



The Food, Fuel and Fertiliser Crisis

Watson, D. (2022). Food, Fuel and Fertiliser Crisis. May 2022. Russia Ukraine Crisis Series, AGRA, Westend Towers, Nairobi, Kenya.

May 2022

Building on the April Situation Report (Watson 2022), this report provides an overview of the Food, Fuel and Fertiliser Crisis for May 2022. The report focuses on a number of key trends in the supply, demand and prices of food, fuel and fertilisers, and provides an initial analysis of the impacts of these trends, especially across sub-Saharan Africa (SSA).

Key Take-Aways

- The FAO's Food Price Index remains extremely high leading to fears of an increased humanitarian crisis.
- Food and fuel inflation are threatening stagflation and recession across the globe.
- Aside from rice, staple food markets remain tight

and prices for wheat, maize and oils remain extremely sensitive to reduced production estimates (linked to climate) and export restrictions.

- Increasing input costs (especially for fertiliser and fuel) threaten to lower future crop yields.

The price of food

Figure 1 illustrates that whilst the FAO Food Price Index (FPI) dropped slightly from its all-time high of 159.7 in March 2022, to 158.5 points in April 2022, the index still remains at 36.4 points (nearly 30%) higher than April 2021. The drop was driven by decline in the vegetable oil sub-index, as well as slight dip in the cereal price sub-index (AMIS 2022).

Figure 1. FAO Food Price Index April 2021 to April 2022 (AMIS 2022).



It's important to note that food prices across the globe remain extremely high and volatile. Global agricultural commodity markets remain highly sensitive to minor adjustments (real and predicted) to the supply situation of key traded agricultural commodities. Figure 2 (below) illustrates the April prices for wheat, maize, rice and soybeans, and the section after provides a summary of the factors that continue to drive price volatility in the market.

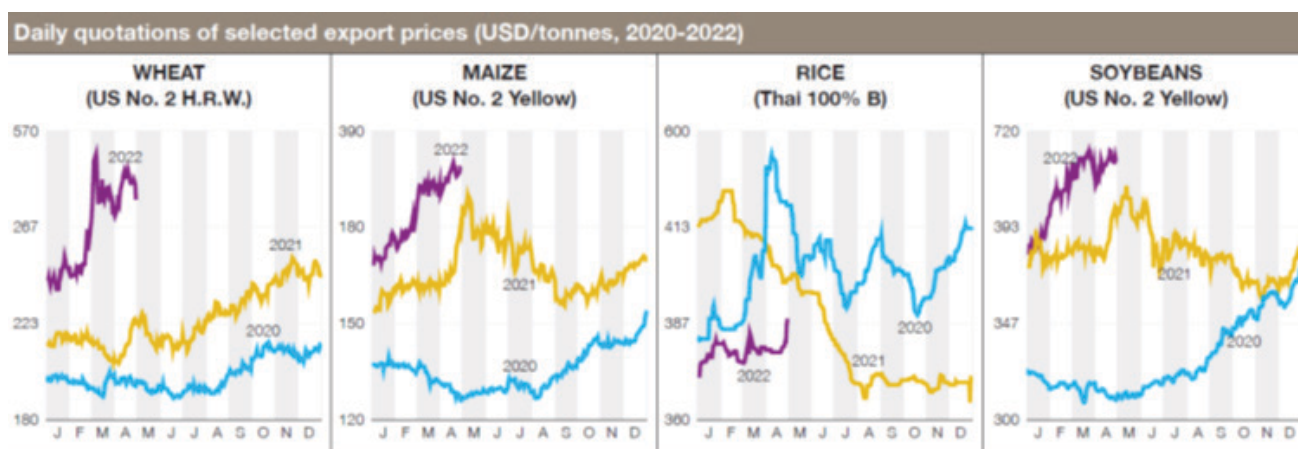


Figure 2. April 2022 export prices for wheat, maize, rice, and soybeans (AMIS 2022)

Whilst Figure 2 illustrates that wheat prices are easing, continuing constraints on wheat supplies and strong demand are likely to keep prices high and volatile (Successful Farming 2022a; BBC 2022a), and the markets extremely nervous (Successful Farming 2022b). Similarly, due to supply constraints, coupled with strong demand, by mid-May the price of maize had bounced back to prices not seen since the 2012 food crisis (Successful Farming 2022c). Based on increasing demand from Asia, Africa, and Iraq, and tightening supplies, the price of rice (all types - including broken grains) has also begun to rise (Reuters 2022a). The oilseeds market also remains buoyant, with prices remaining high and volatile due to high demand and shrinking supplies. The situation was exacerbated by a recent, but short-lived, ban on palm-oil exports from Indonesia on April 28th. Indonesia is a major exporter of palm-oil (Aljazeera 2022). On the back of Indonesia's ban, Malaysian crude palm oil (CPO) reached a record price of USD1,718 per tonne in April (Reuters 2022b). Increased demand for soybean for biodiesel production (Investing.com 2022), combined with Indonesia's ban on palm-oil exports, contributed to record-high soybean prices in early May

(Successful Farming 2022c). Ultimately, a strong demand for staple commodities, especially from China (for maize and soybeans), and both tight and often unpredictable supplies could keep food staple prices high for the next two to three years (FAO 2022a; AgWeb 2022a; Guardian 2022a).

What's the current state of food supplies?

According to the FAO (2022b), the global cereal stocks-to-use ratio for 2020/21 stands at 29.9%, which indicates a "relatively comfortable supply level", although markets, and the international press, seem not to agree. The situation remains dynamic. This is primarily due to climatic effects (drought and floods), and the fate of both Ukrainian and Russian cereals, and oilseed crops (FAO 2022b). Global cereal production for 2022/2023 is forecast at 774.8 million tonnes, which is 4.5 million less than in 2021/22. This is due to predicted yield reductions in Ukraine, Australia, and Morocco (USDA-ERS 2022). The forecast for global wheat for 2022/23 is for reduced supplies, reduced consumption, increased trade (204.9 million tons - up 5 million tonnes from 2021/2022), and reduced ending stocks (USDA-ERS 2022). Figure 3 illustrates the principal exporters and

importers of wheat. Driven mainly by the projected 16.4 million tonne-reduction of India's wheat stocks, global wheat stocks will be at their lowest level for six years (USDA-ERS 2022). The section below

highlights some of the key factors that will either strengthen or weaken global food supplies in 2022 and 2023.

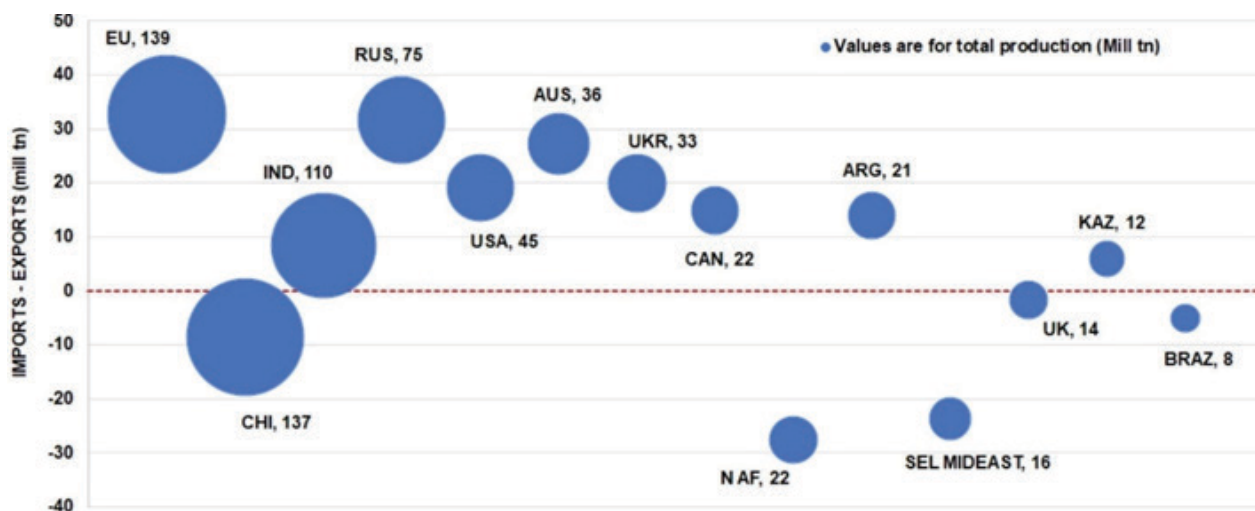


Figure 3. Global export and import volumes for wheat in 2021- (Colussi et al 2022)

Wheat Supply and Demand

According to USDA-FAS (2022), the global wheat production in 2021-2022 totalled almost 780 MMT versus wheat consumption of just over 787 MMT. Table 1 (below) illustrates the low production versus high consumption of wheat in sub-Saharan Africa, of which the shortfall is made up by imports of just over 25 MMT.

| Wheat Supply and Demand 2021-2022 (MMT) | | | | |
|---|------------|-------------|---------|---------------|
| | Production | Consumption | Imports | Ending Stocks |
| World | 779.287 | 787.391 | 197.509 | 279.717 |
| SSA | 9.369 | 33.705 | 25.050 | 4.039 |

Table 1. Wheat Supply and Demand Statistics for 2021-2022 (World versus SSA). USDA-FAS (2022)

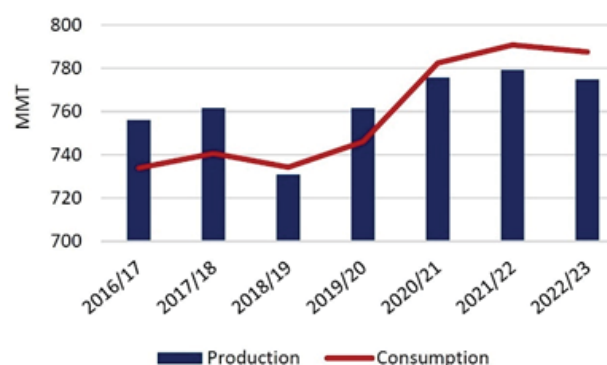
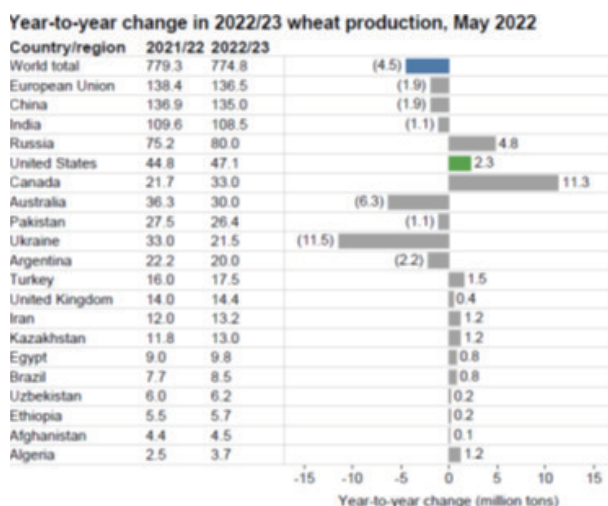


Figure 4. Global Wheat Production and Consumption (USDA-FAS 2022a)

Figure 4 clearly illustrates the growing gap between global wheat production and consumption, which could get significantly worse in 2022/23 if farmers

cut back on fertiliser application, and optimise the use of expensive diesel. The projected world ending stocks for 2022/23 are expected to be 5% lower than 2021/2022 at 267 million tonnes (USDA-ERS 2022).

The amount of wheat available on the world market is dependent on the performance of a key exporters. These include the EU, India, Russia, Australia, USA, Argentina, Ukraine, Canada, and Brazil (see Figure 5).



Note: Change compared to the current 2021/22 estimate. Source: USDA, Economic Research Service; USDA, Foreign Agricultural Service, Production, Supply, and Distribution database.

Figure 5. Changes in wheat production between 2021/2022 and 2022/2023 (Sowell and Swearingen 2022)

According to Consultancy Strategie Grains, the EU's soft wheat exports for 2021/2022 are estimated at 29.9 million tonnes, which is 1.5 million tonnes (4.8%) down from the April 2022 estimate. Extreme heat and dry conditions (especially in France) are

likely to reduce the amount of wheat available for export (FAO 2022b). The estimates for exportable surpluses for 2022/2023 have been revised upwards to 30.8 million tonnes. Until recently, India was expected to export 12 million tonnes of wheat (Dhansutra 2022) in an attempt to fill the gaps in demand from Asia, Europe, and North Africa (Reuters 2022c). However, drought across India's bread baskets is estimated to have cut the predicted yield of 111 million tonnes to just 105 million tonnes, and has resulted in a ban on wheat exports. It is unclear how much wheat, if any, India will be in a position to export (Deccan Herald 2022). Depending on the weather, Russia is predicted to have a bumper harvest of wheat, around 80 – 85 million tonnes (Successful Farming 2022d; The Economic Times 2022a). Russia's exportable surplus in 2021/2022 is estimated to be between 25 and 33 million tonnes (USDA-ERS 2022; The Economic Times 2022b). Although it is uncertain as to how much of its surplus Russia will be able to export, according to the FAO (2022b), and despite challenges with freight and finance, the country has already managed to export significant volumes of wheat to key wheat importers, namely, Egypt, Iran, and Turkey. Wheat purchases by the Egyptian Government are only running 13% behind the same period in 2021 (Bloomberg 2022 8/5). According to AgWeb (2022a), countries across Asia, Africa and South America are buying Russian grain. With an expected surplus of 39 million tons, Russia is expected to lead wheat exports during the 2022/23 season (USDA-ERS 2022).

Whilst drought across much of the USA's wheat belt is expected to reduce the yields per/hectare for the 2021/2022 season, an increase in the area sown with wheat is expected to increase the overall production by 50 million tonnes. This should generate an estimated 22 million tons of exportable wheat in the 2021/2022 season (USDA-ERS 2022). In 2022, US landowners informed the USDA that they intended to bring into cultivation an additional 1.7 million acres, which had been put into the long-term conservation reserve (Successful Farming 2022e). Argentina has already responded to the food crisis by increasing its exports to Africa (Colussi et al 2022). However, in attempts to control inflation, the Argentinian government is likely to restrict wheat exports (FAO 2022c).

Wheat production in Ukraine is forecast at 33 million tonnes for 2021/2022, with an estimated exportable surplus of between 19 million tonnes (USDA-ERS 2022) and 25 million tonnes (UKRINFORM 2022; Telegraph 2022). The production estimates for 2022/2023 are 21.5 million tonnes, which is 11.5 million tonnes less than the 2021/2022 estimates. The current estimate of the exportable surplus of

wheat in Ukraine is 10 million tonnes, which is 9 million tonnes less than last year's export of 19 million tonnes (USDA-ERS 2022).



Figure 6. Total food crop exports from Ukraine and mode of transport – (Agriland 2022)

Whilst just over 1 million tonnes of food crops (predominantly maize – see Figure 6) have been exported by rail through Poland and Romania (Politico 2022), much remains locked in the Ukraine. Efforts are currently being made by the EU farm commissioner Janusz Wojciechowski to increase the volumes of both wheat and maize being exported through Poland (Politico 2022). The G7 ministers are also attempting to secure road shipments from Ukraine up to the Baltic ports, via Romania, using up to 10,000 trucks (Guardian 2022b). However, current estimates suggest that these routes are only able to transport perhaps 20% of the volume of crops trapped in Ukraine (Economist 2022a). There is also an ongoing US-backed intervention by the UN Secretary General to encourage Russia to allow the shipment of some Ukrainian grain to alleviate a global food crisis, in return for allowing the export of Russian and Belarusian potash fertiliser (Reuters 2022d). The prospects for spring-sown wheat in Ukraine have increased after Russian forces withdrew from the north and west of the country. This potentially adds an estimated 5m hectares that can be farmed (Farmers Weekly 2022a).

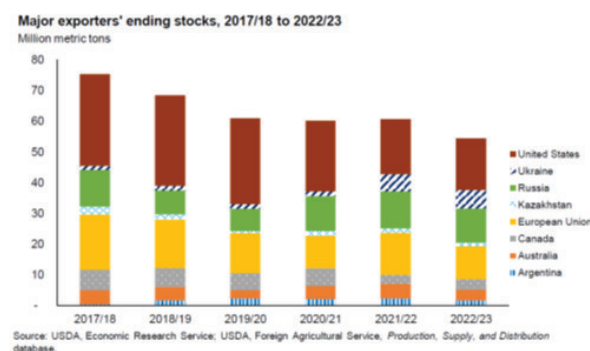


Figure 7. Major exporters wheat ending stocks 2017/2018 to 2022/2023 - (Sowell and Swearingen 2022)

Tighter supplies, caused by drought, are estimated to have reduced Canada's exportable wheat surplus from 26.5 million tonnes in 2020/2021 to 15.5 million tonnes in 2021/2022. However, at an estimated 33 million tons, Canada's 2022/2023 wheat harvest is expected to be significantly better (USDA-ERS 2022). Brazil has attempted to fill some of the gaps left by Ukraine by supplying wheat to countries such as Indonesia, Morocco, and Pakistan (Financial Post 2022 12/4). Drought conditions in Morocco are likely to result in a significant reduction in wheat production (FAO 2022b). Figure 7 (above) illustrates the tightening wheat market. Some African countries, such as Malawi, plan to increase the production of wheat to meet their domestic demand (AGRA 2022b).

Maize Supply and Demand

According to the USDA-FAS (2022), global maize production in 2021-2022 totalled over 1,200 MMT versus a consumption of just over 1,180 MMT. Table 2 (below) illustrates that SSA has a good balance of maize production and consumption. However, poor harvests occasionally necessitate the importation of white maize for human consumption.

| Maize Supply and Demand 2021-2022 (MMT) | | | | |
|---|------------|-------------|---------|---------------|
| | Production | Consumption | Imports | Ending Stocks |
| World | 1,215.616 | 1,182.602 | 182.864 | 309.387 |
| SSA | 86.951 | 84.540 | 2.965 | 12.109 |

Table 2. Maize Supply and Demand Statistics for 2021-2022 (World versus SSA). USDA-FAS (2022)

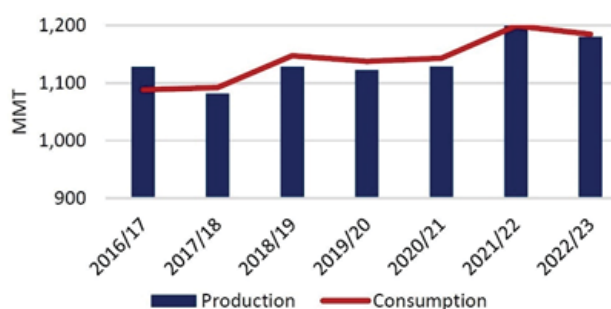


Figure 8. Global Maize Production and Consumption (USDA-FAS 2022a)

Figure 8 illustrates that the global maize consumption almost equals maize production, leaving little room for lower production volumes in 2022/23 due to climate, reduced area sown with maize, or farmers applying less fertiliser. The amount of maize available on the world market is dependent on the performance of key exporters, including the USA, Brazil, Argentina, and Ukraine. Exports from the USA 2020/2021 season totalled 69.92 million

tons. Estimates for the 2021/2022 season are down to 63.5 million tons due to drought, and projections for exportable surpluses in 2022/2023 are down to 60.96 million tons due to a 4% reduction in the area of maize sown, and a stronger domestic demand (see Figure 9 below) (FAO 2022d).



Figure 9. Maize yields in the USA 1992 – 2022 (AgWeb 2022b).

At 21.02 million tons, Brazil's maize exports from the 2020/2021 season were significantly reduced by drought. However, export estimates for the 2021/2022 season are significantly better at 44.5 million tons, with projections for the 2022/2023 season standing at 47 million tons (USDA-ERS 2022). Maize exports from Argentina for the 2020/2021 and 2021/2022 seasons were 40.94 and 39 million tons, respectively. The forecast for the 2022/2023 season stands at 41 million tons (USDA-ERS 2022). According to Mariia Dudikh, Director of the Ukrainian National Agrarian Forum, Ukraine is still sitting on approximately 14 million tons of exportable maize (Politico 2022).

Oilseeds Supply and Demand

Whilst the global vegetable oil production and consumption remain firm, it's unlikely that increases in soybean and coconut oil production, and trade will fully offset reduced sunflower seed output from Ukraine and palm oil output from Ecuador (USDA-FAS 2022b). Figure 10 illustrates global vegetable oil production and consumption, broken down by oil types. Despite the price spike and market chaos caused by Indonesia's flash ban on palm oil exports, there appears to have been a limited impact on global palm oil trade (USDA-FAS 2022b). Global vegetable oil trade is expected to increase in 2022/23, due to higher volumes of trade in palm oil and rapeseed oil. The global world ending stocks for vegetable oil are likely to increase 4% to just over 28 MMT (USDA-FAS 2022b).

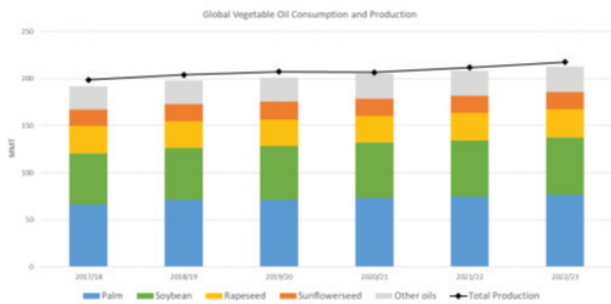


Figure 10. Global Vegetable Oil Consumption and Production (USDA-FAS 2022b).

Brazil's soybean exports continue to grow from 81.65 million tons in 2020/2021 to an estimated 82.75 million tons in 2021/2022, and a projected 88.5 million tons for 2022/2023. Soybean production and exports from the USA also remains strong, with 61.52 million tons exported in 2020/2021, and an estimated 58.24 million tons in 2021/2022, followed by 59.87 million tons in 2022/2023. Argentina exported 5.2 million tons in 2020/2021, and has an estimated 2.75 million tons available for export in 2021/2022- reduced due to drought - and a projected 4.7 million tons in 2022/2023. Increased production is also forecasted for canola and sunflower (USDA-ERS 2022). In an attempt to replace cooking oil imports, the Ugandan Government is promoting the planting of sunflowers and soybeans in Northern Uganda (AGRA 2022b).

Rice Supply and Demand

| Rice Supply and Demand 2021-2022 (MMT) | | | | |
|--|------------|-------------|---------|---------------|
| | Production | Consumption | Imports | Ending Stocks |
| World | 512.856 | 509.934 | 51.063 | 190.065 |
| SSA | 20.694 | 36.613 | 16.89 | 3.526 |

Table 3. Rice Supply and Demand Statistics for 2021-2022 (World versus SSA). USDA-FAS (2022)

Table 3 illustrates a healthy global supply and demand situation. However, it also clearly demonstrates SSA's reliance on rice imports to meet its consumption demand.

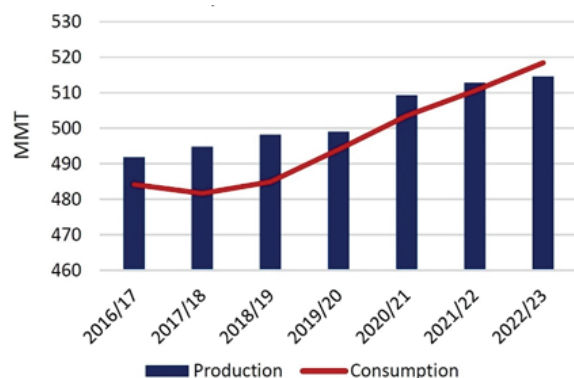


Figure 11. Global Rice Production and Consumption (USDA-FAS 2022a)

Figure 11 illustrates high levels of rice production versus consumption. Rice supplies in 2021/2022 remain strong across major producers/exporters (USDA-ERS 2022). Rice production in 2022/2023 is projected to beat last year's record levels, with exports totalling 54.3 million tons, mainly from India and Thailand (USDA-ERS 2022).

Export Bans



Figure 12. Food and fertilizer export restrictions (Laborde and Mamun 2022)

Since the April Sit-Rep, a further 13 countries (see Figure 12), making a total of 25 countries, have imposed bans, or similar restrictions on the export of food commodities, contributing to food inflation. Thankfully, trade restrictions have not yet reached the levels seen during the 2008 and 2011-12 food crises (World Bank 2022a).

Energy Prices

According to the World Bank, the world is witnessing the largest increase in energy prices since the 1973 oil crisis (Guardian 2022a). Whilst fossil-based energy prices (oil, coal, and gas) have declined slightly since the April Sit-Rep (Watson 2022), they remain highly inflated. In March 2022, energy prices were at least four times their value compared to April 2020 (World Bank 2022a). Indeed, in May 2022, Brent crude was almost USD120/bbl, the highest level in 10 years, and threatening to increase (Reuters 2022). According to the Economist (2022b), Africa is struggling disproportionately from the high energy prices, and fuel shortages. African fuel importers tend to be smaller than in other continents, have tighter balance sheets, and buy smaller consignments of fuel. Higher fuel prices mean that even smaller consignments of fuel are purchased. This is not only leading to higher fuel prices but also fuel shortages across many parts of the continent (Economist 2022b). For example, the cost of fuel and cooking gas has more than tripled in Zimbabwe (DW.com 2022). In turn, high freight costs, on top of supply logistics, have added to the cost of grain shipments, further increasing the cost of food (Gcaptain 2022). Increasing energy prices have also led to increasing demand for both maize and oils for the production of biofuels, further

exacerbating food prices (Reuters 2022b).

Fertiliser Prices

Fertilizer prices are expected to increase by a further 70% in 2022 before easing in 2023 (World Bank 2022a; Colussi et al 2022). According to Cross (2022), high fertiliser prices are caused by five key drivers; strong fertilizer demand; supply chain disruptions; high raw material prices; domestic

policies, and geopolitical risks (especially around the Russian invasion of Ukraine). Figure 13 (below) illustrates the increase in fertiliser prices between July 2019 and April 2022 across Eastern, Western and Southern Africa. It can be seen that prices across SSA have almost risen in tandem. The effects of Covid-19 and the Russian invasion of Ukraine can clearly be seen in the sharp increases in fertilisers prices, especially for ammonia (AFDB 2022a).

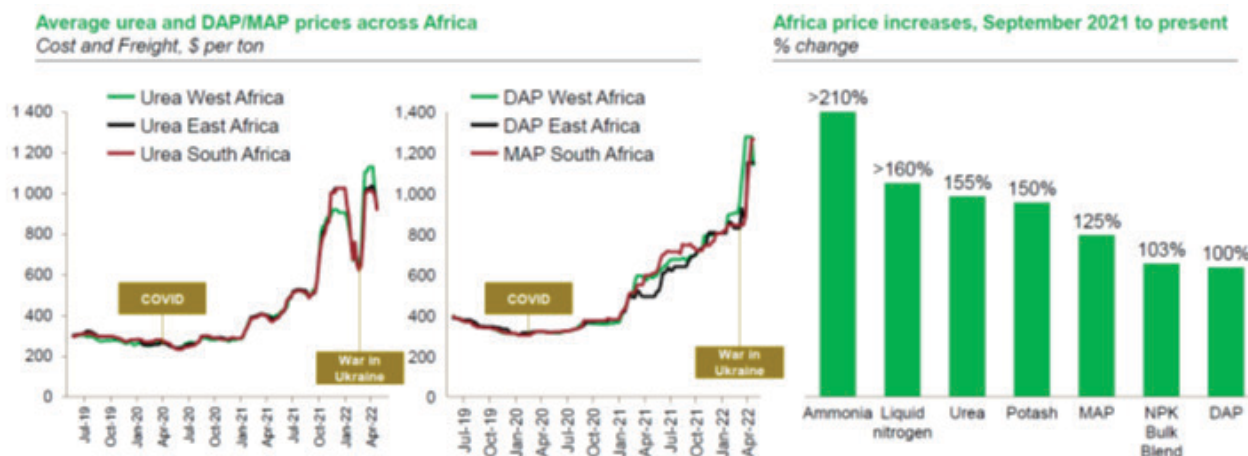


Figure 13. Increase in fertiliser prices across Africa (AFDB 2022a)

In turn, price increases and procurement difficulties have resulted in lower levels of fertiliser purchases across the continent. Figure 14 illustrates the status of fertiliser stocks across SSA. A significant number of countries have severely depleted stocks (shown in red). According to the Africa Fertiliser Organisation (2022), fertiliser imports by its Kenya members decreased by 71% in Quarter 1 of 2022 compared to the same period in 2021. There was also a shift away from phosphate and potassium fertilisers towards nitrogen-based fertilisers. The price of fertiliser remains out of reach for most farmers.

Similarly, increased fertilizer prices in Nigeria have limited the purchasing power of both the government and private sector. And, even if farmers are able to access fertilisers, the high price of fertilisers compared to a proportionately lower increase in maize prices and almost static prices for cassava and rice means that farmers are unable to achieve a positive return on their investment (AFDB 2022a; Daily Trust 2022; Bloomberg 2022b).

In 2020, fertiliser consumption across SSA was between 10 and 12 million tons, with approximately 50% being purchased by Ethiopia, Kenya, Nigeria, and South Africa, especially for use on cash crops.

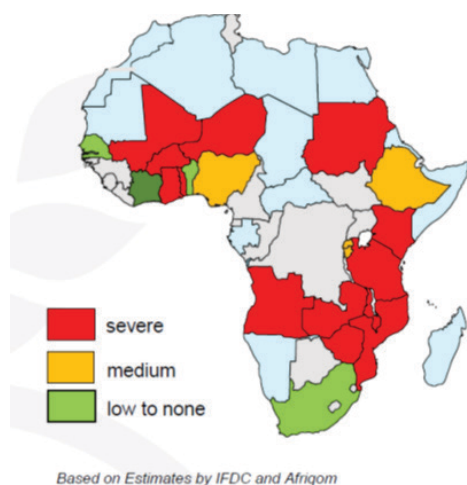


Figure 14. Current fertiliser stocks across Africa – April 2022 - (IFDC 2022a)

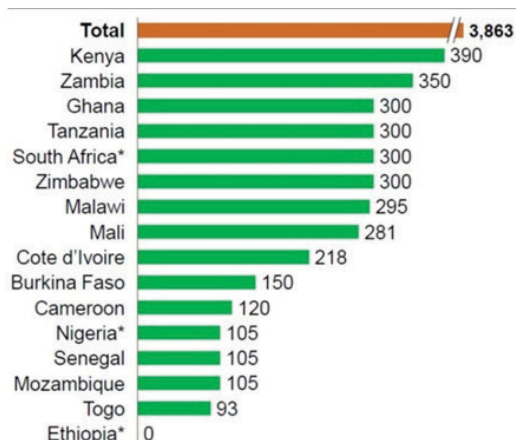


Figure 15. Estimated unmet demand in metric tonnes across key African Markets 2022 – (AFDB 2022a)

According to AFDB (2022a), across Africa, there's an estimated 4 million tons of unmet demand for fertilizer in 2022. Difficulties in sourcing fertilisers are expected to result in shortages of between 50% and 80%, as many countries are struggling to find alternative sources (see Figure 15). Without affirmative action, if fertiliser application falls, yields will decline, potentially leading to much higher levels of national food insecurity. A number of approaches are currently being explored to address this critical gap. The African Export-Import Bank (Afreximbank) has developed a USD4 billion credit facility called the Ukraine Crisis Adjustment Trade Financing Programme for Africa (UKAFPA), which was launched in March 2022. This facility is designed to make cash available for countries to meet acute food, fertiliser, and debt servicing needs. The AFDB also launched the African Emergency Food Production Facility (AEFPF), which aims to provide financial resources to enable African countries to procure both fertilizer and seeds, with the aim of sustainably increasing food production on the continent by 30%. Policy and institutional reforms will also be supported to provide a more enabling environment for agricultural development (AFDB 2022b).

Fertiliser supplies

Measures are also being taken by the global and regional fertiliser corporations to increase the supplies of key fertilisers, especially those based on nitrogen, potassium, and phosphate. Existing plants are increasing production; for example, the BHP Group plans to increase the production of potash from 14 million tonnes to 15 million tonnes in 2022 (Mining.com 2022a; Mining.com 2022b). New sources of phosphate and potassium compounds are also being developed across the globe (Reuters 2022e; Financial Mail 2022; Mining.com 2022b). Even Tunisia looks set to re-enter the phosphate market, projecting 300,000 tonnes of international sales in 2022 and 600,000 tonnes in 2023 (Reuters 2022f). The Mexican Government has also committed to tripling in-country fertiliser production (Reuters 2022g). Several countries have also expressed their intentions to develop new production plants for nitrogen-based fertilisers.

As industry attempts to bring more fertiliser onstream, governments across the world are struggling to sign new deals to fill the supply gaps. Brazil, imports approximately 85% of its fertiliser needs (see Figure 16), with over 50% coming from Belarus and Russia (Reuters 2022h). Since the invasion of Ukraine, Brazil has been frantically searching for alternative supplies of fertilisers, which underpins its production and export of maize, soybean, and wheat. However, after successful negotiations with Iran (urea), and, Egypt, Jordan, and Morocco (potash), the country has managed to secure most of its fertiliser needs (World Grain.Com 2022; Reuters 2022h), but the government intends to produce more fertilisers in-country. India and Nigeria have struck deals with Canada and Israel to replace the usual fertiliser purchases from Russia (Reuters 2022i). Meanwhile, Nigeria's fertiliser plants are shipping fertilisers to the US, Brazil, and India (Business Insider Africa 2022). Lastly, in Peru, urea imports during the first quarter fell from 190,000 tonnes in 2021 to 18,000 tonnes in 2022, causing significant political unrest, and the government to instigate a state of emergency. Subsequently, negotiations with neighbouring Bolivia have secured 50% of the shortfall in urea from Russia (KN News 2022). The already difficult situation is further exacerbated by the imposition of export bans on fertilisers. For example, Korea and Kyrgyzstan have now joined China in banning the export of fertilisers (IFPRI 2022). Across the globe, farmers have sought to secure organic sources of nutrients. For example, small-scale farmers in Zimbabwe and Kenya are using increasing amounts of animal manure, sewage sludge, composts, and biochar (Reuters 2022j; Bloomberg 2022b). According to Russia's Permanent Secretary to the UN, Vasily Nebenzya, Russia sits on 22 million tonnes of fertilisers, which, sanctions willing, are waiting to be shipped to global markets (The Economic Times 2022b).

What does this all mean, especially for the poor?

Increased food, fuel, and fertiliser prices mean more expensive food in the shops and potentially food shortages, which could be almost anywhere in the world (Fox News 2022; Reuters 2022k). Across Africa, wheat prices have increased by 42% in Egypt, 31% in Tunisia, 25% in Nigeria, 24% in Tanzania and 17% in Kenya (AfDB 2022b). Maize and other coarse grains have increased by 112% in Uganda, 86.85% in Ethiopia, 76% in Ghana, 50% in Central Africa Republic, and 13% in Tanzania (AfDB 2022b). The rising costs are likely to exacerbate already rising levels of malnutrition (BBC 2022b; Bloomberg 2022b; AFDB 2022a; Economist 2022a).

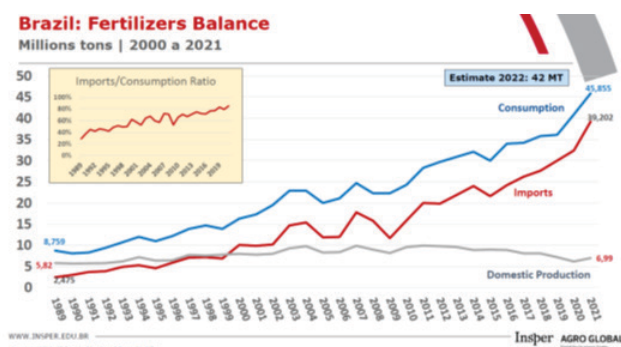


Figure 16. Brazil's Fertiliser Balance (Jan 2022)

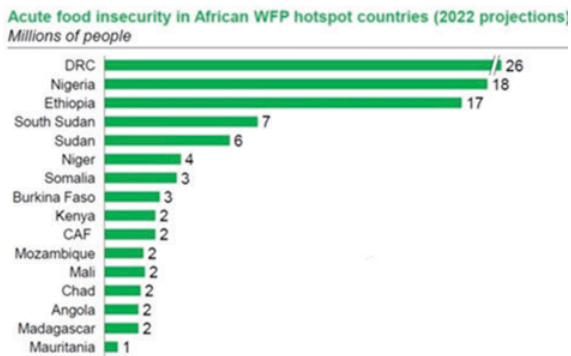


Figure 17. Acute food insecurity in Africa (AFDB 2022a)

The World Food Programme (WFP) estimates that a prolonged war in Ukraine could increase acute food poverty by more than 30 million people across Africa (see Figure 17 for WFP hotspot projections). The World Bank estimates that if, food, fertiliser and fuel prices remain high, an additional 100 million people, globally, could fall into poverty (AFDB 2022a). High food and fuel prices will continue to stretch the household budgets of the poorest around the world, who already spend around 40% of their income on food (Reuters 2022b; FAO 2022d; IMF 2022; Economist 2022a), forcing them to reduce the number of meals eaten each day, and/or purchase cheaper but less nutritious meals etc., (DWCom 2022). Across Eastern Africa (Ethiopia, Kenya, Uganda, Rwanda, Tanzania, and South Sudan), more than 63 million people lacked sufficient food in April 2022, up 3.8% from March 2022 (AGRA 2022b).

Many processors are already substituting cheaper ingredients in place of expensive wheat. For example, food processors in Kenya, Egypt, the Democratic Republic of Congo (DRC), Nigeria and Cameroon are reportedly mixing cheaper locally produced commodities (rice, cassava, sorghum, potato, and lentils), into predominantly wheat-based products such as breads, pastries, and pastas (Guardian 2022c). Nestlé Nigeria has already increased food lines made from locally-sourced sorghum and soybeans (Bloomberg 2022a).

Economic, Political and Social Instability

According to Barclays Bank, “the breadth and intensity of this supply shock could have more severe consequences than previous commodity price spikes, by broadening inflationary pressure” (CNBC 2022). Coupled with reduced economic output from China due to Covid-19 induced lockdowns, rapidly increasing inflation is likely to lead to either global stagflation or recession – especially in Europe, China, and the USA (Guardian 2022a; Guardian 2022d; Wall Street Journal 2022). According to the IMF, economic growth in Africa is

expected to slow to 3.8%, down from 4.5% in 2021. Inflation across Africa is expected to reach 12.2% in 2022, falling slightly to 9.6% in 2023 (IMF 2022). High food, fertiliser and fuel prices also come at a time when countries are struggling to recover from the impacts of Covid-19, struggling to manage debt and balance of payments, and facing the ongoing impacts of climate change (Guardian 2022e; IMF 2022). As interest rates continue to rise in an effort to reduce inflation, governments are likely to struggle trying to service additional debt (IMF 2022).

Social unrest (see Watson 2022) may spread to more countries across the globe (BBC 2022b; Saudigazette 2022). Several countries in SSA are experiencing political instability such as the DRC in central Africa, South Sudan, and Ethiopia in East Africa, as well as several coups in Mali, Chad, Burkina Faso, and Guinea in West Africa. A threat to food supplies in these countries could further escalate political tensions. Social upheaval is likely in countries facing food shortages triggered by limited fertilizer application (AFDB 2022a).

Keep an eye on the Wild Cards

There are a number of wild cards that need to be managed, including the duration of the Russia/Ukraine war (the longer it drags on, the worse things will get); food and fertiliser hoarding by both governments and private sector actors; food and fertiliser export restrictions (bans or other restrictive measures); farmer production decisions, and the effects of climate change. The following sections will elaborate a little on farmer production decisions and the effects of climate change.

Farmer Production Decisions

Farmers’ decision-making will have a significant impact on the amount of food produced during the 2021/2022 and 2022/2023 cropping seasons. In part, by the time Russia invaded the Ukraine, large-scale farmers, especially in the Northern hemisphere, had already made the majority of their cropping decisions. Winter crops across North America and Europe were already in the ground, and seed, fertiliser requirements and fuel had been purchased at lower prices in 2021. However, in lieu of rising input and output prices, some adjustments to cropping were made in the spring of 2022. These included more soybean and 4% less (nitrogen-hungry) maize sown in the USA. More wheat was sown in Brazil, and up to 2 million hectares of sunflower has been sown in Argentina, a 20% increase in area from the 2021/2022 year (AgWeb 2022c).

The biggest question, however, remains when all farmers (both large and small) are faced with buying fertiliser at the current highly inflated prices, how

Even in the case of larger, more commercial, farmers, whilst 2021/2022 may deliver a good profit, the prospects for 2022/2023 are much less promising. For example, due to the almost doubling of input costs (especially fertilisers and fuel), many farmers in the UK will struggle to make a clear profit in 2022/2023 (Farmers Weekly 2022b) (see Table 4). Farmers will have a significant capital outlay (crop establishment and early management) and will have their capital tied up until sales after harvest. If a quick resolution is brought to the war in Ukraine, or diplomacy results in the export of both Ukrainian and Russian crops, output prices could, in theory, decline, leaving farmers with losses. The management of budgets and cash flow, against highly volatile input and outputs markets is expected to be incredibly challenging (Farmers Weekly 2022b).

Climate change

Climate change continues to wreak havoc on food production across the globe. Each year, the world's bread baskets, especially across north and south America, south Asia and Australia face a game of Russian Roulette, not knowing if they will get a bumper crop or witness crop failure. This is worrisome in a normal year, but under food crisis conditions, every crop counts. What looks like a 'triple-dip' La Niña (three La Niñas in a row) threatens parts of North America, South America, Australia, and Eastern and Southern Africa (ABC News 2022a). For example, this year, Brazil's top maize producing state received just 30% of its normal rainfall and is experiencing its worst drought in 17 years (Successful Farming 2022f). In Argentina, whilst the La Niña may assist wheat production in 2022/2023, drought in the 2021/22 year reduced both soybean and maize harvests (Successful Farming 2022f).

In the USA, more than 70% of the winter wheat crop has been negatively affected by drought. During April, Western Kansas, Oklahoma, and the Texas panhandles received no meaningful rain (Successful Farming 2022g). According to the USDA Drought Monitor, by the end of April, winter wheat production across Nebraska, Colorado, Kansas, Oklahoma, and Texas - that is, 75% of winter wheat growing areas across the USA - were experiencing severe to extreme drought (Successful Farming 2022h). After delays in maize sowing, due to heavy rains and cold weather, and predicted dry conditions for the next couple of months, projected maize yields in the USA may also begin to fall (Successful Farming 2022i). Drought and extreme heat during March across the key wheat producing areas (Punjab, Uttar Pradesh, and Madhya Pradesh) of India are expected to reduce yields by approximately 25% (ABC News 2022b). Unless the rains come, drought across


Europe, especially France, could significantly reduce hopes of a bumper harvest.

Drought and floods are also threatening crop yields across Eastern and Southern Africa. For example, erratic rainfall and drought across parts of Tanzania, Kenya, and Zimbabwe, have resulted in low crop and livestock yields. In parts of Mozambique, 50% of the maize crop has been totally written off (AGRA 2022a), and in parts of Rwanda, flooding disrupted sowing, and led to post-harvest losses. In Malawi, tropical cyclones led to disruptions during the crop sowing season.

Policy Responses (Short-term)

Governments should:

- Work to quickly resolve the Russia/Ukraine situation.
 - > And/or, work with Ukraine and Russia to enable exports of both food crops and fertilisers (see discussion around European and UN efforts in this area).
- Provide adequate social safety nets, which account for food, fertiliser and fuel inflation, to consumers in both developed and developing countries,.
- Ensure balance of payments support to the most vulnerable food importing countries and provide support in securing alternative sources of essential foods and fertilisers.
 - > This should include support to Afreximbank's Ukraine Crisis Adjustment Trade Financing Programme for Africa (UKAFPA).
- Advise against unnecessary hoarding of food commodities.
- Consider releasing a proportion of available strategic food reserves.
 - > For example, the National Cereals and Produce Board of Kenya released 200,000 bags of maize in an effort to reduce maize flour prices (AGRA 2022b).
- Avoid imposing export bans or other measures that would limit the free flow of agricultural commodities from food surplus producing areas to food deficit areas.
 - > Including working with the World Trade Organisation.
- Support the G7 and World Bank's Global Alliance for Food Security to increase supplies of food, fertilizer, and fuel, remove barriers to trade, and provide financial support to ease the impacts of this crisis (World Bank 2022b)
- Support farmers to underpin crop production during 2022/2023, especially through access



affordable to fertiliser, fuels, labour, and support with improving nutrient, energy, and labour use efficiency, such as precision agriculture etc.,
> Support for AFDB's African Emergency Food Production Facility - AEFPP.

- Support the direct use of food crops and discourage the diversion of potential food crops into livestock production and biofuels (Economist 2022a).

Policy Responses (medium-term)

Governments should:

- Reconsider increasing stocks held in Strategic Grain Reserves to ensure market and consumer confidence. The “Just-in-Time” approach to food stocks needs to be revisited.
- Invest in infrastructure (physical, institutional etc.) to support competitive regional trade in sub-Saharan Africa to facilitate the movement of agricultural commodities from surplus to deficit areas.
- Increase investments in the sustainable intensification of crops in regions that are highly dependent on food imports.
- Invest in the development of climate -resilient and green supply chains, based on renewable energy and environmentally-sensitive agriculture.
- Invest in developing circular food systems, which reuse and recycle plant nutrients from organic wastes.

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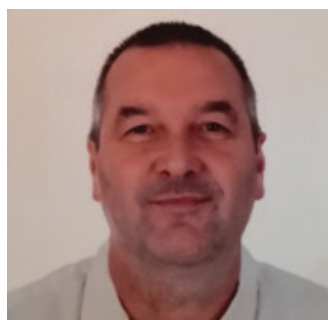
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Bio



Dr Dave Watson is an Adviser working for the UK Government's Foreign, Commonwealth and Development Office (FCDO), seconded to the Alliance for a Green Revolution in Africa (AGRA), and based in Nairobi, Kenya. Previously, Dr Watson spent: 6 years as Leader of the global MAIZE Consortium Research Programme (CRP) of the CGIAR – based in CIMMYT-Mexico; 4 years as Director for Project Development and Management at the International Institute of Tropical Agriculture (IITA -Nigeria); 4 years as Manager of the Innovative Partnership Programme at the International Livestock Research Institute – (ILRI-Kenya), and 8 years as Senior Lecturer in Sustainable Agriculture and the Environment – University of Hull – UK.

Dr Watson holds a PhD in human geography – thesis “GATT and CAP reform: The redress of European agrarian development”, an MSc in Environmental Policy and Management - majoring in Rural Policy and Management – from The University of Hull, UK, and a BSc in Agricultural Botany from the University of Reading, UK.