



FARMERS IN WARTIME: PROMOTING ADAPTABILITY AND RESILIENCE FOR AGRICULTURE IN UKRAINE

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UKRAINE CRISIS
ANALYSIS TEAM

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About the cover photo:

Location: a village in the Poltava Oblast

Thanks to Mercy Corps' cash assistance program, a family was able to purchase the metal needed to build a frame, wood for bracing, and an irrigation system. They built their greenhouse by hand, just in time for the cold autumn weather. They are now growing cucumbers, green onions, and other leafy greens, and selling them to various shops in their town.

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Foreword

I am proud to present Mercy Corps' latest report, "Ukrainian Agriculture: Promoting Resilience and Adaptability." Agriculture products are the backbone of Ukraine's exports, and since the start of the full-scale war the country's farmers have been very hard hit. Our report highlights the struggles of Ukrainian household-level and smallholder farmers, concentrating on the vegetable and fruit, dairy, poultry, and honey sectors. This choice of focus is deliberate: although grain exports are an important part of the Ukrainian economy, they are primarily the domain of large-scale producers, who face a very different set of issues from ordinary working farmers and small businesses trying to cope with the war's devastating consequences.

Seen from this perspective, our research paints a very different picture of the sector's potential. Ukrainian household-level and smallholder farmers are facing severe labor shortages, a falloff in domestic demand, rising costs, a lack of veterinary services, and reliable energy sources. Many farmers are even demolishing their own fields before they can rebuild facilities or resume work.

Although the country's farmers are on the front lines, sometimes literally so, they are still key to Ukraine's economic and social recovery. Modernizing processing and storage capacities, finding sources of alternative energy, and modifying agricultural machinery to make it accessible to those with disabilities may seem unrealistic projects in the midst of war. But it is eminently possible, through intelligent, tailor-made programming that supports a pathway from aid dependence to economic recovery.

Finally, we must move away from a simplistic narrative of Ukrainian farmers flooding European markets with excess stock. Our report provides a nuanced picture of the needs of smallholder farmers and shows how addressing these needs can improve the Ukrainian economy without threatening its neighbors.

The Ukrainian people deserve to hope for a better future. This starts with understanding Ukraine's dire realities and promoting strong and resilient solutions to help people adapt not 'the day after' the war, but today.

Vicki Aken

Mercy Corps Response Director for Ukraine



Executive Summary

The war in Ukraine has been devastating for agriculture, reducing production and crippling the livelihoods of growers and other stakeholders. International attention has focused on the grain sector, due to its importance to global food security and concerns over export disruptions. Less attention, however, is paid to other sectors. This report examines the war's effect on domestic food production, particularly household-level and smallholder farms, with a specific focus on the fruit and vegetable, dairy, poultry, and honey sectors. The report's conclusion discusses programmatic considerations and areas for intervention by international and domestic actors.

For example, labor shortages significantly curtail production. Investments to adapt agricultural equipment for use by persons with disabilities (PWDs) could mitigate these shortages and lower unemployment among PWDs.

Increasing production also means addressing damaged facilities and vulnerabilities in agricultural infrastructure. Alternative energy sources could boost agricultural resilience in the face of attacks on energy facilities. Restoring storage infrastructure will also be critical.

Revitalizing irrigation systems could increase vegetable and fruit production, especially in areas affected by the Kakhovka Dam's destruction. Local-level interventions focusing on transportation could prove beneficial, especially for household-level and smallholder producers, who are hardest hit by transport costs.

In the current economic environment, certain agricultural products hold promise. The production of fodder, for example, should be supported. The poultry sector is also worth supporting. Rising demand for chicken meat due to its lower cost relative to beef and pork is likely to continue, given Ukrainian consumers' diminished purchasing power. Finally, support for processing activities would benefit household-level and smallholder farms.

The lack of available veterinary services for dairy and poultry producers should be addressed through support for the veterinary sector and the expansion of existing online services. Additionally, although many programs have already helped farmers acquire inputs such as seed, fertilizer, and veterinary medicines, the need is still there, particularly among farmers trying to maintain their operations near the front line.

Introduction

Ukraine's economy has suffered since the start of the full-scale war with Russia, with agriculture especially hard hit. Occupation of agricultural lands, war-related destruction, and population displacement have all contributed to challenging conditions. To build resilience in the face of a protracted war, Ukraine must focus on rebuilding and reorienting its agriculture sector in line with the evolving situation on the ground. This report analyzes the war's effects on Ukrainian agriculture since February 2022 and identifies priority considerations that reflect the current reality and anticipate future changes.



Although our research looks at the entire agricultural sector, we primarily focus on household-level and smallholder farms. We begin by looking at the impact of the war and how its effects continue nearly two years on. The report then analyzes four agricultural sectors: fruits and vegetables, poultry, dairy, and honey. These were selected based on their significance to household-level and smallholder producers.ⁱ For each sector we provide an overview of the situation from the start of the full-scale war up to the present. We then examine export markets, gauge the invasion's impact on various parts of the value chain, and present responses by producers and other stakeholders. The final section provides considerations and recommendations for agencies seeking to promote the recovery and development of Ukrainian agriculture, particularly among household-level and smallholder producers.



To build resilience in the face of a protracted war, Ukraine must focus on rebuilding and reorienting its agriculture sector in line with the evolving situation on the ground.

Methodology

Primary data was collected in partnership with Pro-Consulting LLC, a Ukrainian market research company. From September to November 2023, the company conducted telephone surveys with household-level, smallholder, medium-, and large-scale producers.

ⁱ Although grains constitute Ukraine's primary agricultural output in terms of overall volume, they are predominantly the purview of larger-scale producers. They are therefore less germane to this research.

Sampling for the Pro-Consulting Survey

The 67 respondents (52 men and 15 women) included 24 household-level, 21 smallholder, 11 medium-scale and 10 large-scale producersⁱⁱ from 8 different oblasts.

As with many producers in these sectors, most respondents are active in multiple parts of the value chain. For example, they combine production with processing, deliver products to the market or sell their products themselves.

Of those interviewed, 39 produce and process agricultural products, while 6 are involved in processing only. Others sell their products without additional processing.

Respondents identified sales channels as follows, with some giving multiple answers:

- Their own store (retail): 12
- Markets and fairs (retail trade): 26
- Wholesale traders (wholesale trade): 31
- Processing companies (wholesale trade): 23

Secondary sources reviewed by UACAT and Pro-Consulting included analytical reports by state and private companies, as well as data from specialized bodies such as the Association of Milk Producers and the Union of Ukrainian Poultry Breeders. The data included information on producer activity, industry news, price levels, and production volumes. Researchers also examined data from the State Statistics Service of Ukraine, including production volumes, cultivation and harvesting areas, and bird population. Finally, the research analyzed data from ComTrade and Trade Map, which cover agricultural exports.

Limitations

A total of 150 potential interviewees declined to answer the survey. This was because the war or their proximity to the front line had led to a total loss of income, because they were about to shutter their businesses, or for unspecified reasons.

The number of interviews is not sufficient to constitute a representative sample of the oblasts involved, as the populations of those oblasts range from 1-3 million each. They do, however, offer indicative data to better illustrate the situation on the ground. In most oblasts respondents were widely dispersed. The exceptions to this were Mykolaiv and Kherson oblasts, where respondents were concentrated in Mykolaiv and Kherson raions

ⁱⁱ For the purposes of this report, farms of up to 10 hectares (ha) are classified as household-level, those with between 10 and 15 ha as smallholder farms, followed by medium-scale farms (50-500 ha), and large-scale (over 500 ha). For dairy, honey, and poultry producers, classifications were based on the number of employees as provided in the Economic Code of Ukraine: household-level farms are defined as those with 10 or fewer employees, smallholder farms as having 10-50 employees, medium-level 50-250 employees, and large-scale operations over 250 employees.

respectively, and Zaporizhzhia and Donetsk oblasts, where respondents were concentrated in Ukrainian-controlled northeastern and northwestern raions respectively.

Table 1. Agricultural sectors and numbers of respondents

Oblast	Fruits & Vegetables	Poultry	Dairy	Honey	Total
Dnipropetrovsk	8	1	0	4	13
Chernihiv	2	1	3	3	9
Kharkiv	4	0	3	2	9
Donetsk	0	0	1	4	5
Mykolaiv	3	0	0	2	5
Kherson	4	0	0	0	4
Poltava	3	0	0	0	3
Sumy	3	4	2	1	10
Zaporizhzhia	6	1	2	0	9
TOTALS	33	7	11	16	67

Geographic Scope

While the research focused on oblasts located along the front lines,¹ it also examined the broader national context as it relates to those areas. We divided Ukraine's oblasts into three distinct sectors:

- Sector A: Partly or mostly occupied oblasts (Kharkiv, Donetsk, Zaporizhzhia, Kherson)
- Sector B: Oblasts that have been de-occupied and/or are targets of frequent shelling (Kyiv, Chernihiv, Sumy, Dnipro, Mykolaiv, Odesa oblasts)
- Sector C: Oblasts least affected by the war

Insufficient Data: Luhansk Oblast and the Autonomous Republic of Crimea

Figure 1. Breakdown of Ukraine's oblasts by the impact of the war



Main Findings

Primary Obstacles

The intensity and scope of the war has affected Ukrainian agriculture both directly and indirectly. These effects can be summarized as follows:

Mine and UXO Contamination

In March 2023, Ukraine's First Deputy Minister of Agrarian Policy and Food Taras Vysotskiy stated that 2.5 million hectares of agricultural land had been contaminated,¹ while other officials put the total at closer to 10 million. The fact remains that the scale of the problem is enormous and affects farming operations of all sizes. Farmers must bear the costs of demining. As a result, some are turning to uncertified deminers, who charge less than their certified counterparts.² These individuals cannot guarantee the safety of the land they survey, leading to a higher risk of accidents among farmers who employ them. For producers who choose to clear lands themselves, the risks are enormous, and contribute to farmers being frequent victims of accidents involving mines and UXOs.

Destruction or Damage to Farms, Equipment, and Agricultural Infrastructure

The war has devastated vital infrastructure, including port facilities, transportation networks, grain storage systems, and fruit and vegetable warehouses. Individual farms also suffered, with property and equipment damaged, looted, or destroyed. While damage to energy facilities needed for agricultural production was not as serious during the winter of 2023–2024 as in the previous winter, an increase in attacks on energy facilities nationwide in March of 2024 could signal that these are once again targets.

Increased Production Costs

Production costs have risen due to the elimination of preferential fuel taxes, higher electricity rates for businesses, depreciation of the hryvnia, and an increase in the costs of equipment and supplies, among other reasons. Farms of all sizes and in all sectors have been affected.

Labor Shortages

The lack of labor in the agricultural sector is the result of population displacement and the mobilization of workers. In early 2023 Ukraine introduced a law providing exemptions from mobilization for some workers identified as critically important workers at farms with more than 1000 hectares and that employ 50 or more people. In April 2023 this law was amended to include farms with 500 to 1000 hectares and as few as 20 employees, although it does not apply to basic laborers and fails to address the problems of smaller and medium sized operations.³

Environmental Impact

Agricultural lands have been affected by many environmental variables, including contamination from destroyed military equipment, pollution from damaged industrial facilities, and the physical disturbance of land by heavy vehicles and military battles. The war's single most devastating event for agriculture was the destruction of the Kakhovka Dam, which caused devastating flooding in Kherson and Mykolaiv oblasts, destroyed agricultural infrastructure, and left farmlands blighted with silt, pollutants, mines and UXOs transported by flood waters.

Export Challenges

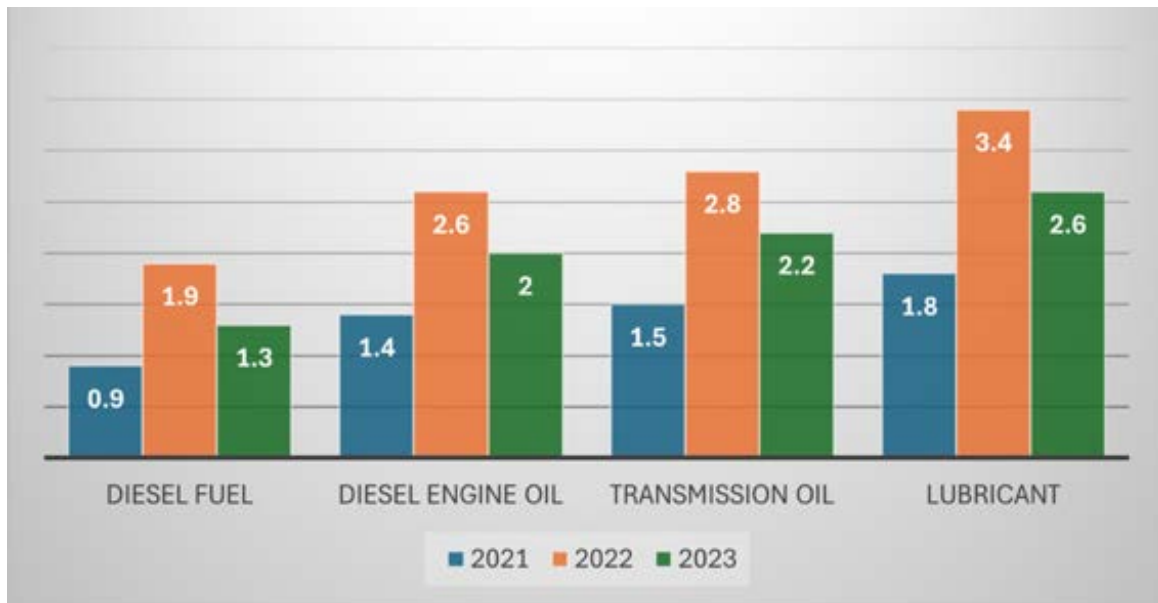
Ukrainian farmers have had to cope with massive disruption in export routes for their goods, most notably when Russia blockaded Ukraine's main export route – the Black Sea. Overland exports through so-called “solidarity lanes” began to address this challenge in 2022, though in 2023 Polish farmers and truckers – and to a lesser extent their Slovakian and Hungarian counterparts – began setting up blockades and hampering overland trade. The protestors say their markets have been flooded by cheap Ukrainian agricultural exports, and complained about what they see as burdensome EU environmental regulations. Though some progress has been made in addressing the farmers' concerns, a conclusive resolution is not imminent.

However, these issues have been somewhat mitigated by Ukraine's largely successful revitalization of trade through the Black Sea. After Russia's July 2023 withdrawal from the Black Sea Grain Initiative, which had allowed Ukraine to ship some grain, Ukraine established its own route that mostly transited through the territorial waters of NATO members Romania, Bulgaria, and Turkey. By March of 2024, maritime exports had surpassed the levels achieved under the Black Sea Grain Initiative.

Access to Affordable Agricultural Inputs and Services

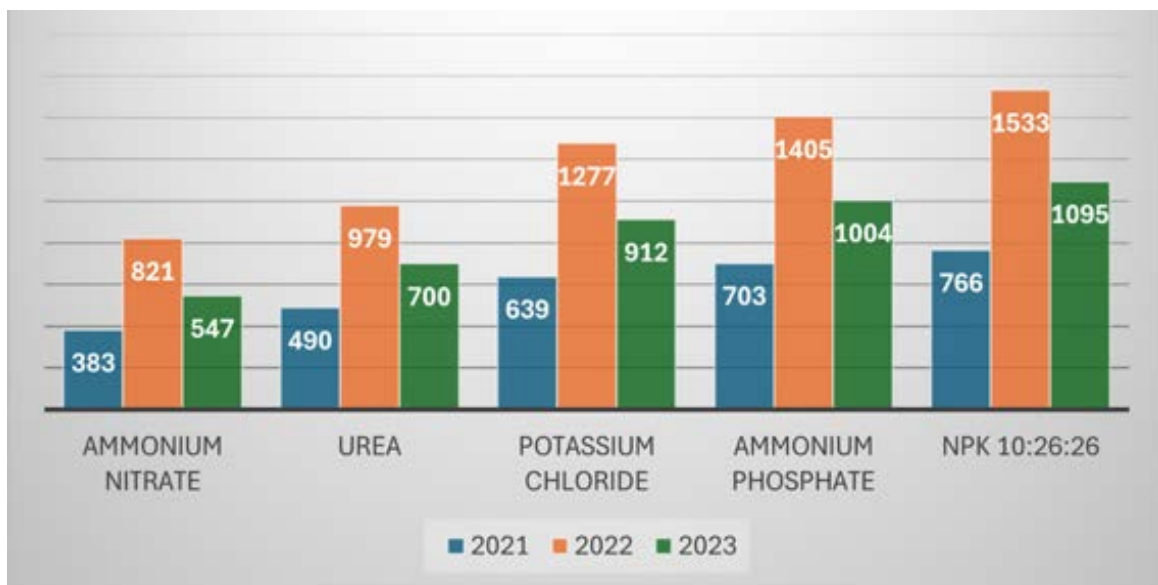
Farmers have struggled to access agricultural inputs, including seeds, pesticides, animal feed and fertilizers, as well as agricultural services such as veterinarians, laboratories, and financing. For producers near the front lines, these goods and services are often simply unavailable, while those further away must nevertheless contend with higher prices. In the cases of fertilizer and fuel, prices did come down in 2023 (see Figure 2 and Figure 3), though they remain significantly above their prewar levels.

Figure 2. Fuel prices, 2021-2023 (in USD per liter)



Source: World Bank data

Figure 3. Fertilizer prices, 2021-2023 (in USD per metric ton)



Source: World Bank data

Producers near the front lines are often ineligible for financing due to their location or their inability to show profit from the previous year. Nor do they have sufficient collateral since some have lost both equipment and land during the war.



Lower Purchasing Power and Decreased Demand

Despite inflation leveling off (from a high of 26.6% in December 2022 to 4.3% in February 2024),⁴ economic hardship has limited Ukrainians' purchasing power. In addition, a falloff in the number of consumers has led to weakened demand. According to the Center for Economic Strategy, as of September 2023, between 5.6 and 6.7 million Ukrainians had left the country due to the ongoing war,⁵ over 80% of them women and children.⁶ The honey, dairy, and fruit industries in all three sectors have been affected by the emigration of women and children – their main customers.

A Closer Look - Veterinary Services

Since the start of the invasion, farmers have struggled to access veterinary services and medicines. These shortages are even more pronounced in rural areas near the front line, where constant shelling makes it challenging to supply veterinary drugs in sufficient quantities.



To partly mitigate this paucity, particularly in sectors A and B, online consultations have become a valuable resource. The Association of Milk Producers (AMP) offers its members remote consultations on cattle reproduction, health, diet, and feed. According to the survey, 23.9% of respondents (16 out of 67) reported a deterioration in the availability of veterinary drugs. This included 43.8% of respondents in sector A (7 out of 16) and 56.2% of respondents in sector B (9 out of 16). In sectors B and C, respondents placed more emphasis on the cost of drugs.

Sector Overviews

The following section examines four agricultural sectors – fruit and vegetables, poultry, dairy, and honey. They were chosen due to their importance to household level and smallholder producers, although large producers are present in every sector (except for honey).

Fruit and Vegetables

Fruit and vegetable production has historically been concentrated in southern Ukraine, particularly Kherson and Mykolaiv oblasts, which have been heavily affected by hostilities. Immediately after the full-scale war began, **processing facilities and warehouses for agricultural machinery and products were looted, damaged, and destroyed**. In total, 27 out of 33 of fruit and vegetable producers interviewed reported a 20–50% drop in production volumes compared with the prewar period, and 5 experienced falloffs greater than 50%. Fruit and vegetable production was further affected by the June 2023 destruction of the Kakhovka Dam, which devastated production capacities in much of Kherson Oblast's unoccupied areas, though domestic demand continued to be met in the wake of the flooding.



In 2023, Ukraine saw a countrywide increase in sowing for all vegetable crops, including in partially occupied oblasts (Zaporizhzhia, Kharkiv, and parts of Kherson).⁷ This, combined with lower demand due to the emigration of over six million people, helped stabilize the vegetable market.⁸ For fruit producers, an insufficient use of fertilizers and pesticides, due to their high cost, has dented both fruit yields and the quality and consumer appeal of domestic fruit.⁹ The decline in Ukraine's domestic fruit market which began in 2022 – and from which it has yet to fully recovered – has also been influenced by emigration.

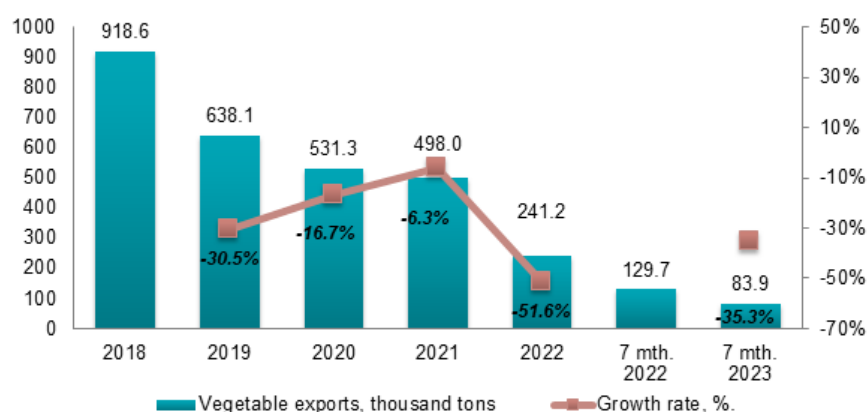
For respondents, the top three factors affecting operations now are a **lack of financing** (68%), **lack of labor** (64%) and transport problems (52%). Other reasons cited include accessing the necessary inputs and services. Fruit producers also mentioned electricity access as a priority concern (75%).



Export Overview

Regulation (EU) 2022/870 was adopted by the European Parliament on 30 May 2022. It enacted temporary measures to liberalize trade in industrial products, fruits and vegetables, as well as processed agricultural products between Ukraine and the countries of the European Union until June 5, 2023. In May 2023, the Regulation was extended until June 6, 2024.¹⁰ Despite fewer restrictions on export activity, higher logistics costs, particularly regarding container transportation, has made it harder to get Ukrainian vegetables to foreign markets (see Figure 4 below).

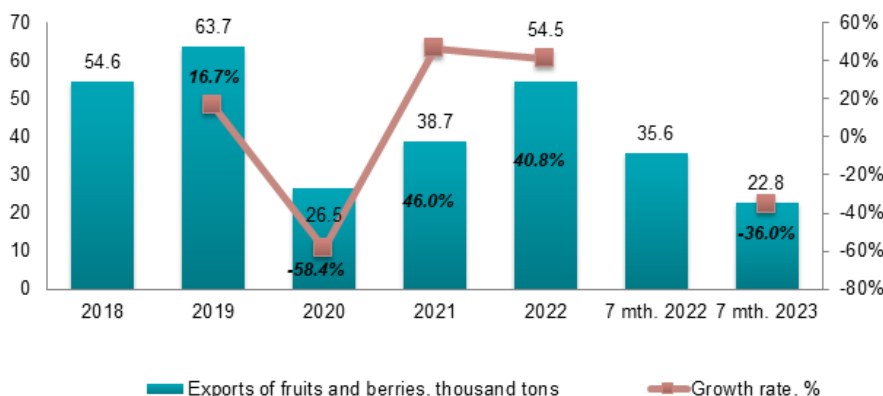
Figure 4. Vegetable exports, 2018-2023 (in thousands of tons)



Source: Pro-Consulting, based on data from Trade Map and ComTrade

In 2022, fruit exports nearly doubled in comparison with the previous year (see Figure 8). This can be attributed to a rise in the sale of frozen berries to neighboring countries, in particular Poland and Germany,^{xix} and because Ukraine's main berry processing and freezing companies are located in the country's relatively safe west and center.^{xx} In 2023 the downward trend in global prices negatively affected Ukrainian production.¹¹

Figure 5. Fruit exports, 2018-2023 (in thousands of tons)



Source: Pro-Consulting, based on data from Trade Map and ComTrade

Figure 6. Impact of the war on fruit and vegetable production capacity (by oblast)

Damaged Infrastructure



Access to Financing



Availability of Labor



Poultry Sector

During 2022, many poultry farmers experienced financial problems (lost revenue, increased costs, and termination of contracts) and material losses (reduced poultry population, destruction, and theft of equipment). **War damage to transport infrastructure** directly affected companies' access to supplies, repair services for specialized equipment, as well as markets and services.



A **shortage of qualified personnel** continues to plague oblasts in sectors A and B, where the poultry industry has suffered the most. In all three sectors, lack of human resources was cited by five out of seven respondents as a major problem since the start of the war, with all respondents **Attacks on energy infrastructure have hampered the poultry sector** in frontline areas in the winter of 2023-2024. Though not as severe as the winter of 2022-2023, they nevertheless have posed a persistent threat to the efficient and effective operation of freezers, processing facilities and egg incubators.



A silver lining for the poultry sector has been rising demand for poultry meat. This is likely due to reduced purchasing power since poultry meat is cheaper than pork or beef.

In 2022, the egg industry was more affected by the war than poultry producers, as logistical issues made it very difficult to sell these perishable products. **Russian occupation and shelling significantly reduced bird populations**. Kherson Oblast's poultry industry, which had more than four million birds prior to the war, has been nearly destroyed.¹²

Table 2. Egg production (2021—2022)

Oblast	2021 egg production	2022 egg production	% decrease
Dnipro	720.7	672.9	6.6%
Kherson	657.7	154.5	77%
Donetsk	602.1	245.1	59%
Kharkiv	481.1	308.1	36%
Zaporizhzhia	372.5	190.1	49%
Sumy	349.3	262.5	25%
Chernihiv	280.9	250.4	11%
Mykolayiv	156.9	136.2	13%
Others	10,450.10	9,701.10	7.2%
Total	14,071.30	11,920.90	16.7%

Source: State Statistics Service of Ukraine via Pro-Consulting

An atypical factor in higher egg prices in fall 2022 was the need to prolong the use of older birds, which could not be replaced due to the war. Productivity and egg quality are lower in older birds, which affects prices for all products. Egg production failed to rebound in 2023, and even experienced a slight year-on-year decrease over 2022.¹³ Problems unrelated to the war contributed to this. Access to breeding material, usually imported from Poland, Hungary, the Czech Republic, and Germany, was reduced due to outbreaks of highly infectious diseases such as Newcastle disease and bird flu.¹⁴



Increases in feed costs have also had an impact. According to Maksym Hopka, an analyst with the Ukrainian Club of Agrarian Business, animal feed accounts for some 70% of production costs.¹⁵ A hike in the cost of primary components led to feed prices increasing by 10–15% between July 2022 and July 2023.

In general, all respondents noted a falloff in production volumes since the start of the full-scale war. However, 57% planned to expand their business, mainly through the purchase of additional birds. Some respondents (43%) were seeking to establish fodder production facilities, and one was attempting to begin processing activities.

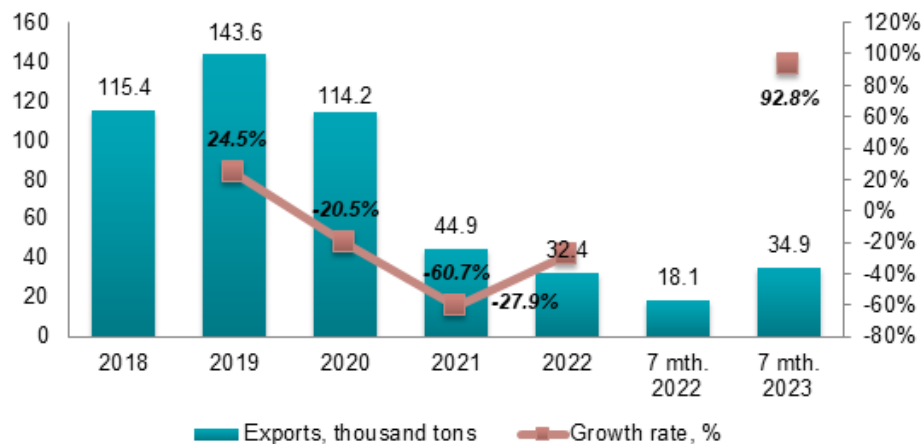
Export Overview

Port blockades have negatively affected poultry farming since previously most poultry meat was exported by sea. In 2022, manufacturers were forced to export all cargo by road to EU countries, and then use port services in Poland, Romania, and the Baltic countries. This led to higher transport costs, less access to refrigeration facilities, and queues at Ukraine's borders, all of which depressed export volumes.

In 2022, egg producers were still trying to recover from the Covid-19 pandemic, when exports fell by 60.7%. The war depressed exports by another 27.9%. Despite the decline in total egg production, exports in the first three quarters of 2023 showed significant recovery over 2022 (93%), though it should be noted that exports were rebounding from very low levels.



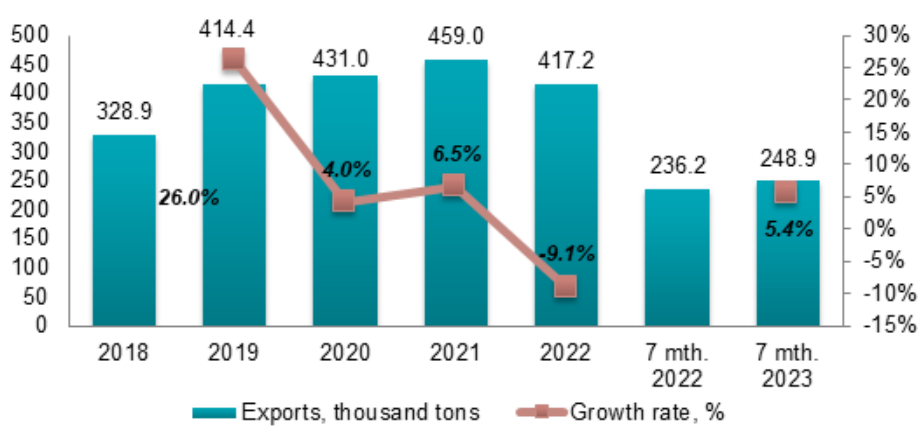
Figure 7. Egg exports, 2018-2023 (in thousands of tons)



Source: Pro-Consulting, based on data from Trade Map and ComTrade

Poultry meat exports increased in 2023. In August, the volume was 39.5 thousand tons, or 3.6 thousand tons more than in July, and 32% higher than export levels in August 2022. Between January and July 2023, Ukraine exported 288,000 tons of chicken meat worth \$539 million. This represented a 9.5% year-on-year increase in physical volumes, but a fall of 8% in value terms. This drop can be attributed to a decrease in average sales prices in the second half of 2022. According to market experts, changes in the logistical routes for domestic chicken exports led to higher prices, and therefore weakened the position of this product on world markets.¹⁶

Figure 8. Poultry meat exports, 2018-2023 (in thousands of tons)



Source: Pro-Consulting, based on data from Trade Map and ComTrade

Figure 9. Impact of the war on poultry production capacity (by oblast)

Active Hostilities



Damaged Infrastructure



Availability of Labor



Dairy

In 2022, numerous dairy farms were destroyed. Active combat affected processing capabilities and damaged equipment. According to the survey, after the start of the full-scale war, 41.6% of respondents suffered damage to production facilities, including equipment. Moreover, cows in frontline areas produce less milk than usual due to stress.



In 2023, following the de-occupation of a large part of frontline territories and improved protection from air defense systems, shelling intensity decreased. Nevertheless, reconstructing farms and getting businesses back up and running is proceeding at a slow pace.

Finding workers has been problematic since the beginning of the full-scale war. One third of the dairy enterprises interviewed lost personnel due to forced migration and mobilization. Many household-level dairy producers fled at the start of the full-scale war, often selling their cows as they left. Anecdotal evidence suggests that a significant number had returned by the end of 2023, although exact figures are not available.



Finding workers has been problematic since the beginning of the full-scale war. One third of the dairy enterprises interviewed lost personnel due to forced migration and mobilization.

More than half of respondents (6 out of 11) lost their primary customers. One noted that, because of this loss, he had begun selling products for recycling. Four were obliged to change the oblasts in which they sold their products.

At the time of the survey, the main problems identified were transport, a lack of fodder and a shortage of personnel (41.6% for each). In sector A, the availability of fodder and veterinary drugs was noted as particularly problematic. The top five areas of concern were **financing** (90.9% of respondents), energy (75%), a continued lack of personnel (75%), timely payment for goods (75%), and product transport (58.3%). Despite these challenges, four of those interviewed cited fodder production as a possible business expansion.

Exports

Despite the war's negative consequences, Ukraine was able to increase dairy export volumes by 19% in 2022. Such positive results were achieved thanks to trade liberalization measures between Ukraine and the EU,¹⁷ higher world prices for dairy products during the third quarter of 2022, and the competitiveness of Ukrainian dairy products. Between January and July 2023, exports increased by 13% year on year over 2022 and totaled 44.8 thousand tons. That said, dairy products intended for export from sectors A and B remain problematic due to their short shelf life and transport difficulties exacerbated by the war.

Figure 10. Dairy product exports, 2018-2023 (in thousands of tons)

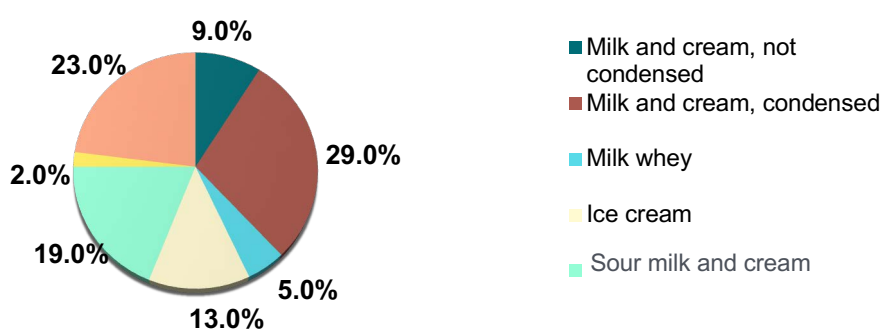


Source: Pro-Consulting, utilizing Trade map, ComTrade

However, according to data from Ukraine's Association of Milk Producers, the volume of dairy product exports in September 2023 decreased due to a reduced supply of milk and raw materials and more limited processing capacity.¹⁸ During the month, Ukraine exported 7.33 thousand tons of dairy products worth \$14.05 million. In comparison with August 2023, natural volumes of exports decreased by 30%, while revenue fell by 43%.

Currently, the export structure of dairy products is dominated by milk, condensed cream, cheeses, and butter.

Figure 11. Dairy product exports (September 2023)



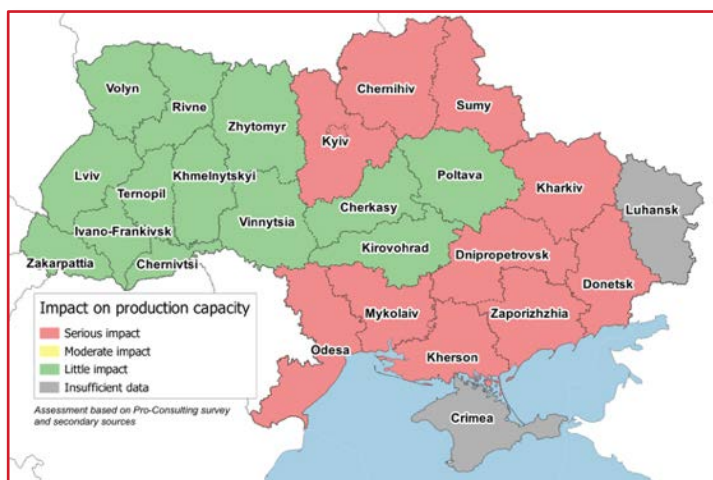
Source: [AVM](#)¹⁹

Figure 12. Impact of the war on dairy production capacity (by oblast)

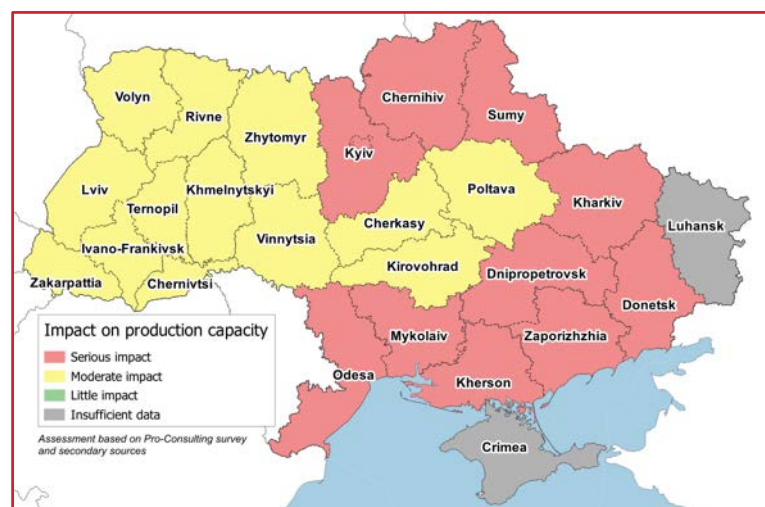
Damaged Infrastructure



Access to Financing



Availability of Labor



Honey

In 2022, according to the Ministry of Economy, only 2% of honey volumes were produced by registered economic entities, with the rest generated by households.²⁰ Before the start of the full-scale war, the eastern and southern oblasts were the primary honey-producing areas of Ukraine. In 2022, these regions' share of total honey volumes fell to 36.8%, compared to 47.6% in 2021.²¹ Of the 16 producers interviewed, 4 suffered significant damage to property since the start of the full-scale war, while 2 experienced damage to their production facilities. **By the end of 2022, up to 30% of honey-making facilities had been destroyed.**²² This number is not exact due to the occupation of honey-producing oblasts, as well as the less precise figures available for household-level apiaries, which make up 90% of honey producers.



In 2022, 68.5% of respondents were forced to abandon their plans to expand production. By fall 2023, however, 43.7% of respondents had begun to restore their operations, boosting production capacity, increasing the number of bee colonies, and diversifying sales channels.

Four respondents (25%) highlighted the **outflow of personnel** – including beekeepers, drivers, seasonal workers, and administrative staff – as an **overall challenge for the industry**. Beekeeping is a specialized skill, and those who replaced mobilized beekeepers, mostly family members, are often less skilled.

Six interviewees mentioned damage to the country's energy infrastructure as a development constraint. Honey production does not require electricity, but honey processing does. Five respondents singled out transportation infrastructure as problematic due to damaged roads and bridges.

*"Because of the war, the honey industry in Ukraine has shrunk by at least a third, and it will only be saved by the dedication of beekeepers and the fact that 90% of apiaries in our country are private and are spread throughout Ukraine."*²³

Valeria Kureika, co-founder of TM "Znatnyi Med"

Among the respondents, 43.7% pointed to environmental problems. These include mine-contaminated land, fuel spills, remnants of explosive materials, and physical damage due to shelling and military hardware movements. Other issues highlighted in sectors A and B were low product sales, low prices offered for wholesale purchases, and the ongoing hostilities.

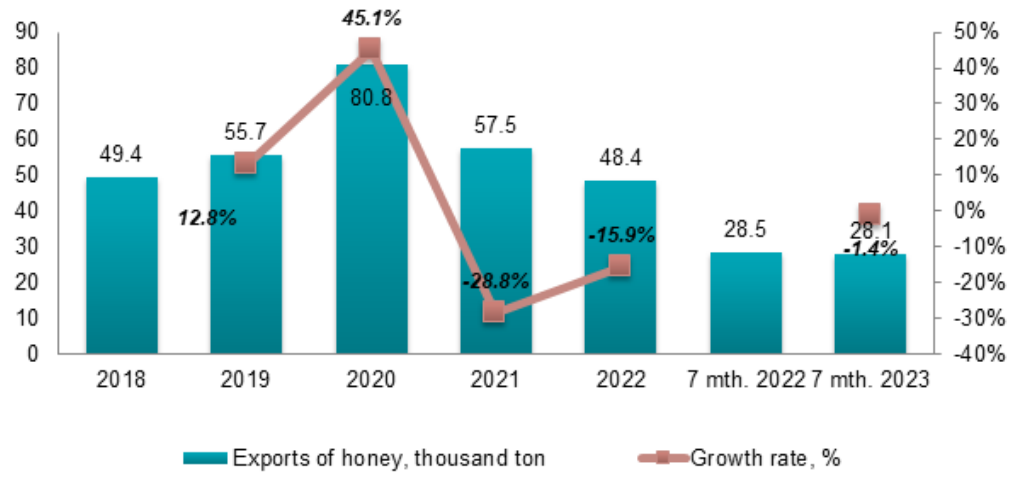
Between 2022 and 2023, costs for beekeepers rose significantly, due to higher prices for beekeeping equipment, raw materials, and the price of fuel (necessary for the occasional transport of beehives). Costs for honey-related products also increased. For example, the price of a 1-liter glass jar, which cost ₪12 (\$0.32) on average in 2022, increased to ₪27 (\$0.71) in 2023.²⁴ Ten respondents singled out **access to financing as a deterrent to production**.

The onset of war has increased the demand for beeswax, which has become the top-selling beekeeping product, ahead of honey. This is reportedly due to an increase in the production of trench candles.ⁱⁱⁱ In 2022, Ukraine produced a total of 70 to 80 thousand tons of beeswax.²⁵ After rising in 2022, demand for beeswax stabilized in 2023.²⁶

Exports

Exports remain stable, despite the drop in domestic honey production due to the war and Russian occupation. Between January and July 2023, Ukraine exported 28.1 thousand tons of honey, nearly the same as exports in 2021 (28.5 thousand tons). The primary importers of Ukrainian honey products are currently Germany, Poland, Belgium, the USA, France, Lithuania, the Czech Republic, Hungary, and the US.²⁷

Figure 13. Honey exports, 2018-2023 (in thousands of tons)



Source: Pro-Consulting, based on data from Trade Map and ComTrade



ⁱⁱⁱ Metal receptacles filled with corrugated cardboard and paraffin wax that provide soldiers with both warmth and light.

Figure 14. Impact of the war on honey production capacity (by oblast)

Damaged Infrastructure



Access to Financing



Availability of Labor



Conclusion and Programmatic Considerations

The problems facing agriculture in Ukraine are considerable. The scale of the war since February 2022 has been such that Ukraine's entire agricultural sector has been affected. Solutions to some of these problems – including trade relationships with Ukraine's neighbors, huge numbers of mines and UXOs, the macro-economic environment, and the course of the war itself – lie outside the scope of the present research. However, there are ways in which programmatic interventions can directly contribute to the resilience of the affected populations.

A lack of labor across the agricultural sector is a significant problem that limits production. This was underscored by respondents in the fruit and vegetables (87.5%), poultry (71.4%), dairy (75%), and honey (25%) sectors. The war increased the number of persons with disabilities (PWDs) and incorporating this population into the agricultural workplace could create a win-win situation for producers, wounded veterans and other PWDs. Moreover, 30% of respondents indicated they are open to hiring veterans. Creative solutions involving investment aimed at **adapting agricultural equipment for use by veterans and other PWDs** and the **development of accessible transportation systems** to get PWDs to and from the workplace. Since many respondents believed that incorporating PWDs into farming activities was impossible, information campaigns would need to accompany any such efforts.

Energy sector issues are also important. This was cited by a large portion of interviewed producers of vegetables and fruits (78.1%), poultry (71%), dairy (83.3%), and honey (37.5%). This is due to both increased energy costs and energy facilities' vulnerability to attacks, as witnessed in the winter of

Land Reform

On January 1, 2024, based on legislation passed in 2020, domestic companies in Ukraine gained the right to take part in the land market and purchase up to 10,000 hectares.²⁸ This change is highly controversial. Advocates for a free land market claim that it will enhance the clarity of land-related transactions, facilitate more effective agricultural practices, and enable landowners to fetch better prices for their properties. They also state that the investment of corporate entities is necessary to finance de-mining efforts at the scale required. Critics are concerned that these reforms could result in the consolidation of land into the hands of large producers, displace private farmers, further depopulate rural areas, and contribute to environmental deterioration due to industrial farming techniques. In the coming months UACAT will closely monitor the impact of land reform, particularly its geographic scope, its impact on demining efforts, and its effect on household-level and smallholder producers.

2022–23, and to a lesser, but still significant, extent in the winter of 2023–2024. Though less eco-friendly, generators could play an important role in coping with electricity challenges.



Programmatic interventions that promote alternative energy through solar panels or biogas could reduce the sector's environmental impact – an important consideration as EU accession talks get underway.

For 26.9% of surveyed farmers (18 out of 67), the storage situation has worsened. In sector A, this percentage is even higher (61%, or 11 out of 18). In 2023, in Chernihiv and some western oblasts, farmers built 15 vegetable warehouses with a total capacity of about 10,000 tons. These were designed for onions (85% of built capacity) and potatoes (15%).²⁹ While this capacity is limited in the grand scheme of things, it would be worthwhile to support similar efforts to **construct warehouses to store fodder, fruit and vegetables, as well as greenhouses and facilities for hay and grain.**



Despite the risk, building small warehouses further east and south that are accessible to smallholder producers could have a positive impact on farms in these areas.

Several producers, including the majority of the 33 fruit and vegetable farmers stressed that **fodder production should be supported**. Household-level and smallholder farms could financially benefit from selling a much-needed product, as well as from easier access to locally grown fodder that is not subject to high transport costs.

Support for the poultry sector would be prudent, as rising demand for chicken meat is unlikely to slow in the foreseeable future, given that the decline in purchasing power has led consumers to turn away from more expensive products such as beef.

Support for processing would benefit household-level and smallholder farms. This is particularly the case for honey producers, whose products can be readily processed for well-developed export markets and, should it rebound, the domestic market, notably small markets and cafes, which some interviewed beekeepers cited as promising. In all agricultural sectors, household-level and smallholder producers stand to benefit from a revitalized processing sector, whether through repair of damaged processing facilities, expansion of existing facilities or development of new processing capacities.



Rehabilitating irrigation systems, especially secondary networks in Kherson Oblast and southwest Dnipropetrovsk Oblast, would promote vegetable and fruit production in areas affected by the destruction of the Kakhovka Dam.

Rehabilitating irrigation systems would also increase household-level producers' incomes, thus improving local food security.

Local and national transport remains a problem, given damaged roads and bridges, high fuel costs, and difficulty accessing spare vehicle parts. A variety of programmatic initiatives, from small-scale road and bridge repairs, to support for small businesses servicing tractors and other vehicles could benefit household-level and smallholder farmers, especially those in areas close to the front lines.

Support for the veterinary sector by expanding online veterinary services would help household-level and smallholder dairy and poultry producers, ensuring access by even the smallest farms. Facilitating the provision of veterinary medicine, through assisting veterinarians in reaching clients closer to the frontlines and supporting farmers in purchasing necessary medicines, is also critical for the recovery of the sector.



Support with inputs, whether via cash distribution programming or other financing, or through direct distributions of seed, fertilizer, veterinary medicines, and other elements, remains critical.

Access to financing remains a challenge for farmers. For those near the frontlines, repairing or replacing damaged, destroyed, and looted facilities and equipment requires financing. To this end, agricultural grant programs have benefited many farmers. These should be continued and should include farmers closer to the front lines, as they often struggle the most to receive financing, although their inclusion should be done on a case-by-case basis accompanied by a thorough assessment of the security environment.

Another need cited by multiple interviewees was assistance with sales and marketing. This has relevance across Ukraine's entire agricultural sector, as the war has altered both domestic and export markets. Enhanced marketing skills will help producers enter new markets.

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