Quantifying the impact of reduced import tariffs on soybeans and soybean meal on the South African soya value chain

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1. Background

Over the past 10 years (2010-2020) the South African soyabean industry has been one of the country's biggest agricultural and agro-processing success stories. The area planted has more than doubled, production has nearly tripled and major investments in processing facilities have boosted total crushing capacity to 2.2 million tons (1.76 mil tons @ 80% utilisation) plus 450 000 tons full fat (360 000 tons @80%). Consequently, local production of soybean meal has rapidly increased reaching 950 000tons in the 2019/20 production season, driving down the volume of imported soybean meal as the local feed industry is shifting from imported to locally produced meal.

Although there is general consensus in the industry that soybean production will keep on expanding (latest BFAP projections indicate that South Africa will pass the 2 million ton mark in 3-4 seasons), a point that is often tabled at value chain roundtable discussions is what is the impact of duties on imported soybeans and soybean meal on the integrated soybean and livestock value chain. More specifically, stakeholders in the feed industry argue that a quota system could be introduced that allows for crushers to import the shortfall of soybeans duty free and thereby boost local crushing to replace all imported soybean meal with local production until the local production of soybeans has expanded sufficiently to meet the local demand. Further downstream in the chain poultry producers are facing stiff competition from imported poultry meat and feed ingredients, which are in turn affected by the import duties on meal. These are critical drivers of the relative competitiveness of the industry.

The reduction in duties will, however, affect the profitability of producers, which could compromise the long-run expansion trajectory of soybean production. There is general agreement in the industry that the ideal position is for South Africa to become competitive and economically sustainable in soybean production, in other words working towards trading closer to export parity levels. The overall competitiveness of the integrated soybean and livestock value chain will be improved with the introduction of new seed technology and germplasm and a constant drive in improved farming practices, together with an efficiency drive in the handling and processing of soybeans and investment in logistics, especially in the transport of soybean meal to the coastal areas where almost one third of the soybean meal is consumed. It is, however, work in progress and any short-term interventions, like an adjustment in import duties, have to be carefully considered within a broader scope.

For the purpose of this brief, two alternative scenarios were analysed to quantify the impact of reduced import tariffs on soybeans and soybean meal on the soybean value chain. The first section of the brief presents the impact on market prices and the second section unpacks the economic implications for soybean producers and processors, which includes the potential long-run implications on supply and demand responses. All model simulations presented in this report are generated by the BFAP integrated analytical platform, consisting of econometric market models, supply chain and processor models and farm-level models.

It is important to note that global soybean markets are going through extreme price shifts (Figure 1a), mainly due to a sharp rise in Chinese soybean imports that are utilised for the

rebuilding of the pig heard following the outbreak of African Swine Fever. Over the outlook period, global prices are projected to decline as supply and demand respond to these high price levels. Furthermore, in the local market an all-time bumper crop (Figure 1b) in excess of 1.6 million tons is expected to be harvested in 2021 with the national average yield estimated at 2.08t/ha, which is significantly higher than the trend. Consequently, in the current production season South Africa will move much closer to the required level of soybeans to meet local consumption levels. Therefore, in order for a longer-term market equilibrium to establish, a 5-year outlook period is utilised for the purpose of this study to quantify the potential impacts of reduced import duties on soybeans and meal.

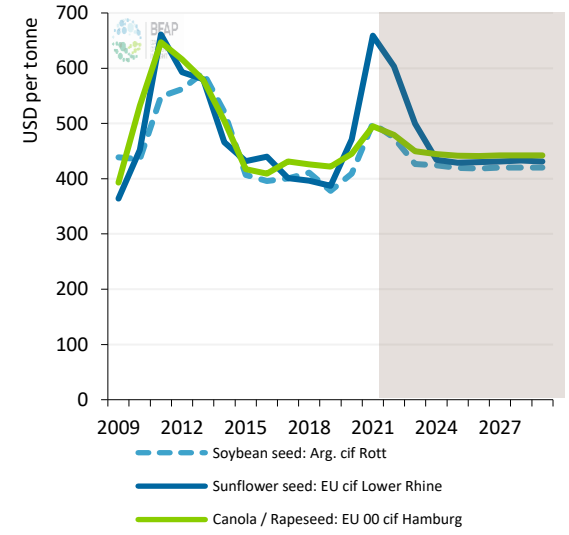

Figure 1a. Global oilseed price outlook

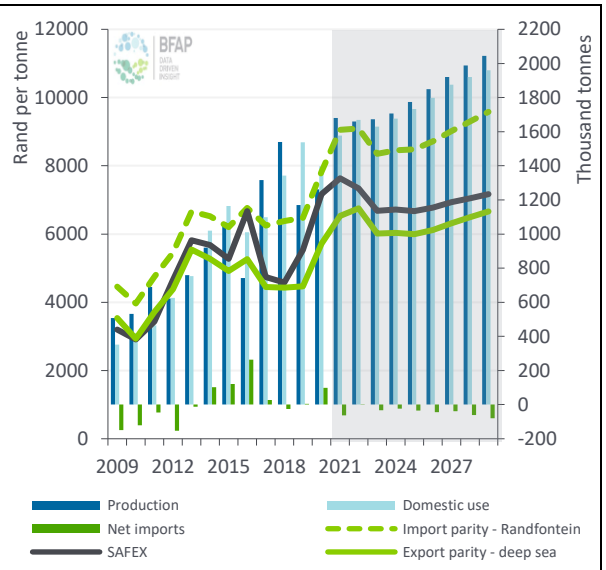

Figure 1b. SA soyabean market and price outlook

2. Price impacts of reduced tariffs on soybeans and soybean meal.

Table 1 provides a summary of the current import tariffs on soybeans and soybean products. The most relevant tariffs are highlighted (predominant country-of-origin for South African imports) as well as the net imports of the products in 2020. In the following sections, the tariff scenarios and their modelled impacts are discussed.

Table 1 Soybeans and product tariffs

Trade description	Exporting region	*Ad valorem* tariff	Net Imports 2020 ('000 tons)
1201 – Soybeans, whether broken or not	General	8%	99
	EU	Free	
	EFTA	8%	

	SADC	Free	
	MERCOSUR	**8%**	
	AfCFTA	6.4%	
2304 – Soybean oilcake (Oil-cake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction o soybean oil)	General	6.6%	446.5
	EU	Free	
	EFTA	6.6%	
	SADC	Free	
	MERCOSUR	**4.95%**	
	AfCFTA	5.3%	
1512.1 – Soybean oil and its fractions, whether or not refined, but not chemically modified:	General	10%	101.3
	EU	Free	
	EFTA	10%	
	SADC	Free	
	MERCOSUR	**10%**	
	AfCFTA	10%	

Source: SARS, 2020

2.1. Scenario 1: Zero tariff import quota on soybeans

The first scenario, analyses the impact of the introduction of a zero-duty import quota to cover the shortfall of soybeans required to meet the local consumption of soya meal. The 2019/2020 marketing season is used to illustrate the introduction of this zero-tariff in practical terms. With local production of soybean meal reaching 950 000tons, soybean meal imports amounted to 474 000tons to meet the shortfall in local production, which brings the total amount of marketable cake to approximately 1.42 million tons. This implies that South Africa required an equivalent of just over 1.85 million tons of soybeans at a conversion rate of 75% to meet its domestic consumption of soybean meal in the 2019/2020 marketing season and with total production of soybeans at 1.17million tons, a further 680 000 tons of soybeans would have been required for crushing to replace all imported soybean meal. Small volumes of soybeans are entering the country duty free from Zambia and Malawi under the SADC free-trade agreement, but larger import requirements will have to be met by countries like the USA, Argentina and Brazil, where an import tariff of 8% is applied.

An import quota with a zero-duty would imply that soybeans could be imported duty-free to supplement the local shortfall of soybeans. Figure 1 presents that price impact at various nodes in the soybean value chain when this quota is introduced into the BFAP modelling platform. It is important to note that this is the average annual impact over a 5-year outlook period where the BFAP sector model generates the shortfall of soybeans, based on the projected growth in production and consumption levels of soybeans, soybean meal and livestock products.

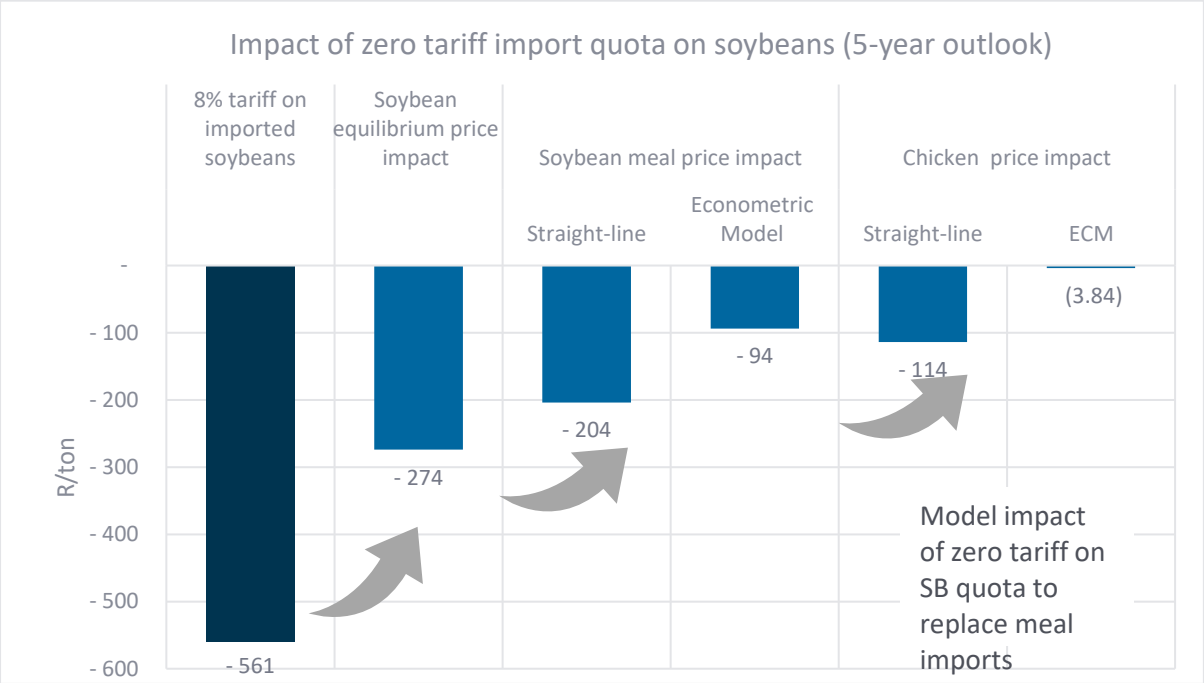

Figure 2: Price impact of zero tariff import quota on soybeans (5-year outlook)

The reduction of the 8% import duty on soybeans implies that soybean crushers can import soybeans R561/ton cheaper. However, this discount is only applicable to the quota of beans that can be imported to replace the imported soybean meal and consequently, the BFAP econometric market model generates a net equilibrium price for soybeans that is R274/ton lower once all supply and demand responses have been taken into consideration. Two approaches are utilised to transmit this reduction in soybean prices through the value chain:

- First, the straight-line approach, where it is assumed that crushers transmit the full benefit of cheaper soybeans to soybean meal prices. Soybean meal prices consequently decline by R204/ton and if this cheaper meal is introduced in the feed rations of broilers, chicken prices decline by 11.4 c/kg.
- In the second approach, the BFAP econometric market model is applied to estimate the actual price transmission elasticities between soybeans, soybean meal and chicken prices based on historic pricing data. According to this approach, soybean meal prices will only decline by R94/ton if an import quota with a zero-tariff is introduced and the decline in chicken prices will be negligible at 0.3c/kg.

2.2. Scenario 2: Zero-tariff on soybean meal imports

T**he second scenario**, is more simplistic in the sense that it only takes a reduction in the current import tariff on soybean meal from 4.5% to zero into consideration. Due to the domestic shortfall, local soybean meal prices are mostly trading at or close to import parity prices. It is often argued that cheaper soybean meal and consequently broiler feed will boost the overall competitiveness of the South African chicken industry. Figure 3 presents the net impact on prices for both the straight-line and econometric approach:

- In the straight-line approach, the full decline in soybean meal price of R309/ton is passed on to broiler feed rations, and consequently chicken prices decline by 17c/kg.
- In the econometric approach, the benefit of lower soybean meal price is passed on only in part (not the full benefit), and chicken prices only decline by 1.3c/kg. As noted above, the econometric approach is based on long-run price relationships, in this case between chicken and soybean meal prices, that are estimated using historic price data. In other words, this price transmission can be regarded as the more realistic estimate of actual market relationships.

Although a zero duty on imported soybean meal will benefit feed manufactures who can effectively source soybean meal R309/ton cheaper and consumers will pay between 1 to 17c/kg less for their chicken, soybean crushers and soybean producers will be adversely affected by lower meal prices. The following two sections will deal with the economic impacts in more detail.

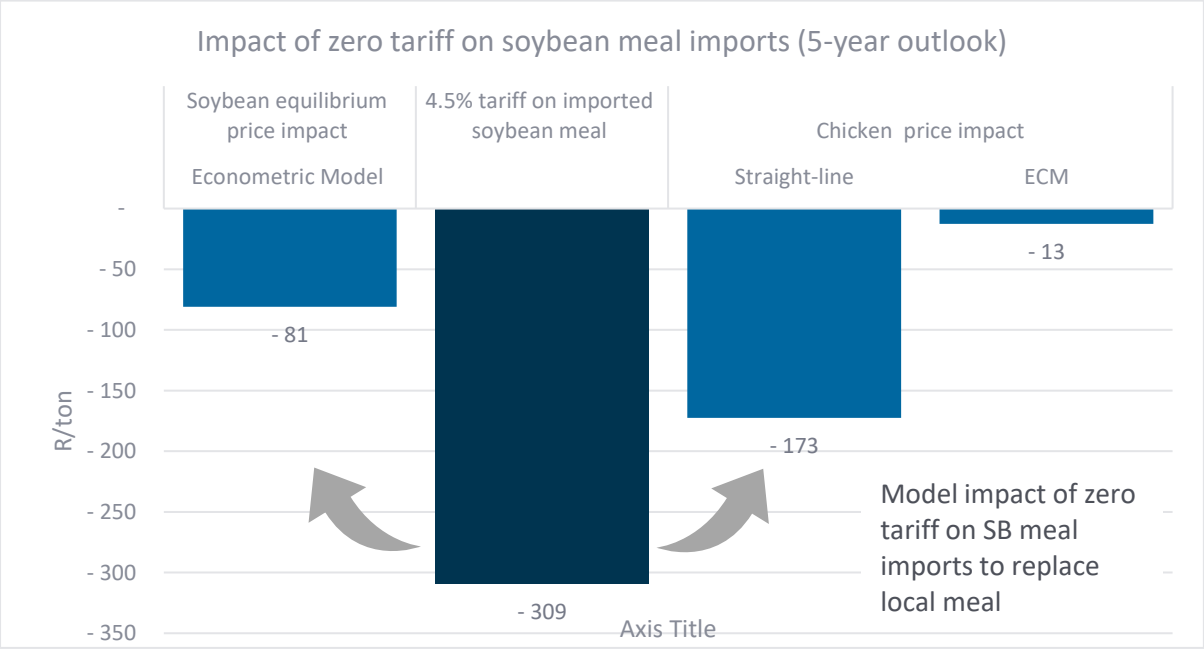

Figure 3: Price impact of zero tariff on soybean meal imports

3. Economic impact on soybean processors & producers

Although both scenario 1 and 2 lead to lower soybean meal and marginally lower chicken prices, the economic impacts of these two scenarios on soybean producers and processors differ significantly. Figure 4 presents the impact on gross margins of soybean crushers.

Under scenario 1, soybean crushing margins are projected to increase by R277/ton under the straight-line approach and R359/ton under the econometric approach. The reason for higher crushing margins in both the straight line and econometric approach is twofold. First, crushing margins increase because soybeans are sourced at lower prices (minus R274) which

outweighs the loss in income of selling soya meal at lower prices (minus R204). Secondly, due to improved margins, soybean crushers will increase crushing volumes by approximately 55 000 tons per annum (Figure 5a) over the next five years, which offers an efficiency gain that drives down crushing costs per ton. Higher local production of soybean meal will drive down soybean meal imports by approximately 40 000 tons (Figure 5b) and a slight increase in soybean meal consumption due to lower prices.

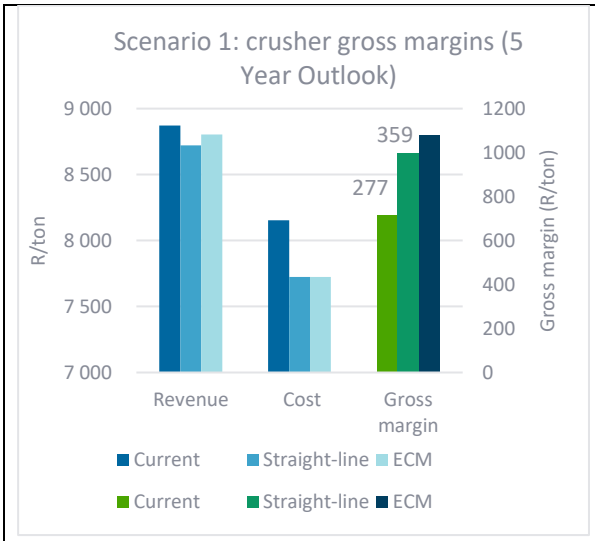

Figure 4a. Scenario 1 - crusher gross margins

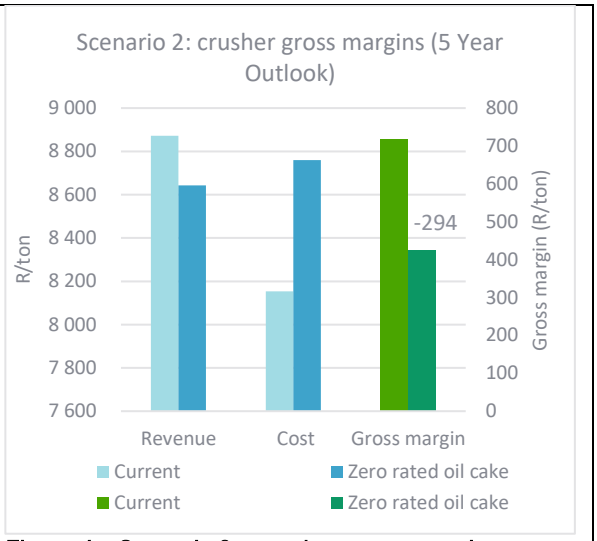

Figure 4a. Scenario 2 – crusher gross margins

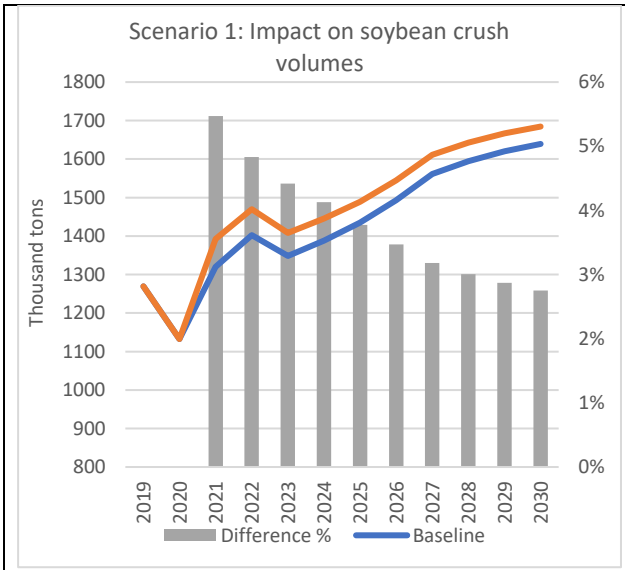

Figure 5a: Scenario 1-Impact of zero tariff import quota on soybean crush volumes

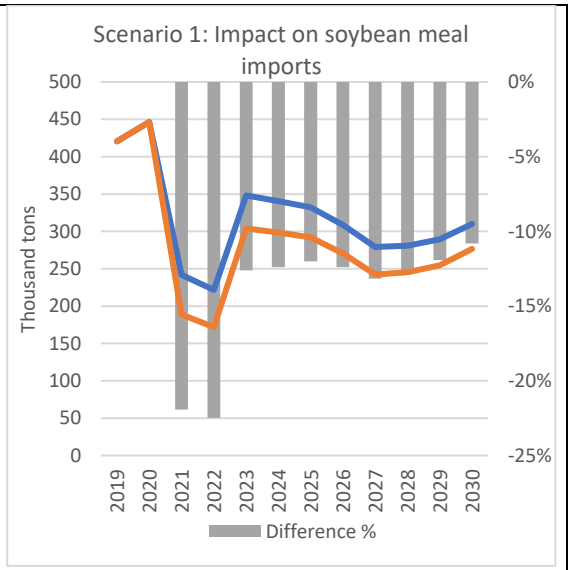

Figure 5a: Scenario 1-Impact of zero-tariff on soybean meal imports

Under scenario 2, soybean crushing margins are projected to decline by R294/ton. As discussed in the section above, local soybean meal prices will decline under this scenario because soybean meal is imported without any tariff. Due to lower crushing margins, 41 000 tons less soybeans will be crushed, which will lead to efficiency losses that will drive up

average costs of crushing. Total soybean meal imports will rise annually by approximately 50 000 tons over the next five years to meet local shortfalls (see Figure 6a and Figure 6b).

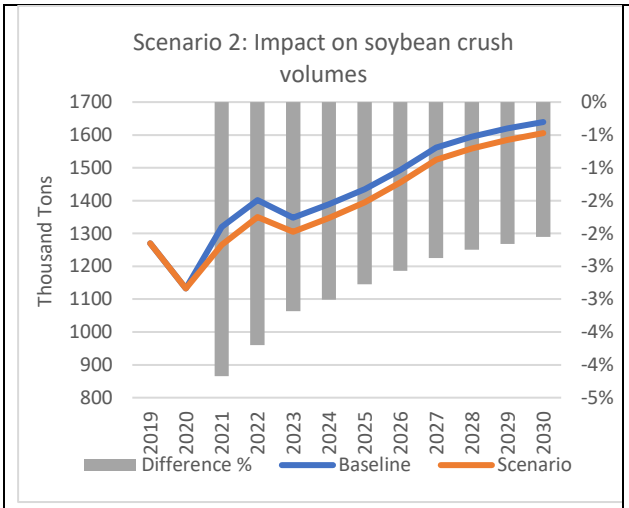

Figure 6a: Scenario 2-Impact of soybean zero-tariff import quota on soybean crush volumes

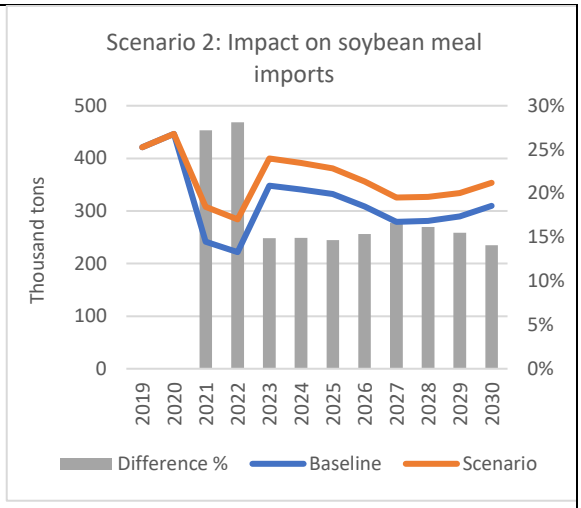

Figure 6b: Scenario 2-Impact of soybean zero-tariff import quota on soybean meal imports

The next set of figures compares local prices to the price of imported soybean meal under the two alternative scenarios. The competitiveness of the local industry, relative to imported soybean meal, hinges on the quality of the soybean meal that is produced and the price at which it can be marketed. As was explained in the background above, due to major investments in crushing facilities, local production of soybean meal has rapidly increased driving down the volume of imported soybean meal. However, according to the latest BFAP Baseline projections, coastal areas will be relying partly on imported soybean meal despite of higher local production levels. The reason for this is illustrated by Figure 7a.

Under the first scenario, crushers in the inland (Randfontein) can supply soybean meal to the market for R158/ton **below import parity levels** on average, yet in the coastal region (Paarl) **imported meal is R591/ton cheaper** compared to local meal. When scenario 1 is introduced in the model, the costs of local soybean meal reduce by R204/ton. This boosts the competitiveness of local meal in the inland regions further, yet when the meal has to be transported to the coastal areas (e.g. Paarl) at transport costs in excess of R800/ton, the cost of local meal remains higher than the parity price of imported soybean meal. Following extensive surveys with all local crushing facilities, it became apparent that despite this price differential, some of the larger crushes are prepared to discount their meal prices to such extent that meal, which is produced in the inland region, is transported to the coastal areas during periods where ample stock is available in the inland and return freight from the coastal to inland regions is available to mitigate some of the transportation costs.

Under the second scenario, a zero-tariff on imported soybean meal implies that **import parity prices are R309/ton lower than what the local industry can offer, even in the inland regions**. In other words, whereas the introduction of a zero-tariff import quota on soybeans (scenario 1) boosts the relative competitiveness of local crushers in the inland and coastal regions, a

reduction of the soybean meal import tariff, puts the local crushing industry on the backfoot, even in the inland regions (Figure 7b).

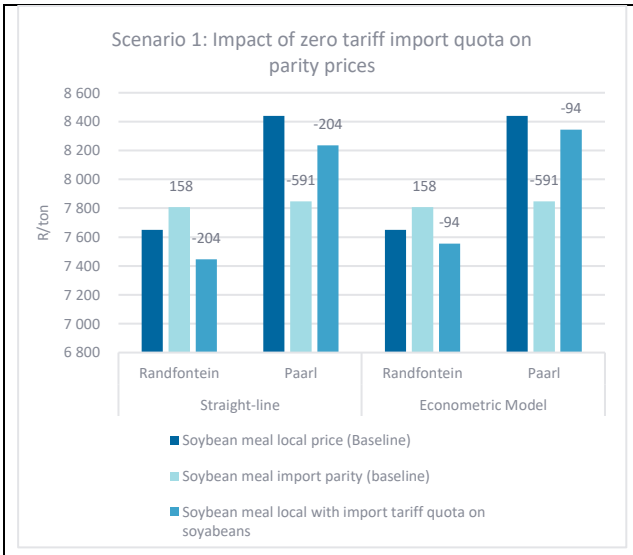

Figure 7a: Scenario 1 – Local versus parity prices of soybean meal

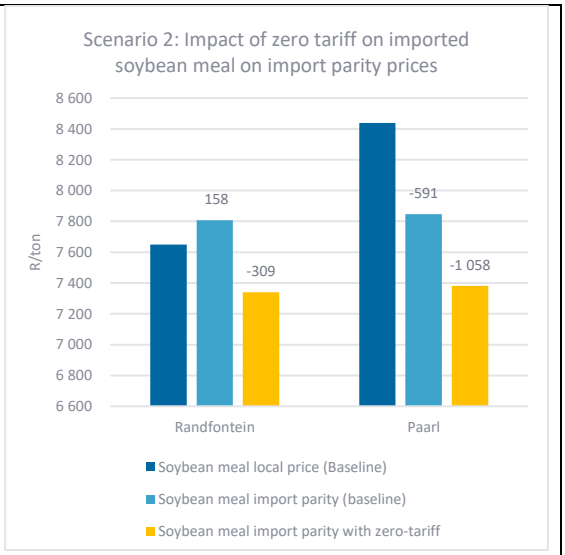

Figure 7b: Scenario 2 – Local versus parity prices of soybean meal

The last figure presents the impact of the two scenarios on the average annual gross margins of soyabean producers. As can be expected, in both cases gross margins of producers will be impacted negatively. Under the first scenario, average soyabean prices are projected to decline by R274/ton, which implies that gross margins per hectare will decline by R1059/ha in the typical irrigation areas of the North-West province, and in the dryland areas of Mpumalanga, Eastern Free State and the North-West, gross margins will decline by R630/ha, R568/ha and R508/ha respectively. Under the second scenario, average soyabean prices are projected to decline by only R81/ton and consequently the adverse impact on gross margins is significantly smaller, as illustrated in figure 8.

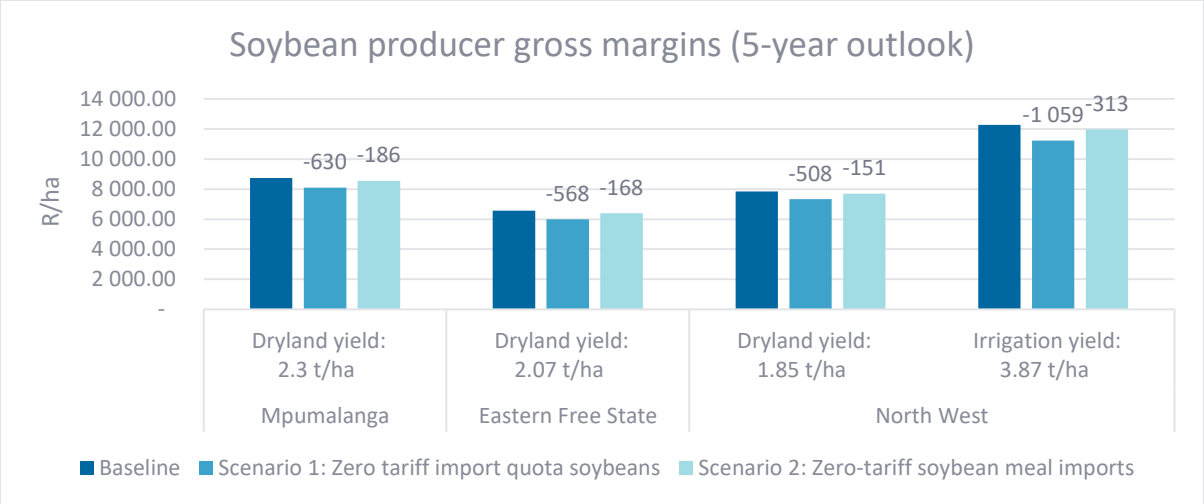

Figure 8: Impact of reduced import tariffs on the gross margins of soybean producer margins

4. Conclusion

The impact of the two scenarios on the integrated soya value chain, can be summarised as follows:

Scenario 1: Zero tariff import quota on soybeans

- Producers are adversely affected by lower soybean prices. The projected total loss in gross margin for producers amounts to R538 million per annum.
- Crushers are benefitting from higher crushing margins because soybeans are sourced at lower prices and increased crushing volumes offer an efficiency gain that drives down crushing costs per ton. Although they are selling soybean meal R94/ton cheaper, the benefits of lower soybean prices and efficiency gains outweigh the loss in revenue and the projected increase in annual gross margin equals R556 million.
- In the case of chicken producers, the benefit from the drop in feed costs of R28/ton, and marginally higher sales of 2400 tons on the back of lower chicken prices leads to an increase in the annual gross margin of the industry of R139 million.

Scenario 2: Zero-tariff on soybean meal imports

- Similar to Scenario 1, producers are adversely affected under scenario 2, but the negative impact on producer prices is smaller (R81/ton versus R274/ton). Hence, the projected total loss in gross margin for producers amounts to R159 million per annum
- Crushers are also adversely affected by lower soybean meal prices and efficiency losses due to lower crushing volumes as duty free soybean meal is competitively entering local markets. The projected loss in annual gross margin of the soybean crushing industry equals R370 million.
- Chicken producers are benefitting from the projected decline in feed costs of R93/ton and higher sales of 5600 tons on the back of lower chicken prices. As a result, the annual gross margin of the industry is projected to increase by R416 million.

To conclude, from a strategic perspective, the ideal position remains for South Africa to become competitive and economically sustainable in soybean production closer to export parity levels. The overall competitiveness of the integrated soybean and livestock value chain will be improved with the introduction of new seed technology and germplasm and a constant drive in improved farming practices, together with an efficiency drive in the handling and processing of soybeans and investment in logistics, especially in the transport of soybean meal to the coastal areas where almost one third of the soybean meal is consumed.