

Theme Overview: Turmoil in Global Food, Agricultural, and Input Markets: Implications of Russia's Invasion of Ukraine

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On February 24, 2022, Russian forces invaded Ukraine, sending shockwaves through global food, fertilizer, and energy markets. The Black Sea is considered a major “bread basket” region because Russia and Ukraine are key players in the world market for wheat, corn, sunflower and colza oil and seeds, barley, fertilizer, and energy. Historically, Russia and Ukraine have accounted for 28% of global wheat exports, nearly one-third of global barley exports, and a combined 73% and 81% of global sunflower oil and meal exports, respectively. Ukraine is also an important exporter of corn, representing 13% of global corn trade. Russia is also a key producer and exporter of fuel and all three nutrients that comprise fertilizer blends: nitrogen, phosphate, and potassium. Russia is the world’s largest exporter of nitrogenous fertilizers and the third largest exporter of phosphate (behind China and Morocco) and potassium (potash) fertilizer (behind Canada and Belarus).

International institutions and world leaders quickly sounded the alarm (Food and Agriculture Organization of the United Nations, 2022). The International Monetary Fund (IMF) warned that the global economy faces its “biggest test” since the Second World War (Giles, 2022). The World Bank’s Commodity Markets Outlook Report in April 2022 states, “The war in Ukraine has been a major shock to global commodity markets. The supply of several commodities has been disrupted, leading to sharply higher prices, particularly for energy, fertilizers, and some grains” (World Bank, 2022, p. 4). One of the more alarming calls came from World Food Programme executive director David Beasley, who warned, “Truly, failure to open those ports in Odesa region will be a declaration of war on global food security” (World Food Programme 2022). The conflict follows on the footsteps of a strong recovery in consumer spending on durable goods coming out of the global COVID-19 pandemic that left supply chains bottlenecked, created worker shortages in key logistics sectors, and sent inflation rates soaring to heights not seen since the early 1980s.

Articles in this Theme:

- **[A Perfect or Persistent Storm for Global Agricultural Markets: High Energy Prices and the Russia-Ukraine War](#)**
Christian Elleby, Ignacio Pérez Dominguez, Giampiero Genovese, Wyatt Thompson, Marcel Adenauer, and Hubertus Gay
- **[Impacts of the Russia-Ukraine Conflict on Global Agricultural Commodity Prices, Trade, and Cropland Reallocation](#)**
Xi He, Miguel Carriquiry, Amani Elobeid, Dermot Hayes, and Wendong Zhang
- **[Impacts of Russia's Invasion of Ukraine on U.S. Agriculture](#)**
Patrick Westhoff, Jarrett Whistance, Joseph Cooper, and Seth Meyer
- **[Russia-Ukraine Conflict and the Global Food Grain Price Analysis](#)**
David W. Bullock, Prithviraj Lakkakula and William W. Wilson
- **[Decomposing a Year of Uncertainty in Agricultural Markets](#)**
Jayson Beckman and Maros Ivanic
- **[Russia's Invasion of Ukraine: The War's Initial Impacts on Agricultural Trade](#)**
Jason Grant, Shawn Arita, Chaoping Xie, and Sharon Svdow

There are few certainties right now as to when and how this war ends and the longer-run implications for the global agri-food economy and food security. What we do know is that Ukraine and Russia are key sources of staple crops and crop inputs, so the repercussion of Russian troops marching toward Kyiv has been another shock to global crop output and higher production costs globally. The initial surge in commodity prices has subsequently softened, demonstrating that these effects alone are not the sole market drivers and that the scale of the impact cannot be known in advance by market agents.

In late July 2022, the UN and Turkey brokered a memorandum of understanding (the Black Sea Grain Initiative) that allows for the safe passage of vessels carrying Ukrainian grain from three ports around Odessa (Odessa, Yuzhny/Pivdenny, and Chernomorsk). This was the first diplomatic breakthrough since the start of the war and the first sign of relief for food insecure consumers residing in vulnerable net food importing countries. Although widely welcomed, the longevity of the deal remains uncertain.

This *Choices* theme issue provides a timely review and initial assessment of the impact of Russia's invasion of Ukraine on key agricultural commodity markets and trade, as well as implications for a potential conflict of longer duration. The changing conditions and surprises of the war reported almost daily in the news reflect the degree of uncertainty that exists in commodity markets today. The duration of the war, the extent of damage to agricultural facilities and Ukraine's infrastructure, and the on-and-off arrangement to allow Ukrainian crop exports are just some of the challenges and uncertainties decision makers face when they try to look ahead. The following articles look at immediate impacts of the war and sustained effects if this disruption extends into a prolonged conflict scenario. The results can be used to inform business planning, public policy, and international efforts to alleviate food security consequences of the war.

In the opening article, Elleby, Dominguez, Genovese, Thompson, Adenauer, and Gay employ the Aglink-Cosimo model to examine war-related supply and input price shocks. Their analysis includes the impacts on food security and potential implications if the European Union and United States were to implement policy efforts to rebalance markets.

Next, He, Carriquiry, Elobeid, Hayes, and Zhang use the CARD-IACM model to project impacts of the Russia-Ukraine conflict on global agricultural prices, production, and trade. Their analysis provides insights into shifts in production and acreage reallocation across crops and implications for comparative advantage in global agricultural markets.

Westhoff, Whistance, Cooper, and Meyer examine the impacts of the war's impact on U.S. agriculture. Using the modeling system maintained by the Food and Agricultural Policy Research Institute, they assess the impact of the war on U.S. commodity prices, exports, production expenses, farm income, and Consumer Price Index (CPI).

Bullock, Lakkakula, and Wilson address potential price effects associated with the reopening of Ukrainian ports to additional grain trade. They provide an assessment using two methods: an equilibrium displacement model (EDM) and by evaluating price distributions derived from futures and options markets.

Beckman and Ivanic provide a broader, economy-wide assessment using a computable general equilibrium (CGE) model to estimate the impacts of yield reductions (from higher energy and fertilizer prices) and export losses out of Russia and Ukraine as well as labor changes. The analysis offers insights into the impacts on commodity prices, agricultural production, trade, and GDP that occur under a set of general equilibrium adjustment scenarios.

Grant, Arita, Xie, and Sydow examine the war's impacts on global agricultural and fertilizer trade flows. Using a monthly, product line gravity model of bilateral trade, they provide a 10-month ex post empirical assessment as to how the war has altered agricultural commodity exports across regions dependent on Russia and Ukraine.

Finally, Smith places the current global commodity situation in context by providing a detailed overview of the war's initial impact on commodity prices and subsequent retreat of prices to preinvasion levels. He then evaluates the price response from the invasion on grains and fertilizers and reconciles these dynamics in the context of current and historical global supply and demand situations.

As of this writing, the Russia-Ukraine conflict continues to evolve. Much work and additional analyses by agricultural economists remains to be done to better understand actual economic impacts against other confounding influences that coincided or were in reaction to the war in Ukraine, including export restrictions on certain crop and crop inputs, economic sanctions, price transmission (or what consumers are actually paying to purchase staple food items in local markets), and an uncertain macroeconomic outlook. While this *Choices* theme issue cannot possibly address all of these factors, it does provide a comprehensive first look at the economic impacts of Russia's invasion of Ukraine.

For More Information

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