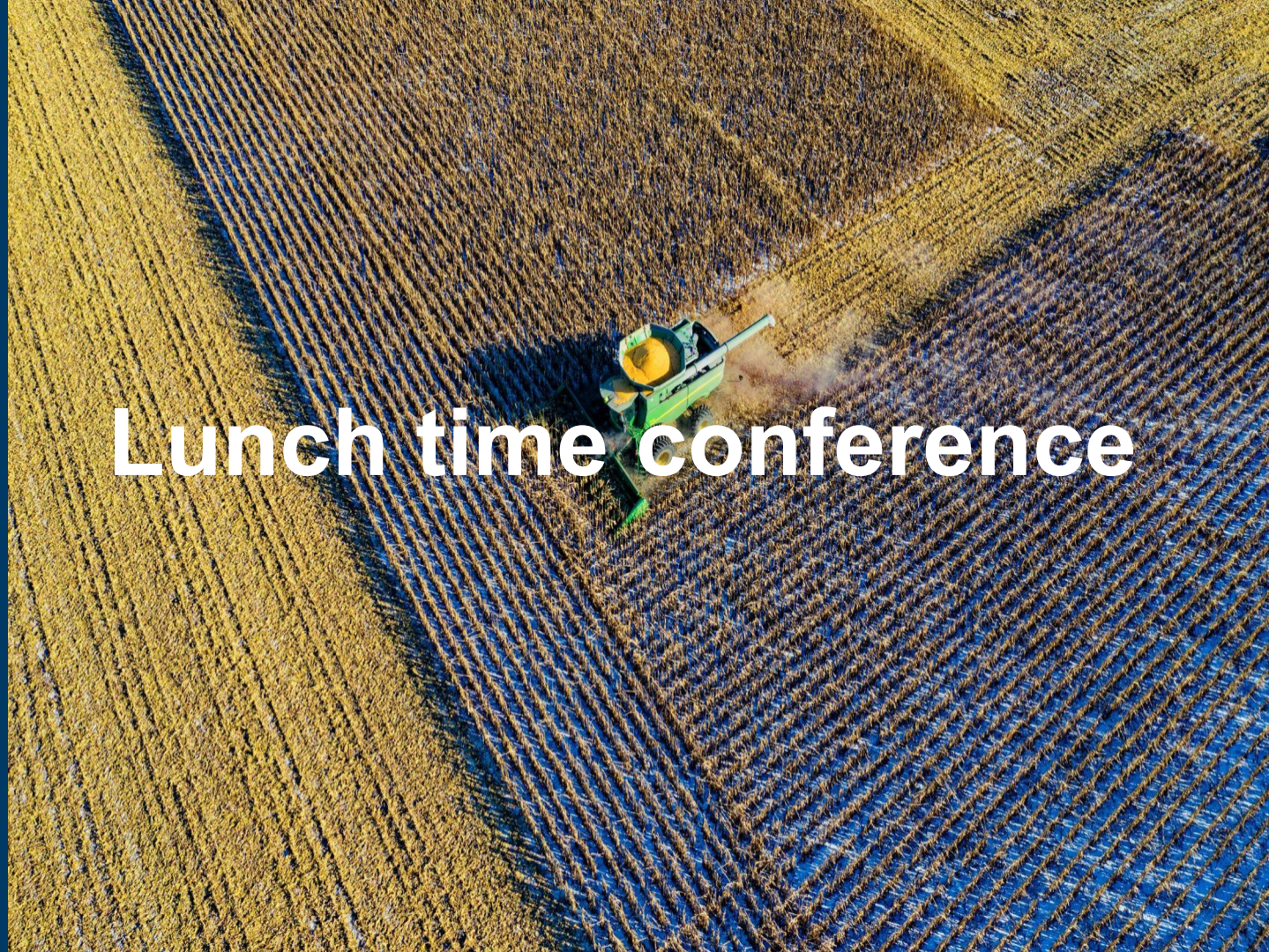


Lunch time conference

Contents

01 Production costs

02 War damages and recovery

03 Access to land and finance

04 Structure of the sector

05 Food security

06 Food supply chains

1 Production costs

Per-unit costs

Costs structure

Own survey

In Nov-Dec 2023 we conducted our own survey of agricultural producers regarding their crop production costs.

The total number of respondents was 197, among them producing following crops:

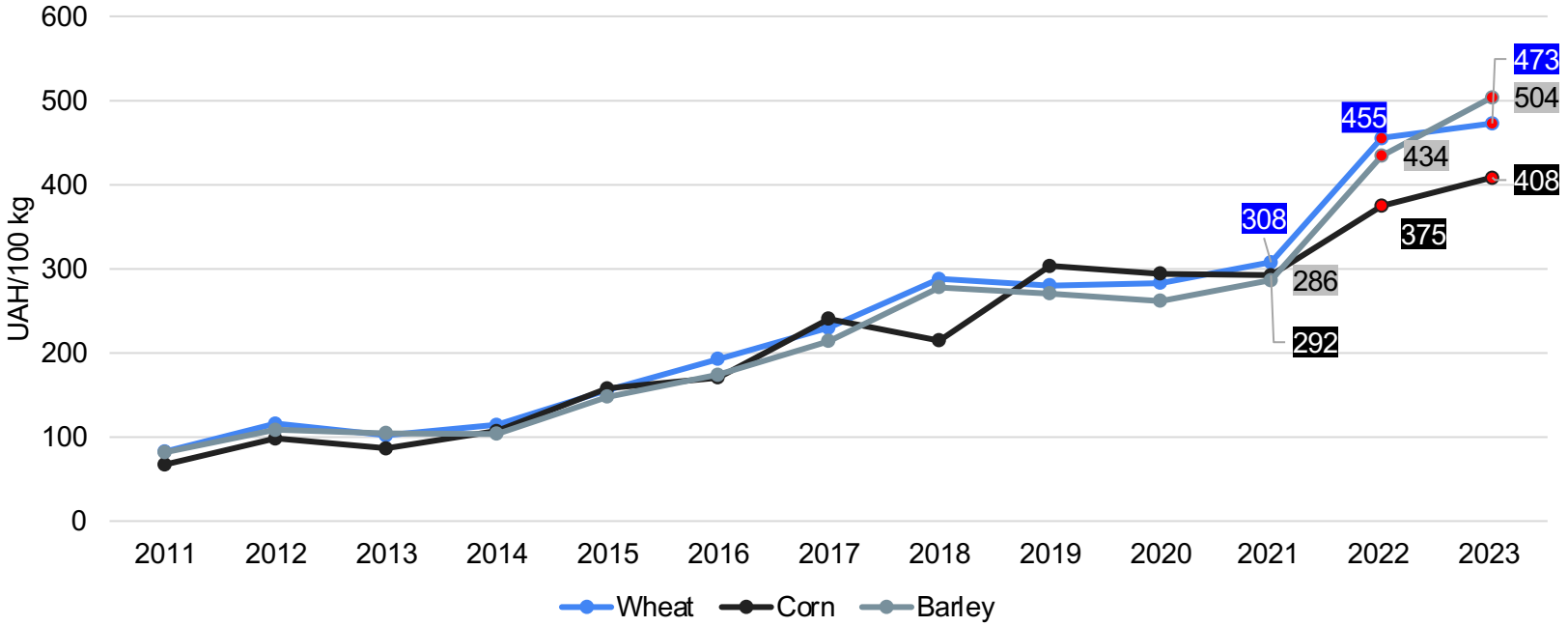
- Wheat (soft) – 130
- Corn – 97
- Barley – 59
- Rye – 5
- Oats – 5
- Soybeans – 77
- Rapeseed – 27
- Sunflower – 116

Per-unit production costs: summary

In 2022 the increase in per-unit production costs is observed for all of the agricultural commodities produced in Ukraine, with the only exception being rapeseed.
Primary cause for the per-unit costs increase is the high price inflation rate in 2023 and additional production inputs price increase caused by the logistics and supply chains disruption.
Along with the drop in farm-gate prices, it caused farmers' gross margin to shrink substantially.
As situation in Ukraine stabilized in 2023, the 2022-2023 growth of per-unit production costs have slowed down, due to decreased inflation rate and market adaptation to the new conditions.

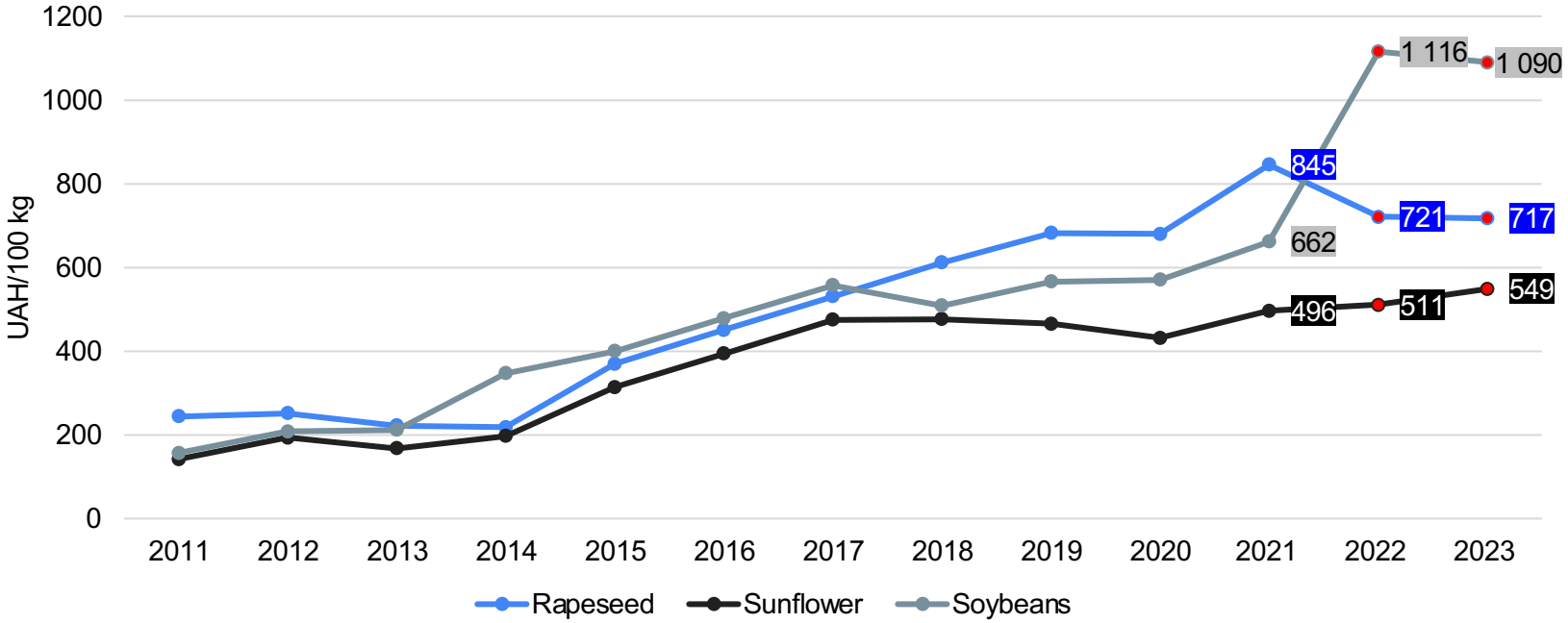
Per-unit production costs: grains

Source: SSSU for 2011-2021, own producers survey for 2022-2023.



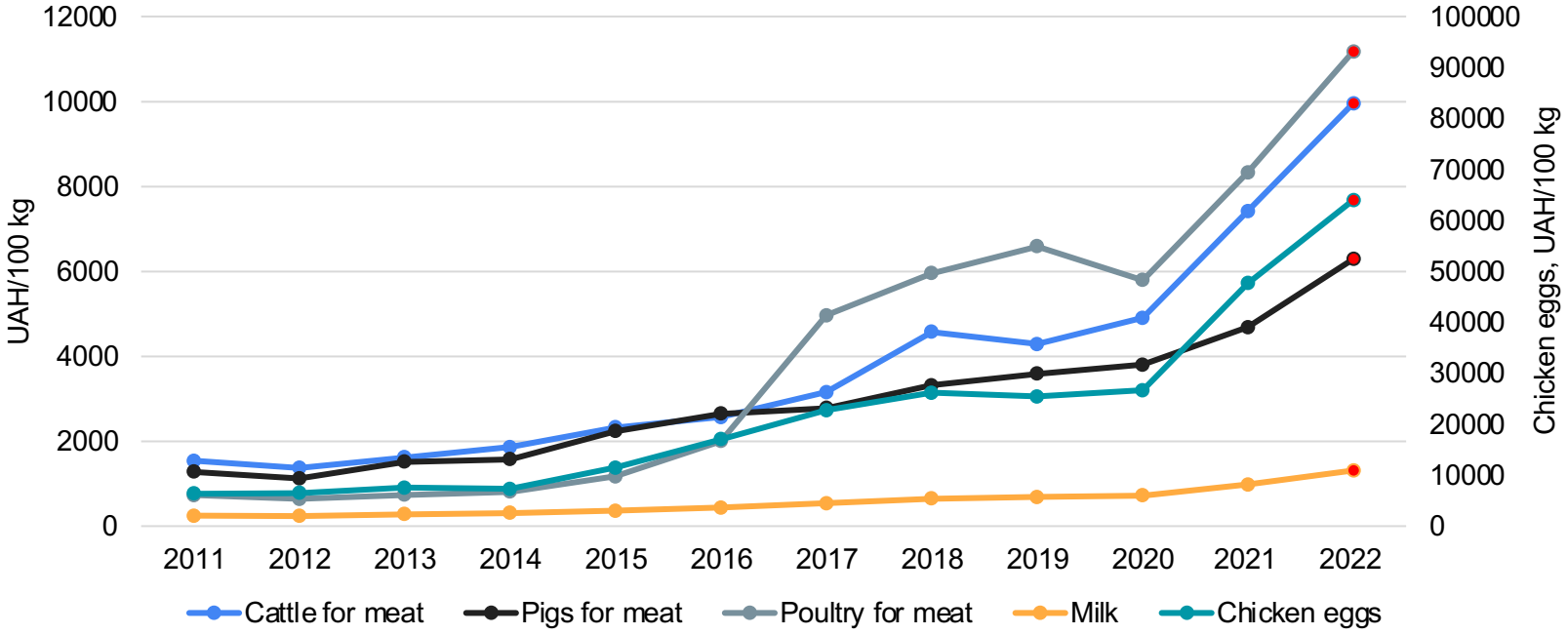
Per-unit production costs: oilseeds

Source: SSSU for 2011-2021, own producers survey for 2022-2023.



Per-unit production costs: livestock

Source: SSSU for 2011-2022



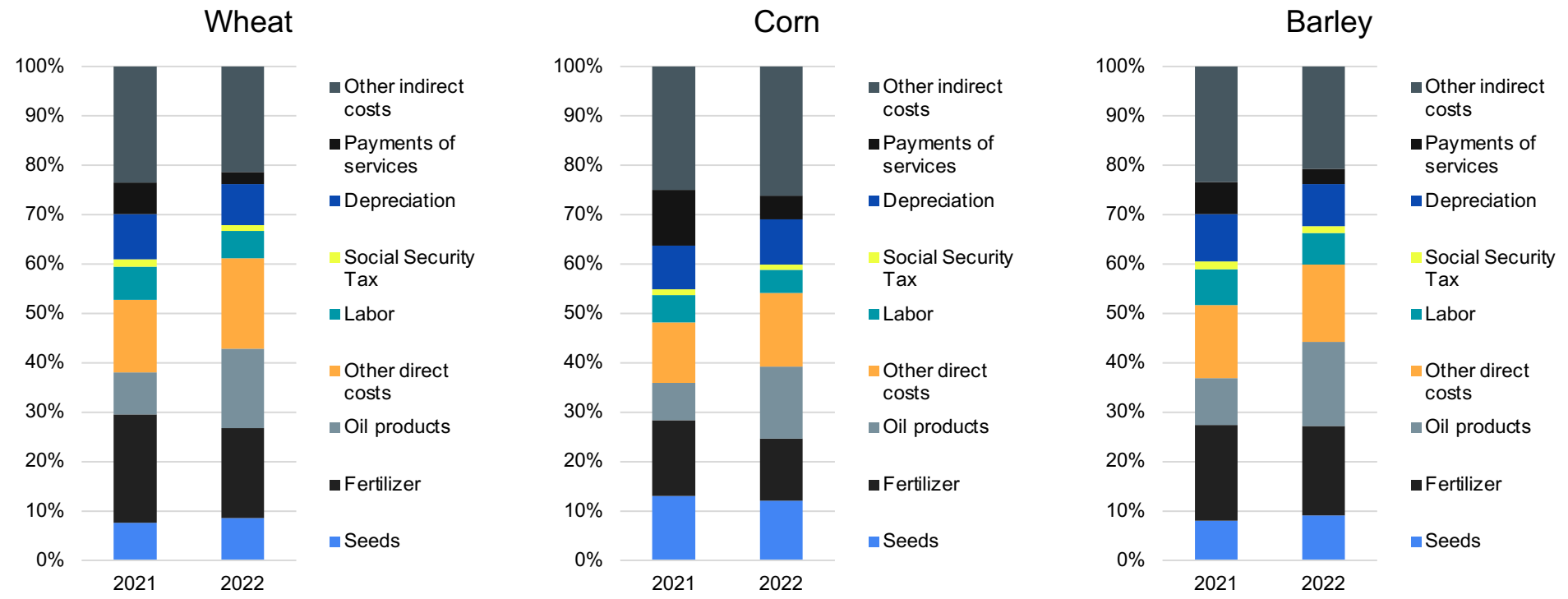
Production costs structure: summary

Main change observed – increase of the oil products (fuel) share in the production costs structure.

The second expenditures category that is increasing throughout all crops are the *other indirect costs*, which includes logistics, handling, product losses, storage, machinery and equipment maintenance, etc.

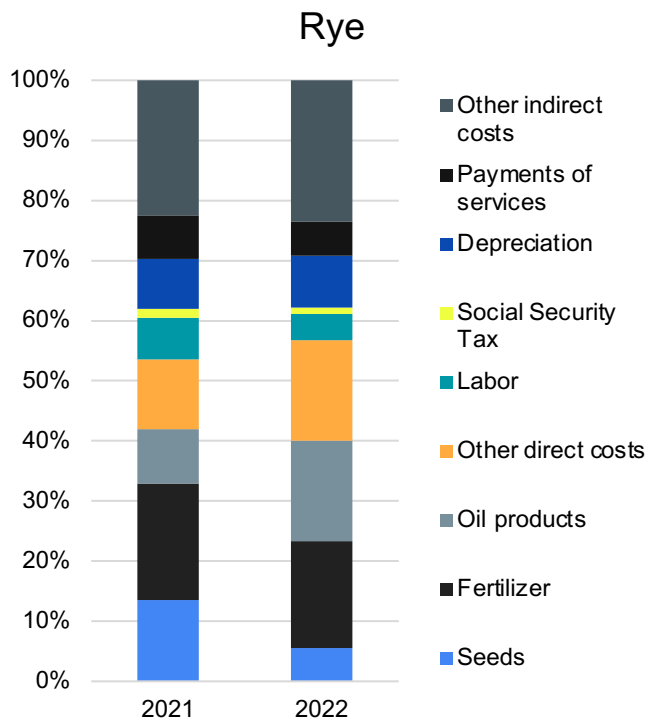
Fertilizer share remains unchanged for most crops, and decreases for sunflower, rapeseed and oat.

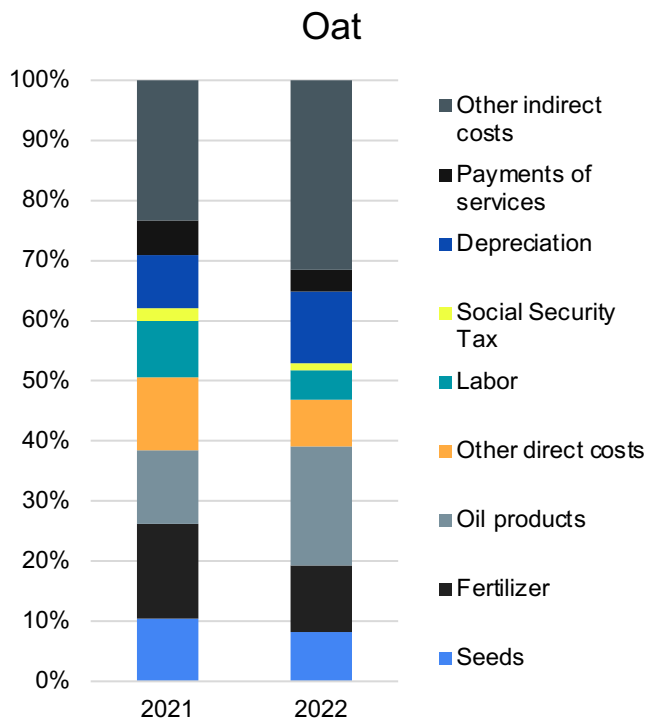
Costs structure: grains



Source: Own calculations based on SSSU data and agricultural producers survey

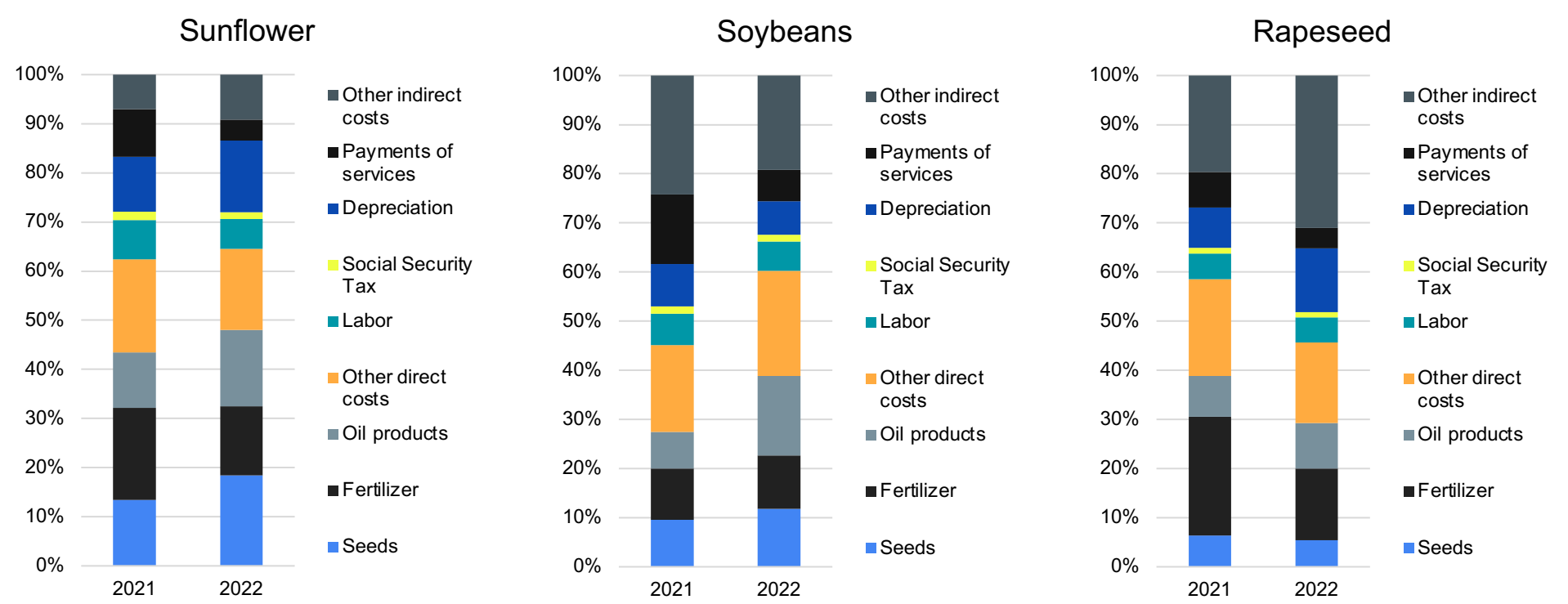
Costs structure: grains





Source: Own calculations based on SSSU data and agricultural producers survey

Costs structure: oilseeds



Source: Own calculations based on SSSU data and agricultural producers survey

2 War damages and recovery

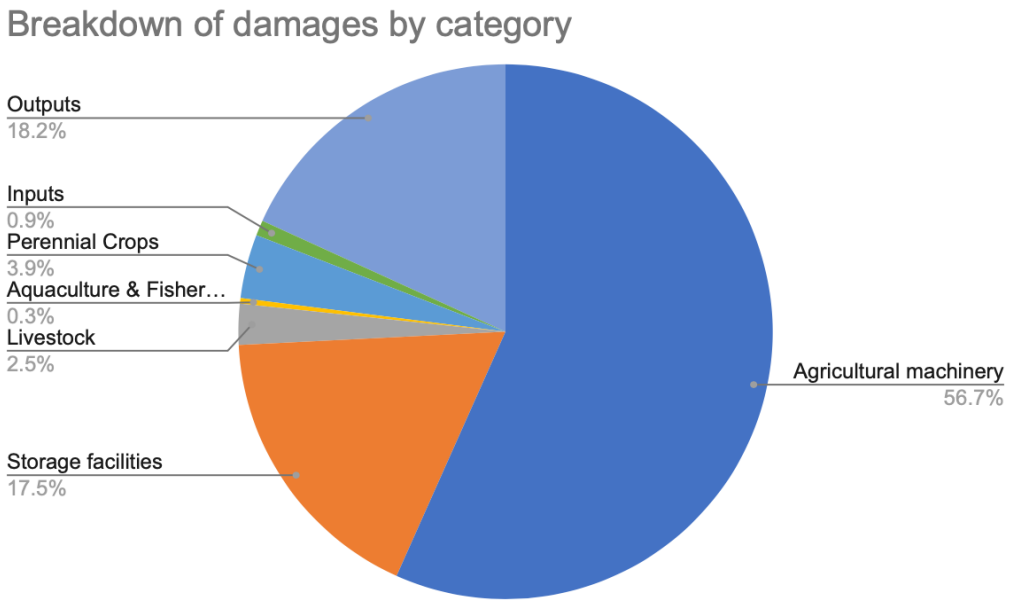
War damages and losses

Demining

Occupied land

War damages to agriculture

- As of December 2023, total war damages to Ukrainian agriculture accounted for **$10.3 billion**.
- The largest share of these damages is agricultural machinery and storage facilities, totaling **$7.6 billion (74.2%)**.
- Using the baseline of 2019, it could be stated that approx. 18.6% of all machinery and equipment in Ukraine is destroyed and severely damaged.

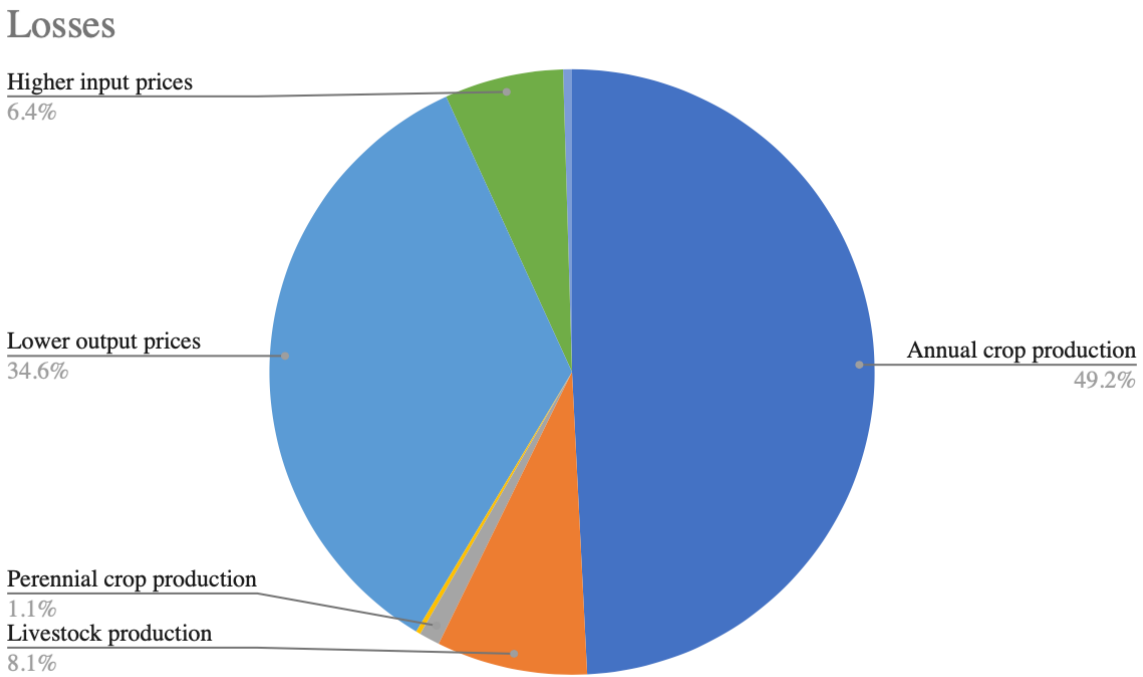


Source: KSE Agrocenter. Agricultural War Damages, Losses, and Needs Review. Issue 4. February 2024

War-caused losses in agriculture: I

- As of December 2023, these losses are estimated at **$69.8 billion**.
- Roughly half of the losses arise from the foregone revenue due to the decreased production of agricultural commodities (**$34.3 billion** in crop production sub-sector and **$5.6 billion** in the livestock sub-sector).
- The second large share of losses comes from the war impact on farm-gate prices of export oriented commodities as well as the logistics disruption **($24.1 billion)**.

War-caused losses in agriculture: II



Source: KSE Agrocenter. Agricultural War Damages, Losses, and Needs Review. Issue 4. February 2024

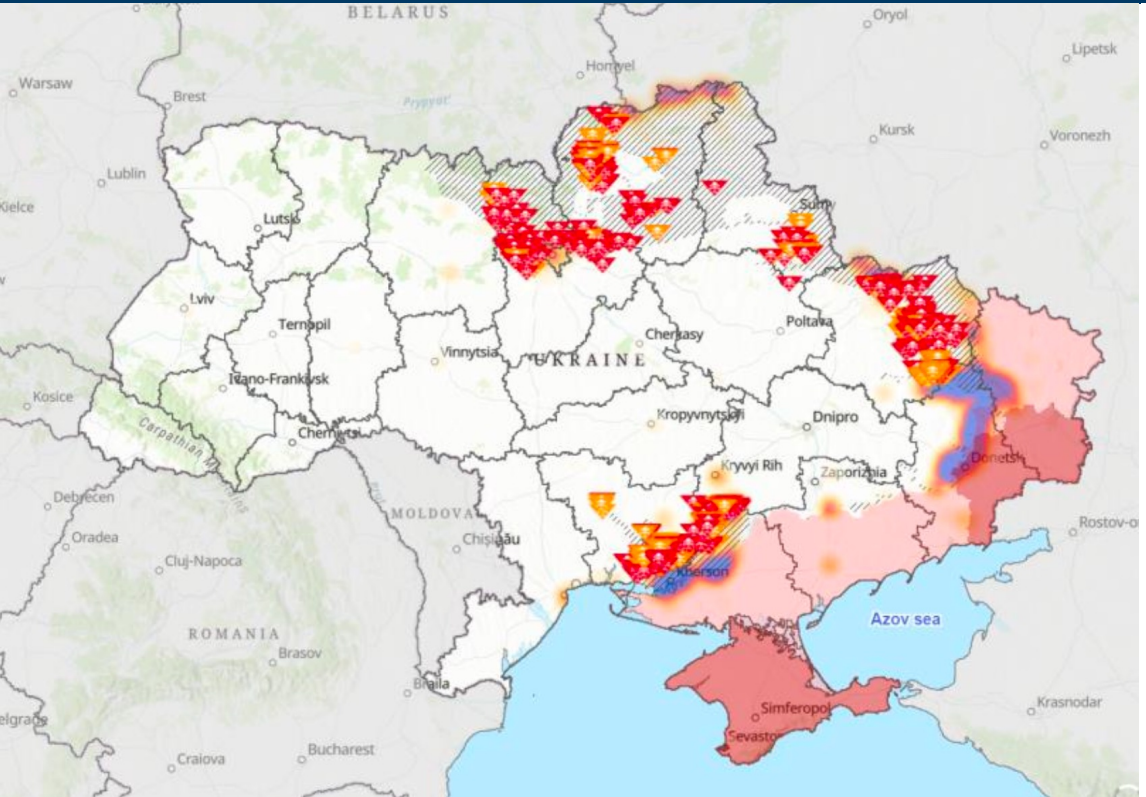
Demining and recovery time: I

A total area of 185.8 thousand square km is potentially contaminated by the explosive hazards.
The National Mine Action Authority of Ukraine (NMAA) divides this area into three categories:
- Area that should be inspected by a non-technical survey (165.44 thousand square km)
- Area that should be a subject of a technical survey (11.9 thousand square km)
- Area with proven explosive hazards contamination, where the actual clearance should take place (8.5 thousand square km)

The agricultural land is not prioritized by the NMAA, with the order of priority for demining being (i) residential areas; (ii) electricity and heating infrastructure; (iii) roads, bridges, and railways; and (iv) agricultural land.

Source: World Bank. Ukraine. Third Rapid Damages, Losses, and Needs Assessment (RDNA3). February 2024

Demining and recovery time: areas exposed to war and explosive hazards contamination



Type of hazard areas identified by the NTS

- Confirmed Hazardous Area (CHA)
- Suspected Hazardous Area (SHA)

Density of incidents related to potential contamination of ERW

High

Low

Territories affected by military invasion

- The territories temporarily occupied by the Russian Federation before February 24th, 2022
- Deoccupied territories after February 24th, 2022
- Territories temporarily occupied by the Russian Federation after February 24th, 2022

Source: Ukrainian Mine Action Portal, “Implementation of Humanitarian Demining Activities: Interactive Map”

Demining and recovery time: II

As demining is a both labor- and resource-intensive process, the total time required for it to be finished is highly dependent on the available resources. World Bank estimates the total cost of mine clearance at $38 billion.
Current capacity of State Emergency Service demining facilities is estimated at 160 hectares per day. (SESU data)
It implies that a total required time to demine the area with proven explosive hazards contamination is at least 14 years.

In terms of production recovery, estimates by KSE Agrocenter suggest it would take at least 7 years to reach the pre-war level for the crop sector.

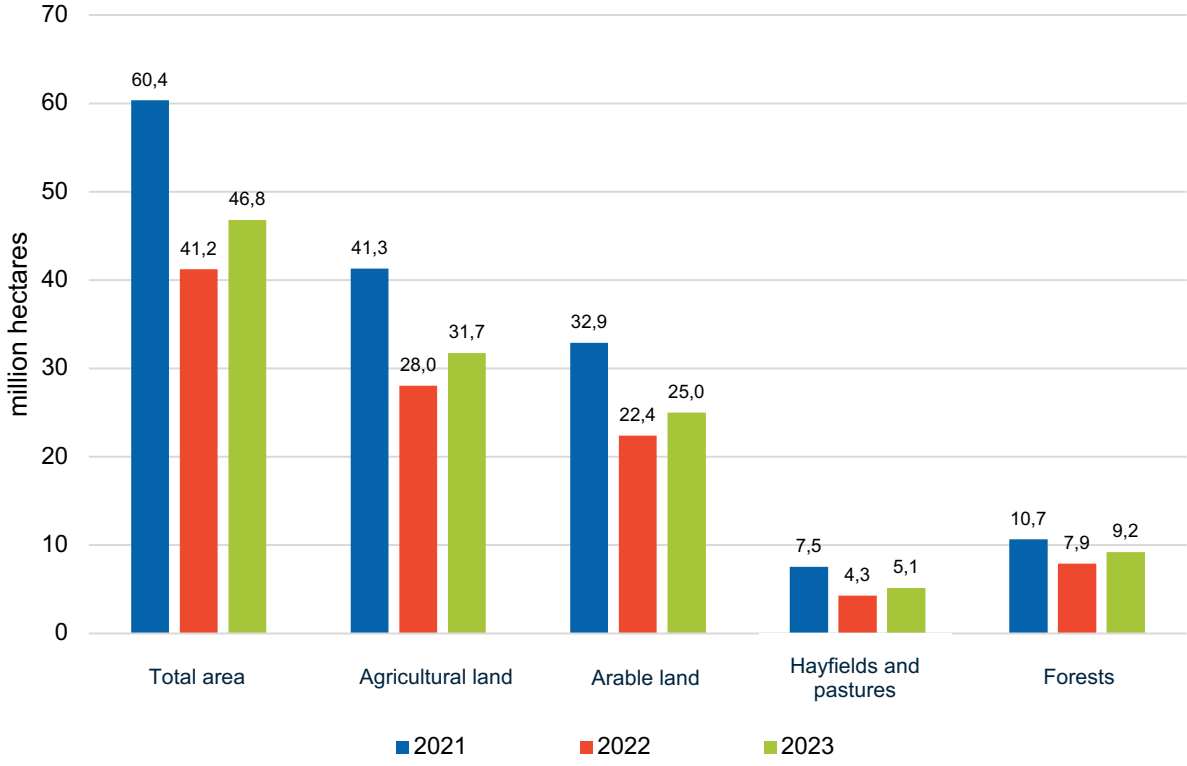
Sources: World Bank. Ukraine. Rapid Damages, Losses, and Needs Assessment. February 2023
KSE Agrocenter Working Paper. Agricultural Outlook Ukraine. 2030 cereals and oilseeds projections: 2023 end of the war assumption.

Land under occupation

By the end of 2023, roughly 24% (7.9 million hectares) of the Ukrainian arable land was under occupation or inaccessible due to military activity and explosive hazards contamination.

Using 2023 yield values, the production capacity of the occupied and inaccessible arable land could be estimated as:

- Wheat - 7.86 million t,
- Barley - 1.75 million t,
- Corn - 9.93 million t,
- Sunflower - 4.64 million t,
- Rapeseed - 1.3 million t,
- Soybeans - 1.47 million t



3 Access to land and finance

Land market

Financing options

Public support

Access to Land – Land Market I

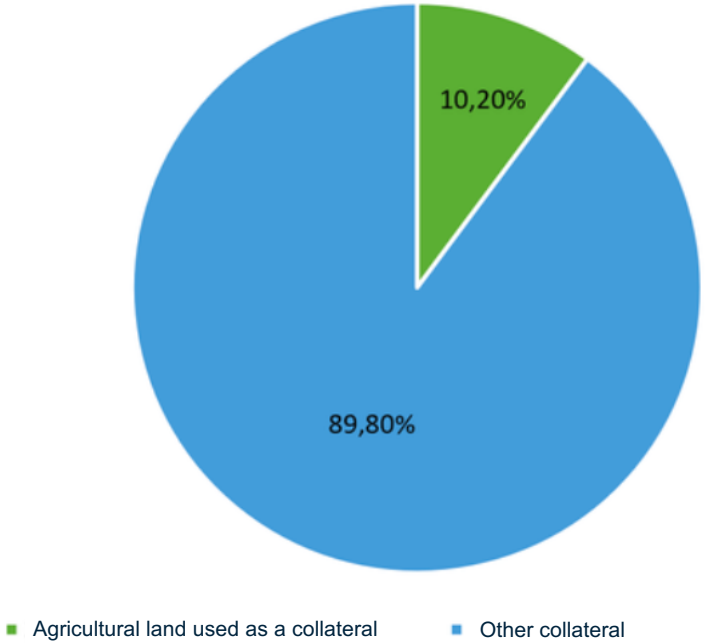
- On July 1, 2021, a ban on sale of agricultural land was revoked. Individual citizens were allowed to purchase and sell land. The limit of ownership was set at the level of 100 hectares per owner.
- Since January 1, 2024, the second stage of land market reform was implemented, allowing legal entities to take part in the market, with the ownership limit being increased up to 10000 hectares per owner.
- As of January 2024, 1.05% (432.2 thousand hectares) of the total agricultural land in Ukraine was in the circulation on the market. However, it is rapidly growing, with a 58% growth of area in circulation in 2022-2023; and is expected to grow further given the second stage of reform implementation in January 2024.

Source: KSE Agrocenter. Land Market in Ukraine. Q4 2023 Analytical Review

Access to Land – Land Market II

Establishing the land market allowed to make the access to finance easier for farmers and has a potential to contribute to the growing productivity, providing farmers with a new way of investment.

Over the period of March 2022 – December 2023, a total of 357 million UAH of new loans have been issued to agricultural sector. Only a small portion of them used agricultural land as a collateral (10.2%) due to the small size of the land market.
However, this share is gradually growing.



Source: KSE Agrocenter calculations based on NBU data

Access to Finance

Banking financing:

- State program “Affordable credits 5-7-9” (concessional credits)
- State portfolio guarantees
- International financial institutions' guaranties (e.g. IFC, EBRD)
- Concessional credits in a partnership with resource suppliers

Grants:

- Government grants E-Robota (Є-Робота) – orchards and greenhouses
- Various purpose grants from international institutions (e.g. FAO, USAID, EC)

4 Structure of the sector

Evolution of semi-substance versus commercial farms, mixed versus specialised farms

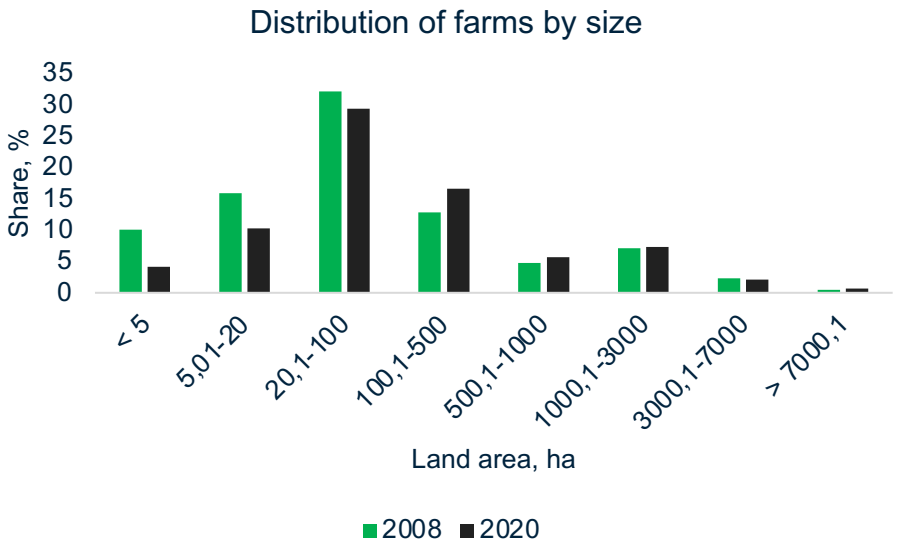
Share of farms by ownership

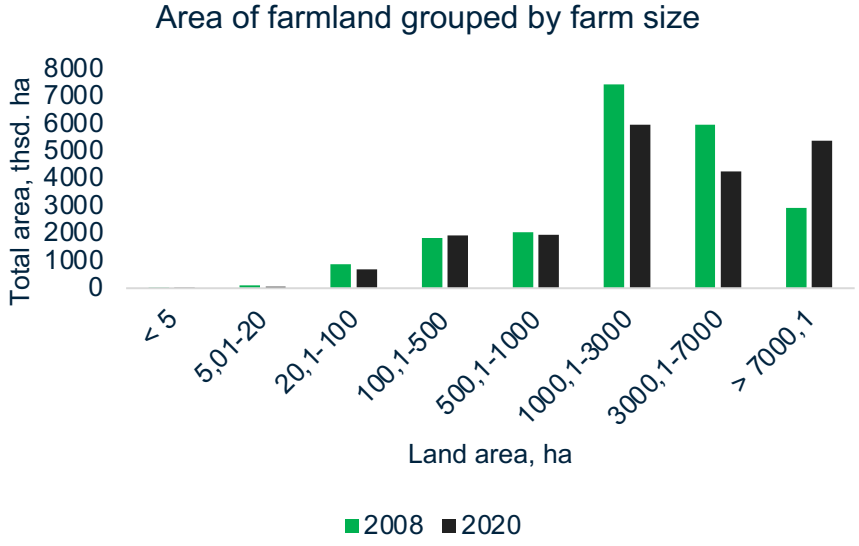
Productivity

Labor challenges

Farm structure

Key feature: consolidation of the sector.
2008: 50648 enterprises, 14% of them did not have agricultural land.
2020: 36277 enterprises, 23% of them did not have agricultural land.

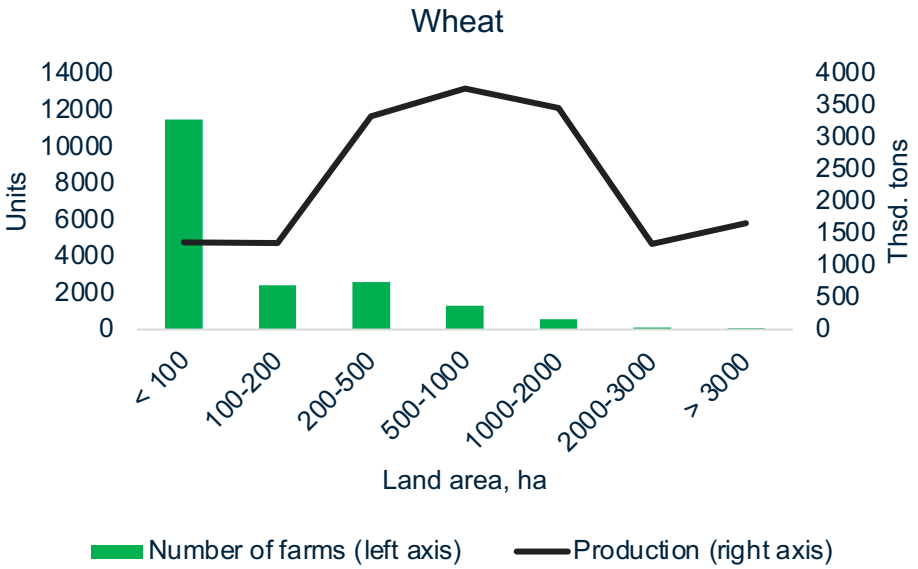


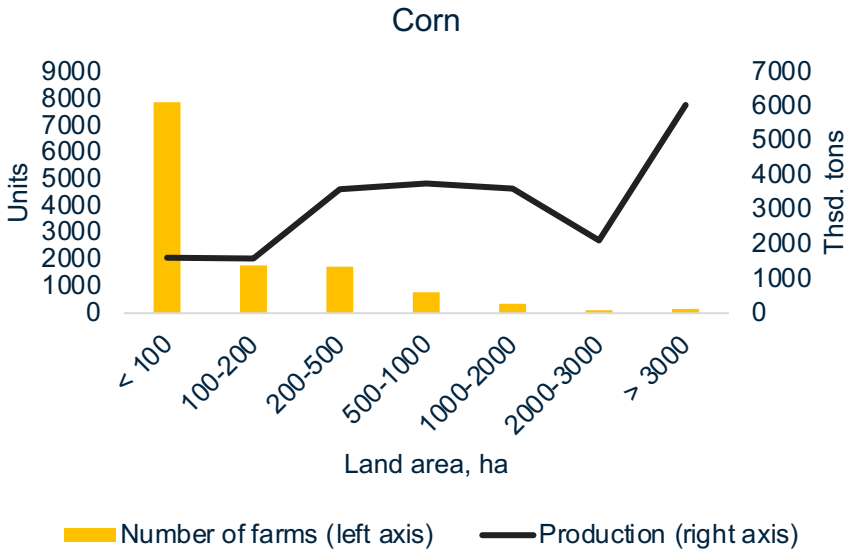


Source: Ukrstat

Farm structure: crop production

In 2020, the scale effect for corn production was more pronounced than for wheat production.

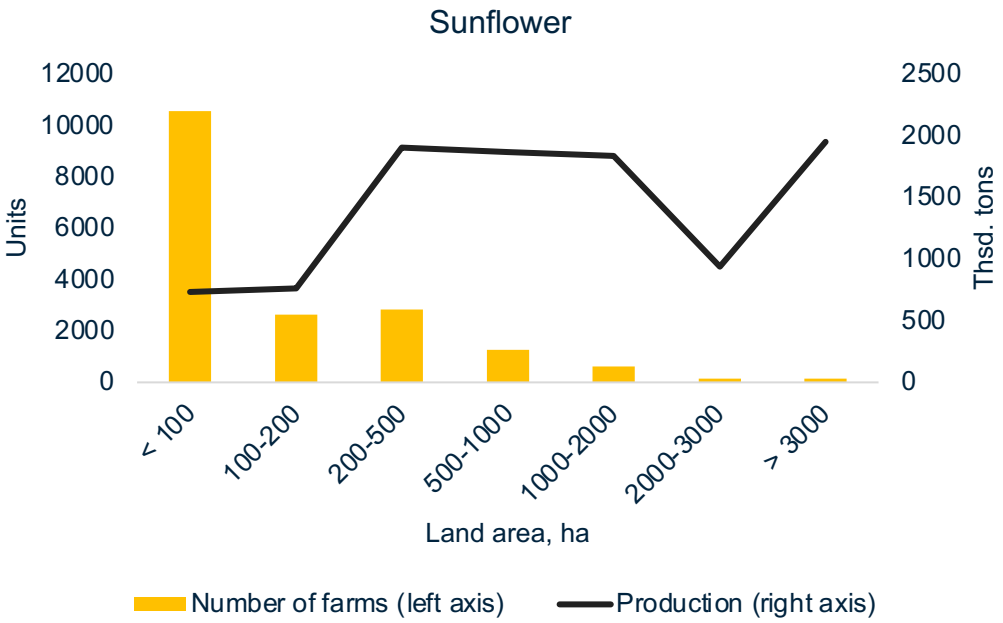


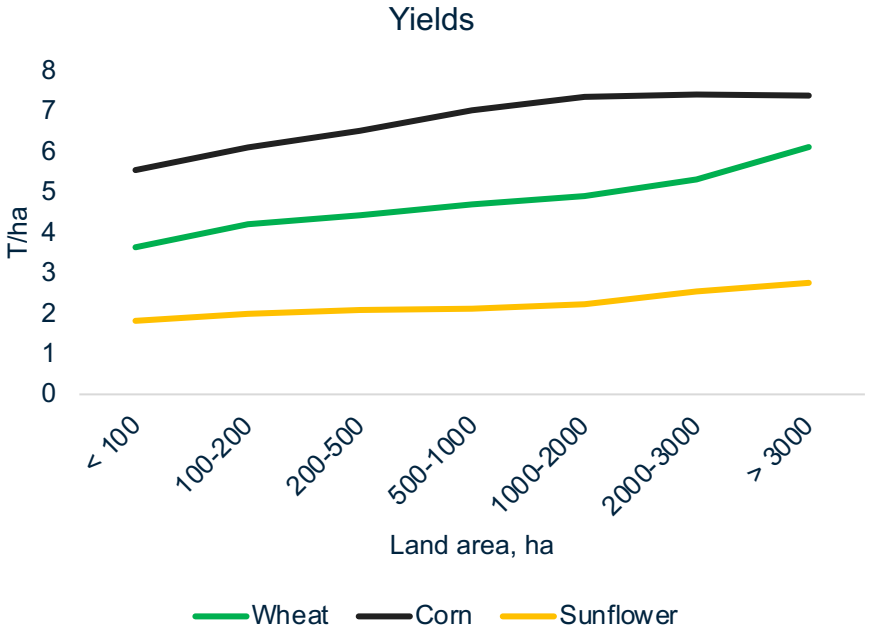


Source: Ukrstat

Farm structure: crop production (2)

Yields of top-3 crops are higher in large farms.

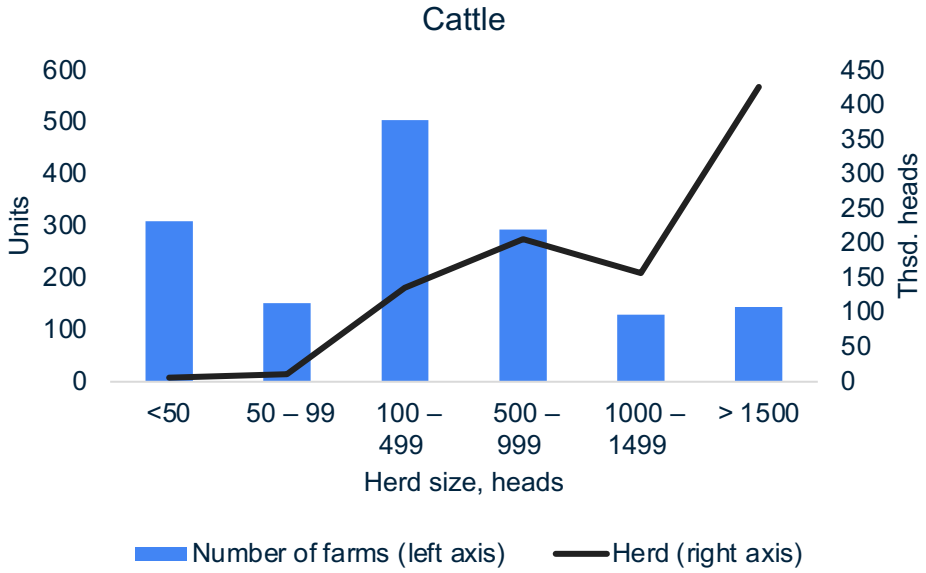


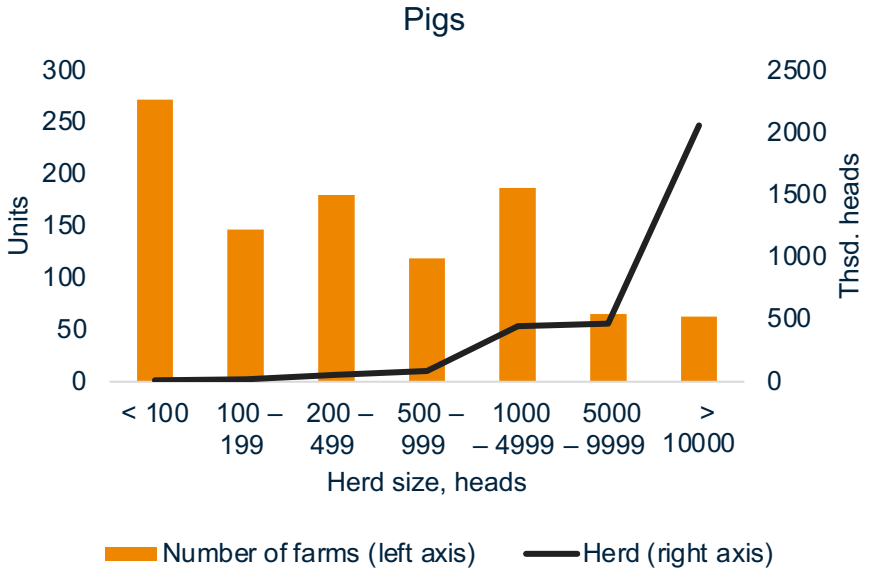


Source: Ukrstat

Farm structure: livestock production

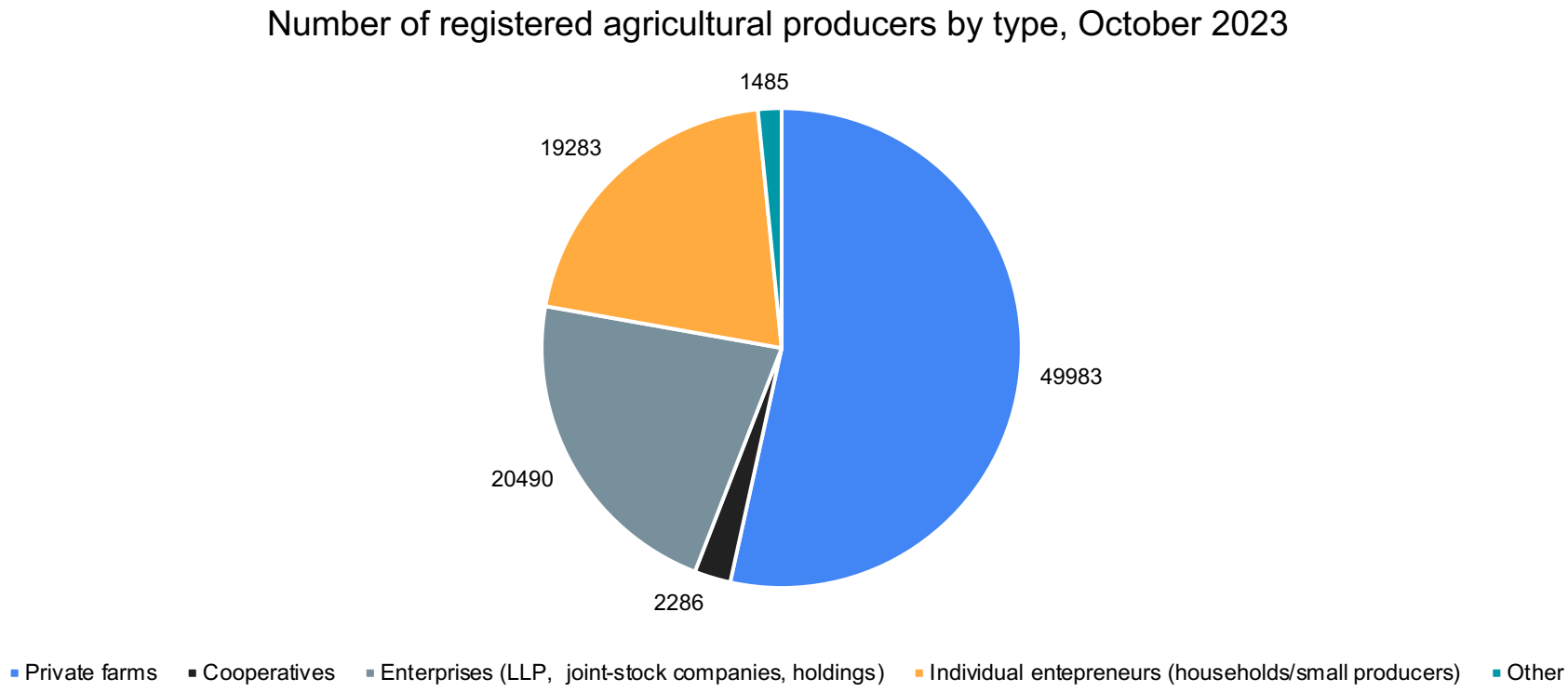
Pig production is more consolidated than cattle sector.



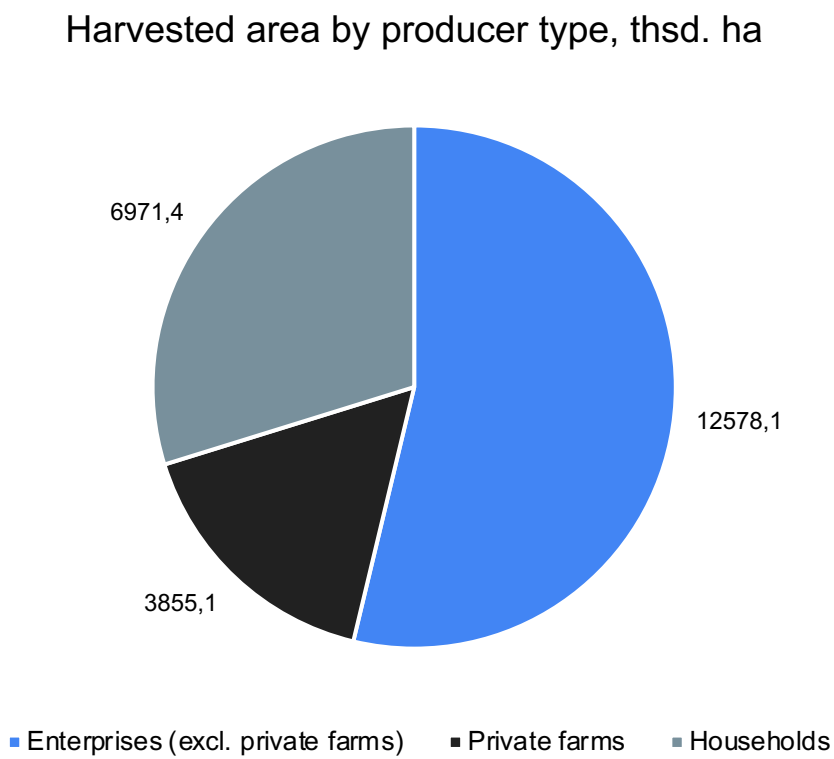


Source: Ukrstat

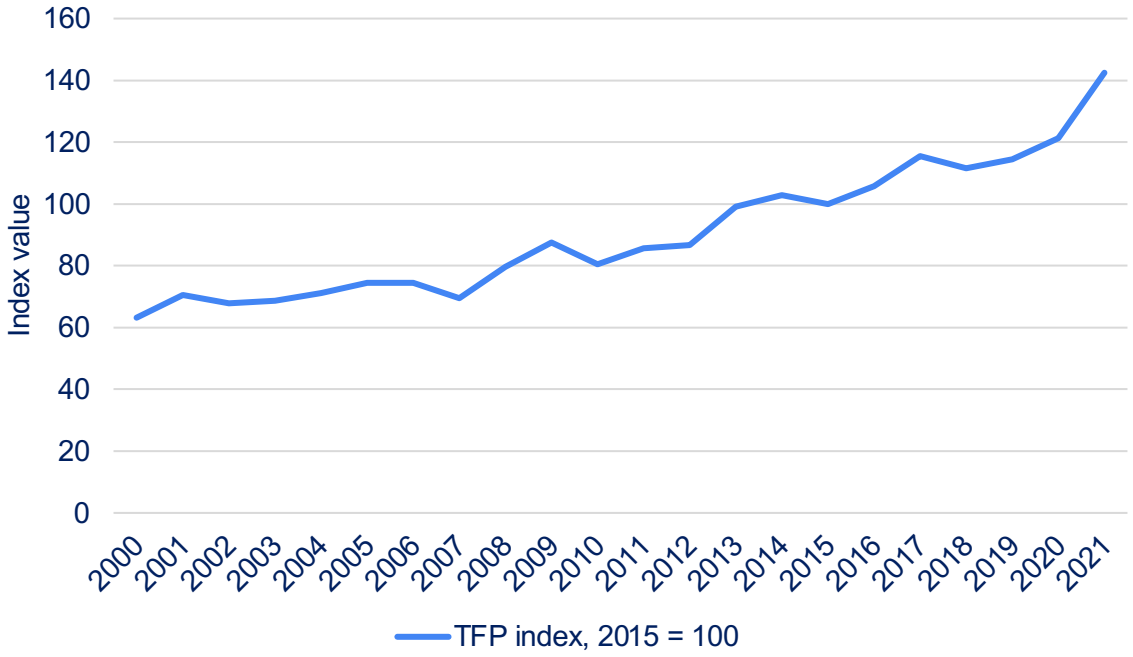
Share of farms by ownership type I



Share of farms by ownership type II



Productivity growth



Source: USDA calculations based on FAOSTAT data

Productivity and potential to grow it

2022 Total Factor Productivity estimates for Ukrainian agriculture by Deininger et al. (2023):

Farm size	TFP
<50 ha	0.908
50-120 ha	1.043
120-500 ha	1.085
>=500 ha	1.155
Total	1.033

Source: Deininger, K., Ali, D. A., Fang, M. Impact of the Russian Invasion on Ukrainian Farmers' Productivity, Rural Welfare, and Food Security. World Bank. Policy Research Working Paper 10464. May 2023

Productivity and potential to grow it

- The same study by Deininger et al. (2023) suggests that factors depressing the productivity of small farms (<50 ha) is tenure insecurity, which arises from the fact that these farms are mostly operating on the lands under the right of ”permanent use”.

- As these lands are non-transferrable and assigned to individuals, they will not survive the death of the original assignee, thus creating tenure insecurity that is likely to reduce incentives for land- attached investments.

Labor Challenges

- Primary labor challenge agricultural producers are facing is mobilization.
- Drafting working-age individuals reduces manpower for essential farming operations and creating deficit of qualified specialists (such as agronoms, veterinars, etc.) on the labor market, leading to potential yield declines and operational disruptions. This labor shortage strains remaining workers and diverts resources from agricultural investment, challenging the sector's sustainability and global food supply contributions.
- Additionally, mobilization makes medium- to long-term planning more difficult.

5 Food Security

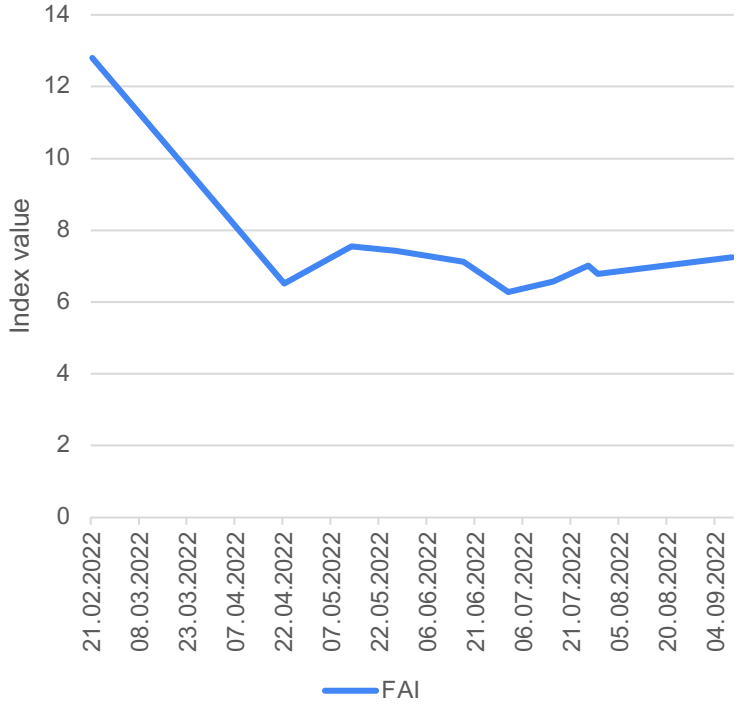
Domestic food security – availability and affordability

Contribution of Ukraine to global food security

Agri-food exports

Domestic food security

- As of 2023, domestic food security is not a major concern in Ukraine.
- There are no issues with the food availability across the country, with the exception of areas in the direct proximity to the front lines in the Eastern and Southern parts of the Ukraine.
- Food affordability, on the other hand, decreased, as compared to the pre-war level.
- The biggest drop in Food Affordability Index (FAI) was observed in spring-summer of 2022, due to the decrease in the average income and high consumer price inflation rate, which was fueled by the logistics disruption.
- By the end of 2022, FAI decreased by 43%, as compared to the pre-war level, reaching the level of 7.24
- Given the lower inflation rate in 2023 and the absence of new major economic shocks, it is assumed that FAI did not change significantly since 2022.



Source: KSE Agrocenter. Food Security and Agricultural Policy Review in Ukraine. October 18, 2022

Domestic food security

Many of these African nations faced significant levels of moderate to severe food insecurity, with Ukrainian wheat playing a crucial role in their domestic food supply. For instance, in

Egypt and Tunisia, where 28.5 percent of the population experienced moderate to severe food insecurity, Ukrainian wheat comprised 18.5 percent and 26.0 percent of the total domestic wheat supply, respectively.

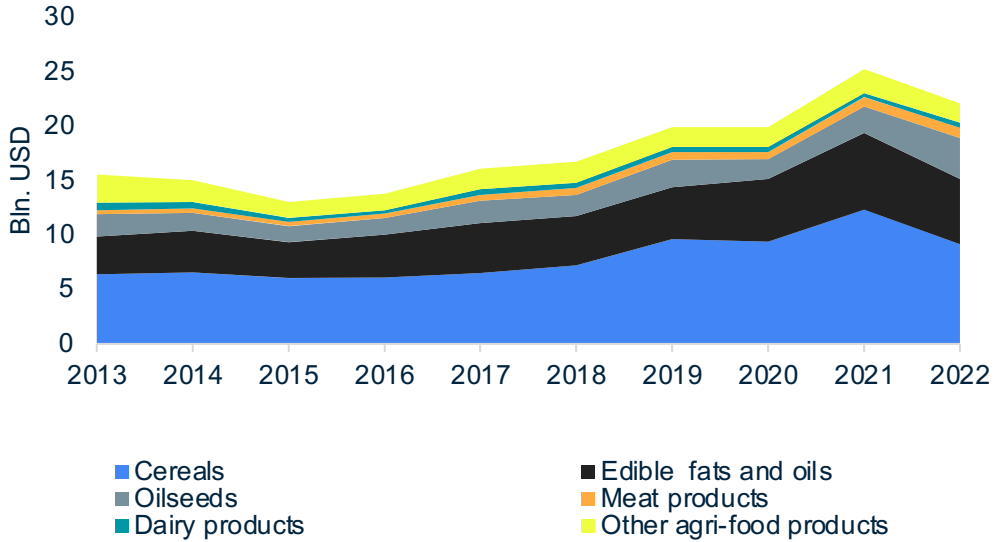
In Libya, where 39.8 percent of the population faced food insecurity, Ukrainian wheat accounted for 43.1 percent of the total domestic wheat supply.

In Kenya and Mauritania, with 72.3 percent and 53.7 percent of the population experiencing food insecurity, respectively, Ukrainian wheat constituted 10.0 and 26.3 percent, respectively, of the domestic supply (WB, 2024; FAOSTAT, 2024; ITC, 2024).

Source: KSE Agrocenter. Food Security and Agricultural Policy Review in Ukraine. October 18, 2022

Contribution of Ukraine to global food security

Ukraine's food export showed gradual growth over the last decade, it consisted mostly of cereals and vegetable oils. Overall more than 400 mln people globally depend on grain supplies from Ukraine (KSE Agrocenter).

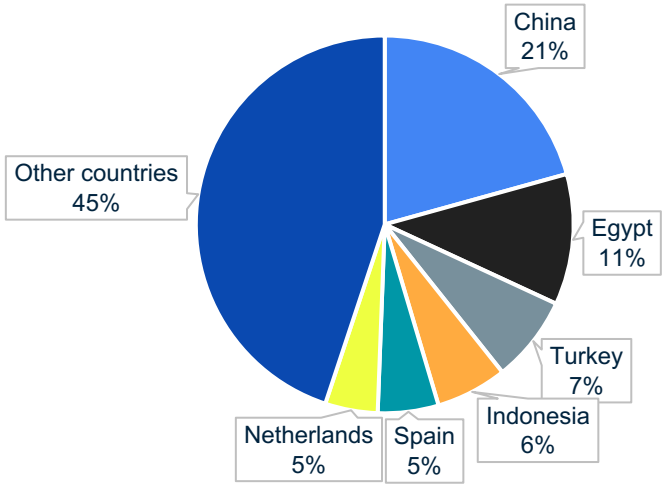


Source: ITC Trade map

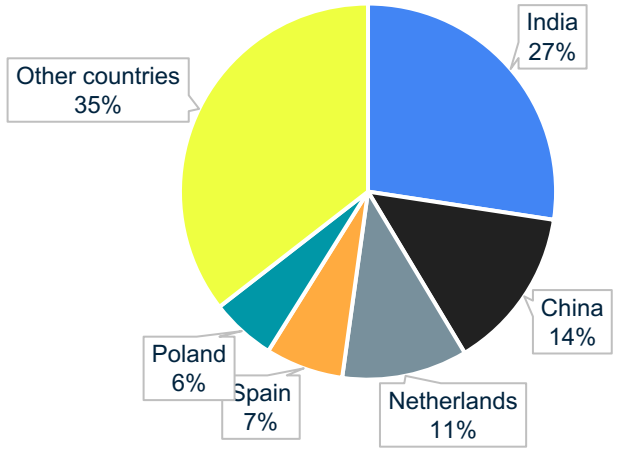
Geography of grains and oils export

Ukraine's export of grains and vegetable oils is oriented mostly on MENA region and Asian markets.

Cereals export in 2021



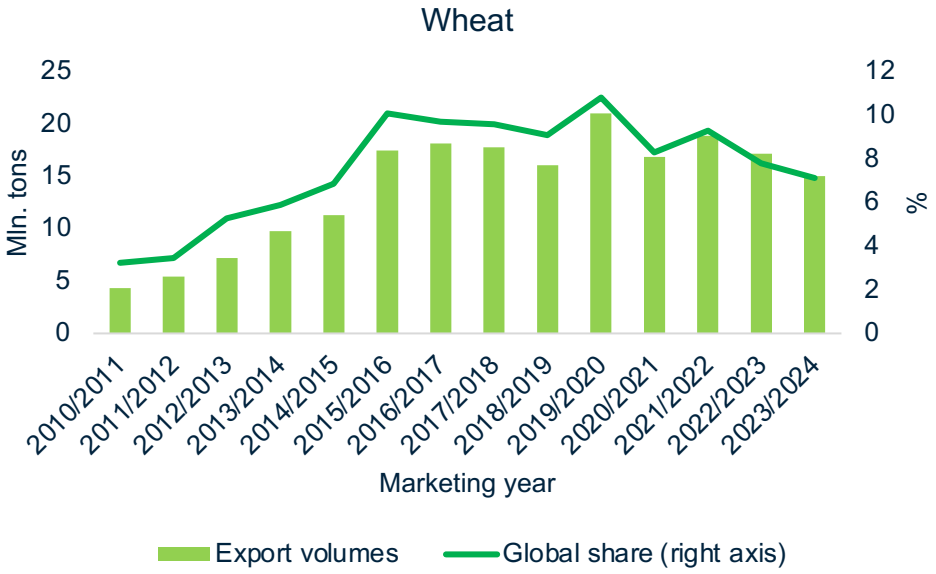
Vegetable oils export in 2021

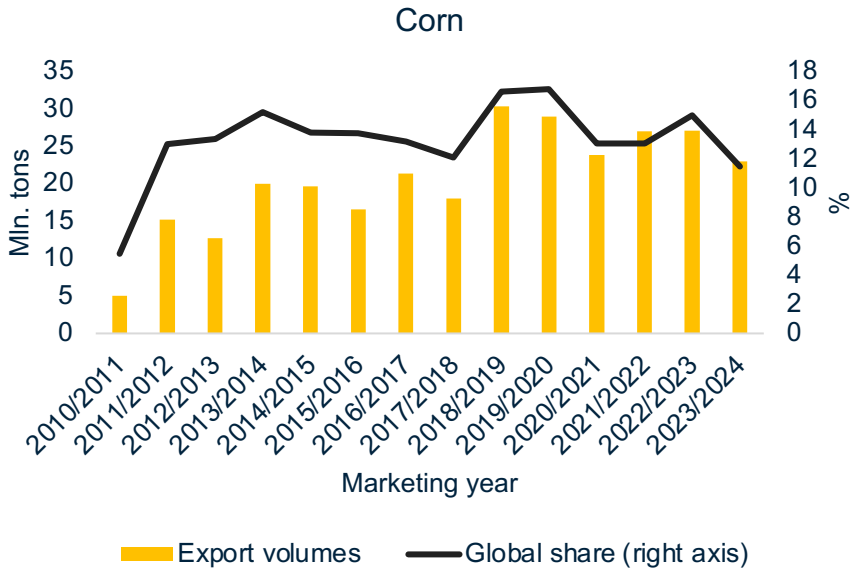


Source: ITC Trade map

Volumes of grain exports

Ukraine's wheat exports was relatively stable over the last decade, while corn exports gradually increased over the last pre-war seasons.

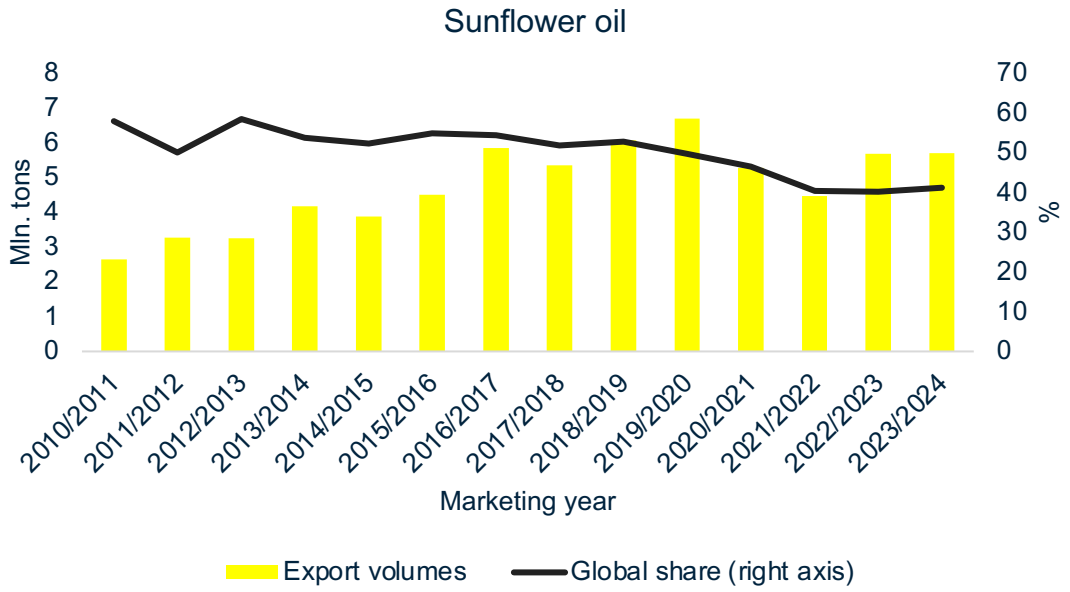




Source: USDA

Sunflower oils exports

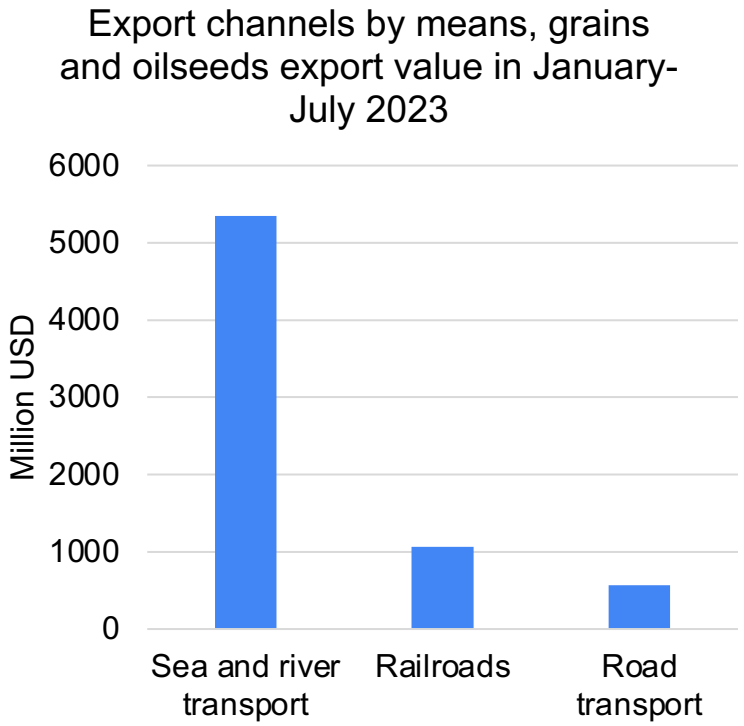
Ukraine is the global leader in sunflower oil exports taking around one half of the global market.



Source: USDA

Export channels

- Despite the war-caused complications, water transport remains the main export channel for Ukrainian agricultural commodities.
- The only available sea port in Odesa continues to operate, however export is complicated due to the Russian exit from the Grain deal
- The role of river ports on Danube have significantly increased. In 2023, as compared to the pre-war level, export of agricultural commodities increased by approx. 6 times (Sea Port Administration of Ukraine).
- Road transport remains less favorable due to higher costs of transit to EU ports, as compared to logistics to Odesa
- Railroads have limited capacity due to lack of freight cars and storage infrastructure.



Source: State customs service of Ukraine

6 Food supply chains

Processing of agricultural commodities

Shares of different distribution channels

Food supply chains

- Ukrainian food retail sector is mostly dominated by the large and medium retail chains.
- Retail chains accounted for approx. 78% of all food turnover. This share is even larger for meat and dairy – 90%
- The food retail is quite a concentrated market, with C4 index (market of 4 leading players) being equal to 64%, while the share of 2 largest chains was 55%, as of 2019, which implies possibility of oligopoly.
- Ukrainian Chamber of Commerce, provides the evidence of market power in the sector, which is executed in several supplier discrimination mechanisms:
- *Setting unreasonably long terms of payments (72 days on average, as of 2022)*
- *Requiring additional payments not related to sales contracts ("entrance fee", forced participation in modernization of stores, etc.)*
- *Obliging the supplier to provide information of its contracts with the third parties*
- *Forcing suppliers to lower the price so the retailer could provide a discount to the final consumer without lowering its margin*

Sources: Ukraine's Chamber of Commerce (2022). The analytical note from 19.10.2022;
Martyshev, P., Neyter, R., Piddubnyi, I. (2023) Food Processing. What's next? KSE Agrocenter