April 15, 2020

THE USE OF AGRICULTURAL INPUTS IN SOUTH AFRICA

COVID-19 has caused widespread turmoil and volatility since the start of 2020 and the measures implemented to contain it have sent shockwaves throughout the global economy. Investor appetite for risk has declined drastically, resulting in a major sell-off in financial markets, as well as a drastic depreciation in many emerging market currencies. In South Africa, the situation is further exacerbated by consecutive downgrades to the sovereign credit rating – by Moody's to sub-investment level for the first time and by Fitch to a level further into sub-investment grade. On the 3rd of April, the Rand was trading at R19.35 against the US dollar, a depreciation of nearly 40% or R5.36 since the beginning of 2020. At the same time, reduced economic activity, especially in mining and manufacturing output, the grounding of commercial airliners and the on-going price war in major oil-producing countries have caused the largest oil price crash in decades. On the 6th of April 2020, the cost of Brent crude oil reflected a decline of 60% from January 2020, trading at US$27.60 per barrel (Figure 1).

Amidst this perfect storm, food security remains paramount and, while South Africa is a net exporter of agricultural products, it imports a substantial share of the inputs required to produce this surplus. Futhermore, while most agricultural value chains have been exempted from the lockdown restrictions, many of the support services required for the agriculture and food system to function efficiently are not operating at full capacity (e.g. financial services)[1]. Amidst concerns related to continued efficiency of the logistics associated with international trade, this brief takes a closer look at agricultural input supply – particularly the extent of import dependence, the rising cost structure and the commodities most likely to be impacted in the short and medium-term. It reiterates the importance of fully functional supply chains and clarity on all the extended essential services associated with food production.

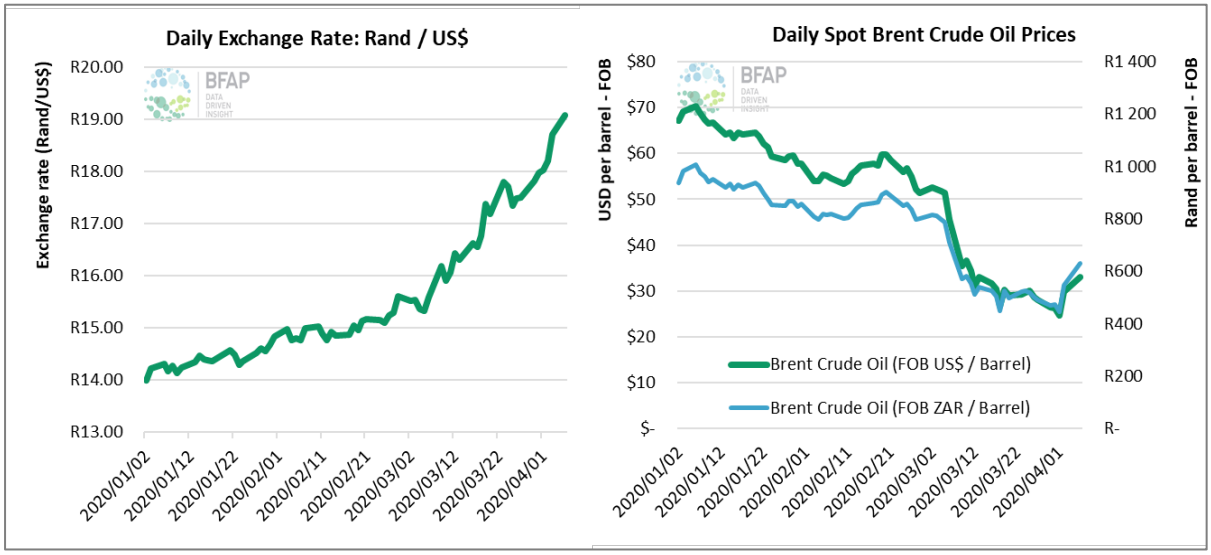

Figure 1: Daily movements of Rand / US$ exchange rate & Brent Crude Oil FOB price
Source: SARB & USDA, 2020

[1] For more detail on the complexities of the agriculture and food value chain and the extent of services it requires, see "Clarifying and managing essential goods and services across agricultural value chains is critical for food security" available at: https://covid19.ivis.africa/food-security/value-chain

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South Africa is highly dependent on imports of agricultural inputs. For instance, it is estimated that more than 80% of domestic fertiliser demand and more than 95% of plant protection chemicals are imported. This implies that local prices are subjected to the same supply and demand forces that drive international markets: for example, the farm gate price of domestic fertilisers is strongly influenced by international price fluctuations, currency exchange rates and shipping and distribution costs (Grain SA, 2016).

In addition to fertilisers and chemicals, South Africa sources multiple agricultural inputs in the global market. The relative value of different categories of input imports, on average between 2017 and 2019, is presented in Figure 2. Products related to mechanisation, such as tractors, implements, machinery and parts account for the greatest share, followed by fertilisers, animal feeds and plant protection chemicals. For mechanisation related products, tractors with a size exceeding 130kW constituted the largest share of imports at 32%. Machinery parts comprised 20% of this category with an average imported value of R826 million per annum. With regards to the value of fertiliser imports, Urea comprises 42%, followed by mono-ammonium phosphates (18%) and potassium chloride (17%). Imports of plant protection products, which spans multiple tariff lines, were separated into herbicides (41%), insecticides (34%), fungicides (17%) and others (8%). Within the animal feeds category, oilcake related products and preparations used in animal feeds constituted 68%.

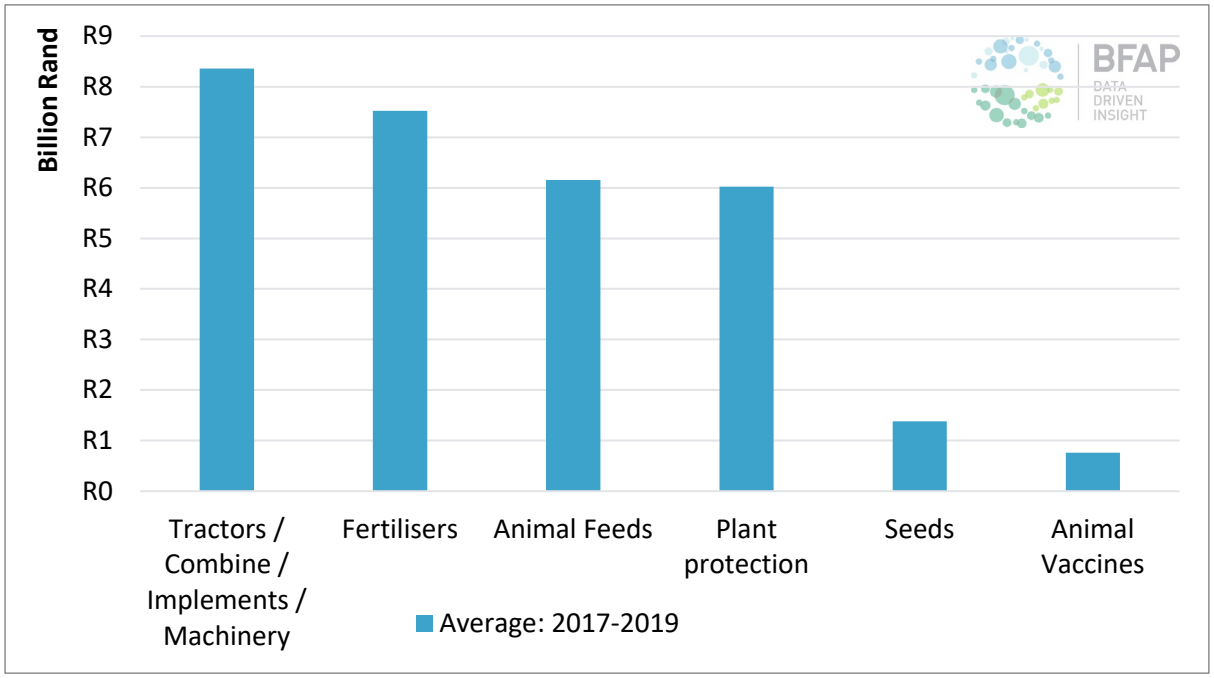

Figure 2: Value of South African imports of key agricultural inputs: Average: 2017-2019
Source: Compiled from ITC Trademap, 2020

Figure 3 provides an illustration of South Africa's key trade partners with respect to agricultural inputs over the period from 2017 to 2019. At an aggregated level, the major sourcing regions are the European Union (EU), the United States of America (USA), China and Argentina. The relative importance of sourcing regions is, however, dependant on the types of inputs imported. Considering a broad category of inputs related to crop production, which includes mechanisation, fertiliser, plant protection and seed imports, the EU is South Africa's main source of imports (contrary to the more popular belief that most

agricultural imports are from China), accounting for 30% of the total value. A further 16% (mainly fertilisers) is attributed to the Middle-Eastern region, followed by the USA and China, which accounted for 14% and 12% respectively. More specifically, for fertiliser products, 17% is sourced from Saudi Arabia followed by Qatar (16%) and Russia (13%). The majority of chemicals related to plant protection are sourced from the EU (42%) followed by China with a share of 24%. Considered in conjunction with the recent impact of COVID-19, this implies that 80% of plant protection chemicals are sourced from countries/regions that are severely affected by the pandemic.

In terms of inputs related to animal production, feed rations typically comprise 50 to 60 percent maize, of which South Africa will produce a significant surplus in the current season. Another major ingredient is soybean oilcake. Due to major investments in chrushing facilities and the expansion of soybean production over the past few years, South Africa is able to produce approximately 75% of its local demand in soybean oilcake and the shortfall is supplied mainly by Argentina. A large share of other inputs such as amino acids, vitamins and minerals are procured from China. Amongst animal vaccines, 68% of imported products originate from the USA, Netherlands and France.

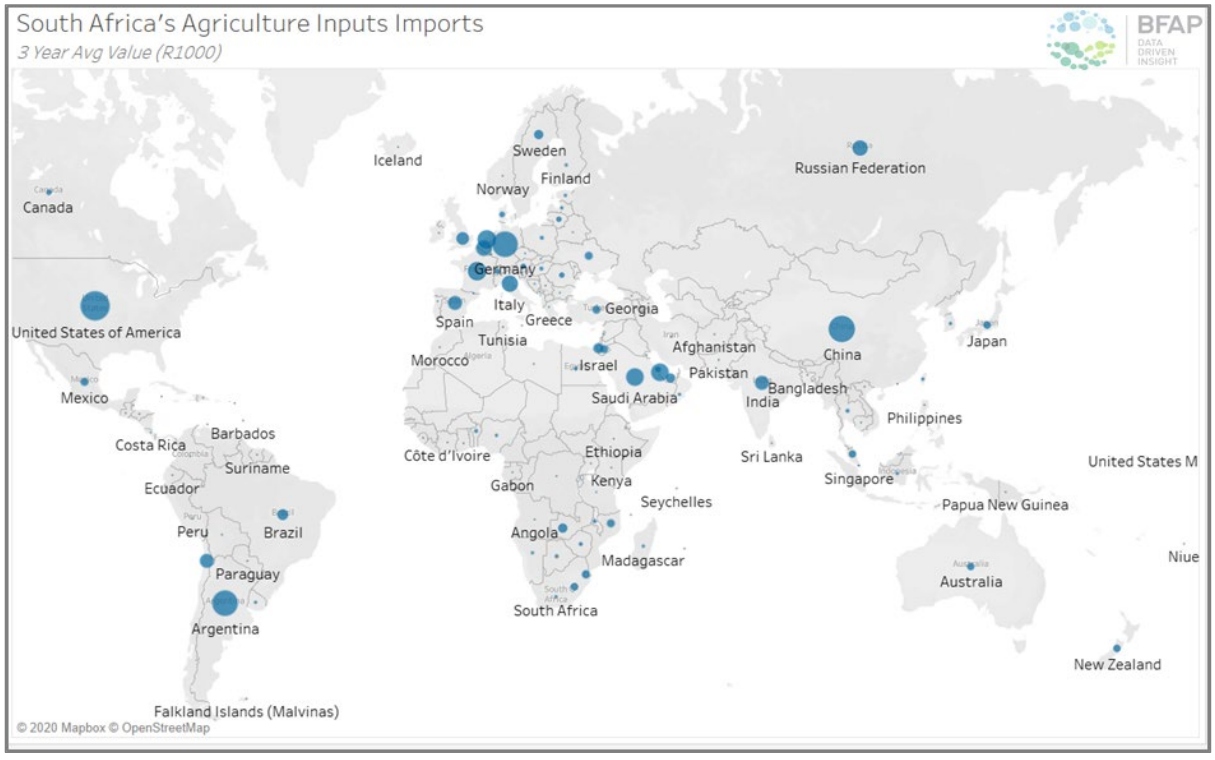

Figure 3: Main countries of imports of agricultural inputs in crop production: Average value: 2017-2019
Source: Compiled from ITC Trademap, 2020

The risks associated with the high dependence on imports for critical inputs are twofold: Firstly, it relates to **availability**, either due to supply disruptions in major sourcing countries, or logistical and distribution challenges arising from COVID-19 containment measures. Domestically, uncertainty regarding the supply and distribution of agricultural inputs may further exacerbate challenges regarding the timely availability of inputs. For example, a backlog in port operations as a result of a reduced workforce early in the South African lockdown could cause harvesting delays due to machinery parts not being available.

Secondly, there are also risks related to **affordability**, which is linked to availability but also influenced by the macroeconomic environment, where the relative weakness of the exchange rate, for instance, has the potential to cause substantial price volatility.

From an affordability perspective, the two biggest factors influencing the cost of fertiliser is the Rand – USD exchange rate, and the price of crude oil. Oil price movements influence the cost of all imported inputs indirectly through sea freight and other distribution costs. It further influences the cost of inputs such as fuel and fertiliser directly and could also impact costs of manufactured inputs such as chemicals, plant protection and machinery. Over the past decade, the combined impact of these two factors, as well as rising labour costs, have already led to substantial increases in input cost structure (Figure 4).

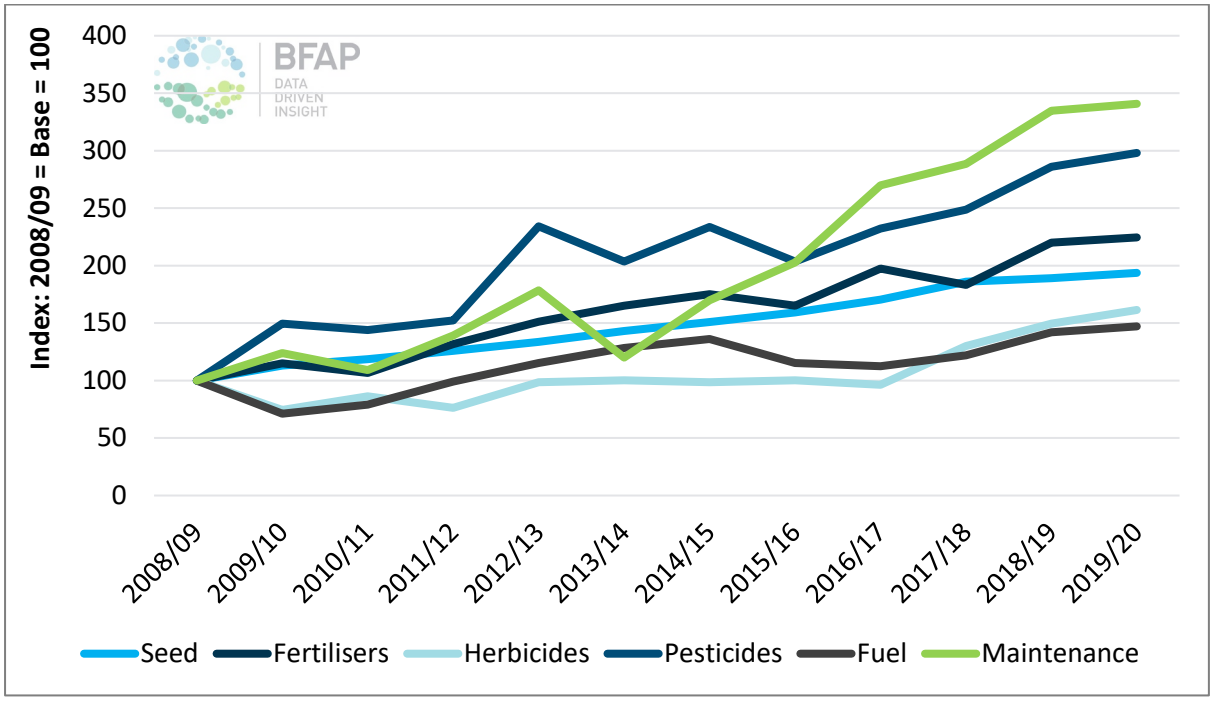

Figure 4: Nominal input cost trends in South Africa: 2008/09 to 2019/20
Source: Grain SA, 2019

Significant uncertainties exists around how COVID-19 will affect input supply chains in the coming months and how value chains will cope with these volatile conditions. The seasonal nature of agriculture implies that the impact of the previously highlighted risks associated with input procurement this year can be very different across different subsectors. Production systems differ, the relevant period through which inputs are procured over the year and the intensity in the use of different input types will all play a role. With the degree of persistence of the pandemic and the ultimate time required to contain it still uncertain, the relevant operations that could be affected should be considered independently across subsectors.

Field crops: Timely procurement of inputs, and commencement of required processes, is critical to optimise both the quantity harvested and quality of the product. South Africa's summer crop is at the end of the growing season and harvesting has already started. This will require sufficient labour availability for harvesting, transport and storage related activities, as well as machinery and parts for repairs. For winter crops, which include wheat, barley and canola, the planting period will commence

soon. Producers need to start with land preparations and planting, which requires sufficient farm workers to operate machinery, and is dependent on timely availability of inputs such as seed, chemicals, fuel, fertiliser, machinery/implement parts and repair services and/or technology support.

Horticulture: For horticultural industries, the harvesting activities of table grapes, stone fruits and wine grapes (and the majority of pome fruits) have just been concluded and for industries such as avocados, nuts and citrus, producers are just starting the new harvesting season. For orchards that are entering the harvesting period, reliable and healthy workers will play a critical role in picking the fruit and transporting it from farms to packaging/processing facilities. With high input cost per hectare and hence producers' dependence on good yields of high quality fruit delivered at packaging/processing facilities, strong measures of control at orchard level are important to remain profitable and to contribute to rural job creation. These packhouses and processing facilities are dependent on a continuous supply of electricity to keep fruit fresh in cold storage until it can be packed/processed. Once the fruit has entered cold storage, this chain cannot be broken until the final destination is reached, as fruit quality starts to deteriorate once its temperature increases. Any delays in the distribution process, be it at packhouse, trucking facilities, marketplace, harbour or shipping environment drastically increases the risk of claims for below-par produce delivered, which can result in a net loss due to the cost of preparing and delivering the fruit. Beyond the end of the harvesting season, farm-level activities continue, with post-harvest care applied to orchards, including irrigation, fertiliser application and the pruning of trees to prepare for the next harvest.

Animal Products: Animal products are less seasonal, but the continuous availability of high-quality feed products is critical. This is particularly true for feed intensive operations, such as pork, poultry and beef and sheep feedlots, where there is very little flexibility in the feeding and production system. In this regard, delays in the procurement and delivery of key vitamins and minerals from the international market can have devastating effects. Operations are typically capital intensive and any delay has extended effects through the production cycle, which is often long, with a substantial lead time on planning and ordering of animals. Consequently, delays anywhere in the process of production or delivery can affect the entire chain. For instance, in poultry production, if mature birds at the end of the cycle are not sold, new chicks are unable to come in.

It is clear that agricultural operations are dependent on a number of inputs, including labour, plant protection chemicals, fertiliser, packaging materials and feed. The supply of these inputs relies on the effective functioning of value chains, whether formal or informal, and disruptions in any node could risk food security and/or loss in income and jobs. Amid the COVID-19 crisis, significant volatility and poor economic prospects going forward, the agricultural input supply chain faces a number of challenges and will be tested severely. Although several factors are beyond the control of agribusinesses, producers and decision-makers, it will be key to ensure that proper planning, management of supply chains and policy decisions regarding access to and distribution of inputs are prioritised and executed in a manner that minimises disruptions. Throughout the value chain, continuous and frequent planning and communication will be essential to mitigate the risk of product unavailability and major price hikes. It is therefore vital that supply chains of agricultural inputs are functioning at efficient and effective levels. This includes all nodes from international procurement and shipping, handling equipment/off-loading facilities at harbours, inland transportation, distribution, warehousing and all related support services.