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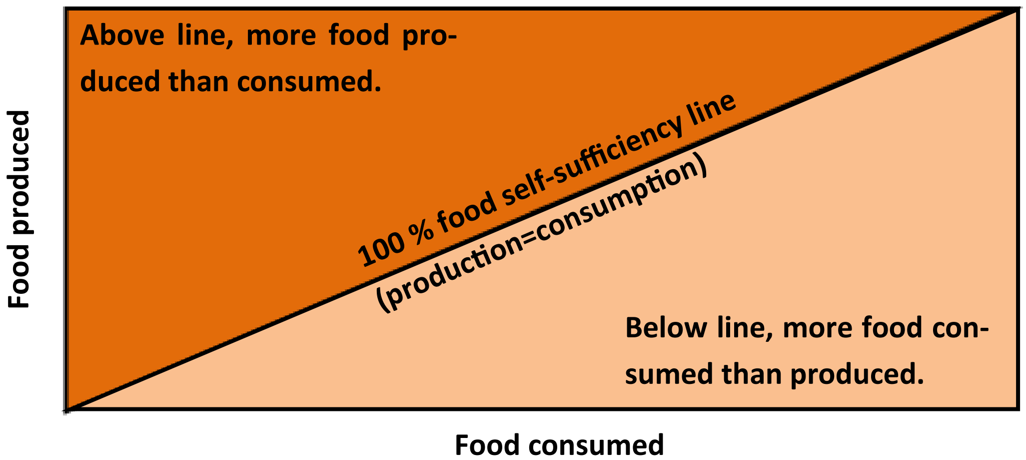
SELF-SUFFICIENCY INDEX

Directorate: Statistics & Economic Analysis

This is a bi-annual information leaflet by the Directorate: Statistics and Economic Analysis. The aim of the publication is to inform decision makers on the extent to which South Africa is food secure. The production of sufficient volumes of agricultural commodities forms an important part of food security in South Africa. Thus, selected commodities has been identified that will be addressed in this volume, namely milk and eggs. Future issues will focus on other commodities like grains, as well as poultry.

What is a Self-sufficiency Index?

The concept of food self-sufficiency is generally taken to mean the extent to which a country can satisfy its food needs from its own domestic production. This understanding is illustrated in the diagram below, whereas the diagonal line indicates 100% food self-sufficiency, i.e. where food production is equal to food consumption.

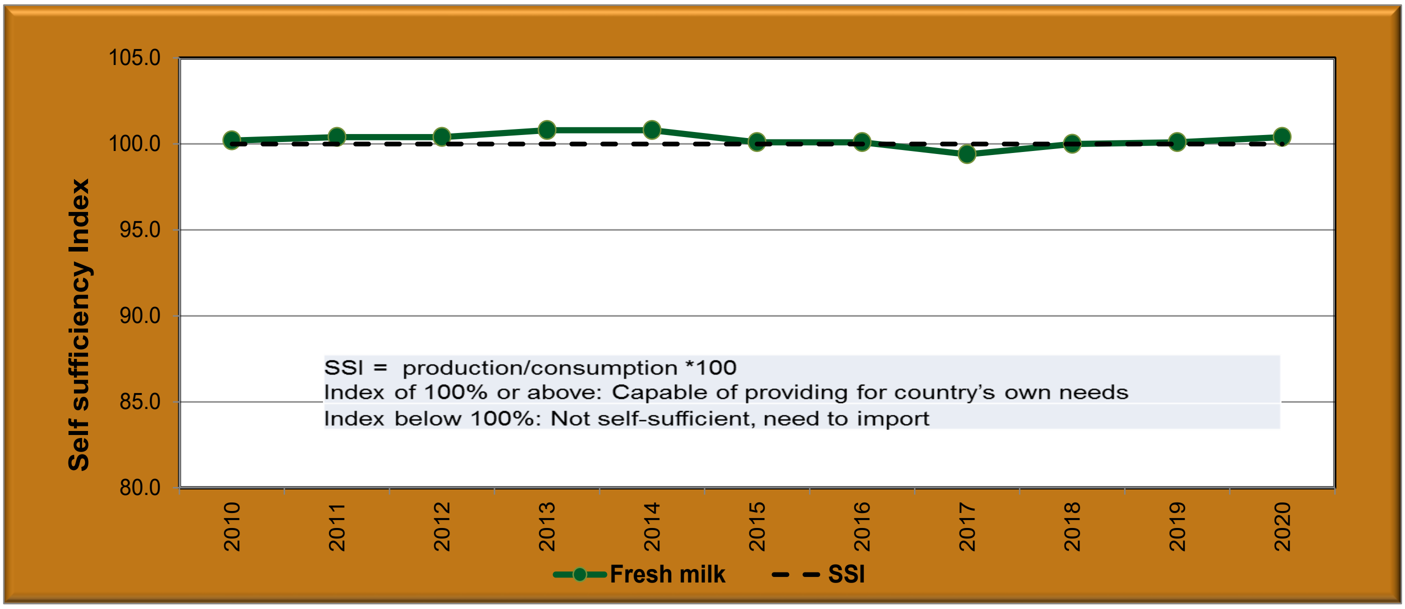


The key point is that if a country is food self-sufficient, it produces an amount of food that is equal to or greater than the amount of food that it consumes. The self-sufficiency index (SSI), expresses food production as a ratio of consumption.

Milk:

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 period 2015 to 2017. 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. However, this increase was small compared 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. However, 2017 marks a distinct turnaround as the reduction in feed prices following the bumper maize crop supports a significant recovery in the milk to maize price ratio. Milk production responded, increasing by 1,4% year-on-year. The stronger rand and the continued decreasing trend in skimmed milk powder prices resulted in a decrease in import parity at the end of 2017. Import parity at or below average producer prices implies that processors can import dairy products at current international prices at a lower price per liter than they have to pay local producers. Thus, providing a cheaper alternative to the consumer, increasing consumption compared to production, resulting in a negative SSI for 2017.

SSI of milk, 2010 - 2020



As South Africa is in most years producing sufficient quantities of milk to satisfy local consumption, thus resulting in a positive SSI (SSI>100). The average 10-year Index value (2010 to 2019) of milk is 100,2. The Index value of milk for 2020 is 100,4, which is 0,73 less than the Index value of 2019 (100,1).

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 62% of total dairy consumption, while concentrated products (including cheese, butter, milk powders and condensed milk) make up the balance. The share of liquid products in total consumption has increased constantly over the last few years.

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.

According to the Bureau for Food and Agricultural Policy (BFAP), the consolidation of dairy enterprises persisted in 2020, with the number of farming operations declining from 1235 in January 2019 to 1164 in January 2020. This represents a cumulative reduction in dairy enterprises of 57% since 2011. The largest reduction in the number of producers has occurred in Limpopo, with production shifting to pasture-based coastal provinces. The drop in the number of producers is a result of the increased efficiency engendered by the cost-price squeeze on producers over the last decade.

With the exception of 2017, the milk to maize price ratio has been consistently under two and tending lower, indicating constrained profitability. Despite this, milk production has shown a steadily increasing trend, with fluid milk production increasing by 0,65% year-on-year in 2019.

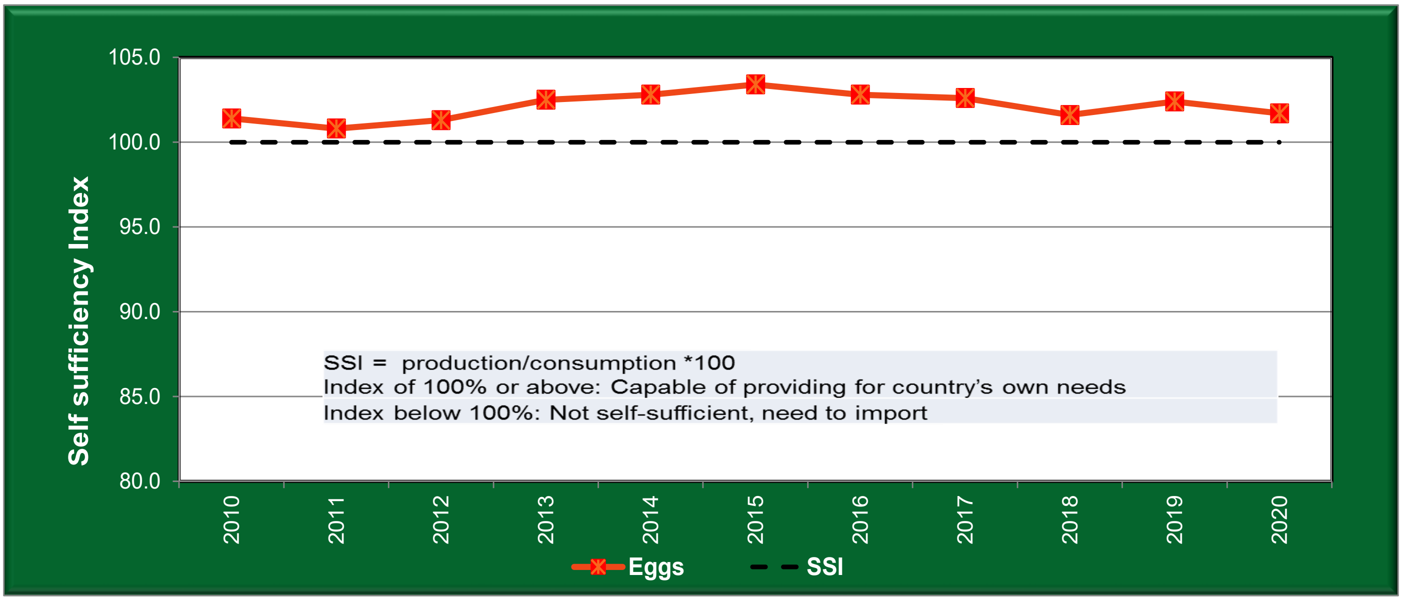
This is indicative of the ever-increasing scale of operational units, which is a consequence of the asset specificity and sheer size of investment required when utilizing top technology for optimum competitiveness. The productivity gains achieved in the sector have been a key driver of increased production despite the input-output price squeeze.

Similar to other sources of animal protein, dairy consumption is expected to be affected by the economic fallout associated with the COVID-19 pandemic. In previous downturns, such as the financial crisis in 2009/10, the consumption of fluid milk grew at a much slower rate. Concentrated products, in turn, experienced contraction in consumption during the crisis period but showed rapid recovery on the back of economic upturns in 2011/12. In the coming decade, the recovery from the 2020 downturn is expected to be slower, resulting in more muted consumption growth rates relative to the past decade. Nevertheless, many dairy products still provide an affordable source of protein to multiple lower income consumers.

Eggs:

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. However, its reliance on intensive feed grain use 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 2015 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 period 2011 to 2016, 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, a stable weather outlook allows egg prices to expand faster than that of maize and hence the egg to maize ratio is projected to increase. This is expected to induce an average annual expansion of 1,8% in egg production in 2019 and 2020. Production growth is sufficient to match demand growth and South Africa is expected to remain a small net exporter of eggs.

SSI of eggs, 2010 - 2020



As mentioned, South Africa is regarded as a net exporter of eggs as local production is sufficient to satisfy local consumption, resulting in a positive SSI (SSI<100). The average 10-year Index value (2010 to 2019) of eggs is 102,2. The Index value of eggs for 2020 is 101,7, which is 0,7% less than the Index value of 2019 (102,4).

According to BFAP, through the national lockdown, the demand for eggs remained strong and prices tended upwards, particularly towards the end of the hard lockdown when some inputs became scarce. The lockdown follows a period of immense volatility for the industry. The 2017 outbreak of Highly Pathogenic Avian Influenza (HPAI) reduced the national layer flock by an estimated 20%. With the nature of the product not conducive to large scale imports and time required to restock, this resulted in year-on-year price increases of 17 and 11%, respectively in 2017 and 2018. As supply re-entered the market in 2019, prices declined by 15%. Given that supply was still strong, but consumer income remained under pressure, a further reduction in prices was expected for 2020.

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