



Food Security and the Coming Storm

PREPARED FOR THE GLOBAL CITIZEN 2022 NOW SUMMIT

Contents



Introduction	1
Executive summary	1
Weather forecasts	4
Category 1: Concerning	4
Category 2: Dangerous	5
Category 3: Devastating	6
Category 4: Catastrophic	6
Category 5: Perfect storm	7
Three scenarios for the war in Ukraine	7
Scenario 1: Unstable stalemate (70% probability)	7
Scenario 2: Scorched earth (25% probability)	8
Scenario 3: Climbdown (5% probability)	9
The path of the hurricane	10
Direct effects of the war	14
Reduced exports of food crops	14
Reduced availability of fertilizer	17
Energy availability and cost	19
Logistics and shipping	21
Risks ahead: Climate change and sustainability	22
The politics of food security	24
Food inflation and political risk in recent historical perspective	25
Countries and regions at risk	27
MENA	27
Sub-Saharan Africa	28
Southeast Asia	28
South Asia	29
China	30
Latin America	30
Policies to ensure food equity and access	31
Keeping agricultural trade open, even in wartime	31
Ensuring access to existing stocks, especially from leading producers	31
Supporting smallholder farmers	35
Using multilateral funding efficiently	35
Reducing food losses in the supply chain	35
Controlling escalating fuel prices in the near term, and lessening fossil fuel dependence in the long term	36
Increasing market transparency	36
Preventing future crises through long-term planning	36
Conclusions: Weathering the storm together	37
Acknowledgements	38

Introduction

The following analysis is the result of a collaboration between Eurasia Group and DevryBV Sustainable Strategies, drawing on data and analytics from Gro Intelligence and made possible with support from Bayer. Given the urgency and importance of the current food crisis, the contributors have come together with the intention of informing decision-makers on the likely impact of the Russian invasion of Ukraine. In drafting this work, the authors have engaged policymakers, academics, analysts, and members of the business community to ensure that a variety of perspectives are reflected in the analysis. An early version was shared and discussed at a roundtable with representatives from various multilateral institutions and other food system experts during the World Bank-IMF meetings in Washington, DC, on 21 April; their feedback and generous comments have greatly improved the analysis. Through the paper's dissemination and subsequent engagement, the writers seek to catalyze action that could lessen human suffering, reduce political unrest, and mitigate the negative effects on the environment.

Executive summary

Over the last three months, Russia's invasion of Ukraine has shocked agricultural markets, bringing the problems of high food inflation and rising global hunger starkly into relief. Prior to the war, levels of hunger had already surpassed all previous records in 2021, with close to 193 million people acutely food insecure and in need of urgent assistance across 53 countries and territories. Against the backdrop of Covid-19, the conflict and countries' responses to it are now pushing global food prices even higher, along with the risk of growing poverty, hunger, and malnutrition. These developments could trigger what UN Secretary General Antonio Guterres has called a "hurricane of hunger," with the extent and severity of the storm significantly dependent on developments in the Ukraine conflict.

Over the next three months, Eurasia Group believes the war will degenerate into a **prolonged stalemate** (a 70% probability). Alternatively, diplomatic efforts could yield a **climbdown** (a 5% probability), or there may be an escalation of the conflict into a **scorched earth** campaign (a 25% probability). Both the basecase of stalemate and the escalation scenario would entail serious damage to Ukrainian infrastructure and agricultural production as well as a blockage of Ukrainian exports through the Black Sea until late 2022 or beyond.

On the basis of these scenarios, Gro Intelligence has estimated the income-implied number of

people globally who are food insecure, at risk of extreme poverty, and hanging on the edge of famine, according to World Bank and World Food Programme (WFP) definitions. When paired with Eurasia Group's scenario probabilities, the analysis suggests there is a 95% chance that the number of **people facing food insecurity will rise by about 142 million-243 million by November, from roughly 1.6 billion in mid-May.**

The number of people living in extreme poverty—on less than \$2.29 per day—could increase by 103 million-201 million from just under 1.1 billion at present. Lastly, the number of people on the brink of famine, or those who face the greatest degree of deprivation, could increase by 3.5 million-6.9 million, from about 49 million. Even in the most optimistic scenario of a near-term cease-fire in Ukraine, Gro Intelligence would expect those at risk to decline only modestly over the next five months.

The war is already affecting food commodities in a number of ways, and this report highlights several key channels of transmission. The first channel is through reduced exports from the Black Sea region. Russia and Ukraine combined produce 14% of global wheat supplies and 29% of all wheat exports. The two countries account for 14% of worldwide barley production and one-third of global barley exports. They also contribute 17% of world corn exports. In addition, Russia and Ukraine are pivotal to vegetable oil markets, which have faced tight supplies for close to two years. Nearly 80% of all sunflower oil exports come from the Black Sea region.

The war has damaged producing areas in the east and south of Ukraine. Spring planting appears to be proceeding better than expected, but a reintensification of the conflict could put even the country's reduced exports at greater risk. Ukraine's Black Sea ports are blockaded by the Russian navy, preventing seaborne exports to regions such as the Levant and North Africa, and overland transport over the country's western border is insufficient to clear the inventories building in its storage facilities.

As we unite to address the immediate impact of this crisis on food security and nutrition, we must not lose sight of the need to address the long-term, systematic inequities that have made this crisis so dangerous for so many low-income countries. It is imperative to improve resilience to such shocks by increasing investment in long-term agricultural development and nutritious food systems, especially in the poorest and most vulnerable nations.

GARGEE GHOSH,
President, Global Policy & Advocacy,
the Bill and Melinda Gates
Foundation

Compounding the problem, a combination of policy measures, such as export restrictions, sanctions, and countersanctions, are impeding food and fertilizer sales from Russia and Belarus.

The second channel is via chemical fertilizer prices and availability. Russia is the world's largest exporter of nitrogenous fertilizers, the most widely used fertilizer type. And Russia and Belarus are major exporters of potash, the main source of potassium-based fertilizers. Since the onset of the pandemic, world fertilizer prices have risen by more than 230%, according to the IMF's World Fertilizer Price Index, and for some types of fertilizer and components, prices have gone much higher. The war has exacerbated a preexisting fertilizer crunch, as the price of natural gas—a critical ingredient for nitrogenous fertilizers—has climbed to new highs, and EU sanctions on Belarusian potash exports have tightened.

The third channel is through steeper energy costs. Volatile energy prices can drive up food prices through higher costs for farmers and agricultural processes and by raising transportation and input costs for agricultural products. In Eurasia Group's basecase of prolonged stalemate, European governments are likely to face pressure to cut their dependence on Russian gas, as they have already moved to do for oil. Moscow might decide to retaliate by cutting Europe off from supplies of natural gas, as it has begun to do to Poland and Bulgaria. This could force leading European food producers to reduce energy supplies to the agricultural sector in order to guarantee sufficient gas for essential services.

The fourth channel is through shipping and logistics. Shipping conditions were already strained prior to the war, but the conflict has introduced new complications. Labor shortages, closures of Ukrainian hubs, and mounting concerns over maritime safety in the Black Sea region have all become major issues for shippers. Freight insurance premiums in the region have risen sharply, and many logistics companies have “self-sanctioned,” eschewing Russian cargoes for fear of reputational

damage or inadvertently running afoul of Western sanctions that technically carve out food products but have still had a chilling effect on food trade.

These conflict-induced threats compound longstanding challenges to food systems associated with both excessive post-harvest losses and climate change and sustainability. The hunger hurricane will hit a global food system that stands on very shaky foundations. Rising average temperatures and the greater frequency of extreme weather events are increasingly threatening agricultural yields, especially in the 44% of the world's cultivated lands that are situated in areas already classified as drylands. Where prices do climb and growing conditions allow, farmers should respond with increased planting. However, the elevated prices of inputs will certainly dampen the production response in some parts of the world.

Another concern is that the current race to clear more land and plant more food will further delay the adoption of sustainable farming practices, potentially worsening future food prices. International cooperation will help, but there is a tension between addressing the current food crisis in the near term and achieving long-term resilience and productivity of global agriculture and curbing the sector's own emissions.

Higher prices and uncertainty over food supply have political implications. Emerging markets—especially those with large populations of urban poor—will bear the heaviest burden. Precarious food supplies and food inflation raise the risk of mass migration, social unrest, and resource-driven conflict, as well as the proliferation of malicious, non-state actors. To preempt threats, some countries are taking protectionist measures to secure domestic food supplies, which magnify global price shocks. At the time of writing, global grain and oilseed markets face renewed pressure from India's recent decision to severely limit its wheat exports and Indonesia's policy of banning palm oil shipments. If other leading food producers follow suit, the upward pressure on food prices will be greater and the humanitarian toll much worse.

Though the threat of hunger and malnutrition is widespread, some regions are at greater risk than others. Most countries in the Middle East and North Africa (MENA) are net food importers, and droughts are deepening their import needs. Yemen, Syria, Lebanon and the Levant, and Egypt and North Africa are likely to be hit hardest. In sub-Saharan Africa, rising food prices and other socioeconomic issues may also become contentious; Kenya, where national elections are to be held in August, will be a key watchpoint.

In Southeast Asia, Indonesia is most likely affected, given the country's reliance on wheat imports from Russia and Ukraine. In South Asia, political instability caused by food inflation and economic malaise are already rocking Sri Lanka and Pakistan. India also relies heavily on Russia and Ukraine for fertilizers, vegetable oils, and some other food commodities; and as noted, it has prioritized domestic needs over the imperative to keep food trade open.

In China, coronavirus outbreaks are undercutting domestic food production capability. This may force the government to ramp up imports and keep export volumes low, which could add upward pressure to global prices. Meanwhile, acute price pressures are causing political rumblings in Latin America, particularly in Central America and the Dominican Republic, which are large net importers of food and oil. High input costs and rising prices are also affecting big agricultural producers in South America, such as Brazil, and a number of countries are seeking to shield consumers to the greatest extent possible.

Amid the mounting signs of distress, a series of policies could help to minimize human suffering. However, most would require a considerable degree of international cooperation, which might be difficult to achieve in the current environment. These include a concerted effort to keep food trade open despite sanctions and other wartime considerations. Ensuring access to existing stocks and working with major producers to ease imbalances in global food trade will likewise be critical. Multilateral funding

should be deployed as efficiently as possible, and in most serious situations, debt relief should be granted. Packages should also include targeted support for smallholder farmers. Efforts should also be made to control escalating fuel prices in the near term and reduce fossil-fuel dependence in the long run. Lastly, efforts to enhance market transparency and prevent future crises through long-term planning to improve the efficiency and resilience of food systems could help prevent the next potential hurricane of hunger.¹

Weather forecasts

Guterres, the UN secretary general, has warned of the dangers to global food security, imploring leaders to do all they can to avert the hurricane of hunger that could result from the combination of pandemic-related disruptions, already high food and energy prices, and the dislocations to global food systems brought on by Russia's invasion of Ukraine. Nearly three months into the war, reputable forecasters, multilateral organizations, and agricultural economists have predicted a range of possible outcomes in terms of hunger and global poverty. This section provides an overview of the predictions made by several of these “weather forecasters” and categorizes them in terms of severity.

Category 1: Concerning

[The Food and Agriculture Organization \(FAO\)](#) expects that 20%-30% of Ukrainian land usually destined for cereals, maize, and sunflower seeds will not produce crops for next year's harvest. The FAO has devised [several scenarios](#), among which the moderate and severe outcomes show the number of undernourished people increasing by 7.6 million and 13.1 million, respectively, in 2022/2023. Prolonged high energy prices and export shortfall scenarios would keep the

¹ Gro Intelligence provided the data and forecasts underpinning the analysis in this report. Gro Intelligence's analytics platform provides valuable and actionable insights across agriculture, climate, and the economy.



Category 1 Concerning

- FAO
- Aaron Smith
- Bouet et al.



Category 4 Catastrophic

- Mitchell et al.
- WFP



Category 2 Dangerous

- David Malpass
- Silvia Merler
- Glauber and Laborde
- WTO
- Chepeliev et al.
- Hebebrand and Laborde
- Espitia et al



Category 5 Perfect Storm

- IFDC



Category 3 Devastating

- Artuc and Rijkers
- Weil and Zachmann
- 2022 Global Report on Food Crises

number of undernourished between 8.1 million and 11.2 million above baseline levels through 2026.

In a series of articles arguing that changes to the US Conservation Reserve Program and the Renewable Fuel Standard would do little to alleviate price pressures, [Aaron Smith of the University of California, Davis](#) contends that the effect on global food supplies may be smaller than previously anticipated. At the time of writing, wheat prices had declined slightly since their peak in early March, while corn and soybean prices had held relatively constant. Supply disruptions were concentrated on winter wheat, and futures markets suggested that the long-term supply outlook had worsened slightly even as the near-term outlook has improved. Wheat and corn futures markets pointed to a lack of concern about fertilizer shortages. Yet low-income consumers are severely affected by relatively small increases in food prices, particularly in countries that face acute near-term supply crunches.

In an analysis focused on West Africa, [Anoine Bouet, David Laborde, and Fousseini Traore of the International Food Policy Research Institute \(IFPRI\)](#) predicted that West African countries will face some risk from rising global prices but are somewhat insulated from market disruptions, given relatively modest food and fertilizer imports from Russia and Ukraine. The authors argue that farmers within the Economic Community of West African States (ECOWAS) stand to see some risk from a reduction of fertilizer imports from Russia; yet this also presents an opportunity for regional suppliers such as Nigeria.

Category 2: Dangerous

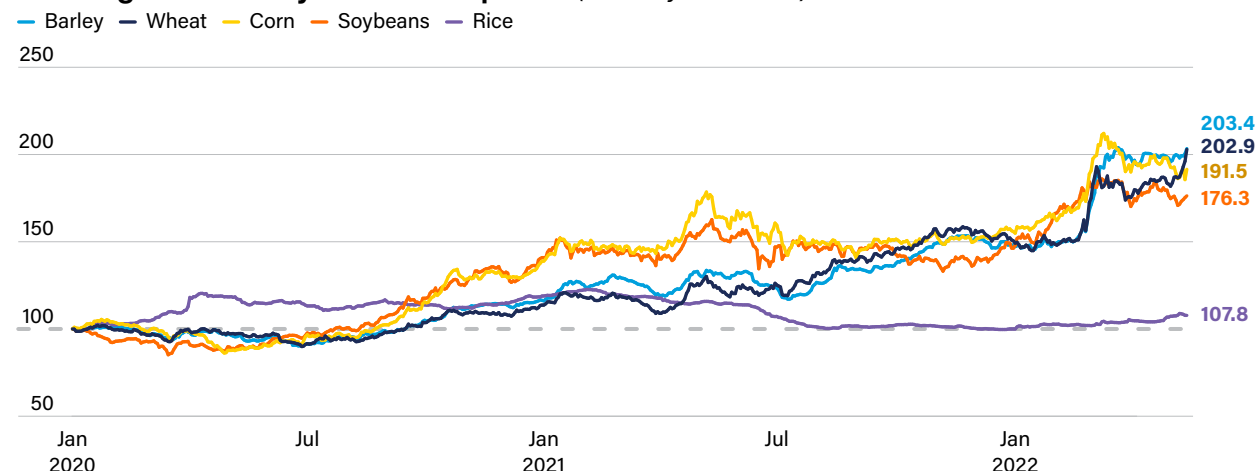
[David Malpass, president of the World Bank Group](#), argues that the global surge in government restrictions on food and agricultural products is likely to trigger a global food crisis, especially if any of the top five wheat exporters should decide to ban external sales. Writing in early April, weeks prior to India's decision in mid-May to severely limit wheat shipments, Malpass insisted that recent restrictions had already contributed to an uptick in world wheat prices by 7 percentage points. In his view, though, a global food crisis is not inevitable, as stocks of rice, wheat,

and maize remain high by historical standards, and countries can hedge against a crisis by maintaining global trade flows of food. As of early April, export and import restrictions affected only about 20% of global wheat trade, compared to nearly three-quarters of the market during the peak of the 2008-2011 food crisis.

[Silvia Merler of Algebris Investments](#) expects curtailments of Ukrainian grain supplies to continue well into next year. Several of the countries most likely to be severely affected in the medium term are low-income states where food prices have proven to be a driver of political instability in the past. Over the same period, the combined effect of reduced supply and restrictions on fertilizer exports will push farming costs and food prices higher even in areas not dependent on imports from Ukraine.

[Joseph Glauber and Laborde of the IFPRI](#) predict significant short-term disruptions to the production and export of Ukrainian agricultural products. Over the longer term, reduced exports of fertilizer from Russia and Belarus will harm global agricultural production. Skyrocketing agricultural prices may prompt some countries to insulate domestic producers by restricting exports. Low-income net food importers remain the most vulnerable.

Global grain and soybean index prices (1 January 2020 = 100)



[The World Trade Organization \(WTO\)](#) argues that international feed and food prices could grow by 8%-22% because of the Ukraine crisis. It describes countries in Africa and the Middle East as the most vulnerable to already heightened food prices and rising food insecurity. Price hikes will have short-term impacts and longer-term effects on the cost of substitutes (for the crops that are actually restricted) and livestock (because of the cost of feed). They also have the potential to fuel political instability in vulnerable areas.

[Maksym Chepeliev, Maryla Maliszewska, and Maria Filipa Seara e Pereira](#) project that modeled disruptions to global trade owing to the crisis cause global income to fall by 0.7%, with low- and middle-income countries losing 1% and high-income countries experiencing a 0.6% decline. In high-income countries, income reductions are largely driven by higher energy prices, while for low- and middle-income countries the major part of the shock is associated with food price spikes.

[Charlotte Hebebrand and Laborde of the IFPRI](#) assess that price shocks to fertilizers will affect farmers around the world. Countries that depend heavily on fertilizer imports from Russia and Belarus will face immediate shortfalls, but low-income countries are particularly vulnerable to the ripple effects in markets. Given many African countries' still limited use of fertilizers, a further decline in fertilizer use would lead to substantially reduced productivity for the continent, with potentially serious consequences for food security.

[Alvaro Espitia, Simon Evenett, Nadia Rocha, and Michele Ruta](#) argue that a surge in trade policy activism since the beginning of the Ukraine conflict has played a role in boosting food prices. Ongoing bans on wheat exports alone are responsible for a 7% increase in world white wheat prices. Nevertheless, a commitment by large food exporters to avoid further protectionism measures might help calm markets and deter the most extreme outcomes.

Category 3: Devastating

[Erhan Artuc and Bob Rijkers of the World Bank](#)

estimate significant negative welfare impacts of food price inflation. In an analysis based on price hikes for wheat and corn, average household welfare declines in 43 of the 53 low- and lower-middle-income countries sampled, with an average real income loss of 1.5%. Real income losses are starker for poorer households, exacerbating poverty and inequality with likely long-term consequences. Even accounting for substitution effects in response to higher food prices, the authors find that welfare losses could persist in 31 countries over the long run if disruptions are sustained.

[Pauline Weil and Georg Zachmann of Bruegel](#)

argue that in addition to short-term disruptions, exports from Ukraine and Russia may be limited in the medium and long term owing to destruction of infrastructure, an inability to plant crops, and export restrictions. By their estimation, the outcomes for global food export volumes range from a 10% decline in a severe scenario to a reduction of 5% in a moderate scenario and no net reduction by the end of 2022 in a best-case scenario.

The [2022 Global Report on Food Crises](#) from the international food alliance—comprising the EU, the FAO, and the WFP—projects that up to 181 million people were in food crisis in 41 of the 53 countries and territories surveyed even before the war in Ukraine. The report forecasts severe repercussions from the war, predicting that 20%-30% of areas sown to winter crops in Ukraine will remain unharvested in the 2022-2023 season, with serious consequences for 36 countries already in food crisis that depend on Ukraine and Russia for more than 10% of their wheat imports.

Category 4: Catastrophic

[Ian Mitchell, Sam Hughes, and Samuel Huckstep of the Center for Global Development](#)

contend that the intersection of the Ukraine crisis, poorly constructed agricultural subsidies, climate change, and already

heightened food prices will drive more than 40 million people into poverty and hunger over the course of the coming year.

The Ukraine crisis is simultaneously inflating operational costs for the WFP and limiting people's access to food. The WFP's food procurement costs will grow by about \$23 million per month, and transportation costs will increase by \$6 million per month by conservative estimates. (The WFP entered 2022 with a funding shortfall of nearly \$600 million.) The organization suggests that 44 million people in 38 countries are already "teetering on the edge of famine," and the crisis is sure to exacerbate this figure.

Category 5: Perfect storm

[The International Fertilizer Development Center projects](#) that the lack of affordability and availability of chemical fertilizers will drive down sub-Saharan African demand sharply. A 30% reduction in fertilizer demand in 2022 would lower food production by 30 million metric tons, equivalent to the food requirement for 100 million people. Reduced yields and higher food prices will also be a major driver of inflation and a threat to food security and political stability in many African countries.

Three scenarios for the war in Ukraine

Developments in the Ukraine conflict will determine the duration of disruption to global food systems and thus the risk of serious food shortages, and hunger, in various countries. Eurasia Group's analysts have developed three scenarios for how the war is likely to unfold through 1 August.

All scenarios take as their baseline the April 2022 IMF World Economic Outlook forecast of world real GDP growth of 3.6% in full-year 2022 and global inflation of 7.4%. Two of the scenarios—which sum to 90% of the probability distribution—imply disruption of

Ukrainian agricultural production and Black Sea food shipments until late 2022 or beyond.

Scenario 1: Unstable stalemate (70% probability)

- Global growth is reduced by 1 percentage point from the baseline in 2022.
- Inflation is 1.5 percentage points higher than the baseline in 2022, and price pressures persist through 2023.
- There is a high likelihood (a 70% probability) that the EU implements a comprehensive ban on Russian oil imports.
- If the ban is well signaled and phased in, global oil prices will see an initial spike before returning to trade in their current per-barrel range of \$100-\$110 over the next six months.
- Russia continues to target European countries with gas supply cutoffs in retaliation for their refusal to pay for shipments in rubles and for their military support of Ukraine.
- Black Sea ports and eastern Ukrainian agriculture are disrupted until late 2022 and possibly longer.

Eurasia Group's central scenario is one of a prolonged, unstable stalemate. It entails a brutal fight in which Russia wrests control of all or most of the Donetsk and Luhansk oblasts from Kyiv and holds onto the land corridor linking these regions to Crimea. The most intense combat is likely to be limited to the south and east of Ukraine, although some parts of the west would probably come under long-range missile fire. This scenario would entail growing numbers of refugee outflows, probably totaling 5 million-10 million people.

In the unstable stalemate scenario, negotiations to end the war are unlikely to gain traction, as both

sides believe they have a real possibility of improving their positions through military action. Russia demands major concessions in terms of territory and Ukrainian neutrality, which the Ukrainian government is unlikely to concede. Meanwhile, Western powers do not condition their support for Kyiv on the government's willingness to reach a settlement with Moscow. The Kremlin is unlikely to order the use of chemical or nuclear weapons, though such a possibility cannot be ruled out.

Tensions with NATO would be expected to intensify as Sweden and Finland move closer to joining. However, both Russian and NATO forces would be careful to avoid inflicting casualties on the opposing side. Western sanctions would continue to tighten incrementally, including more restrictions on Russian banks and oligarchs, a wider array of import and export controls, and energy bans.

In these circumstances, Eurasia Group assigns a 70% probability of the EU imposing an import ban on Russian crude oil by 1 July. The ban would probably be phased in gradually, allowing for a longer transition for smaller member states that are most dependent on Russian oil, such as Hungary and the Czech Republic. In Eurasia Group's view, oil prices would likely spike initially before stabilizing in the \$100-\$110 range through October.

However, this forecast rests on a number of assumptions, including the conclusion of a new nuclear pact with Iran; a continuing gradual increase in supply by OPEC+; continued slow growth of Chinese consumption; and persistent European demand destruction. Gas prices would face upward pressure from likely disruption of the Ukrainian pipeline to Europe, and Russia would continue to weaponize gas supplies more aggressively, prompting the EU to accelerate its plans to wean itself from Russian gas, perhaps as early as 2023.

Amid these conditions, Eurasia Group expects global inflation to climb by 1.5 percentage points and global real GDP growth to slow by 1 percentage point. The effects on Russia and Ukraine would be much more

dire. Russian real GDP would fall in excess of 10%, while Ukrainian GDP could decline by as much as 40%. Indebted emerging markets would be at risk from financial volatility and higher prices for critical food and energy imports.

Scenario 2: Scorched earth (25% probability)

- Global real GDP growth falls by 2 percentage points in 2022.
- Global inflation rises by 2.5 percentage points or more this year.
- Global oil prices would be expected to increase to \$130 per barrel or higher before settling into the \$110-\$115 range.
- Black Sea ports and eastern Ukrainian agriculture could be disrupted indefinitely.
- Western sanctions on Russia approach a full trade embargo, and secondary sanctions could be used to punish alternative buyers of Russian energy products and other merchandise.

The second scenario—and the most concerning—is an intensification of the conflict. This would happen as a result of Russian weakness in either Luhansk and Donetsk or the southern corridor connecting Donbas to the Black Sea. Eurasia Group believes that Russia's setbacks on the battlefield would lead to either a general mobilization, in which an additional 150,000 troops are called up—justified to the Russia public with more expansive military objectives, including a renewed push westward, toward Kyiv—or a more ambitious offensive without a general mobilization, which would raise the risk of the use of chemical or nuclear weapons.

Either pathway would probably entail intense Russian bombardment of Kyiv and other Ukrainian cities and refugee outflows of more than 10 million. These developments would mean tighter constraints on Ukraine's agricultural labor force, serious disruptions

to fertilizing, harvesting, and planting through mid- to late 2022, and continued blockage of Black Sea shipping routes, as well as other maritime security threats.

The use of a chemical weapon would mark a step-change in NATO-Russia tensions, heightening the risk of an imposition of a no-fly zone, major cyberattacks, and direct but limited strikes by each side at the other's targets. Sanctions would intensify considerably, with the US and the EU removing all Russian banks from the SWIFT financial network and both blocking the assets and transactions of Russia's major institutions. US and EU trade restrictions would approach a full embargo, and the US would signal its disapproval of commerce between Russia and its remaining trade partners, hitting targeted non-US companies with secondary sanctions.

The US and EU's trade restrictions on Russia might include a wider range of food products than at present, though humanitarian exemptions and carveouts for food staples would likely remain in place. Negotiations for a settlement between Russia and Ukraine would break down entirely and refugee outflows from Ukraine would exceed 10 million.

A serious escalation of the conflict would mean an immediate and full EU import ban on Russian oil exports, removing 3.4 million barrels per day from the market and sending global oil prices initially above \$130 per barrel. Even with a concerted effort to make every spare barrel available, prices would likely settle within the \$110-\$115 range. Prices would also be sensitive to upward pressures from any other source of pressure. Likewise, additional restrictions on alternative Russian buyers of crude oil would mean sustained higher prices. Gas supplies from Russia to the EU would be fully disrupted, resulting in rationing.

The world economy would see more significant disruptions, with global real GDP growth falling by 2 percentage points, consistent with a recession in many regions. Global inflation would rise by 2.5 percentage points or more. Equity markets would be expected to fall drastically, and sovereign and credit spreads would rise, contributing to a sharp tightening

of financial conditions. Amid high inflation, developed-market central banks would continue to hike rates, albeit at a slower pace. Fiscal policy would focus on offsetting a cost-of-living crisis, with little immediate impact on overall growth.

Scenario 3: Climbdown (5% probability)

- Global growth is reduced 0.5 percentage points or less from the baseline in 2022.
- Global inflation increases by 0.5 percentage points or more from the baseline.
- Global oil prices settle at \$90-\$95 per barrel by the third quarter of 2022, or slightly less.
- Black Sea ports and eastern Ukrainian agriculture begin to normalize in the third quarter of 2022.

In the third scenario, Eurasia Group's most constructive, a diplomatic solution gains momentum after limited Russian military action and few territorial gains or losses for either side. Most sanctions imposed after 24 February remain in place and are phased out only as a final settlement is implemented, likely beginning in late 2022.

In this outcome, Russia conducts a very limited campaign aimed at reinforcing its current positions in Ukraine. The Kremlin pivots quickly to diplomacy and unilaterally declares a nationwide cease-fire. Western leaders put pressure on Ukrainian President Volodymyr Zelensky to engage in negotiations, yielding the framework for a deal that leads to sanctions relief.

While a deal would not be finalized by August, negotiations would proceed seriously and reach an advanced stage. In this scenario, agricultural production could begin to normalize in many parts of Ukraine, and Black Sea shipping volumes—as well as those via overland routes—could begin to recover in the second half of the year.

A deal would be implemented over a prolonged period stretching well into 2023. Incremental Russian withdrawals would be accompanied by Ukrainian political steps on neutrality, as well as the incremental removal of Western sanctions.

The most meaningful US, EU, and UK measures—including the freeze on Russian central bank assets—would be put on the table explicitly for removal through a coordinated process. However, many measures would remain in place for the foreseeable future, including sanctions targeting elites and those close to President Vladimir Putin, sanctions on the Russian banking sector and other sectors of the economy, measures related to the 2014 annexation of Crimea, and Western strictures targeting the Russian defense sector.

The EU would be reluctant to ease energy sanctions on Russia or to reverse course on its plans to decouple from Russian energy imports. Yet the EU could ease restrictions on making payments for gas in rubles along with a phaseout of restrictions targeting the Russian central bank. Nord Stream 2's regulatory approval process would not resume, nor would the US lift sanctions on the project.

There would be no immediate relief for the oil sector more broadly, with Western bans on crude oil and petroleum products likely to be a part of a phased and coordinated sanctions removal process. That said, geopolitical risk premiums on oil would fall, and dislocations would ease, allowing prices to decline to \$90-\$95 per barrel or lower.

Real GDP growth would remain depressed in the second and third quarters of 2022, but the easing of oil prices and the reduced risk of energy market and financial spillovers would mean that the effects on global growth are small, amounting to 0.5 percentage points or less in full-year 2022. Global inflation would rise by a similar magnitude, though the impacts would be temporary.

The path of the hurricane

On the basis of Eurasia Group's geopolitical scenarios and their projected effect on food commodity prices, Gro Intelligence calculated the number of people globally who are at risk of falling into food insecurity and extreme poverty and those who are on the edge of famine, as defined by the WFP and the World Bank.

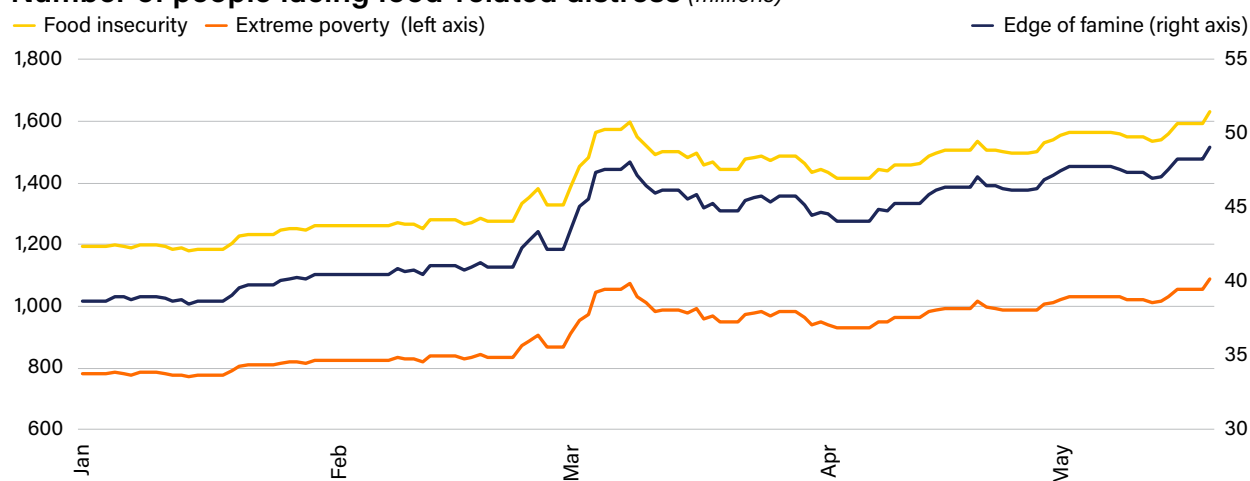
Gro Intelligence estimates that these levels of nutritional deprivation correspond to the number of people earning less than an annual income of \$1,310, \$836, and \$21, respectively. Projections were made on the bases of Gro Intelligence's proprietary commodity supply and demand models, as well as publicly available data on national accounts, income distribution, and national population.

The analysis suggests there is a 95% probability that the income-implied number of people facing food insecurity will rise by 142.2 million-282.6 million from mid-May to November 2022. The number of people facing extreme poverty is likely to climb by 102.9 million-201.2 million, and those facing an acute risk of famine will likely increase by 3.5 million-6.9 million, from 49.1 million at present.

In the best-case scenario of a rapid cease-fire in Ukraine, the number of people facing food insecurity would fall by only about 123.4 million; those in extreme poverty would drop by 95 million, and the number of people teetering on the edge of famine would decline by 2.7 million. The calculations of those at risk of famine are close to those published by the WFP, which estimates that roughly 44 million people are already on the brink of famine (and which this report's authors have ranked as a Category 4 storm).

The figures below show the aggregate number of people globally who can be expected to be pushed into food insecurity, extreme poverty, and to the brink of famine as annual food costs moved higher with the price of staples from the end of December 2021.

Number of people facing food-related distress (millions)



Source: Gro Intelligence

People facing food-related distress (millions)

	Food insecure	Extreme poverty	Edge of famine
End of 2021	1192.6	780.4	38.7
16 May 2022	1633.4	1087.6	49.1
Difference	+440.8	+307.2	+10.4

Source: Gro Intelligence

At that time, Gro Intelligence's modeling suggests that 1.19 billion people globally were food insecure. Of those, 780.4 million were facing extreme poverty—or living on less than \$2.29 a day—and 38.7 million were at even greater risk, teetering on the edge of famine.

In the year to date, these numbers have grown by 440.9 million, 307.3 million, and 10.4 million, respectively. The figures were not significantly offset by higher export prices in net food exporting countries, where the number of people who rose out of poverty

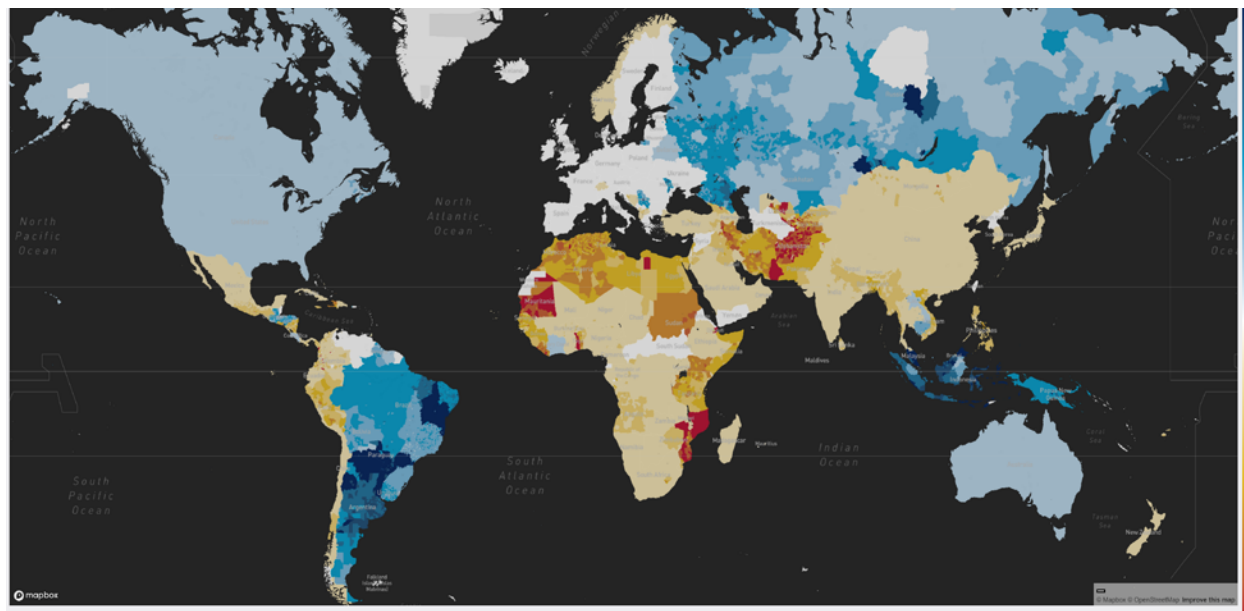
and food insecurity as their incomes increased was negligible. The calculations also exclude Ukrainians, most of whom cannot take advantage of higher global export prices given that foreign shipments of foodstuffs from Ukraine remain largely blocked.

In addition, using district-level data, Gro Intelligence calculated the intensity of income losses as a result of food-related disruptions in each country around the world. Since the end of 2021, the most dire effects have been concentrated in North Africa and the Sahara, East and Southeast Africa, and Western Asia.

Turning to the forecasts, the charts below show Gro Intelligence's projections through 11 November 2022 based on Eurasia Group's three forward-looking scenarios for the war. The y-axis shows the number of people who would face food insecurity, extreme poverty, and would be at risk of famine in each outcome. The second set of figures—a series of line graphs depicting the number of people facing each degree of food-related distress—is organized by level of deprivation rather than war scenario.

District-level impact of price change

31 December 2021 to 10 May 2022



Source: Gro Intelligence

In Eurasia Group's basecase of a **prolonged stalemate** that prevents cultivation in parts of Ukraine, keeps Black Sea shipping routes blocked, and implies an incremental tightening of sanctions, prices escalate steadily as markets suffer the cascading effects of prolonged uncertainty, logistical and supply constraints, and fertilizer shortages that produce lower agricultural yields. By early November, the number of food insecure people globally is estimated to rise by 282.6 million from 16 May, the closing date of the forecast, or by 17.3%. Those facing extreme poverty will increase by 201.2 million (18.5%), and those on the edge of famine by 6.9 million (14.0%).

In the **scorched earth** scenario of serious escalation, following an initial spike caused by markets' reaction to developments on the ground, the number of people facing food-related distress grows, but to a lower level than in the basecase. This is because it is assumed that farmers, traders, and governments take more drastic measures to ramp up production and keep

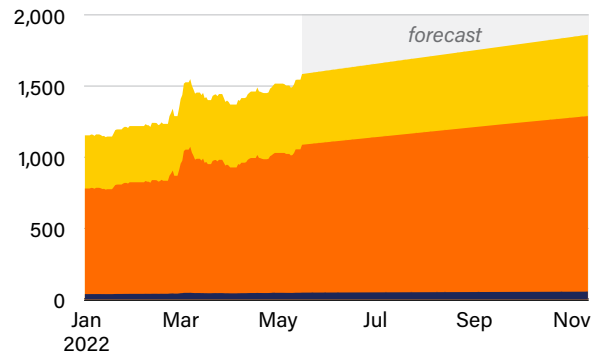
supply lines open, responding to price signals and the humanitarian imperative to maximize supply of basic staples as it becomes clear that the conflict will deepen. Compared to present levels, those facing food insecurity will increase by 142.2 million, or 8.7%. The number of people in extreme poverty will increase by 102.9 million (9.5%), and those on the edge of famine will climb by 3.5 million (7%).

In the most optimistic scenario—in which a Russian **climbdown** produces diplomatic progress and a cease-fire—the number of people facing food related distress dips rapidly as markets overshoot, before rebounding and gradually settling out, as food prices return to lower levels in line with global fundamentals. This outcome would reduce the number of people enduring food insecurity by only 123.4 million from their current level of 1.63 billion, or 7.6%. Those in extreme poverty would fall by 95 million, or 8.7%. Those at the edge of famine would decrease by about 2.65 million, or 5.4%.

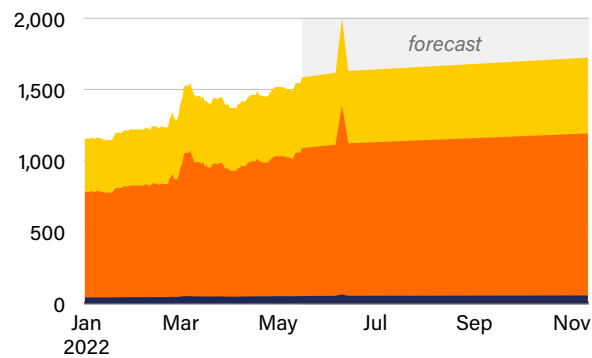
Three scenarios (millions of people)

■ Food insecurity ■ Extreme poverty ■ Edge of famine

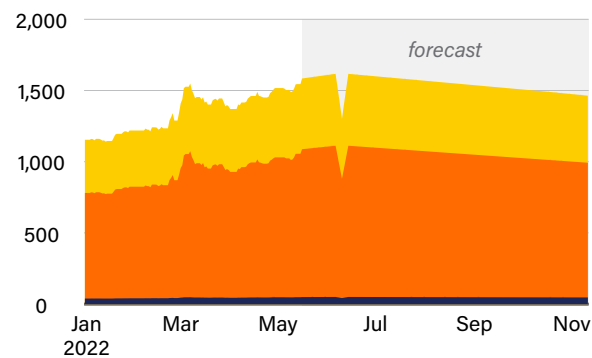
Stalemate scenario 70% probability



Scorched earth scenario 25% probability



Climbdown scenario 5% probability

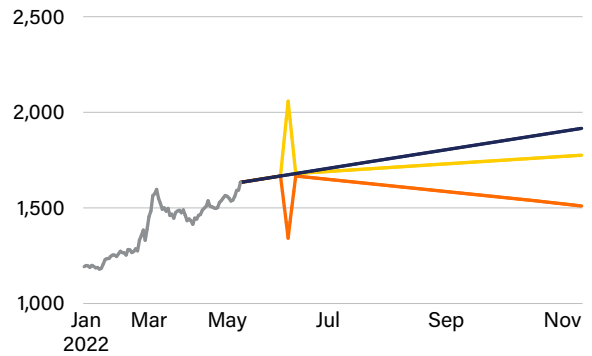


Source: Gro Intelligence

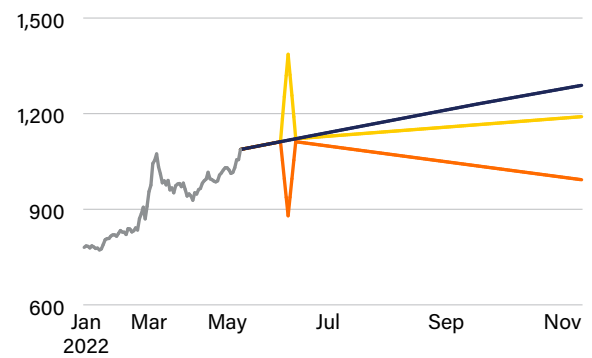
— History — Scenario 1 - Stalemate

— Scenario 2 - Scorched earth — Scenario 3 - Climbdown

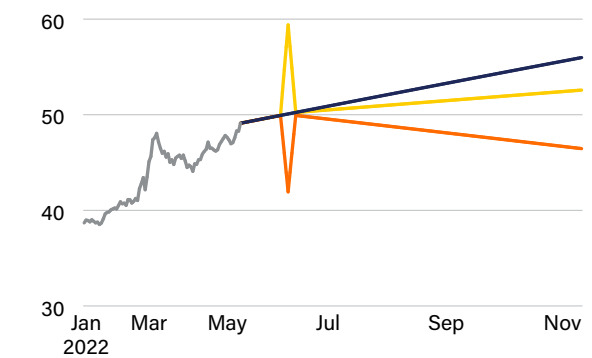
Food insecurity



Extreme poverty



Edge of famine



There are two major implications of these findings. First, Eurasia Group's baseline scenario for the war results in the worst humanitarian outcome. This is because a prolonged stalemate would lead to a greater degree of uncertainty and delay adjustment in global policy and production decisions for longer than in a scenario of a clear-cut military escalation. Second, even the best outcome, in which food commodity prices fall back to lower levels, would yield only a small reduction in food-related distress. This is indicative of the degree to which other factors—such as pandemic-related disruptions, high energy prices, adverse climate developments, protectionist government actions such as export bans, and regional bottlenecks—had already driven up food prices prior to Russia's invasion of Ukraine.

Direct effects of the war

Reduced exports of food crops

There are several ways in which the war has already affected global food security, and there remains a considerable risk of deterioration. The first channel is combat-related disruption of agricultural production and direct exports, as Ukraine and Russia are leading global exporters of sunflower oil, corn, barley, wheat, and sunflower seeds.

In the early weeks of the conflict, Ukrainian production seemed likely to be decimated by labor shortages, Russian occupation, and the destruction of land and equipment. But the country's production outlook appears to be significantly better than first feared, provided that fighting remains confined to eastern and southern Ukraine.

People facing food-related distress (millions)

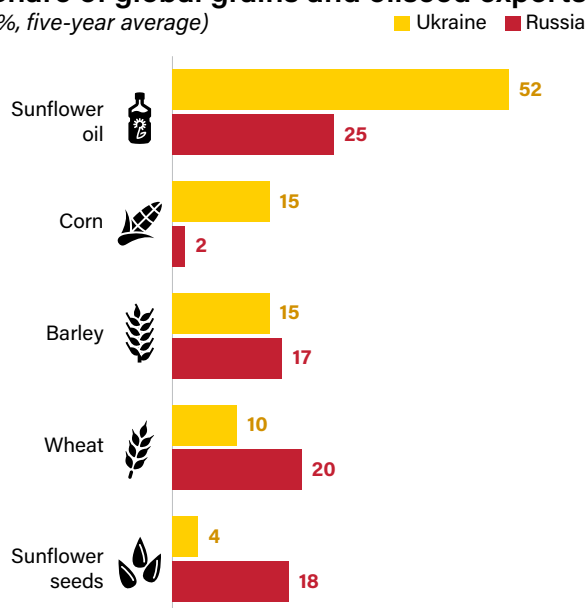
	Food insecure	Extreme poverty	Edge of famine
Scenario 1: Stalemate (70% probability)			
11 November 2022	1916.0	1288.8	56.0
Difference from 16 May	282.6	201.2	6.9
% change from 16 May	+17.3	+18.5	+14.0

Scenario 2: Scorched earth (25% probability)			
11 November 2022	1775.6	1190.6	52.6
Difference from 16 May	142.2	102.9	3.5
% change from 16 May	+8.7	+9.5	+7.1

Scenario 3: Climbdown (5% probability)			
11 November 2022	1510.0	992.7	46.5
Difference from 16 May	-123.4	-95.0	-2.7
% change from 16 May	-7.6	-8.7	-5.4

Source: Gro Intelligence

Share of global grains and oilseed exports (%, five-year average)



Source: Global Grains Council

In mid-May, the Ukrainian Ministry of Agrarian Policy and Food [claimed](#) that as much as 90% of the country's projected spring crop acreage would likely be able to be planted. While this figure may prove optimistic, [the Ukrainian Agribusiness Club](#), an industry association, and [US-based agricultural economists](#) think that planting at two-thirds capacity or higher is plausible.

Even so, production and exports in the 2022-2023 market year (July 2022-June 2023) are expected to fall considerably with respect to 2020-2021 and 2021-2022. In its [May 2022 WASDE report](#), the US Department of Agriculture (USDA) forecasts Ukraine's 2022-2023 wheat production and exports to contract by 35% and 47% year-on-year, respectively. Gro Intelligence broadly agrees with this forecast. The Ukrainian Agribusiness Club and agriculture ministry officials believe that yields could fall by as much as 50% on the land that is planted, owing in part to reduced access to fertilizer.

At present, however, the greatest challenge to Ukrainian grain exports is the Russian blockade of

its Black Sea ports. Prior to the war, 90% of Ukraine's grain and oilseed exports were shipped by sea. Whereas [the majority of food shipments](#) passed through port infrastructure in and around Odessa and Mykolaev, which remain under Ukrainian control, Russian naval activity threatens the safety of outgoing vessels. Meanwhile, Mariupol in the southeast remains subject to combat.

With seaborne trade at a standstill, rail and trucking capacity across Ukraine's western border is insufficient to move grain and oilseed shipments quickly enough. Rail lines use a different gauge than those in neighboring EU countries, contributing to average wait times at the border of over 15 days as of mid-May. The slow pace of export flows has caused inventories to build in Ukraine's storage facilities, which risks interfering with the coming harvest if they are not cleared. [The European Commission has announced a plan](#) to help ease bottlenecks to move more Ukrainian products into member states by land and river, but the program seems unlikely to fully resolve the issue in the near term.

The shift of Russia's military effort to the east and south of Ukraine presents further risks insofar as a number of agriculturally productive Ukrainian oblasts could see fighting intensify in the months ahead. If combat deepens in the major wheat growing regions of Kharkivska and Zaporizka, for instance, further shocks to grain markets are possible.

Overseas markets in the MENA region have been disproportionately affected by the conflict because of their high consumption of wheat per capita and their reliance on maritime transport from Black Sea ports. The EU, by contrast, sources more of its grain imports from western Ukraine, where there has been little fighting and from where agricultural products can still be transported over land.

Ukrainian wheat shipped to the EU could be reexported elsewhere, and the bloc is seeking to ease bureaucratic and phytosanitary barriers to shipments of food through EU territory. Nevertheless, sources within the

food trading industry suggest there is some concern that EU importers may also hoard Ukrainian wheat instead of selling it. There are likewise recent reports of Russia “stealing” grains from Ukraine, which, if true, could exacerbate local and global shortages.

For its part, Russia appears to be on track for a rebound in wheat and coarse grains production in the 2022-23 market year. This would follow weaker output in 2021-2022 owing to poor growing conditions and other constraints, such as high fertilizer prices (please see section starting on next page). In mid-April, Putin announced that he expects wheat production to rise to a record of 87 million metric tons in 2022-2023 and total grain production to rise to 130 million metric tons.

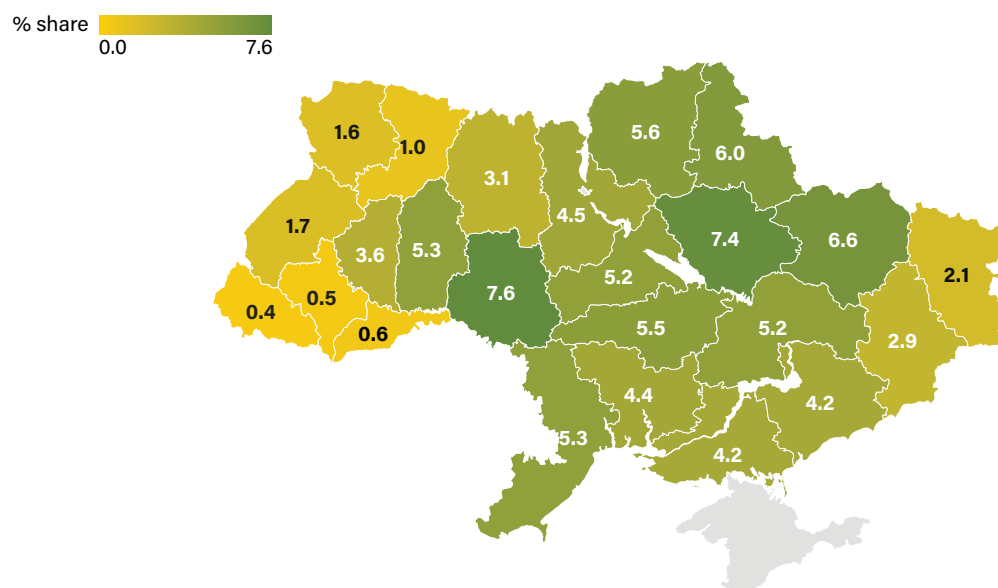
Official export data are scant, as the government has [temporarily classified detailed customs figures](#). However, shipping and commodities analysts note that shipments out of Russia have dipped since the war began, but they [have not collapsed](#). Some international commodity traders and shipping

companies are reportedly [still fulfilling contracts on energy products and agricultural commodities](#), even if many have announced they will not expand investment in Russia. July will be a critical month to gauge the strength of the 2022-2023 harvest and Russia’s ability to place shipments abroad. Demand reportedly remains strong from the MENA region.

Though less optimistic than Putin’s predictions, the latest USDA forecasts also point to a recovery in Russian output and exports. As of mid-May, the USDA expected wheat production to rise from 75.2 million metric tons in 2021-2022 to 80 million in 2022-2023, whereas exports should grow from an estimated 33 million metric tons this year to just below 2020-2021 levels next year. Overall coarse grain exports are set to follow a similar trend, slightly exceeding 2020-2021 production and export volumes in 2022-2023, driven in part by corn production, which will rise steadily, while exports remain nearly stable. These figures are broadly in line with Gro Intelligence’s expectations.

Ukraine's grain and oilseed crop locations

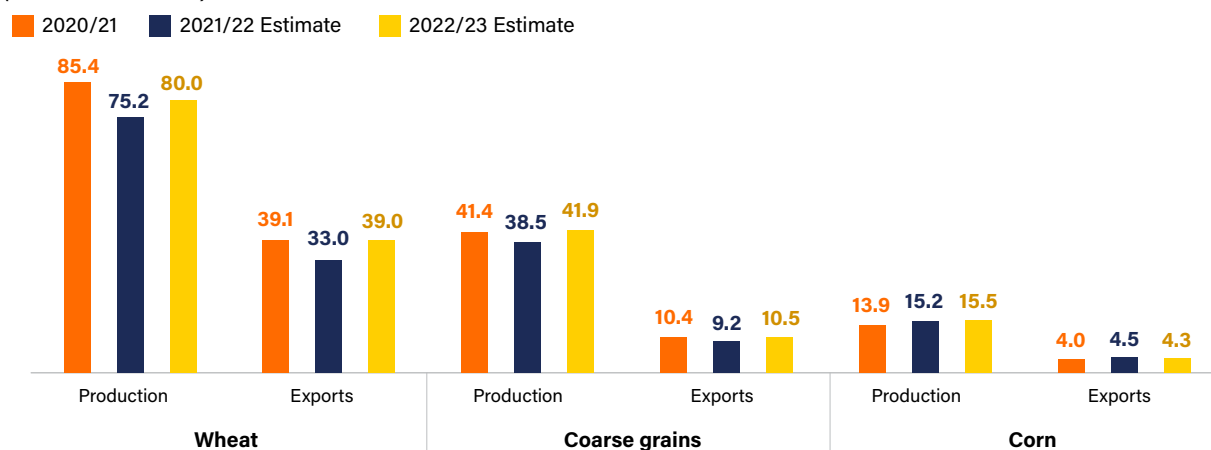
(Average national production of wheat, corn, barley, sunflower, and soybeans, 2016-2020)



Source: Algebris Investments

Russian grain production and exports are expected to fare well in 2022-23

(Million metric tons)



Source: USDA WASDE, May 2022

Reduced availability of fertilizer

Fifty percent of the global population gets its food from products that benefit from fertilizer application; reduced fertilizer use will therefore have an immediate knock-on effect on yields and crop prices. So far, global fertilizer prices have increased by more than 230% on the IMF world fertilizer price index since the onset of Covid-19. As the charts below illustrate, prices for individual fertilizer commodities and components have risen much higher in some markets.

The fertilizer crunch was well underway before the Ukraine crisis, owing to increasing demand, natural gas price surges, and [Chinese export restrictions](#). Natural gas accounts for about 80% of the variable costs of essential nitrogen fertilizer components such as ammonia. The war in Ukraine exacerbates the problem for two reasons. First, gas prices have climbed still further; and second, Russia and Belarus are significant fertilizer exporters.

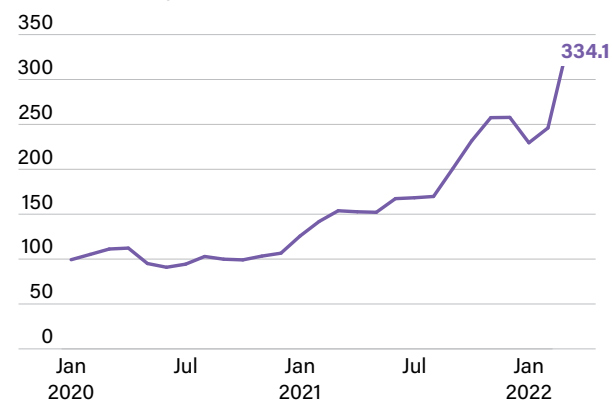
The Russian government has already demanded that domestic producers stop exporting fertilizer. If the conflict drags on, as expected, then a sustained

Of all the implications of the Russia-Ukraine war, the one that isn't receiving close to enough attention is the impact on global food supply. Avoiding widespread hunger in the next few months must be at the top of the global multilateral agenda.

IAN BREMMER,
president and founder, Eurasia
Group and GZERO Media

IMF world fertilizer price index

(includes diammonium phosphate, potash, and urea; Jan 2020 = 100)



Source: Bloomberg

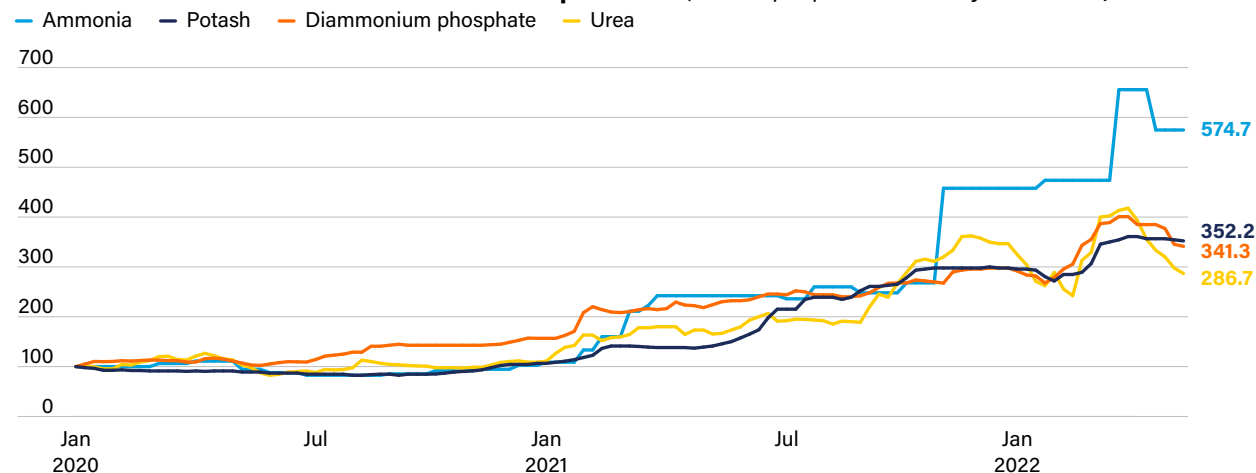
increase in fertilizer costs is likely. At present, corn, rice, and wheat—the world’s main staple crops—are all huge users of fertilizer, absorbing 16%, 14%, and 15% of global fertilizer supply, respectively. Yet the impact of low availability and high cost for fertilizer will extend much further beyond these staple crops. Dairy and meat prices will escalate as a consequence of higher feed prices, as nearly 40% of global corn production is used as livestock feed.

To make up for fertilizer imports from Russia and Belarus, countries are turning to other suppliers, including Canada, which has the world’s most extensive potash reserves, and Nigeria, which launched Africa’s biggest fertilizer plant—and the world’s second largest—in March. The facility is already shipping urea, a nitrogenous fertilizer, to Brazil, India, Mexico, and the US.

The trend of diversification in fertilizer supply is expected to continue well beyond the end of the Ukraine crisis. However, fertilizer production is not very elastic because of the challenge of the production process for nitrogen fertilizer and limited access to raw materials for potash. In the long run, new sources of nitrogen fertilizer made from “green” ammonia (produced using 100% renewable energy) may become available, but this is not a short-term solution.

Producing countries will also continue to face their own production, supply, and political constraints to raising shipments abroad. In Canada, for instance, there is a regional imbalance in fertilizer markets. Production is strong in the west of the country and comparatively weak in the east, owing to the accessibility of Russian imports in the past. The constraints will put protectionist pressure on

Prices of chemical fertilizers and components (NOLA spot prices; 1 January 2020 = 100)



Source: Bloomberg

policymakers to secure domestic production and supply chains before seeking to bolster international supplies. These factors are likely to skew Canadian humanitarian responses toward offering food exports rather than fertilizer supplies to those countries in crisis, especially given the internationalist bent of the current government.

Energy availability and cost

Despite successful efforts to lower its energy consumption in recent years, the EU is highly dependent on Russian oil and gas imports for use in transport, power generation, and industry, including food production. The disruptions in global oil markets add further stress to food supply chains. In the immediate aftermath of the Ukraine invasion, many European oil firms started to shun Russian volumes, leading to higher prices and dislocations to flows. Companies were mainly concerned with potential reputational damage and indirect exposure to sanctioned Russian banks.

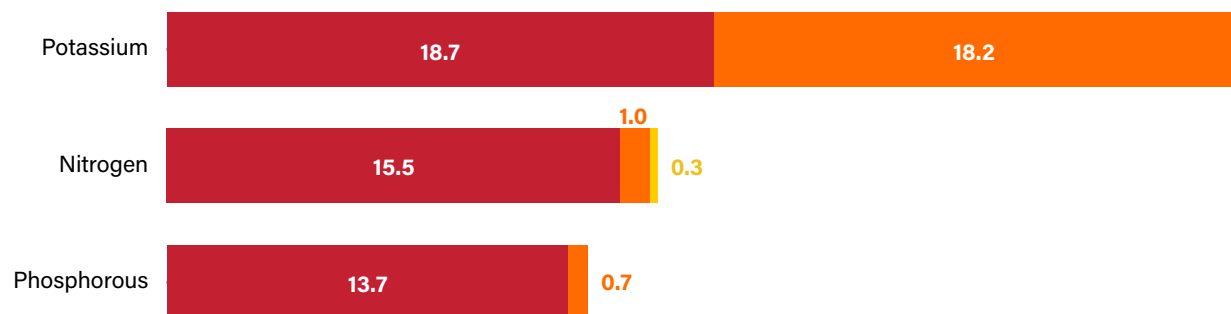
More recently, EU countries have moved to formalize bans on the import of Russian crude while also seeking to decouple quickly from their dependence on Russian gas. While EU moves to phase out Russian

Fertilizers are the precursors to food. The fertilizer industry will keep striving to produce and supply as much product as it can, despite supply chain challenges—and work with farmers to use what fertilizer they do have as efficiently as possible and for greater yields. By shining a light on the need to prioritize fertilizers today, we may be able to mitigate the severity of a food crisis tomorrow.

ALZBETA KLEIN,
CEO, International Fertilizer Association

Share of global fertilizer exports (% , 2019)

■ Russia ■ Belarus ■ Ukraine



Source: Our World In Data; UN; FAO

oil purchases through sanctions have faced obstacles from European states that are heavily dependent on Russian supplies—notably, Hungary—measures are expected to pass as early as late May, with some carveouts. Meanwhile, the European Commission has proposed an ambitious plan to replace Russian gas and reduce overall energy demand, which will significantly diminish European reliance on Russian supplies by the end of the year, with volumes dropping close to zero by the end of 2023.

Russian crude oil is used mostly to refine distillate fuels, especially diesel and heating oil, much of which is exported to the EU. European refiners also produce large volumes of heating oil from imported Russian crude. With both Russian crude and distillate flows to Europe now ebbing away, European energy firms have turned to alternative suppliers for imports, and they have hoarded more of their existing inventories.

Consequently, there is less distillate fuel, particularly diesel fuel, available in other regions of the world. Reduced availability has been particularly pronounced in emerging markets in South America, driving up prices and triggering concerns about supply shortages. With the EU now actively planning

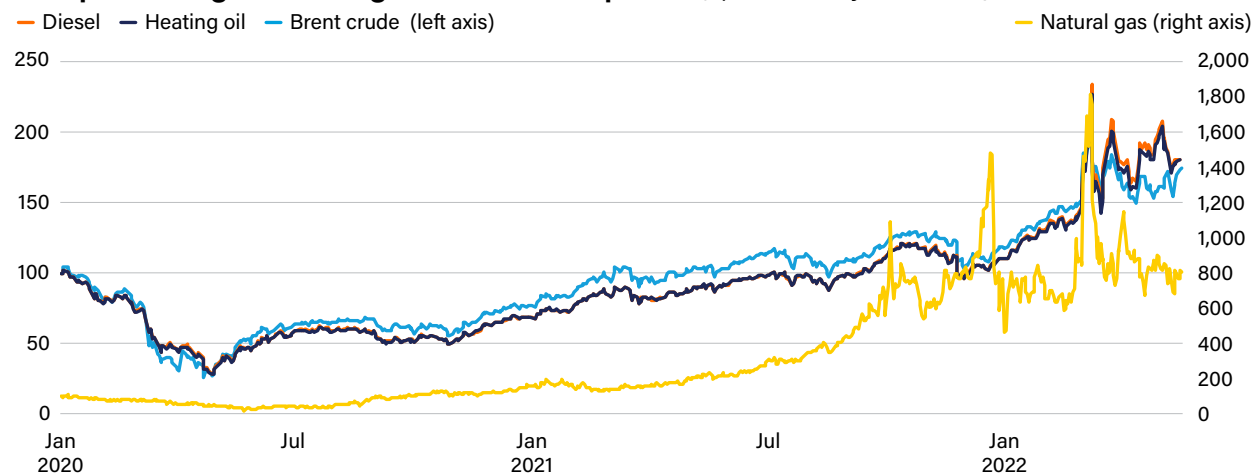
official oil sanctions, these dislocations may soon become semi-permanent unless there is a credible cease-fire or global supply chains are able to adjust.

Energy prices have a direct impact on agricultural production for two reasons. First, farm energy use is estimated to account for about 3% of farm costs; and second, transport of both inputs and agricultural produce is affected.

The EU is likewise highly reliant on natural gas imports from Russia. This gas is used not only for heating and power generation, but also as an industrial feedstock to make ammonia fertilizer and additives used to make diesel engines more efficient. Although there are no advanced plans to place outright sanctions on Russian gas supply, there is a sizable risk of disruption. Moscow has already cut supplies to Poland and Bulgaria, and it has scaled back pipeline supplies via Ukraine. Meanwhile, EU countries are taking active measure to replace Russian supplies in order to mitigate the risk of further curtailment and to lessen longer-term dependency on Russian gas.

Faced with these disruptions, governments in major European economies with large agricultural and food processing sectors (such as Germany, Italy, and the Netherlands) that are reliant on Russian gas may

European oil, gas, heating oil, and diesel prices (Spot; 1 January 2020 = 100)



Source: Bloomberg

have to reduce gas supplies to industry to ensure supply for households and local essential services. Any further reductions of gas supply to the fertilizer industry will have a corresponding effect on fertilizer availability and price, and thus food production.

In general, global food supply chains will face substantial price pressure from the energy sector for at least 2022 and likely well into 2023 or beyond. This is because all aspects of energy supply chains are facing rising costs. Operational costs are growing because of Europe's need to source oil, natural gas, and coal from non-Russian sources, tightening global fuel markets. At the same time, capital expenditure costs are increasing because of Europe's need to build the infrastructure to diminish its reliance on Russian imports and fossil fuels overall—and this capex cost is further increasing, as a significant share of this capital will be borrowed, the cost of which is also escalating because of increasing interest rates.

Logistics and shipping

Seaborne shipping is particularly important for global food trade, especially in grains and oilseeds. Almost 90% of global trade is conducted via sea routes, and as noted, roughly the same proportion of Ukrainian grain exports were shipped by sea prior to the war. For Russia, maritime freight historically accounts for approximately 60% of goods trade.

The Baltic Exchange Dry Index, a measure of commodity freight rates along the largest maritime routes, has seen heightened volatility in recent months. This is partly owing to the war, but shipping conditions were already strained well before the conflict, mainly because of disruptions caused by Covid-19.

[Recent research](#) suggests that heightened demand for imports of durable goods, port congestion, and global imbalances in demand for containers lowered US containerized exports of agricultural products by 22% from May 2021 to January 2022, as many empty containers were sent back to Asia upon arrival in the US rather than being refilled with food products for export.

Baltic dry index

(Higher values indicate tighter shipping conditions)



Source: Bloomberg

Major ports around the world have been operating with greatly reduced staff owing to high Covid-19 infection rates or precautions meant to prevent transmission. Shippers have also struggled to fully crew their vessels because of international travel restrictions and coronavirus outbreaks in countries such as the Philippines, Ukraine, and Russia, which usually provide large numbers of crew.

Since late February, the war has introduced new complications that further hinder global food trade. First, staffing constraints have intensified. Russia accounts for 10.5% of the global shipping workforce, and Ukraine nearly 4%. The potential lack of port workers, seafarers, and logistics staff will worsen transit times and cause port congestion. In the case of Ukraine, this situation is likely to persist even after the war ends, affecting dry bulk shipments of grains and oil seeds for the foreseeable future.

The war, in addition, has led to closures and destruction of Ukraine's shipping hubs, such as air and maritime ports, as well as the Russian naval blockade. Meanwhile, Russia has sought to maintain its own outbound wheat shipments via Black Sea ports, as routes through the Azov Sea have been heavily restricted.

Moreover, food exports from Russia, Belarus, and Ukraine face impediments related to sanctions and countersanctions. Western sanctions do not target food products directly, but they appear to have had a chilling effect on food trade, and they implicate many of the financial channels used to pay for agricultural commodities. Many Western companies are likely reluctant to buy grains or fertilizers from firms that are found to be controlled by sanctioned individuals or entities, such as Russian oligarchs, banks, and state-owned enterprises, even if sanction carveouts mean that these purchases are legal.

Indeed, nine of the top ten maritime freight bulk carrier lines—collectively accounting for more than 80% of total global maritime freight capacity—have elected to suspend new bookings to and from Russia. Sailing has continued because of the companies' decisions to honor bookings made prior to the moratorium, but capacity is expected to dry up in the coming months. Trade will then be left mainly to Russian companies and those based in non-Western countries with which Russia has maintained warmer relations.

The EU has likewise tightly sanctioned Belarusian exports of potash, an essential component of fertilizers; Belarus previously accounted for nearly 18% of global potash production. These problems are compounded by elevated cargo insurance premiums as well as export controls in Russia limiting agricultural sales to “unfriendly” sanctioning countries. Ukraine has also banned the export of a range of food products and set up an export licensing scheme for wheat and some other grains.

Risks ahead: Climate change and sustainability

Climate change had strained food systems prior to the invasion of Ukraine and will continue to lead to tighter markets. Longer-term solutions must consider changes in temperatures, extreme weather events, water availability, and overall soil health. From 1961

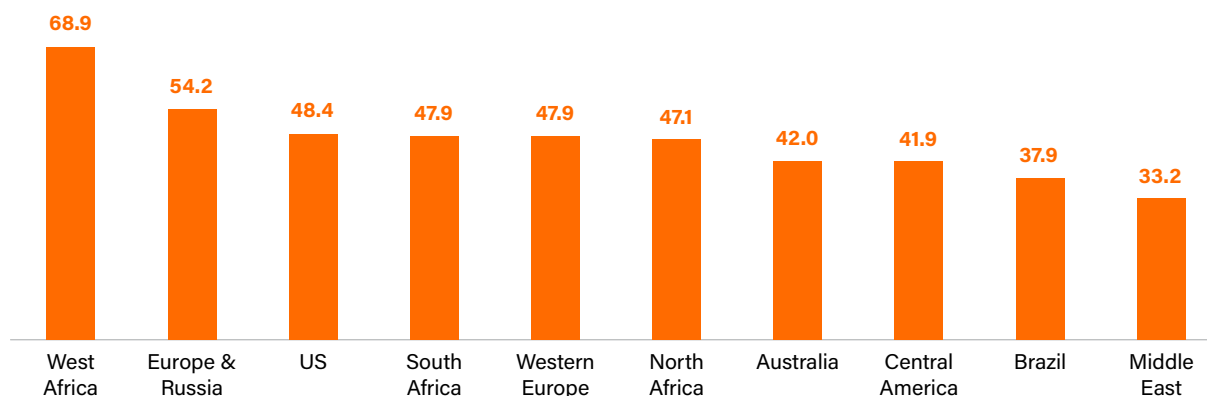
to 2019, global yields for corn, rice and wheat have increased by 200%, 149%, and 226%, respectively. One study estimates that these yields would have been 5.3% higher on average in the absence of rising temperatures over the period. Analysis cited by the UN's Intergovernmental Panel on Climate Change further indicates that yields are expected to drop by 10-25% for each degree of global warming. This result, however, is primarily driven by corn, particularly cultivars from outside of the US. Additionally, ongoing efforts to increase crop resilience give some cause for optimism, as substituting production away from corn, while utilizing more robust corn cultivars globally, should substantially reduce the impact on total food supply. Great caution should still be exercised as each incremental increase in average temperature is expected to be more harmful to food production than the last. Moreover, the share of crop land affected by drought is expected to more than triple globally by 2050, reaching close to 32%. This will spur significant increases in crop prices, making food staples prohibitively expensive in remote areas, thereby increasing food insecurity, and further widening poverty gaps across and within regions.

Meanwhile, the share of cropland affected by drought is expected to more than triple globally by 2050, reaching close to 50% in the US and 70% in West Africa, for example. This development will spur significant upticks in crop prices, making food staples prohibitively expensive in remote areas, thereby increasing food insecurity and further widening poverty gaps across and within regions.

Food insecurity is further exacerbated by the impact of climate change on yield uncertainty. In Brazil, the effect of drought on corn production—which fell by 15%, from 102 million metric tons in 2020 to 87 million metric tons in 2021—did not become clear until May 2021. Farmers are worried about the next winter season as extreme weather episodes are expected to become more frequent and intense, further jeopardizing productivity and possibly reducing farmers' willingness to increase planting.

Proportion of cropland exposed to drought in 2050

(Share in %)



Source: Chatham House

In India, early and severe heatwaves affected the country's main wheat-producing states in April, leading to fires on farms and generating up to 35% of crop losses. Such high temperatures have forced the country to focus on domestic demand, derailing Prime Minister Narendra Modi's plans to "feed the world"; wheat exports from India were suspended on 13 May, though based on comments from the Indian government, this is not an all-out ban, as exports for humanitarian reasons will still be permitted.

Climate change is also forcing countries to make difficult choices between food and water. In the US, for instance, California plans to make payments to farmers willing to forgo harvesting this season in a bid to tackle water scarcity, given the severe drought conditions in the state. This will affect the cultivation of perishable horticultural crops and California's rice harvest, with an estimated 6% of the annual crop left unplanted. In Chile, the 13-year megadrought prompted the governor of Santiago to announce an unprecedented plan to ration water in April, which includes measures to limit water pressure and rotate water cuts among customers. This will further affect smallholder farmers already struggling with high fertilizer prices.

As noted in Gro Intelligence's global heatmap (please see page 12), the combined effects of climate change, the pandemic, and the war in Ukraine are heightening the risk of famine in regions such as East Africa, where countries are experiencing their worst drought in more than 30 years. In Somalia, 10% of the population is facing famine, while 40% is enduring severe food insecurity—twice as many as in January—leaving six million lives at risk.

To tackle immediate food security concerns, many countries and regions may seek to abandon policies aimed at longer-term sustainability that would reduce environmental impact and ensure long-term agricultural production. For instance, the EU indefinitely postponed the adoption of two biodiversity policies on pesticides and nature restoration in March, opting instead to incentivize fallow land use for food security purposes. There is concern that such a race to produce may further damage the environment in the long term and ultimately lower land productivity.

It is important to note the existing fragility and lack of sustainability in the world's food and agriculture systems, both of which threaten long-term food

stability. Some fundamental challenges are emerging, including concern that the war's impact could accelerate the pace of deforestation in the Amazon in an effort to free up land for food crops, which would push the world closer to the postulated Amazon tipping point. In April, deforestation in the region exceeded 1,000 square kilometers for the first time—74% more than at the same time last year.

In addition, the continued prioritization of land for fuel and bioindustrial uses places additional upward pressure on food prices and misappropriates productive agricultural land in the middle of a crisis, an issue that needs political reconciliation. As the crisis deepens, countries in East Africa will clear more land and are very likely to publicly defend their positions during the Africa Protected Areas Congress in Rwanda in July, ahead of the UN Biodiversity Conference (COP 15).

The politics of food security

Higher food inflation and tighter global supplies will have serious political repercussions for many countries, though emerging markets will bear the greatest burden, especially those with large populations of urban poor. In wealthier countries, such as the US and EU member states, the pass-through from higher global food prices to consumer prices will be limited, in part because underlying food costs make up only a fraction of most retail food prices.

According to the USDA, the underlying farm cost of food accounts for only about 14% of average retail food prices in the US, though this share is often several times greater in emerging markets. Advanced economies also tend to have a range of sourcing and financing options to guarantee that demand is met. And they generally have more comprehensive social safety nets to cushion the blow of higher food prices than in lower- and middle-income countries.

In addition to having fewer resources and fewer options to procure necessary foodstuffs, many low- and middle-income states could face other food-related political risks. Food insecurity can spur mass migration, spark conflict over land and water resources, and leave populations more vulnerable to meddling from non-state actors, such as terrorist groups or domestic insurgents.

Spikes in food inflation—such as those caused by the war in Ukraine—can also lead to social turmoil. Although the correlation is not perfect, in the past, rapidly rising food prices have acted as a trigger for protest over deeper, underlying issues of poor governance and economic malaise. Given two years of pandemic-related disruptions, high energy and fuel prices, and reduced fiscal space for subsidies, living standards in many countries are coming under stress. Against this backdrop, the impact of soaring food prices may be strongly felt in the developing world, heightening the risk of instability and civil unrest.

Food inflation and political risk in recent historical perspective

In the past, sharp food price increases—as a result of policy or owing to market forces—have often been linked with higher levels of geopolitical risk. The relationship is not always direct or immediate, but high food inflation has consistently ignited underlying discontent in fragile states over other issues, such as general economic malaise, corruption, deficient public services, or a lack of personal freedoms.

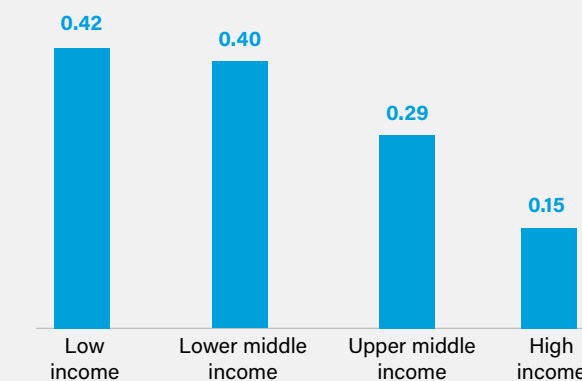
In December 1970, for example, the communist Polish government announced a sudden increase in the prices of consumer goods and foodstuffs. The price of beef rose by 19%; the price of pork rose by 14%; and the price of lard went up by one-third. The announcement prompted mass protests that left 40 people dead and more than 1,000 wounded across the country. In 1990, after the Zambian government ordered food price hikes—which, among other things, doubled the price of cornmeal—Zambians stormed the capital of Lusaka, leaving at least 23 dead. These food prices rose by autocratic fiat and were thus seen as evidence of poor governance.

In 2007 and 2008, it was global market factors rather than domestic mismanagement that caused a spike in food price inflation. Higher energy prices—caused by global supply and demand factors as well as geopolitical events—and stronger demand for biofuels drove up the prices of corn and soybeans. Moreover, export bans and panic buying—particularly of rice—contributed to high food price volatility. During these years, Haitians, Bangladeshis, Egyptians, and others took to the streets in protest. These riots were signs of what was to come as the global financial crisis dragged on. Indeed, the first signs of the Arab Spring movement, triggered by dissatisfaction with government in 2010, came in the form of protests over high food prices in Algeria and Tunisia. When Algerians took to the streets and torched government buildings, they demanded, “Bring us sugar!”

Political stability is likely to remain at risk in some emerging markets over the coming months, although the precise timing is difficult to predict and is likely to vary country by country. Global commodity prices do not pass through directly to consumer prices, particularly in states where subsidies and other social safety nets shield a portion of the population. Furthermore, food inflation will not have a serious impact on consumers in most wealthy countries. It will be much more problematic in the developing world, where vast shares of household income are typically devoted to food purchases.

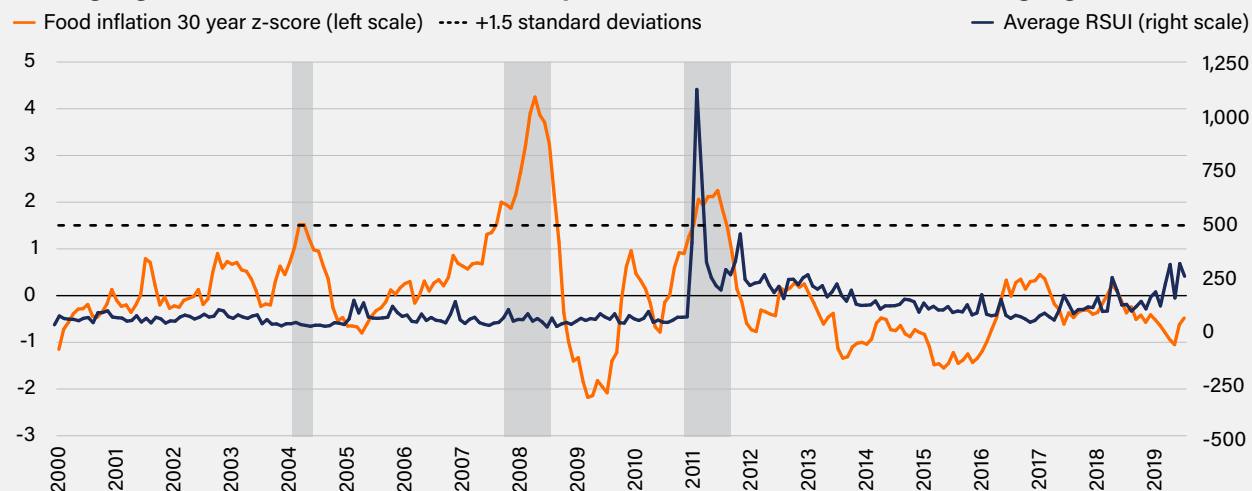
Recent episodes of food inflation also suggest that transitory spikes can be more incendiary than gradual and sustained increases and that the urban middle classes within poorer countries may be more prone to protest than the most deprived rural segments of the population. Particularly in countries where governments have failed to deliver adequate public services and economic growth, a food crisis can cause long-simmering discontent over other issues to boil over. Ultimately, as access to food becomes more difficult, security issues may also deteriorate as populations grow vulnerable to the influence of non-state insurgent groups such as the Islamic State at present or the Khmer Rouge in the early 1970s.

Households in low- and middle-income countries spend a large share of their earnings on food



Source: World Bank; USDA; Nomura; JP Morgan

Emerging market food inflation and reported social unrest in 36 emerging markets



Sources: IMF, WB, Haver Analytics

As food systems come under pressure, both governments and the private sector will likely compete to secure alternative sources of reliable supply of food stocks. In some cases, the situation could lead to hoarding and bidding wars over remaining global supplies of commodities or shipping, with larger companies and advanced economies having the upper hand in negotiations. This would probably leave developing economies and their citizens more vulnerable.

Food production and trade are deeply political, and food systems are an important aspect of foreign affairs and government planning. History shows that food security is also entangled in geopolitical competition. For example, during the food shortages of 1973-1974, the US placed an export embargo on soybeans to Japan, which Japanese policymakers have never forgotten. A lingering issue is the US trade embargo against Cuba that in 1959 resulted in a geopolitical shift for the US to import sugar from the Philippines and Russia to support Cuban agriculture.

It is no coincidence that many trade agreements, including the global General Agreement on Tariffs and Trade rounds, hinge on the food and agriculture negotiations. Political leadership generally tends to protect its domestic producers at the expense of opening its borders. Every country has its own variety of protectionist agricultural policies, and even net food-importing countries such as Indonesia have limited soybean imports in times of low farm prices, which ultimately harms consumers.

Competitive and protectionist responses to food security concerns will almost certainly do more harm than good. Despite their intended effects, [economic research](#) has demonstrated that protectionist measures tend to magnify food price shocks, with negative implications for those countries most dependent on foreign shipments and least able to pay higher prices. Several countries that are not actually involved in the Ukraine conflict—including India, Turkey, Serbia, Hungary, Indonesia, Lebanon, Egypt, and Argentina—have enacted temporary export bans

on wheat and some other grains and oils since the beginning of the year, though a number of these have already been relaxed, which will help to keep supply lines open. China's restrictions on fertilizer exports also put pressure on global prices even before the disruptions from the Ukraine war.

As the vulnerabilities of global food supply chains are exposed, some countries are likely to exploit them and seek to reconfigure the global food trade order, and they will do so at the peril of the global rules-based trading system. WTO agreements require any regional or bilateral trade deals to include "substantially all trade," not single commodity agreements. Now, there is concern that the suppliers and importers will start to create politically aligned food trade pacts. Possible measures include trade arrangements that guarantee preferential treatment for certain food commodities. In contrast to positive inducements, food supplies could also be used as a source of political leverage or weaponized to coerce other parties.

Over the long run, as countries seek to mitigate food insecurity and resolve the problems of declining crop yields, deteriorating soil quality, and high agricultural emissions, cooperation and dialogue will be critical. Continued political dialogue and transparent negotiations at the WTO are necessary to ensure countries are not enacting harmful subsidies and trade practices that work against achieving a global, sustainable food system. Countries must continue to invest their time in the WTO and build from the Uruguay Round Agreements, incorporating the critical commitments member governments have made to the climate agenda.

Fortunately, even before the Russian invasion of Ukraine, the agricultural sector was beginning to receive more attention and investment. This was driven by both the urgent need for decarbonization, as agriculture accounts for about 17% of global greenhouse gas emissions, as well as the possibilities unlocked by new technologies, such as new forms of protein (including plant-based ones) and new production practices of new forms of protein such as precision fermentation.

The war has underscored the need for innovation, though it has likewise highlighted the need to improve and make more efficient and resilient the production of the staple food crops on which most people depend. It has also highlighted the importance of the debate on alternatives to traditional staples and urgently addressing post-harvest losses and food waste more broadly.

Countries and regions at risk

MENA

The region is especially vulnerable to food insecurity, as most of its countries are net food importers. Many also consume wheat as a staple. In addition, record drought is depressing local production and amplifying import demand. Of Ukraine's total wheat exports over the past two years, an estimated 40%-50% went to the MENA region. The direst situations will likely be in Yemen and Syria, countries that have been ravaged by war and where sizable shares of the population depend on food assistance from international organizations.

The next highest level of vulnerability is in the Levant and North African countries, where the impact of elevated import costs coupled with limited buffers and foreign currency reserves poses serious challenges. Authorities are contending at the same time with a dual price shock of higher food and energy import costs. Widespread subsidization of bread and other food staples can help to a degree, but governments will not be able to ramp up subsidies sufficiently and will be forced to pass on greater costs to consumers.

Food inflation has already skyrocketed in some countries struggling with currency depreciation and economic vulnerability including Lebanon, Syria, and Yemen. As noted, shortages and higher food costs risk fueling social unrest and are historical triggers for protests. In some states, such as Tunisia, growing socioeconomic pressures may be leveraged

by opposition groups to build momentum against the leadership. Some countries, such as Egypt, are undertaking measures partly in an effort to mitigate against protest risks that could be triggered by food costs.

As the region's biggest wheat importer—with a population of about 100 million—Egypt is making policy adjustments, including capping bread prices in the near term and devaluing its currency, while financial aid from Gulf partners will also help. About 70% of Egypt's population is eligible for five loaves of subsidized bread per day, resulting in huge costs to the state, and the government's import costs have already soared amid higher global prices for wheat and grain. Similarly, a cut in Iranian state subsidies for imported wheat caused price hikes of as much as 300% for a variety of flour-based staples, leading to food protests across the country.

The EU has pledged to help the region with wheat supplies, but this may be too little, too late. Some countries, such as Lebanon, Tunisia, Algeria, Morocco, and Egypt, are restricting some food exports in a bid to protect local supplies. While Lebanon will struggle to pay premiums for imports, it faces storage issues as well that make stockpiling problematic. Meanwhile, droughts and high fertilizer and feed costs may further constrain domestic agricultural production this year. The steep feed costs are also prompting Algerian authorities to hike food prices to appease farmers.

Sub-Saharan Africa

Though higher food and fertilizer prices will test sub-Saharan Africa's minimal social safety nets, these trends are unlikely to lead to political upheaval. Food inflation and its associated effects can be a proximate cause of socioeconomic unrest in sub-Saharan Africa, though this is not always the case. Food inflation is more likely to factor in when other, more pertinent sociopolitical triggers are in play. For instance, the protests following former South African president Jacob Zuma's arrest (2021) and demonstrations

against police brutality in Nigeria (2020) eventually devolved into outlets for a host of voter grievances.

Prior to the war in Ukraine, the rising cost of living was already a big concern in several countries in the region, particularly Kenya, which will hold elections this August. While the effects of the Ukraine crisis could affect Kenyan voting decisions, the availability of elections as an outlet for public discontent limits the risk of instability. National governments are likely to respond by releasing staple inputs from strategic reserves, introducing subsidies on foodstuffs—as Senegal and Cote d'Ivoire have done—or suspending tariffs on food imports, like Ethiopia did last year. Such measures will be insufficient to offset the welfare impact of higher prices, but they will help check the risk of broad discontent.

Southeast Asia

Within the region, Indonesia is most directly affected by the war given its large grain imports from Ukraine and Russia. Indonesia was the world's third-largest

The people most vulnerable to slipping into serious hunger overwhelmingly live in countries whose governments lack the capacity to effectively subsidize food—places like Afghanistan, Mali, Haiti, Bangladesh, Yemen, and Sudan.

ERTHARIN COUSIN,
former executive director of the
World Food Programme

importer of wheat in 2021, with Ukraine and Russia combined providing about 30% of imports in recent years. The country has a huge instant noodle industry for domestic consumption and export that relies almost entirely on imported wheat.

Food-related protests have occurred recently (in part because of the rising cooking oil price, a key food item), and more protests are likely over the coming months if prices remain high. Indonesia's recent ban of palm oil exports, which was enacted largely in response to increasing vegetable oil prices fueled by the conflict, has further shocked global food markets. Food inflation rose to 5.2% year-on-year in April, though this probably will not threaten the stability of President Joko Widodo's ruling coalition. This is in part because Indonesia, like other big wheat importers in the region such as the Philippines, can at least partly switch to regionally sourced alternative food staples such as rice.

Outside of Indonesia, Southeast Asia as a whole will suffer from mounting food security risks given spikes in prices of fuel and food. For instance, Thailand's inflation remains high, with March's rate—5.7% year-on-year—the steepest since 2008. The price of street food climbed by more than 8% in March, a problem for the urban poor who are reliant on these cheap and convenient meals. Rising food and fuel prices add to the political pressure on Prime Minister Prayut Chan-o-cha and risk further inflaming the caustic political environment, which has seen sporadic pro-democracy and monarchal reform protests over the last two years and heightened tensions within the ruling coalition.

The Philippines, which has the greatest number of food insecure people in Southeast Asia, according to the 2020 State of Food Security and Nutrition in the World Report, reached a three-year high of 4.9% inflation year-on-year in April. Food insecurity will be a serious concern in Myanmar as well. Though largely driven by the February 2021 coup and the resulting economic fallout, the situation has been exacerbated by the Ukraine crisis and is unlikely to improve given continued conflict between the military and anti-junta groups.

South Asia

Inflation in Pakistan and Sri Lanka is skyrocketing. In Sri Lanka, protesters have been demonstrating against shortages of essential food and fuel items, with food inflation hitting 46.6% in April in the country's worst economic crisis since 1948. Whereas foreign reserves have been falling since the beginning of the pandemic, the situation deteriorated dramatically after Russia's invasion of Ukraine caused a spike in the cost of commodity imports.

The government's efforts to boost domestic production are unlikely to address the shortages in the medium term. And political instability—with President Gotabaya Rajapaksa still reluctant to resign despite his brother, Prime Minister Mahinda Rajapaksa, stepping down in May—will worsen conditions, leaving millions to face acute food shortages.

Political instability is similarly rocking Pakistan. Inflation reached 13.4% year-on-year in March, and this led to the ouster of Prime Minister Imran Khan through a no-confidence vote instigated by the opposition in early March. The net food-importing country has long faced risks of food shortages, even pre-pandemic, and will continue to grapple with food insecurity under new Prime Minister Shehbaz Sharif.

India, meanwhile, relies on Russia and Ukraine for vital commodities including fertilizers and vegetable oils. A prolonged crisis would therefore affect India's agricultural sector, with the government forced to ratchet up subsidies on fertilizers given rising import prices. Along with the growing cost of selected imports, food prices jumped 8.4% year-on-year in April.

India's wheat exports reached 7.8 million tons in the 2021-2022 fiscal year (which ended in March), an all-time high, in large part because of the Ukraine crisis. But the current severe heatwaves will likely reduce agricultural output, especially of wheat, with officials cutting their output forecast to 105 million tonnes—about 6 million tonnes lower than estimates in February—which represents the first potential production decline in five years. A low yield, coupled

with soaring food inflation, would force officials to focus on domestic demand. These factors have derailed Modi's recent offer to supply the world with India's wheat surpluses, forcing his government into its abrupt restriction of wheat exports on 13 May. While Modi's government remains well positioned, rising food prices over the long term could worsen social tensions. Modi is also eager to rein in inflation before starting early campaign efforts next year ahead of the 2024 elections.

China

Although China holds large shares of global stocks of a number of key food products, concerns over food security are intensifying for several reasons. First, the latest coronavirus outbreak and the stringent implementation of "zero-Covid" policies have put strain on domestic food supply. The containment measures have limited the mobility of migrant workers and supplies for agricultural inputs such as fertilizers and seeds.

Following a poor winter wheat harvest, official data show that in the northern provinces of Jilin, Liaoning, and Heilongjiang—which collectively account for more than 20% of China's grain production—roughly one-third of farmers lack sufficient access to agricultural inputs ahead of the beginning of the planting season.

Second, the war in Ukraine has exacerbated supply disruptions. These headwinds may pose additional challenges for the spring harvest, which is of particular importance after last summer's flooding undercut the fall wheat farming and undermined China's goal of self-sufficiency on staple foods.

The pressure on domestic supply is likely to prompt China to boost its imports, which could add momentum to global food inflation. Authorities have taken measures to address these issues, including attempts to bolster production, limiting the amount of corn used for biofuels, and facilitating transportation arrangements for the delivery of fertilizers. However, as the Omicron outbreak lingers in Shanghai and other

parts of the country, and more stringent containment measures are put in place, further action will be needed to mitigate upward price pressures.

Latin America

Latin America and the Caribbean is under severe pressure as a net food-importing region, while agricultural exporters in South America are also being hit by more limited access to and higher prices of fertilizer and key inputs. Consequently, food and energy prices are rising across the region. The World Bank estimates that 40% of household budgets in the region comprises food and energy. Central American and Caribbean economies are particularly exposed to higher global commodity prices given the region's dependence on imported oil and food. Annualized inflation in the Dominican Republic and much of Central America is running at 7%-10%, led by food and transport prices.

But South American commodity producers are also significantly affected. Agricultural powerhouse Brazil has experienced the highest food price hikes in recent history with a 13.5% increase over the past year alone. Meanwhile, Argentina's monthly inflation is running at 58%. In Colombia, food price inflation reached a historic peak in April, up 26%. Higher food prices are threatening delicate social dynamics in countries still recovering from the pandemic. The most vulnerable countries in this regard are those with an already weak social safety net and substantial levels of poverty, including Peru, where agriculture and fuel protests are ongoing, along with Guatemala and Haiti.

Governments across the region are responding with measures aimed at offsetting the impact of higher prices on consumers. These include fuel and electricity subsidies, freezing or reducing variable fuel taxes, and in the case of Mexico and Argentina, pressing the private sector to contain prices. Argentina recently curbed its wheat exports and created a "stabilization" mechanism to divert wheat into the domestic market amid rising domestic prices.

Brazil has expanded its flagship cash transfer and food security programs Auxilio Brasil and Alimenta Brasil. In addition, since the beginning of the Ukraine war, the administration has sought to diversify international fertilizer suppliers and has launched a program to expand domestic production of these inputs; Brazil imports approximately 85% of its fertilizers, with 30% coming from Russia. Despite these measures, popular discontent with higher food and commodity prices is exacerbating political headwinds across Latin America.

Policies to ensure food equity and access

Nearly three months into the war, there seems to be little doubt as to whether there will be a global food crisis. Instead, the more relevant questions seem to be how severe the crisis will be, and which steps can be taken to mitigate its effects. It is well understood that acute hunger is seldom driven by shortfalls in absolute supply; instead, it is a factor of how well food systems function and who is able to access food. To the extent that measures can be enacted to improve food equity and access, some of the worst human outcomes of the crisis can be averted. In effect, the right policies could help to lessen the severity of the hurricane of hunger. In the view of the authors, these include the following actions.

Keeping agricultural trade open, even in wartime

First, every effort should be made to keep international trade in food and fertilizers open to meet global demand. Supply chains—including the protection of standing crops, livestock, food processing infrastructure, and all logistical systems—should be made more resilient wherever possible.

Export restrictions on agricultural commodities and their inputs, such as seeds, fertilizers, agricultural

services, and tools and implements, must be avoided, as they exacerbate price volatility and limit global markets' ability to buffer localized shortages. As noted, the effects of comprehensive sanctions are spilling over to food commodities, and the war has created severe logistical issues that hamper trade and access.

Countries affected by disruptions should work with trade partners to weigh the intended domestic benefits of domestic market interventions against the likely detrimental effects on international markets. The UN, the WTO, and other multilateral organizations should work with countries to prevent food export bans and other protectionist policies and to provide clarity on how food can be traded under the existing sanctions.

As leaders consider deploying new primary or secondary sanctions against Russia (or other major food exporters), policies need to take into account the potential impacts on basic food commodities and provide for explicit, practical carveouts. The US Treasury and the State Department have sought to communicate their efforts to exempt food commodities and fertilizers from their sanctions regime, though these efforts do not seem to have been sufficient thus far in sparing global food trade. Countries deploying sanctions should also provide clarity on trade financing for food products to minimize chilling effects.

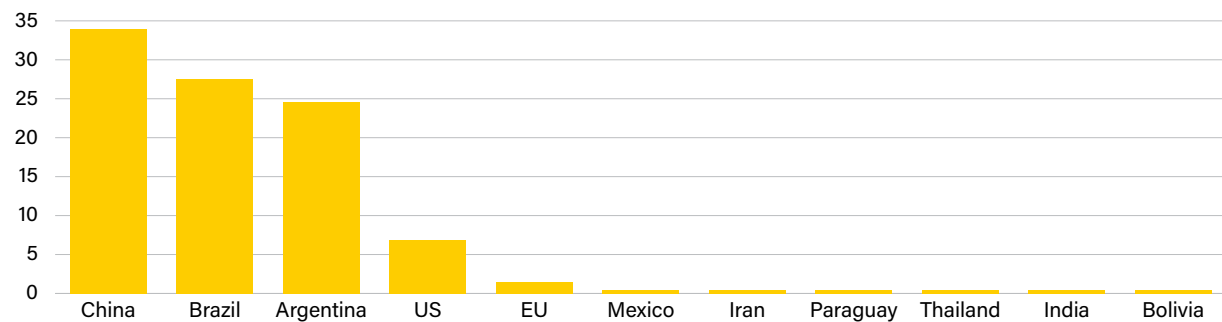
Ensuring access to existing stocks, especially from leading producers

As noted, virtually all countries resort to some degree of agricultural protectionism through policies such as subsidies, tariffs, and import quotas. However, the imbalances among production, exports, and inventories are much greater in some major food producers than in others, to the detriment of net food importers.

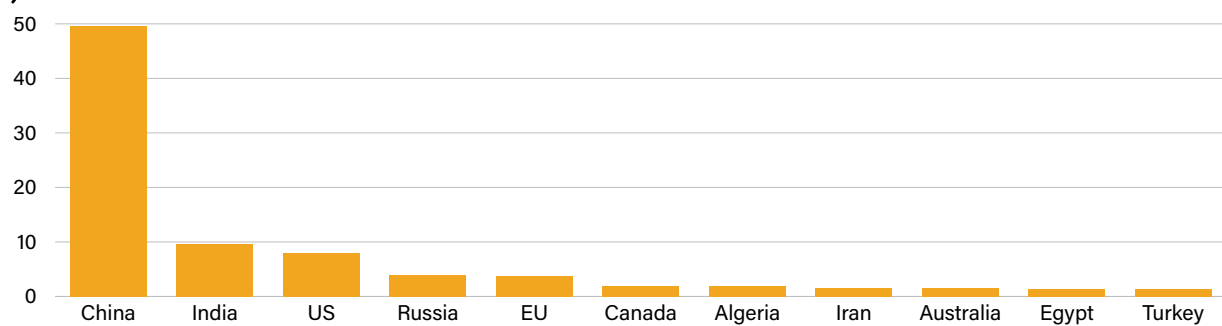
China, for instance, is among the top five global producers of corn, soy, wheat, and rice, though it exports virtually none of the former three commodities and accounts for just under 5% of global rice exports. India is also a chief producer of wheat

2020-21 % of ending stocks

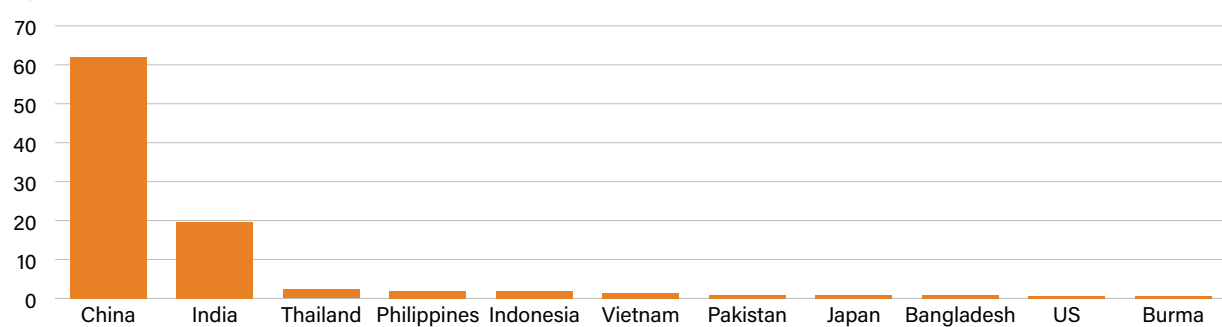
Soybean



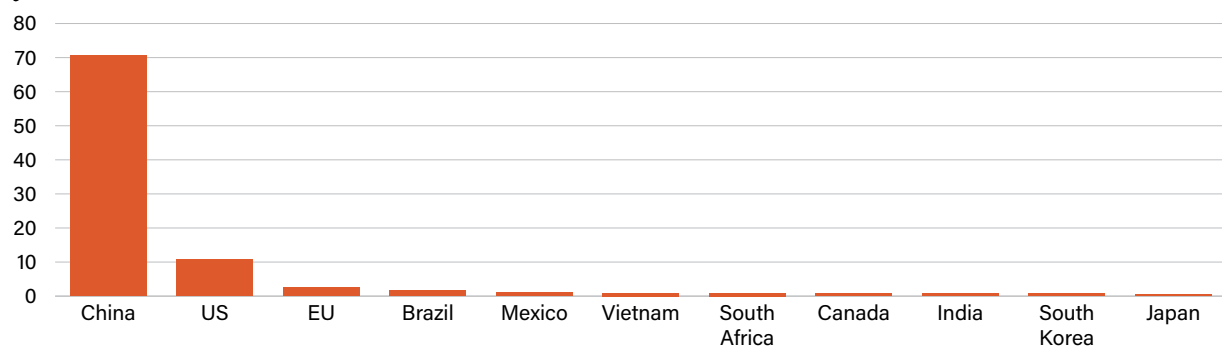
Wheat



Rice



Corn



Source: USDA PS&D database

and rice. While it is a dominant exporter of the latter, Indian wheat exports are relatively small. In mid-May, the government's decision to severely restrict exports shocked markets despite India's relatively modest global market share, as additional wheat shipments were expected to help ease pressures caused by the exclusion of Ukrainian tonnage from global trade.

As the chart below illustrates, USDA estimates would suggest that there are similar imbalances in the distribution of tonnage. During a time of short supply elsewhere, leading producers such as India, China, the US, Argentina, and Brazil have the capacity to help ease conditions if their trade and agricultural policies emphasize free commerce over stockpiling. Now and in the future, finding productive

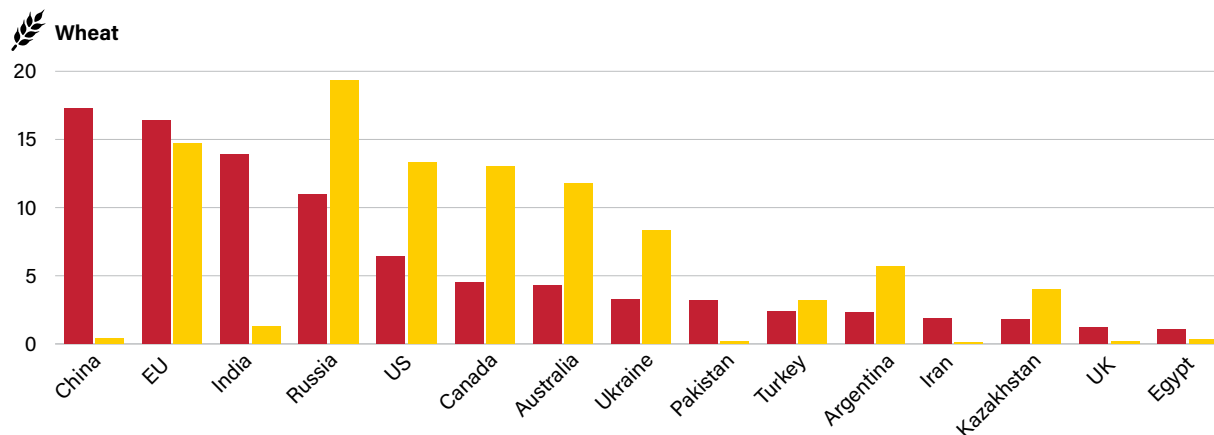
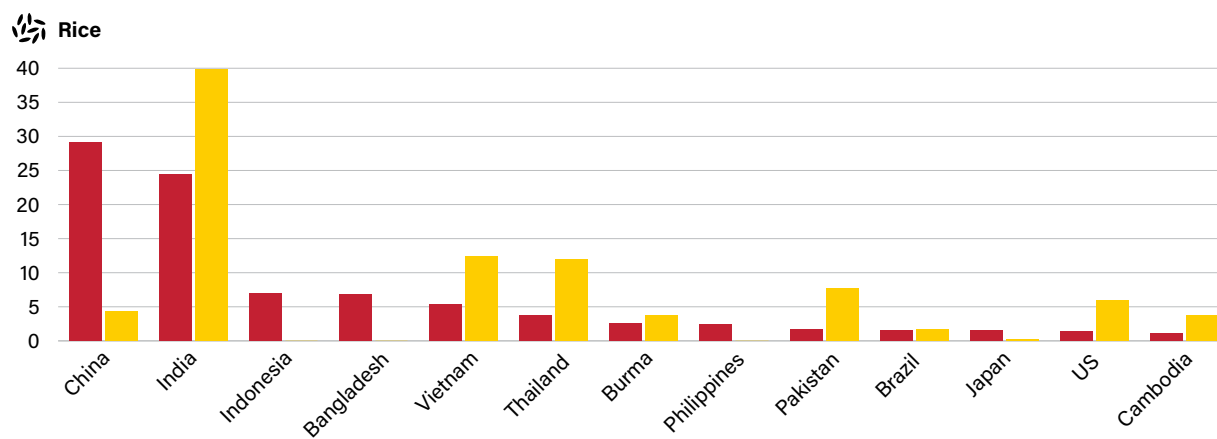
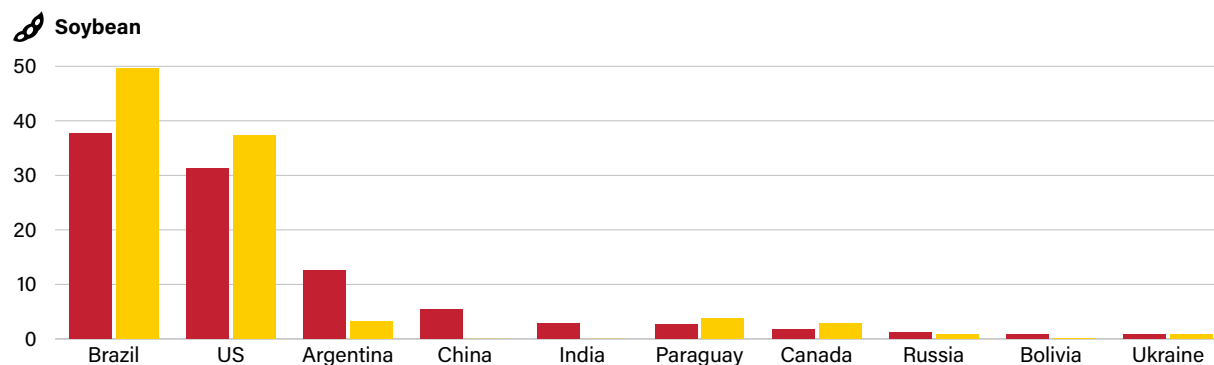
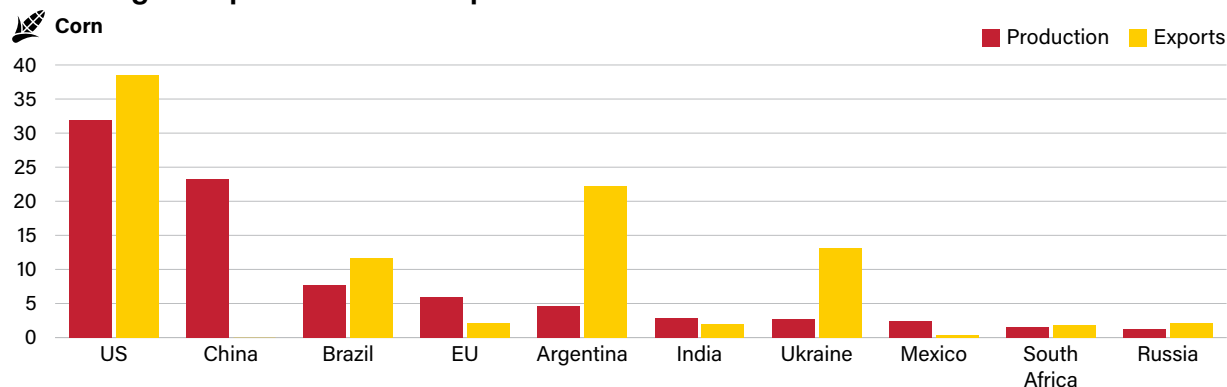
ways to work with these large producer countries, particularly China and India, will be critical.

For China, raising exports seems to be in tension with its policies to improve self-sufficiency and reduce reliance on imports. President Xi Jinping has emphasized that his country must retain its stocks of key commodities including energy, food, and fertilizer. The disruptions caused by Covid-19 in China are considerable, and authorities' concerns over domestic food security are understandable. But much like India's wheat export ban, the imbalances in China's production, stocking, and trade profiles are worrisome in the context of tightening global supply. The G7 partners should therefore work with China to encourage food and fertilizer exports.

The numbers surrounding global food insecurity are alarming: In the next six months the world could see as many as 240 million more people become food insecure, between 3.5 million and 7 million more wavering on the edge of famine, and an additional 200 million living in extreme poverty. Eurasia Group's report helps us more clearly envision the "hurricane of hunger" that hurtles towards us, and offers further validity to global calls to curb perilous increases in food prices by prohibiting export bans on crucial food commodities, ensuring access to existing food stocks, maintaining the integrity of global food trade routes, and preventing future crisis through long-term investments including in the potential of smallholder farmers. Additionally, the urgent reallocation of IMF special drawing rights is one immediate action countries can take to augment poorer countries' official reserves and help them respond to hunger and supply shortages. The time for action is NOW!

MICHAEL SHELDRIK,
co-founder and chief policy, impact, and government relations officer, Global Citizen

2020-21 global production vs export shares



Source: USDA PS&D database

Supporting smallholder farmers

The war's negative effects on food systems in developing countries can be mitigated if national governments, donor countries, and multilateral organizations take more effective steps to support smallholder agriculture. Smallholder farmers number about 500 million globally, and they typically produce about 80% of the food consumed in the areas where they operate. Smallholder farmers also account for a large portion of the world population living under the World Bank's extreme poverty threshold of \$2.29 a day, implying that targeting this group will be an efficient means of reaching the most vulnerable.

Some of the worst effects on human outcomes of the disruptions to global food trade can be blunted if smallholder farmers are given financing for inputs, tools, and fertilizers. Investment should also focus on technical assistance so that small farmers can be trained in innovative, efficient production techniques to maximize yields even in adverse conditions.

Using multilateral funding efficiently

Fully funding food aid organizations such as the WFP is vital. According to the 2022 Global Report on Food Crisis, food assistance to countries in crisis has gone down by 25% since 2017. The FAO has proposed the rapid institution of a \$25 billion Food Import Financing Facility, to be used to help low- and lower-middle-income net food-importing countries secure sufficient supplies for their populations. This could be particularly important for heading off acute distress and preventing food-related political unrest.

Multilateral development banks are well positioned to both provide immediate assistance via emergency loans and grants and build up agricultural sectors in a way that helps avoid future food shortages. Therefore, these institutions should find ways to dedicate surplus funds to the food crisis immediately. These funds could save many lives if put toward the

greatest immediate humanitarian needs and short- to medium-term targeted investment in critical production zones, especially in Africa.

Multilaterals have just begun to coordinate their efforts in mitigating the current crisis, mobilizing millions of dollars in loans and grants. On 18 May, the IMF and the World Bank released a joint action plan to rush support to developing countries facing food-related distress in collaboration with the African Development Bank, the European Bank for Reconstruction and Development, the Asian Development Bank, and the International Fund for Agricultural Development. These institutions' priorities include supporting vulnerable people, promoting open trade, mitigating fertilizer shortages, supporting food production in the near term, investing in client-resilient agriculture for the future, and coordinating their efforts for maximum impact.

Beyond the conventional assistance mechanisms envisaged by the action plan, for the most deeply impoverished countries, multilateral debt relief may be the most expedient path to alleviating human suffering. A template exists for this via the IMF and the World Bank's Heavily Indebted Poor Countries (HIPC) and Multilateral Debt Relief initiatives, which give these institutions the authority to ease the burden of highly indebted countries facing a food crisis. To date, HIPC relief has been granted to 37 countries, leading to about \$76 billion in debt-service relief over time. Multilateral institutions can also work to engage bilateral lenders to help countries facing dire situations.

Reducing food losses in the supply chain

Roughly one-third of the food produced for human consumption every year—approximately 1.3 billion tons—gets lost or wasted. Richer countries have a significant problem of food wastage post-consumer purchase, while the bottleneck in poorer countries lies within the food systems themselves.

Food loss is often due to poor transport and storage infrastructure, with cold storage being severely constrained by the lack of energy. In Africa, post-harvest losses average about 25% for grains and up to 50% for more perishable items such as fruit and vegetables. The UN Environment Programme estimates that food losses in sub-Saharan Africa amount to about \$4 billion per year (at pre-crisis food prices) and would be sufficient to feed at least 48 million people.

Controlling escalating fuel prices in the near term, and lessening fossil fuel dependence in the long term

In the near term, oil-producing states should, where possible, ramp up fuel supplies to help bring down fuel, fertilizer, and shipping costs. Oil exporters can also step in to boost foreign assistance, especially for humanitarian aid. Over the long run, countries will need to reduce their dependence on fossil fuels, including in agriculture, and implement more sustainable farming techniques. New investments in food system transformation, especially in regenerative agriculture, could also improve their resilience. As with any crisis, immediate necessity can create powerful momentum for innovation.

Agriculture has benefited from many waves of innovation in the past, resulting in massive yield increases, lower costs of production, and more effective resource utilization. To the extent that it is possible to spur innovation through global coordination, policymakers should focus on identifying alternatives to current fertilizer regimes. This would require creating new fertilization methods or new types of fertilizers; improving the resiliency of agriculture to the effects of climate change; enhancing access to alternative energy sources for farmers; and investing in stronger agricultural and food supply chains, both globally and on a regional basis.

The growing food crisis is causing severe hardship to millions of people living in net-food importing developing countries. An international financing initiative is immediately needed to compensate for the imminent balance of payment problems and rising cost of safety net programmes in countries at risk.

ABDULRAHMAN AL-ERYANI,
Economic Development
Specialist, Yemen

Increasing market transparency

Market transparency and policy dialogue should also be strengthened, as they play an important role in reducing uncertainty in agricultural markets and keeping trade in food products flowing. Likewise, the G7 and China can offer emergency debt relief to poorer countries, helping them respond to hunger and supply shortages. At the same time, the IMF and the World Bank could use emerging instruments such as a reallocation of IMF special drawing rights to augment poorer countries' official reserves.

Preventing future crises through long-term planning

In terms of overall food systems, a number of actions can be taken to help prevent the next food crisis before it starts. These include changing cropping patterns and agricultural systems to restore soils—

so that these can, for instance, store more carbon and increase land productivity—and reducing post-harvest losses through building out infrastructure resilient to climate change.

Policymakers, meanwhile, can try to “nudge” populations to gradually change their diets so that less land is dedicated to producing feed crops for livestock. Also critical will be taking careful steps to prevent competition for land as nature-based solutions to energy transition challenges become more prominent (for example, sustainable aviation fuels based on biofeedstocks, forest carbon sequestration).

Short-term options to alleviate the global fertilizer shortage are very limited. In the medium term, there is more scope for changes in technologies and farming practices that could both diminish the need for chemical fertilizers (through the practice of regenerative agriculture) and see a switch to more environmentally sound alternatives, such as [microbial fertilizer](#).

These policies would simultaneously reduce the overall vulnerability of food systems to external shocks and begin to address the extremely problematic issues of agricultural sector emissions and excessive and disruptive nitrogen and potassium use in agriculture.

Conclusions: Weathering the storm together

As highlighted, the combined effects of the war in Ukraine, pandemic-related disruptions to food systems, state responses to high food prices, and the ongoing pressures of climate change are far-reaching and deeply concerning. Nearly all global regions will be affected in some way by the current food crisis; and at present, more than 1.6 billion people, over 20% of the world's population, are food insecure. If nothing is done to ease the pressures on

food production, exports, prices, and logistics, the hurricane of hunger will intensify gravely. Urgent and concerted effort from wealthy and developing countries—and from net food exporters and importers alike—is now critical.

Effective cooperation will mean keeping food trade open, including through clear humanitarian exceptions to sanctions and war-related trade restrictions. Productive engagement with major food producers—especially countries with large imbalances in terms of production, exports, and stocks—will be crucial, and such cooperation will require facilitation by multilateral organizations. These institutions and wealthy donor countries should also seek to make the most of the multilateral funding available and in the most serious cases, consider outright debt relief. Targeting smallholder farmers is particularly important in crafting effective programs.

Likewise, energy policies aimed at controlling rising fuel prices over the coming months and reducing fossil fuel dependence in the years ahead may help to weaken the feedback loop between food and energy prices. Lastly, keeping agricultural markets as transparent as possible to minimize uncertainty and guiding investment and agricultural production through long-term planning to increase resilience may help to prevent the next big storm.

International institutions, geopolitical configurations such as the G7 and the G19, national governments, the private sector, nonprofits, and civil society must work together to mitigate the fallout. This will be difficult in a so-called G-Zero world, where global coordination is elusive, but it is essential if human suffering is to be kept in check. As the experience of the Covax initiative illustrates, failure to cooperate wholeheartedly to ensure the global provision of public goods, such as open trade in food products at reasonable prices, can have disastrous consequences for the world's most vulnerable. Once again, the lives of millions depend on an effective response.



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