SEVEN ACTIONS TO LIMIT THE IMPACT OF WAR IN UKRAINE ON GLOBAL FOOD SECURITY

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Key Messages:

- The Ukraine crisis, along with the uneven recovery from the COVID-19 recession, extreme weather shocks, and low stocks in the year prior, has contributed to an alarming surge in the level and volatility of food and fertilizer prices.

- In the short term, the development community needs to invest in real-time monitoring of food and input price volatility, along with country-specific analyses of food security risks from price shocks and trade restrictions, and subsequent impacts on the poor.

- Learning from the 2007–2008 food price crisis, countries should abstain from restricting exports, applying sanctions that obstruct food and fertilizer trade, hoarding or panic buying, and canceling environmental initiatives.

- In the medium and long term, investment in agricultural and food system research and development (R&D) is critical to raise agricultural productivity; to diversify into climate and nutrition-friendly crops and identify the regions best suited to growing them; and to illuminate the most optimal policies, investments, and innovations for increasing food and nutrition security and resilience to shocks.

- Investment in the CGIAR contributes to these actions and helps to address crucial food security challenges, both in the short and long run.

2021 and 2022 have experienced sharply rising and increasingly volatile food prices. Even before the outbreak of the war in Ukraine, FAO’s international food price index had already reached an all-time high. Wheat prices have been highly volatile for more than six months, spiking with the invasion of Ukraine, as shown by IFPRI’s excessive food price variability index. With steep declines in exports from Ukraine and Russia, global wheat shortages are expected to occur soon, likely intensifying the crisis. A major reduction in chemical fertilizer exports could devastate not only upcoming harvests of wheat, but also those of other grains. In 2020, Russia provided 14 percent of globally traded supplies of nitrogenous fertilizers, 11 percent of phosphorous-based fertilizers, and, together with Belarus, 41 percent of potash-based fertilizers (Hebebrand and Laborde 2022). Combined, these factors are putting the food and nutrition security of millions of people at risk.

CGIAR researchers have conducted comprehensive analyses to identify seven priority actions that could be considered by policymakers and other key decisionmakers to mitigate supply and price shocks and to improve resilience to future crises. These analyses draw not only from past crises, such as the 2007–2008 food price crisis, but also an array of groundbreaking research being conducted through CGIAR’s new research portfolio.
**Invest in real-time analyses now.** Many regions, such as the Middle East and North Africa, are heavily dependent on wheat and other exports, including maize, barley, and sunflower oil, from Russia and Ukraine. Together, the two countries represent 12 percent of the global market share in calories. Our research shows that the current crisis is disproportionately affecting the poor in developing countries (Glauber and Laborde 2022). In Sudan, for example, the recent increases in wheat prices are estimated to have caused a 5 percent drop in the consumption of bread and other wheat products by the urban poor, who are being hit hardest. This decline in consumption of major staple foods comes in addition to a 13 percent drop in wheat product consumption in 2021 that occurred amid political instability and rising domestic food prices. IFPRI’s vulnerability analyses show that only about 15 percent of the wheat consumed in Sudan is grown in the country, a share that may shrink even further due to rising fertilizer and energy prices. Similar analyses have been conducted in Bangladesh, Malawi, Yemen, and West Africa, among others.

The current crisis is not limited to wheat: corn, oilseeds and vegetable oil, and meat prices are all at record highs, with corn and vegetable oil prices highly sensitive to the war in Ukraine. In all cases, however, price surges precipitated the conflict, driven significantly by rising demand related to the uneven recovery from the COVID-19 recession, droughts in some major producing countries, and supply chain-specific disruptions (Vos et al. 2022). Yet, there are strong correlates across commodity prices. For instance, energy prices influence the prices of grains, both directly through the influence on input costs and indirectly through the use of grains and oil seeds in biofuel production. Rising wheat and maize prices, in turn, stimulate the demand for rice, including for use as animal feed. Indeed, while rice prices remained relatively stable during 2021, they have increased and entered into high volatility following the onset of the Ukraine crisis.

Real-time monitoring of food and input price volatility, along with country-specific analyses of food security risks from price shocks and trade restrictions, offers insights on appropriate international and national policy responses.¹ These could include minimizing disruptions to food exports; expanding social protection and food assistance programs, especially in poor countries already beset by COVID-19; and monitoring their effectiveness using up-to-date household data and modeling tools.

**Carefully assess market interventions.** There may be some limited scope for the internationally-coordinated use of existing food reserves to offload pressure on global prices, as India is offering to do. Farmers could also be provided with subsidies or reduced taxes on inputs such as fertilizer and energy (Bentley et al. 2022). However, trade-offs could be significant, requiring careful analysis and research to identify possible unintended consequences. Countries, especially low-income ones in Africa, must have sufficient means to sustain (temporary) subsidies in fertilizer and other inputs to avoid productivity losses due to reduced fertilizer usage. For low-income countries with limited fiscal space, such a response may require additional budgetary support through international assistance.

¹ IFPRI has set up an array of tools to track food prices and volatility. These include the Food and Fertilizer Export Restrictions Tracker; Fertilizer Market Dashboard; Excessive Food Price Volatility Early Warning System; Staple Food Stock-Use Monitoring System; and Vulnerability Dashboard.
Properly target short-term responses. Short-term measures that have proven effective in previous crises and also seem applicable today include removing biofuel subsidies and mandates, targeting social safety nets to the most vulnerable, addressing inefficiencies in current subsidies (such as bread subsidies in Egypt), boosting funding to humanitarian programs, and encouraging emerging markets to allow market prices to guide producer and consumer decisions.

Make large and sustained investments in climate-friendly agricultural research. Our research shows the precariousness of having 2.5 billion people rely on just a few regions of wheat production and export, especially under a changing climate (Bentley et al. 2022). Long-term responses include expanding wheat production in high-productivity areas (such as North America and Europe) and in regions with climate conditions suitable to growing wheat (such as Sudan and Nigeria), and raising agricultural productivity in low-productivity zones (especially Ethiopia and South Africa), which can help diversify global wheat supplies. Genomics can be used to track plant pathogens and pests across borders, helping to preserve crop productivity. In the short term, IFPRI research sheds light on whether other suppliers can help smooth out the shortfall in wheat. This work shows that in the northern hemisphere, 60 percent of wheat is planted in the fall and harvested in the summer (mainly by the United States, European Union, Ukraine, and Russia), while 20 percent of wheat is planted in the spring and harvested in the fall (mainly by the United States, Canada, Russia, and Kazakhstan). In the southern hemisphere, 20 percent of wheat is planted in May–June and harvested in October–January, mainly by Argentina and Australia (Glauber and Laborde 2022). This analysis implies that it is difficult to expect short-term adjustments in production to make up for the imminent wheat shortages in global markets; however, the longer that the Ukraine crisis lasts, the more likely that bigger shifts in production will occur. Researchers and policymakers are beginning to assess the longer-term consequences of such shifts.
Looking ahead, researchers should monitor spatial patterns in wheat and other grain crops, ascertain the areas with the best comparative advantage for particular crops, model potential impacts on food security and nutrition, and identify the infrastructure, workforce, and agricultural extension needed to make this scenario a reality. The benefit-cost ratio for wheat improvement research ranges from 73:1 to 103:1 (Lantican et al. 2016). CGIAR has also been researching climate- and nutrition-friendly alternatives to wheat for decades, such as drought-tolerant sorghum and millet in Sudan. Promoting other crops that are more naturally resilient to the high temperatures experienced under climate change may be a sounder long-term plan, given the increasing difficulty of growing wheat in traditional regions.

CGIAR’s new regional integrated initiatives can play a strong role in the development of an implementation and research agenda to address issues such as agricultural productivity and diversity in specific regions and countries, climate-friendly crop development, optimal trade and financial instruments, and social protection measures. Linking these regional priorities with CGIAR’s global initiatives can ensure a sustained, long-term impact.

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**Seize upon—and scale up—promising technologies.** Innovations such as satellite and remotesensing imagery and data can help farmers optimize their application of inputs such as fertilizer and help researchers track the spread of pests and pathogens. Early warning systems can forecast natural disasters, famines, food price volatility, social unrest, and more. CGIAR has done extensive research in this area, as exemplified by IFPRI’s [Excessive Food Price Volatility Early Warning System and Food and Fertilizer Export Restrictions Tracker](https://www.ifpri.org/publication/excessive-food-price-volatility-early-warning-system-and-food-and-fertilizer-export-restrictions-tracker). CGIAR, through IFPRI, is already an active part of the G20’s Agricultural Market Information System (AMIS), as well as the AgIncentives Consortium of international organizations studying agricultural policy support measures, the Food Security Information Network that monitors acute food crises, and other partnerships that contribute to the collective response.

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**Invest in the science of policy.** Countries, multilateral organizations, and donors need to not only direct resources to the science of agriculture, but also to research on the optimal policies, programs, and interventions that can build up resilience (Burke and Govaerts 2022). CGIAR’s work assesses the impact of mechanisms such as social safety nets, nutrition interventions, financial and trade instruments, and education not only on resilience, but also on food security, poverty, nutrition, and gender equality. CGIAR is strategically positioned to reconcile and inform constructive responses to shocks with the need to meet long-term structural challenges in poverty, malnutrition, environmental conservation, and climate change. It is the only research network with the capabilities in place to bring together knowledge from across production systems (for example, wheat-legume intercropping), value chains (e.g., using flour blends to address nutrition needs), social dimensions (e.g., applying a gender lens to all analyses), and policy dimensions (e.g., translating research into policy impact).
The current period of high food and fertilizer costs, exacerbated by the Russia-Ukraine war, underscores deeper structural food system challenges that threaten livelihoods, food security, and nutrition, especially for low-income people and countries. The development community is increasingly recognizing the need to invest in agricultural and food systems research, noting that “countries and communities that most urgently address their food supply challenges will be the ones best equipped to survive disruptions and thrive economically now” (Washington Post 2022). With the right short- and long-term investments, especially in agricultural productivity in the face of climate change and environmental degradation, this crisis can serve as the impetus to “renovate the...research agenda” (Nature 2022) and fundamentally transform food systems so that they are resilient, nutrition- and climate-friendly, and inclusive of the world’s most vulnerable people, for generations to come.

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