Expected implications of the 2015 drought on the red meat industry

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1. Introduction

During 2015 South Africa was dry, very dry. While city dwellers and villagers blame the local municipality because of water restrictions and the municipality's inability to limit water wastage due to poor infrastructure, few of them were really aware of the actual impact of the drought. Which city dweller complaining about the fact that his grass withers know the heart of a farmer sitting on his knees in a cultivated land and only smells dust on the soil in his hands. Does the villager who swore because his pool's water level drops knows the mind of the Karoo farmer who looks at the empty dam between black scorched bushes while the windmill are spinning above a dry bore hole. Did the guy that is angry because he may not wash his car ever seen the tear streaks on the dusty cheeks of a farmer where he stand and watch as the trucks load his whole pregnant herd to the abattoir, because in the drought there is no longer feed or buyers left. Only the Father knows the mental struggle of the Kalahari farmer that has to slit a newborn calf's throat with sharp pocketknife, as there is no grass to raise her on.

The year of 2015 is now officially declared as the driest year since 1904 in South Africa (SA Weather Service) as the lowest annual total rainfall for the country was recorded (Figure 1). Although large parts of the country received good rains in the second half of January 2016 it does not really soften the harsh implications of the drought in the short and medium term.

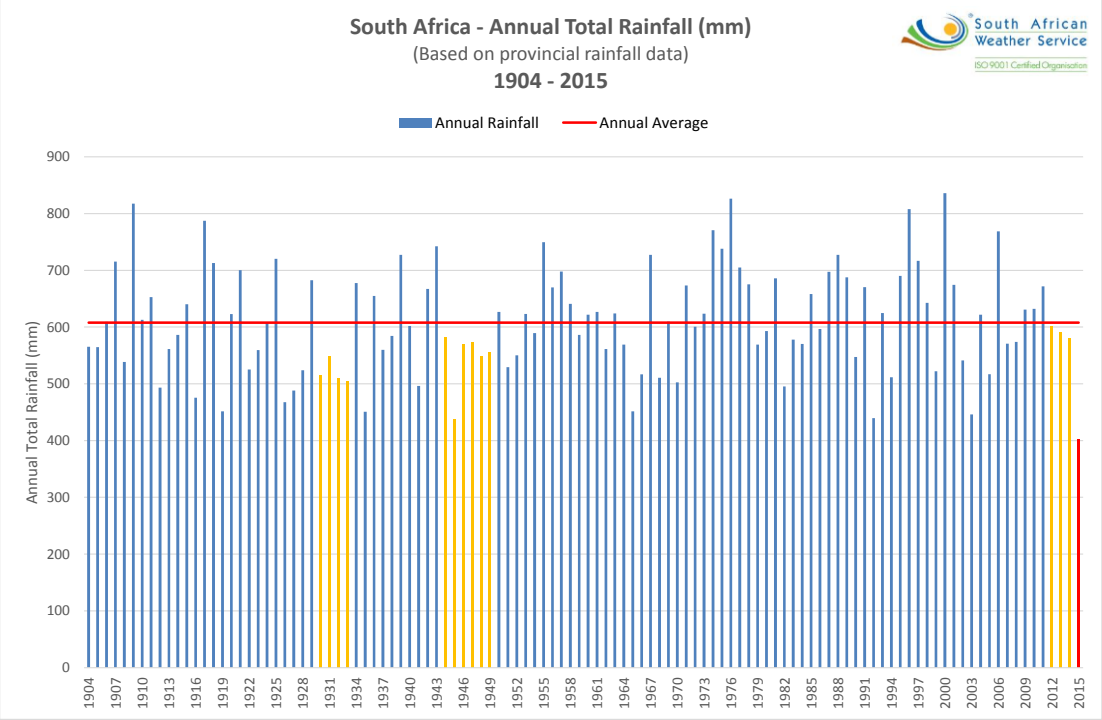

Figure 1: South Africa Annual Total Rainfall (South African Weather Service, 2015)

1.1 Setting the scene

Drought is like a predator stalking its prey slowly, catch it, eat it and then put his eye on the next prey. The drought does not hit like a storm, but stalk his victims slowly one after the other. The first victim to be felled is normally the crop farmer, because the young seedlings are green on the land, is soft and tender and wilted quickly under the scorching sun. The next victim is the livestock farmer. Adult grass and bushes that have withered still have some nutrition, but regrowth does not occur without

rain and the fact that the grain farmers cannot deliver a product make the purchase of feed for livestock too expensive for the bank manager to approve.
The drought's stalking, however, does not end here. Input suppliers of grain farmers suffer, as seed and fertilizer without water can never do. Next, it is the consumers of grains because of the shortage of grain it becomes expensive and the consumer has to slice the bread thinner. Meat lovers smile in the short term since the emergency slaughtering create a large supply of meat in the market with lower prices, but wait for the following year when herds are rebuilt or the drought continues with a low supply because just too few animals have survived.

The drought consumes farmers, input suppliers and consumers, but what is the effect of this monster on the economy. The economic contribution of the farmers, as they produce less, certainly decline. The economic contribution of input suppliers also declines due to lower sales. However, these are all economic contractions of primary agriculture. The impact of the drought, however, circles out wider because of the consumer.

The majority of the South African population spend the bulk of their income on the acquisition of food products. The increases in the prices of food products due to the reduced supply cause a higher proportion spending on food and less money is available for the acquisition of luxury products. The effect of the drought and consequent higher food prices thus extend to the manufacturers and suppliers of luxury products whose demand is also now declining. The trade balance of SA also usually bleed (in the bad sense of the word) during a drought. Although South Africa is a net importer of food and therefore as a rule do not export a lot of food, the lower domestic food supply not only makes exports almost impossible, but to increase imports to meet domestic demand.

The implications of the drought thus has an effect on the country as a whole and it is basically impossible to estimate the effect by using only one sector such as red meat. As the price of a commodity is determined by supply and demand factors in the economy, it is important to take a more holistic approach in order to derive a estimate for a single sector. The price of feed is also a large determinant in the demand for South African weaned calves and lambs as it is a determinant in the demand for weaners from the feedlots.

2. Implications of the drought on the maize market - Feedlot demand for weaners

Maize, and its by products such as hominy chop, is the most important input price measure used by feedlots to determine the maximum price that they can pay for a weaned calf. The summer rains that started to fall in January 2016 was too late for most of the maize producing areas in the country, as late plantings will increase their chance on frost damage early in the winter. The areas that were still able to plant so late in the season, will most likely have lower yields than what would have been, if they planted in the optimal window.

Table 1 gives a brief summary of the 2015 maize crop yield (total tons harvested) and expectations of yield (total ton harvested) for the 2016 crop.

Table 1: Current and expected maize volumes and trade

	2015 Crop	2016 Crop*	2015 Imports	2016 Imports*
Yellow maize (ton)	5 238 000	4 000 000	900 000	>2 500 000
White maize (ton)	4 702 000	1 800 000	80 000	>3 500 000**
Total (ton)	**9 940 000**	**5 800 000**	**980 000**	**>6 000 000**

*Own estimates for 2016
**White maize imports depends on international availability

Maize imports will increase substantially from 980 000 ton to a very high 6 million ton (depending on white maize availability) during 2016/17. Harbor and rail/road logistics will be under severe pressure and there are doubts that SA will be able to move such a record quantity of grain inland, given the weak railway system and poor road logistics. This could cause bottlenecks in supplies and product shortages from time to time. The current continuous depreciation of the ZAR against the major

foreign currencies, is making it more expensive to import grains.

The domestic shortages have led to substantial increases in the price of both yellow and white maize. The price of yellow maize increased with more than 75% on a year-to-year basis while the price of white maize for delivery in July 2016 have increased to levels above R5 000/ton.

Hominy chop, as a by product of maize milling, is also becoming a scarce commodity as millers report that the sales of maize meal dropped by 10-15% due to the high prices and the strain it puts on the lower income groups. Millers will thus have to scale down their activities, as it is more expensive to store maize meal than maize.

The sharp increase in the price of maize, and other grains and oilseeds, will put tremendous pressure on the feedlot industry in South Africa as their variable cost will increase sharply. This will cause some of the smaller feedlots to leave the market, as they will not be able to sustain the possible losses. The larger feedlots will probably also limit their operations in order to keep possible losses as low as possible. This will cause a decrease in the demand for weaned calves and lambs, which is an important factor that must be kept in mind for future weaner price expectations. Feedlots that are more integrated in the value chain, will be the best positioned to survive the various pressures-lack of weaners, very expensive feed and slow demand. Integrated feedlots (Feedlot, Abattoir, retail outlets & contracts) will be better able to absorb expected financial losses during 2016/17, mainly a result of the very expensive/scarce feed.

3. Implications of the drought on the consumer – Consumer demand for red meat

In many cases it is argued that we went through, and survived, severe droughts in the past, so why not this one? Although this is true, think about the droughts of 1992, 2004 and the more recent one of 2012, the economic circumstances in the country was different with each drought. The economic circumstances of a country determine to great extent how the country is going to absorb to implications of the drought. In the event where un-employment is low and the people of a country is fairly rich, the effect of rising food prices due to drought, will be much easier absorbed by the consumers. The current situation in SA is that un-employment is high and growing and the economy is slowing down and interest rates are expected to increase during 2016. Consumers and the economy are already under a lot of pressure.

When we look at the current economic circumstances in South Africa, it does not look too good, and the prospects do not seem any better. Economic growth (GDP) on a year-to-year basis is on a decreasing path and when we look at the quarter-to-quarter figures, we are just keeping head above water without sinking into an economic recession. The low economic growth figures had a negative influence on the employment rate and currently un-employment is at one of its highest levels in history. The Rand devaluated by 45% during the previous 12 months against the USA dollar , that make the required food imports very expensive. SA is a net importer of many food products and will import more food due to drought, but it will be much more expensive than a year ago. Interest rates are also on a hiking cycle, in order to try and support the Rand and reduce inflation, but the higher interest rates put more pressure on consumers with debt.

The current drought, with all its implications, will thus make food scarcer and more expensive. This will have devastating implications on poor consumers who are currently struggling in the rough economic times. History taught us through many examples that people can survive through many disasters for long periods of time, as long as they have access to food and water. However, hunger does not listen to reason and as soon as food become unaffordable, consumers start to make a stand against it. The Arab Spring, which started in 2010 and resumed until 2012 was a very good examples of this. Although the riots against the governments of the north African countries do not only start due to food prices, it was one of the main reasons among high un-employment, corruption, lack of political freedom and poor living conditions. Sounds a bit like South Africa, doesn't it?

When one thinks about drought and the government the first thought that comes to mind is drought

relieve funding that the government should provide to farmers in times like these. Although the government did provide some drought relieve for the provinces that suffered the most, the total funds that was provided, is very little when compared to what is realistically required to stabilize agriculture and affordable food supplies.

The SA government however faces a much bigger challenge in the form of social grants. Over the years, the government had installed various types of social grants and a large part of the SA population depends on these grants to make a living. The government thus made the receivers of these grants their responsibility and thus basically cares for them in every way they need. Each year, with the national budget, these grants are being increased in order for the receivers to try and keep up with inflation. Every year in the past, the receivers were just too happy for the increase and satisfied with the government that provides for them. Early indications are that the cost of a basic basket of food will increase by at least 30% during the next few months. Current social grants will be inadequate.

The problem with receiving without working for what you get, is that one easily becomes greedy. With high interest rates, expensive food and more members of a family that do not qualify for social grants, while they do not get work at the same time the question is, if the receivers of social grants will be satisfied with the normal yearly increase in social grants this time around?

The consumer is currently struggling to keep afloat in the economy. The increase in food inflation will cause many consumers, especially the poor, to adapt another lifestyle mainly in terms of their diet. Man's first need is to still hunger and the food choices he makes must satisfy both his hunger and budget. Consumers will thus most probably move away from luxury food items (expensive protein sources like lamb and beef) and more money will be spend on basic (staples and beans) and intermediate (cheaper protein such as poultry and eggs) food sources so that the same quantity of food as in the past can be bought. This might cause the demand for red meat in the next year or two to decrease, another important factor to bear in mind when considering price expectations.

4. Implications of the drought on the livestock farmer – Supply of red meat

A livestock farmer's first response at the start of a drought is to supply the animals with additional feed in order to try and save the herd with high hopes that the rain will come soon. As soon as it seem that it will not start to rain soon enough, the farmer usually get rid of all the "extra" stock on the farm in an attempt to save the remaining natural grazing and postpone the possibility of supplying a full feed ration to animals, for as long as possible. The slaughtering of all these "extra" animals, in an attempt to save the core breeding herd, usually cause a short term over supply of meat in the market with a price decrease, or not as high as expected price increase, of red meat. Exports to markets where a better price can be realised, usually also increase during this time.

The price increase in red meat, due to lower supply, usually happens only 6 months to a year after the drought has been broke as there are no animals left to slaughter and the farmers, given that it started to rain during this period, are rebuilding their herds. The supply of female animals to the market is basically non existing and the amount of male animals will also be low as the breeding herds is much smaller than before the drought. The rebuilding of herds may take up to 7 years to complete, as was proven in the United States, where the price of female cows reached record high levels in 2014-2015.

4.1 The current scenario for red meat production

The natural grazing in South Africa (From KZN to Northern Cape coast) has been depleted and thus no grazing capacity is left. According to the Red Meat Producers Organization more then 40 000 cattle have already died in KZN (November 2015) and the rate is increasing rapidly during December and January 2016. Although large parts of the country received good rains during January 2016, the veldt take some time to regrow and given the fact that more than half of the growing period has already pass, there is a real possibility that grazing will not be sufficient during the winter of 2016. The reduced new summer crop plantings will also lead to a reduced fodder supply in the 2016 winter and high fodder prices.

Animal diseases, like Brucellosis, is currently being spread due to the movement of animals to areas where grazing is still available. The risk of new diseases spreading throughout the country is real, with grave consequences. We also know that the Government Veterinary Service does not have the resources and thus are not able to cope with this current high volume movement of animals in the country. There are also rumors of a new break out of foot-and-mouth disease (FMD) in Limpopo. The movement of animals across provincial borders may also spread FMD to other parts of the country that will result in the closing of the South African borders for exports yet again.

The projections for red meat prices in South Africa rely on a number of factors that, apart from the price of feed and economic circumstances, also include factors like future rainfall figures, number of slaughtering, the standing numbers of feedlots, size of the national herd and export quantities. Although it might not be accurate to predict the long-term rainfall, the current stance of the other statistic might provide a good picture of the current scenario.

4.1.1 Slaughter numbers of cattle and sheep

The monthly number of cattle and sheep slaughtered in South Africa are presented respectively in Figure 2 and Figure 3 for the years 2014 and 2015. It is evident from Figure 2, that the number of cattle slaughtered during 2015, exceeds the slaughter numbers of 2014 for every month. On average (Jan – Nov) the amount slaughtered in 2015 was 8% or 18 251 cattle per month higher than in 2014.

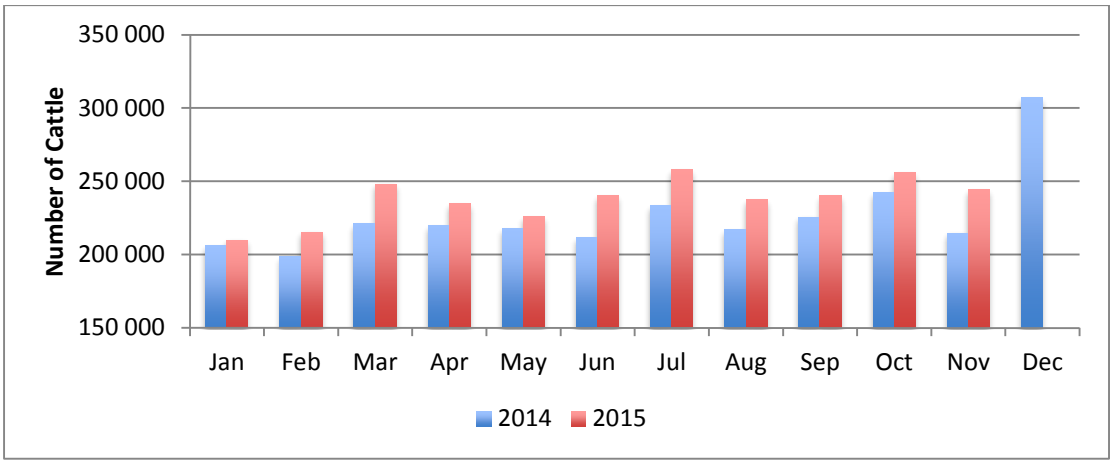

Figure 2: Monthly number of cattle slaughtered in SA (RMLA, 2016)

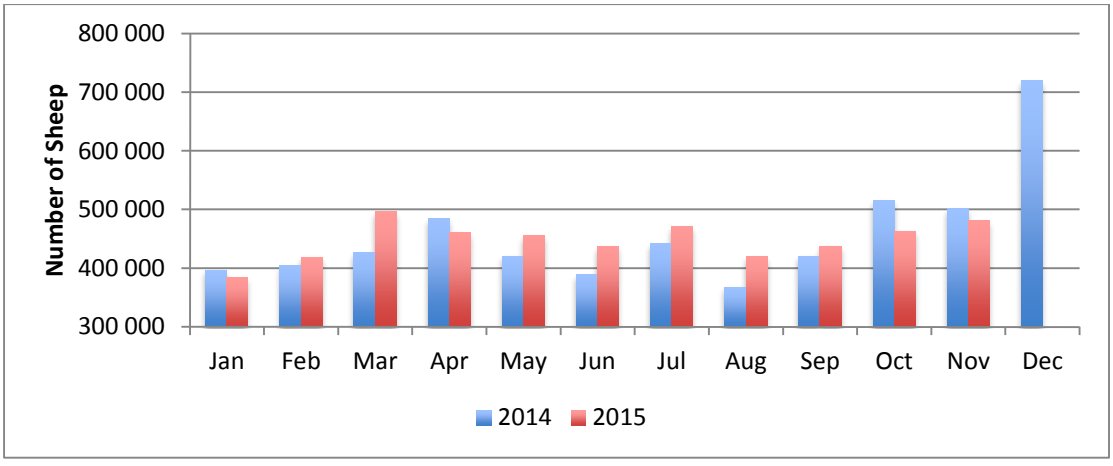

Figure 3: Monthly number of sheep slaughtered in SA (RMLA, 2016)

The amount of sheep slaughtered in 2015 does not vary as much from 2014 as in the case of beef (Figure 3). During some of the months the total monthly slaughter amount was even lower than in 2014. The average monthly (Jan – Nov) amount of sheep slaughters in 2015 was however still 4% or 14 268 higher than during 2014.

The impact of the drought during 2015 can clearly be seen in larger amount of animals slaughters during the year. This increase in slaughtered animals cause an over supply of meat in the domestic market and helped to fuel exports.

4.1.2 Cattle feedlot standing stock

The comparison of the total number of standing stock in the feedlots of country on a year-to-year basis can provide you with a good indication of what is happening with the numbers of the national herd. A slow increase on a year-to-year basis in the standing stock show that the national herd is slowly increasing and vice versa. A sharp increase in the standing stock as is evident in Figure 4 from the year 2014 to 2015 may however be an indication of a shock in the market, such as drought, that cause primary producers to sell more of their animals to the feedlot. During 2015 there were on average 30% more cattle in feedlots at any given time than during 2014, or 134 182 animals per month.

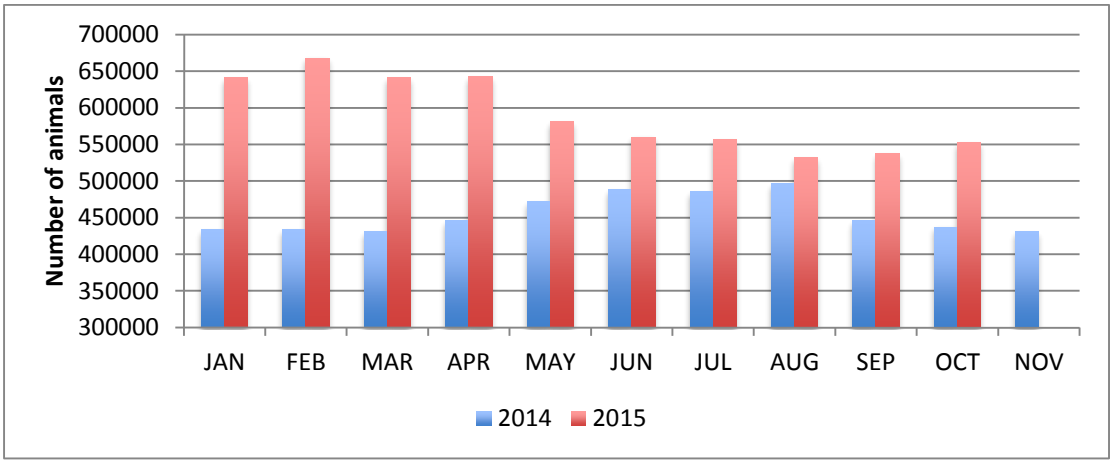

Figure 4: Monthly cattle feedlot standing stock in SA (SAFA, 2016)

The large number of cattle that was fed during 2015 in comparison with 2014 shows that very little replacement stock was kept on farms. Farmers thus desperately decreased their herd size in order to survive the drought. It is thus expected that the national herd size will be much smaller in 2016 than it was in the previous year or two. The result will be that production available for feedlots/slaughter will be reduced substantially in 2017/18.

4.1.3 Export figures of bovine meat

The over supply of beef during 2015 also created additional room for meat exports. Figure 5 gives and indication of the monthly amount of bovine (beef) meat that was exported from South Africa for the years 2013 – 2015. (Source:Agri Inspec)

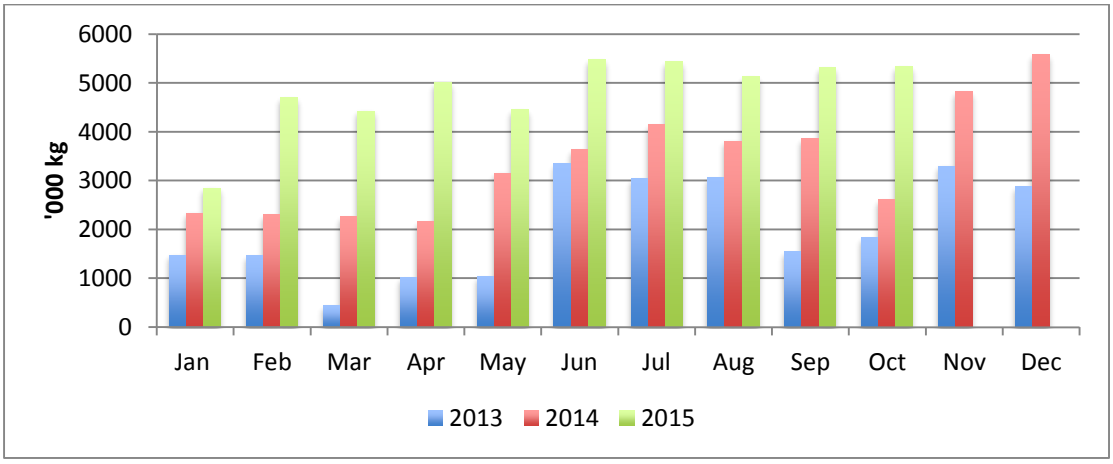

Figure 5: Total exports of bovine meat (all cuts) from South Africa

It is evident from Figure 5 that the monthly quantity of exports do not only increased dramatically in 2015, but the exported quantity almost remains the some from month to month in 2015 and do not follow the same cycle as the previous 2 years. During 2015 South Africa exported on average 65% or 1 788 ton more bovine meat per month than during 2014.The fact that SA can export beef during the past few years at domestic price levels (without any export subsidies) also indicate that the domestic price level of beef is well below international market price levels-creating export opportunities.

During a drought a export market that functions properly, can reduce the pressure on the domestic market and help to maintain prices as the a large part of the domestic over supply is being taken from the market. This did happen in 2015, but now, after the drought, the same export levels may cause the domestic shortage to be even larger and have a large influence on the domestic price. Exports markets, however, take time to build and it is thus not a good idea to try and influence the export quantities. The new outbreak of FMD may also cause the borders to close yet again and this may cause problems for the domestic market in the long term, when domestic supply recover after the drought.

4.1.4 Size of the national herd

The national herd size for both cattle and sheep are presented in Figure 6. It is evident from Figure 6 that both the cattle and sheep herd in SA are declining. It was especially the cattle numbers that decreased sharply during 2015, when the herd shrink with 256 807 animals up to August. The national sheep herd, that are almost double the size of the national cattle herd, shrink with approximately 184 574 animals during the same period.

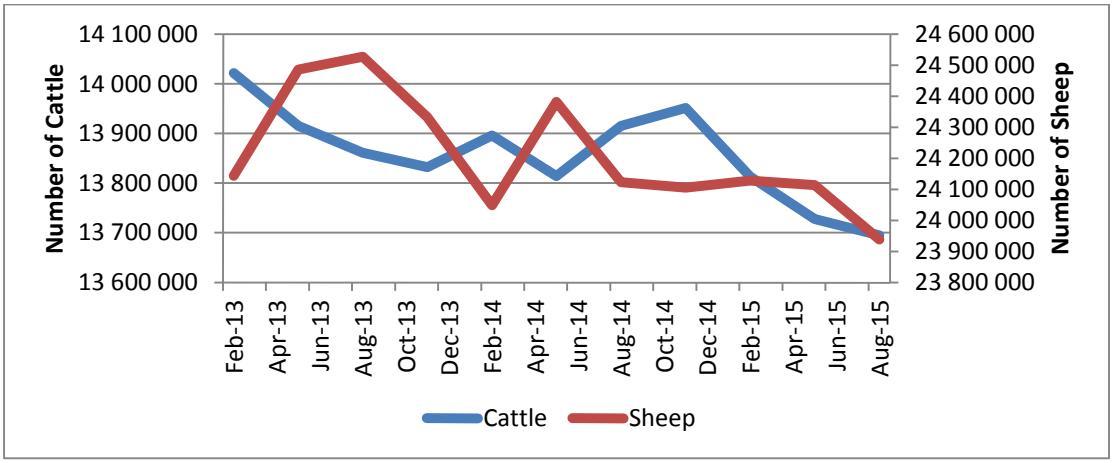

Figure 6: Size of the national cattle and sheep herds (DAFF, 2015)

Although a gradual decrease can be observed in both the national cattle and sheep herds over time, it may be ascribed to factors such as growth in the game industry, theft and also the past few dry years. The market absorbs the gradual change in the numbers over time and it could be argued that the herd liquidation that took place supplied extra meat on the market and kept prices at a lower level. Factors like drought or a large disease outbreak, however, cause the national herd to decrease quickly that could lead to price shocks in the market.

5. Price projections for red meat – Where supply and demand meet

The factors that influence the price projections, as discussed in the previous sections, all influence the red meat prices differently. To bring all these factors together and make some price projections is thus no easy task. In order to summarize some of the factors that may influence the price of red meat in the next year, Table 2 was drafted.

Table 2: Summary of economic factors that influence the red meat prices

Factor	2016			
	Jan - Mar	**Apr - Jun**	**Jul - Sep**	**Oct -Dec**
Yellow Maize	Crop estimate: Short crop Imports continue $ price _Stable Rand weakening Price trend: sideways/lower to harvest	Crop certainty: Large imports known Import program at high levels Price trend: Import pricing	Farmers sell slowly into market Import program continue Price trending upwards Large imports	New planting season Production credit? Imports continue
YM Price: Randfontein 25 January 2016	R3840/ton	R3621/ton	R3640/ton	R3651/ton
Economy / Consumers	Economic growth declining to recession/negative growth Inflation & Interest rates increase	New budget, higher tax? Social grants increase: How much? Consumers switch to lower priced proteins	Grain SA applied for Import duty on maize: If accepted it may cause an R1000/ton increase on import parity price	Silly season Consumers tend to spend more – Buy higher quality food (Lamb rather than beef)
Livestock	Rain in Jan, grazing recovering rate? Feed expensive, weaner demand low, weaner supply low, last of "extra" livestock for slaughter	Weaner supply normally at highest / feedlot demand low Less calves in the market, higher price than normal	During winter beef demand low. Lower A2/3 price than before winter	"Spare" cattle stock quicly enters the market for even higher beef price, A2/A3 price lower Feedlot demand high for calves, good prices

From Table 2 it is evident that the maize price is likely to remain high during the following year and the supply of weaned calves and lambs will be lower than in previous years. The lower supply of weaners, that should increase the price of weaners, may thus be countered by the high feed prices, as the feedlots will be under pressure.

The lower supply of weaners will, in due time, also cause a low supply of A2/A3 carcasses that should increase the price of red meat. However, the current state of the economy has a negative influence on the purchasing power of consumers that will cause consumers to buy cheaper protein alternatives that will decrease the demand for beef and lamb and thus counter the effect of the supply shortage.

The supply shortages of red meat, together with projected weak demand projections, cause a catch 22 situation for the projection of prices. We, however, feel that the supply forces will be stronger than the demand and that the prices of weaned lambs and calves and red meat will increase.

5.1 Projected prices for weaned calves and beef

The projected monthly average prices for weaned calves and beef for the years 2016 and 2017 are presented in Table 3 and Figure 6.

Table 3: Monthly average price projections for weaned calves and A2/3 carcasses

	2015 Calf	2016 Calf	2017 Calf	2015 A2/A3	2016 A2/A3	2017 A2/A3
Jan	R21.33	R20.10	R28.66	R33.49	R34.94	R37.72
Feb	R20.42	R19.79	R27.41	R32.97	R33.42	R36.32
Mar	R18.79	R20.66	R25.67	R33.72	R36.48	R37.40
Apr	R19.21	R22.22	R25.41	R34.51	R40.74	R39.00
May	R19.48	R21.35	R25.59	R34.33	R40.01	R37.55
Jun	R19.44	R21.80	R25.51	R34.64	R40.07	R37.08
Jul	R20.06	R22.05	R25.98	R33.97	R39.51	R36.86
Aug	R20.19	R22.28	R26.61	R33.51	R40.78	R37.11
Sep	R20.10	R25.19	R27.34	R34.95	R40.46	R37.23
Oct	R20.10	R26.03	R27.69	R34.71	R40.11	R38.03
Nov	R19.08	R27.20	R28.19	R34.50	R39.68	R39.08
Dec	R18.00	R27.90	R27.90	R35.82	R41.03	R40.03

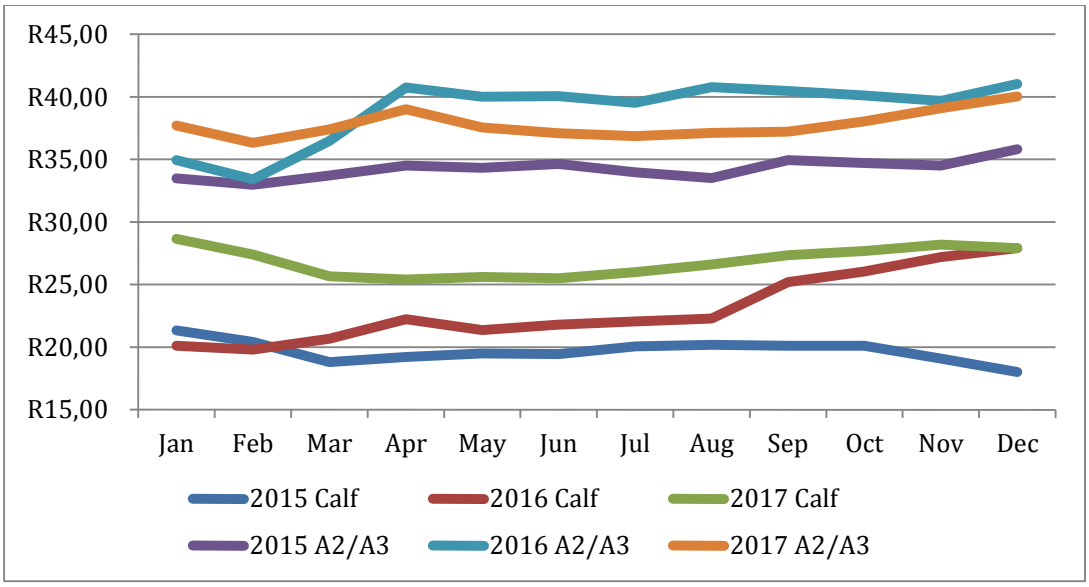

Figure 6: Monthly average price projections for weaned calves and A2/3 carcasses

The fact that the price of A2/A3 carcasses in lower during many months of 2017 than the same of 2016 is due to fact that the beef market showed the same tendency in history. The year after a year of steep price inclines due to a drought usually show a more stagnant market. This may be due to the supply of beef that slowly starts to increase again.

5.2 Projected prices for weaned lambs and slaughtered lamb

The projected monthly average prices for weaned lambs and slaughtered lamb for the years 2016 and 2017 are presented in Table 4 and Figure 7.

Table 3: Monthly average price projections for weaned lambs and A2/3 carcasses

	2015 Lamb	2016 Lamb	2017 Lamb	2015 A2/A3	2016 A2/A3	2017 A2/A3
Jan	R23.87	R24.74	R28.97	R56.50	R60.27	R67.02
Feb	R24.34	R26.44	R28.99	R52.95	R58.36	R65.00
Mar	R24.28	R27.54	R28.59	R52.50	R59.81	R63.40
Apr	R24.03	R27.24	R28.54	R52.45	R58.09	R62.69
May	R24.26	R26.38	R29.11	R54.17	R59.55	R63.00
Jun	R24.68	R27.14	R29.46	R53.23	R60.00	R63.22
Jul	R25.33	R29.40	R29.83	R54.71	R62.31	R64.90
Aug	R26.02	R30.67	R30.20	R55.65	R65.08	R66.04
Sep	R26.59	R30.28	R30.83	R53.20	R66.89	R65.92
Oct	R26.31	R31.40	R30.89	R54.26	R67.20	R65.89
Nov	R26.11	R30.92	R31.19	R54.35	R67.94	R66.16
Dec	R26.17	R30.53	R31.70	R55.06	R69.24	R67.57

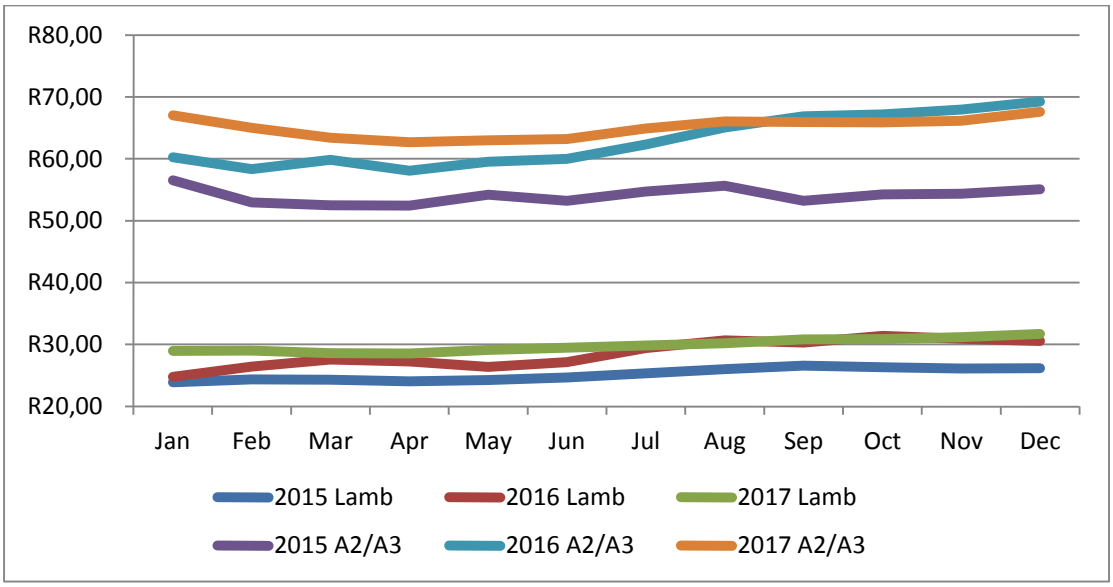

Figure 7: Monthly average price projections for weaned lambs and A2/3 carcasses

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