

## Russia's War on Ukrainian Farms

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Since Russia's invasion of Ukraine began on February 24, 2022, Ukrainian farms have been under siege. This memo documents the damage inflicted on Ukrainian agricultural assets and production and draws conclusions about an aspect of Russia's war on Ukraine that has not received appropriate attention. The evidence presented below strongly suggests that seizing Ukraine's harvest and destroying the sector's infrastructural assets is a central war aim. While the concern about reduced export volumes of Ukrainian food crops is widely shared, it is less well known that agricultural assets are not just collateral damage of a Russian campaign focused on territorial gains. The Russian military is deliberately targeting key farming-related properties with the aim of inflicting short and long-term harm. The strategy of purposefully undermining Ukraine's agricultural potential harms the country's economy and export earnings and gives Russia more leverage over its grain trade partners in Africa and Asia, today and in the future.

We identified four types of critical damage to Ukrainian agriculture that merit the attention of policymakers. The first type is theft. Russian troops are reported to have stolen various types of grain and agricultural machinery from occupied territories. The second type of damage relates to the disruption of the current growing season due to the lack of access to agricultural inputs, the diversion of farm labor, and the intentional burning of crops. A third type of harm is the destruction of agricultural infrastructure. This includes damage to farm land (due to bombings and mines) and the destruction of machinery, irrigation systems, grain storage elevators, transport infrastructure, and other assets. A fourth type of damage is related to Russia's blockade of the Black Sea and the Sea of Azov, the export routes for the bulk of Ukrainian food commodity crops.

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## Background: Ukraine's Rural Recovery

Ukraine has long been one of the world's most plentiful breadbaskets. The *chernozem*, Eurasia's black earth belt, runs through much of the country. The country's annual growing seasons are long, and rainfall patterns allow for the cultivation of most industrial food commodities – including wheat, corn, oilseeds, and sugar beets. Given the fertility of Ukrainian soil, the region fed industrial workers in Europe and the Soviet Union since the early days of the industrial Revolution. At the beginning of the 20<sup>th</sup> century, Ukraine was the main battleground between the Bolshevik revolutionaries and Russia's overwhelmingly rural population. Stalin's [collectivization](#) forced peasants to join collective farms, causing famine and death for millions of Ukrainians in the early thirties.

Today, Ukraine remains the home of Eurasia's most fertile and important arable land. While the 1990s was a challenging decade for Ukrainian farms, as it was for rural producers throughout the former Soviet Union, large-scale agricultural producers have become the driving force of a remarkable rural recovery since the early 2000s. In 2021, the agricultural sector [accounted](#) for more than 10 percent of GDP, and for 41 percent of exports, the largest share of any industry. Over the last 10-15 years, farms have also undergone a remarkable recovery, making agriculture the fastest growing sector in the Ukrainian economy, with output increasing by 14 percent in 2021 alone. Today, Ukraine [ranks](#) 5<sup>th</sup> globally in terms of total agricultural exports, 4<sup>th</sup> in terms of wheat exports, and 3<sup>rd</sup> in terms of corn exports. It provides food to about 400 million people globally, in addition to its own population.

Large agricultural corporations – often known as agro-holdings – first leased and more recently acquired ownership of vast tracts of farmland and invested in cutting-edge agricultural technology, which has boosted yields, production volumes, and exports. Kernel and Ukrlandfarming are Ukraine's two largest landowners, with Kernel owning 506,000 hectares, and Ukrlandfarming 460,000. Agro-holdings do not only farm. They are also vertically integrated corporations that have invested in farming infrastructure, building grain elevators and terminals, and administering transport logistics for other farms. Kernel, for example, buys products from 5,000 farmers. Ukrlandfarming owns 4 elevators and 110 horizontal granaries with a capacity of 3,000,000 tons. Ukrainian agriculture has also attracted significant foreign investors and operators. The country's largest two foreign agricultural [holdings](#) are Agroprosperis, owned by the American NCH Group, with a land bank of 300,000 hectares, and Continental Farmers Group, owned by the Saudi Continental Farmers Group, with a landbank of 195,000 hectares.

While Ukraine also has many smaller farmers who suffer from the war, large agro-holdings account for most of Ukraine's grain and oilseed exports. Asia is Ukraine's largest export market, [receiving](#) agricultural commodities worth \$7.5 billion in 2021. The EU is the second largest market, receiving \$4 billion, followed by Africa, receiving almost \$2 billion. Notably, Ukraine has re-directed foreign trade from the former Soviet region to

global markets: CIS countries accounted for only \$84 million of Ukrainian grain exports in 2021. China is the single largest importer of Ukrainian agri-food products, with a share of 15.5 percent of exports, followed by India at 7.1 percent, the Netherlands at 6.4 percent, Egypt at 5.8 percent, and Turkey at 5.3 percent. Over the last ten years, Ukraine has shifted to growing large quantities of commodity corn. Today Ukrainian corn makes up about 14 percent of world corn exports, and the European Union and China have become reliant on Ukrainian corn.

### **Cataloging War Damage to Ukrainian Farms**

We identify four types of harm and damage that the invasion has wrought on Ukrainian farms. The first type is theft. Russian troops are [reported](#) to have stolen various types of agricultural machinery – combines, tractors, etc. – from occupied territories. In early June, it also became clear that millions of tons of grains and oilseeds were [seized](#) from grain elevators in Eastern Ukraine, worth hundreds of millions of dollars.

The second type of damage was brought about by the disruption of spring sowing and the current growing season. Spring wheat, corn, and many industrial crops are planted after the last spring frosts, normally in late March in Ukraine, which coincided with the early weeks of the war. The Ukrainian Environmental Protection Group [estimates](#) that on about 30 percent of Ukraine’s agricultural land, spring sowing was directly affected by hostilities or hindered by mines placed during the occupation. Moreover, virtually all the key inputs for agricultural production have been in exceedingly short supply, including seeds, fertilizer, and fuel. The shortage of diesel fuel for farm machinery was among the most serious problems. The majority of diesel fuel is imported from Russia and Belarus, and the war effort requires that the military have priority access to fuel.

Potash and nitrogen fertilizer have also been difficult to obtain. While most industrial crops (and corn in particular) are dependent on fertilizer, the supply of these inputs to Ukrainian farms was disrupted because virtually all of these agro-chemicals were previously imported from Russia and Belarus – the world’s largest producers of fertilizer. The Ministry of Agriculture tried to coordinate the distribution of fuel, seeds, and fertilizers to the extent possible. Hostilities also meant that labor was diverted to the war effort: a large share of the Ukrainian population is fighting in the territorial defense and armed forces, while many women were forced to flee the country. Although spring field care was delayed, shortened, or rendered impossible, farms were able to [complete](#) spring sowing by mid-June and field care by early June. And now, in the summer, the most recent damage has been brought about by [fires](#), intentionally set to destroy current harvests in or near occupied territories.

A third type of damage inflicted by Russian troops concerns various types of agricultural infrastructure. This includes damage to agricultural land due to bombing and mines, as well as the destruction of machinery, irrigation systems, and storage and transport

infrastructure, among other damage. The southern regions, which are currently suffering Russian occupation and heavy fighting, are also the regions with the most developed irrigation infrastructure. About 19 percent of all irrigated agricultural land in Ukraine is [located](#) in the temporarily occupied Kherson region; another 10 percent is in the territory of the partially occupied Zaporizhzhia region. Under the conditions of occupation, a significant amount of irrigation infrastructure is damaged or unused, significantly reducing this year's harvest. Livestock and perennial crops have been [destroyed](#) during the war, partly because farmers could not gain access to care for animals and partly because of shortages of feed and veterinarian services.

There are also many [reports](#) of Russian bombings of grain elevators and port terminals. A missile strike on the sea grain port Nika-Tera in Mykolaiv, Ukraine's third largest in terms of shipping volumes, for example, [destroyed](#) the port's grain terminal. A [report](#) by the Kyiv School of Economics and the Ministry of Agriculture estimates that total losses from the war by early June reached \$4.3 billion. A particularly devastating loss is the [destruction](#) of the "National Center for Plant Genetic Resources" in Kharkiv, which housed Ukraine's national gene bank, with more than 160,000 plant varieties and hybrids from around the world.

A fourth type of damage is related to Russia's blockade of the Black Sea and the Sea of Azov. The bulk of Ukrainian grain is [exported](#) via these maritime routes: sea transport accounts for around 95 percent of grains, oilseeds, and oils. In 2021, Ukraine exported 44.7 million tons of cereals and legumes, including 16.6 million tons of wheat, 23.1 million tons of corn, and 4.2 million tons of barley. Four major ports – Mariupol, Berdyansk, Skadovsk, and Kherson – are [closed and inaccessible](#) to Ukrainians due to the Russian occupation. Further, six other Ukrainian seaports are unable to accept and send cargo due to the Russian sea blockade: Yuzhny, Mykolaiv, Olbia, Odesa, Chernomorsk, and Belgorod-Dniester. At the onset of the war, about 13 million tons of corn (about a third of corn harvested last fall) was still in storage and could not be shipped and exported as planned. More grain will be harvested this year, in just a few short months, and Ukrainian farmers are acutely aware that there will likely be few options for their crop to reach world markets.

### **Ukraine's Responses**

The Ukrainian government and EU countries have been working on ways to circumvent the Russian sea blockade. For instance, the Prime Ministers of Ukraine and Poland [signed](#) a memorandum on strengthening railway links between the two countries, hoping to increase the volume of grain transported from Ukraine to the EU and world markets through the Polish ports of Gdynia and Gdansk. Similar agreements are being negotiated with Romania, Moldova, Lithuania, and Latvia. Even with these new paths for Ukrainian grain, railway transport can only accommodate a fraction of the agricultural commodities that normally travel through seaports. Negotiations are currently underway between

Ukraine and Russia, brokered by Turkey. Lithuania has [proposed](#) a non-NATO naval escort operation to lift Russia's blockade on Ukrainian grain exports across the Black Sea. This plan requires demining parts of the Black Sea to ensure safe passage. Restoring Ukraine's seaports is an urgent and indispensable task for the coming weeks and months.

## Conclusions

Due to destruction and disruptions brought about by Russian troops, Ukraine is planting, harvesting, and exporting much less grain, sunflower seeds, and other commodities. Nevertheless, Ukrainian farmers still planted whatever crops they could, and as of mid-summer 2022, they began to harvest grains in two regions. Farmers are facing a catastrophic scenario, however: they will accumulate significant and growing grain reserves, but are not able to sell, store, or export most of them. Russia's war on Ukrainian farms clearly hurts farmers on the ground, but it also hurts the EU, China, and countries in Africa and Asia with a high dependence on Ukrainian grain, such as Tunisia and Yemen. According to the Global Hunger Index, the number of countries [affected](#) by grain shortages is likely to grow from 47 to 60 this year due to the dire situation in global grain markets.

The destruction of farming assets raises the question of whether agriculture played an important role in Russia's calculations to invade Ukraine. Since the times of Lenin and Stalin, land and grain have [played](#) a central role in Russia's political history. While the discussions of Russia's motives are focused on geopolitics, territorial gains, and domestic legitimacy, the strategic targeting of agricultural assets confirms that Russia under Putin is still very much interested in the future of Ukrainian agriculture. Harming Ukrainian farms and imperiling Ukraine's agricultural future not only yields increased returns on Russian grain, it is already giving the country significant leverage vis-à-vis trade partners dependent on Eurasian grain.