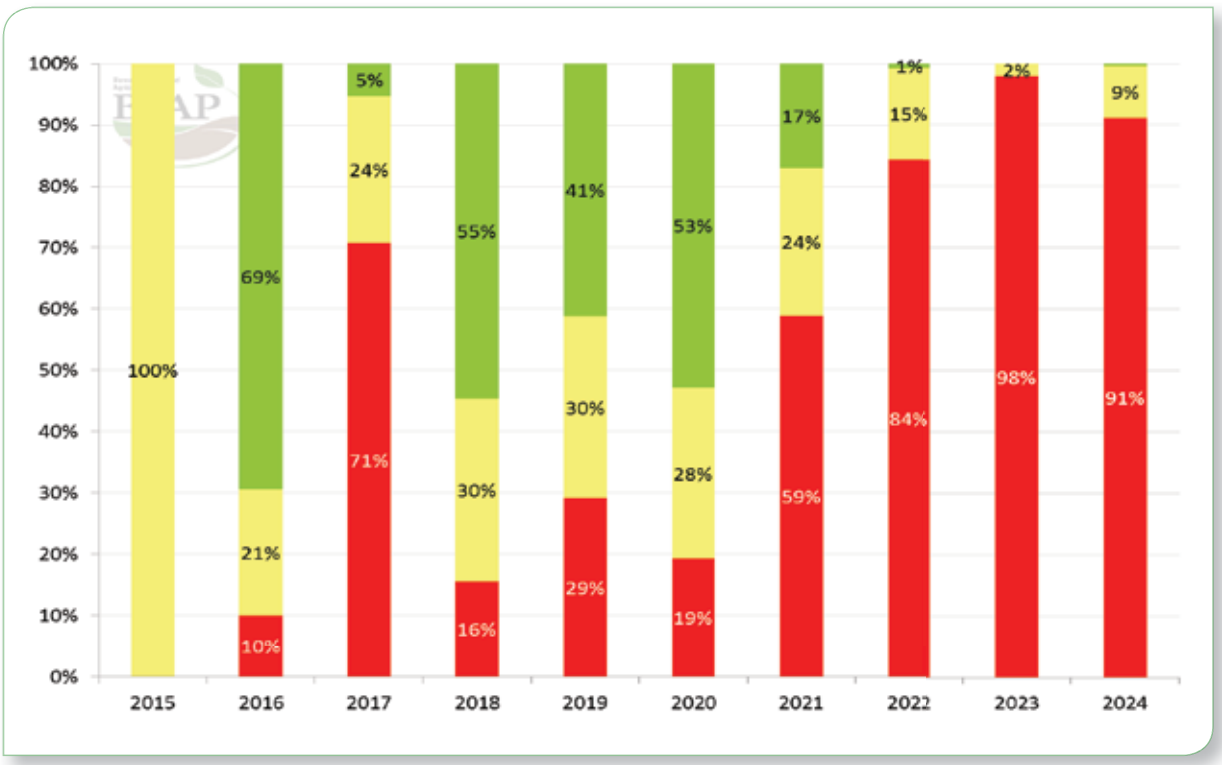


Figure 101: Probability of obtaining a net farm income (NFI) per hectare below R0, between R 0 and R 12 000 or above R12 000 – Scenario 1

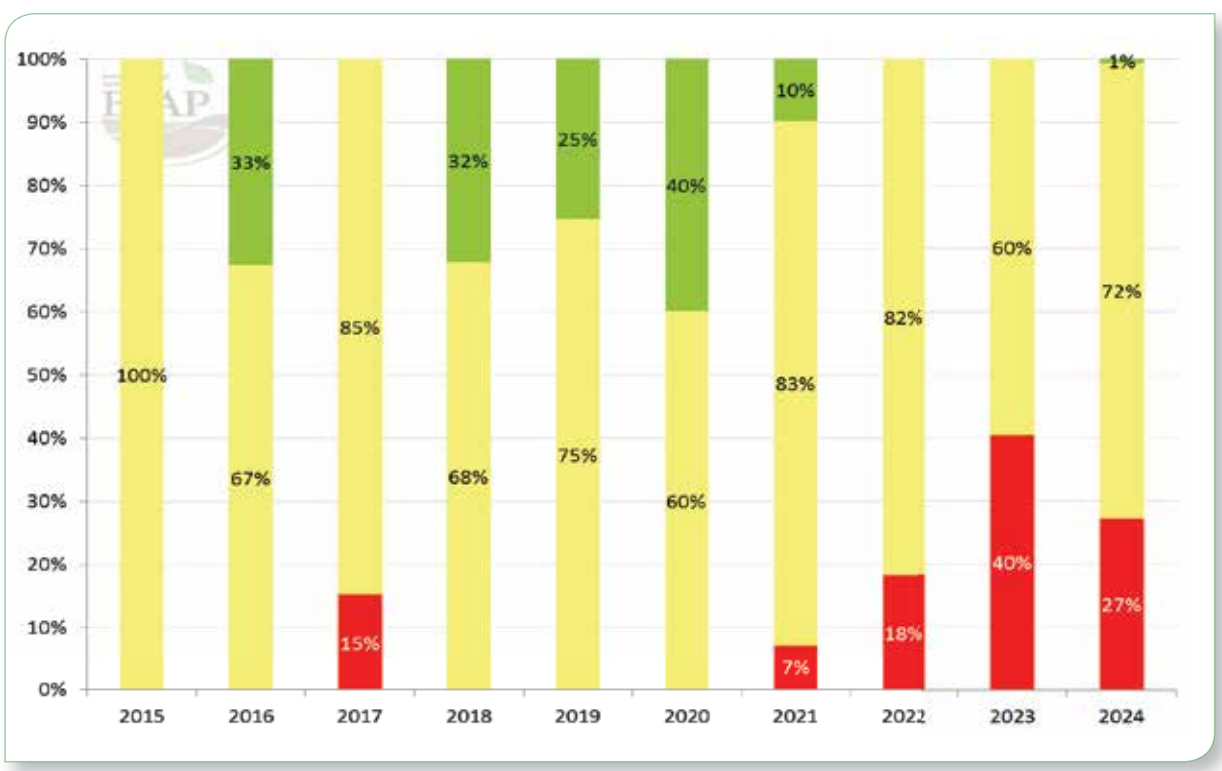


Figure 102: Probability of obtaining a net farm income (NFI) per hectare below R20 000, between R20 000 and R75 000 or above R75 000 – Scenario 2

Given the range of possible NFI levels presented in Figure 98, the probabilities that the annual NFI per hectare for the prototype apple and pear farm fall within a specified range are illustrated in the stoplight charts in Figure 101 and Figure 102, respectively for scenario 1 and scenario 2.

In scenario 1 the green[4] bars illustrate the probability of obtaining a NFI of more than R12 000 per hectare, whilst the red[5] bars reflect the probability of obtaining a negative NFI. The yellow[6] bars in turn represent the probability of obtaining a NFI of between R0 and R12 000 per hectare for the specified period.

In scenario 2 the red bars denote a probability of earning NFI of less than R 20 000, the yellow bars a NFI of between R20 000 and R 75 000, and the green bars a NFI of more than R 75 000 per hectare.

When interpreting the results, it should be kept in mind that the data in the analyses are in nominal values and that the probability boundaries set in Figure 101 and Figure 102 are fixed (in absolute value) over the projection period. Though scenario 2 represents a more optimistic view on prices and yield levels, the possibility of exceeding the upper bound (favourable situation) of the analysis declines with time, while the probability of falling below the lower bound (unfavourable situation) increases. This can be attributed to input cost inflation exceeding price gains – the cost squeeze that producers must face - and implies that continued productivity gains over time is paramount.

Agri benchmark Horticulture: Performance of apples in the global context

Two typical apple farms in South Africa form part of the agri benchmark Horticulture network, namely in the Ceres (120 ha) and in the EGVV (Elgin, Grabouw, Vyeboom and Villiersdorp) (80 ha) regions. The area, full bearing yield and price per cultivar for each typical farm are presented in Table 15.

Some of the agri benchmark Horticulture results and comparisons between participating countries are presented in Figure 103.

The average yield per hectare and gross revenue per ton for the typical farms for Germany, Italy and South Africa are indicated in Figure 103. The size of the respective typical farms are also

Table 15: Area, yields and prices for two typical South African apple farms included in the agri benchmark Horticulture network, 2015

	Area (%)		Yield (full bearing)		Price (export)	
Production region	**Ceres**	**EGVV**	**Ceres**	**EGVV**	**Ceres**	**EGVV**
Cultivar:	**%**	**%**	**(ton/ha)**	**(ton/ha)**	**(R/ton)**	**(R/ton)**
Granny Smith	13	21	65	72	4 500	4 071
Golden Delicious	22	25	78	82	4 500	3 758
Royal Gala	15	14	63	58	5 350	4 689
Pink Lady / Cripps Pink	15	10	81	62	7 750	5 984
Topred / Starking	19	10	60	52	5 250	3 783
Fuji	11	10	65	63	6 000	5 324
Braeburn	5	5	85	77	5 250	4 420
Sundowner	0	5	na	62	na	7 445
Total	**100**	**100**				

EGVV – Elgin, Grabouw, Vyeboom and Villiersdorp
na – not applicable

4 "Favourable"
5 "Unfavourable"
6 "Cautionary"

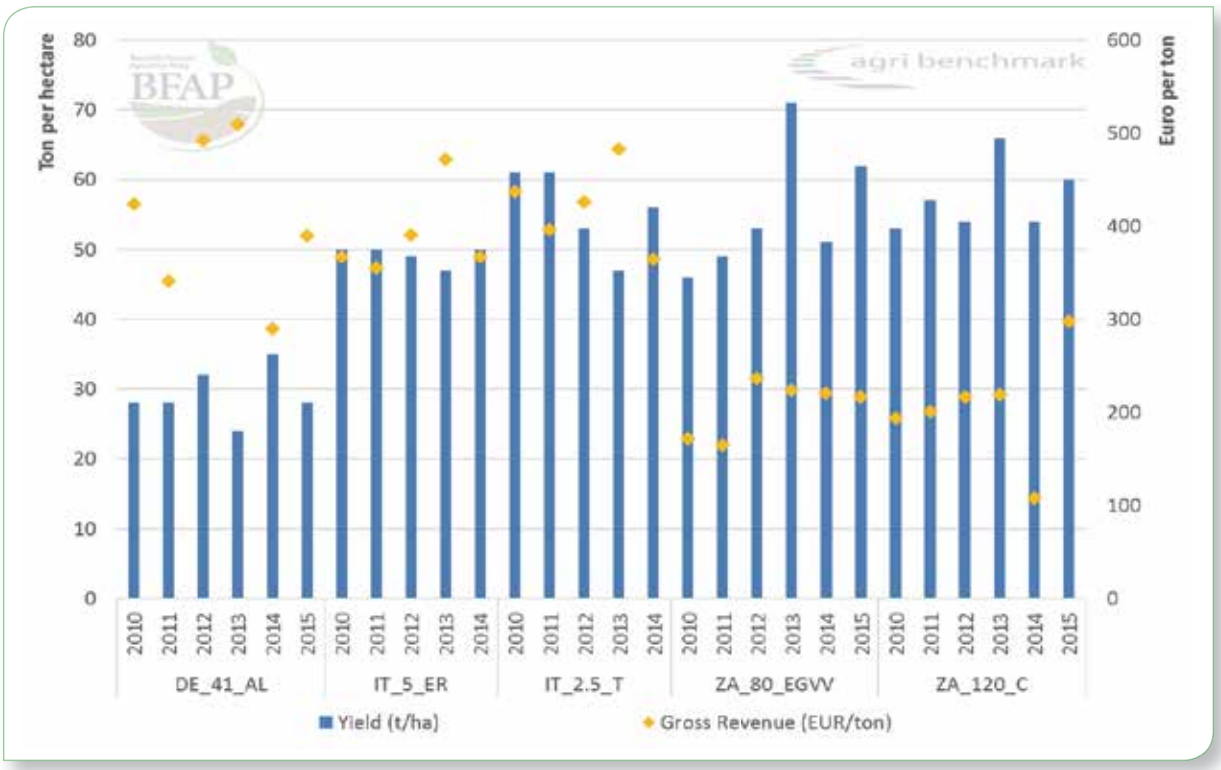


Figure 103: Yield (ton/ha) and gross revenue (€ per ton) for apples (2010 to 2015) on various typical farms in Germany (DE), Italy (IT) and South Africa (ZA)

Source: Thunen Institute. 2016. agri benchmark Horticulture results database.

listed in the figure and differ widely, with only the German and the two South African typical farms being relatively large. The yields for the South African typical farms are higher than that of the German typical farm and comparable to the yields of the two Italian typical farms. The yields for the two South African typical farms were considerably higher during the exceptionally good 2013 harvest. Amongst others hail in the Ceres region had a negative effect on yields and quality for the 2014 harvest. The hail damage influenced the grading and prices of apples.

The gross revenue per ton of the South African typical farms was considerably lower than those of the European countries over the period 2010-2015. This can possibly be ascribed to the fact that the gross revenues for the South African typical farms are based on farm gate prices (cost of packaging already deducted) and / or subsidies paid to European producers.

The total cost and gross revenue for the typical apple farms of Germany and South Africa are indicated in Figure 104. The total cost per hectare of the smaller German typical farm (15 ha) was higher than that of the other three (larger) typical farms. The total cost of the larger German typical farm (41 ha) showed a sharp increase in 2014 and stayed on that level for 2015.

It is clear from Figure 104 that the gross revenue per hectare varied widely from year to year on three of the typical farms. The gross revenue per hectare for the Ceres typical farm showed a steady increase over the period 2010 to 2015 (except for 2014 as a result of hail damage).

The total cost and gross revenue for the typical apple farms of Germany and South Africa are indicated in Figure 104. The total cost per hectare of the smaller German typical farm (15 ha) was higher than that of the other three (larger) typical farms. The total cost of the larger German typical farm (41 ha) showed a sharp increase in 2014 and stayed on that level for 2015.

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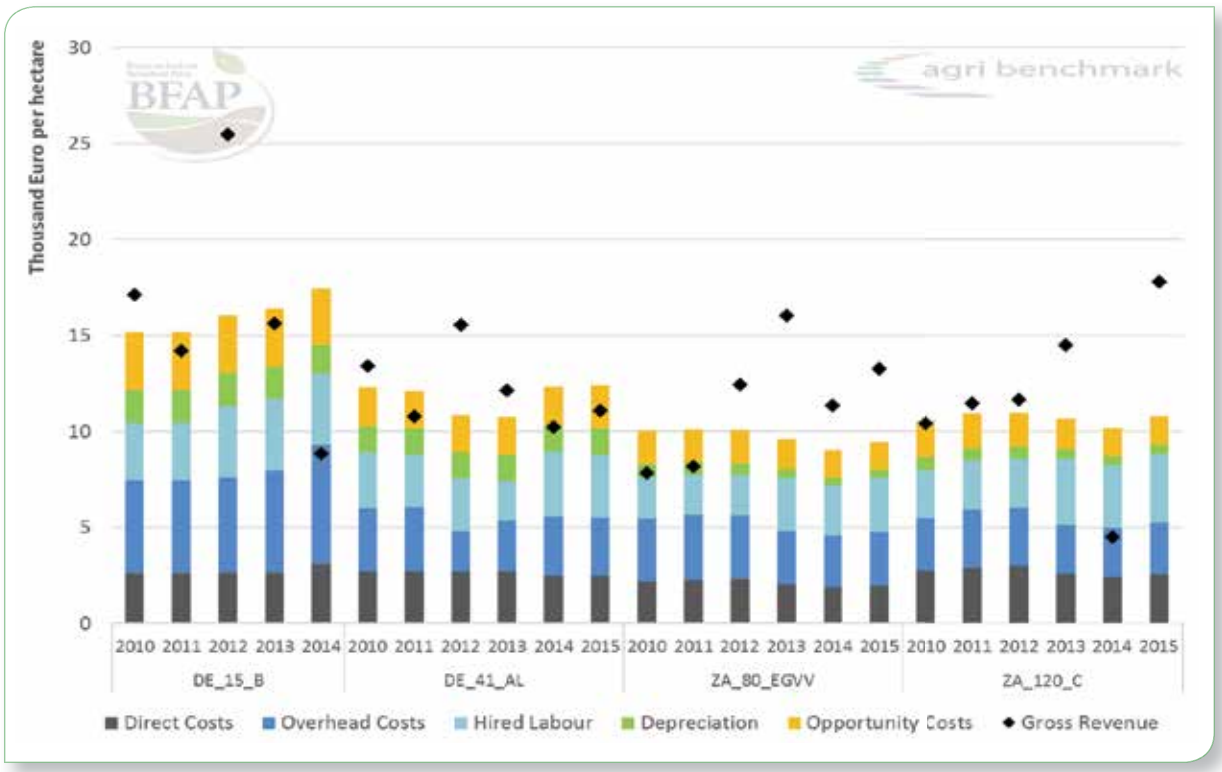
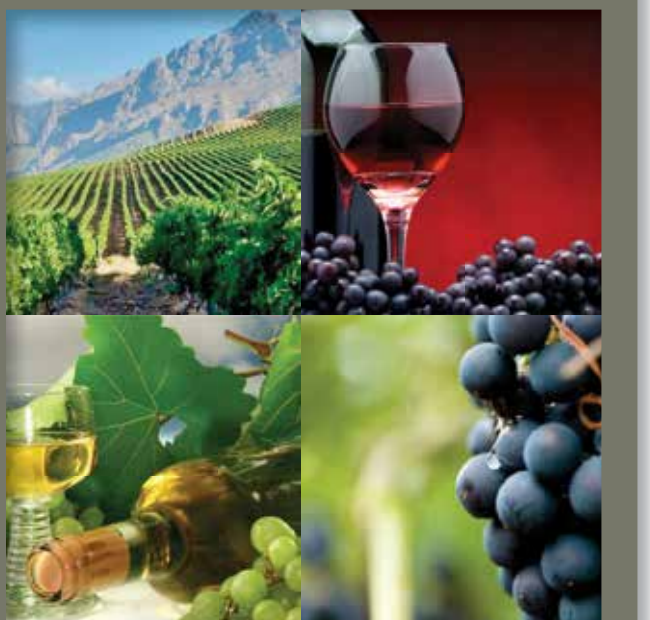


Figure 104: Total cost (€ per ha) and gross revenue (€ per ha) for apples (2015) on various typical farms in respectively Germany (DE) and South Africa (ZA)

Source: Thunen Institute. 2016. agri benchmark Horticulture results database



OUTLOOK FOR HORTICULTURAL PRODUCTS

The South African wine industry has shown good progress towards its strategic targets, set as part of the Wine Industry Strategic Exercise (WISE). However, continued collective focus is required to sustain the momentum needed to achieve the shift towards a truly market and value driven industry.

WINE GRAPES AND WINE

Introduction

The South African wine industry has shown good progress towards its strategic targets, set as part of the Wine Industry Strategic Exercise (WISE). However, continued collective focus is required to sustain the momentum needed to achieve the shift towards a truly market and value driven industry. This review focuses on some of the key indicators in this regard, namely a brief market and trade update as well as production characteristics. It also examines producer returns.

Policy shifts associated with the liberalisation of trade, the subsequent deregulation of agricultural markets and the dismantling of the statutory powers of the KWV in the 1990's transformed the South African wine industry to make it more sensitive to changes in supply and demand. For example, in the early 1990's the ratio of white to red grape production was 90:10, while it increased to 65:35 over the next 14 years, and then stabilised at 60:40 for a while after 2007, only to decline in recent years.

The remarkable year of 2013 was associated with record yields, exceptionally favourable climatic conditions, a depreciating exchange rate which supported exports, and smaller than average harvests from major European producers. This resulted in an upsurge in exports to a record level of more than 500 million litres. The succeeding production seasons were characterised by declining yields, a net loss in the area planted to vines (which were aging), along with increasingly severe drought conditions. Having declined by 2% from 2015 to 2016, preliminary estimates show that wine grape production is expected to increase by 1.4% in 2017 on the back of improved yields. This represents a decline of 2.6% from the five-year average (2012-2016) and is also accompanied by above average quality in many regions. Nevertheless, going forward, declining production leads to reduced export volumes. This provides the opportunity to substitute out of bulk exports to ensure increased value capture and appropriate market access to high potential markets in Asia generally and China in particular, the USA and Africa. Yet it remains important for the industry to maintain a focus on the local market through appropriate segmentation, and to continue to exploit the opportunities presented by the wine tourism industry.

Given the ongoing drought conditions in the Western Cape and the tight water supplies for irrigation purposes, the competition for this scarce and critical resource among the wine industry, other horticultural industries and urbanization will dominate the supply side going forward.

Snapshot of the Wine Industry Structure

	2006	2016
Number Producers	4 185	3 145
Number of Wine Cellars which crush grapes	576	568
Hectares	102 146	95 775
Ton Crushed	1 301 597	1 405 401
Exports litres	271.7 m	428.4 m
Local Market litres	337.5 m	436.9 m

Global market and trade outlook

South Africa exports close to 50 percent of its annual wine production, making it essential for the industry to be aware of global trends and how South African exports perform in the global market. Even though global production, consumption and trade of wine has remained relatively stable since 2011 on an aggregate level, several key developments are worth noting:

- There has been a clear shift in consumption over the past two decades away from the traditional wine markets in the European Union (EU) towards the United States (US) and China. Wine consumption in the US is expected to grow by 4.6% between 2017 and 2020, while Chinese consumption is expected to grow by 23.3% over the same period. Both these markets are being targeted by the South African wine industry through the WOSA Export Strategy supported by the WISE initiative.
- Although the volume of global exports has remained at around 400 million litres since 2011, the value of these exports has increased by 26% when measured in Euro (and 104% when measured in Rand).
- Consumption in South Africa's leading export markets, namely the United Kingdom, Germany and France, has remained stagnant and almost no volume growth is expected in these markets up until 2020 (Figure 105).

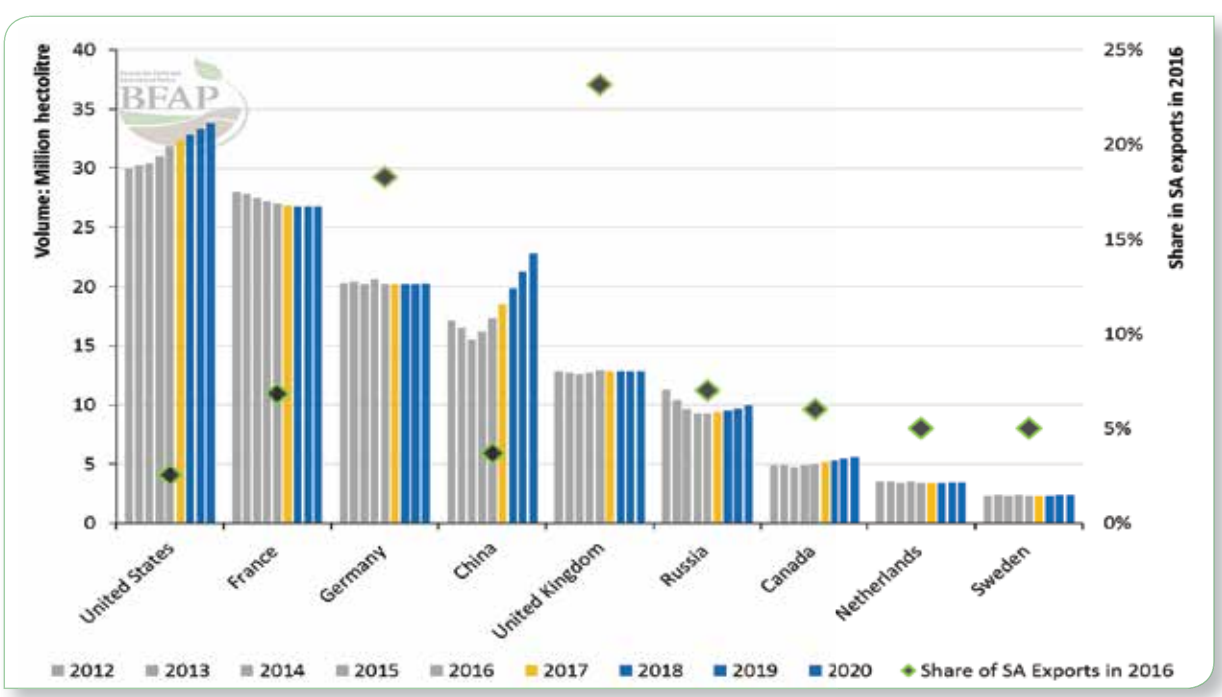


Figure 105: Global wine consumption trends (volume) and share of SA exports (volume, 2016)
Sources: OIV, 2017, Euromonitor, 2017 and SAWIS, 2017

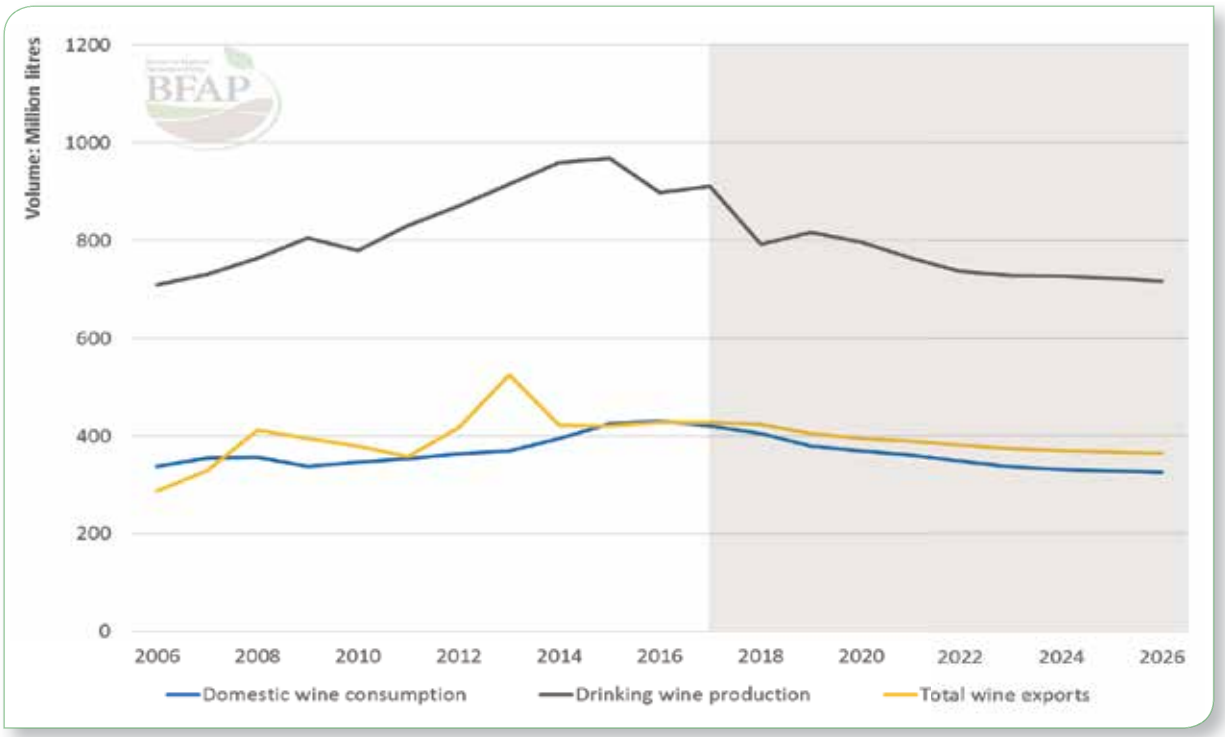


Figure 106: SA export, production and domestic consumption volumes, 2006-2026

- Although some income growth is expected in Africa, exporters should be mindful that the continent (excluding South Africa) imports only 1% of the value of global imports and this value has remained stagnant at around R6 billion since 2014. Economic growth has also slowed in the region now that commodity prices have entered a lower cycle.
- Almost 90 percent of the next billion entrants into the global middle class is expected to be in Asia: 380 million Indians, 350 million Chinese, and 210 million other Asians (Kharas, 2017). Although China dominates current Asian wine consumption and imports, this tremendous growth in household income will likely create a significant demand for wine in this region in the future. The South African wine industry should carefully consider how it establishes its products in this region.

Trade update

Wine export volumes grew by 2% to reach 428 million litres during 2016. Since 2014, strong growth in export volumes occurred to China (+81%), Canada (+46.4%), France (+18.3%) and Denmark (+11.7%). At the same time, export volumes to South Africa's leading export markets, the United Kingdom, Germany, USA and Sweden fell by 9.1%, 1.3%, 5% and 12.2% respectively.

Bulk wine exports continued to dominate in 2016, with bulk volumes constituting 60.5% of total export volumes and packaged exports the remaining 39.5%. Despite the projected decline in wine production over the outlook, a significant share of total wine production will remain destined for the export market. South Africa exports wine to a number of important markets, including the United Kingdom, Germany, France, North America, some African countries, Russia and China. Under the current export strategy Europe will continue to drive South African wine exports over the outlook period, largely as a result of the substantially increased duty-free quota. However, it is not clear how Brexit will influence the size of this quota into the EU, or whether there will be a duty-free quota into the UK. Similarly, the renewal of the African Growth and Opportunities Act (AGOA) presents growth opportunities in the United States, where export volumes have been increasing since 2000 and higher values are typically attained. Rising exports into the BRIC countries has mainly been driven by Russian demand. The United Kingdom is projected to remain the biggest export market for South Africa depending on whether South Africa can maintain the preferential status that it has over all other competitors except Chile, which also currently has duty free access into the EU.

Going forward, the outlook for total exports remains broadly positive, given the improving value proposition of South African

BOX 8: SA Export Prices too low?

Figure 107 indicates that the average price at which South Africa exports wine is amongst the lowest in the world. Export prices can however be recorded differently among exporters, therefore Figure 108 also provides official import statistics from several key importers which provide comparable prices for each country. From these figures, the following should be noted:

- Wine exports to South Africa's two largest export destinations, the United Kingdom and Germany, are priced lower than the national average import price and the average price at which countries outside of the European Union export to these countries,
- Although France is a relatively small wine importer, SA exports attain higher prices than the national average import price and the average price at which countries outside of the European Union export to France.
- SA wine exports are priced lower than the average import prices in China and the US (both key growth markets in the future).
- The South African wine industry is trying to change exports from predominantly bulk to packaged, which should see average export prices increasing. However, as seen in China, even bottled wine exports from South Africa are currently priced below average.

The Return on Investment (ROI) for wine producers was less than 1% during 2016. Changing the export pricing strategy can help to both improve the sustainability of the industry and to reach the WISE goal of attaining a ROI of CPI+5%.

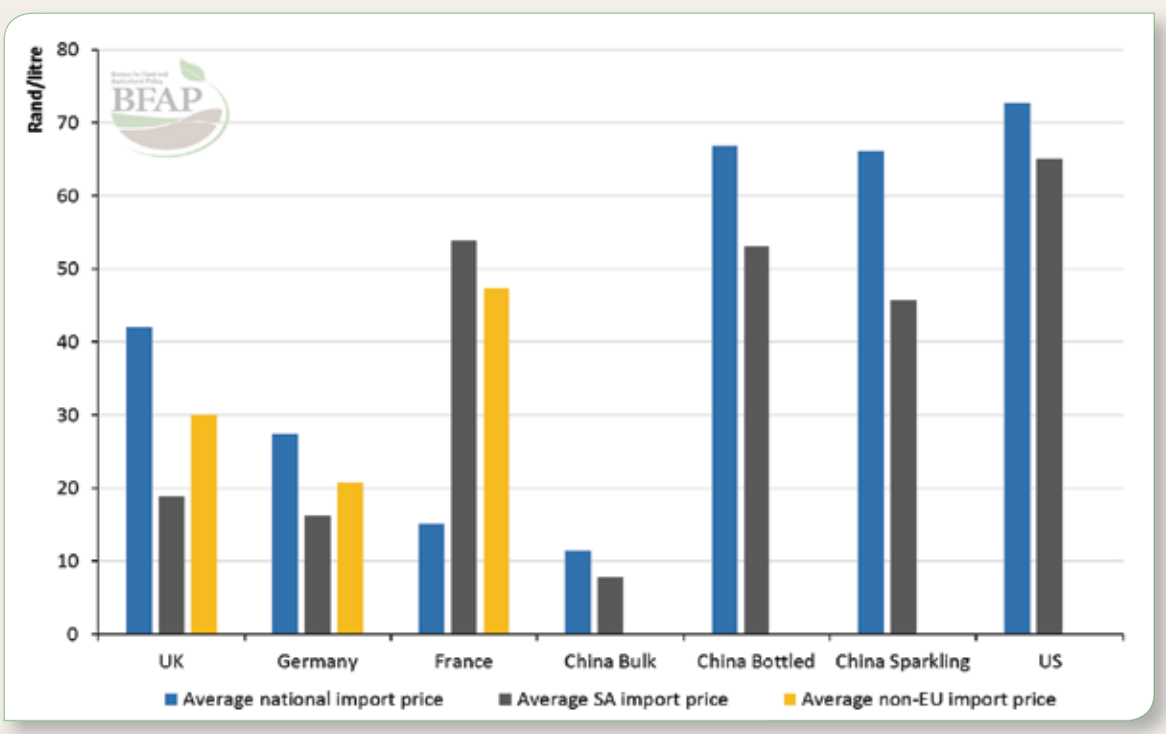


Figure 107: Average wine export prices[1] among leading exporters, 2015-2016
Source: OIV, 2017, European Commission, 2017, ChinaWineBusiness, 2017, USITC, 2017

[1] Prices represent a trade volume weighted average of all wine, including bulk, packaged and sparkling.

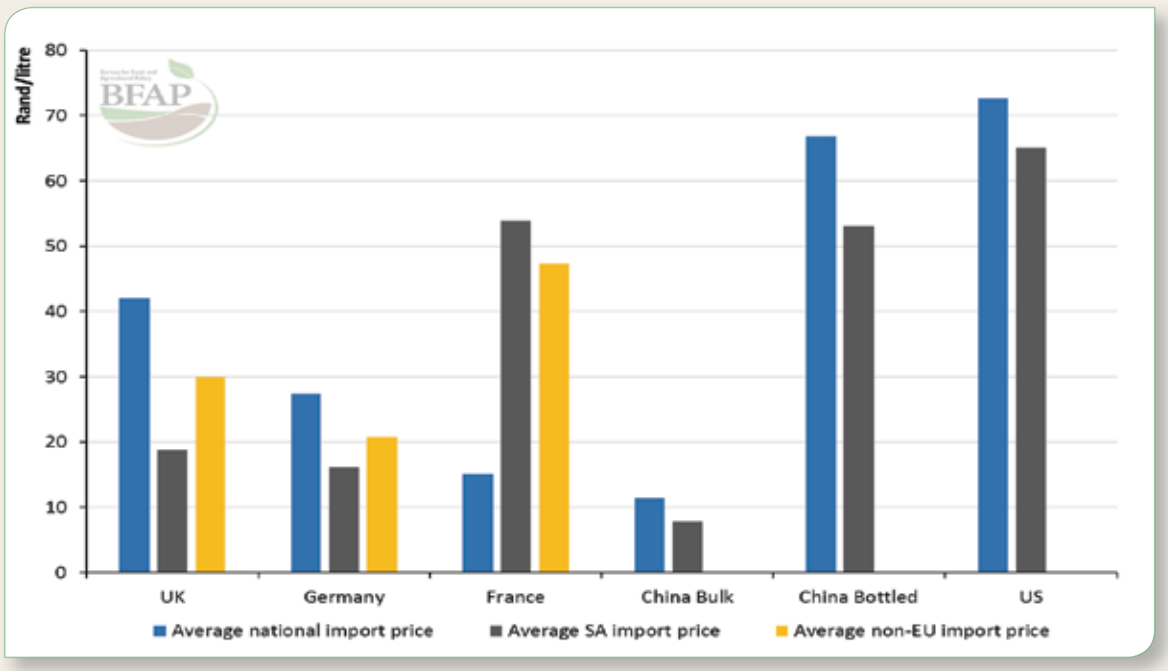


Figure 108: Average wine import prices[2] among key importers, 2016
Source: OIV, 2017, European Commission, 2017, ChinaWineBusiness, 2017, USITC, 2017

[2] Except for China, which is shown separately, prices represent a trade volume weighted average of all wine including bulk, packaged and sparkling

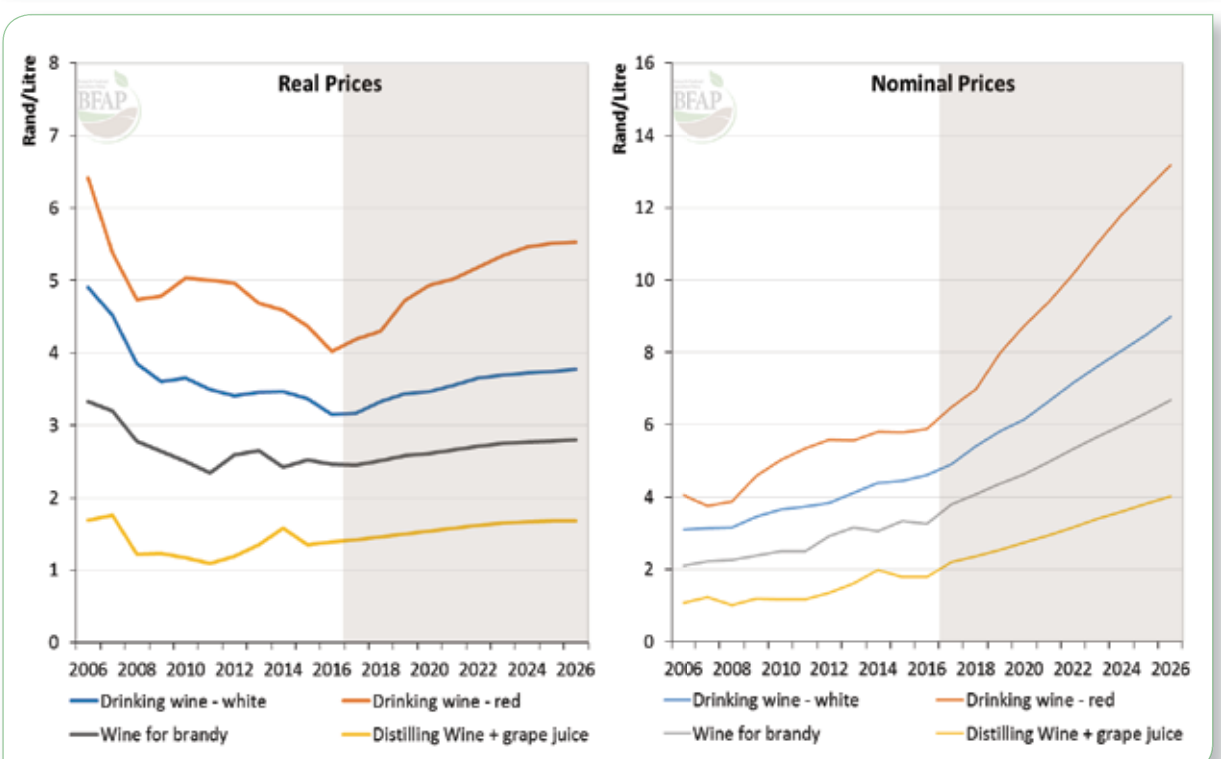


Figure 109: Historic and projected wine prices in real (left) and nominal (right) terms, 2006-2026

wines. Within the context of a decline in wine production, the total export volume projected for 2026 declines to well below 400 million litres. This offers the opportunity to rebase the market position of South African wine in the export markets (Box 8), focussing on quality and with higher prices offsetting volume decline and hence growing export values. Very deliberate focus is required to ensure correct market position in especially the "new" markets of United States, China and Africa.

Domestic consumption is also projected to decline due to the combination of higher prices and pressure on consumer spending power. By 2026, the share of domestic use in total wine consumption is expected to decline marginally, as producers seek to maximise value in the export market (Figure 106).

Price Trends

The premium for red wine during the late 90's and early 2000's led producers to invest in the establishment of red vines, which in turn led to significant red wine price decreases as production volumes increased substantially (Figure 109). Real prices are expected to increase slightly over the outlook period. The red wine ex-cellar price is projected to increase at a faster rate due to production decreases and a quicker reaction to supply-demand dynamics. The real white wine ex-cellar price decreased by 6.5% from 2015 to 2016 while the real red wine ex-cellar price decreased by 8%. Going forward, the real white wine price is expected to remain fairly constant in 2017, whilst real red wine prices are projected to increase by approximately 4% year on year, assuming quality remains consistent. Wine for brandy and distilling and grape juice prices are projected to increase gradually over the outlook period, parallel to the white wine price.

SA Wine Grape Production

There were 275 million vines in production in South Africa in 2016, down by 2.1% from 2015. Figure 110 presents the extent of the change in the proportions of red and white wine cultivars planted. The share of red wine cultivars increased to 44% in 2016 from only 24% in 2000, whilst the share of white wine cultivars declined from 76% in 2000 to only 56% in 2016. The shift is mainly the result of producers responding to very rewarding red wine prices. Going forward, the total number of bearing vines in South Africa is projected to decrease by an average of 2.4% per annum, reaching 221 million vines in 2026 with the proportion of white (mainly Chenin blanc, Sultana and Colombar) and red (mainly Shiraz, Cabernet Sauvignon and Pinotage) grape varieties converging to 60% and 40% of total vines respectively by the end of the outlook.

The size of South African vineyards declined by 2% between 2015 and 2016, and by 8.5% since 2008. The current age distribution of yielding vineyards suggests that vineyards younger than 4 years have stabilised at 7 thousand hectares, whereas vineyards aged between 4 and 15 years have consistently declined since 2011 (Figure 111). The share of older vineyards (older than 16 years) has grown from 34% of the total area in 2011 to almost 50% in 2016. This trend of aging vineyards is expected to continue going forward due to a) the growing number of vines reaching their replacement age following the rapid expansion in plantings in the late 1990s and early 2000's and b) currently low profitability levels forcing producers to either switch to alternative crops or extending the life of existing vineyards.

Wine production

In 2016, drinking wine and wine for brandy production decreased by 7% and 9.6% respectively from 2015 volumes, while the production of distilling wine and grape juice and grape concentrate increased by 3% and 15% respectively (Figure 112). Keeping with the trend in wine grapes, total wine production is also projected to decline over the outlook. Furthermore, the share of drinking wine in the distribution of grape product production declines by 3% over the outlook period.

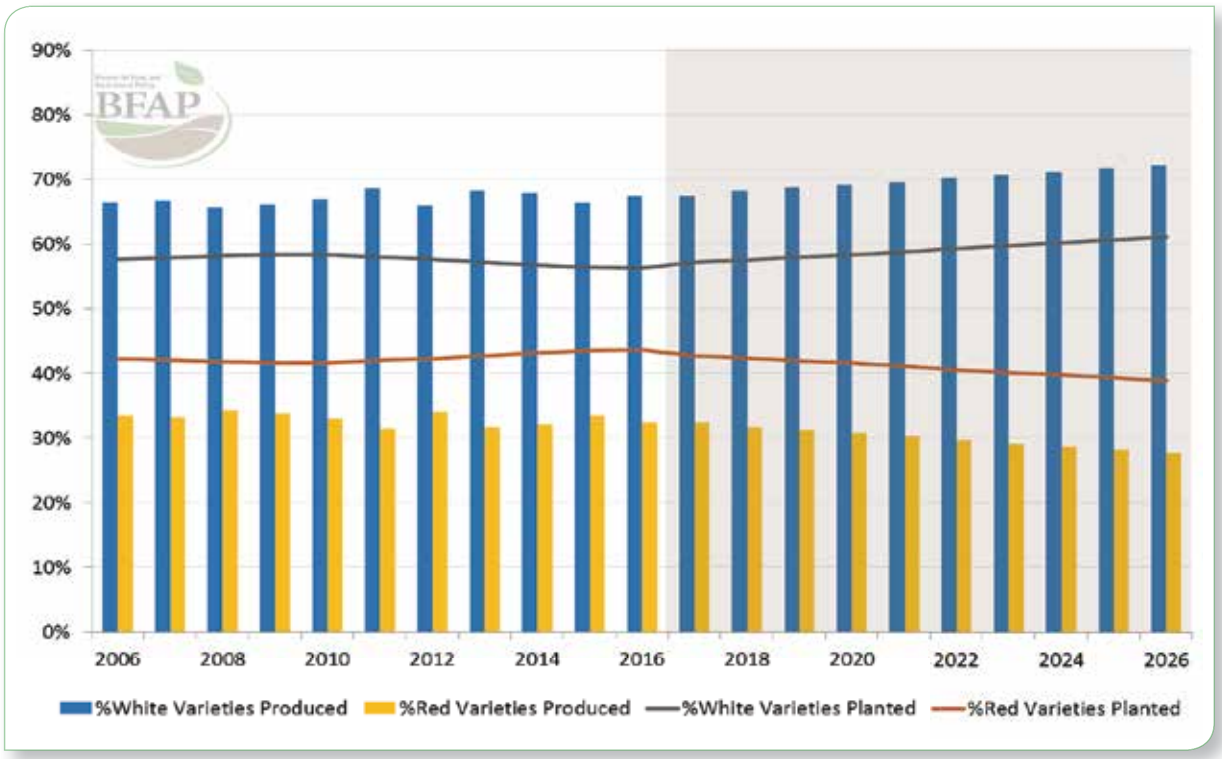


Figure 110: Relationship between white- and red wine cultivars in SA, 2006-2026

Figure 111: Average age distribution of South African vines (2008 – 2016)
Source: SAWIS (2017)

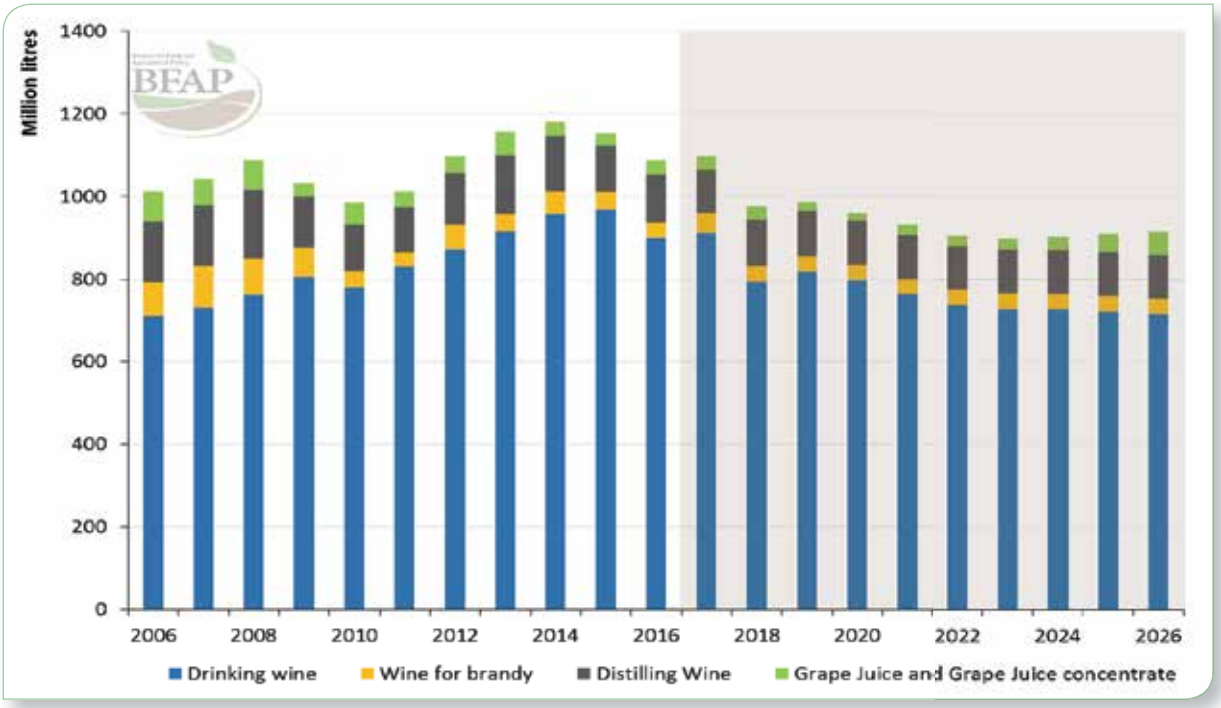


Figure 112: Historical and projected volumes of grape products, 2006-2026

BOX 9: Agri benchmark – Performance of wine grapes in the global context

Part of the BFAP farm level network is the agri benchmark initiative where agricultural enterprises are compared globally. Agri benchmark is an international network of agriculturists, economists, advisors and farmers aiming to create a better understanding of global farming by analysing sustainable, comparable and quantitative information on production systems in different parts of the world. More than 30 countries are already part of this network and their typical farms are updated and analysed annually, based on a standard operating procedure as defined by the agri benchmark methodology. The latter ensures that credible comparisons can be made.

Two typical wine grape farms in South Africa of 50 hectare each, form part of the agri benchmark Horticulture network, namely in the Breedekloof and in the Paarl regions. The cultivar composition and full bearing yields of the two farms are presented in Table 16.

Table 16: Cultivar composition, yields and prices of wine grapes for two 50 hectare typical South African farms for agri benchmark Horticulture, 2015

	Area (%)		Yield (full bearing)	
Production region	**Paarl**	**Breedekloof**	**Paarl**	**Breedekloof**
Cultivar:	**%**	**%**	**(ton/ha)**	**(ton/ha)**
Chenin Blanc	22	27	15	26
Colombar	3	18	20	25
Sauvignon Blanc	8	10	11	21
Chardonnay	9	10	13	16
Shiraz	17	11	11	18
Cabernet Sauvignon	22	9	9	14
Pinotage	10	9	11	14
Merlot	9	na	12	na
Ruby Cabernet	na	6	na	16

*na --- not applicable

Source: SAWIS. 2016. SA wine industry statistics no. 40. www.sawis.co.za ; Vinpro. 2016. Yield per cultivar for Breedekloof and Paarl. www.vinpro.co.za

The lifespan of the vineyards is assumed to be 25 years and the average time to first full bearing is assumed to be five years for the Breedekloof typical farm and six years for the Paarl typical farm. The vineyards of both typical farms are under drip irrigation and there are 3 333 vines per hectare. It is further assumed that the grapes of the Breedekloof typical farm are delivered to a local producer cellar, while the grapes of the Paarl typical farm are delivered to private cellars and wholesalers. It is evident from Table 16 that the yield for the comparable cultivars is higher for the Breedekloof typical farm. The price for the comparable cultivars on the other hand is normally higher for the Paarl typical farm.

It is clear from Figure 113 that there are huge differences in the total cost and gross revenue of wine grape production between the typical farms of Germany, Argentina, Italy, Spain and South Africa. The total costs of the small (10 ha) German typical farm and the Italian typical farm are relatively high, while the total cost and gross revenue of the Spanish and South African typical farms are relatively low. The hired labour cost is relatively high for the Argentinian and Italian typical farms.

The gross revenue of the Italian typical wine grape farm was by far the highest, followed by the two German typical farms. Although the assumed prices of the Paarl typical farm in Table 16 are higher than those of the Breedekloof typical farm, it seems from Figure 113 that the gross revenue per hectare is slightly higher for the Breedekloof typical farm. Apparently the higher assumed comparable yields of the Breedekloof typical farm compensated for the higher prices of the Paarl typical farm.

The return to family labour, own land and own capital is higher for the two German and Italian typical farms. The return to family labour, own land and own capital are higher for the two South African typical farms than as for the typical farms of Argentina and Spain. Furthermore, European producers are supported through a range of subsidies, which are not easily quantifiable on a per enterprise basis due to the often-decoupled nature. South African and Argentinean producers do not receive this benefit.

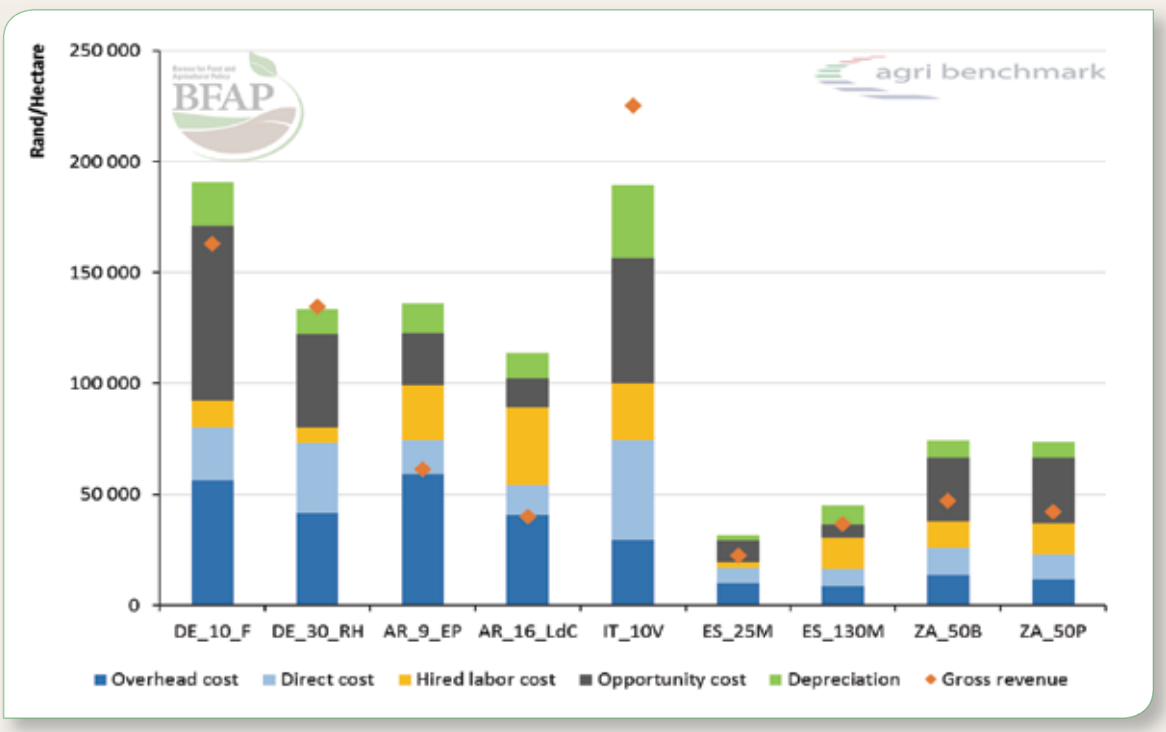


Figure 113: Total cost (R per ha) and gross revenue (€ per ha) for wine grapes (2015) of various typical farms in respectively Germany (DE), Argentina (AR), Italy (IT), Spain (ES) and South Africa (ZA)
Source: Thunen Institute. 2016.

FOOD INFLATION OVERVIEW

Food inflation has a direct impact on households' food security status, affecting the affordability of food items and ultimately the quantity and quality of nutrients consumed.

FOOD INFLATION DYNAMICS AND NUTRITIONAL IMPLICATIONS FOR CONSUMERS IN SOUTH AFRICA

Food inflation has a direct impact on households' food security status, affecting the affordability of food items and ultimately the quantity and quality of nutrients consumed. The prevalence of high food inflation has been a reality in the South African context for some time – considering some examples of recent media coverage on the topic: "Sugar, milk, meat price hikes could stay high", "How food prices spiked in the last year", "Meat prices expected to go up", "Red meat prices soar as farmers rebuild herds", "Blanket of gloom over retail".

This chapter first presents an overview and outlook of aggregate food inflation in South Africa, before exploring the consumer implications of food inflation on food intake in general as well as from a healthy eating perspective.

THE (MORE RECENT) HISTORY OF FOOD INFLATION IN SOUTH AFRICA

Figure 114 presents an overview of CPI-based inflation (aggregate as well as food and non-alcoholic beverages (NAB)) from early 2009 to April 2017. Key movements and driving factors are summarised below:

- ***January 2009 to mid-2010*** CPI food inflation decreased from 15.8% to 0.3%
    - Major driving factor(s): Weak demand due to the financial meltdown led to lower prices as businesses tried to retain market share.
- ***Mid-2010 to end-2011*** CPI food inflation increased from 0.3% to 11.2%
    - Major driving factor(s): Higher international commodity prices and a sharp increase in the price of administered inputs such as electricity.
- ***Early-2012 to end-2013*** CPI food inflation decreased from 11.2% to 3.9% with a few moderate spikes.
    - Major driving factor(s): Slower growth in administered input cost prices (electricity and labour).
- ***Early 2014 to mid-2014*** (CPI food inflation increased from 3.9% to 9.7%)
    - Major driving factor(s): Rising cost of administered inputs (electricity and labour).

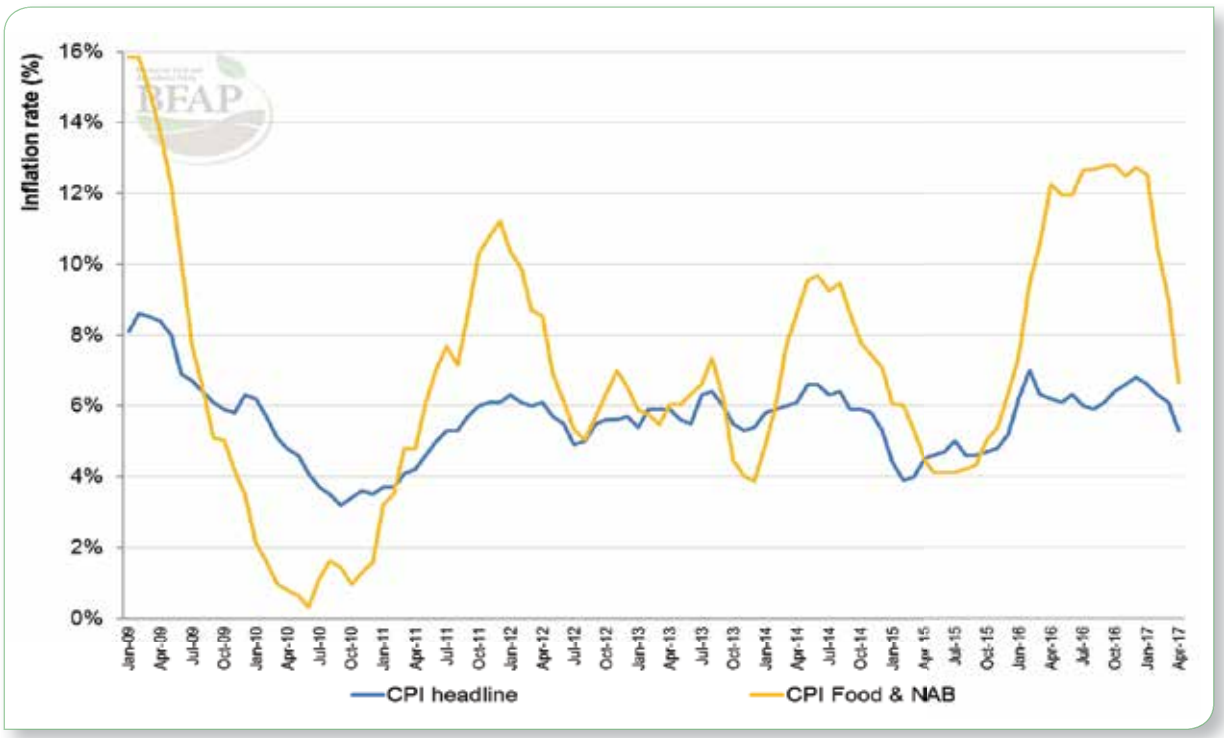


Figure 114: Aggregate inflation versus food inflation in South Africa
Source: StatsSA, 2017

- ***Mid-2014 to mid-2015*** (CPI food inflation decreased from 9.7% to 4.1%)
    - Major driving factor(s): Significantly lower oil prices.
- ***Mid-2015 to late-2016*** (CPI food inflation increased from 4.1% to 12.8%)
    - Major driving factor(s): Initially driven by modest recovery in global oil prices, but towards the end of 2015 the effect of the severe drought combined with a significantly depreciated exchange rate was evident.
- ***January 2017 to April 2017*** (CPI food inflation decreased from 12.7% to 6.7%)
    - Food prices during the first quarter of 2017 was still high on the back of elevated prices as a result of the 2016 drought. April figures did however show some alleviation as lower vegetable and grain prices resulting from the strong new season crop are starting to filter through.

Considering CPI inflation in specific food groups (Figure 115) the following can be observed:

- The average year-on-year inflation rate from April 2016 to April 2017 varied between 7% and 18% and was the most significant for sugary foods (+17.7%), followed by fruit (+16.0%), bread & cereals (+14.3%), fats & oils (+12.4%), vegetables (+11.0%), dairy & eggs (+9.0%) and meat (7.2%).
- CPI inflation for specific food groups peaked towards the end of 2016 / early 2017 for sugary foods (maximum 21.4%), fruit (25.0%), bread & cereals (+17.4%) and dairy & eggs (+11.1%). For fats & oils inflation peaked around July 2016 at 20.2%, while vegetable inflation peaked even earlier in April 2016 at 23.0%.
- For the meat category, CPI inflation has been increasing since September 2016 and was at a level of 10.5% in April 2017. Red meat prices have been increasing steadily since early 2017 mainly due to availability issues arising from the process of rebuilding herds following the drought. Another contributing factor is the steady export demand for red meat.
- CPI inflation for fruit and vegetables revealed the most variability during the analysis period, followed by fats & oils.

Table 17 presents an overview of year-on-year inflation from April 2016 to April 2017 on a number of food items within the

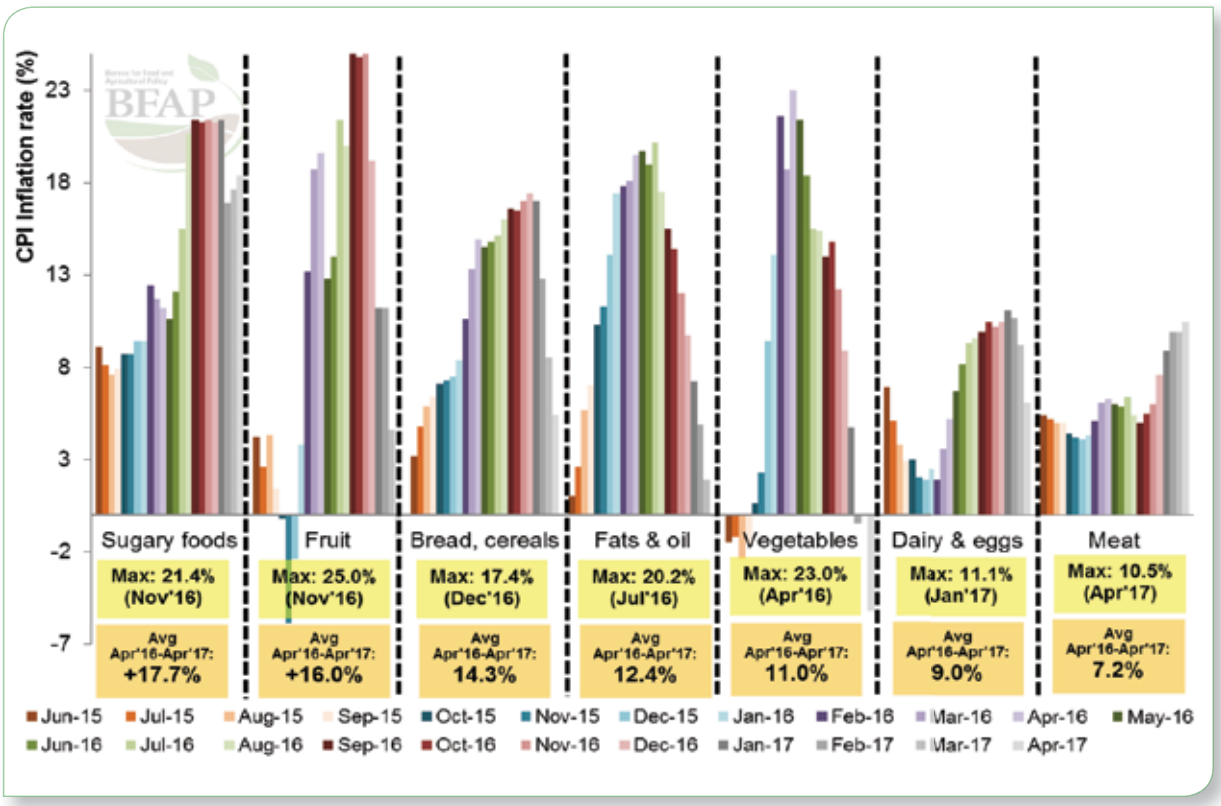


Figure 115: CPI food inflation for specific food groups in South Africa (June 2015 to April 2017)
Source: StatsSA 2017

various food groups being commonly consumed by South African consumers.

Considering the average year-on-year inflation for the months from April 2016 to April 2017, the highest inflation was observed for the following food items (in decreasing order): Oranges, maize meal, onions, white sugar, potatoes, bananas, sunflower oil, peanut butter, dried beans, polony, brown bread, white bread and margarine.

- ***Bread and cereals:***
    - Very high inflation on maize meal (maximum of 38% in Oct 2016, decreasing to 7% year-on-year in April 2017).
    - Very high inflation on potatoes, but moving towards deflation in February to April 2017.
    - Moderately high inflation on bread and rice (maximum of 11% to 15% year-on-year inflation peaking late 2016 / early 2017).
- ***Animal protein foods:***
    - Low inflation on chicken meat and eggs and inflation up to about 10% for beef products, where prices show an increasing trend towards April 2017 due to rebuilding of herds following the drought.
- ***Vegetables:***
    - Very high inflation on onions (peaking at 64% in August 2016).
    - Price deflation dominated for tomatoes, cabbages and carrots.
- ***Fruit:***
    - Apples: year-on-year inflation peaked in May to September 2016 at 17%.
    - Bananas: year-on-year inflation peaked in September 2016 to February 2017 at 49%.
- ***Bean products:***
    - Maximum year-on-year inflation of 13% to 23% observed for items in this group, with a general decreasing trend towards April 2017.

Table 17: Year-on-year inflation for specific commonly consumed food items in urban areas from April 2016 to April 2017

Food group:	Food item:	Year-on-year inflation rate:												
		Apr-2016	May-2016	Jun-2016	Jul-2016	Aug 2016	Sep-2016	Oct-2016	Nov-2016	Dec-2016	Jan-2017	Feb-2017	Mar-2017	Apr-2017
BREAD AND CEREALS	Super maize 2.5kg	39%	35%	36%	36%	38%	38%	37%	36%	36%	34%	27%	13%	7%
	Loaf of brown bread 700g	9%	10%	10%	11%	13%	15%	14%	13%	13%	13%	9%	7%	6%
	Loaf of white bread 700g	9%	9%	9%	9%	12%	11%	14%	15%	14%	11%	8%	7%	7%
	Rice 2kg	6%	10%	10%	7%	4%	7%	9%	10%	8%	11%	9%	8%	5%
	Potatoes - fresh per kg	57%	45%	41%	31%	31%	27%	25%	31%	26%	13%	-3%	-14%	-25%
ANIMAL PROTEIN FOODS	Tinned pilchards 400g	5%	7%	5%	5%	8%	7%	8%	8%	9%	8%	6%	7%	5%
	Beef chuck - fresh per kg	12%	11%	9%	10%	8%	6%	7%	7%	7%	6%	10%	11%	13%
	Beef mince - fresh per kg	5%	5%	5%	6%	2%	2%	3%	0%	3%	4%	9%	8%	7%
	Chicken portions - frozen per kg	-1%	-4%	-3%	-1%	-1%	-5%	-1%	2%	7%	8%	11%	9%	8%
	Chicken portions - fresh per kg	5%	6%	5%	6%	3%	4%	3%	5%	6%	6%	7%	5%	5%
	Lamb - rib chop per kg	16%	12%	12%	12%	7%	10%	9%	10%	11%	11%	7%	3%	6%
	Polony per kg	11%	14%	9%	13%	12%	11%	11%	15%	16%	21%	1%	11%	11%
	Pork chops - fresh per kg	1%	1%	0%	2%	3%	3%	4%	6%	6%	12%	13%	12%	10%
	Eggs 1,5 dozen	9%	7%	10%	10%	9%	4%	3%	-1%	-2%	2%	1%	1%	5%
DAIRY	Full cream milk – avg fresh & long life	3%	4%	6%	7%	8%	9%	11%	11%	11%	12%	11%	9%	6%
FRUIT	Apples - fresh per kg	4%	17%	14%	10%	14%	12%	5%	4%	-1%	6%	6%	9%	10%
	Bananas - fresh per kg	7%	-7%	-3%	16%	19%	27%	34%	40%	27%	35%	49%	16%	10%
VEGETABLES	Tomatoes - fresh per kg	2%	1%	-6%	-15%	-24%	-26%	-6%	-24%	-24%	-17%	-12%	3%	-11%
	Cabbage - fresh per kg	47%	26%	10%	-9%	-14%	-17%	-12%	-9%	-23%	-22%	7%	-2%	-32%
	Onions - fresh per kg	39%	41%	35%	49%	64%	56%	31%	26%	18%	2%	-10%	-8%	-19%
	Carrots - fresh per kg	-12%	-10%	-6%	-6%	-30%	-44%	-38%	-57%	-33%	-10%	-8%	-20%	No data
BEAN PRODUCTS	Beans Dried 1kg	17%	17%	18%	17%	18%	11%	5%	10%	9%	10%	11%	13%	11%
	Baked beans - tinned 410g	0%	2%	3%	4%	9%	11%	13%	10%	11%	11%	12%	11%	10%
	Peanut butter 400g	2%	5%	6%	11%	9%	12%	17%	23%	17%	23%	23%	19%	17%
FATS, OILS	Sunflower oil 750ml	26%	26%	26%	28%	23%	23%	17%	12%	8%	5%	2%	2%	0%
	Brick margarine 500g	7%	11%	10%	15%	13%	10%	12%	6%	8%	14%	8%	7%	7%
SUGARY FOODS	White sugar 2.5kg	13%	10%	13%	17%	29%	30%	29%	29%	31%	30%	23%	26%	25%

Source: StatsSA, 2017

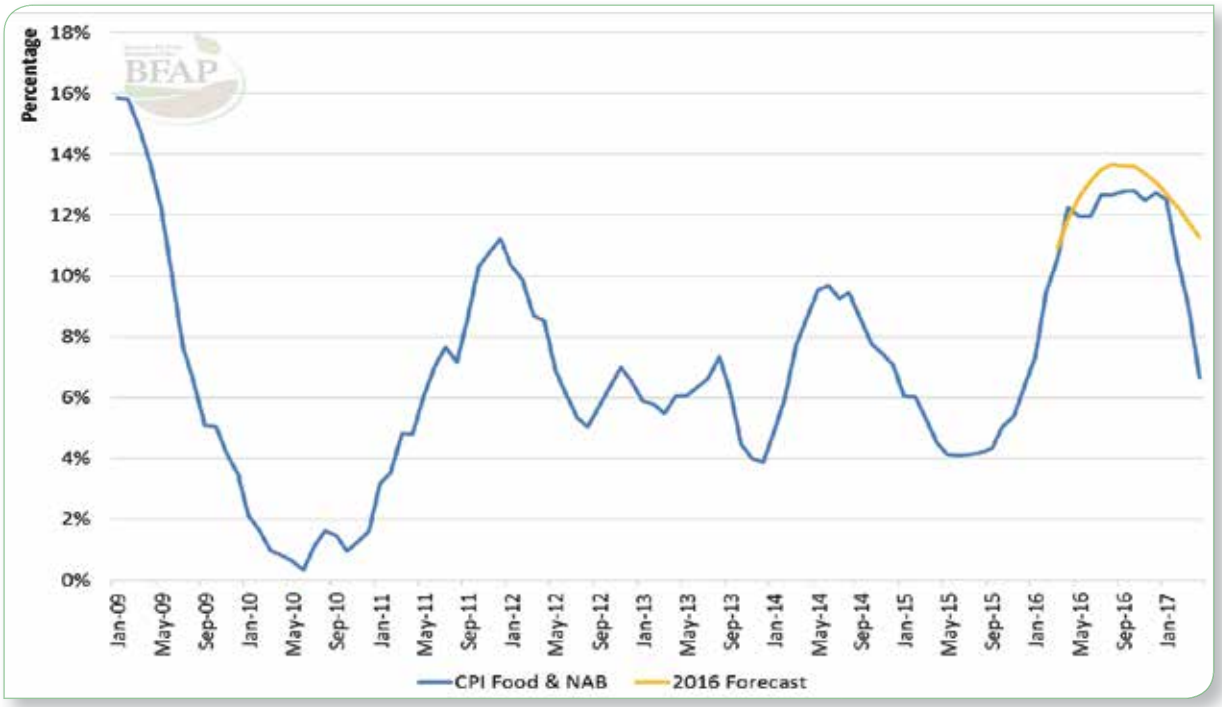


Figure 116: Comparison between 2016 food inflation forecast and actual values

- ***Fats and oils:***
    - Very high inflation on sunflower oil from April to September 2016 (peaking at 28%) with a movement towards 0% inflation in April 2017. In addition to the impact of the drought the exchange rate also contributed to rising oil prices as a significant amount of bottled oil was imported.
    - For margarine, the maximum observed inflation rate was 15% in July 2016, decreasing to 7% in April 2017.

Food inflation in the aftermath of the drought

A year ago the main question with regards to food inflation, was: "To what levels will food inflation increase as a result of the drought?" and "How long will these elevated inflation rates persist?" Looking back, Figure 116 depicts the BFAP baseline projections made for food inflation in April 2016, compared to the actual rates for the period April 2016 to April 2017. What is apparent from this graph is that the turning point that was projected was 13% year-on-year inflation in October 2016. Although the turning point did occur in October 2016, the level recorded was slightly less than expected at 11.8%. Between March and April 2017, the food inflation rate decreased substantially, from 8.7% to 6.7%. The lower April 2017 rates can be attributed to year on year figures being compared to the very high base of inflation figures recorded in April 2016. This implies that food prices are still very high in absolute terms and low-income households have not really experienced a decline in actual price levels, but at least prices are no longer increasing as rapidly as earlier.

Food Inflation Outlook

Figure 117 shows projections of food inflation rates from May 2017 to April 2018. The underlying statistical properties of this series were analysed in order to determine how this series responded to demand and supply shocks in the past. This information was then used to generate a projection of how one could expect food inflation to behave over the next year. Food inflation decreases quite rapidly until October 2017, after which it stabilises at just above 3%. The projected deceleration is sustained by two key fundamental factors. The first is the favourable production conditions of the 2016/17 grain production season. The second is the relative strength of the rand in the first quarter of 2017. There are also, however, factors that are expected to support food inflation over the outlook period. The most prominent of these is the current dynamics in the meat sector: with herd sizes significantly reduced because of forced sales during the drought, supply is expected to be under pressure over the outlook period. This, in combination with consistent export opportunities, will provide upward pressure on local red meat prices. Poultry price movements, in turn, are to a large extent dependent on future import volumes. At the time of writing, imports from the EU

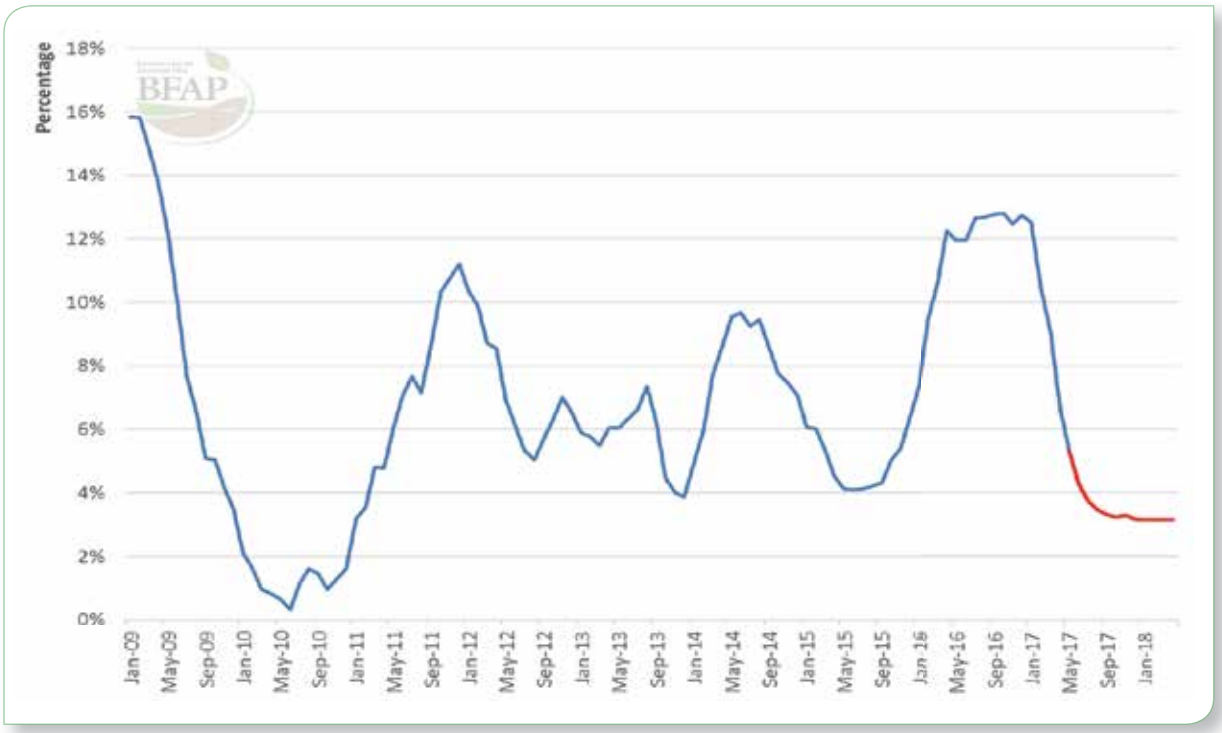


Figure 117: Food inflation outlook (May 2017- April 2018)

were constrained by an Avian Influenza outbreak. The reduced imports are currently supporting prices. It is however unclear when these countries will overcome the outbreak for the ban on imports originating from them to be lifted. The price pressures on food inflation associated with meat are expected to be further exacerbated by the weight adjustment in the consumer basket implemented by StatsSA early in 2017. Here the weight of meat increased from 4.56% to 5.46%.

The caveat associated with Figure 117 is that, despite the expectation that food inflation may remain low up until the end of 2018, a significant upside risk to food inflation exist as a result of possible exchange rate shocks. Locally, the volatile political climate could cause a substantial depreciation of the rand. Internationally, the main factor that would affect the movements of the rand is monetary policy in the United States. It is anticipated that US interest rates will be increased in June and September of this year. If this is the case, there will be pressure on the Rand, which ultimately provides support for food inflation, over the medium term.

PRICE DYNAMICS AND PROJECTIONS OF THE BFAP BALANCED FOOD BASKETS

Over the last few years BFAP has developed a range of 'balanced food basket' options for low-income consumers in South Africa. This was done to facilitate the measurement of food affordability from an 'ideal' balanced diet perspective. It should be noted that these BFAP balanced food baskets are not necessarily a reflection of how consumers eat, but rather an indication of what it will cost to follow a basic healthy eating plan. These baskets consider the nutritional serving recommendations of the Department of Health (DoH) Guidelines for Healthy Eating, which include all the food groups: Staple foods, animal protein foods, dairy, fats / oils, fruit, vegetables and legumes. These nutritional recommendations include the recommended number of food guide units, within the various food groups, for different individuals in terms of gender and age. We distinguish between two basket options in order to measure the affordability of basic healthy eating (Figure 118):

- The 'thrifty basket': contains all food groups but has proportionally more staple food units (set out as 'an economic eating pattern');
- The 'moderate-cost basket': contains all food groups with proportionally less staple food units and proportionally more units of food groups, adding dietary diversity.

Typical food purchasing patterns of lower income consumers, extracted from StatsSA Income and Expenditure Survey (IES) 2010/11, were combined with the DoH recommendations to compile these two healthy food baskets, measuring the affordability of basic healthy eating.

The BFAP Balanced Food Baskets include the following food items:

- Staples: Maize meal, brown bread, white bread, rice and potatoes;
- Animal protein foods: Beef mince, chicken pieces, canned pilchards, eggs, polony and beef sausage;
- Vegetables: Tomatoes, onions, carrots, cabbage and pumpkin;
- Fruit: Apples, bananas, oranges;
- Dairy: Full cream milk, sour milk / maas and chedder cheese;
- Fats & oils: Sunflower oil, margarine and peanut butter;
- Sugary foods: White sugar
- Drybeans, split peas, lentils, soya, dried beans, baked beans in tomato sauce.

The selection of products was strongly influenced by the food items monitored by StatsSA for retail prices across South Africa. The analysis focusses on two types of households: A single male, and a family of four consisting of an adult male, an adult female and two children. The costs of these food baskets are calculated by applying the official monthly food prices monitored by Statistics South Africa, as well as retail prices projected through the BFAP modelling system and transmission analysis (Figure 119, Table 18 and Table 19).

In April 2017 the cost of the BFAP thrifty basket amounted to R3 461 per household per month and R4 912 per household per month for the moderate-cost basket option (thus 42% higher than the cost of the thrifty basket). Applying BFAP retail price and inflation forecasts, the average cost of the BFAP thrifty basket for 2018 is estimated at R3 616 (+4.6% higher than the average basket cost of January to April 2017), and R5 095 for the BFAP moderate-cost basket option (+4.2% higher than the average basket cost of January to April 2017).

In reality, consumer food expenditure is more complex than 29 food items and will include items not considered here, which will be an additional expense to these figures. Furthermore, consumers could also switch between food items adding further complexity to the analysis of food affordability.

From April 2015 to April 2016, the inflation measured by the

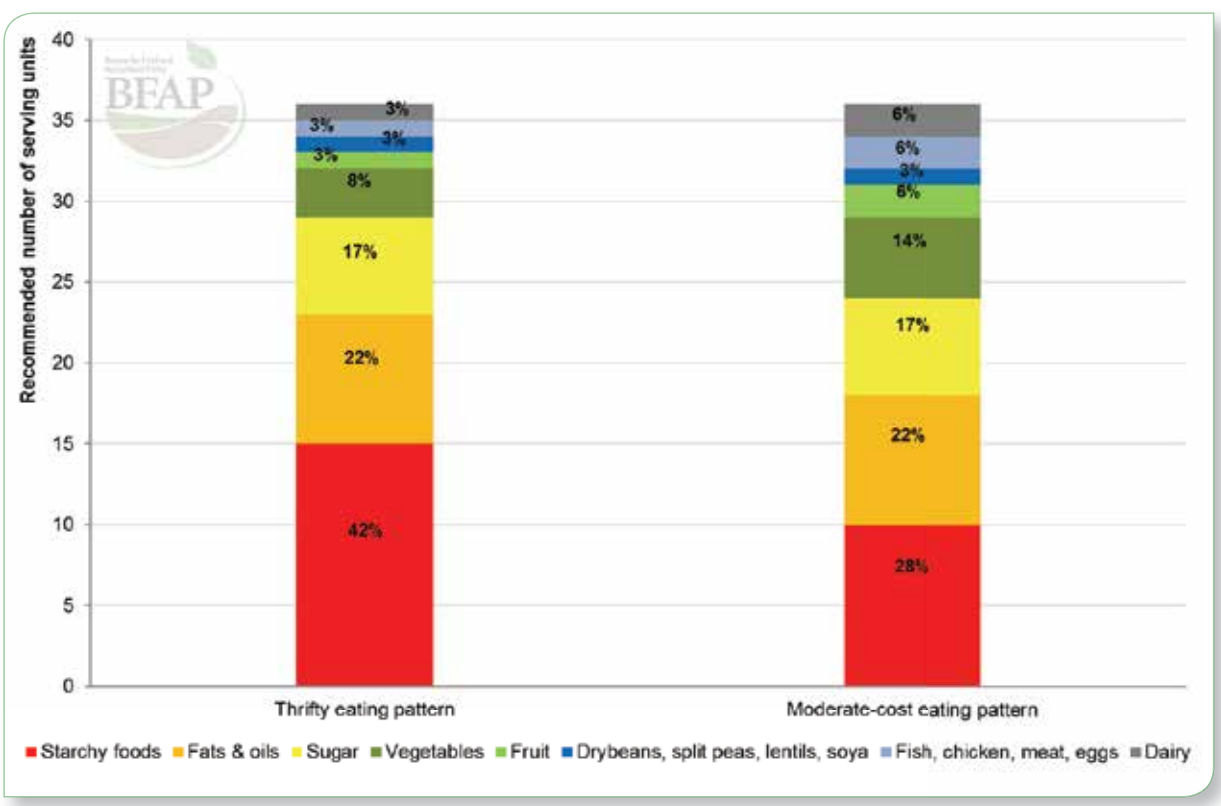


Figure 118: Example of the recommended serving composition for an adult male based on the DoH 'Guidelines for Healthy Eating'
Source: DoH 2013

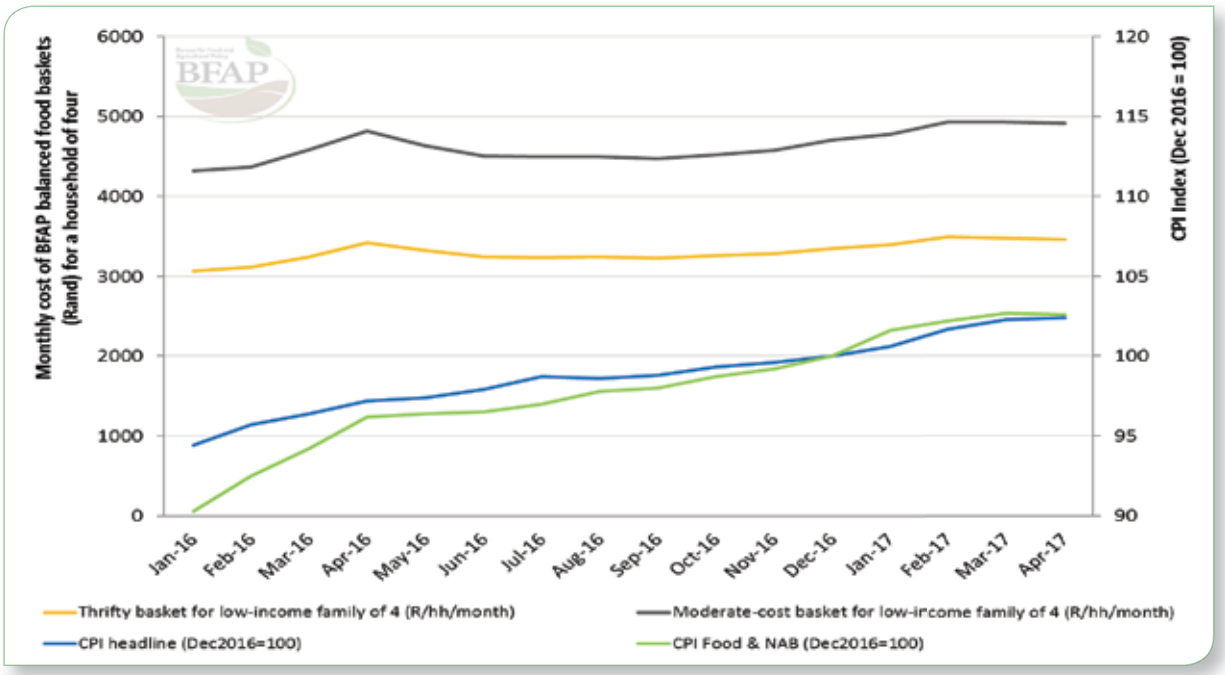


Figure 119: A comparison of the CPI, CPI food and the BFAP balanced food baskets for January 2015 to April 2017

Table 18: Comparing inflation on the BFAP balanced baskets with CPI inflation for April 2015 to April 2016 as well as April 2016 to April 2017

Variable:	Percentage change:	
	April 2015 – April 2016	April 2016 – April 2017
CPI headline (Dec2016=100) (StatsSA)	6.2%	5.3%
CPI Food & NAB (Dec2016=100) (StatsSA)	12.3%	6.7%
BFAP Thrifty basket for low-income family of four (R/hh/month)	15.5%	1.2%
BFAP Moderate-cost basket for low-income family of four (R/hh/month)	13.6%	2.0%

Table 19: Comparing inflation on the food groups within the BFAP balanced baskets with CPI inflation values for April 2015 to April 2016 as well as April 2016 to April 2017

Food group:	% change April 2015 to April 2016		% change April 2016 to April 2017	
	BFAP baskets:	CPI for food group:	BFAP baskets:	CPI for food group:
Starchy foods	20.4% ↑	14.9%	2.8% ↓	5.4%
Fish, chicken, meat, eggs	0.4% ↓	6.3%	7.5% ↓	10.5%
Milk, maas, yoghurt	0.5% ↓	5.2%	6.3% ↑	6.1%
Fat, oil	20.9% ↑	19.5%	1.7% ↑	-0.1%
Fruit	35.2% ↑	19.6%	-0.2% ↑	-1.2%
Vegetables	-1.3% ↓	23.0%	-21.3% ↓	-5.2%
Sugar	11.0% ↓	11.2%	24.8% ↑	18.4%
Bean products	9.2%	Value not available	11.1%	Value not available

↑ *Rate of inflation higher for BFAP baskets than for CPI figures*
↓ *Rate of inflation lower for BFAP baskets than for CPI figures*

BFAP balanced food baskets (+15.5% for the thrifty basket and +13.6% for the moderate-cost basket) were higher than CPI for food and NAB (+12.3%) and the general CPI inflation (+6.2%). The food groups within the BFAP balanced baskets with the most significant contribution to inflation were starchy foods (+20.4%), fats and oils (+20.9%), fruit (+35.2%) and sugar (+11.0%).

From April 2016 to April 2017, the inflation measured by the BFAP balanced food baskets (+1.2% for the thrifty basket and +2.0% for the moderate-cost basket) were lower than CPI for food and NAB (+6.7%) and the general CPI inflation (+5.3%), and also significantly lower than the inflation values observed between April 2015 and April 2016. From April 2016 to April 2017 the food groups within the BFAP balanced baskets, with the most significant contribution to inflation were:

- Sugar (+24.8% increase, compared to a lower value of +18.4% increase in official CPI value for this food group);
- Bean products (+11.1%);
- Meat, fish and eggs (+7.5% increase, compared to a higher value of +10.5% increase in official CPI value for this food group);
- Dairy foods (+6.3% increase, compared to a lower value of +6.1% increase in official CPI value for this food group);

Table 19 shows that the rate of inflation on staples, meat and vegetables within the BFAP baskets were lower than the CPI (2.8% vs. 5.4% for staples; 7.5% vs. 10.5% for animal protein foods; -24.8% vs. -5.2% for vegetables). For these food groups, the lower inflation rate within the BFAP baskets could contribute significantly to the lower overall inflation on the BFAP baskets compared to CPI food inflation, as starchy foods and animal protein foods (meat, fish and eggs) accounted for about half of the total cost and vegetables about 10% of the BFAP baskets in April 2017.

Comparing the cost of the BFAP Balanced Food Baskets to income levels

According to StatsSA IES 2010/11, poor consumers spend about 35% of total expenditure on food, while the LCS 2014/15 shows a value of 32%. A household with a single-source income at a wage level of about R3 000 per month could therefore be spending about R1 000 per month on food (about 35% of total expenditure), which is clearly well below the cost of the BFAP thrifty basket (R3461) in April 2017.

In order to be able to afford the thrifty basket in April 2017, a four member household required a monthly income of about R10 300 - implying that only consumers within LSM (Living Standard Measures) segments 6 to 7 and upwards could afford such a basket (considering average household income levels according to AMPS 2015). This level of income excludes the poorest 40% to 50% of the population. For the more diverse basket an estimated monthly household income of about R15 500 could be required if 35% of total expenditure is allocated to food. This level of income includes only the wealthiest 30% of the population, as only consumers from LSM segment 8 and higher could afford this basket.

TAKING A CLOSER LOOK AT THE STAPLE COMPONENT WITHIN THE THRIFTY BASKET

According to the recently released StatsSA Living Conditions Survey (LCS) 2014/15, poorer consumers spent about 34% of total food expenditure on staple food items. This represents the largest share among all the food groups. Given the strategic importance of staple foods, this section presents a historical perspective and projected values for the staple component cost within the thrifty BFAP balanced food basket for a family of four.

The most significant increase in the cost of the staple component within the BFAP thrifty basket occurred from 2015 to 2016 (attributed to the drought) with a 22% increase to R804 per household per month – where the cost contribution of maize meal increased from 39% in 2015 to 44% in 2016.

Comparing average values for 2016, with the projected average values for 2017 highlights a 16% decrease in the cost of the staple component within the BFAP thrifty basket, to a level of R678, with a decrease in the share contribution of maize meal in 2017 to 34% (from 44% in 2016).

The average projected values for 2018 could result in a staple component cost of R713 (a 5% increase from the projected average 2017 values) with increases in the share contributions of maize meal.

The expenditure increases presented in Figure 120 is attributed to higher retail prices. Facing the reality of limited income growth, poorer households could be forced to sacrifice dietary diversity as (the same quantity of) staple foods take up more of their monthly food budget – leaving less for the purchasing of items within other food groups. Recent studies confirm that South Africans are generally consuming too little fruit and vegetables.

A SERVING COST APPROACH TO ANALYSE STAPLE INTAKE DYNAMICS

To further explore the consumption dynamics of staple foods in South Africa, a serving cost approach is utilised (Figures 121

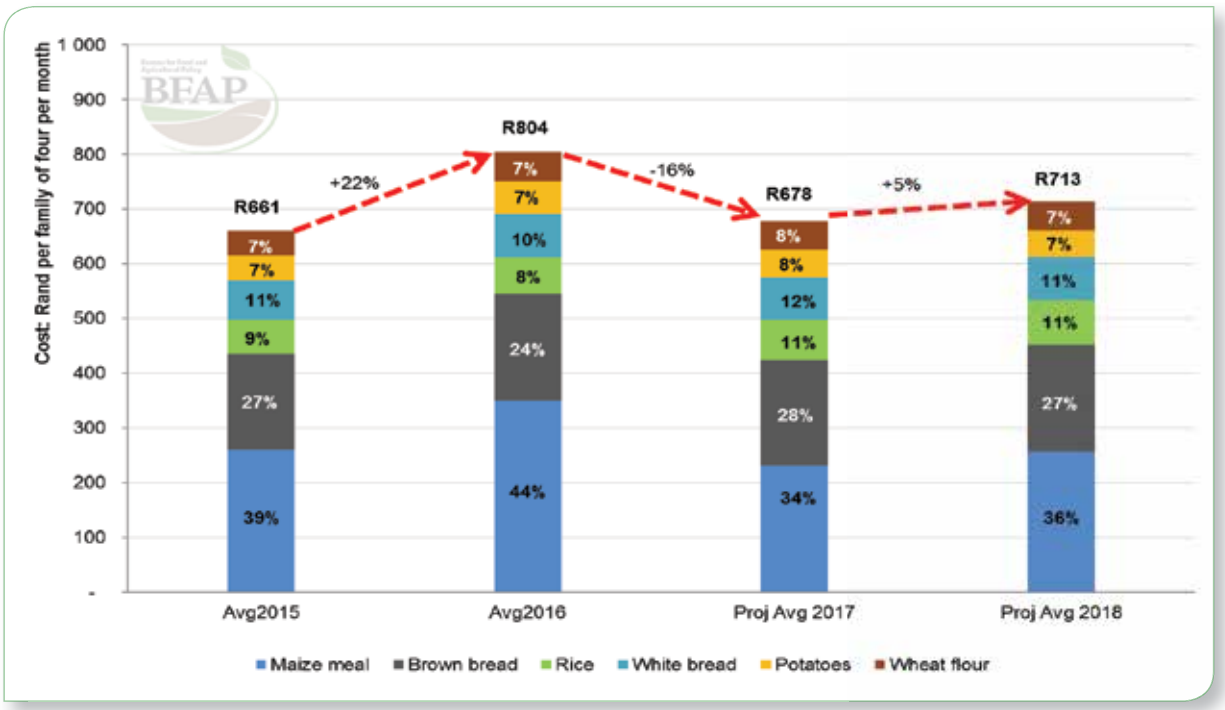


Figure 120: Historical and projected staple component costs of the thrifty BFAP balanced food basket for a family of four

and 122), where a serving is defined as one unit according to the Food ration scales for Hospitals and Health Institutions and the Food Based Dietary Guidelines of the Department of Health. Serving costs are calculated according to the official monthly food prices monitored by Statistics South Africa, as well as retail prices projected through the BFAP modelling system and transmission analysis for 2017 and 2018. Serving sizes differ across the various starches, with one unit amounting to 30g of rice, 40g of bread, 50g of maize meal or a 110g potato.

Considering the analyses presented in Figure 121 and Figure 122 the following can be observed:

- **Rice versus maize meal affordability:**

In 2015 a single serving of maize meal was 13% more expensive than a single serving of rice, increasing to 42% in 2016. For 2017 the projected values indicate a single serving of maize meal to be 15% less expensive than rice and for 2018 also 15% less expensive than rice. In 2016 rice could have been an appealing affordable alternative staple to maize meal, particularly to low-income consumers with significant budget constraints. However, from a nutritional perspective the substitution of maize meal with rice could have negative consequences as maize meal is fortified with micronutrients while rice is not fortified. An advantage of rice against maize is that is requires shorter cooking times.

- **Bread versus maize meal affordability:**

In 2015 a single serving of bread was 69% more expensive than a single serving of maize meal, decreasing to 38% in 2016. Thus for 2015 and 2016 the serving cost of bread moved somewhat closer to the single serving cost of maize meal, but in the recovery phase following the drought the single serving cost of bread is projected to be 106% and 88% more than that of maize meal. In cases where the serving cost of bread move closer to maize meal, bread could be an attractive alternative for consumers, considering that bread requires no cooking energy (and saves time). Furthermore, bread flour is also fortified with micronutrients having a nutritional benefit for the consumer.

- In absolute terms, projections indicate that for 2017 the affordability of staple options could be best for maize meal (R0.35/single serving), followed by rice (R0.42/single serving), bread (R0.73/single serving) and potatoes (R1.23/single serving). For 2018 the affordability of staple options could be best for maize meal (R0.40/single serving), followed by rice (R0.46/single serving), bread (R0.74/single serving) and potatoes (R1.15/single serving). Thus, considering the next year or two the current economic conditions could necessitate consumers to rely more on maize meal and rice.

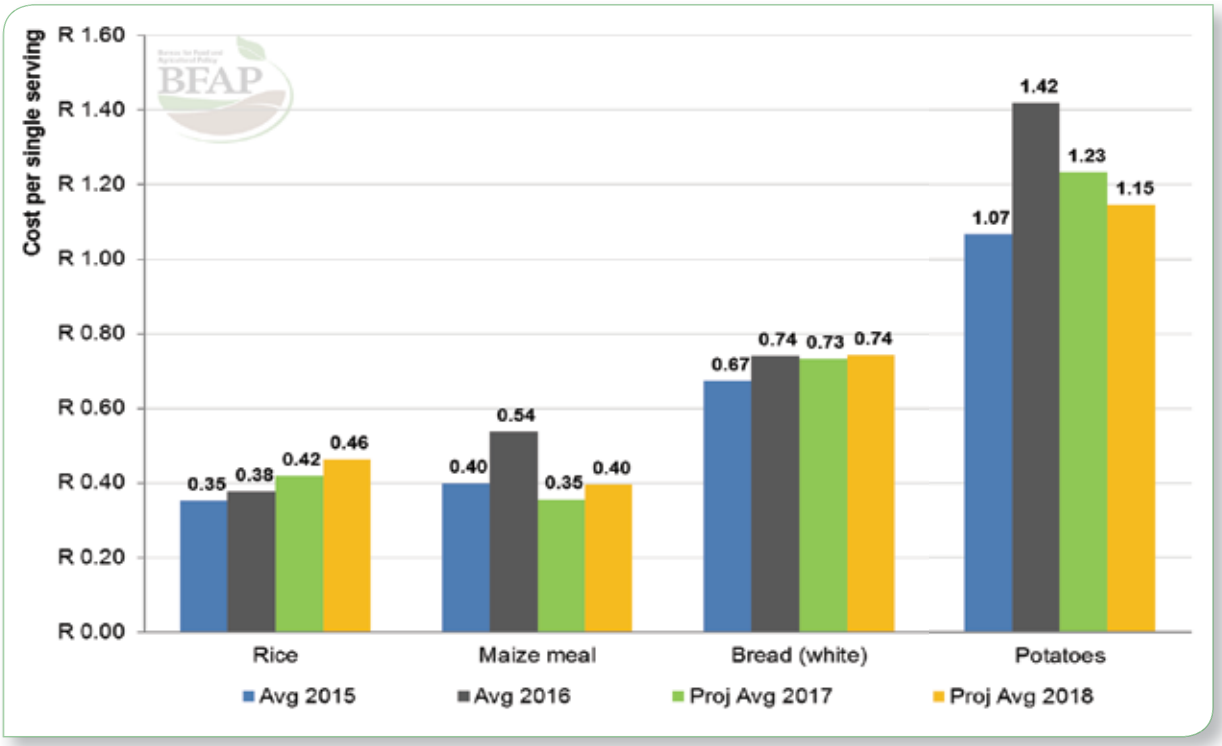


Figure 121: Overview of the single serving cost of maize meal, bread, rice and potatoes considering avg 2015, avg 2016, projected 2017 and the projected 2018 values

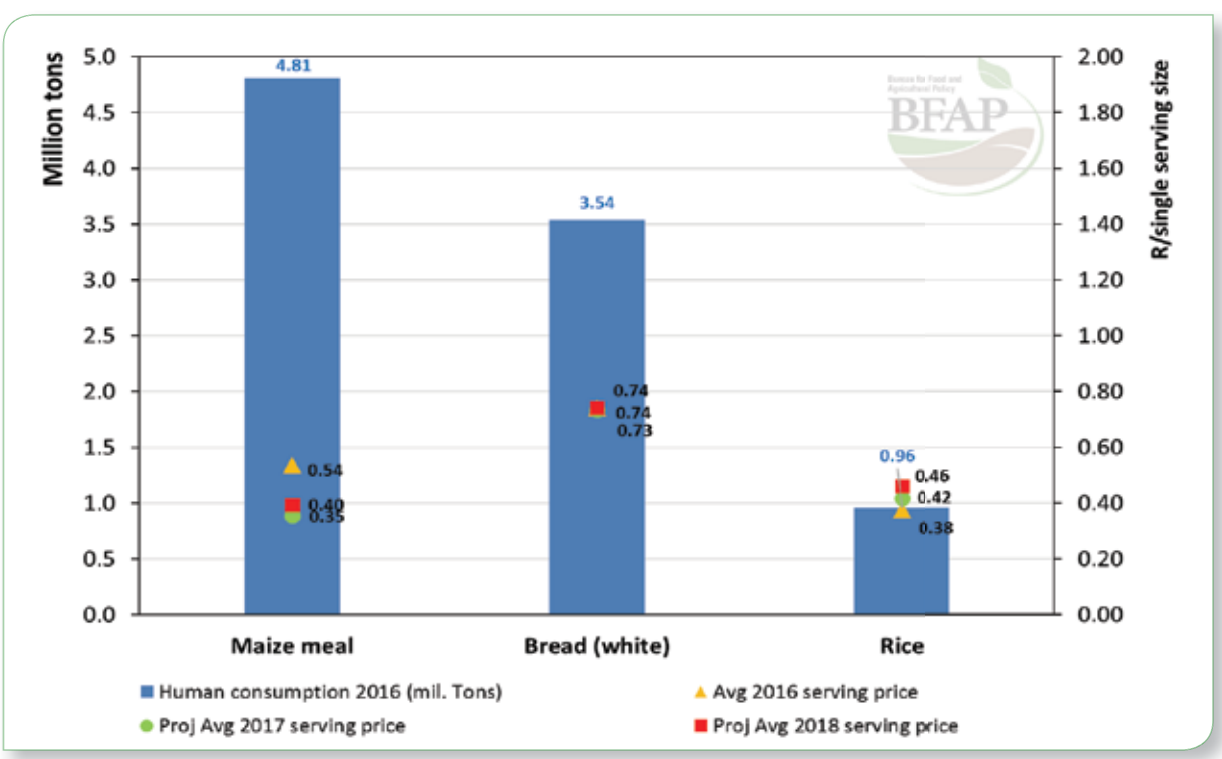


Figure 122: South African human consumption (2016) versus single serving costs for the major staple grains

REGIONAL MARKET DYNAMICS

Africa's rapid population growth is changing global views on Africa, from merely a supplier of raw materials to a potentially major export market for food and other consumer goods.

STRATEGIC POLICY RESPONSE TO TRANSFORMATION IN REGIONAL AGRI-FOOD SYSTEMS

Africa's rapid population growth is changing global views on Africa, from merely a supplier of raw materials to a potentially major export market for food and other consumer goods. If African producers and agro-processors are to benefit from the projected growth in food demand by its citizens, Governments need to be strategic with respect to trade, agricultural productivity growth and agro-processing development.

Will African demand influence the growth in global agricultural commodity markets over the next ten years?

International perspectives on Africa are changing. At the turn of the century, Africa's natural resource base was a source of raw material inputs for the global food system. Today the combined effect of a projected slowdown in China's growth rates and Africa's relatively young and growing population, is changing Western perspectives on Africa. Over the next 10 years, the U.S.A. and EU expect rising African demand for high-valued food commodities, making Africa an important output market for surplus agricultural commodities.

Over the next 85 years, Africa's population is expected to grow from 13% to 35% of global population, more than doubling between 2015 and 2050 (Figure 123).

Given this rapid growth, major concerns exist over whether adequate supplies can be sourced through local production to meet this growing demand. Projections by the OECD and FAO of Africa's consumption and production of high-valued and cereal commodities over the period 2016–2026 indicate that an increasing share of the region's growing demand for food products will be met by imports. For example; exports of dairy products to Africa are expected to increase rapidly over the next 10 years, with African markets accounting for more than 20% of the growth in global dairy imports by 2026 relative to the 2014-2016 base period (OECD-FAO, 2017).

World import demand for poultry meat is expected to rise, reaching 14 million tons by 2026. Key growth markets for poultry imports include Asia, sub-Saharan African and the Middle-East (OECD-FAO, 2017).

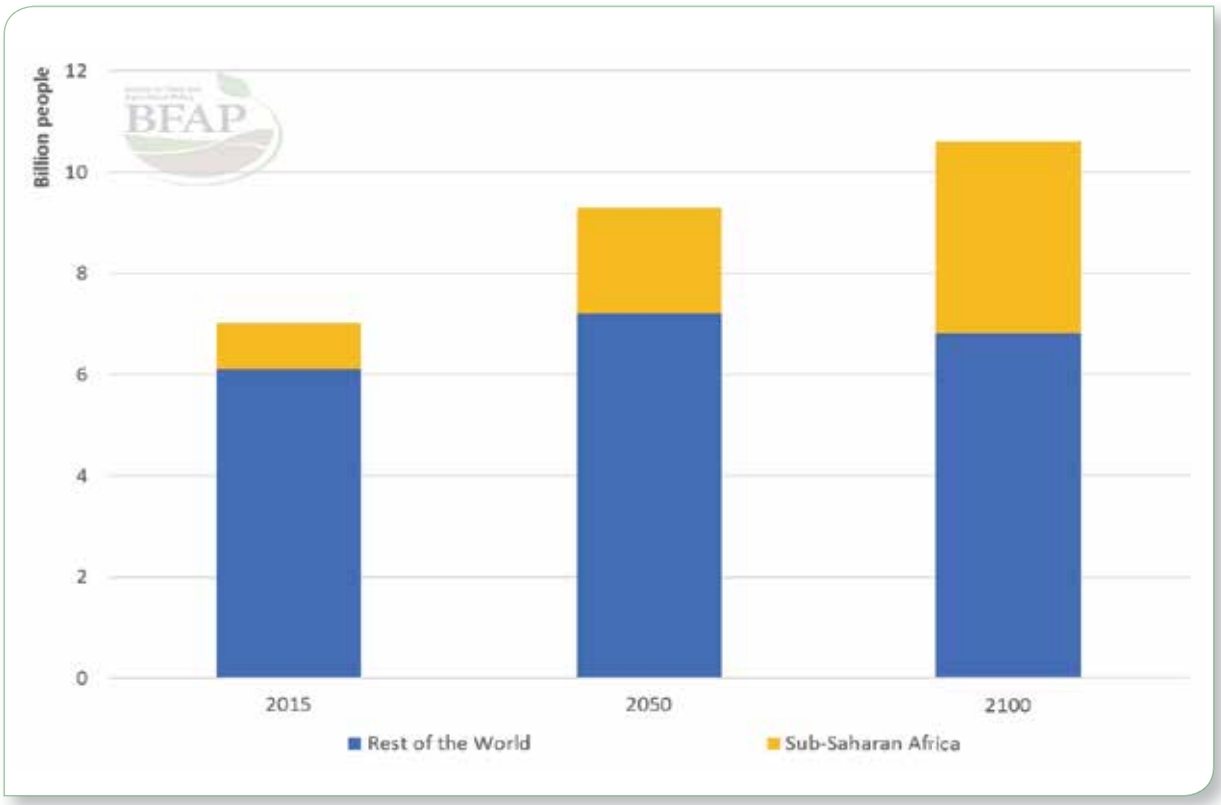


Figure 123: Africa's Rapid Population Growth projections
Source: United Nations population prospects, 2017

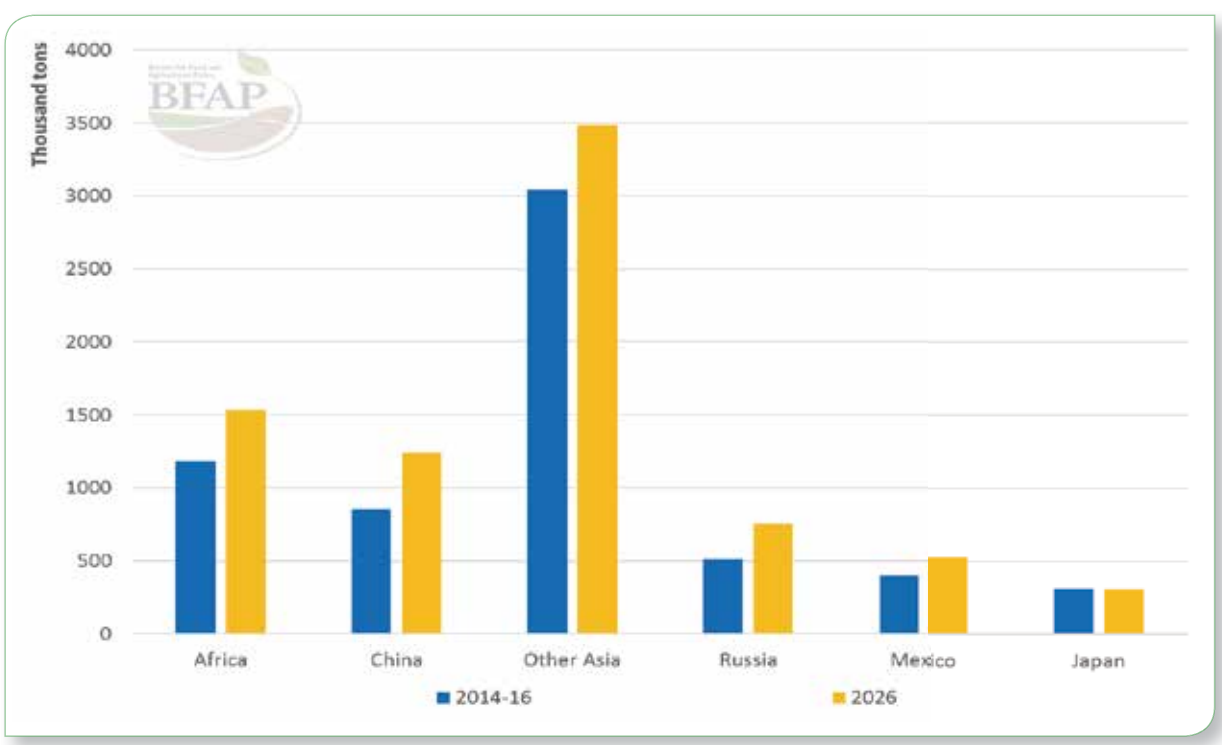


Figure 124: Growth in import of dairy products (WMP, SMP, Cheese and butter)
Source: OECD-FAO, 2017

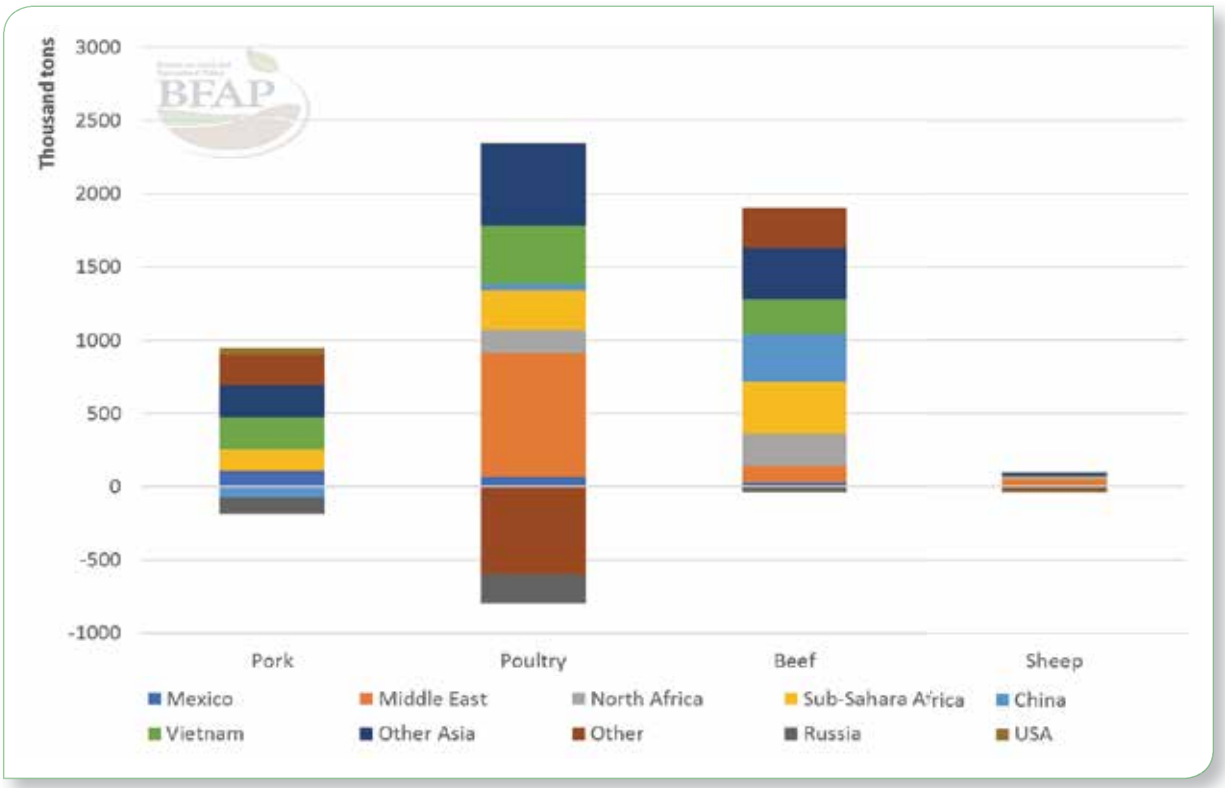


Figure 125: Change in world imports of meat and live animals, 2026 vs. 2016
Source: OECD-FAO, 2017

Is Africa moving towards integrated agricultural food markets?

As African consumers become contenders in global food markets, African leaders are attempting to move the continent towards self-sufficiency. The Malabo Declaration adopted at the African Union (AU) includes an ambitious and promising re-commitment "to fast-track the establishment of the continental free trade area (CFTA), and the action plan for boosting intra-African Trade (BAIT)" (AU 2014). The intended aim is to triple intra-African trade by encouraging transparent and regulated policies that strengthen existing trade partnerships, foster long-term investment, and ensure continental food security.

As a first step to facilitating regional integration, the level of applied duties on food imports faced by African exporters are relatively low and declining over time (Table 20). Over the past 11 years the average ad valorem equivalent (AVE) tariff rate on food products faced by African exporters fell by 3.2%. Across the 19 food product categories traded intra-regionally, Vegetable & Roots (HS 07) and Cereals (HS 10) were the only two categories that experienced an increase in the applied import duties between 2005 and 2016.

The actual realization of intra-regional trade is the growing share of total food imports supplied to SSA by Sub-Saharan African (SSA) exporters. To date, though imports from non-Sub-Saharan African (SSA) markets still dominate, the share of SSA imports coming from other SSA countries has risen; averaging an annual growth rate of 12% over the past fifteen years (Figure 126).

The commodities accounting for the rapid growth are high-value products (HVP's) with some degree of processing. In 2015, of the USD 8.09 billion in intra-regional trade of food products, cereals were the second largest product traded, accounting for 11% of the total imports. However, over the past 15 years, trade in vegetables, fish, and meat (fresh, semi-processed and processed) realized average annual growth rates above 13% compared to cereals, which grew by 10.4% per annum (Table 21).

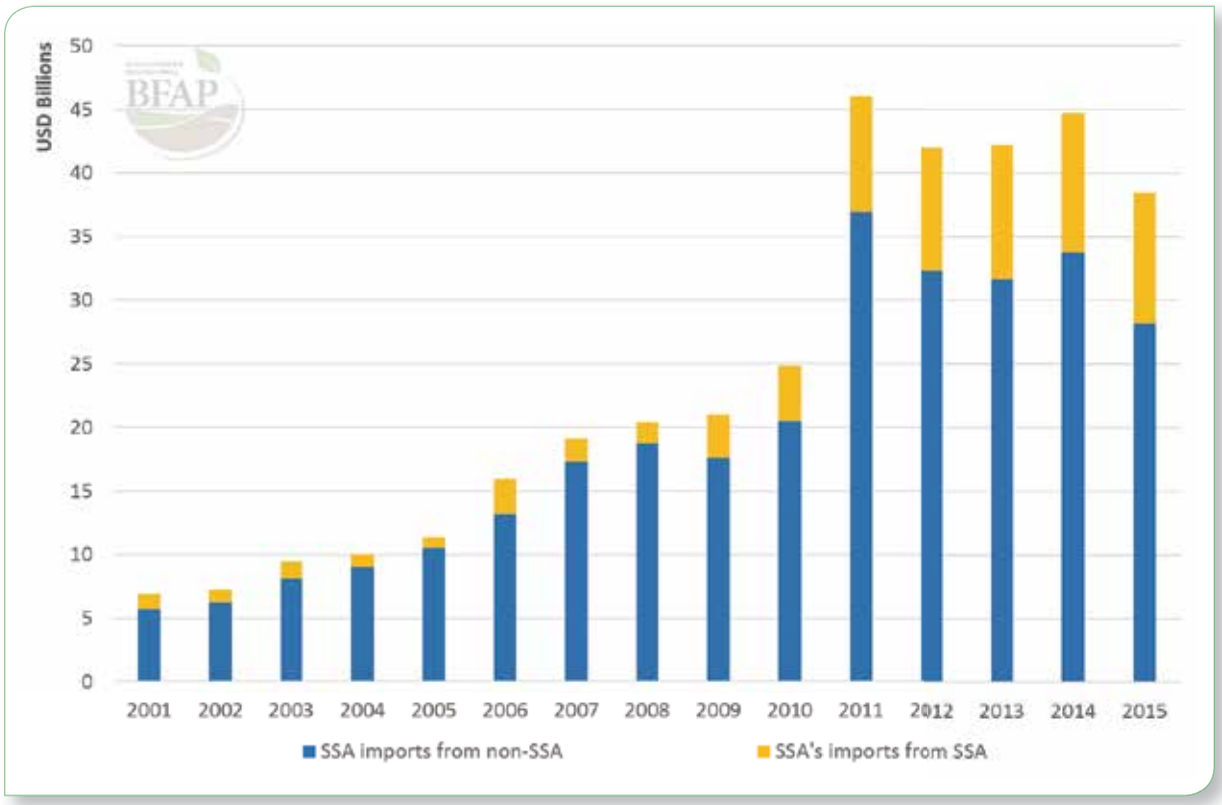


Figure 126: Non-SSA Countries' Share of Total Food Products Imported by SSA
Source: ITC Trade Map, 2016

Can Africa feed itself?

Despite the positive move towards regional integration, the future is not certain. At issue, is whether Africa can effectively meet its population's growing demand for food or will surplus producers in countries such as Europe, North and South America or India fill the gap.

In the face of a rising rural population and the associated land constraints, if the continent is to achieve self-sufficiency in food production this will require a reversal in the dominant trend of production growth driven by area expansion. Table 22 examines the sources of growth in maize production for nine SSA countries by decomposing the changes in output quantities into its constituent components, namely; yields versus area expansion.

Except in the case of South Africa and Malawi, the area effect is largely driving output growth in maize across the region. For example, in Kenya, between 2000 and 2014, maize output grew by 2.93% per annum; 94% of this growth was due to increase area under cultivation.

For land constrained countries, such as Kenya and Tanzania, this expansion may come at the expense of fallow land. Evidence suggests that rising rural population and associated land pressures have resulted in a continuous cropping with fallow land largely disappearing in densely populated areas.[7] Continuous cropping may be sustainable, but only if farmers can transition away from longstanding modes of farming whereby they exhaust soils and clear new land (shifting cultivation), to more intensified production systems that replenish soil nutrients and whereby they invest in sustainable production methods.

However, this transition requires both greater capital investments and expenditures on cash inputs, and new management techniques. Many smallholder farmers may find it difficult to consistently utilize these practices due to lack of access to affordable capital, knowledge, and risk mitigating programmes

[7] Fuglie and Rada (2013) report that fallowed land as a proportion of total farmland in SSA has declined from 40 percent in 1960 to roughly 15 percent in 2011. Jayne et al. (2014b) report that fallows have largely been eliminated in smallholder farming areas containing more than 250 people per km^2 of arable land.

Table 20: Average Ad Valorem Equivalent (AVE) tariff rates on food imports into Africa by exporting regions

	Africa			Europe			North & South America			Asia		
	2005	2016	Change	2005	2016	Change	2005	2016	Change	2005	2016	Change
HS02: Meat	19.0%	19.0%	0.0%	25.2%	26.9%	1.6%	26.1%	28.0%	1.9%	24.7%	26.8%	2.1%
HS03: Fish and crustaceans	18.5%	10.5%	-8.0%	20.2%	13.1%	-7.1%	20.3%	13.9%	-6.5%	19.9%	13.6%	-6.4%
HS04: Dairy & Eggs	13.4%	12.3%	-1.1%	16.2%	17.4%	1.2%	16.7%	17.6%	0.9%	16.0%	17.3%	1.3%
HS05: Products of animal origin	11.5%	8.5%	-3.0%	12.8%	10.2%	-2.6%	13.4%	10.4%	-3.0%	13.0%	10.0%	-3.0%
HS07: Vegetables, roots & tubers	15.9%	16.3%	0.4%	17.6%	19.5%	2.0%	17.9%	20.2%	2.2%	17.6%	20.0%	2.4%
HS08: Fruit and nuts	16.0%	14.9%	-1.2%	18.7%	18.7%	-0.1%	19.1%	19.8%	0.8%	18.5%	19.4%	0.8%
HS09: Coffee, tea, maté & spices	17.7%	12.7%	-5.0%	19.4%	15.6%	-3.8%	19.4%	16.1%	-3.3%	19.1%	15.7%	-3.4%
HS10: Cereals	7.7%	8.3%	0.7%	9.4%	10.0%	0.6%	9.7%	10.0%	0.3%	9.3%	9.9%	0.6%
HS11: Milled Products – malt & starches	12.2%	11.4%	-0.8%	14.5%	15.5%	1.1%	14.6%	15.9%	1.3%	14.0%	15.4%	1.3%
HS 12: Oil seeds & misc. grains	6.6%	4.6%	-2.0%	7.2%	5.6%	-1.7%	6.9%	5.8%	-1.0%	7.3%	5.8%	-1.5%
HS 13: Vegetable saps & extracts	5.4%	3.7%	-1.7%	6.2%	4.0%	-2.1%	6.4%	4.4%	-2.1%	6.1%	4.1%	-1.9%
HS 15: Animal/vegetable fats & oils	14.2%	11.3%	-2.8%	15.0%	13.8%	-1.2%	15.3%	14.4%	-0.9%	15.1%	14.1%	-1.0%
HS 16: Processed meat & fish	21.8%	16.0%	-5.8%	24.3%	20.8%	-3.5%	24.3%	21.1%	-3.2%	23.9%	20.9%	-3.0%
HS 17: Sugars & confectionery	22.4%	21.2%	-1.2%	24.5%	26.3%	1.7%	24.7%	26.8%	2.1%	24.3%	26.3%	1.9%
HS 18: Cocoa & cocoa preparations	18.9%	15.0%	-3.9%	21.5%	18.6%	-2.9%	22.0%	19.2%	-2.7%	21.1%	18.9%	-2.2%
HS 19: Processed cereals & milk	16.7%	14.5%	-2.3%	18.9%	17.7%	-1.1%	19.3%	18.9%	-0.4%	18.8%	18.5%	-0.3%
HS 20: Processed vegetables &fruit	21.2%	17.3%	-3.9%	23.8%	21.3%	-2.6%	24.1%	22.2%	-1.9%	23.6%	21.8%	-1.8%
HS 21: Misc. edible preparations	17.6%	11.6%	-6.0%	29.7%	19.3%	-10.3%	30.2%	20.2%	-10.0%	27.2%	18.7%	-8.5%
HS 22: Beverages, spirits & vinegar	27.7%	16.0%	-11.7%	59.2%	56.0%	-3.2%	59.8%	57.3%	-2.4%	52.0%	48.4%	-3.6%
Total AVE all food items	16.0%	12.9%	-3.2%	20.2%	18.4%	-1.8%	20.5%	19.1%	-1.5%	19.6%	18.2%	-1.4%

Source: MACMAP – ITC Trade Map, BFAP

Table 21: Intra-regional trade in SSA

Product label	2015 (USD Million)	2015 (% of Total)	Average Annual Growth Rates (%)
Edible vegetables and certain roots and tubers	1032.788	12.8%	20.1%
Fish and crustaceans, molluscs and other aquatic invertebrates	569.927	7.0%	14.0%
Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	118.383	1.5%	14.0%
Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal	794.882	9.8%	14.0%
Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal	196.957	2.4%	13.9%
Preparations of cereals, flour, starch or milk; pastrycooks' products	310.362	3.8%	13.5%
Edible fruit and nuts; peel of citrus fruit or melons	351.619	4.3%	13.4%
Meat and edible meat offal	204.279	2.5%	13.4%
Cocoa and cocoa preparations	127.424	1.6%	12.2%
Preparations of vegetables, fruit, nuts or other parts of plants	325.583	4.0%	12.2%
Beverages, spirits and vinegar	784.497	9.7%	12.1%
Cereals	922.442	11.4%	10.5%
Products of the milling industry; malt; starches; inulin; wheat gluten	389.935	4.8%	10.4%
Sugars and sugar confectionery	631.979	7.8%	9.9%
Miscellaneous edible preparations	529.197	6.5%	9.1%
Coffee, tea, maté and spices	482.271	6.0%	9.0%
Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified	317.82	3.9%	8.6%
Total Food Import from SSA	8090.345	100.0%	12.0%

Source: ITC Trade Map, 2016

Table 22: Contribution to overall growth in maize output

Country	Average Annual Growth Rates: 2000 - 2014			Output Decomposition	
	Output	Area	Yields	Area	Yield
DRC	0.02%	0.14%	-0.12%	700%	-600%
Kenya	2.93%	2.74%	0.19%	94%	6%
Malawi	5.85%	1.05%	4.80%	18%	82%
Mozambique	2.61%	2.07%	0.54%	79%	21%
South Africa	2.40%	-2.65%	5.05%	-110%	210%
Uganda	8.1%	4.5%	3.6%	55%	45%
Tanzania	5.80%	8.47%	-2.67%	146%	-46%
Zambia	10.9%	6.2%	4.7%	57%	43%
Zimbabwe	-2.20%	1.02%	-3.22%	-46%	146%

Source: FAOStat, BFAP

such as crop insurance. Hence there is an urgent need to continue driving changes in input policies, public programs, agricultural research and extension systems, and land policies to provide farmers with the incentives and wherewithal to raise both the productivity and sustainability of their agricultural operations.

Challenges: Implications for appropriate policy responses

The agricultural sector is best viewed as a complex and highly adaptive system consisting of relatively similar and partially connected micro-structures which have evolved as means of adaptation to environmental changes within the system (Barder, 2012). Growth and development of the sector arises from the dynamic interactions of agents within the system, whose actions in response to tipping-points, are essentially a self-organized search for survival on a shifting landscape (Ramalingam et. al, 2008).

The ability and pace of the agents within this system to evolve and adjust is largely determined by the enabling environment set by governments. For these reasons, the focus is on policy strategies, which can generate the incentives for system-wide private investment in food systems that contribute to broad-based growth. These include;

1. Strategies that facilitate intra-Africa Trade, such as;

- Continued reduction in tariff barriers:
    - Despite the success of certain regional agreements in suppressing duties (CEMAC, EAC, SACU), African countries still impose high duties on trade among one another, particularly for agricultural products. These products face a 15.23% duty inside the continent compared to 9.86% globally (Bouet and Cosnard, 2016).
- Addressing Non-Tariff Measures (NTM's):
    - Non-tariff measures continue to create a substantial constraint to regional trade.
    - These discretionary trade policies, such as an export ban, do not create sustainable food security and economic growth. Instead they destabilize domestic prices and discourage private sector trade (ReNAPRI, 2015).
    - Trade facilitation requires compliance with non-tariff measures, hence imposition of such measures need to be clear and transparent so that trading partners are able to implement strategies to comply with such measures

2. Strategies that raise agricultural productivity

- Increasing and sustaining productivity growth would require creating avenues to efficiently use existing resources and technology and to develop new and improved technologies that are adaptable to Africa's context. To this end, a potential area of public investments aimed at improving agricultural productivity is research and development (R&D) of technologies addressing location-specific constraints to productivity growth and agricultural extension services that will facilitate access to and uptake of productivity enhancing technologies including those designed to restore long-term soil fertility
- However, despite rising public expenditure on agriculture due to the commitments made under the Maputo Declaration, agricultural budgetary allocation to R&D and extension remains small and has fallen over the past decade and half. Estimates from four SSA countries revealed that the share of agriculture budget allocated to R&D and extension has fallen over time and presently

Table 23: Agriculture budget allocation by programs (2000 and 2014)

Programs	Zambia		Malawi		Tanzania		South Africa	
	2000	2014	2000	2014	2000	2014	2000	2014
Input Subsidy Program	10.9%	16.2%	8.3%	35.8%	26.2%	8.2%	0.0%	0.0%
Agricultural Support Program	-	-	-	-	-	-	8.4%	21.2%
Research and Extension	1.3%	0.9%	6.6%	1.4%	0.04%	0.5%	40.7%	21.2%
Infrastructure Development Program	0.02%	7.5%	4.2%	52.2%	51.4%	6.3%	7.1%	10.6%
Price Support Programs	0.0%	34.9%	8.6%	3.5%	na	na	0.0%	0.0%
Other Programs	87.8%	40.5%	72.4%	7.1%	22.4%	85.0%	43.7%	47.0%

Source: Calculation based on national budget expenditure data. Zambia (GRZ, various years; Govereh, et. al., 2006; Govereh, et. al., 2009); Malawi (Ministry of Finance, various years; SARPN, 2015; World Bank, 2013); Tanzania (Ministry of Finance, various years; ASDP; World Bank, 2013); South Africa (National Treasury, various years)

stands at less than 10%. The only exception, South Africa, has also experienced a sharp drop from 41% in 2000 to 21% in 2014 (Table 23).

3. Industrialization strategies that simulate agro-processing growth

- Since 1990, the SSA region has experience significant de-industrialization with the contributing share of manufacturing to the regions' GDP falling from 13.5% to 10.5% (Figure 127).
- Through preferential finance and tax measure foster and attract import-competing and their supporting industries.
- Also, through appropriate public investments, ensure quality and consistent infrastructure services in electricity, telecommunications, and road networks built to facilitate domestic agro-processing development.

Figure 127: SSA Manufacturing value-added (% share of GDP)
Source: World Bank

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