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The Russia-Ukraine Conflict – Implications for Farms and Agricultural Markets

Introduction to the Special Issue

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At the beginning of 2022 it was hard to imagine that the world economy, which was about to recover from ramifications of the Covid pandemic, would be struck immediately by a subsequent crisis nor was it in the scope of imagination that a war in Western Eurasia will be the source of the crisis. Russia's military invasion into Ukraine on February 24 caused incredible human suffering to the Ukrainian population, but also triggered shockwaves to global agri-food and energy markets. Many politicians consider Russia's war against Ukraine to be a turning point in the international relations between Western democratic countries on the one hand and Russia and his satellite states on the other hand that calls for a reorganization of EU's and world's security architecture as well as international trade relations (e.g. BORNIO, 2022). Actually, the vision of "change through trade" propagated by German politicians turned out to be an illusion. In response to Russia's aggression, the EU and the US imposed a series of political and economic sanctions, which, in turn, have been riposted by shortages of energy supply to EU countries. These measures have drastic economic consequences, not only for Russia, but also for the EU. Driven by high energy prices inflation rates in Germany reached with more than seven percent the highest level since four decades and in case of a complete stop of gas and crude oil delivery from Russia, leading economic research institutes predict a recession for Germany's economy in 2023 (GORNIG et al., 2022).

In contrast to the Covid crisis, where the agri-business was mainly indirectly affected through quarantine measures by reduced human resource capacities, yet with moderate to small economic effects, the agri-food sector is now in the focus of attention. Russia and Ukraine are top global exporters of grain, corn and sunflower. Moreover, Russia and Belarus are important exporters of fertilizers (GLAUBEN et al., 2022) and there is little doubt that the countries will

use their market power as a strategic weapon in the ongoing economic warfare. Financial markets and commodity markets reacted promptly on these incidences. The futures price for wheat at the MATIF, for example, soared from about 260 Euro/ton in mid of February 2022 to an unprecedented level of more than 430 Euro/ton in mid of May 2022. The term structure curve is downward sloping and currently predicts prices to revert back to a pre-war level in 2025. These predictions, however, are very volatile and hinge on assumptions about the war's further progress, the establishment of alternative transport routes for Ukrainian crops as well as adjustment capabilities of other agricultural producers. Information about these determinants change on a daily basis. And even if world food markets are able to adjust rather swiftly, the war's short-term effects are still threatening. A worst-case scenario predicts that about 100 million people may additionally suffer hunger or malnutrition, particularly in countries in North Africa, Near and Middle East that depend on food imports from Ukraine (QAIM, 2022).

Russia's invasion of Ukraine has triggered discussions about appropriate agricultural policy responses. Consensus among agricultural and food economists exists that global trade is necessary to cope with supply tensions and that national trade restrictions, such as export bans of grain as implemented in Hungary, will aggravate food instability in the global south (GLAUBEN et al., 2022). More controversial is the question, whether priorities of other policy objectives targeting at mitigating the global climate crisis shall be reconsidered in view of the current food crisis. In fact, trade-offs between climate change protection, biodiversity and food security become apparent. VON CRAMON-TAUBADEL (2022) suggests to implement policies that account not only for ecological sustainability, but also enhance productivity of the agricultural sector, and thus meeting other dimensions

of sustainability. From this perspective, setting aside productive land in the EU appears questionable, though LUCKMANN et al. (2022) assess the quantity effect of production on farrow land in the EU to be minor on a global scale. Likewise, land used for biofuel production could instead be used for food production (see also QAIM, 2022). Members of the agricultural and environmental economics community, however, emphasize the need to continue the transformation of food systems also in the face of the Russia-Ukraine war (PÖRTNER et al., 2022; PE'ER et al., 2022). Reducing livestock production and changing land use from fodder to food production could effectively improve food safety at least in the medium-term without violating sustainability goals. Moreover, in light of the present energy crisis, long-standing conflicts of land use for food, fuels, fiber, and energy purposes reemerged. Ongoing massive urbanization works contrary to preserve any farmland, and trends of de-forestation will continue as a consequence of increased need of land for arable production.

This special issue sets out to shed light on the role Ukraine plays in the global agri-food system and discusses implications of the current conflict from a global market perspective, but also from the German farming perspective. At the beginning, GAGALYUK et al. review how Ukraine emerged as a global player in the agri-food system during the post-transition period. They highlight three factors as most relevant for the development of Ukraine as the “grain chamber of the EU: (i) considerable improvements in agricultural productivity but also efficiency improvements and modernization of agricultural, particularly crop production; (ii) consolidation of agricultural production and emergence of large-scale agro-holdings that were able to cope with the management challenges; (iii) public acceptance of large-scale farming systems with modern technologies (in contrast to other regions in post-transition countries and other countries in Europe). However, according to the authors improvements in efficiency and large firms are only part of the story. They conclude that one of the core elements for the success was the ability of large farms efficiently to comply with various dimensions of sustainability.

In the second contribution, BERNDT et al. discuss implications of export stops in Ukraine and Russia based on three market models: GTAP, a comparative static general equilibrium model, DART-BIO, a dynamic recursive model with specific representation of the bio-economy, and CAPRI, a comparative static

partial equilibrium model specifically designed for the agri-food sector in the EU. In the short run, rising prices for agricultural commodities are inevitable, and food security will particularly suffer in countries, where diets are mainly based on cereals. In the long-run, GDP declines will further threaten food security, particularly in African countries. Under the assumption of oil price increases, their simulations demonstrate the still lasting strong dependence of the European Union on fossil fuels with rising food prices as a result, accompanied by reductions in EU's biofuel production. The utilized models have not yet internalized likely changes in yield gaps due to climate change with increased likelihoods of drought periods and adverse effects on harvested quantities. Their scenarios, however, offer evaluations of different farming adaptation strategies: reduced nutrient supply from limited availability of synthetic fertilizer in crop production would hamper productivity and thus net production of cereals. Reduced herd sizes, pork production and consumption, however, could mitigate adverse effects of reduced fertilizer availability. The authors conclude that agricultural policy, particularly EU's Common Agricultural Policy (CAP), but also local policies, should foster efficient nutrient management for crop production and horticulture as well as efforts in reducing consumption of products from solely grain-fed animals in EU countries.

Rising energy, input and commodity prices, but also limited availability of synthetic fertilizers for crop production constitute additional challenges for (arable) farms in the EU besides ongoing discussions of a transformation of agricultural production to meet sustainability goals. In the third paper, ELLBEL et al. take the farming perspective and discuss the implications of rising prices for arable farms' income in Germany. Their comparative static analysis shows that most arable farms will benefit from increased output prices in the short run as they overcompensate rising input prices. Yet their analysis considers only moderate energy prices increases, relies on availability of inputs and no further changes in riskiness of crop production in light of climate change. By means of a single farm model, they discuss consequences of potentially reduced profitability and input access on arable farms' production system and their acceptance of EU's eco-schemes (a policy measure within EU's CAP where farms voluntarily implement sustainable practices and receive remuneration of efforts and potentially foregone profits). Price increases would thus not necessarily lead to adjusted fertilizer and

nutrient management of German farms. Increasing prices along with an increased profitability, under no further policy changes, pure profit-maximizing farms would even increase input levels making adverse environmental effects more likely. Resulting increases in farms' opportunity costs for providing environmental services, for instance implementing sustainable practices that do not offer maintaining yield levels, may lead to a decreasing acceptance rate of eco-schemes. The authors suggest to adjust eco-schemes such that they offer more flexibility to farms and allow a locally specific design of payments and measures.

All three contributions to this special issue are invited papers that do not undergo the standard peer review process of the GJAE. We are grateful to the authors for sharing their experience on this current topic and for delivering their papers in short time.

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