

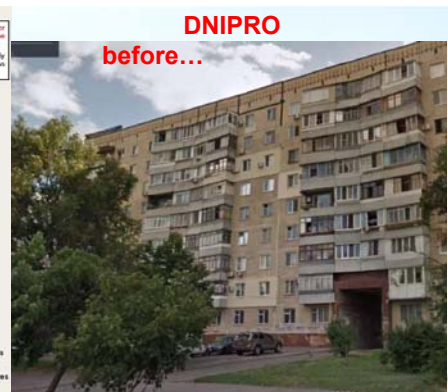
# Ukraine Agriculture and Trade in Wartime: Results of 2022 and Prospects for 2023

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**Dnipro, Ukraine, January 14, 2023 :**  
**45 civilians (including 6 children) killed;**  
**79 civilians (including 16 children) wounded;**  
**30 people have not found;**  
**230 apartment units destroyed**

### Damages and destroyed infrastructure objects of Ukraine total

**\$ 135,9 bln**



housing

143,8 thousand units



Agricultural machinery

84,2 thousand units



vehicles

194,8 thousand units



education

2918 units



healthcare

1131 units



culture and sports

1171 units

**50% of energy system is destroyed**  
**22% (7 mln hectares) of arable land is occupied**



### Property type Damage assessment, \$ billion

Property type	Damage assessment, \$ billion
Residential buildings	52,5
Infrastructure	35,6
Enterprise assets, industry	13,0
Agriculture and land resources	6,6
Social sphere	0,2
Vehicles	2,9
Education	8,2
Trade	2,4
Energy*	6,8
Healthcare	1,7
Utilities	2,3
Culture, tourism, sports	2,1
Administrative buildings	0,8
Digital infrastructure	0,6
Financial sector	0,1
Environment**	14,0
<b>Total</b>	<b>135,9</b>

Source: Kyiv School of Economics

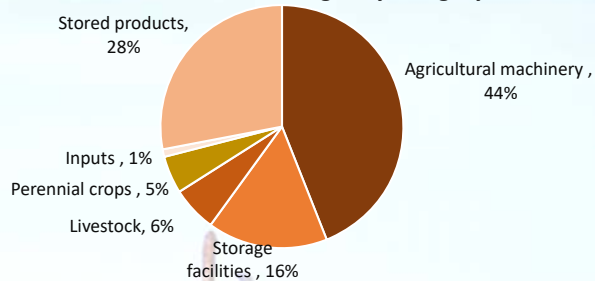
### DIRECT DAMAGE FROM THE WAR IN UKRAINIAN AGRICULTURE (capital losses, excluding land)

Category	Unit of measurement	Damages, units	Value, \$ bln
Agricultural machinery and equipment	thousand pcs	84.2	2,885.4
Storage facilities	volume, million tonnes	9.4	1,062.5
Livestock	heads, thousands	sheep and goats – 95 cattle – 212 pigs – 507 poultry – 11,700 bee families – 400	362.5
Perennial crops	hectares	14,340	348.7
Destroyed and stolen inputs	thousand tonnes million liters	fertilizers – 124 fuel – 11.5	95.4
Destroyed and stolen products	million metric tonnes	grain - 2.8 oil seeds – 1.2	1,872.0
<b>Total damages</b>	x	x	<b>6,626.8</b>

**INDIRECT LOSSES \$ 34.25 billion**

Source: Kyiv School of Economics, November, 2022

### The structure of damages by category



### Regional distribution of damages to Ukrainian agriculture



Created with Datawrapper



### SUPPORT FOR AGRICULTURE

#### \$ 41.125 million

non-refundable aid for 1 hectare and per 1 head of cattle, 31,000 applications

#### \$ 225 million

soft loans issued, 41,193 farmers benefited

#### \$ 9.45 million

70 applications for the development of orchards and 8 applications for the construction of greenhouses



Source: Ministry of Agrarian Policy and Food of Ukraine

#### 25,401 “sleeves” (plastic bags)

for temporary grain storage (out of 31,000) have already been provided to 1,488 farmers for storage of 5 million tons of agricultural products. The program is implemented by FAO and the Ministry of Agricultural Policy

#### 105 sets of equipment

issued to farmers during December as part of the initiative of FAO and the Ministry of Agrarian Policy

**8,000 “sleeves” and 29 grain packing machines** purchased by USAID and issued to 2,000 farmers



#### 1,356 producers

received corn seeds for 26,000 hectares free of charge

**140 tonnes of buckwheat seeds** were distributed free of charge on 2,500 hectares

**5,000 tonnes of seeds** were distributed free of charge to farmers through FAO

**235,000 heads of cattle** in 296 farms producing milk in 4 regions (Chernihiv, Kyiv, Sumy, Kharkiv) were provided with hygiene products with the support of Switzerland



### SUPPORT FOR AGRICULTURE - 2023

Provided for in the adopted Law of Ukraine “On the State Budget for 2023” with the financial support of the World Bank

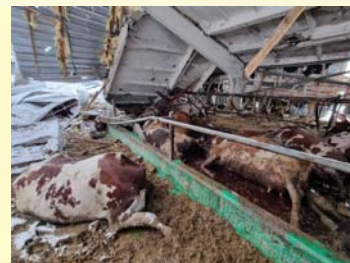
- \$ 25 million – grants for the development of orchards and greenhouses
- \$ 5 million – water users organization support



The program to support preferential lending for farmers jointly with the IFC (50%) and other donors (50%)

Low-interest lending program for sowing and harvesting–2023 jointly with the World Bank

- \$ 202 million – provision of interest compensation for agricultural producers
- \$80 million – payments per hectare and head of cattle
- \$50 million – to support the power supply of elevators
- \$100 million – purchase and supply of wheat and corn to Africa and Asia



Source: Ministry of Agrarian Policy and Food of Ukraine

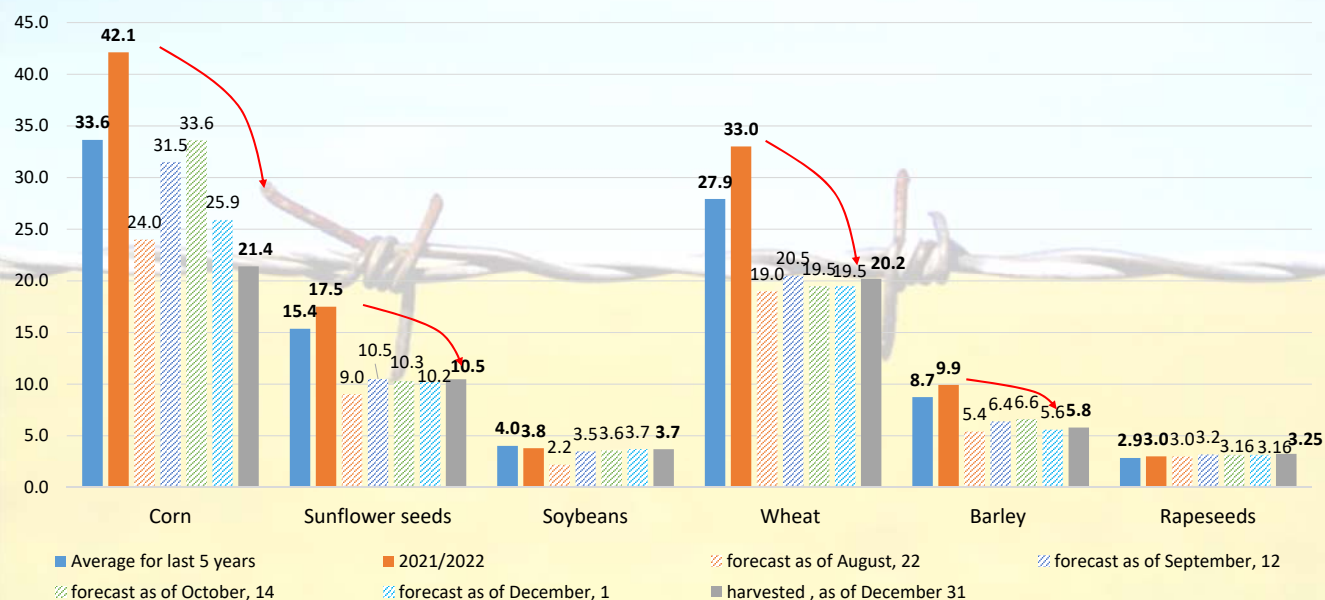
**PROGRESS OF FIELD WORK IN UKRAINE**  
Harvesting of grain, legumes and oil crops as of December 31, 2022

Crops	Harvested 2021, thousand hectares	Forecast 2022, thousand hectares	Harvested 2022, thousand hectares	% of harvested area to forecast 2022	% of harvested area 2022 to harvested area 2021	Harvested 2022, thousand metric tonnes	Average 2022 yields, metric tonnes per hectare	Average 2021 yields, metric tonnes per hectare	Change in yields 2022 to 2021, %
<b>Grain and legumes total, including:</b>	<b>15,299.2</b>	<b>11,164.8</b>	<b>10,244.2</b>	<b>91.8 %</b>	<b>67.0 %</b>	<b>47,914.3</b>	<b>4.68</b>	<b>5.50</b>	<b>-14.9 %</b>
•wheat	7,073.0	4,983.3	4,979.4	99.9 %	70.4 %	20,176.3	4.05	4.64	-12.7 %
•barley	2,467.7	1,667.6	1,666.5	99.9 %	67.5 %	5,778.0	3.47	3.92	-11.5 %
•peas	240.4	118.1	118.1	100.0 %	49.1 %	269.1	2.28	2.43	-6.2 %
•buckwheat	84.2	118.0	115.9	98.2 %	137.6 %	158.5	1.37	1.30	5.4 %
•millet	77.9	45.2	44.7	98.9 %	57.4 %	101.8	2.28	2.52	-9.5 %
•corn	5,356.0	4,232.6	3,319.6	78.4 %	62.0 %	21,430.7	6.46	8.01	-19.4 %
Soybeans	1,279.5	1,542.6	1,531.3	99.3 %	119.7 %	3,722.8	2.43	2.68	-9.3 %
Rapeseed	1,013.9	1,135.7	1,134.8	99.9 %	111.9 %	3,245.3	2.86	2.95	-2.0 %
Sunflower	6,482.4	4,863.9	4,816.9	99.0 %	74.3 %	10,472.6	2.17	2.52	-13.9 %



Source: based on the data of the State Statistic Service of Ukraine

**ESTIMATED AND ACTUAL HARVEST IN UKRAINE**  
as of December 31, 2022, million metric tonnes



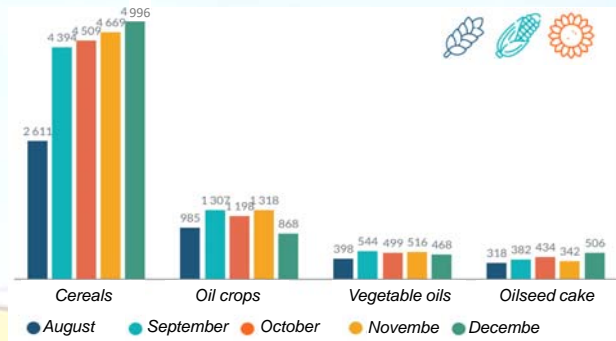
Source: based on the data of the Ukrainian Agribusiness Club and USDA

### EXPORT OF CEREALS and LEGUMES with products of their processing as of December 31, 2022,

	2020/2021 MY	2021/2022 MY		2022/2023 MY	
	Total	Total	including: for December 2021	Total	including: for December 2022
<b>Cereals and legumes, total</b>	<b>43939</b>	<b>48508</b>	<b>6354</b>	<b>22746</b>	<b>4996</b>
• wheat	16413	18741	1174	8411	1555
• barley	4210	5752	244	1626	179
• rye	15.8	161.5	40.7	12.5	1.0
• corn	22596	23535	4898	12624	3261
Wheat flour	123.7	69.4	6.8	65.6	13.1
Other flour	1.1	1.5	0.2	3.4	0.3
<b>Total flour</b>	<b>124.8</b>	<b>70.9</b>	<b>7.0</b>	<b>69.0</b>	<b>13.4</b>
<b>Total export (grain + flour)</b>	<b>44105</b>	<b>48579</b>	<b>6361</b>	<b>22815</b>	<b>5009.4</b>

Source: based on data of State Customs Service of Ukraine

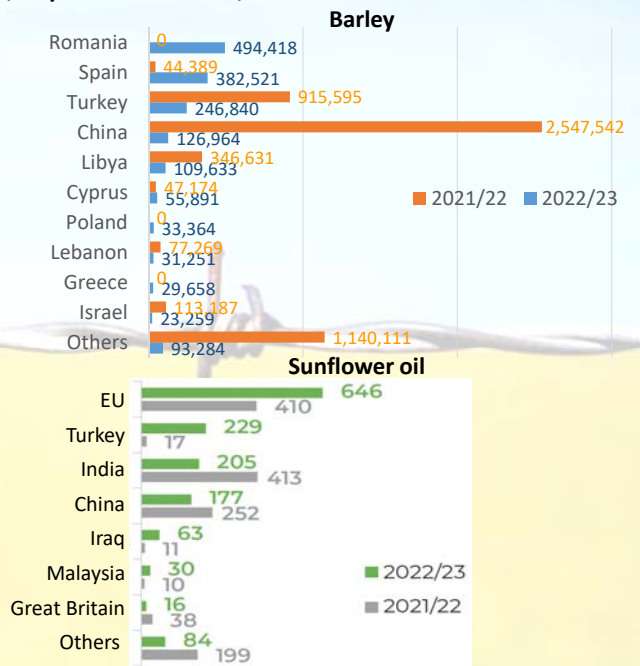
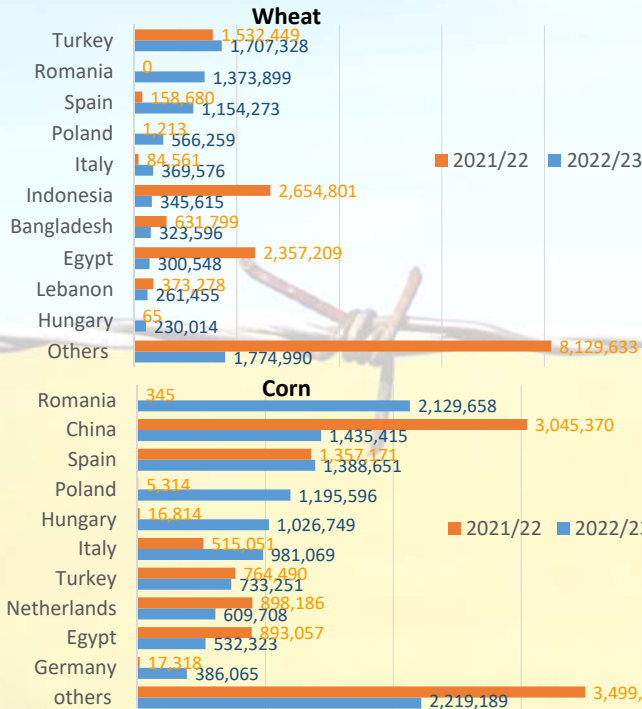
### Dynamics of main agricultural products export from Ukraine in 2022/23 MY, thousand tonnes



### Dynamics of grain exports from Ukraine, thousand tonnes

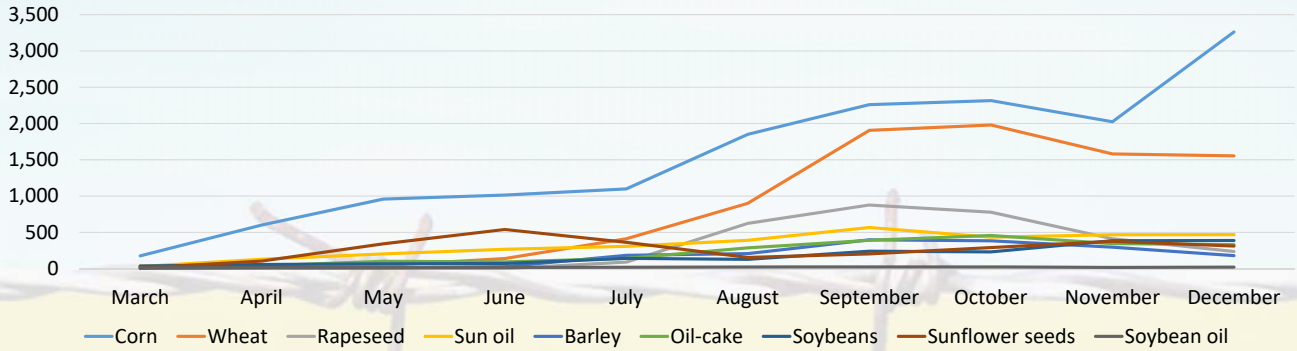


### GEOGRAPHY OF UKRAINIAN EXPORT, July 1 – December 31, thousand tonnes

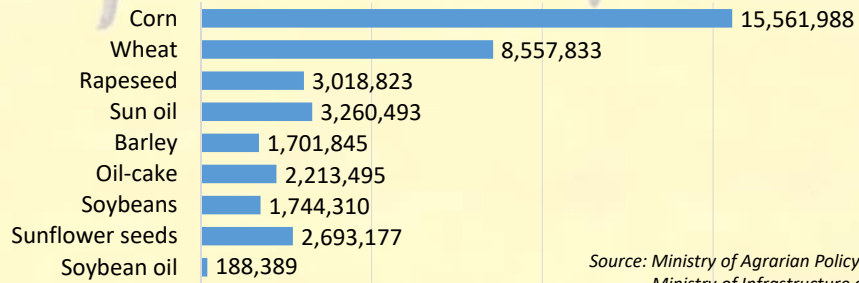


Source: based on the data of the State Statistic Service of Ukraine and Ministry of Agrarian Policy and Food of Ukraine

**BORDER-CROSSING FROM UKRAINE BY TYPES OF PRODUCTS,  
March, 1 – December 31, 2022, thousand metric tonnes**

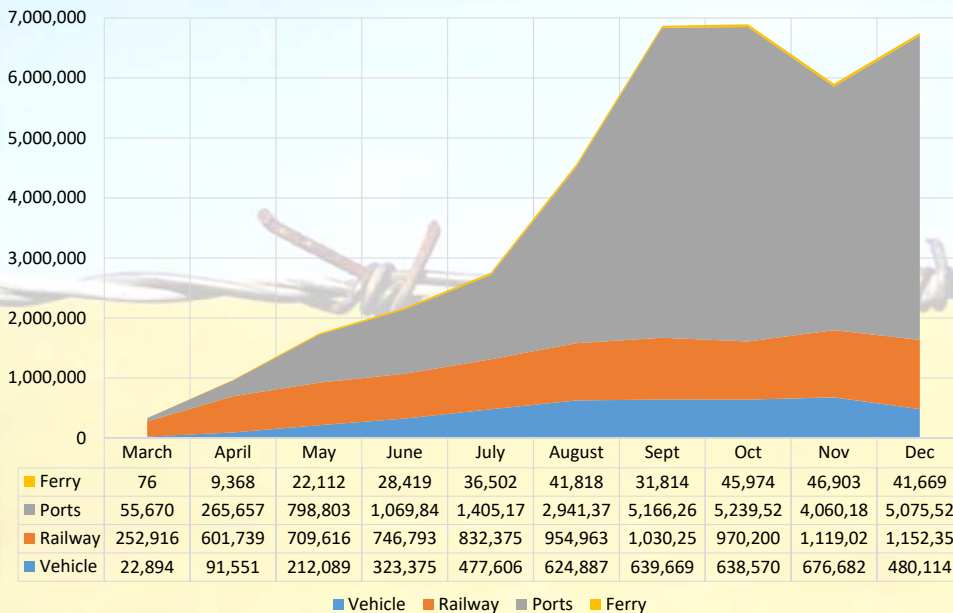


**Total  
38,940,352  
metric tonnes**

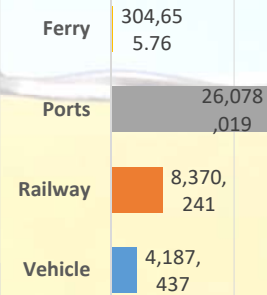


Source: Ministry of Agrarian Policy and Food of Ukraine  
Ministry of Infrastructure of Ukraine

**BORDER-CROSSING OF AGRICULTURAL PRODUCTS FROM UKRAINE IN TRANSPORTATION BREAKDOWN,  
March, 1 – December 31, 2022, metrics tonnes**



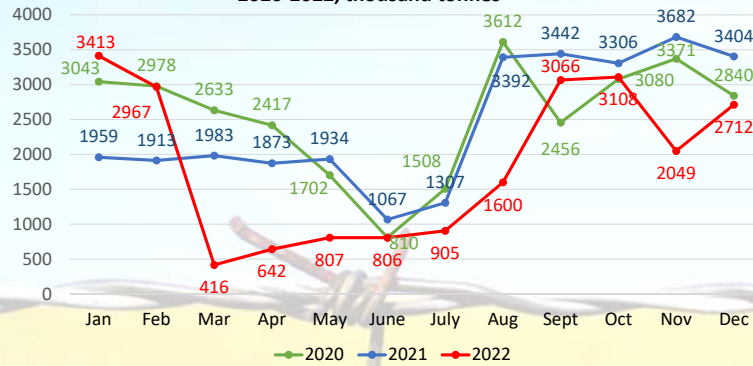
**Total  
38,940,352  
metric tonnes**



Source: Ministry of Agrarian Policy and Food of Ukraine  
Ministry of Infrastructure of Ukraine



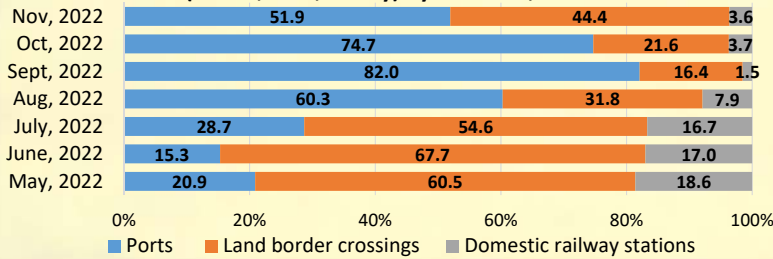
**DYNAMICS OF GRAIN TRANSPORTATION FOR EXPORT BY UKRAINIAN RAILWAY, 2020-2022, thousand tonnes**



**RAIL TRANSPORTATION FOR EXPORT under the war conditions, as of December 31, 2022, thousand tonnes**

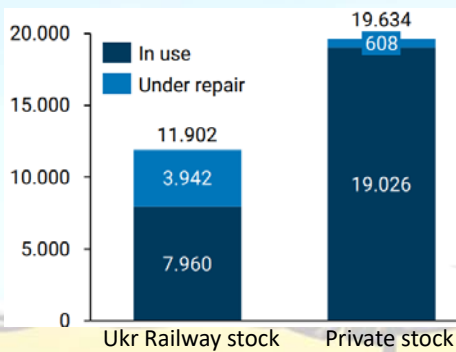
Month	Grain		Oil		Meal, cake, husk	
	2022	+/- to the previous month	2022	+/- to the previous month	2022	+/- to the previous month
March	415.9		20.1		50.0	
April	642.5	↑54.5%	69.8	↑247%	53.2	↑6.3%
May	807.3	↑25.7%	72.4	↑3.7%	69.9	↑31.4%
June	806.3	↓-0.1%	98.9	↑36.7%	73.2	↑4.7%
July	905.2	↑12.3%	88.1	↓-11.0%	93.9	↑28.4%
August	1,600.8	↑76.9%	108.0	↑22.6%	148.1	↑57.7%
Sept.	3,065.7	↑91.5%	127.8	↑18.4%	168.0	↑13.5%
October	3,107.7	↑1.4%	133.7	↑4.6%	195.2	↑16.2%
Novem.	2,049.0	↓-34.1%	126.9	↓-5.1%	144.4	↓-26.0%
Decem.	2,711.7	↑32.0%	116.8	↓-8.0%	134.9	↓-7.0%

**The structure of railway transportation of grain cargoes (wheat, corn, barley) by direction, %**

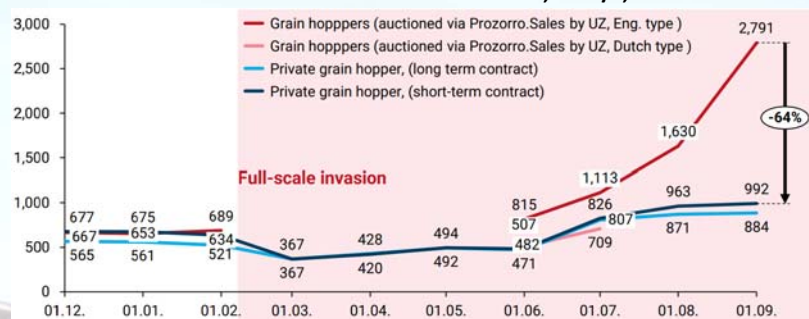


Source: based on the data of the Ukrainian Railway

**STRUCTURE OF GRAIN WAGONS PARKS**



**COST OF TRANSPORTATION OF 1 TON OF GRAIN, UAH/T, EXCLUDING VAT**



**SURPLUS/DEFICIT\* OF WORKING PARK OF GRAIN TRUCKS IN UKRAINE, WAGONS**

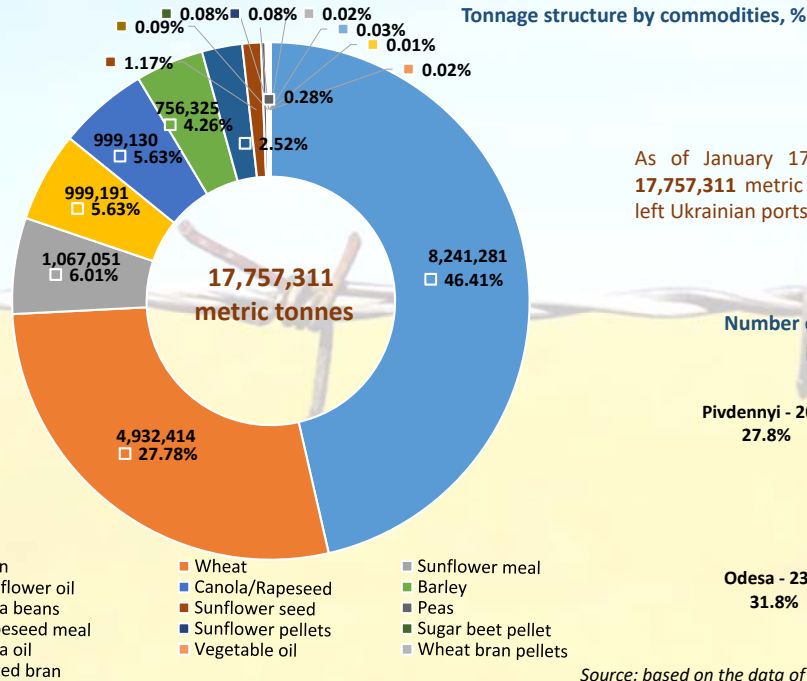


- The increase in demand and the low efficiency of the use of grain wagons leads to an **increase in the cost of logistics**

\*- the indicator is calculated on the basis of the average turnover of grain trucks  
 - inefficient use of wagons (delays at the borders) leads to a lower turnover, respectively, to a larger surplus

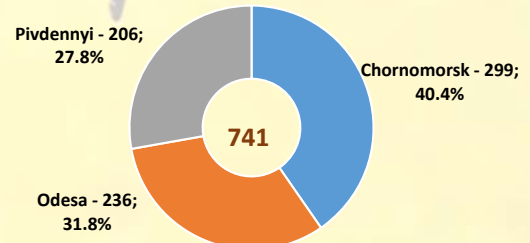
Sources: Ukrainian Railway, RailInsider, Center for Economic Recovery

### EXECUTION OF THE AGREEMENT "Initiative for the safe transportation of grain and food products from Ukrainian ports"



As of January 17, 2023, 741 shipments (658 vessels) of 17,757,311 metric tonnes of grains and other foodstuffs have left Ukrainian ports.

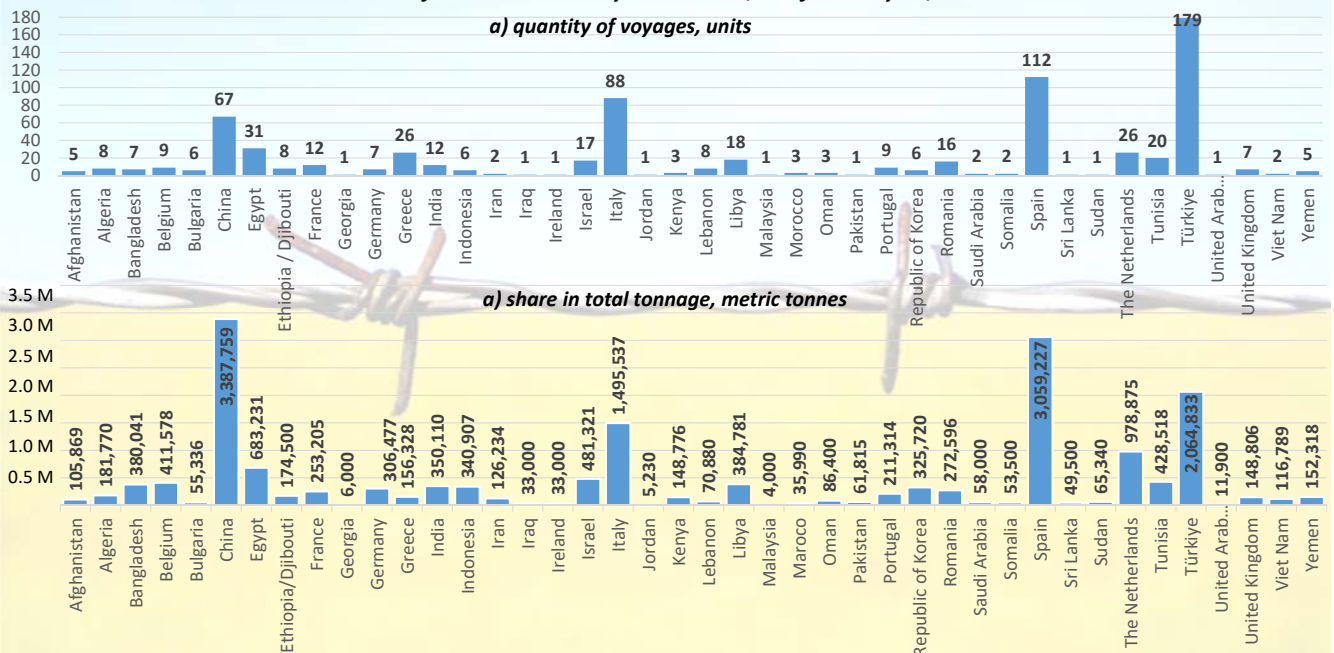
#### Number of grain cargoes left Ukrainian Black Sea ports under "grain agreement"



Source: based on the data of the Black Sea Grain Initiative Joint Coordination Centre

### EXECUTION OF THE AGREEMENT "Initiative for the safe transportation of grain and food products from Ukrainian ports"

#### Structure of delivered loads by destination, as of January 17, 2023



Source: based on the data of the Black Sea Grain Initiative Joint Coordination Centre



## THE IMPACT OF THE WAR ON CERTAIN ASPECTS OF THE ACTIVITIES OF AGRICULTURAL PRODUCERS



### AGRICULTURAL PRODUCERS' KEY PROBLEMS

- Companies identify the problem of **rising logistics costs and lack of liquidity** as the most urgent.
- For some companies, **lending rates have more than doubled, and credit are limited**.
- The **prices of certain inputs have increased significantly**, especially energy resources and fertilizers.
- Regarding the fixed exchange rate, agricultural producers perceive it as an **additional tax burden of 15-20%**.
- **Longer intervals for VAT refunds** do not contribute to normal business activity



### IMPACT OF THE WAR ON THE FINANCIAL INDICATORS OF COMPANIES

- The **fall in domestic prices for products together with the increase in the production cost**, had a negative impact on profitability in the current year.
- For some producers, **only certain crops are unprofitable** - in the vast majority, cereals.
- **Oilseeds and canola still remain profitable**. However, profitability is also highly dependent on the physical location of the company.
- The **preferential programs** proposed by the Government **do not fully cover the need for funding**.

### WAR TIME LOGISTICS



- For most companies, even after the signing of the "grain" agreement, the **cost of logistics** to the port is 70-80 USD/t compared to 20-30 USD/t before the start of a full-scale war.
- Some manufacturers have **stopped using the services of freight forwarders** from the point of view of cost savings, which helps to preserve up to 10% of profitability.
- In addition to the increase in the cost of transportation, there are **problems with transshipment at land crossings, delays and queues at the border**, the presence of a large number of bureaucratic procedures, as well as a shortage of grain trucks for carrying out export activities.
- Neighboring EU countries are in **no hurry to invest in cross border infrastructure**.

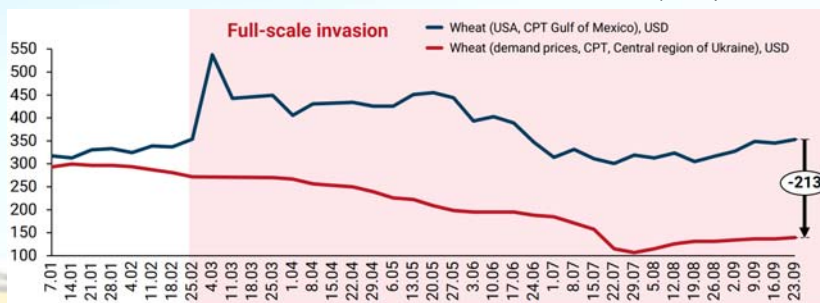
### PLANS AND EXPECTATIONS FOR 2023



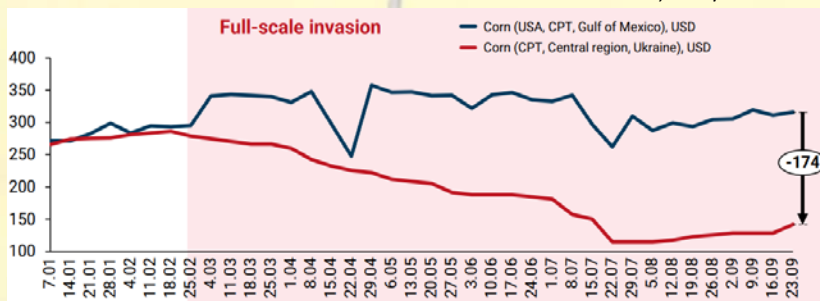
- Companies expect both an **increase in the cost of the inputs and an increase in grain prices** in 2023.
- The most expected steps by the state are the **expansion of access to finance, the minimization of the exchange rate difference, the solution to the problem of VAT non-return**, as well as deregulation

## THE IMPACT OF THE LOGISTIC PROBLEMS ON THE REDUCTION OF DOMESTIC PRICES FOR GRAIN

### DYNAMICS OF WHEAT PRICES IN UKRAINE AND THE WORLD, USD/T



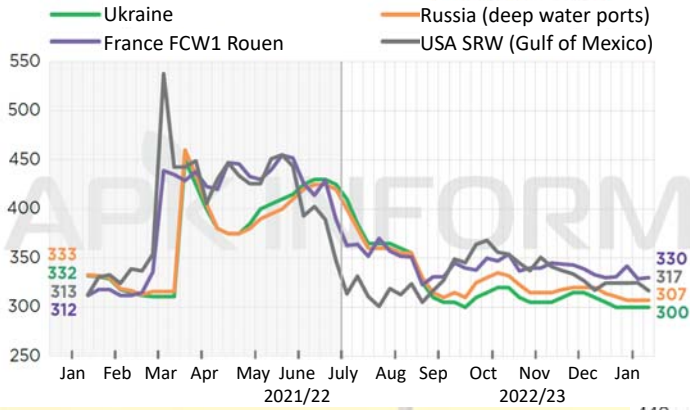
### DYNAMICS OF CORN PRICES IN UKRAINE AND THE WORLD, USD/T



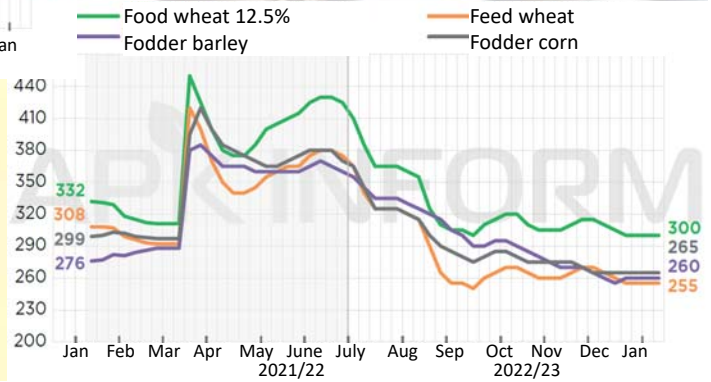
- Since the Russian war beginning, the **gap between world prices for wheat and prices in Ukraine** increased from 9% to 60%; for corn the price difference increased from 3% to 55%.
- Despite the slight increase in grain prices as a result of the opening of sea connections in Ukraine, **agricultural producers still bear losses or receive minimal profits**.

Sources: Center for Economic Recovery

### Dynamics of food wheat prices, USD/t



### Export prices for grain in Ukraine (deep water ports), Offer, FOB, USD/t

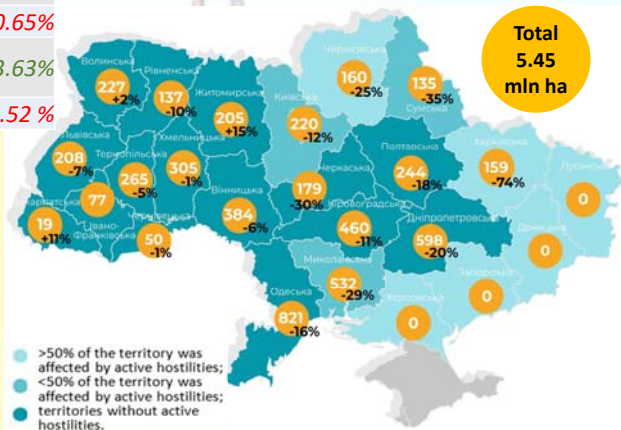


### PROGRESS OF FIELD WORK IN UKRAINE

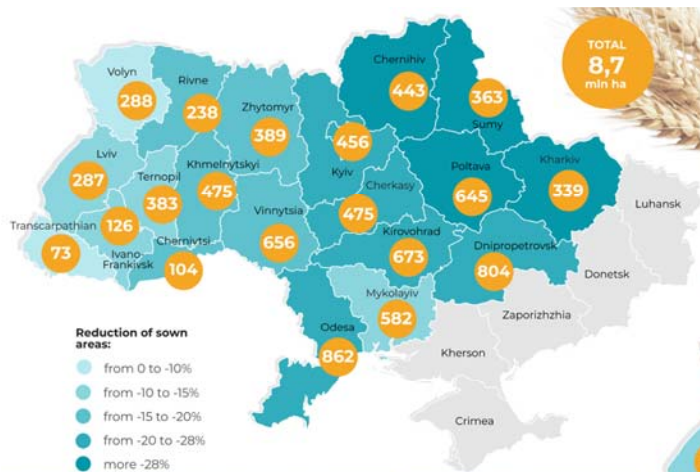
Sowing of winter crops,  
as of December 1, 2022, thousand hectares

Crops	Planted in 2020	Planted in 2021	Forecast for 2022	Forecast 2022 to planted in 2021	Planted as of Dec. 1, 2022	% of planted to forecast
<b>Winter crops total, including:</b>	<b>8,973.5</b>	<b>9,029.4</b>	<b>5,716.5</b>	<b>-36.69%</b>	<b>5,449.4</b>	<b>95.33%</b>
• winter wheat	6,714.4	6,538.4	<b>3,989.4</b>	<b>-38.99%</b>	3,758.8	<b>94.22%</b>
• winter barley	1,080.4	969.0	<b>675.7</b>	<b>-30.27%</b>	612.5	<b>90.65%</b>
• winter rapeseeds	1,011.9	1,413.5	<b>963.9</b>	<b>-31.81%</b>	998.9	<b>103.63%</b>
• winter rye	166.8	108.5	<b>85.6</b>	<b>-21.11%</b>	79.2	<b>92.52%</b>

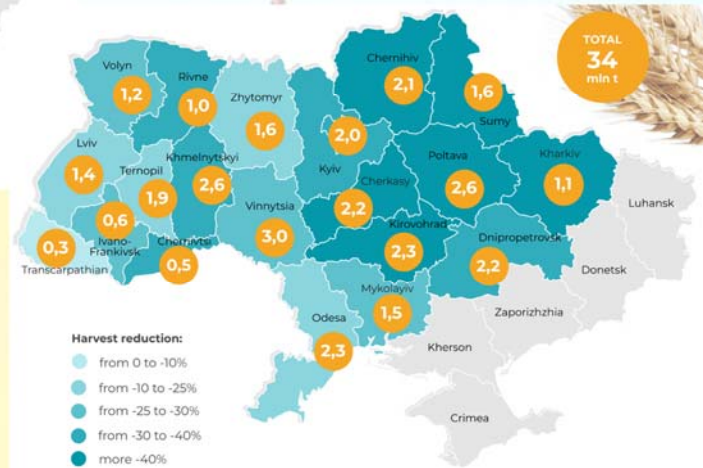
Sown area of winter crops by regions,  
as of December 1, 2022, thousand hectares



Source: based on the data of the State Statistic Service of Ukraine



### FORECAST OF SOWN AREAS AND HARVEST OF GRAIN CROPS IN UKRAINE IN 2023



Source: UCAB

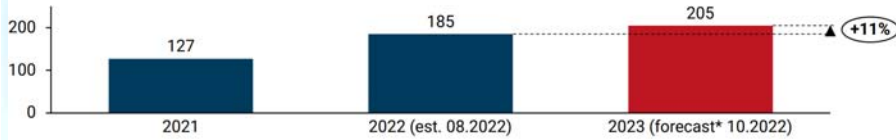
### BALANCE OF SUPPLY AND DEMAND OF GRAIN AND LEGUMES IN UKRAINE (\*forecast as of December 10, 2022)

	2020/21 thousand tonnes	2021/22 thousand tonnes	2022/23*		Deviation, %		
			thousand tonnes		2021/22 - 2020/21	2022/23 - 2021/22	
			optimistic	pessimistic		optimistic	pessimistic
<b>Initial stocks</b>	4,216	4,811	12,456	12,456	+14.1%	in +2,6 times	in +2,6 times
<b>Sown area, thousand hectares</b>	15,392	15,995	13,997	13,997	+3.9%	-12.5%	-12.5%
<b>Harvested area, thousand hectares</b>	15,283	15,948	11,074	11,063	+4.4%	-30.6%	-30.6%
<b>Yield, tonnes / hectare</b>	4.25	5.39	4.58	4.52	+26.8%	-15.0%	-16.1%
<b>Gross harvest</b>	64,933	86,010	51,450	50,032	+32.5%	-40.2%	-41.8%
<b>Import</b>	208	123	122	105	-40.8%	-1.1%	-14.9%
<b>Total supply</b>	<b>69,358</b>	<b>90,945</b>	<b>64,028</b>	<b>62,593</b>	<b>+31.1%</b>	<b>-29.6%</b>	<b>-31.2%</b>
<b>Domestic consumption:</b>	19,184	26,282	19,069	19,084	+37.0%	-27.4%	-27.4%
<b>food</b>	4,775	4,463	4,074	3,802	-6.5%	-8.7%	-14.8%
<b>fodder</b>	9,720	13,325	9,655	9,655	+37.1%	-27.5%	-27.5%
<b>seeds</b>	2,224	1,928	2,109	1,576	-13.3%	+9.4%	-18.3%
<b>losses</b>	1,515	5,692	2,166	2,995	in +3,8 times	-61.9%	-47.4%
<b>other (alcohol, malt, starch, etc.)</b>	946	866	1,055	1,045	-8.5%	+21.8%	+20.6%
<b>Export</b>	45,363	52,207	40,584	29,469	+15.1%	-22.3%	-43.6%
<b>Total distribution (demand)</b>	<b>64,547</b>	<b>78,489</b>	<b>59,653</b>	<b>48,553</b>	<b>+21.6%</b>	<b>-24.0%</b>	<b>-38.1%</b>
<b>Ending stocks</b>	4,811	12,456	4,375	14,040	in +2,6 time	-64.9%	+12.7%
<b>Ratio of ending stocks to distribution</b>	7%	16%	7%	29%			

Source: based on "APK-Inform", the State Statistic Service of Ukraine and the State Customs Service of Ukraine



### COST OF CORN PRODUCTION IN UKRAINE, USD/T



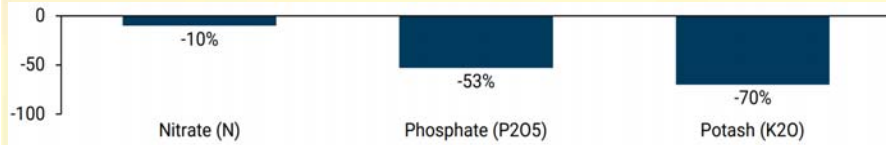
- Expected increase in the cost of inputs and decrease in the use of fertilizers will negatively affect productivity

### KEY EXPENSES IN THE PRODUCTION OF CORN IN UKRAINE

Expenditures, USD/ha	2021	2022 (est. 08.2022)	2023 (forecast 10.2022)
Land rent	150	150	145
Seeds/plant procurement	142	149	107
Fertilizers	180	400	306**
plant protection products (PPP)	75	80	65
Fuel	68	122	119
Repairs of equipment	35	37	38
Salaries with taxes	82	82	54

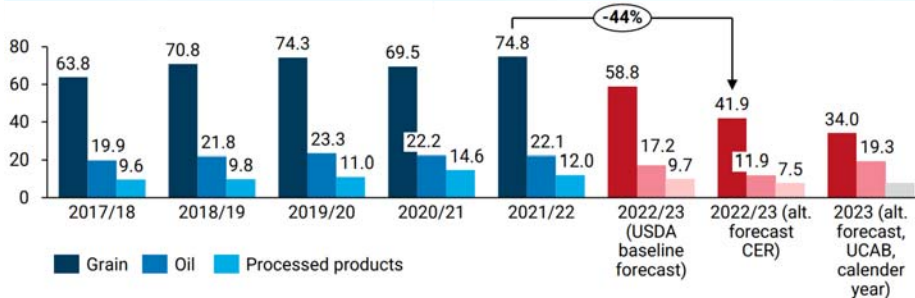
- Experts predict a decrease in the use of fertilizers - by 3-47% of nitrate, 51-100% of phosphate and 41-100% of potassium, depending on the culture. This, in turn, will affect the average yield, the drop of which is estimated at 20-50%.

### FORECAST OF THE USE OF FERTILIZERS FOR CORN PRODUCTION IN UKRAINE IN 2023 COMPARED TO THE LEVEL OF 2022, %

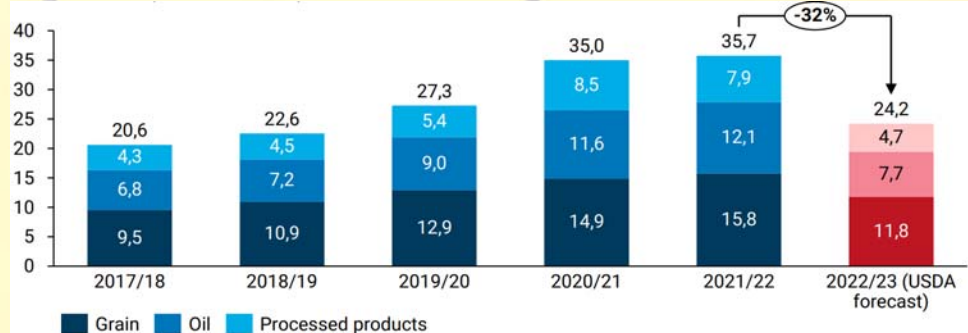


Source: UCAB, Center for Economic Recovery

### VOLUMES OF PRODUCTION OF CEREALS, OILY CROP AND THEIR PROCESSING PRODUCTS IN UKRAINE, 2017-2023, MILLION T

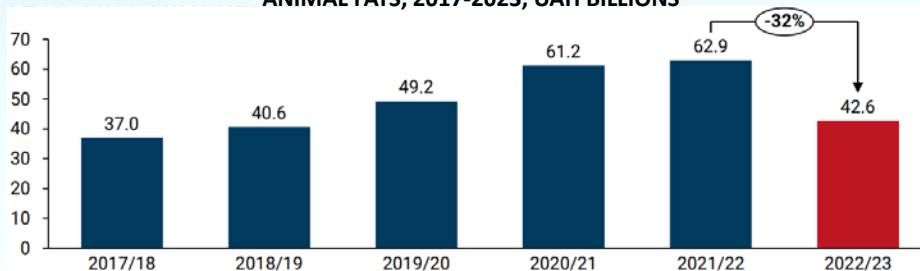


### VOLUMES OF SALES OF CEREALS, OIL CROPS AND THEIR PROCESSING PRODUCTS, 2017-2023, USD BILLION

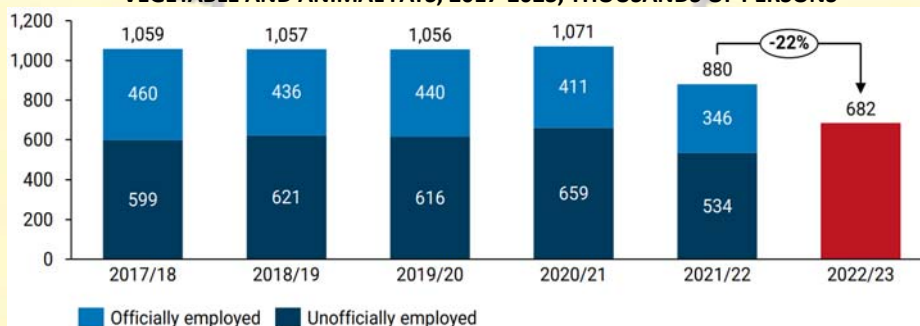


Sources: based on the data of the State Statistic Service of Ukraine, USDA, UCAB, Center for Economic Recovery

### AMOUNTS OF TAXES PAID ON THE PRODUCTION OF GRAIN, OIL, VEGETABLE AND ANIMAL FATS, 2017-2023, UAH BILLIONS



### NUMBER OF EMPLOYED IN THE UKRAINIAN PRODUCTION OF CEREALS, OIL CROPS, VEGETABLE AND ANIMAL FATS, 2017-2023, THOUSANDS OF PERSONS



Sources: based on the data of the State Statistic Service of Ukraine, National Bank of Ukraine, Center for Economic Recovery

### SOLUTIONS TO OVERCOME THE CURRENT AND LONG-TERM PROBLEMS OF AGRARIANS IN WAR CONDITIONS

Solution	Advantages	Disadvantages
1 Gradual removal of currency restrictions and transition to a floating exchange rate	<ul style="list-style-type: none"> <li>Increase in currency revenue of agricultural producers; incentives to return foreign exchange revenue</li> <li>Reducing the difference between domestic and world prices for agricultural products</li> </ul>	Potential destabilization of the exchange rate
2 Restoration of the normal functioning of the VAT refund mechanism	<ul style="list-style-type: none"> <li>Increasing the amount of working capital of agrarians</li> <li>A potential decrease in the cost of means of production in the domestic market</li> </ul>	Additional load on the State Budget
3 Improving access to financing in the form of additional credit instruments, including for large market players (with the assistance of international financial organizations)	<ul style="list-style-type: none"> <li>Increasing the liquidity of agricultural producers</li> <li>Stimulating the restoration of normal operational activities of agricultural producers by maintaining stable liquidity</li> </ul>	The need to find a reliable partner that will compensate for the increased risks associated with the smooth functioning of agricultural enterprises in war conditions
4 Procurement by international organizations (FAO, World Food Program) of Ukrainian grain for countries with low incomes and a food crisis at prices that will guarantee agricultural producers a profit and the possibility of sowing next year	<ul style="list-style-type: none"> <li>Ensuring food security in countries with a low level of income and import dependence on foreign agricultural products</li> <li>Support of Ukrainian agricultural producers and ensuring their profitability</li> </ul>	The need to find a reliable partner that will undertake the purchase of agricultural products

SOLUTIONS IN THE SHORT-TERM PERSPECTIVE

SOLUTIONS IN THE LONG-TERM PERSPECTIVE

Source: Center for Economic Recovery

## SOLUTIONS TO OVERCOME THE CURRENT AND LONG-TERM PROBLEMS OF AGRARIANS IN WAR CONDITIONS

Solution	Advantages <span style="float: right; color: green;">✓</span>	Disadvantages <span style="float: right; color: red;">✗</span>
<b>5</b> Supply by international organizations (FAO, World Food Program) to Ukrainian farmers at a reduced price of means of production, the share of which in the cost of production is high and which significantly increased with the beginning of a full-scale war	<ul style="list-style-type: none"> <li>- Ensuring food security in countries with a low level of income and import dependence on foreign agricultural products</li> <li>- Reduction of the cost of production, which will potentially provide profitability to Ukrainian farmers in the long term</li> </ul>	The need to find a reliable international partner that will undertake to compensate part of the cost of the means of production
<b>6</b> Ensuring the effective functioning and expansion of the "grain" agreement in the long term with the help of additional insurance guarantees from the government or international financial organizations	<ul style="list-style-type: none"> <li>- Uninterrupted access of farmers to the most popular export connection</li> <li>- Ensuring the stability of farmers' expectations regarding possible ways of exporting their own products</li> </ul>	Potential obstruction of the work of the "grain" agreement by the aggressor country
<b>7</b> Continuation of the abolition of tariffs and non-tariff restrictions by the EU and the G7 countries for several years to come	<ul style="list-style-type: none"> <li>- Support of the competitiveness of export products of Ukraine, including products of the agricultural sector</li> <li>- Easier access of exporters to the developed countries of the world</li> <li>- Support of competitive prices and reduction of costs associated with overcoming non-tariff restrictions by agricultural producers</li> </ul>	<ul style="list-style-type: none"> <li>- The need to attract long-term support from the EU and the G7 countries</li> <li>- The need to stimulate the processing of food products</li> </ul>

SOLUTIONS  
IN THE LONG-  
TERM  
PERSPECTIVE

Source: Center for Economic Recovery

