

Current and Long-Term Impacts of Russia's War against Ukraine on Ukraine's Agricultural Production and Trade

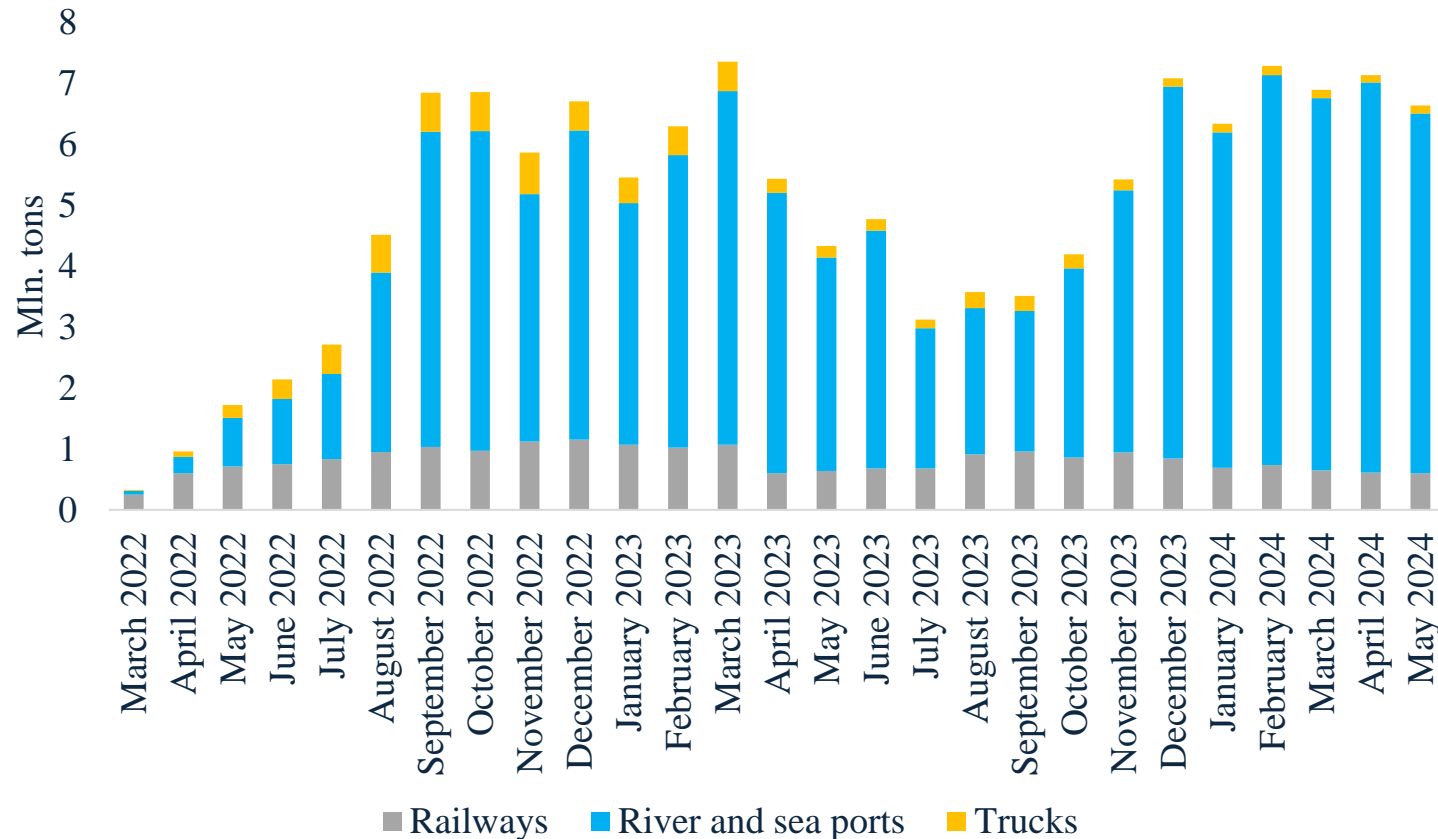
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Sector at a glance

- 2021->2022->2023: Ukraine's primary production agricultural sector (+forestry +fisheries) 10.8%->8.6% ->7% of GDP (in current prices).
- Following the full-scale invasion by RF, **crop area decreased by 15-21%**.
- Access issues to production factors, fertilizers, labor, fuel, destructed supply chains led to **reduced yields, unsown fields, unharvested areas**.
- Over two-thirds of grain and oilseed harvests are exported, forming a significant source of income from external trade. The blockade of ports led to a substantial **drop in exports**.
- The **direct war-related damages** to the agricultural sector **10.3 billion USD**, with more than half attributed to destroyed machinery.
- **Indirect losses** are **69.8 billion USD**, almost 50% of them are losses of crop production and 35% are low output prices.

Grain exports by the type of transport

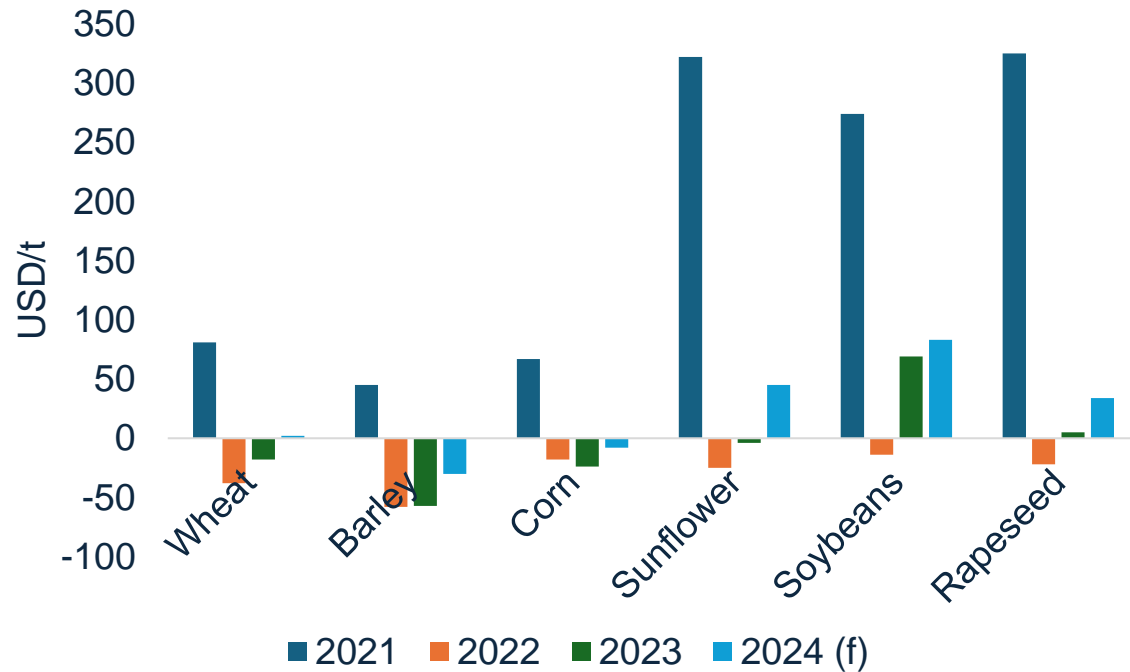


• The share of sea transport exceeded 90% in the last months.

Source: State Statistics Service of Ukraine

Sectoral profitability

The profitability of crop production

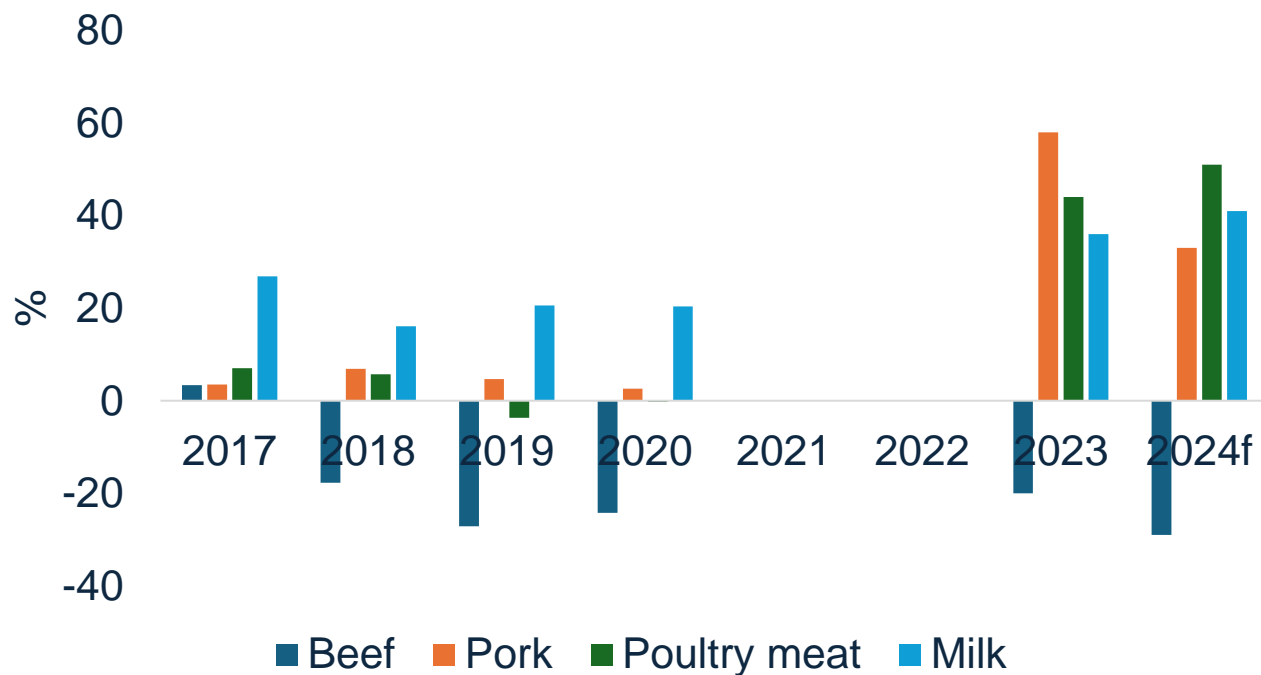


- Oilseeds are more profitable in both pre-war and wartime periods.
- Resilience of oilseed sector is explained by: a) lower share of logistic costs in their price; b) strong demand in the neighboring EU countries.

Source: Ministry of Agricultural Policy and Food of Ukraine, Ukrainian Agribusiness Club

Sectoral profitability

The profitability of livestock production

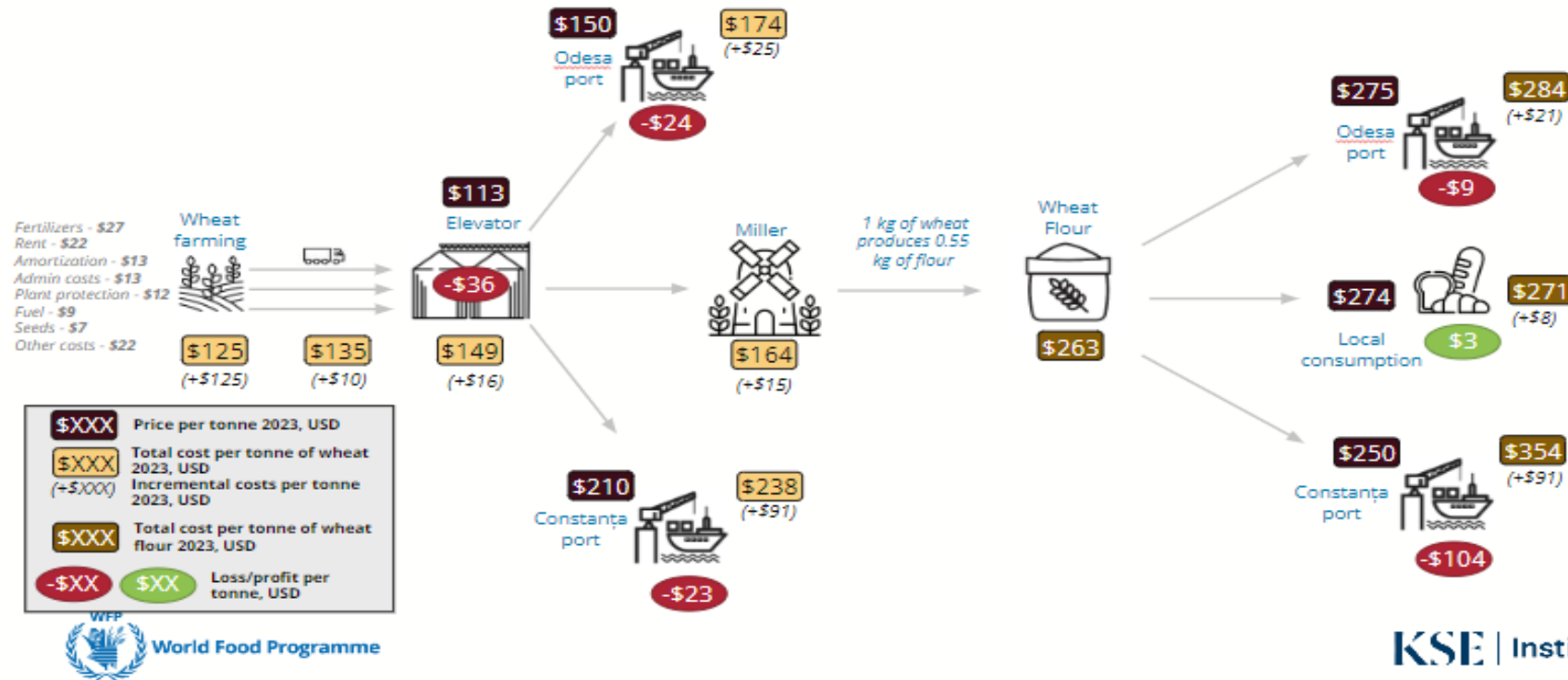


- Ports blockade and abundance of cheap feed increased livestock profitability.
- Beef production shows pronounced stagnation, while poultry sector is the most resilient.

Source: Ministry of Agricultural Policy and Food of Ukraine, Ukrainian Agribusiness Club

Profitability of food processing: example of wheat flour production

In many sectors, domestic processing does not ensure increased value added.

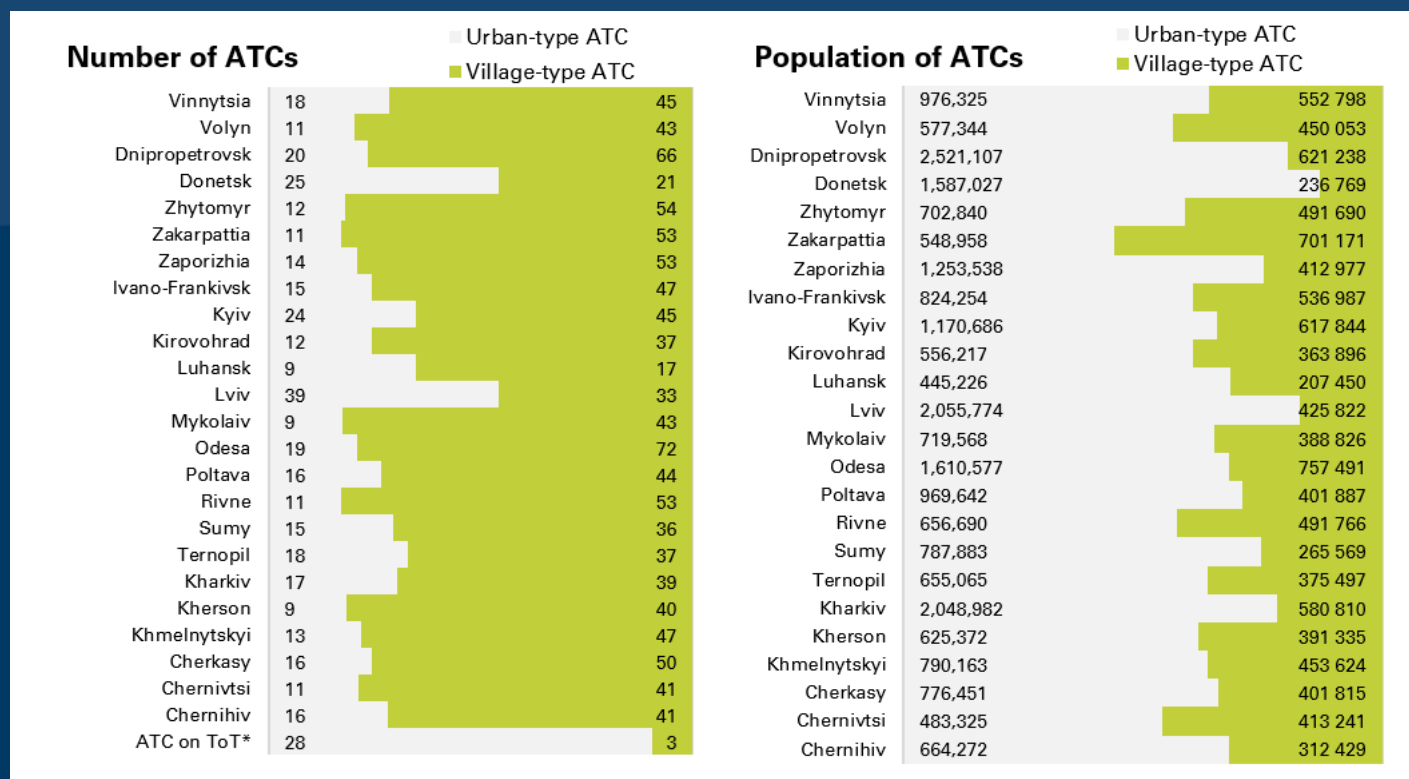


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Source: WFP, <https://reliefweb.int/report/ukraine/ukraine-wheat-flour-and-sunflower-oil-value-chains-analysis-value-chains-focus-smaller-farmers-and-processors-near-frontline-april-2024>

Rural communities

Structurally, among 1469 ATCs, 72,2% of ATCs are classified as rural-type ATC, and 27,8% are classified as urban-type ATC . Nevertheless, rural ATCs count for 31,1% of the total population of ATCs (10,85 m of people), while 68,9% (24 m residents) live in urban ATCs. Initiated in 2015, the **decentralization reform** granted hromadas substantial **financial and decision-making autonomy**.



Rural communities before the war

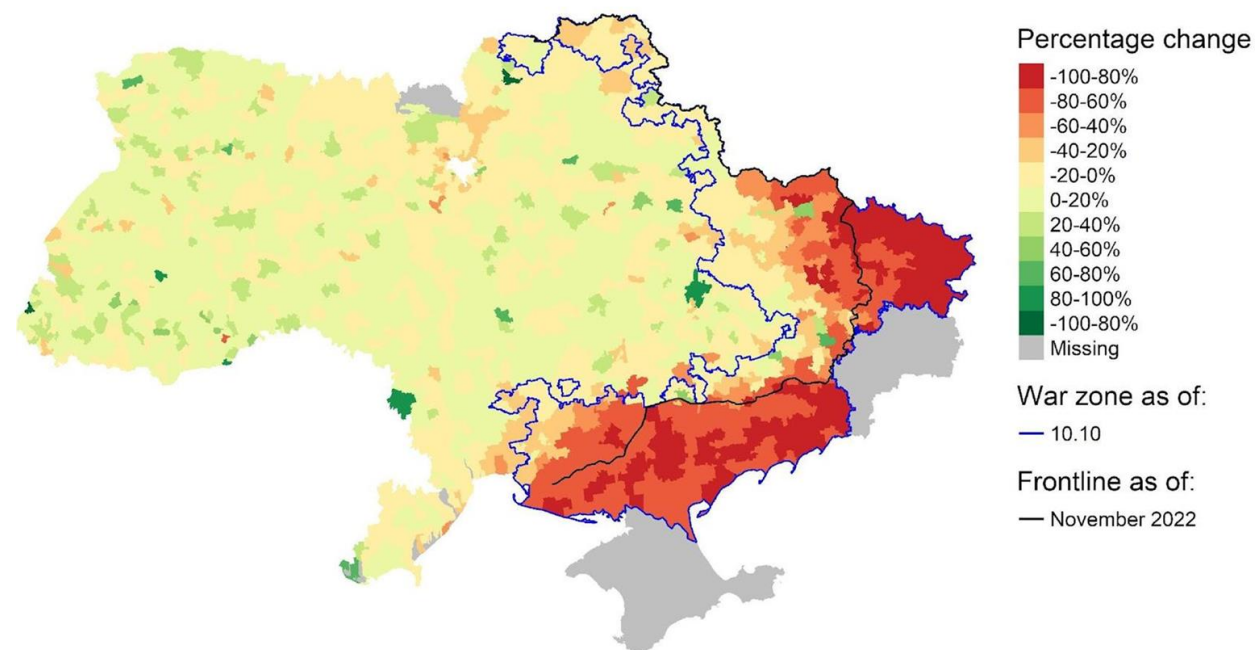
Before the invasion, KSE modeling showed that rural hromadas had significant **potential to boost their budget revenues** - by **22%** on average. This increase in revenue would have allowed them to either expand their spending on public goods and services or reduce their reliance on state budget subsidies, thereby enhancing their financial independence.

Rural communities during the war

The full-scale war has caused severe disruptions to hromadas, including financial, humanitarian, migration, and logistical challenges. Nearly 70% of hromadas near the combat zone suspended administrative services in the early months of the invasion.

Own-sourced revenues change during May 22 - Feb 23

(YoY, excluding subsidies and PIT of military personnel)



Source: own representation based on Ministry of Finance of Ukraine data.

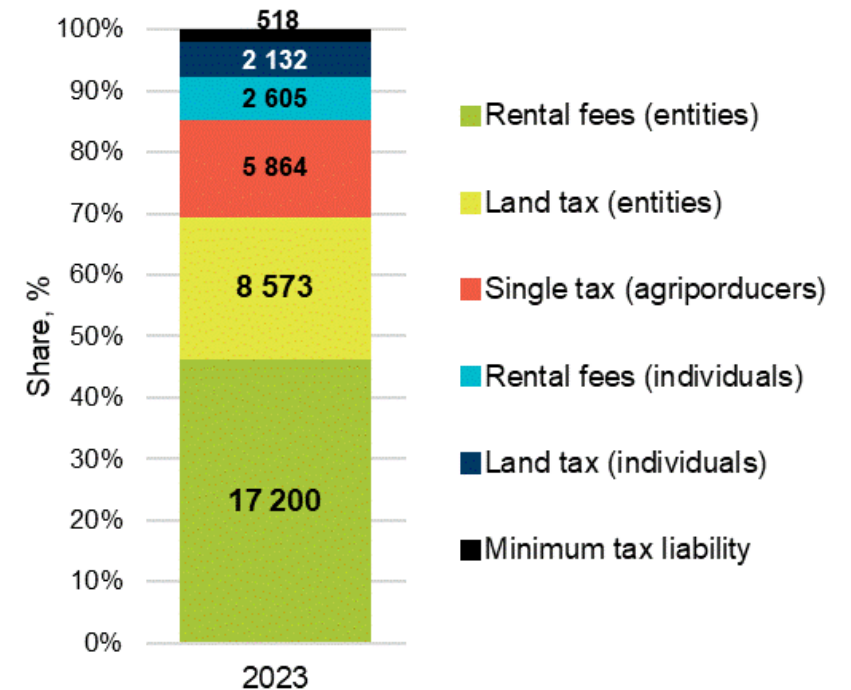
Approximately 15% of hromada tax revenues come from taxes and fees related to the use and circulation of agricultural land. These include rental fees for communal land, land taxes, and the tax on agricultural production.

Agricultural enterprises allocate 10% of their profit tax to hromadas budgets.

1% increase in revenues of agricultural companies, on average, corresponds to a 0.03% increase in the community's revenues.

1% increase in the annual crops' yields correlates with a 0.12% increase in hromada's revenues.

Hromadas budget revenues associated with agricultural land use and circulation, UAH million



Source: own representation based on Ministry of Finance of Ukraine data.



History of land reform

In 2001, a moratorium on farmland sales was introduced, which prohibited the sale of most of the farmland in Ukraine.

Until **July 1, 2021** (7 months before the full-scale invasion) the moratorium on agricultural land sales was in force.

During the first phase of the reform, only individuals were allowed to buy land, up to 100 hectares per person.

The second phase, which started in January 2024, allowed legal entities to buy the farmland. The limits were lifted to 10,000 hectares for a single buyer.

Land market. Key numbers

Since the land market opening there were

237
thsd. sales

covering **612 t. hectares** (1.5% of all farmlands in Ukraine or 1.8% without territories affected by war).

Average parcel size sold

2.2
hectares

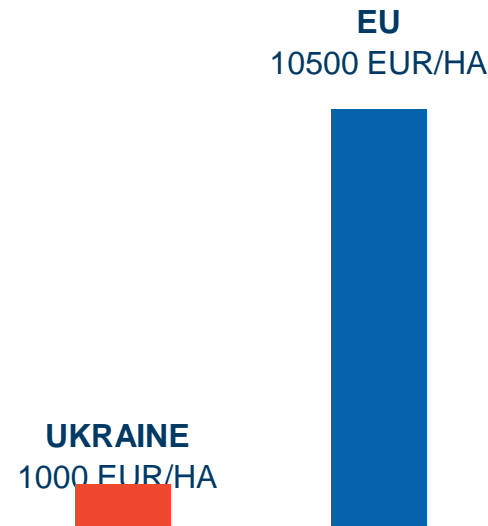
The problem of land fragmentation. Farmland sales market in its current form is inefficient way to scale up production as the “average” parcel is located in the middle of the field and its size effectively prohibits commercial farming.

Allowing access for legal entities boosted nominal land prices by

21% in 2024

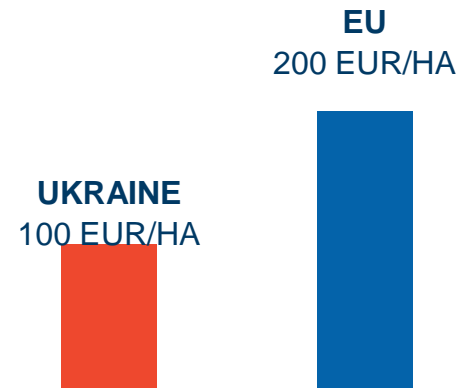
Land market. Key numbers

The land is undervalued compared to the EU.



The average “official” **sale price is 45 t. UAH per ha** (roughly 1000 EUR/ha). Unofficial price - roughly 1400 eur per ha. The average price for farmland in the EU is 10.5 t. EUR per ha.

SALE PRICE



The average **rent price** is approximately 100 EUR per ha, vs. 200 EUR per ha in the EU.

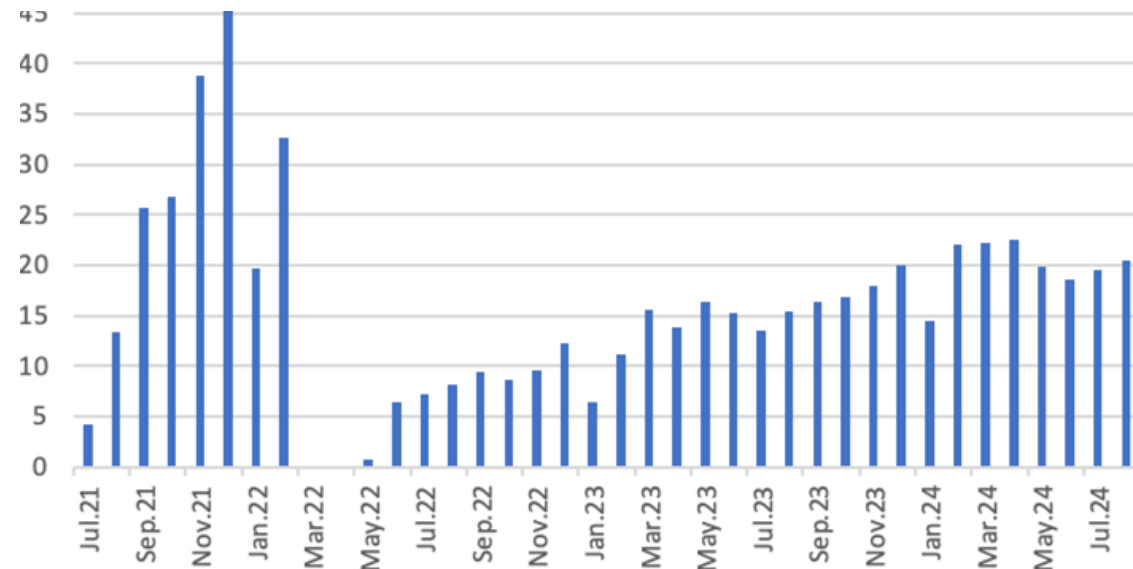
RENT PRICE

Land market. Key numbers

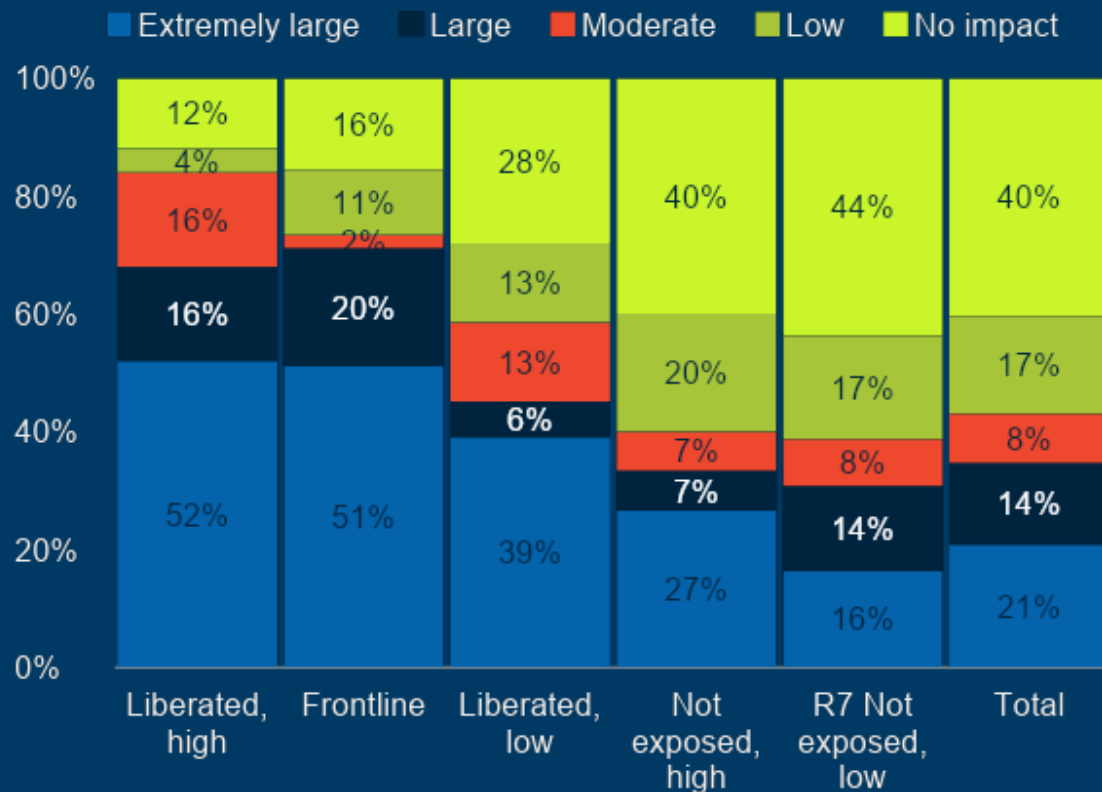
War halted the land market, with the monthly average market size dropping from 26 t. ha before the invasion to 8.3 t. ha in the remainder of 2022. However, **the market slowly recovers.**

In some regions unaffected by the invasion, the farmland market volumes already exceed pre-invasion levels.

Monthly dynamics of the farmland sales, t.ha



War-induced labor shock



- **980 Ukrainian farms surveyed** across five macro regions on war-related labor shortages.
- **40%** reported no impact, while **21%** experienced extremely large impacts.
- **Large farms** were most affected, with **53%** reporting severe impacts, compared to **23%** of micro farms.
- Farms in **combat zones** faced significantly higher labor shortages than those exposed only to strikes.
- **Frontline** and **liberated areas** saw **68%-73%** of farms experiencing large impacts, while **non-combat** areas saw around **30%** reporting large impacts, with most experiencing minimal or no effects.
- According to producer's survey (Ukrstat), as of end of 2022, **19% of farms expected war-induced labor force shortage.**

Soucre: KSE Agrocenter, WUR estimates

Agricultural producers

Four distinct types of crop producers based on data analysis:

Agricultural holdings

structures of vertically and/or horizontally integrated large commercial farms, which benefit from centralized management, higher resilience, and better access to finance. On average, holdings achieve higher levels of productivity than the other types of producers, but not necessarily higher efficiency

Large commercial farms (>200 ha)

Follow the same production patterns as agricultural holdings, but operate independently. Thus, are more vulnerable in face of crises and supply chain disruptions. Slightly lower yields of cereals and oilseeds

Small commercial farms (<200 ha)

Mostly family-run farms, on average achieve lower yields than the larger farms. Less crop diversification;

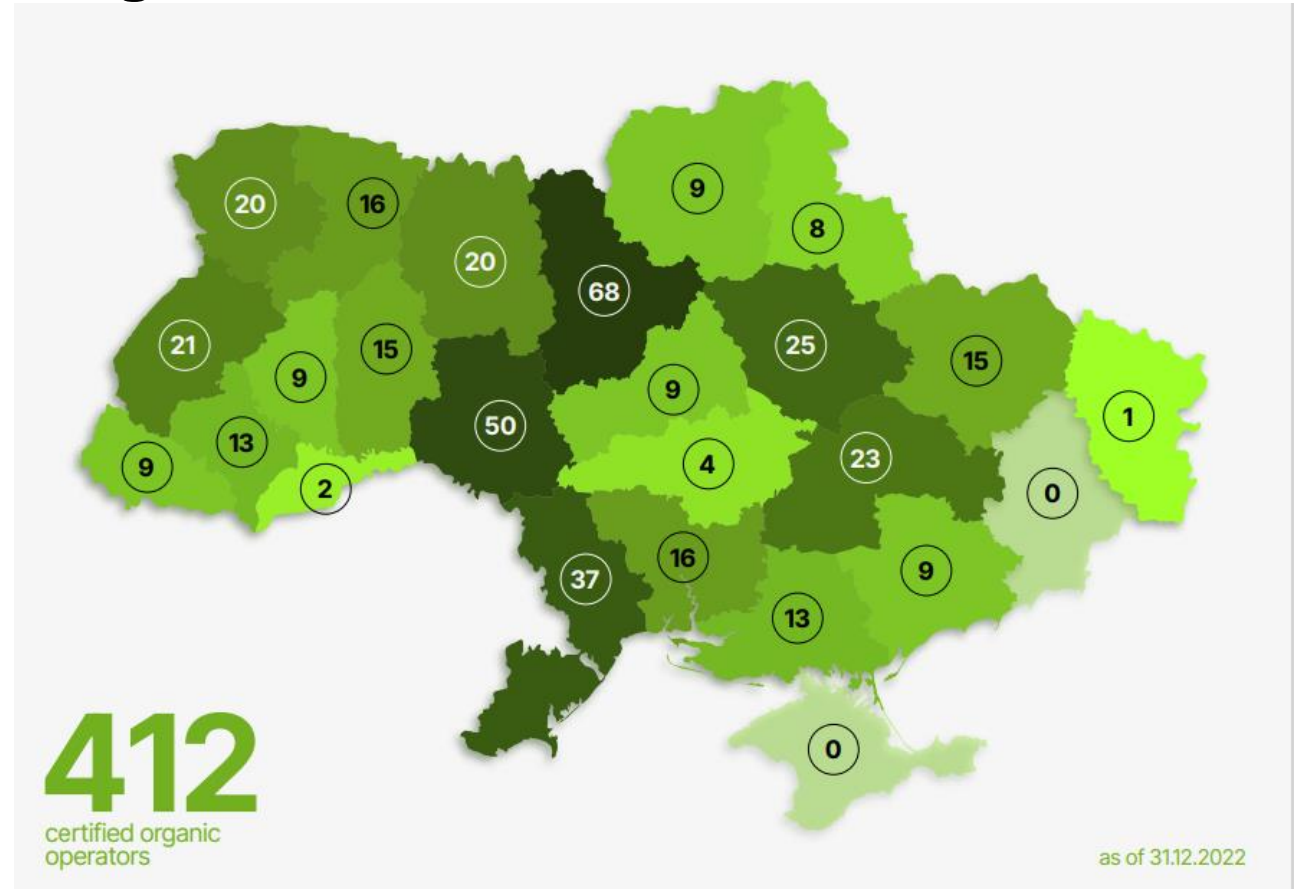
Households

Primarily subsistence farming with surplus sold in local markets. On average, yields are comparable to those of small family farms, due to higher labor intensity. More focused on production of niche cereals (oats, rye, barley), accounting for 66%, 49%, and 47% of the respective crops national output. Almost no production of oilseeds.



**Regulation (EU) 2018/848
of the European
Parliament and of the
Council of 30 May 2018 on
organic production of
agricultural products.**

Organic farming in Ukraine – Certified according to EU-organic regulation



31.12.2022: 412 organic operators (2021: 528 organic operators) - 78 %

31.12.2022: 260.000 ha (2021: 420.000 ha) – 62 %

Organization of Agricultural Producers in Ukraine

Business Associations:

- UCAB (large agribusinesses)
- UAC (medium-sized farmers)
- European Business Association,
- American Chamber of Commerce,
- Ukrainian Grain Association
- and other narrowly focused agrarian associations (about 20 active)

In total more than 100 agrarian associations.

Cooperatives: 1269 (as of 2021), less than 1% of agricultural production value

Few agricultural cooperatives are created in Ukraine due to the low awareness of farmers about the benefits of cooperation, lack of confidence in trust and cooperation, and the negative experience of cooperation during the Soviet Union.

Services and Functions:

- **Lobbying and Advocacy:** Influence policies on taxes, subsidies, and trade.
- **Market Access:** Promote Ukrainian products and open new markets.
- **Legal Support:** Assist with land reform, trade laws, and compliance.
- **Supply Chain:** Help manage storage, transportation, and distribution.
- **Education:** Provide training to improve farming practices and technology adoption.

Short- and long-term projections of agricultural production and trade

Method: AGMEMOD Ukraine model

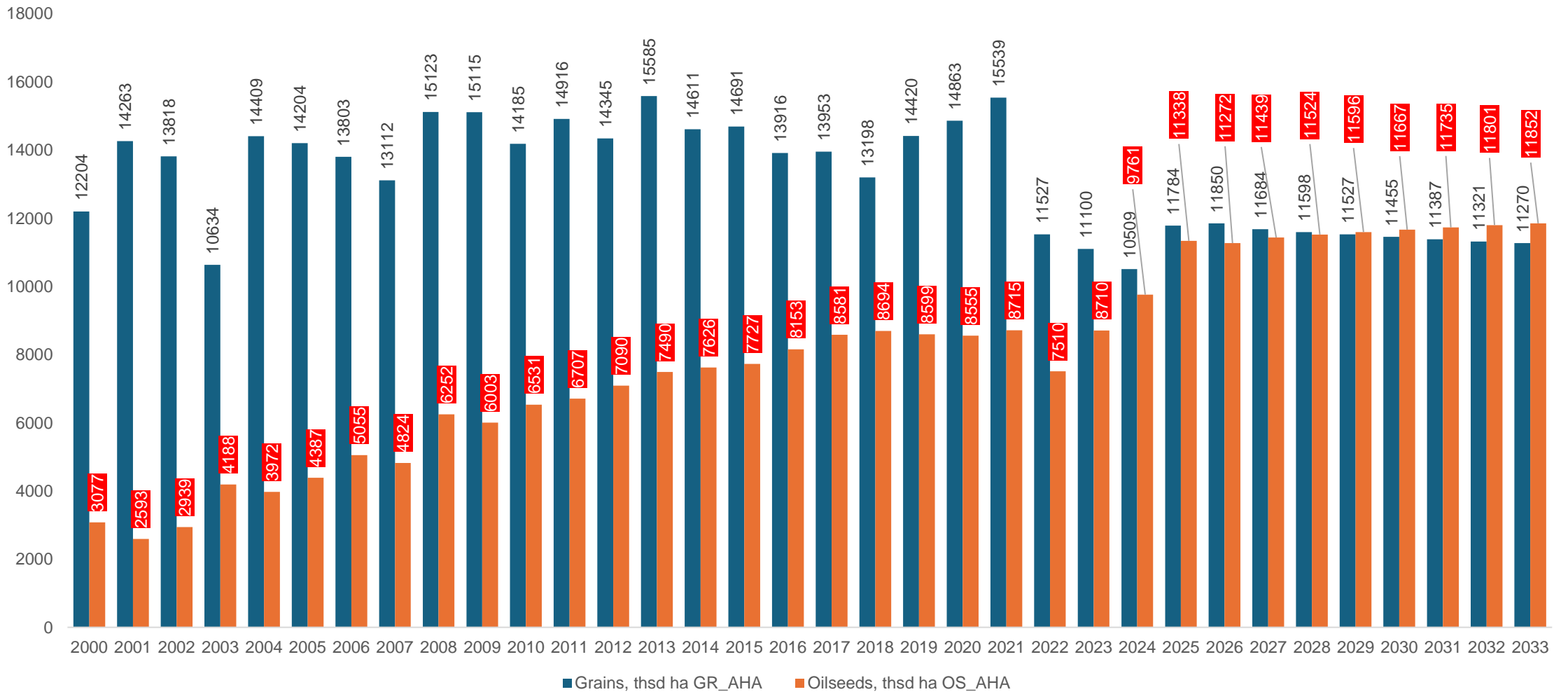
Data: Ukrainian State Statistics Service, FAOSTAT, USDA, OECD-FAO, own surveys

Projection assumptions:

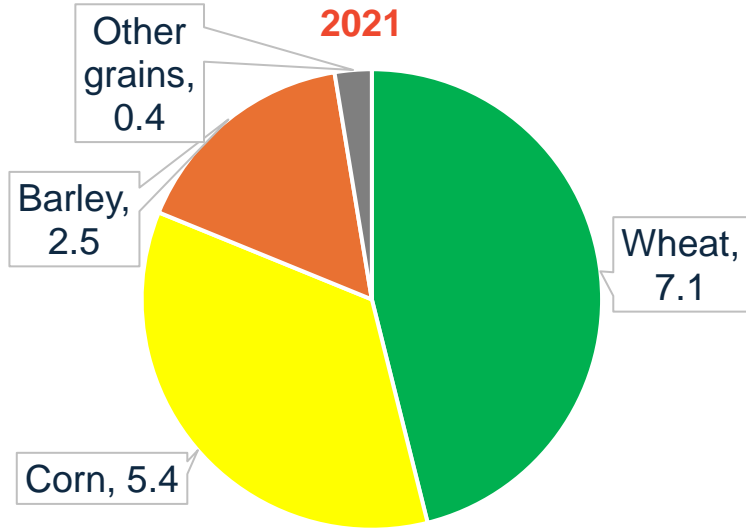
- end of the war in spring 2025
- no subsidization of agricultural production
- status quo of production technologies
- return of emigrated labor
- currency exchange rate and GDP projections according to the estimations of the Ministry of Economic Development and Trade of Ukraine

Grains and oilseeds areas

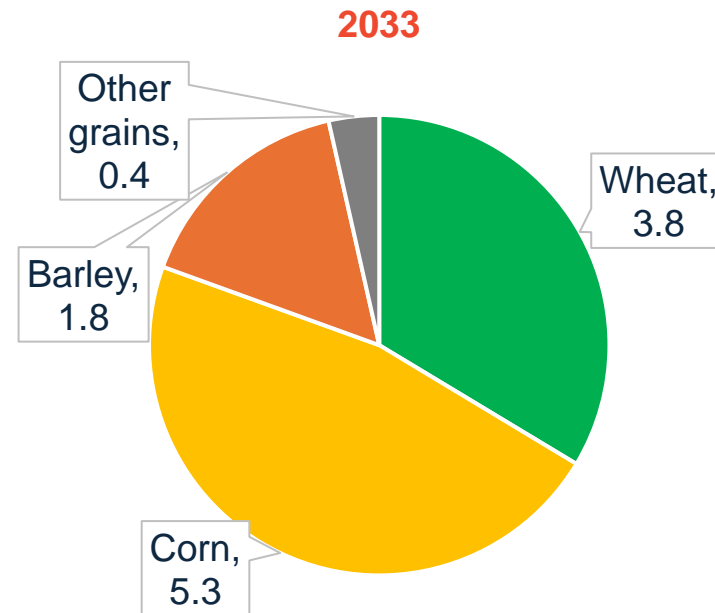
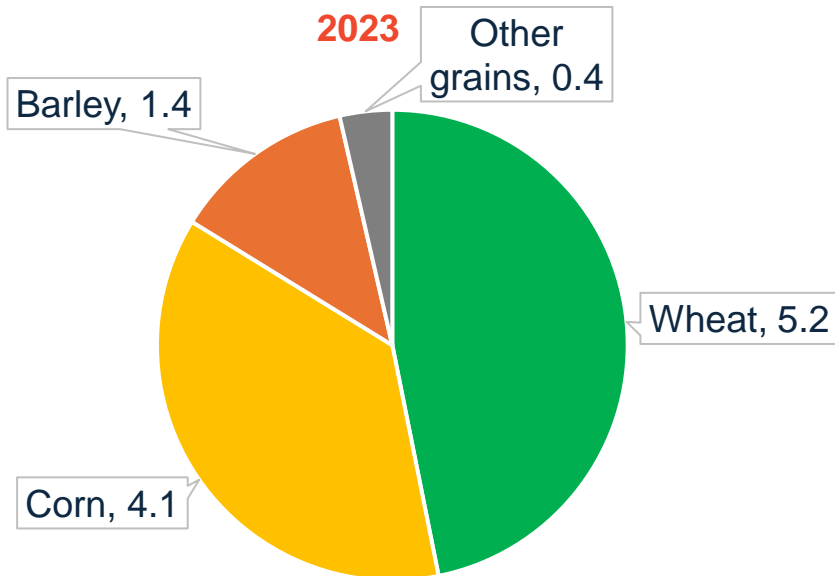
In the post-war period, grains will be substituted by oilseeds.



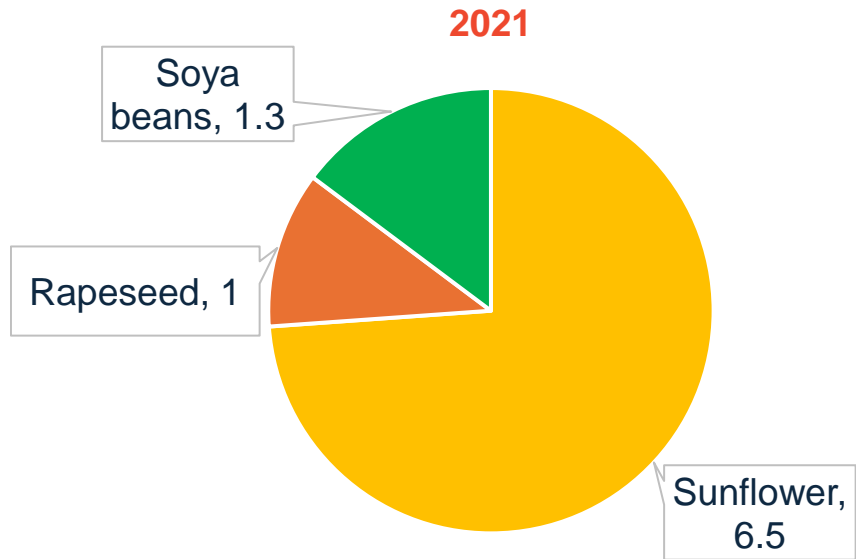
Grains area distribution



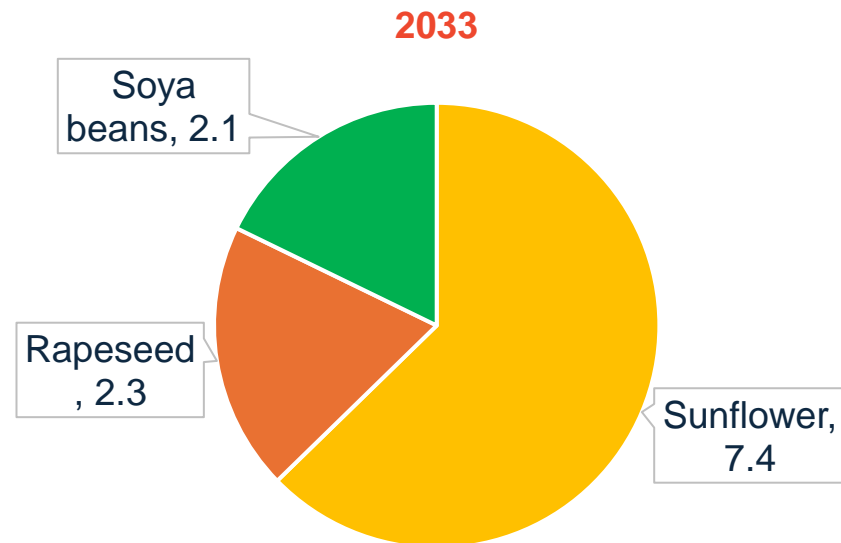
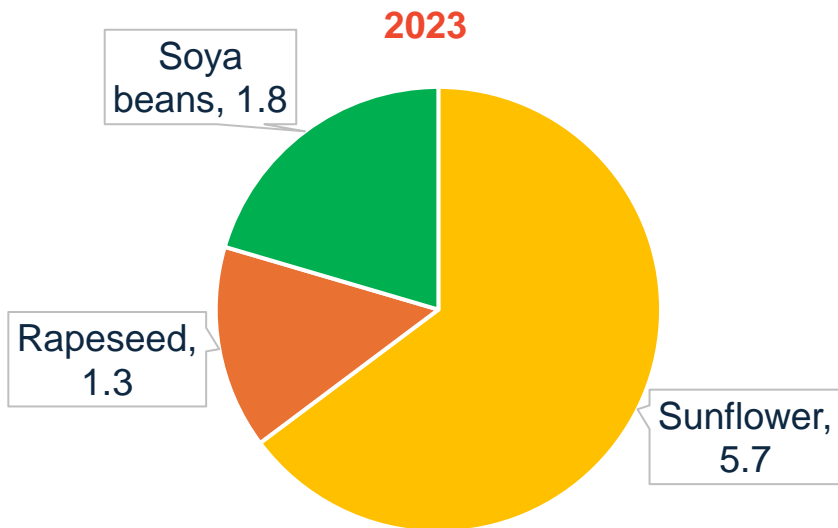
- Wheat is projected to be replaced by more profitable maize.



Oilseeds area distribution



- Areas under all oilseeds are projected to grow.
- The growth of rapeseed areas in the most pronounced.

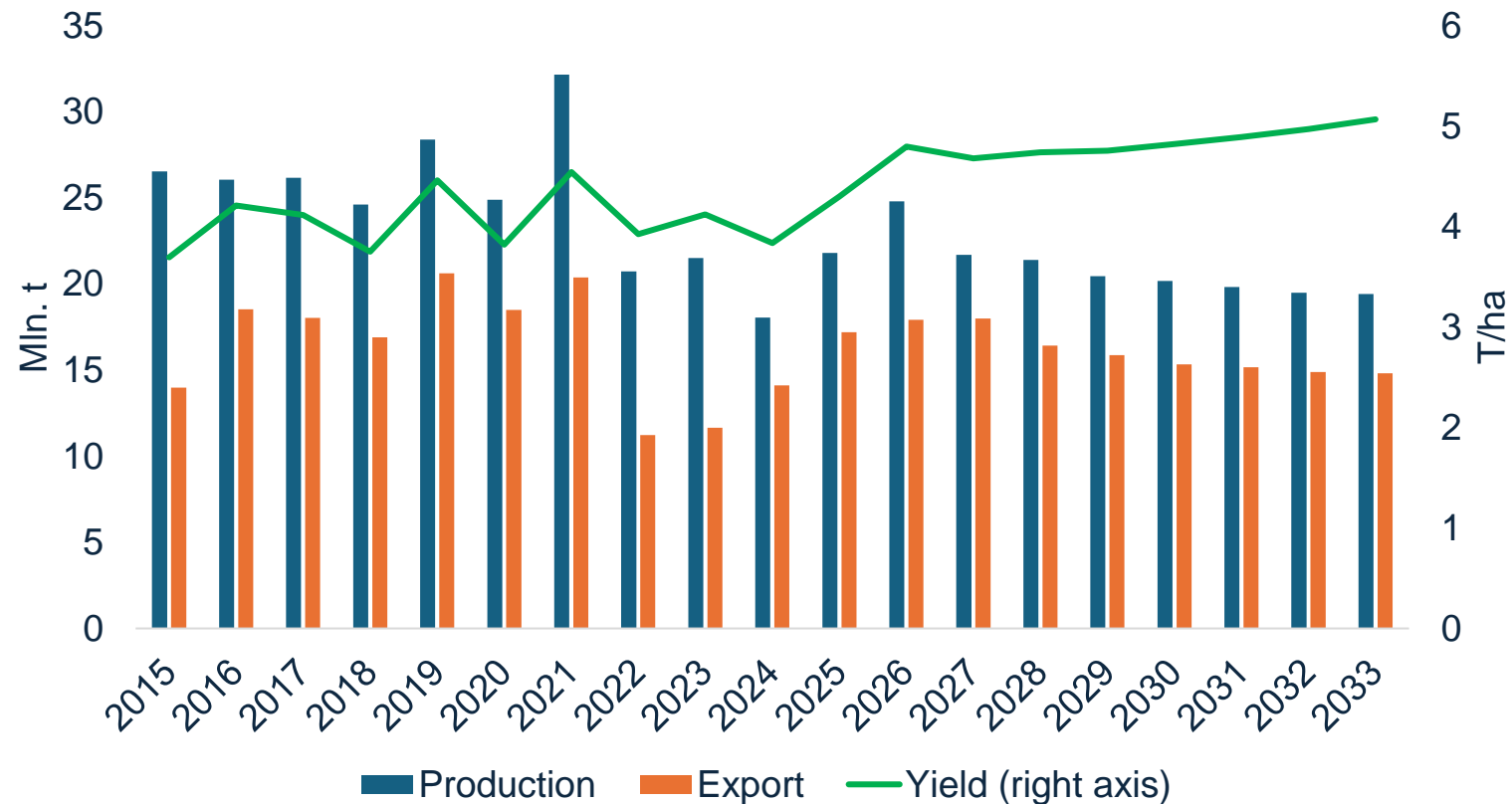


Soft wheat

Decline in wheat cultivation area due to:

- Shift from grains to oilseeds, reducing overall grain area.
- Decreased proportion of wheat within total grain area.

Reduction in wheat's share of total grain area is driven by shift towards maize. By 2033, production is forecasted to reach only 19 million tonnes.

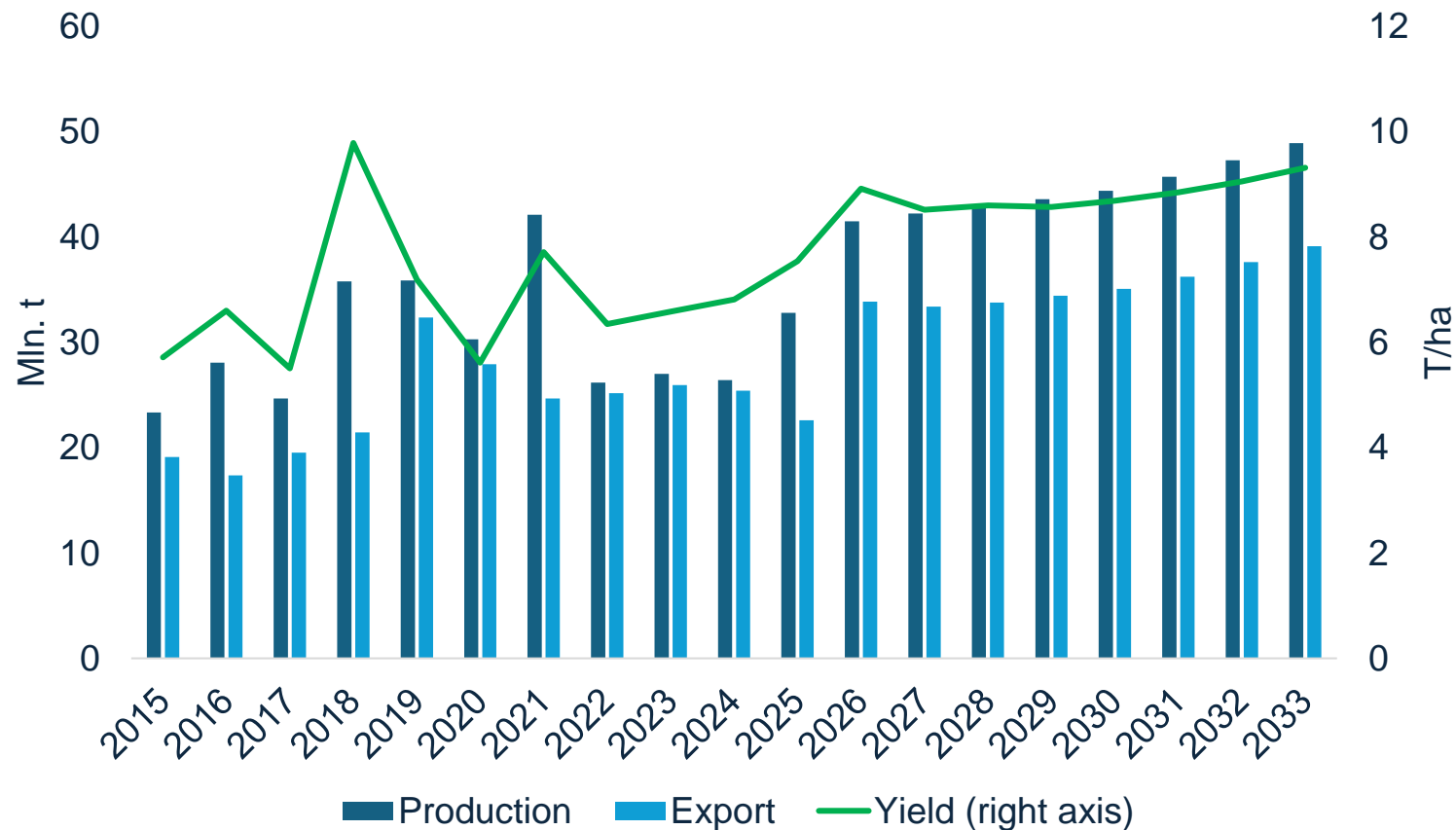


Maize

Maize cultivation area will expand driven by ongoing favorable climate trends.

Post-2025 area growth will be limited by oilseeds area growth.

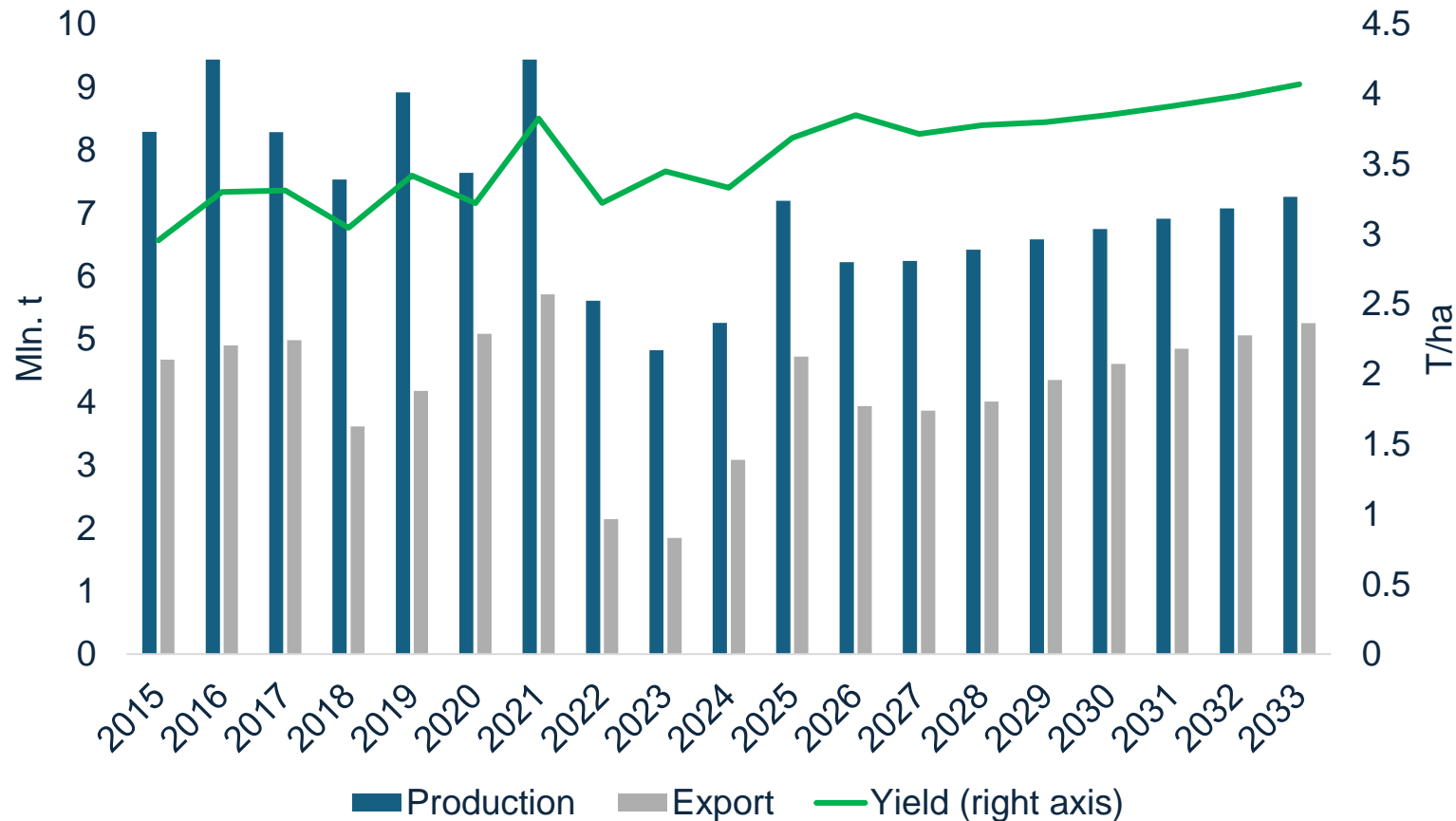
Maize share in total grain area will continue to increase, surpassing wheat and other grains, due to higher gross market returns.



Barley

Post-war recovery in barley cultivation area is projected, however at lower levels than pre-war due to oilseed expansion.

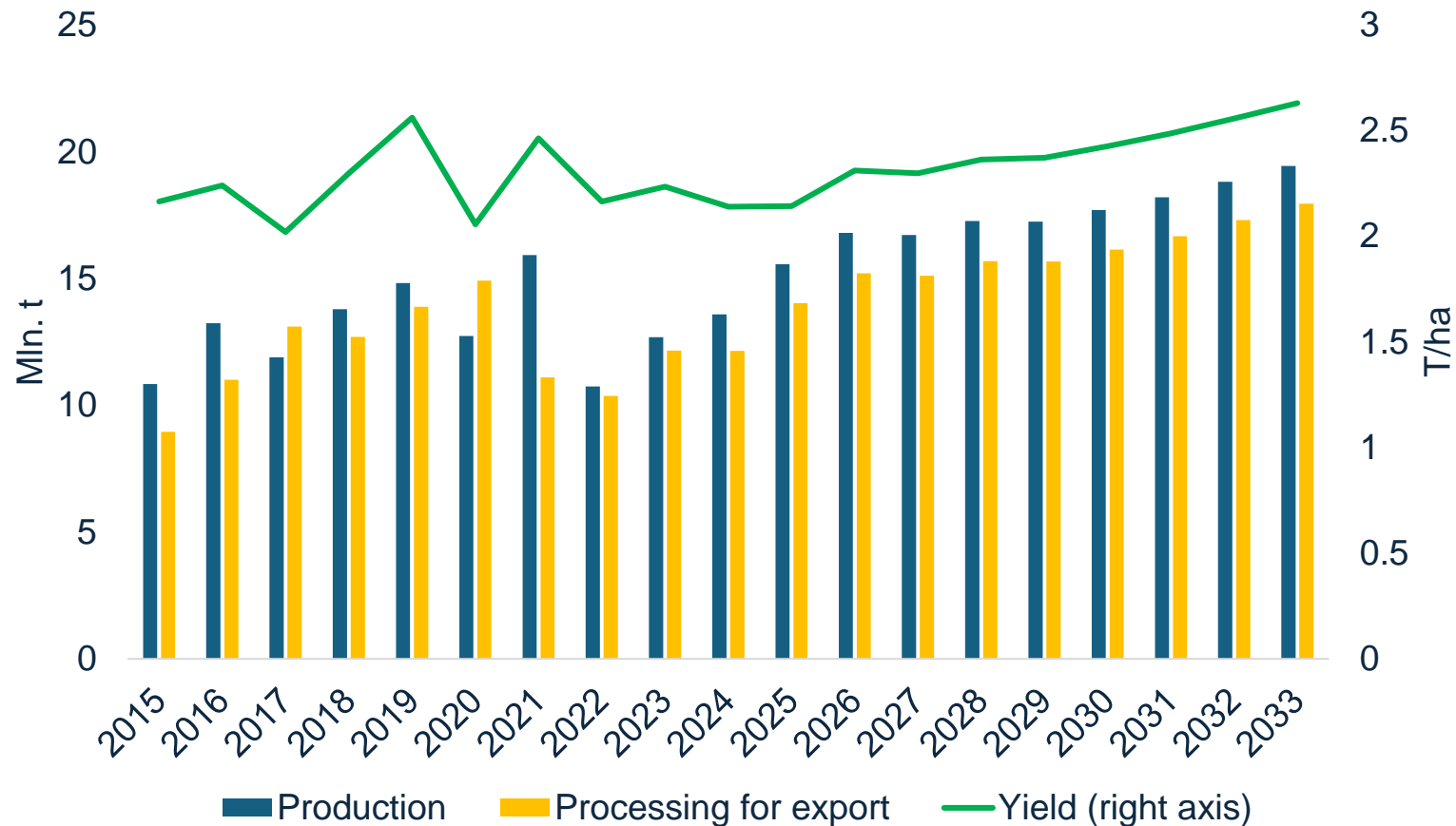
Barley's cultivation area and its share of the total grain area will stabilize.



Sunflower seeds & processed products

Sunflower seeds' harvested area to see a modest positive trend, benefiting from the general shift from grain to oilseed cultivation.

The sunflower seed's share in the oilseed sector is projected to decrease, impacted by rapeseed's growing area.



Rapeseed

Rapeseed harvested area growth:

- Rise in rapeseed share within the total oilseed area;
- Increase in the oilseed/grain area ratio.



Soya beans

Soybean areas to rise post-war, followed by a decline influenced by a reduced share in the oilseeds area.

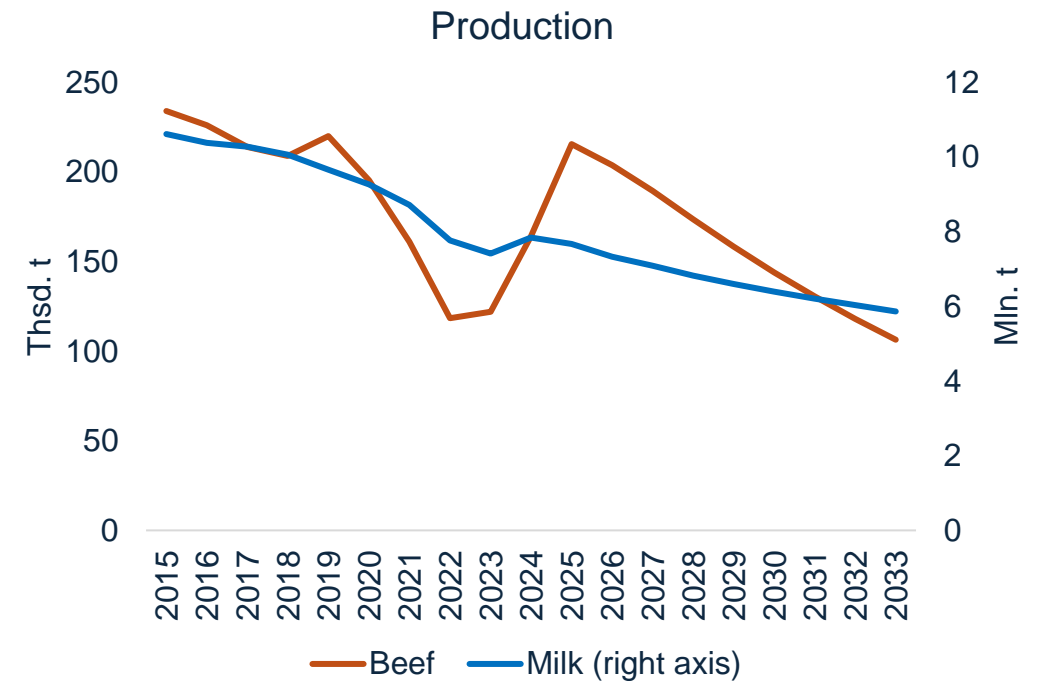
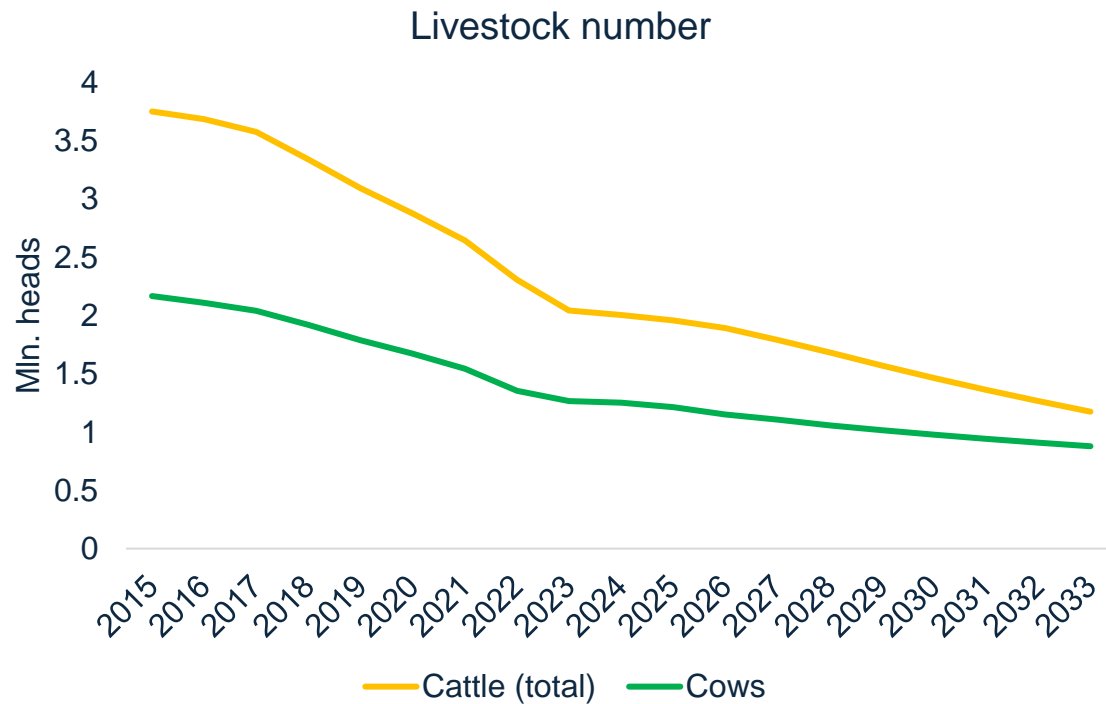
The decline in soybeans' share stems from competition with rapeseed that offer higher returns per land unit.



Cattle, beef and milk

Beef and milk sub-sectors in Ukraine have been closely linked and have been experiencing a downward trend in livestock numbers over the past two decades.

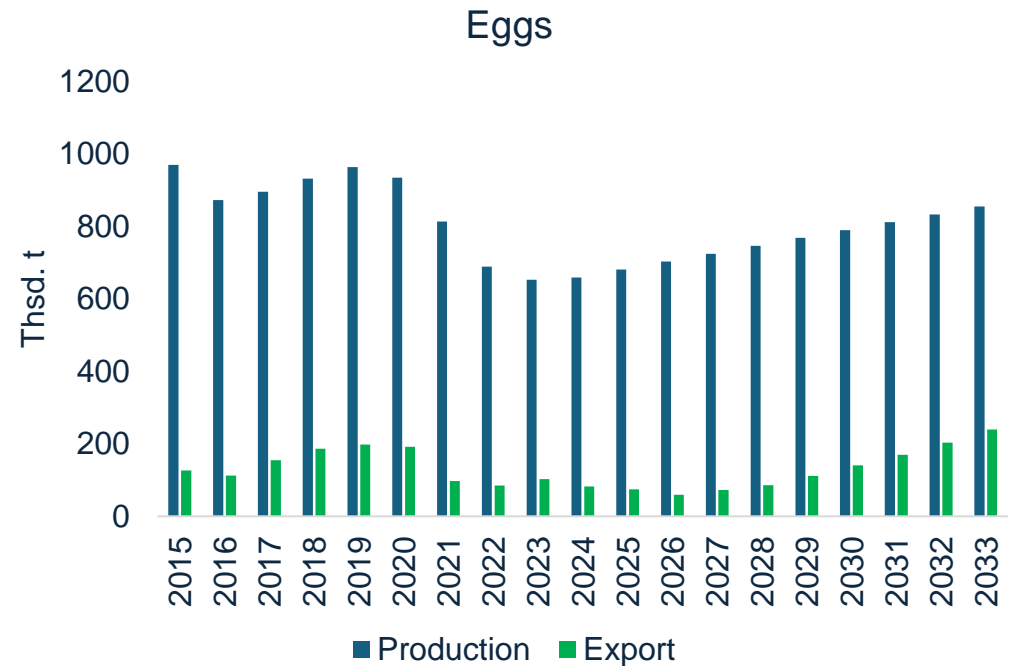
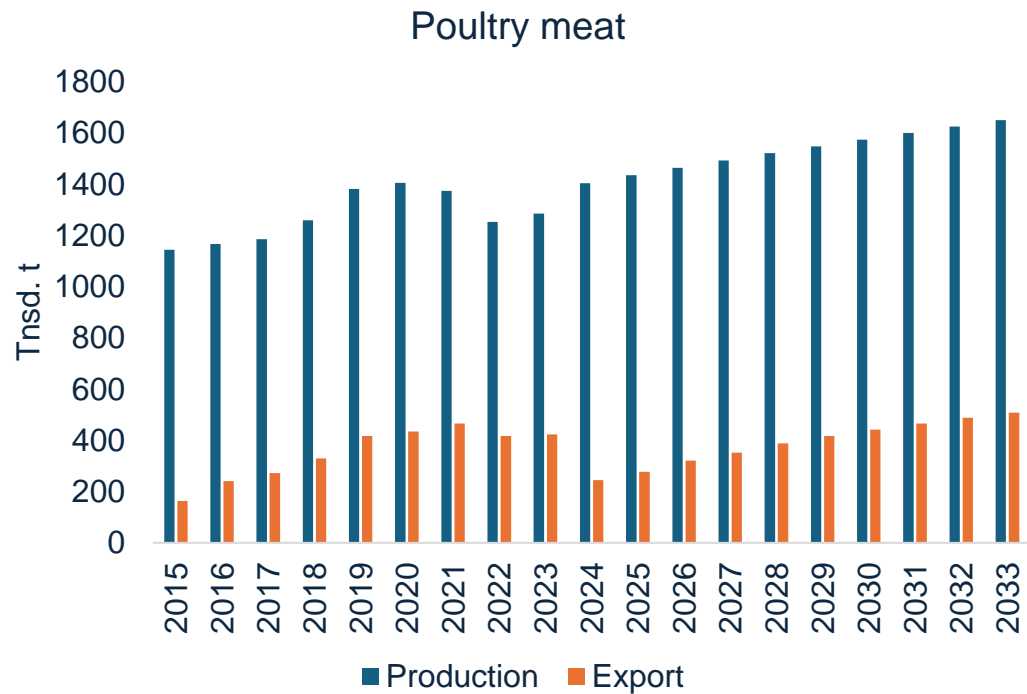
Negative trend for the total cattle number is expected to remain, while the average caw yield will increase to 6.4 tonnes per year.



Poultry meat and eggs

The chicken meat and egg markets in Ukraine have witnessed a consistent growth over the past two decades, primarily due to the shift of production from households to enterprises, which are largely benefiting from economies of scale.

Post-war projections indicate that production levels are expected to recover to their 2021 benchmarks.



Conclusions

- Environment in which the agricultural production sector of Ukraine currently operates is extremely difficult: severe labor shock, input supply chains disruptions, export limitations due to attacks on infrastructure, high logistics costs
- Rural communities' income depend on how well agricultural producers are doing
- The sector is expected to recover after the end of the war relatively quickly, however with considerable changes in crops structure
- Oilseeds will substitute cereals, maize will substitute wheat
- Cattle sector is expected to restructure into specialized production instead of rearing by the rural households
- Poultry and eggs production and export will regain momentum
- End of the war is critical to the sector's recovery



Thank you for your attention

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**Additional
slides**



History of land reform

Ukraine's total area is 60 m. hectares, 42.7 m. ha out of which is agricultural land (in 1991 borders). When Ukraine gained independence in 1991 — all land was public.

In 1991, Ukraine started land privatization reform, leaving approximately 10.5 m. ha in state ownership. The rest was distributed among 6.9 million private landowners (about 16% of the population), creating ground for subsistence farming.

The next transfer of land ownership started in 2014 with land decentralization reform. In total, approximately 4 m. ha. was transferred from state ownership to newly created amalgamated communities.



Land market, regulation

The current tenants have the pre-emptive right.

Foreigners and companies with foreign capital currently are not allowed to buy farmland, although Ukraine must grant EU citizens and companies equal access to the farmland market during the accession process.

State and communal farmland remains under the moratorium.

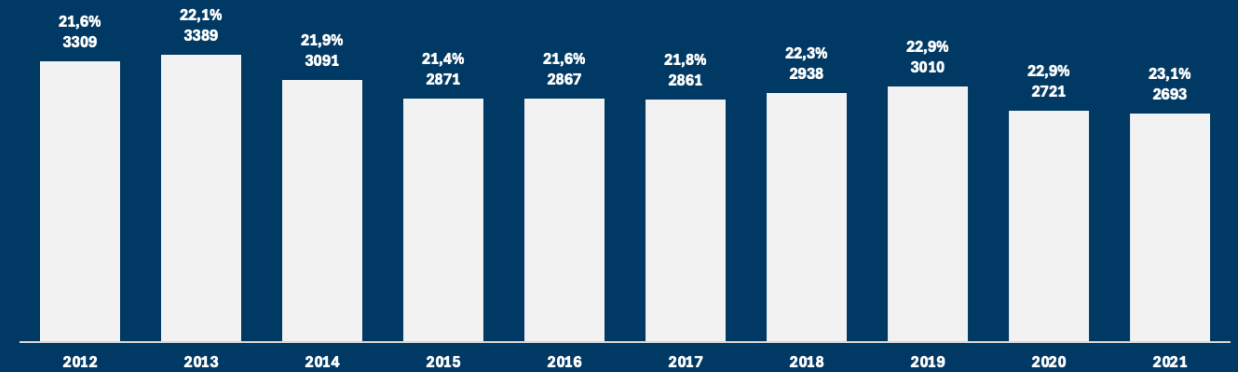
There is a minimum sale price (equal to the parcel's book value).

Most large agribusinesses don't have access to the market as they are publicly traded companies with foreign capital.

Labor in agriculture

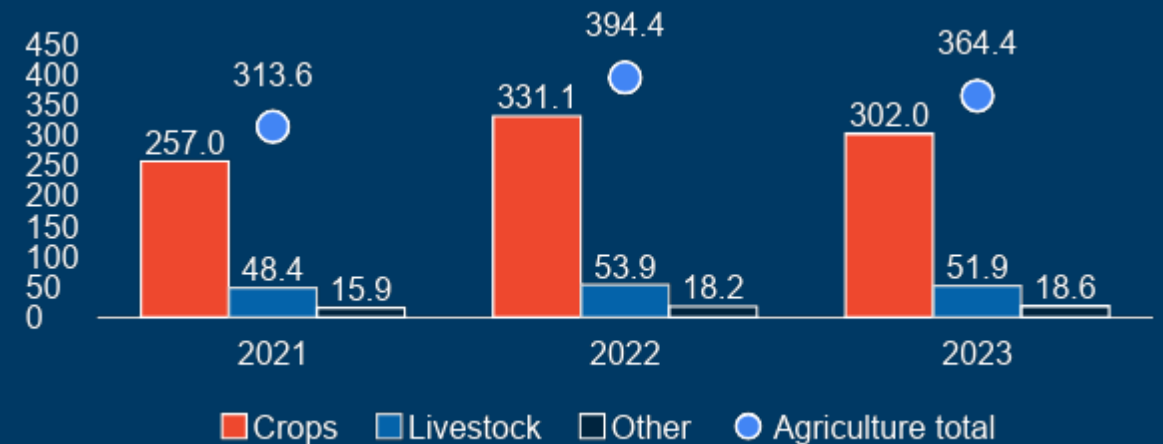
- Since 2013, Ukraine's agricultural workforce decreased by 21%, from **3.39** million to **2.69** million in **2022**, due to a shift from labor-intensive sectors to crop production.
- In **2022**, **313.6** thousand were **formally** employed, while the rest worked informally or in roles like individual farm owners (subsistence farmers).
- War-related policies (conscription mobilization and staff retention) led to a **26% rise** in formal employment in **2022**.
- By **2023**, formal employment **dropped 7.6%**, likely due to the war's impact, including territory occupation and migration.

Employment in agriculture, fishery, and forestry sectors, % in total employment and absolute number of employed (thsd of people)



Source: Ukrstat

Formal employment in agricultural sector (thsd of people)



Source: Open Data Portal, 2023

Agricultural producers

YIELDS/COSTS

Crop	Small (<200 ha), 100 kg/ha (UAH/ha)	Big (>200 ha), 100 kg/ha (UAH/ha)	Agricultural holdings, 100 kg /ha (UAH/ha)
Wheat	30.3 (1262)	42.9 (≈832)	48.9 (1039)
Corn	54.9 (6860)	75.4 (≈9000)	78.0 (7969)
Barley	19.5	26.3	36.9
Soybeans	19.4 (9266)	25.0 (≈7300-8600)	21.7 (6694)
Rapeseed	22.5 (10566)	26.1 (≈10061-9718)	25.3 (8802)
Sunflower	17.8 (7946)	25.9 (≈7929)	28.1 (6752)

Dataset for the yields comparison was constructed in the following way:

- Households yields data was sourced directly from State Statistics Service of Ukraine
- For three other producer types (small, large, and agricultural holdings) farm-level data from 2017-2019 “29-SH” statistical forms was used, which contain harvested areas and quantities reported by the farms themselves to the SSSU.
- Based on the list of enterprises which belong to agricultural holdings, obtained from the tripoli.land portal, such enterprises were identified in the 29-SH dataset.
- Then, remaining enterprises were split into small and large based on the total harvested area reported.