

# Current Challenges of Black Sea Grain Markets

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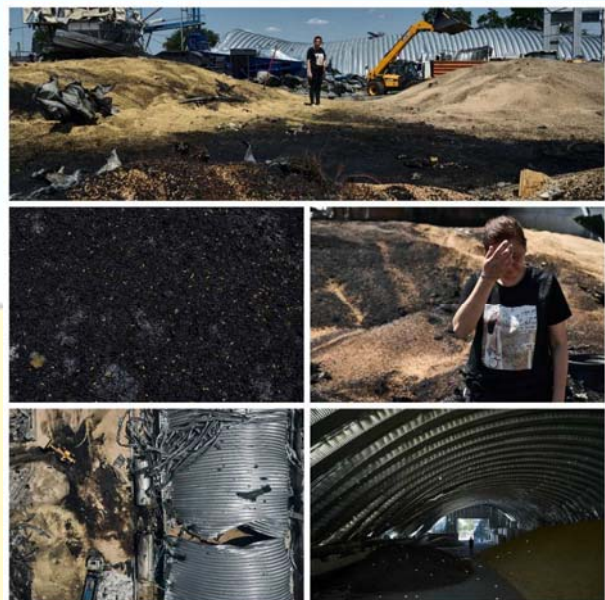
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**KANSAS STATE**  
UNIVERSITY

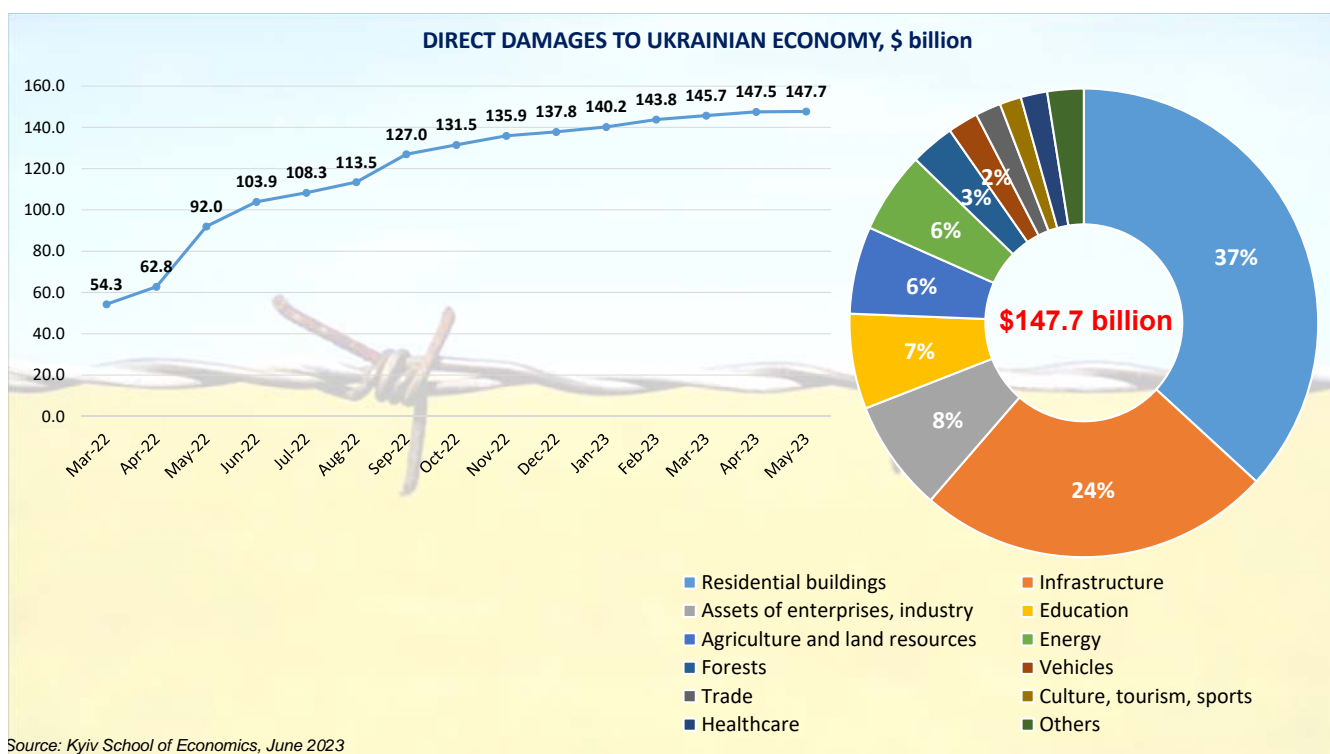
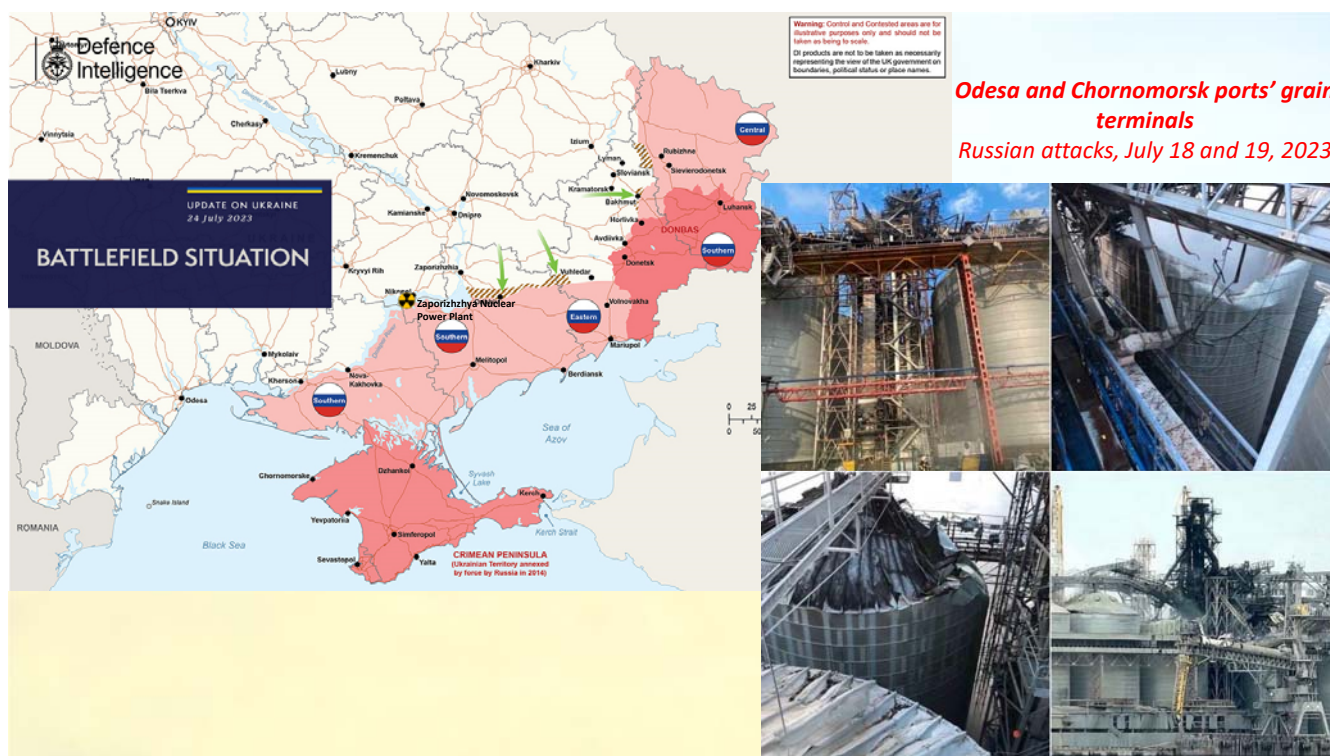
Agricultural Economics

## OUTLINE:

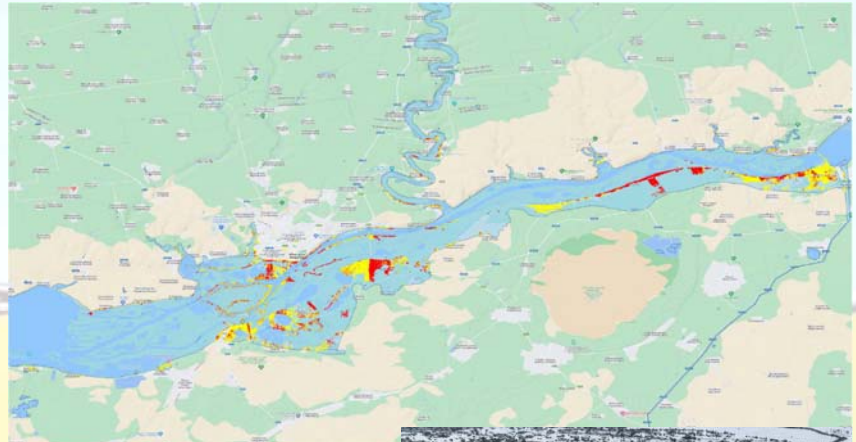
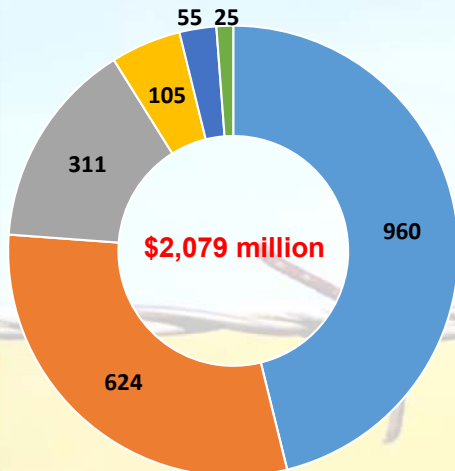
- Damages and losses from the war
- Export of ag commodities and “Grain initiative”
- Forecast of grain production and export from Ukraine and Russia



*Russian attacks, Odesa region, July 21, 2023*



### DAMAGES CAUSED BY KAHKOVKA DAM EXPLOSION, \$ million



- Completely flooded (flooding exceeding 3 meters)
- Partially flooded (flooding between 1-3 meters)
- Potentially flooded (flooding up to 1 meter)



Source: Kyiv School of Economics, June 2023

The **Kakhovka Reservoir** was a water source for irrigation and livestock farming across **584,000 hectares** of land.

Crop production is projected to experience an annual increase of **\$182 million** in losses per year.

The Dnipropetrovsk, Zaporizhia, Mykolaiv, and Kherson regions are at **risk of water scarcity**.

The budget committee has allocated **\$41 million** for main water pipeline construction.

The state-owned company "Ukrhydroenergo" faces annual economic losses exceeding **\$100 million**.

The capacity of Kakhovka HPP was **334.8 MW**

Restoring a new hydroelectric power plant of the same capacity would require nearly **\$1 billion**.

The estimated duration of reconstruction is **5 years**

**Kakhovka Reservoir**  
*before Russian attack*



*now*





**EXPORT OF GRAIN and LEGUMES**  
with products of their processing as of June 30, 2023,  
thousand tonnes

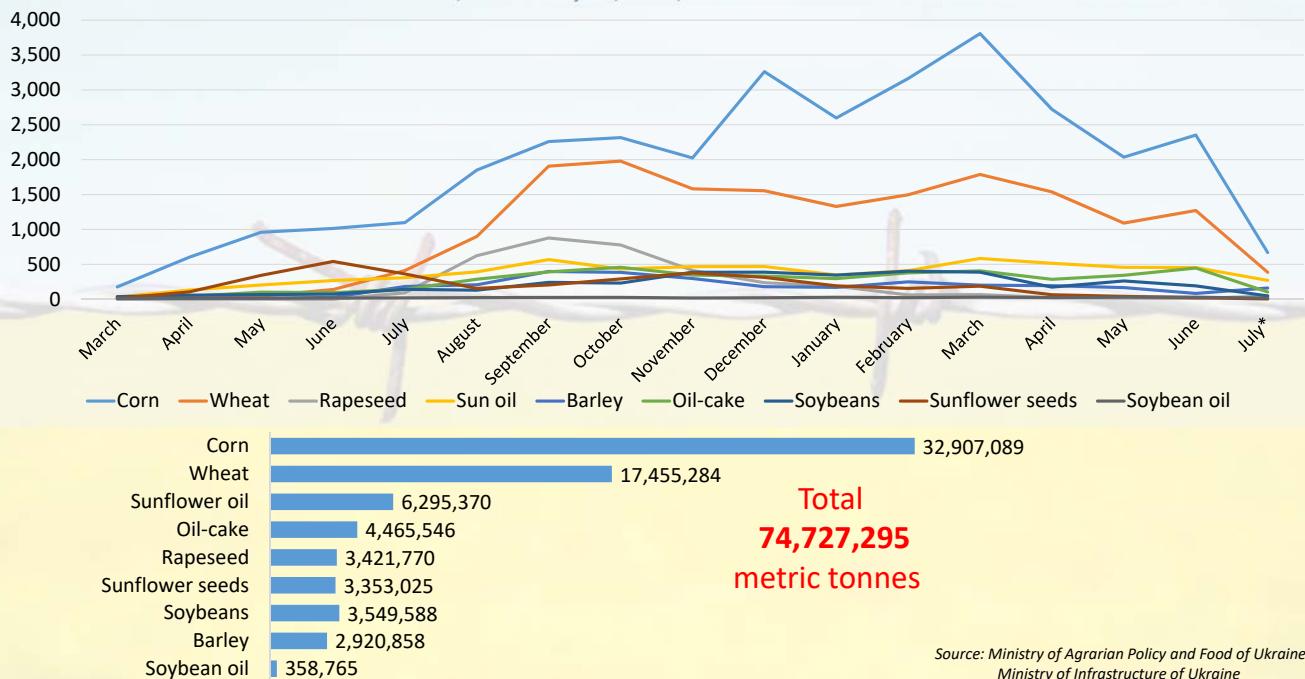
	2020/2021 MY Total	2021/2022 MY		2022/2023 MY	
		Total	including June 2022	Total	including June 2023
<b>Grain and legumes, total</b>	<b>43,939</b>	<b>48,508</b>	<b>1,403</b>	<b>49,079</b>	<b>3,783</b>
• wheat	16,413	18,741	143	16,900	1,385
• barley	4,210	5,752	36	2,713	66
• rye	15.8	161.9	0	18.0	0
• corn	22,596	23,535	1,212	29,299	2,325
Wheat flour	123.7	69.4	1.9	148.1	11.4
Other flour	1.1	1.5	0.1	6.2	0.6
<i>Total flour</i>	<i>124.8</i>	<i>70.9</i>	<i>2.0</i>	<i>154.3</i>	<i>12.0</i>
<b>Total export (grain + flour)</b>	<b>44,105</b>	<b>48,579</b>	<b>1,405</b>	<b>49,233</b>	<b>3,795</b>

Source: based on data of State Customs Service of Ukraine

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

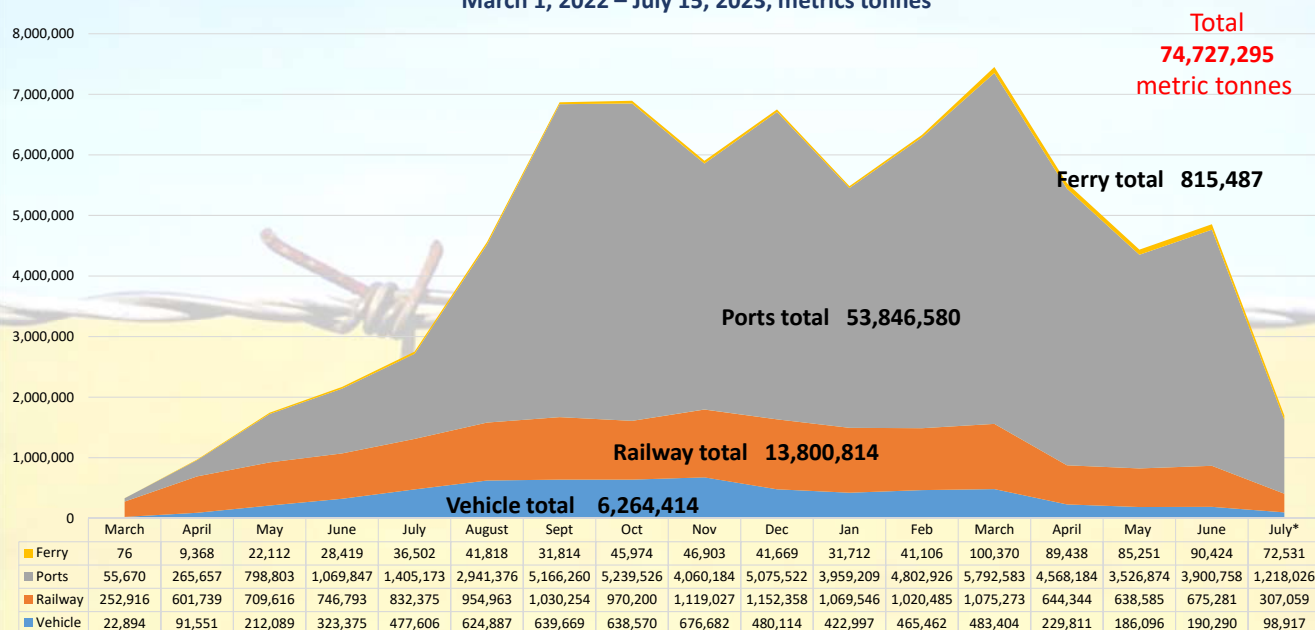


**BORDER-CROSSING FROM UKRAINE DURING THE WAR TIME BY TYPES OF AGRICULTURAL PRODUCTS,**  
March 1, 2022 – July 15, 2023, thousand metric tonnes



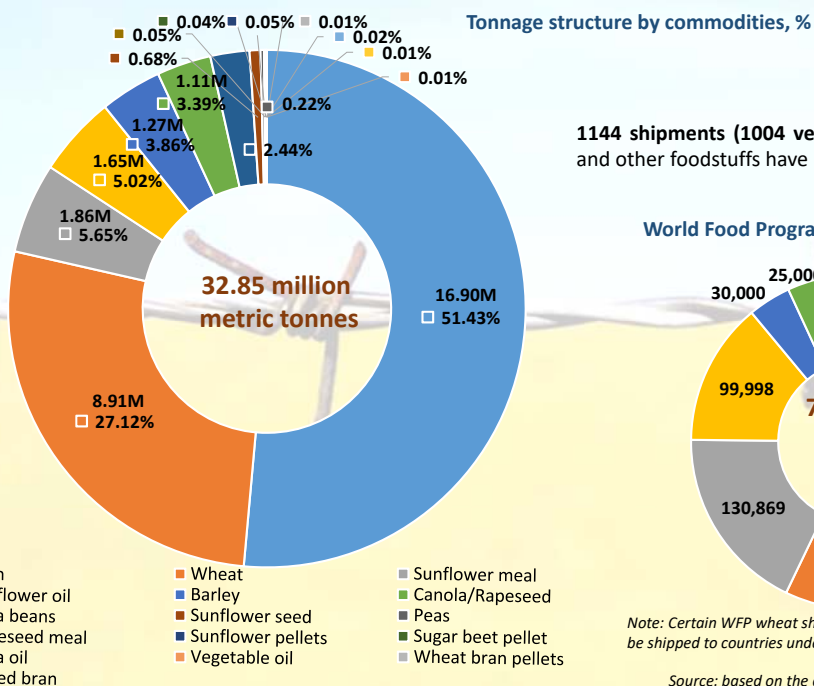
Source: Ministry of Agrarian Policy and Food of Ukraine  
Ministry of Infrastructure of Ukraine

### BORDER-CROSSING OF AGRICULTURAL PRODUCTS FROM UKRAINE IN TRANSPORTATION BREAKDOWN, March 1, 2022 – July 15, 2023, metrics tonnes



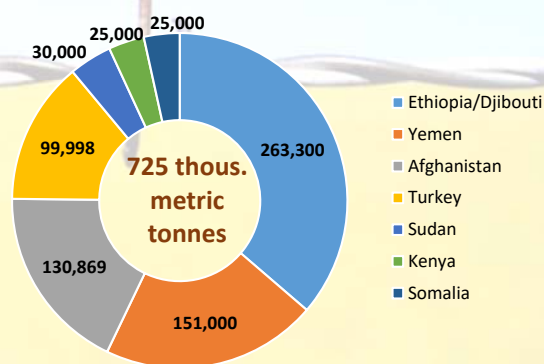
Source: Ministry of Agrarian Policy and Food of Ukraine and Ministry of Infrastructure of Ukraine

### EXECUTION OF THE AGREEMENT "Initiative for the safe transportation of grain and food products from Ukrainian ports" August 1, 2022 – July 17, 2023



1144 shipments (1004 vessels) of 32,856,036 metric tonnes of grains and other foodstuffs have left Ukrainian ports.

### World Food Programme humanitarian shipment by country

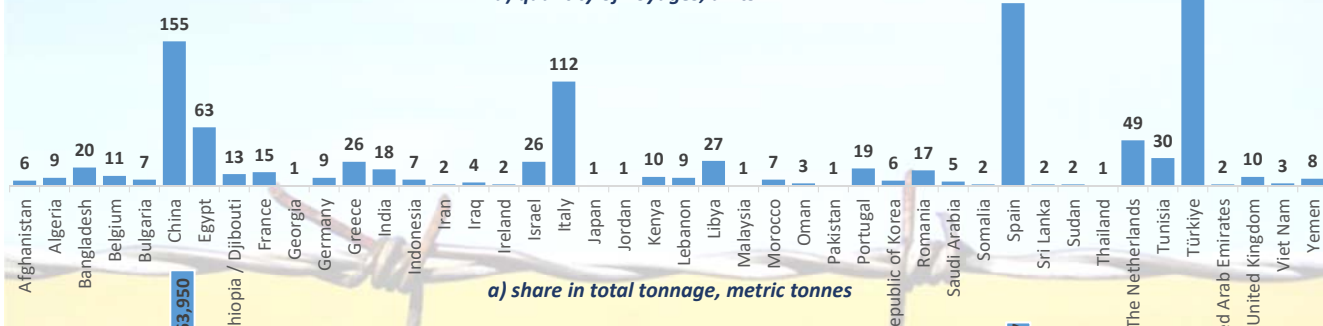


Note: Certain WFP wheat shipments went to Turkey to be milled into flour and then will be shipped to countries under WFP humanitarian operations

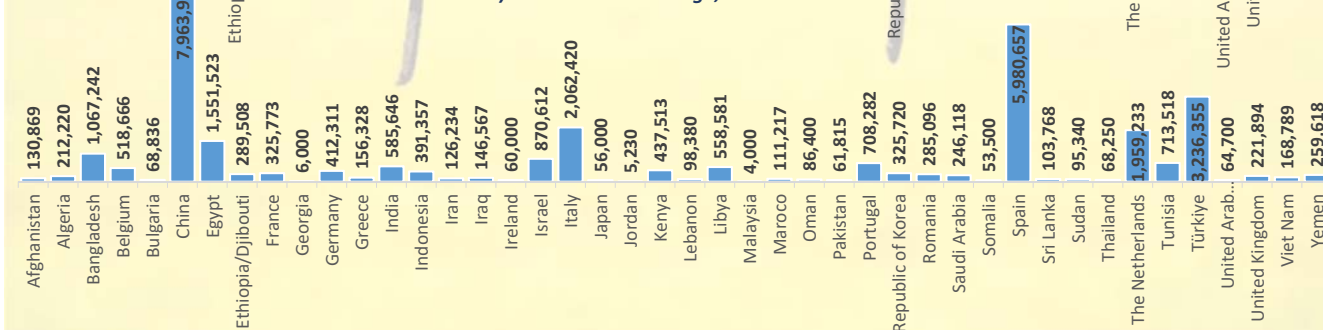
Source: based on the data of the Black Sea Grain Initiative Joint Coordination Centre

**EXECUTION OF THE AGREEMENT "Initiative for the safe transportation of grain and food products from Ukrainian ports"**  
**Structure of delivered loads by destination, August 1, 2022 – July 17, 2023**

**a) quantity of voyages, units**

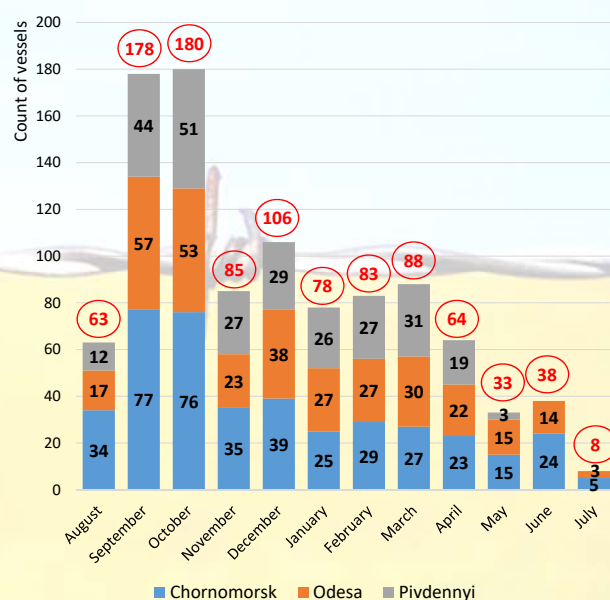
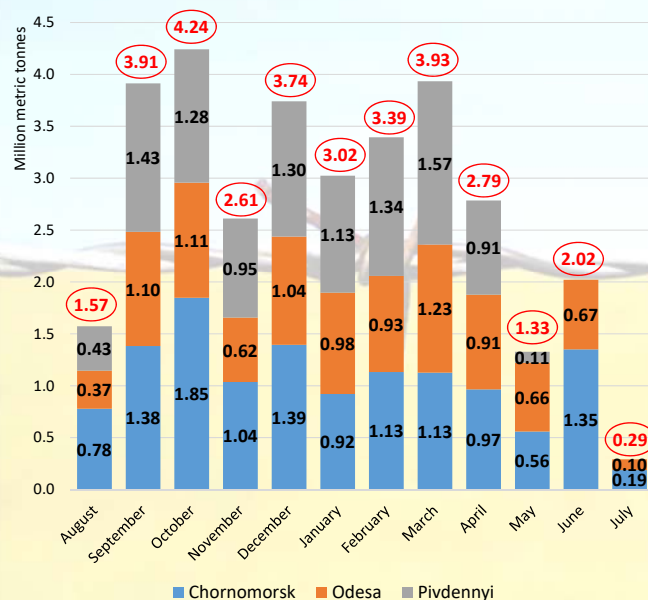


**a) share in total tonnage, metric tonnes**



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"**  
**Departure from Ukraine by ports, August 1, 2022 – July 17, 2023**



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

## BLACK SEA GRAIN INITIATIVE WITHOUT RUSSIA

### ADVANTAGES:

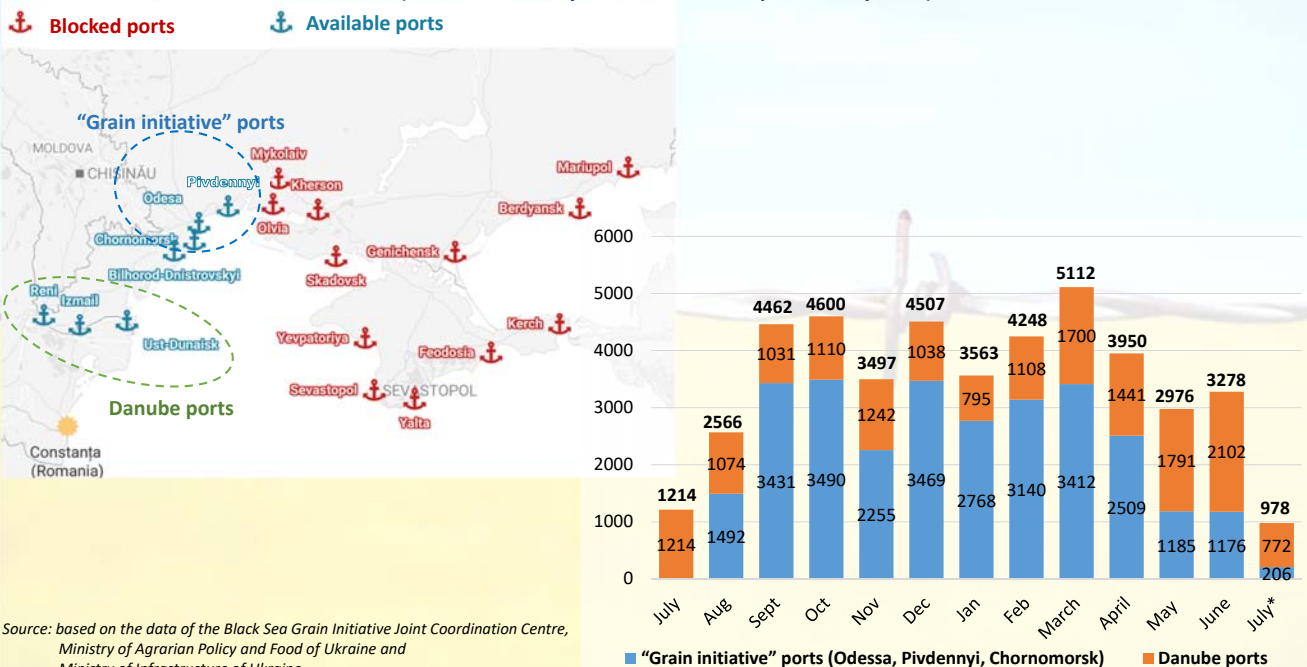
- 1) **No inspection.** Ukrainian exports will no longer be sabotaged by Russian inspectors from the Joint Coordination Center (JCC) in Istanbul.
- 2) **Logistics cost reduction.** The delay of ships negatively affected the work of Ukrainian grain producers due to the increase in the cost of logistics (from 30\$/T to 100\$/T). Some vessels waited 3 months and more
- 3) **World food security increase.** Due to Russian sabotage of the grain corridor, the world did not get the minimum of 20 million tons of agricultural products.



### RUSSIAN REQUIREMENTS:

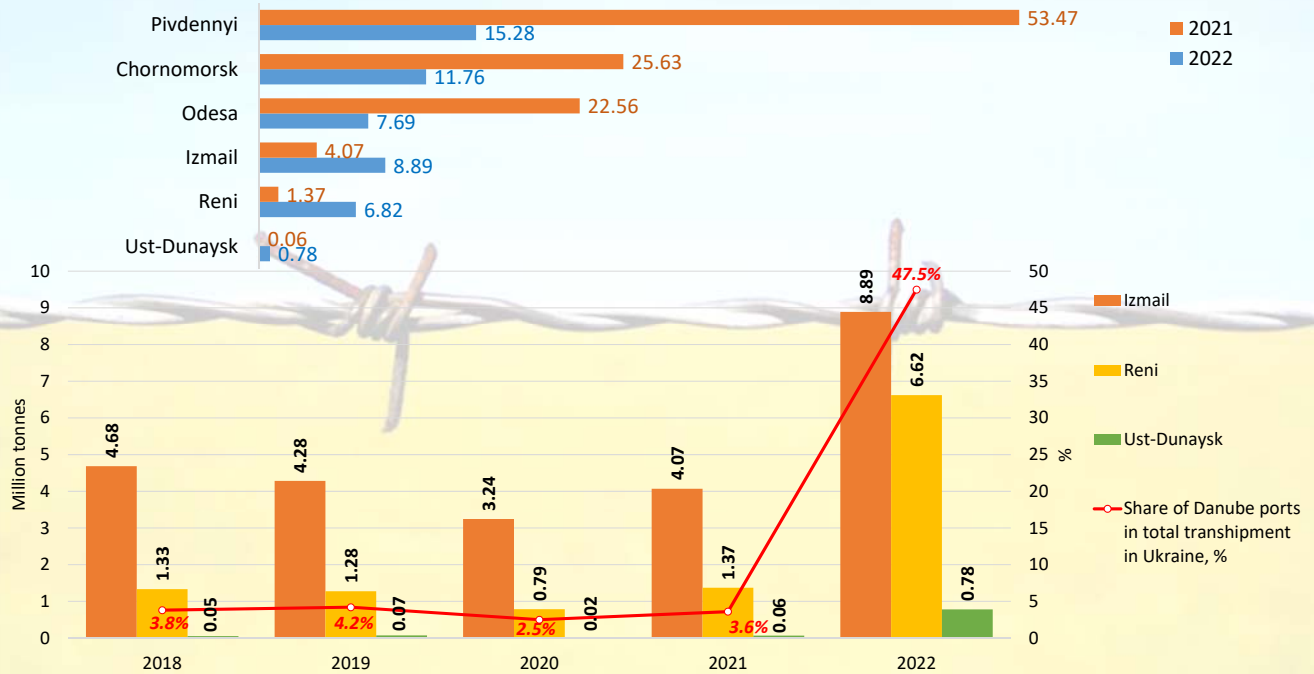
- 1) removal from **sanctions** of the supply of Russian grain and fertilizers to world markets,
- 2) unimpeded conditions for expanding supplies of Russian **fertilizers** and raw materials for their production,
- 3) resuming supplies to Russia of **spare parts** and components for agricultural machinery and the fertilizer production industry,
- 4) connection of Russian banks to **SWIFT** and the termination of "all restrictions",
- 5) resolving issues with ship freight and **insurance** of Russian food export supplies, ensuring the logistics of food supplies,
- 6) the operation of the **Togliatti-Odesa ammonia pipeline** should be restored,
- 7) unblocking of Russian **financial assets** related to the agricultural sector.

EXPORT OF GRAINS AND OILSEEDS FROM UKRAINIAN PORTS IN 2022/23MY, thousand tonnes  
(wheat, corn, barley, sunflower seeds, rapeseeds, soybeans)





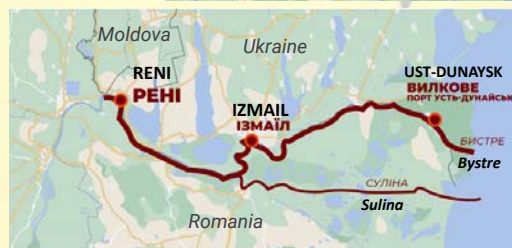
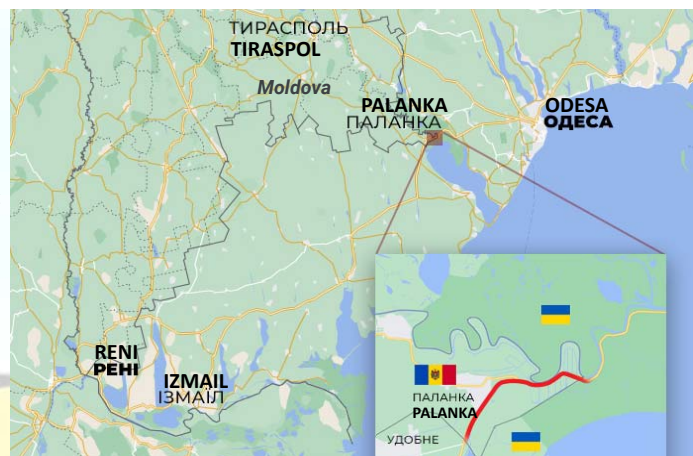
### TOTAL VOLUME OF CARGO HANDLING IN THE BLACK SEA PORTS OF UKRAINE, million tonnes



Source: based on the data of the Ukrainian Sea Ports Authority

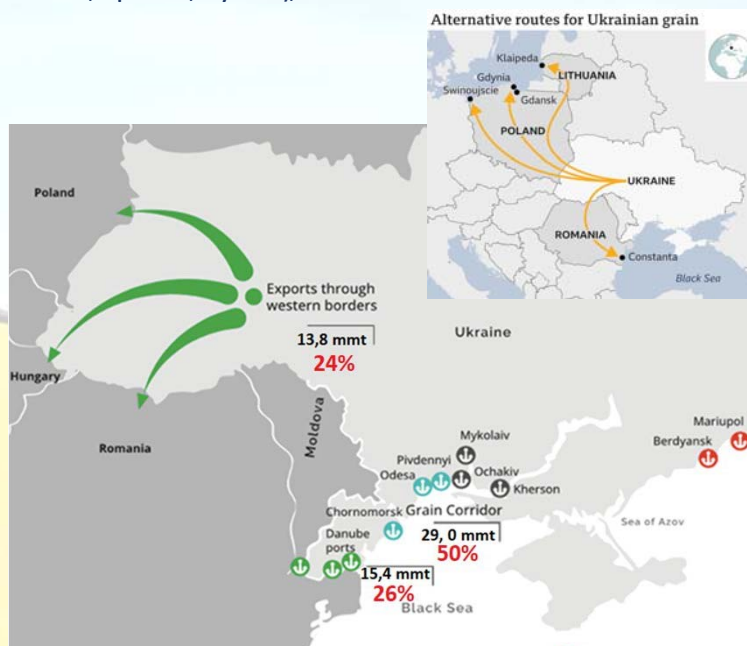
### COMPLICATIONS OF THE DANUBE PORTS LOGISTIC

- limited access to the ports by railway and roads (over the bridge in Zatoka or through Moldova);
- the navigation needs to be coordinated with Romania;
- the small depth of Ukrainian canals, which limits the size of ships;
- the lack of warehouses - the available storage capacities were not designed for transshipment of 15 million tons of cargo per year;
- limited loading capacity (e.g. cargo cranes) and ports infrastructure (terminals, driveway and railway, etc.);
- partially destroyed Reni port infrastructure after Russian attack.



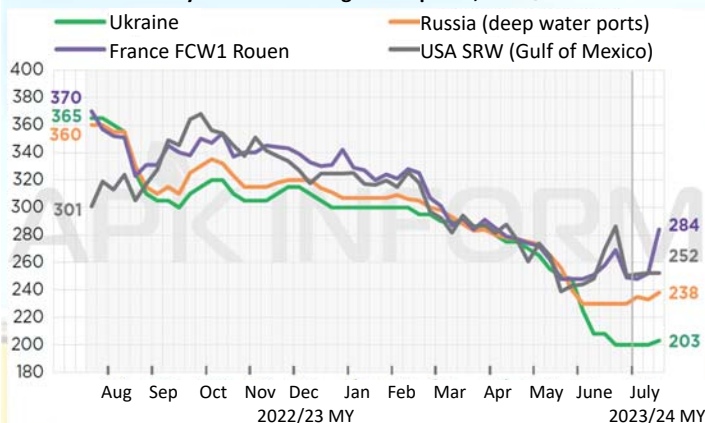


**EXPORT OF GRAINS AND OILSEEDS FROM UKRAINE THROUGH "SOLIDARITY LINES" TO EU in 2022/23 MY**  
(wheat, corn, barley, sunflower seeds, rapeseeds, soybeans), thousand tonnes



Source: based on the data of the Ministry of Agrarian Policy and Food of Ukraine and Ukrainian Grain Association

**Dynamics of milling wheat prices, USD/t**



**IMPACT OF THE WAR ON GRAIN PRICES**

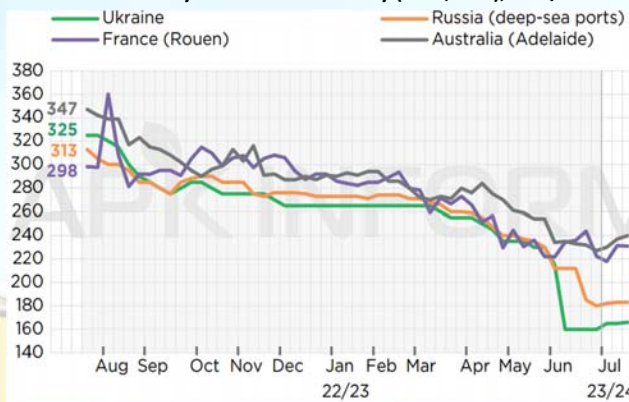
**Price dynamics of feed wheat (offer, FOB), USD/t**



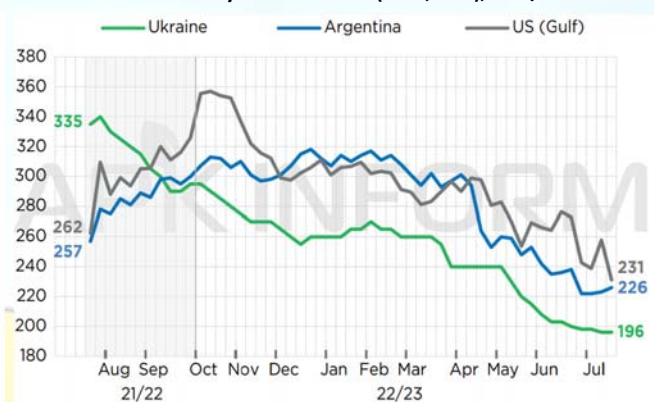
	Stock / month	Country of origin	Terms of delivery	July 21	July 14	July 7	June 30	weekly change	
								USD/t	%
The futures market									
Wheat	CBOT, Sept.	USA	EXW	256.3	243.0	234.9	233.8	+13.3	+5.4%
Wheat	CBOT, July	Black Sea	FOB	230.8	231.0	231.0	228.5	-0.2	-0.1%
Milling wheat	Euronext, Sept.	France	CPT Rouen	276.4	259.1	252.2	251.3	+17.3	+6.7%
Wheat	LIFFE, Nov.	EU	EXW	267.0	256.6	220.2	221.2	+10.4	+4.1%
Wheat	BCA, Nov.	Argentina	EXW	280.0	282.0	281.0	284.6	-2.0	-0.7%
Cash market									
Wheat SRW	July	USA	CPT Gulf of Mex.	-	252.2	251.5	250.3	-	-
Wheat hard	July	Argentina	FOB	338.0	332.0	340.0	338.0	+6.0	+1.8%
Wheat FCW1	July	France	FOB	284.0	254.0	250.0	249.0	+30.0	+11.8%

## IMPACT OF THE WAR ON GRAIN PRICES

Price dynamics of feed barley (offer, FOB), USD/t



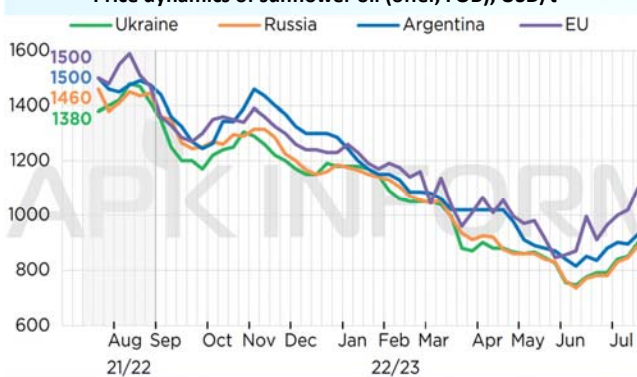
Price dynamics of corn (offer, FOB), USD/t



	Stock / month	Country of origin	Terms of delivery	July 21	July 14	July 7	June 30	weekly change		
									USD/t	%
The futures market										
Corn yellow	CBOT, Sep.	United States	EXW	207.5	199.4	220.6	218.3	+8.1	+4.1%	
Corn	Euronext, Aug.	France	FOB	271.7	260.8	245.9	251.1	+10.9	+4.2%	
Corn hard	BCA, July	Argentina	EXW	185.0	175.0	181.2	182.5	+10.0	+5.7%	
Cash market										
Corn yellow	July	USA	CPT Gulf of Mex.	231.1	257.8	238.8	242.7	-26.7	-10.4%	
Corn	July	Argentina	FOB	226.0	223.0	222.0	222.0	+3.0	+1.3%	
Fodder barley	July	France	FOB	262.7	231.4	218.0	222.2	+31.3	+13.5%	

## IMPACT OF THE WAR ON OIL COMMODITIES PRICES

Price dynamics of sunflower oil (offer, FOB), USD/t



Price dynamics of soybeans (offer, FOB), USD/t



	Stock / month	Country of origin	Terms of delivery	July 21	July 14	July 7	June 30	weekly change	
								USD/t	%
The futures market									
Soybeans	CBOT, Aug.	United States	EXW	551.1	543.9	545.8	572.2	+7.6	+1.4%
Soybeans	BCA, July	Argentina	EXW	368.0	352.0	356.2	367.1	+16.0	+4.2%
Cash market									
Soybeans	July	USA	CPT Gulf of Mex.	580.9	584.3	566.0	596.1	-3.4	-0.6%
Soybeans	July	Argentina	FOB	556.0	548.0	545.0	577.0	+8.0	+1.5%
Soybeans	July	Brazil	FOB	527.0	524.0	507.0	535.0	+3.0	+0.6%
Sunflower oil	Aug.	EU	FOB Rotterdam	1100.0	1020.0	1000.0	965.0	+80.0	+7.8%
Sunflower oil	July	Argentina	FOB	930.0	895.0	900.0	880.0	+35.0	+3.9%

### SOWN AREA OF WINTER CROPS IN UKRAINE, thousand hectares

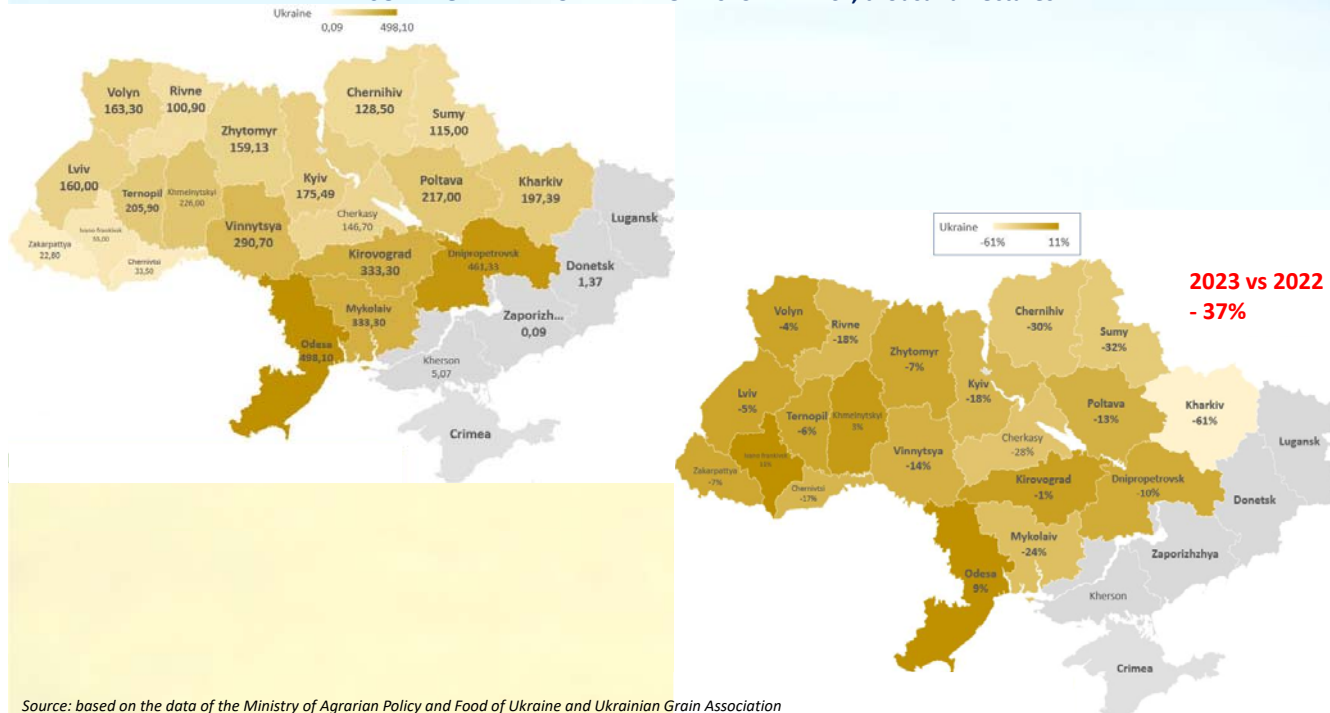
Crops	Sown areas in 2020	Sown areas in 2021	Planted in 2022 for the 2023 harvest	% of planted in 2022 to 2021
<b>Winter crops total, including:</b>	<b>8,973.5</b>	<b>9,029.4</b>	<b>5,449.4</b>	<b>60.3 %</b>
• winter wheat	6,714.4	6,538.4	<b>3,758.8</b>	<b>57.5 %</b>
• winter barley	1,080.4	969.0	<b>612.5</b>	<b>63.2 %</b>
• winter rye	166.8	108.5	<b>79.2</b>	<b>73.0 %</b>
• winter rapeseeds	1,011.9	1,413.5	<b>998.9</b>	<b>70.7 %</b>

### SOWN AREA OF SPRING CROPS IN UKRAINE thousand hectares

Crops	2021	2022	2023	2023 to 2022	2023 to 2021
<b>Total (selected crops)</b>	<b>15633.2</b>	<b>12327.0</b>	<b>12907.0</b>	<b>104.71%</b>	<b>82.56%</b>
<b>Spring cereals and legumes</b>	<b>7586.0</b>	<b>6196.9</b>	<b>5672.2</b>	<b>90.47%</b>	<b>73.91%</b>
including:					
• spring wheat	192.1	191.1	280.0	146.52%	145.76%
• spring barley	1337.0	951.4	821.9	86.39%	61.47%
• oats	177.9	159.3	150.1	94.22%	84.37%
• peas	242.1	131.0	139.3	106.34%	57.54%
• corn	5474.8	4639.4	4043.5	87.16%	73.86%
• buckwheat	84.0	75.3	120.7	160.29%	143.69%
• millet	78.1	49.5	51.1	103.23%	65.43%
Spring rapeseed	33.2	34.1	n/a	n/a	n/a
Soybeans	1279.6	1212.6	1779.8	146.78%	139.09%
Sunflower	6509.7	4702.7	5307.5	112.86%	81.53%
Sugar beet	224.7	180.6	213.1	118.00%	94.84%

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

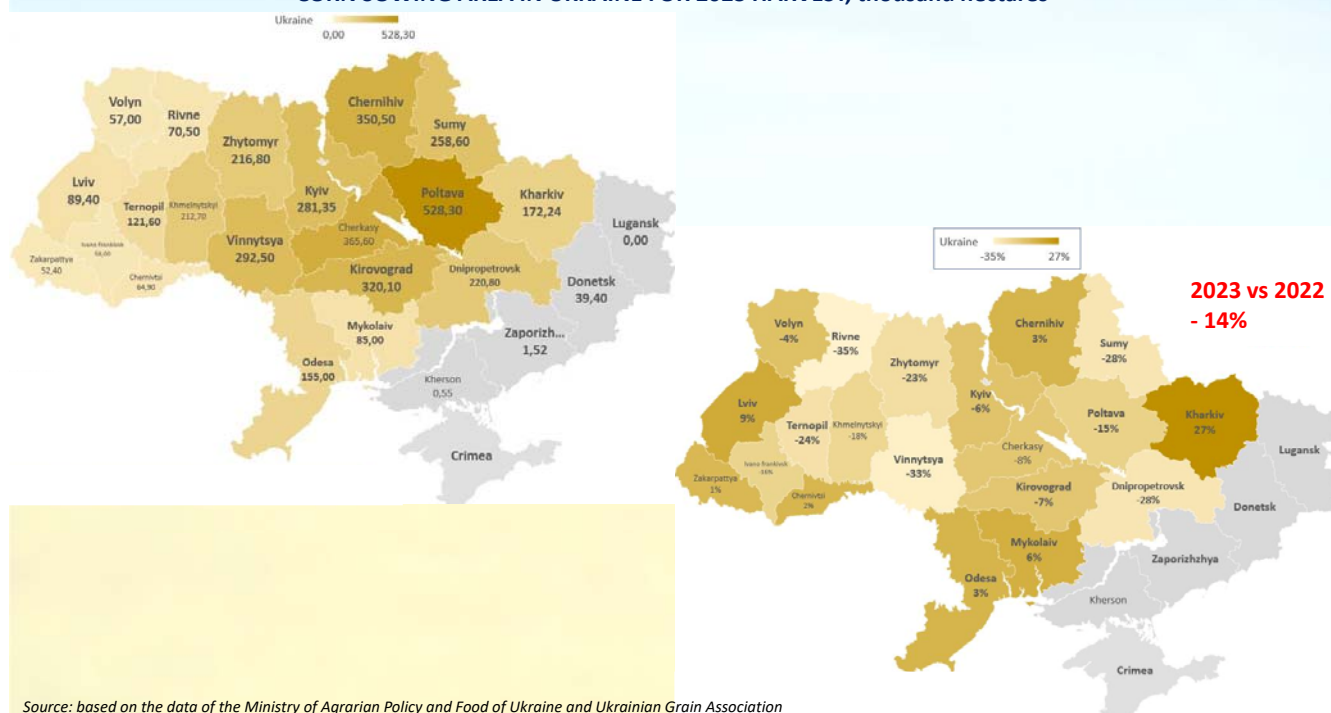
### WHEAT SOWING AREA IN UKRAINE FOR 2023 HARVEST, thousand hectares



Source: based on the data of the Ministry of Agrarian Policy and Food of Ukraine and Ukrainian Grain Association



### CORN SOWING AREA IN UKRAINE FOR 2023 HARVEST, thousand hectares



Source: based on the data of the Ministry of Agrarian Policy and Food of Ukraine and Ukrainian Grain Association

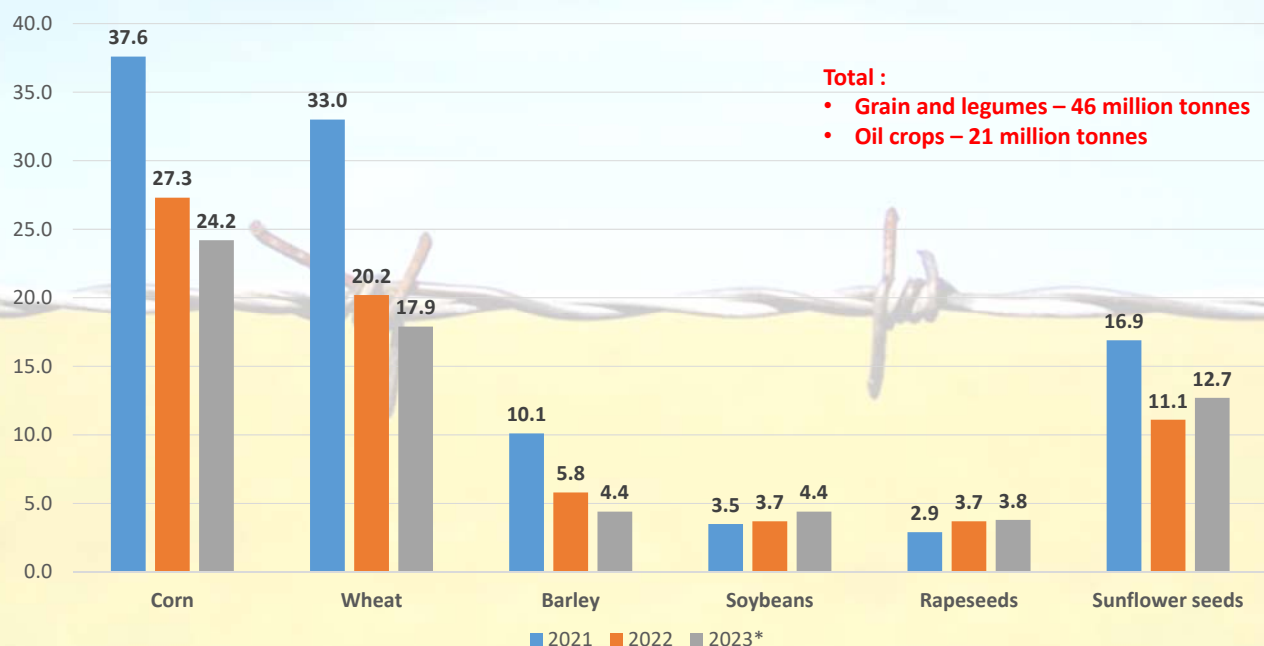
### HARVESTING OF GRAIN, LEGUMES AND OIL CROPS IN UKRAINE, as of July 21, 2023

Crops	Harvested, thousand hectares		2023*		Harvested to forecast 2023*, %	Harvested 2023*, thousand metric tonnes	Average yields, metric tonnes per hectare			Change in yields per hectare 2022 to 2021, %
	2021	2022	Forecast, thousand hectares	Harvested, thousand hectares			2021	2022	2023*	
<b>Grain and legumes total, including:</b>	<b>15,299.2</b>	<b>10,969.7</b>	<b>9,825.10</b>	<b>1,493.2</b>	<b>15.2%</b>	5,882.4	<b>5.50</b>	<b>4.88</b>	<b>3.94</b>	<b>-11.5 %</b>
• wheat	7,073.0	4,979.4	4,038.0	831.0	20.6%	3,420.2	4.64	4.05	4.12	-12.7 %
• barley	2,467.7	1,666.5	1,431.7	577.2	40.3%	2,253.3	3.92	3.47	3.90	-11.5 %
• peas	240.4	118.1	139.3	85.0	61.0%	208.9	2.43	2.28	2.46	-6.2 %
• buckwheat	84.2	115.9	120.7	0			1.30	1.37		5.4 %
• millet	77.9	44.7	51.1	0			2.52	2.28		-9.5 %
• corn	5,356.0	4,045.0	4,043.5	0			8.01	6.68		-16.6 %
Soybeans	1,279.5	1,537.0	1,779.8	0			2.68	2.43		-9.3 %
Rapeseed	1,013.9	1,134.8	1,376.5	563.5	40.9%	1,390.1	2.95	2.86	2.47	-2.0 %
Sunflower	6,482.4	4,825.5	5,307.5	0			2.52	2.18		-13.9 %

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

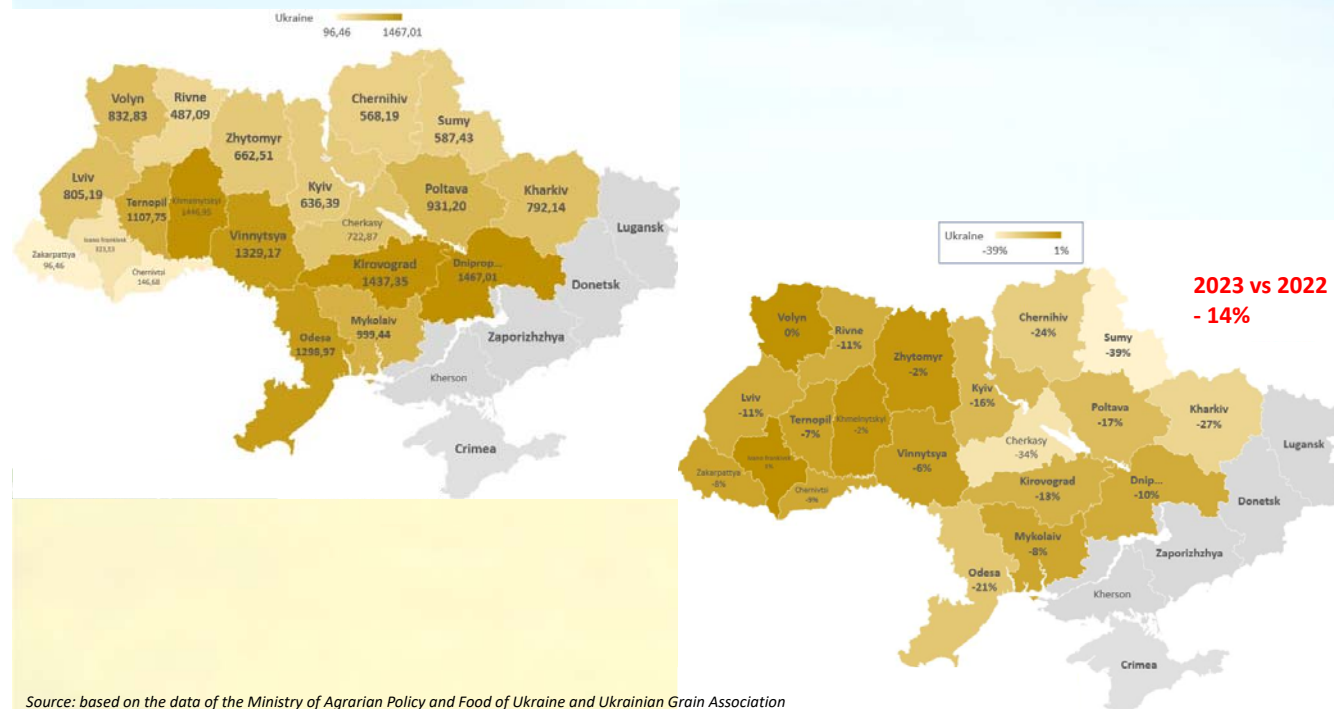


### FORECAST OF HARVEST OF GRAIN, LEGUMES AND OIL CROPS IN UKRAINE IN 2023, mln tonnes



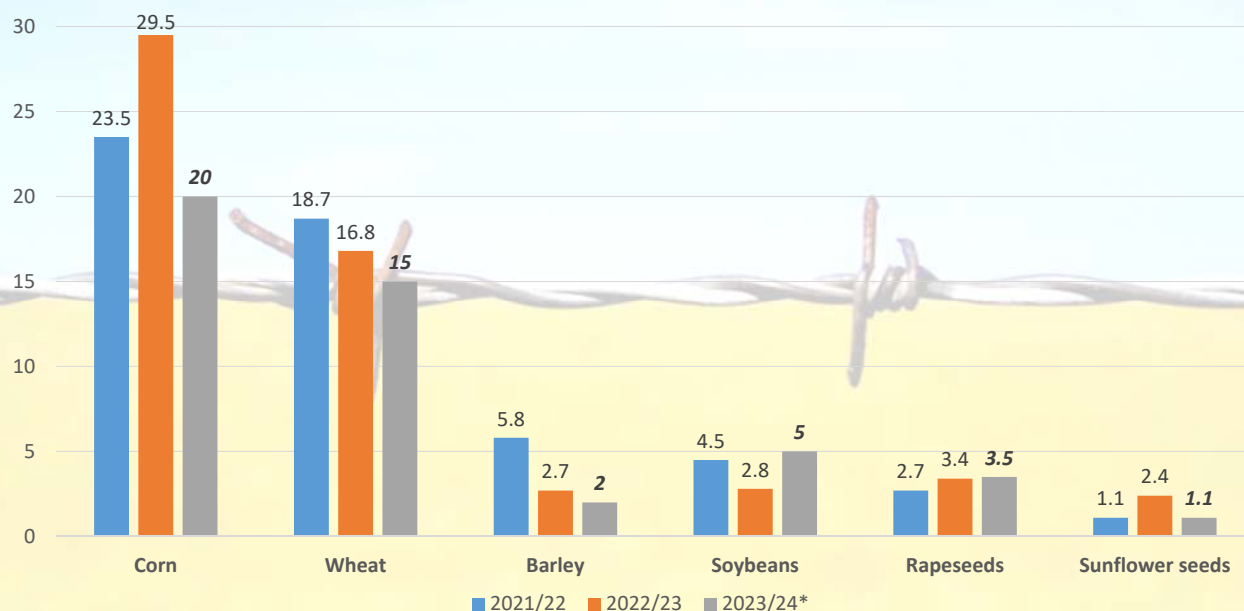
Source: based on data of Ukrainian Grain Association

### FORECAST OF WHEAT HARVEST IN UKRAINE BY REGIONS IN 2023, thousand hectares



Source: based on the data of the Ministry of Agrarian Policy and Food of Ukraine and Ukrainian Grain Association

### FORECAST OF EXPORT POTENTIAL OF GRAIN, LEGUMES AND OIL CROPS IN UKRAINE IN 2023/24 MY, mln tonnes



Source: based on data of Ukrainian Grain Association

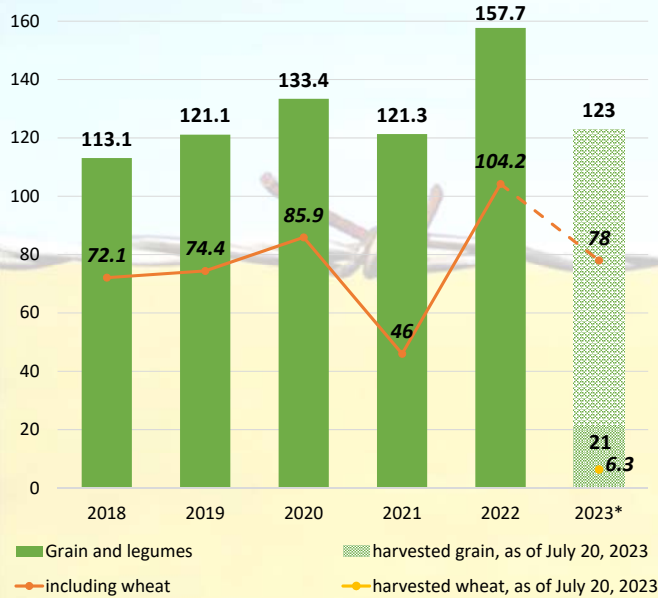
### BALANCE OF SUPPLY AND DEMAND OF GRAIN AND LEGUMES IN UKRAINE (\*forecast as of July 7, 2023)

	2021/22	2022/23	2023/24*	Deviation , %	
	thousand tonnes	thousand tonnes	thousand tonnes	2022/23 to 2021/22	2023/24 to 2022/23
Initial stocks	4,817	12,465	3,800	in +2,6 times	-69.5%
Sown area, thousand hectares	15,995	12,171	10,735	-23.9%	-11.8%
Harvested area, thousand hectares	15,948	11,773	10,465	-26.2%	-11.1%
Yield, tonnes / hectare	5.39	4.58	4.67	-15.0%	+2.0%
Gross harvest	86,010	53,864	48,887	-37.4%	-9.2%
Import	123	153	131	+24.4%	-14.6%
<b>Total supply</b>	<b>90,951</b>	<b>66,482</b>	<b>52,818</b>	-26.9%	-20.6%
Domestic consumption:	26,277	17,148	17,237	-34.7%	+0.5%
food	4,634	4,272	4,025	-7.8%	-5.8%
fodder	13,325	8,685	9,565	-34.8%	+10.1%
seeds	1,666	1,408	1,538	-15.5%	+9.2%
losses	5,692	1,996	1,346	-64.9%	-32.6%
other (alcohol, malt, starch, etc.)	960	787	763	-18.1%	-3.0%
Export	52,209	45,534	30,108	12.8%	-33.9%
<b>Total distribution (demand)</b>	<b>78,486</b>	<b>62,682</b>	<b>47,345</b>	-20.1%	-24.5%
Ending stocks	12,465	3,800	5,474	-69.5%	+44.1%
Ratio of ending stocks to distribution	16%	6%	12%		

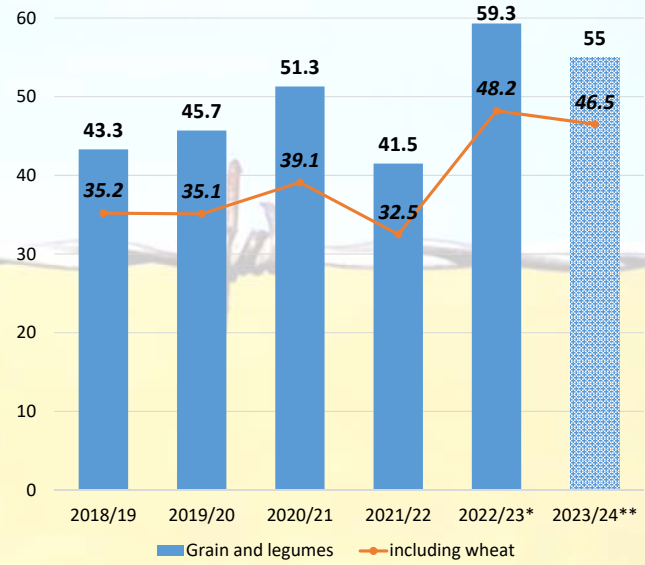
Source: based on "APK-Inform", the State Statistic Service of Ukraine and the State Customs Service of Ukraine



**FORECAST OF GRAIN AND LEGUMES PRODUCTION IN RUSSIA, million tonnes**

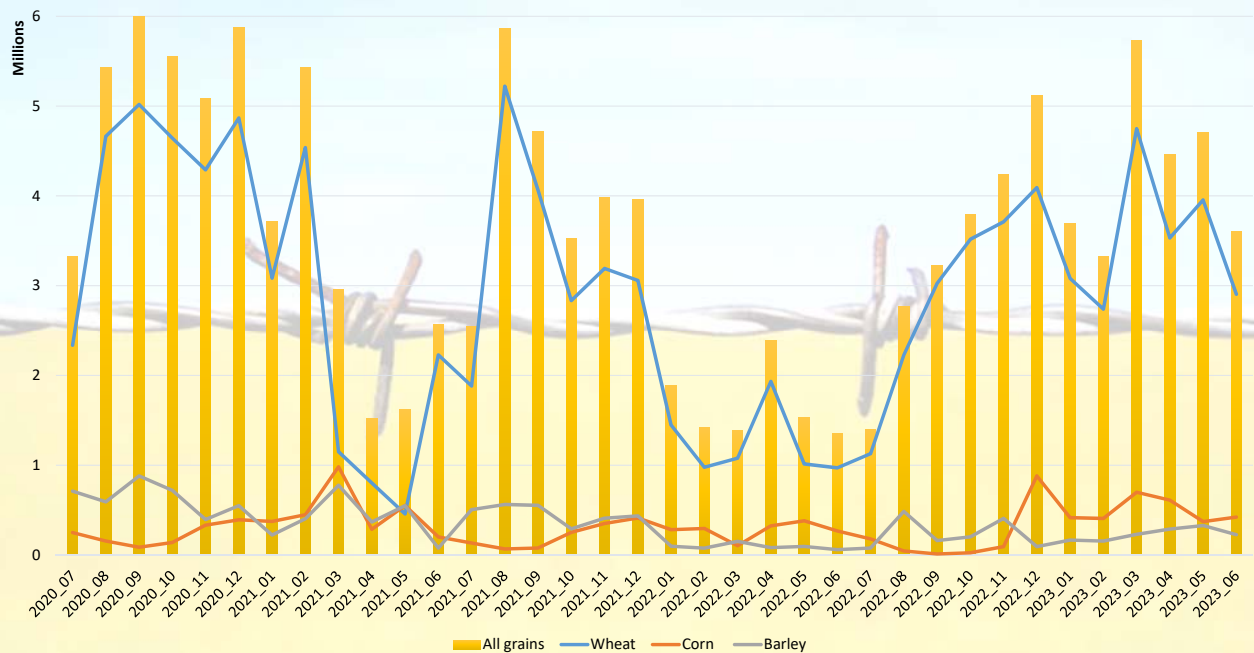


**FORECAST OF GRAIN EXPORT FROM RUSSIA, million tonnes**



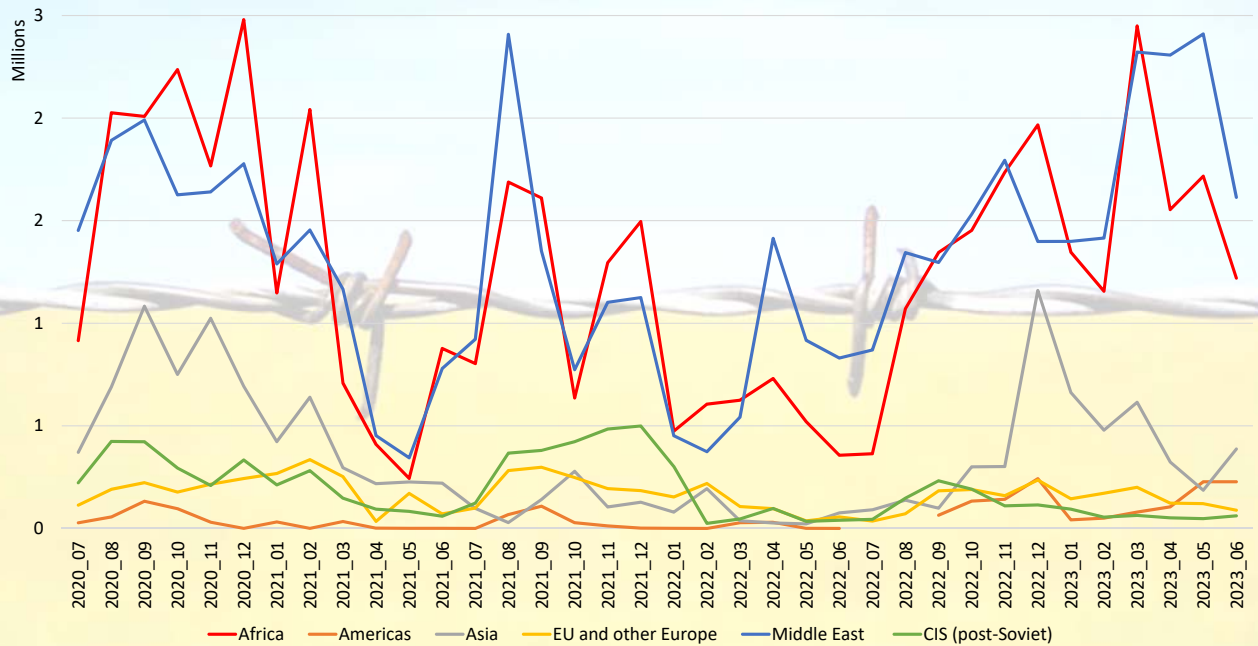
Source: based on Ministry of Agriculture of the Russian Federation

**EXPORT OF GRAINS FROM RUSSIA BY COMMODITIES, million tonnes**



Source: based on Ministry of Agriculture of the Russian Federation

### EXPORT OF GRAINS FROM RUSSIA BY DESTINATION, million tonnes



### BLACK SEA NAVIGATION IN REAL TIME





Thank you!

Questions?

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