

CURRENT SITUATION ON BLACK SEA AG MARKETS

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UNIVERSITY

Agricultural Economics

OUTLINE:

- Current situation of ag commodities export from Ukraine
- Forecast of grain production and export from Ukraine
- Influence of the war on the world grain markets
- Grain production and export from Russia

Ismail port grain terminal
Russian attack, September 13, 2023



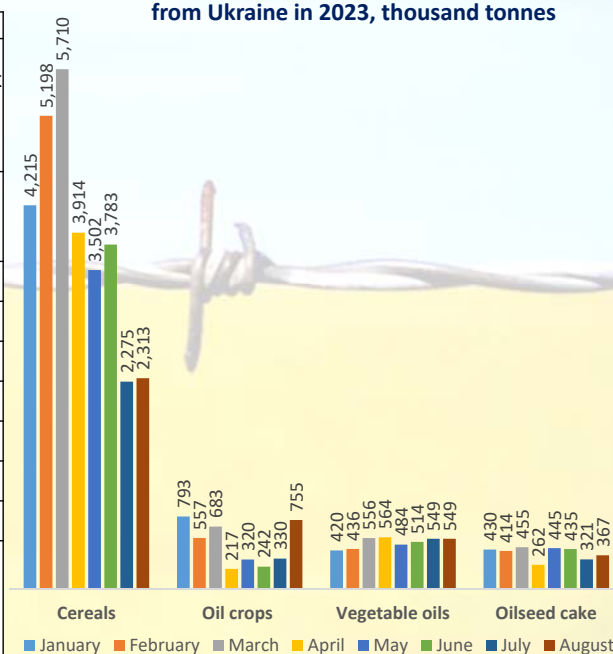
Since July 18, 2023, after withdrawing from the grain agreement, Russia destroyed **280,000 tonnes of grain in Ukrainian ports** and **105 objects of ports infrastructure**

EXPORT OF GRAIN AND LEGUMES FROM UKRAINE with products of their processing (MY July-June), thousand metric tonnes

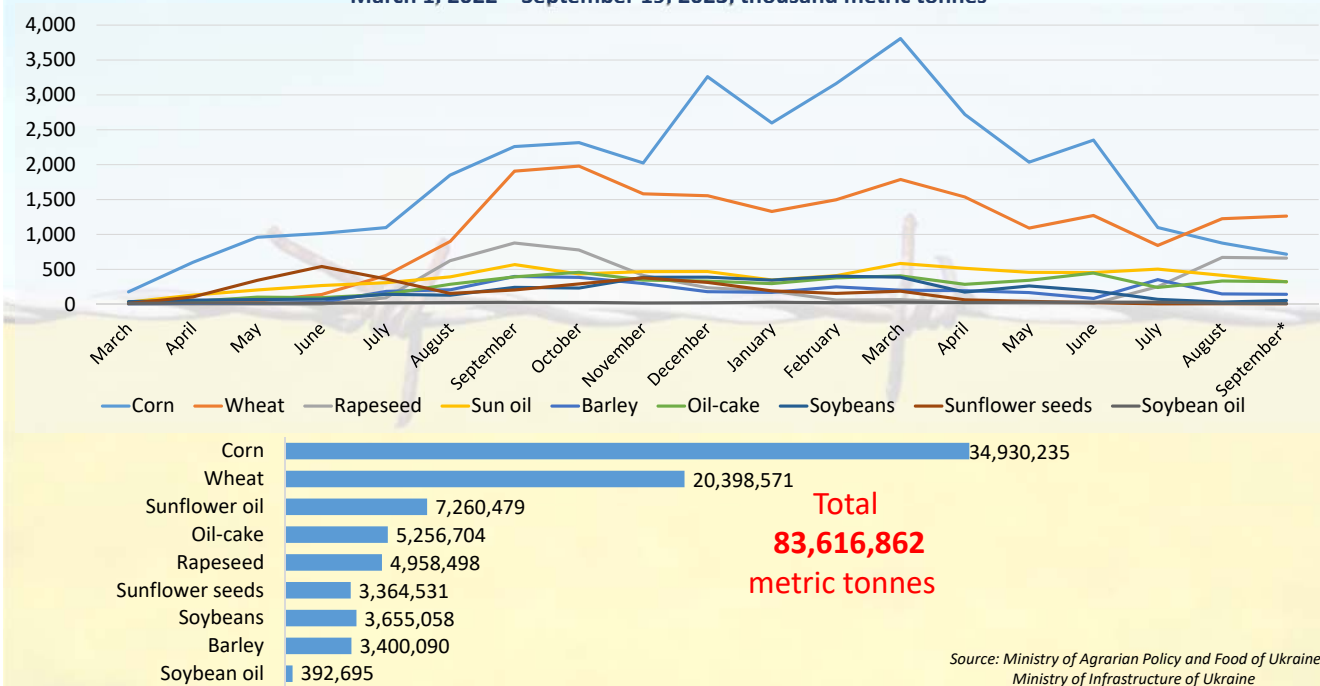
	2020/2021 MY Total	2021/2022 MY Total	2022/2023 MY Total	incl. August 2022	2023/2024 MY Total, as for Sept. 15, 2023	incl. August 2023
Grain and legumes, total	43,939	48,508	49,079	2,264	5,370	2,313
• wheat	16,413	18,741	16,900	763	2,502	1,203
• barley	4,210	5,752	2,713	161	542	203
• rye	15.8	161.9	18.0	0.5	0.6	0.1
• corn	22,596	23,535	29,299	1,331	2,311	901
Wheat flour	123.7	69.4	148.1	7.0	28.3	14.2
Other flour	1.1	1.5	6.2	0.8	0.9	0.5
Total flour	124.8	70.9	154.3	7.8	29.2	14.7
Total export (grain+flou	44,105	48,579	49,233	2,272	5,400	2,328

Source: based on data of State Customs Service of Ukraine

Dynamics of main agricultural products export from Ukraine in 2023, thousand tonnes

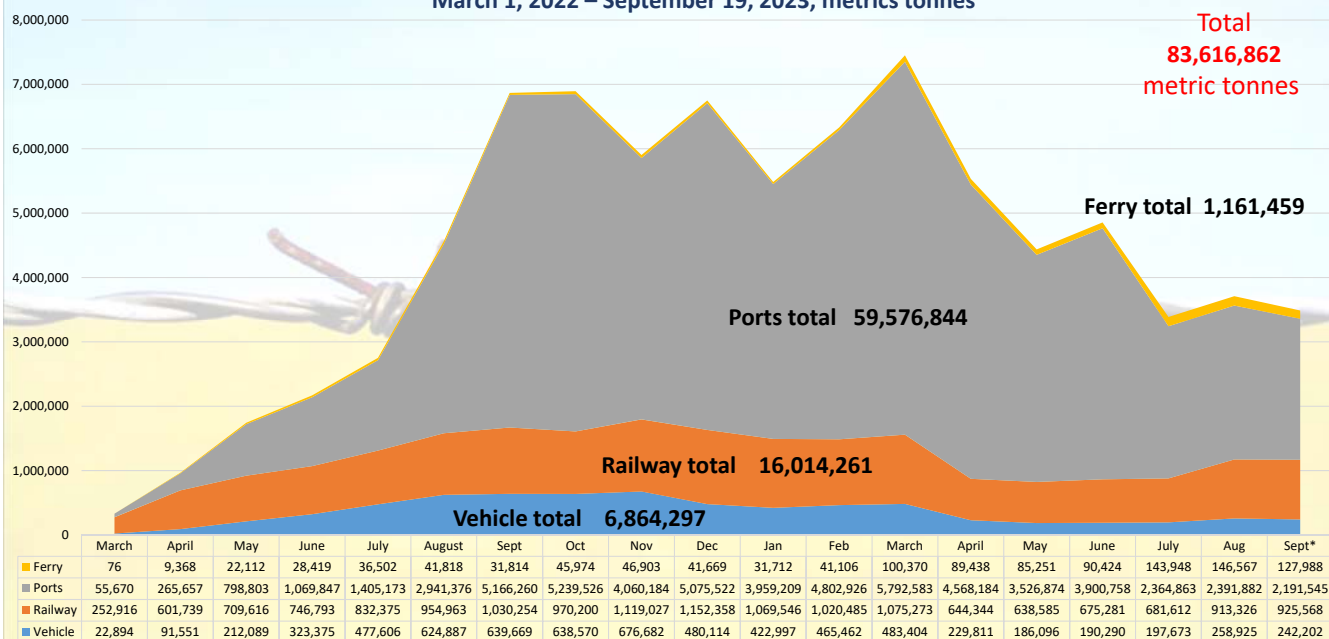


BORDER-CROSSING FROM UKRAINE DURING THE WAR TIME BY TYPES OF AGRICULTURAL PRODUCTS, March 1, 2022 – September 19, 2023, thousand metric tonnes

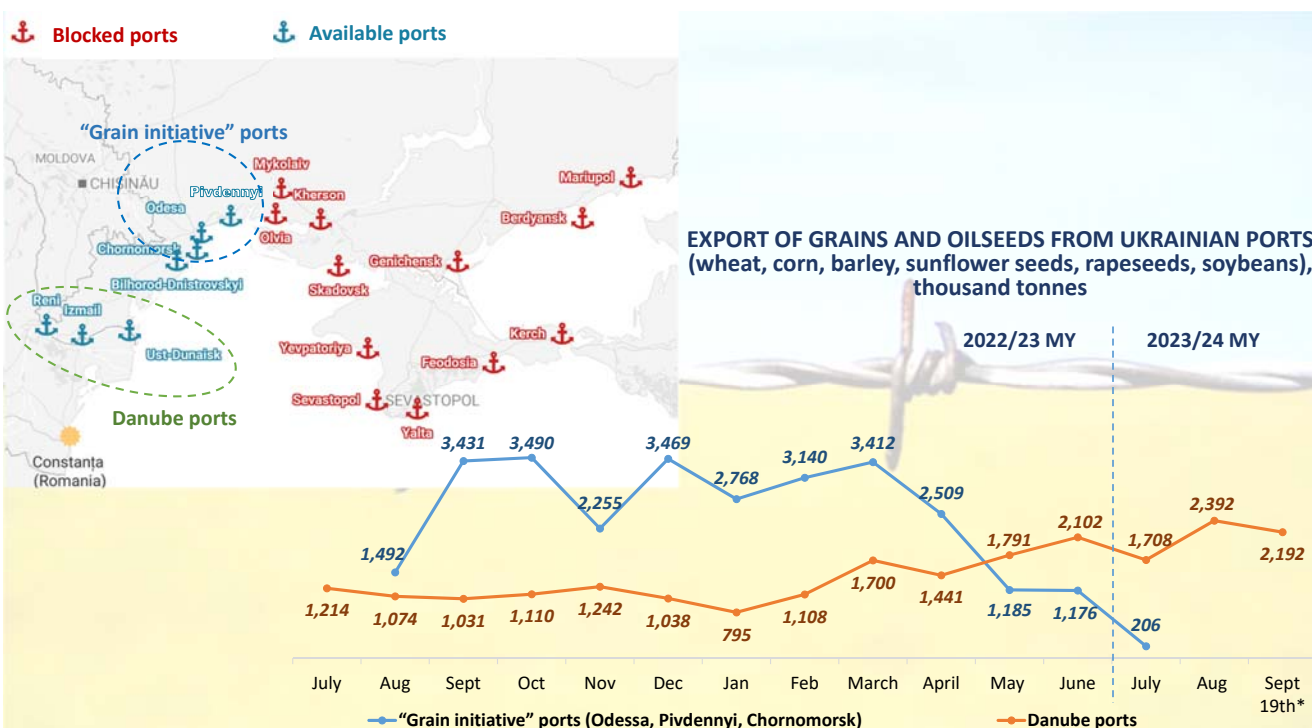


Source: Ministry of Agrarian Policy and Food of Ukraine
Ministry of Infrastructure of Ukraine

BORDER-CROSSING OF AGRICULTURAL PRODUCTS FROM UKRAINE IN TRANSPORTATION BREAKDOWN, March 1, 2022 – September 19, 2023, metrics tonnes



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



Source: based on the data of the Black Sea Grain Initiative Joint Coordination Centre, Ministry of Agrarian Policy and Food of Ukraine and Ministry of Infrastructure of Ukraine



GRAIN EXPORT ROUTES FROM UKRAINE TO ROMANIAN PORT CONSTATA

RAILWAY

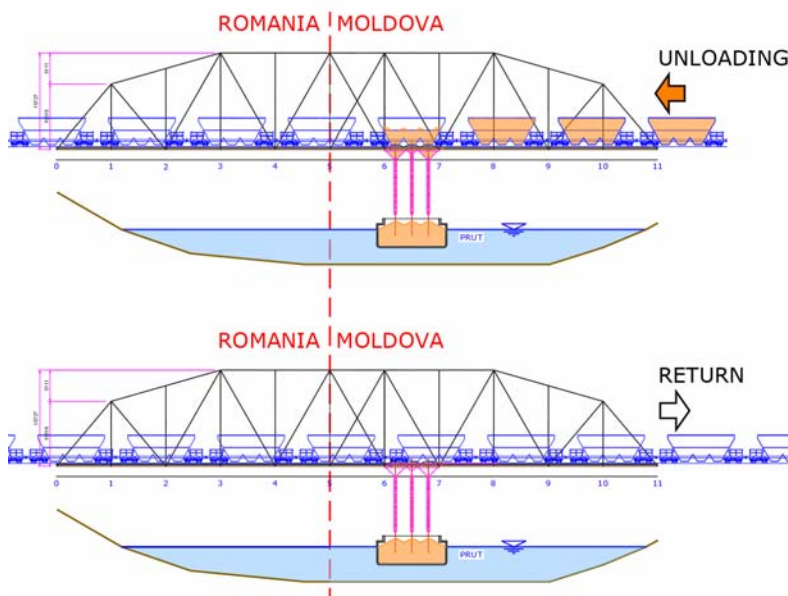
- ✓ Ukrainian trains enter Romania by using revamped in August, 2022 railway line "Reni, Ukraine – Giurgiuilesti, Moldova – Galati, Romania" (over River Prut)
- ✓ Transshipment of railcars to barges at Galati Port

WATERWAYS

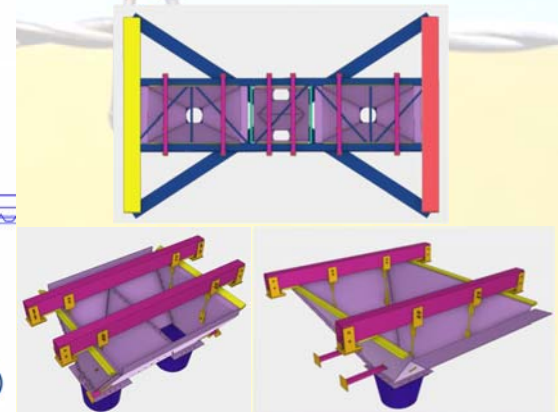
- ✓ Loading barges in Ukrainian Danube ports (Ismail, Reni, Ust-Dunaysk)
- ✓ Loading barges in Giurgiuilesti, Moldova (Danube & Prut) from railcars and trucks coming from Ukraine



ALTERNATIVE SOLUTION: DIRECT TRANSSHIPMENT RAILCAR – BARGE ON RIVER PRUT



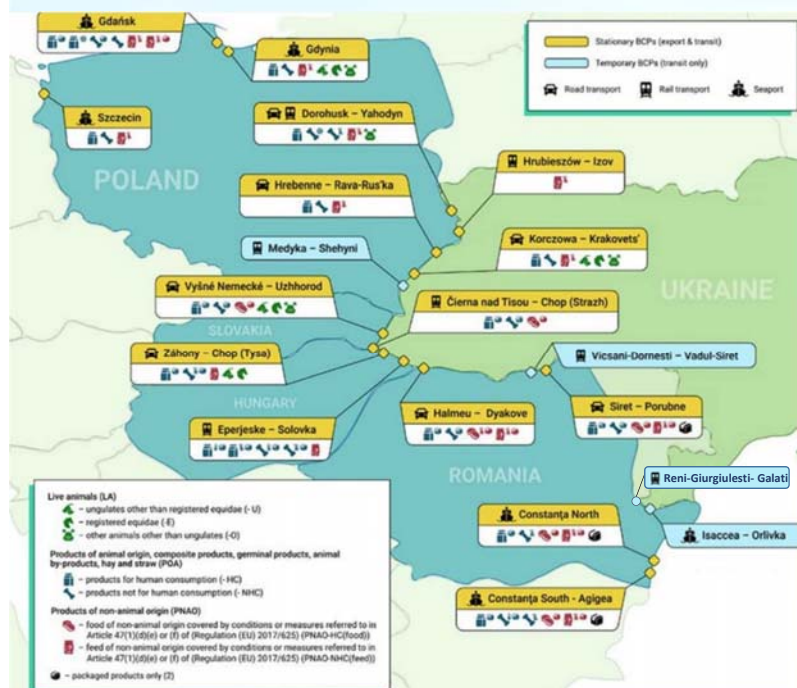
- ✓ Using bridge idle periods
- ✓ 10 railcars / hour → 500 metric tonnes/hour
- ✓ Solution confirmed by structural expert for railway bridges
- ✓ Detailed design completed
- ✓ Receiving hoppers hanging on bridge structure (no any welding / drilling)



Source: presentation by COMVEX TERMINAL, Constanta Port, Romania



COMMERCIAL TRADE BORDERS CROSSING POINTS CURRENTLY AVAILABLE FOR UKRAINIAN USAGE

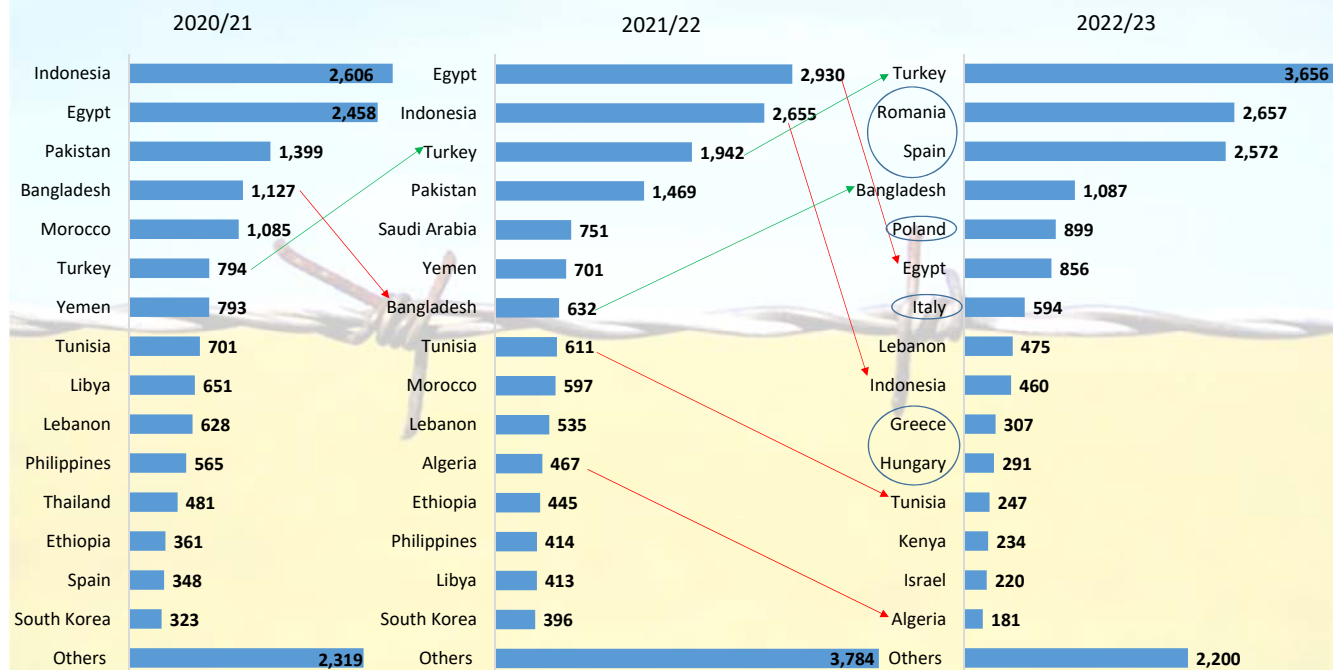


Capacity of train transfer through border crossing of Ukrainian Railway

Border crossing	Maximum daily possible amount of cargo transfer, trains/railcars		Actual average daily transfer of cargo during August 2023, railcars	
	Total	Grain	Total	Grain
To Poland				
Yagodyn	4/200	3/150	n/a	n/a
Izov	12/600	3/130	n/a	n/a
Rava Ruska	5/150	0	n/a	-
Mostyska-2	6/306	2/280	n/a	n/a
To Hungary				
Chop (Strazh)	1/30	1/30	n/a	n/a
Batiovo	7/420	1/20	n/a	n/a
To Slovakia				
Chop (Tysa)	7/490	2/105	n/a	n/a
Uzhhorod	10/500	0	n/a	-
To Romania				
Vadul-Siret	6/180	4/120	164	78
Dyakovo	4/120	2/60	60	4
To Moldova				
Sokyriany	2/86	0	15	0
Mohyliv-Podilskyi	4/140	3/116	27	0
Serpneve	4/200	4/200	99	32
To Moldova / Romania				
Reni-Giurgiulesti-Galati	4/200	1/50	79	32

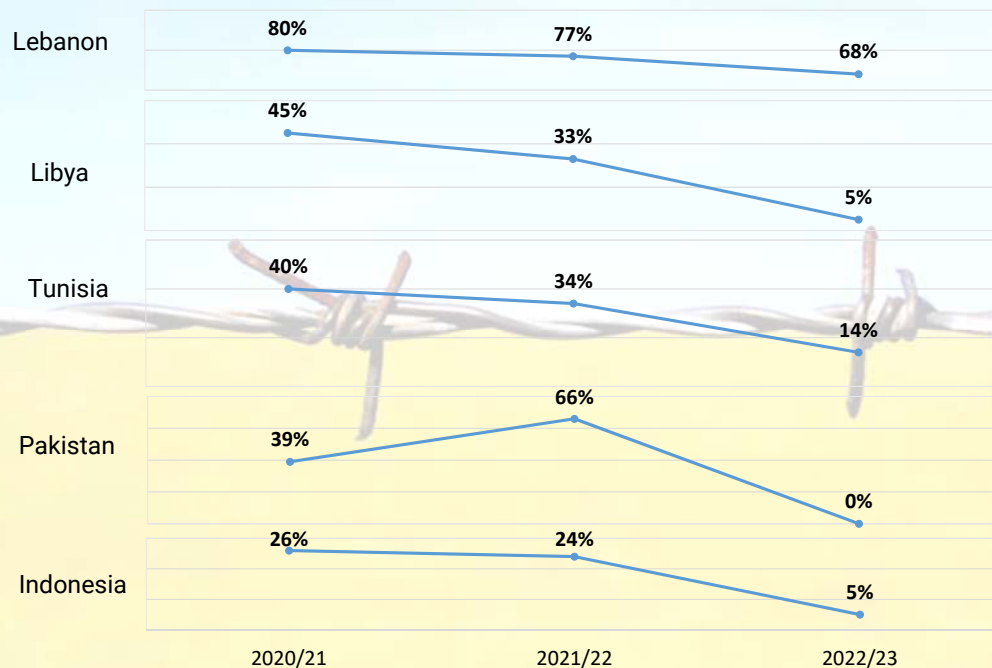
Source: *press service of the Ukrainian Railway

GEOGRAPHY OF WHEAT EXPORT FROM UKRAINE (July 1 – June 31), thousand tonnes

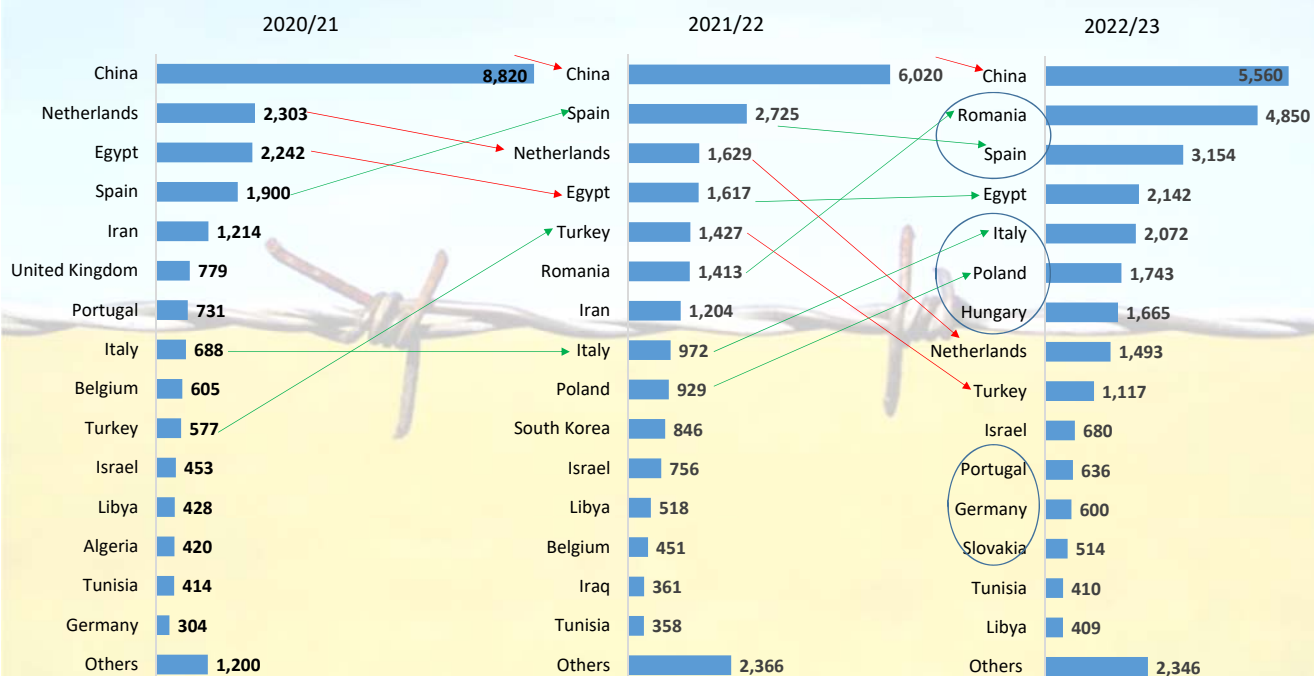


Source: based on data of State Customs Service of Ukraine

SHARE OF UKRAINIAN WHEAT IN COUNTRY IMPORT (MY July 1 – June 31), %

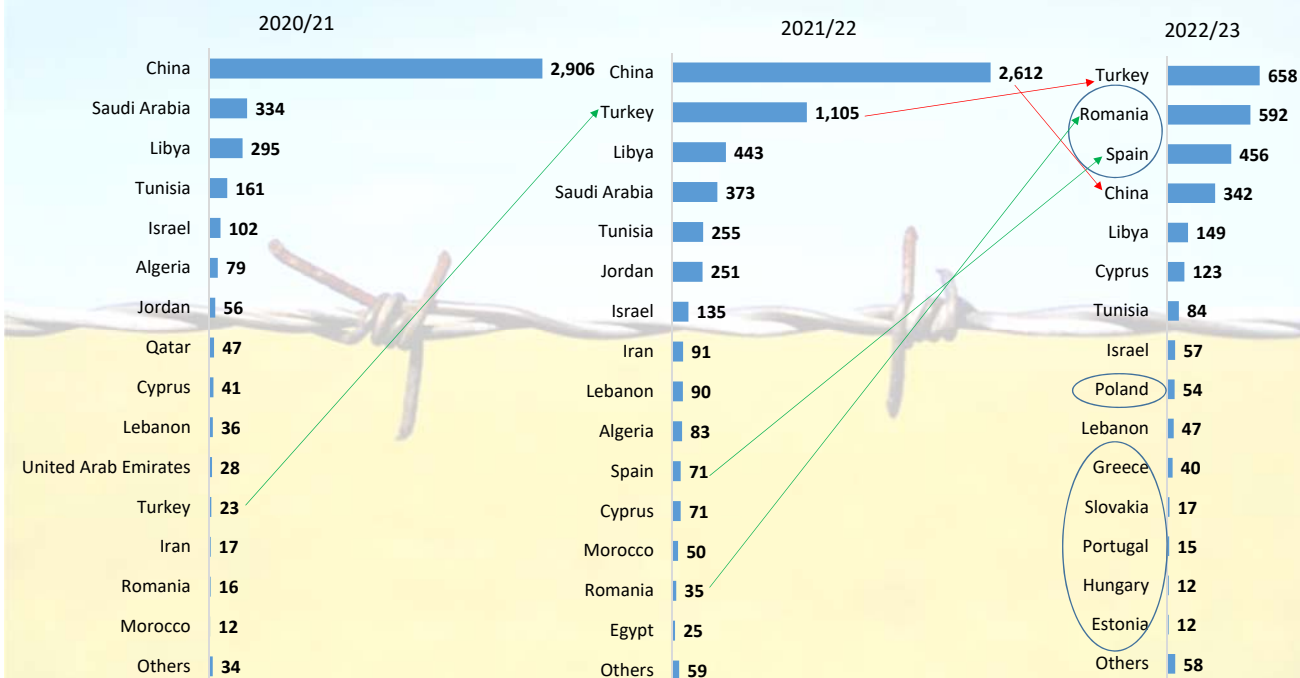


GEOGRAPHY OF CORN EXPORT FROM UKRAINE, July 1 - June 31, thousand tonnes



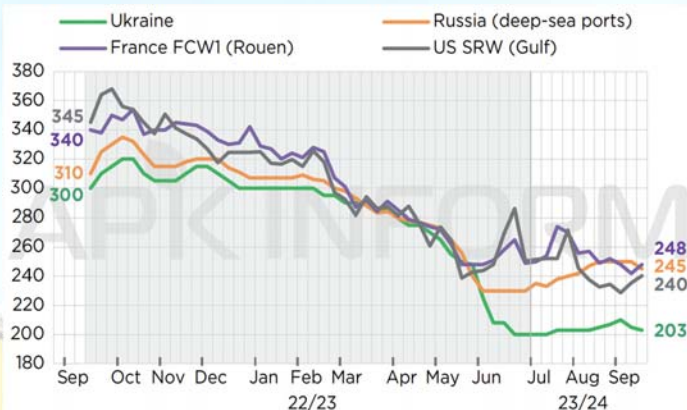
Source: based on data of State Customs Service of Ukraine

GEOGRAPHY OF BARLEY EXPORT FROM UKRAINE, July 1 - June 31, thousand tonnes



Source: based on data of State Customs Service of Ukraine

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	September 15	September 8	September 1	August 25	weekly change	
								USD/t	%
The futures market									
Wheat	CBOT, Dec.	USA	EXW	222.0	218.8	208.5	218.0	+ 3.2	+ 1.4 %
Milling wheat	Euronext, Dec.	France	CPT Rouen	260.5	230.0	240.7	253.1	+ 30.5	+13.3 %
Wheat	LIFFE, Nov.	EU	EXW	238.4	232.6	234.8	214.5	+ 5.8	+ 2.5 %
Wheat	BCA, Sept.	Argentina	EXW	265.0	261.1	255.0	255.0	+ 3.9	+1.5 %
Cash market									
Wheat SRW	Sept.	USA	CPT Gulf of Mex.	240.4	235.4	228.7	234.5	+ 5.0	+ 2.1 %
Wheat hard	Sept.	Argentina	FOB	319.0	319.0	314.0	308.0	0.0	0.0 %
Wheat FCW1	Sept.	France	FOB	248.0	242.0	248.0	252.0	+ 6.0	+ 2.5 %

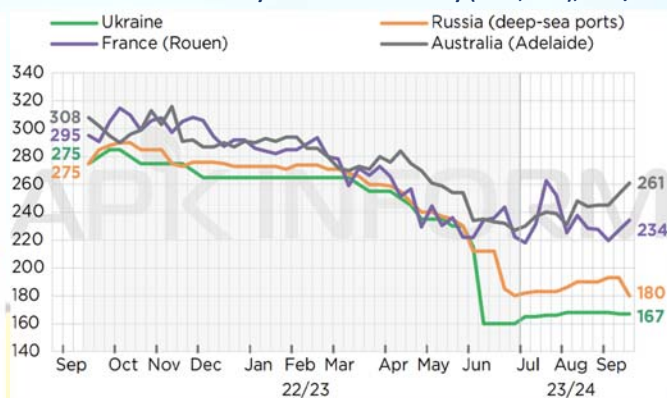
Source: APK-inform

IMPACT OF THE WAR ON GRAIN PRICES

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



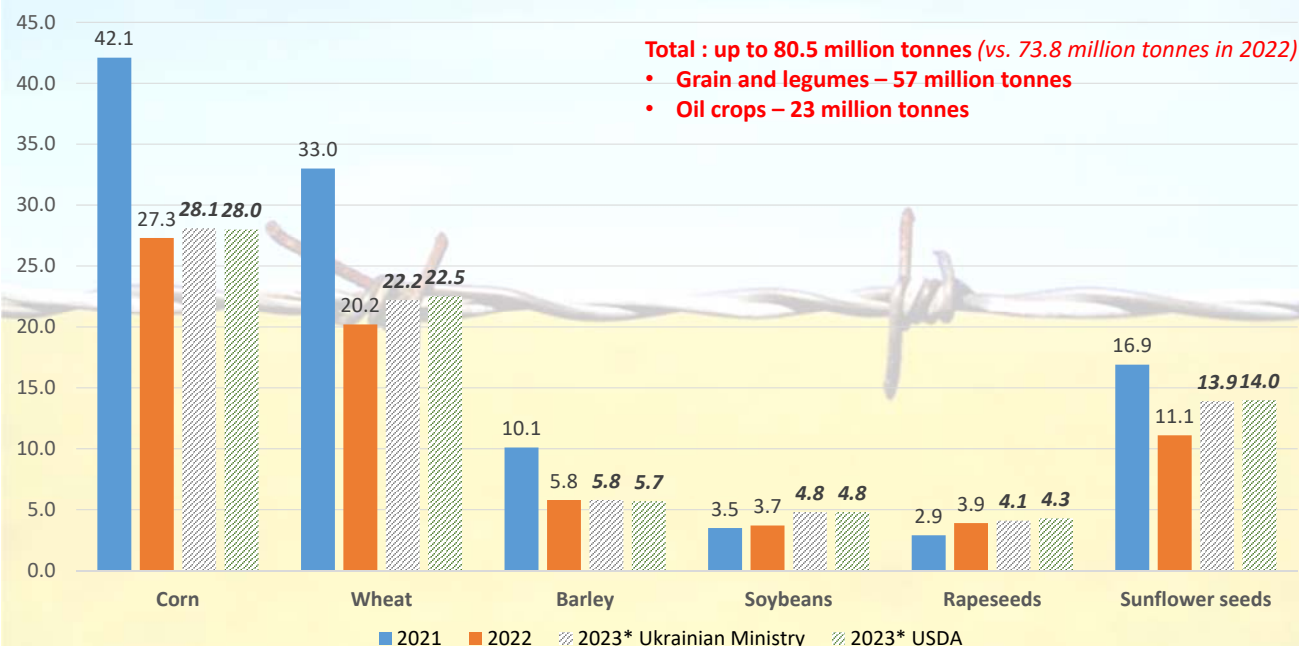
Price dynamics of feed barley (offer, FOB), USD/t



	Stock / month	Country of origin	Terms of delivery	September 15	September 8	September 1	August 25	weekly change	
								USD/t	%
The futures market									
Corn yellow	CBOT, Dec.	United States	EXW	187.5	190.4	182.9	185.3	- 2.9	- 1.5 %
Corn	Euronext, Nov.	France	FOB	227.9	227.6	231.2	232.8	+ 0.3	+ 0.1 %
Corn hard	BCA, Sept.	Argentina	EXW	205.0	199.0	194.0	185.0	+ 6.0	+ 3.0 %
Cash market									
Corn yellow	Sept.	USA	CPT Gulf of Mex.	224.5	224.7	221.2	210.1	- 0.2	- 0.1 %
Corn	Sept.	Argentina	FOB	242.0	235.0	230.0	225.0	+ 7.0	+ 3.0 %
Fodder barley	Sept.	France	FOB	234.3	227.1	219.7	227.7	+ 7.2	+ 3.2 %

Source: APK-inform

FORECAST OF HARVEST OF GRAIN, LEGUMES AND OIL CROPS IN UKRAINE IN 2023, million metric tonnes



Source: based on data of Ministry of Agrarian Policy and Food of Ukraine and USDA, as of September 12, 2023

HARVESTING OF GRAIN, LEGUMES AND OIL CROPS IN UKRAINE, as of September 15, 2023

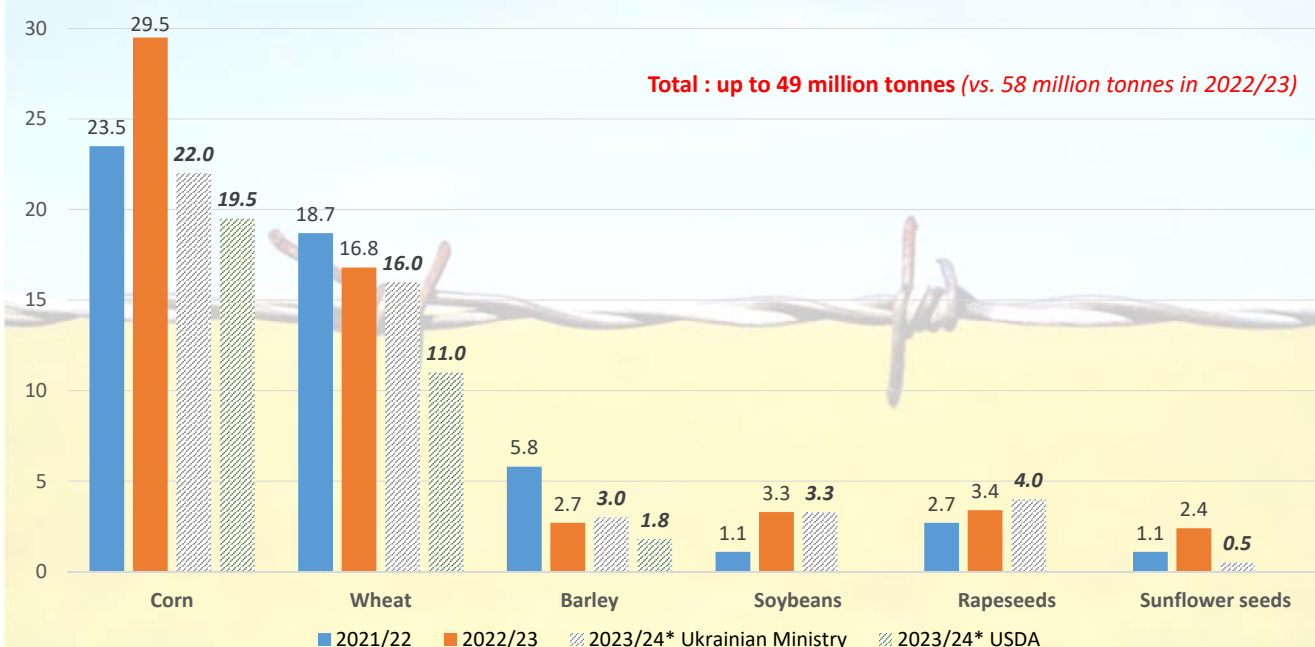
Crops	Harvested, thousand hectares		2023*		Harvested to forecast 2023*, %	Harvested 2023*, thousand metric tonnes	Average yields, metric tonnes per hectare			Change in yields per hectare 2023 to 2022, %
	2021	2022	Forecast, thousand hectares	Harvested, thousand hectares			2021	2022	2023*	
Grain and legumes total, including:	15,299.2	10,969.7	10,569.4	6,477.0	61.3 %	28,625.2	5.50	4.88	4.42	- 9.4 %
•wheat	7,073.0	4,979.4	4,646.4	4,689.7	100.9 %	22,150.6	4.64	4.05	4.72	+ 16.5 %
•barley	2,467.7	1,666.5	1,492.9	1,504.1	100.8 %	5,822.6	3.92	3.47	3.87	+ 11.5 %
•peas	240.4	118.1	150.0	154.4	102.9 %	386.6	2.43	2.28	2.50	+ 9.6 %
•buckwheat	84.2	115.9	141.5	69.6	49.2 %	100.2	1.30	1.37	1.44	+ 5.1 %
•millet	77.9	44.7	83.4	47.4	56.8 %	109.4	2.52	2.28	2.31	+ 1.3 %
•corn	5,356.0	4,045.0	4,055.2	11.9	0.3 %	55.8	8.01	6.68	4.70	- 29.6 %
Soybeans	1,279.5	1,537.0	1,811.0	257.2	14.2 %	624.8	2.68	2.43	2.43	0.0 %
Rapeseed	1,013.9	1,134.8	1,425.6	1,394.9	97.8 %	3,999.7	2.95	2.86	2.87	+ 0.3 %
Sunflower	6,482.4	4,825.5	5,059.7	498.6	9.9 %	1,035.5	2.52	2.18	2.08	- 4.6 %

Note: includes data from territories under Ukrainian control as of the reporting date

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



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



Source: based on data of Ukrainian Grain Association and USDA, as of September 12, 2023

**SOWN AREA OF WINTER CROPS IN UKRAINE,
as of September 19, 2023, thousand hectares**

Crops	2020	2021	2022	2022 to 2021, %	Sown areas in 2023 for the 2024 harvest			
					Forecast 2023	Planted as of September 19, 2023	Forecast of 2023 to planted in	
							2022, %	2021, %
Winter crops total, including:	8,973.5	9,029.4	5,449.4	-39.6 %	6,339.9	1,584.2	+ 16.3 %	-29.8 %
• winter wheat	6,714.4	6,538.4	3,758.8	-42.5 %	4,355.3	513.7	+ 15.9 %	-33.4 %
• winter barley	1,080.4	969.0	612.5	-36.8 %	692.1	46.9	+ 13.0 %	-28.6 %
• winter rye	166.8	108.5	79.2	-27.0 %	80.9	24.0	+ 2.1 %	-25.4 %
• winter rapeseeds	1,011.9	1,413.5	998.9	-29.3 %	1,211.6	999.6	+ 21.3 %	-14.3 %

Note: includes data from territories under Ukrainian control as of the reporting date



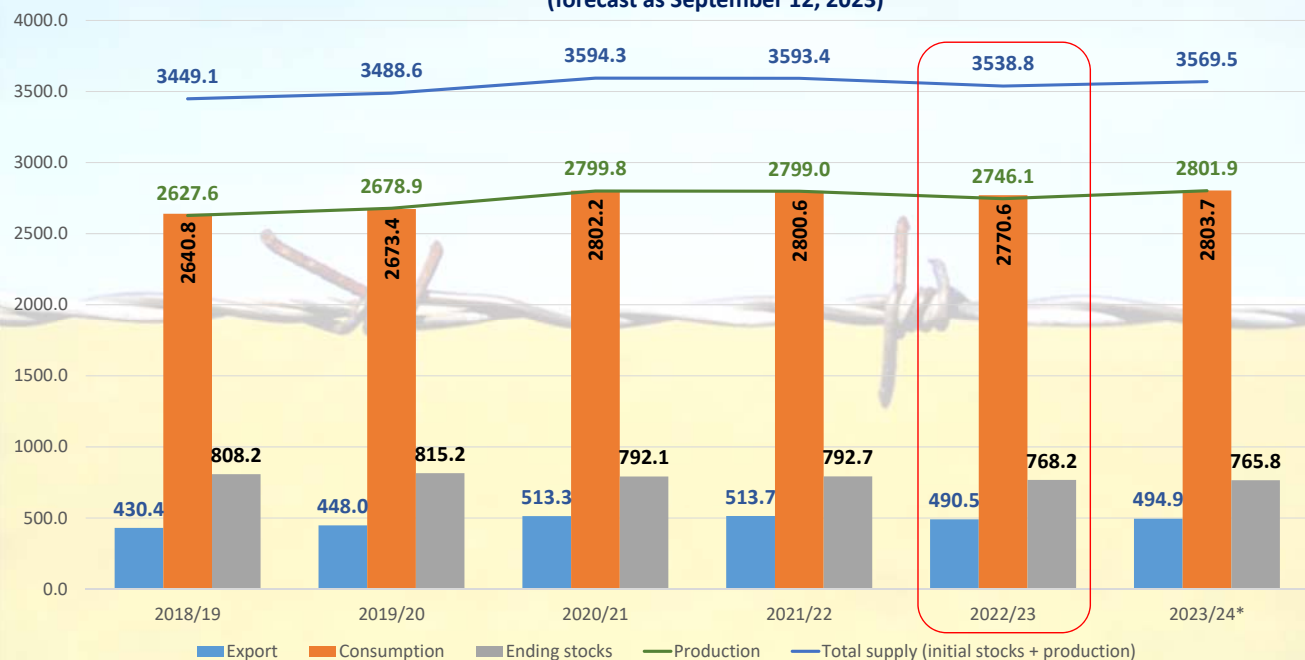
Source: based on the data of the State Statistic Service of Ukraine and Ministry of Agrarian Policy and Food of Ukraine

BALANCE OF SUPPLY AND DEMAND OF GRAIN AND LEGUMES IN UKRAINE (*forecast as of September 11, 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	13,325	3,855	in +2,8 times	-71.1%
Sown area, thousand hectares	15,995	12,171	11,104	-23.9%	-8.8%
Harvested area, thousand hectares	15,948	11,773	10,837	-26.2%	-8.0%
Yield, tonnes / hectare	5.39	4.58	5.00	-15.0%	+9.2%
Gross harvest	86,010	53,864	54,215	-37.4%	+0.7%
Import	125	153	131	+22.8%	-14.7%
Total supply	90,952	67,342	58,201	-26.0%	-13.6%
Domestic consumption:	25,396	16,127	17,171	-36.5%	+6.5%
food	4,611	4,253	4,020	-7.8%	-5.5%
fodder	13,325	7,935	9,325	-40.5%	+17.5%
seeds	1,666	1,470	1,579	-11.8%	+7.4%
losses	4,812	1,696	1,457	-64.8%	-14.1%
other (alcohol, malt, starch, etc.)	982	773	790	-21.2%	+2.1%
Export	52,231	47,360	34,188	9.3%	-27.8%
Total distribution (demand)	77,627	65,487	51,339	-18.2%	-19.1%
Ending stocks	13,325	3,855	6,842	-71.1%	+77.5%
Ratio of ending stocks to distribution	17 %	6 %	13 %		

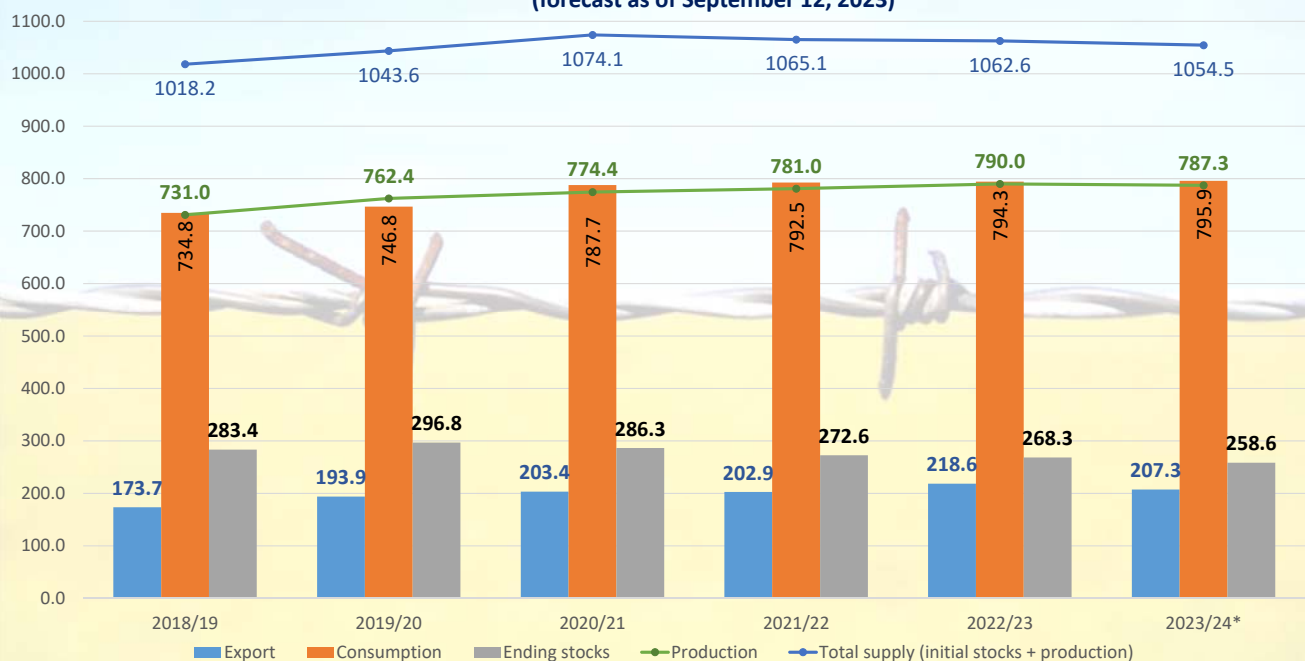
Source: based on "APK-Inform", the State Statistic Service of Ukraine and the State Customs Service of Ukraine

DYNAMICS OF WORLD GRAIN DEMAND AND SUPPLY, million metric tonnes
(forecast as September 12, 2023)



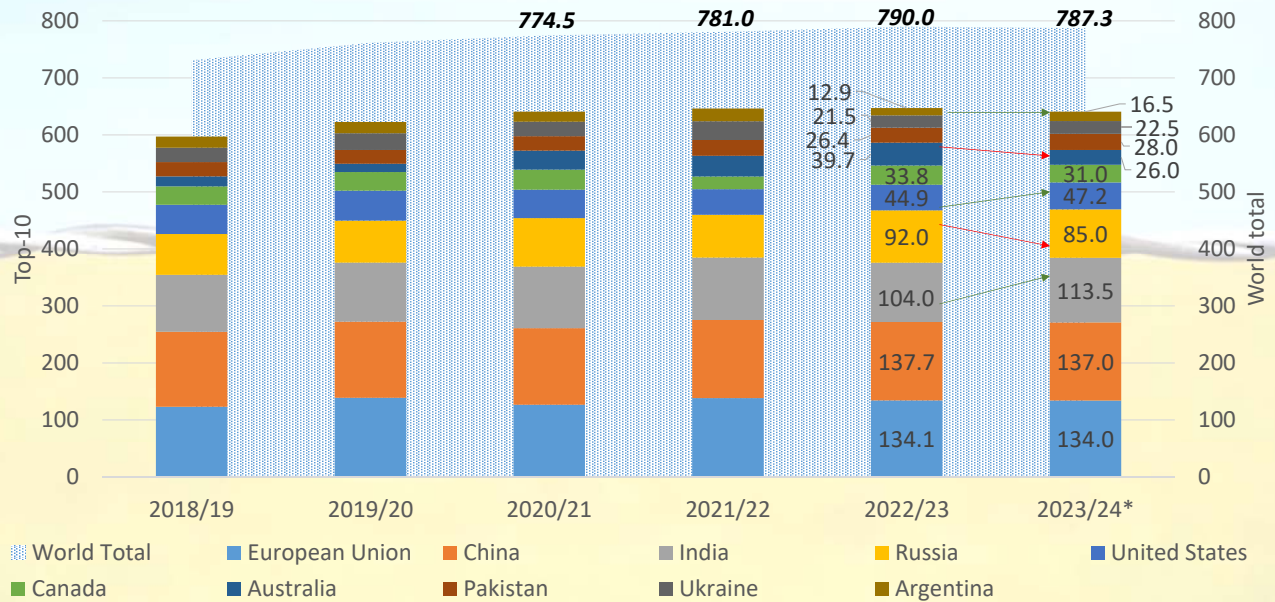
Source: based on the data of the USDA

DYNAMICS OF WORLD WHEAT DEMAND AND SUPPLY, million metric tonnes
(forecast as of September 12, 2023)



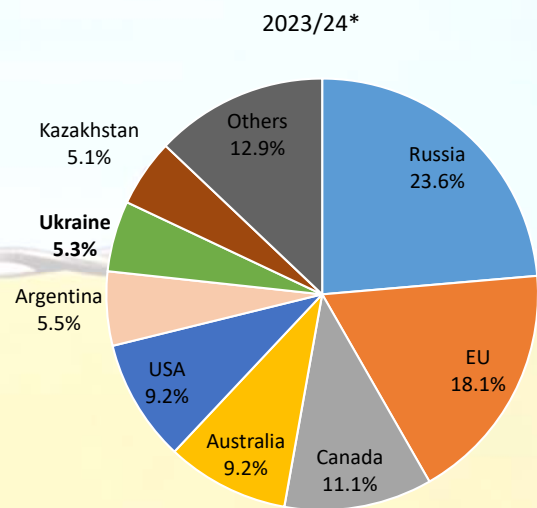
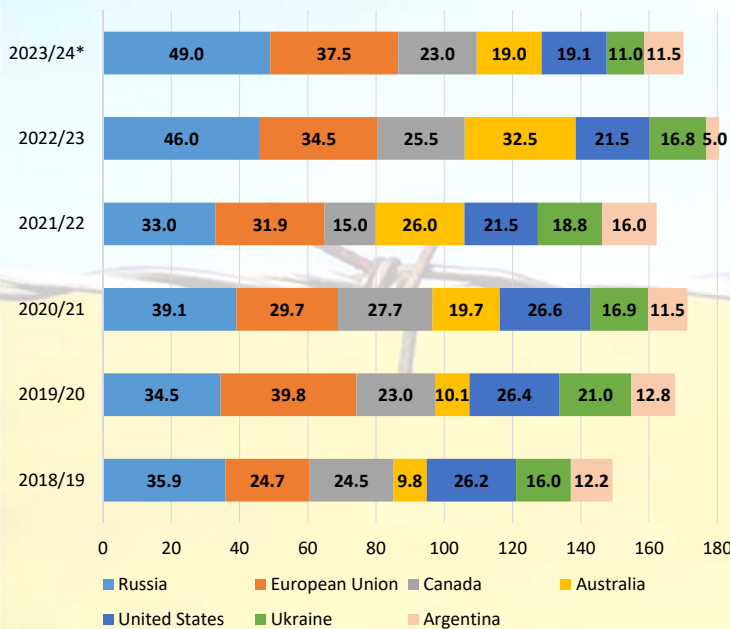
Source: based on the data of the USDA

DYNAMICS OF WORLD WHEAT PRODUCTION, million metric tonnes
(forecast as of September 12, 2023)



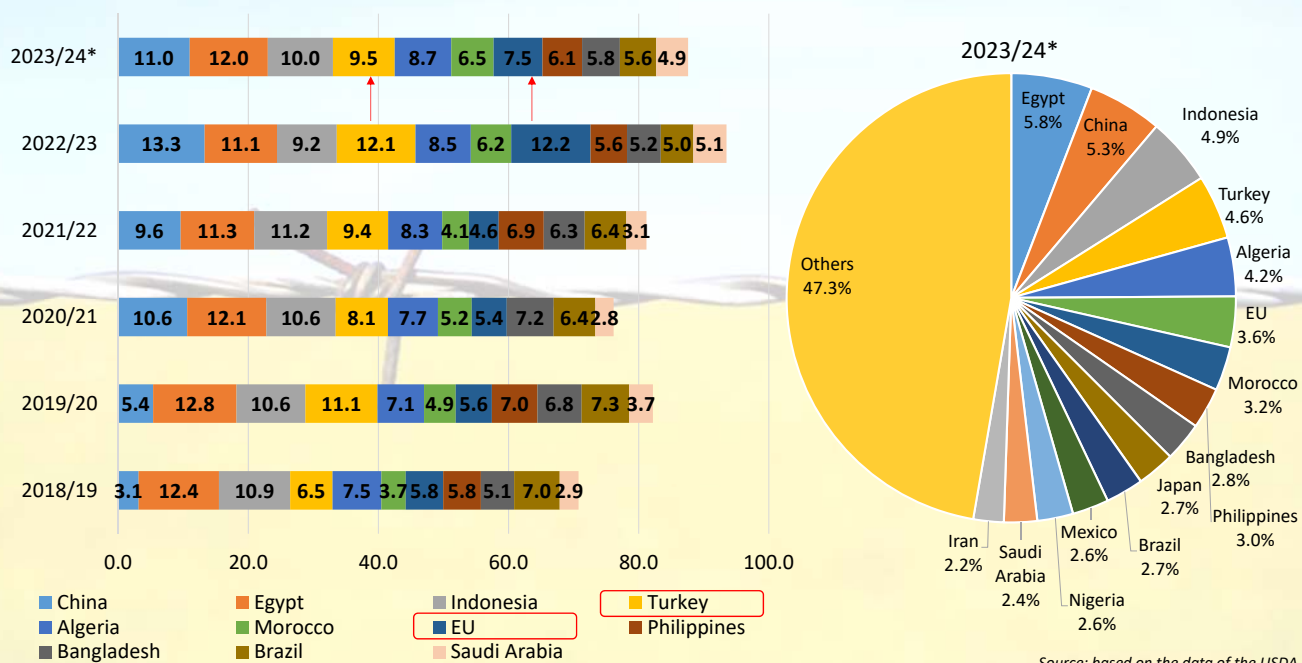
Source: based on the data of the USDA

WORLD WHEAT EXPORT FROM KEY EXPORTING COUNTRIES, million metric tonnes
(forecast as of September 12, 2023)

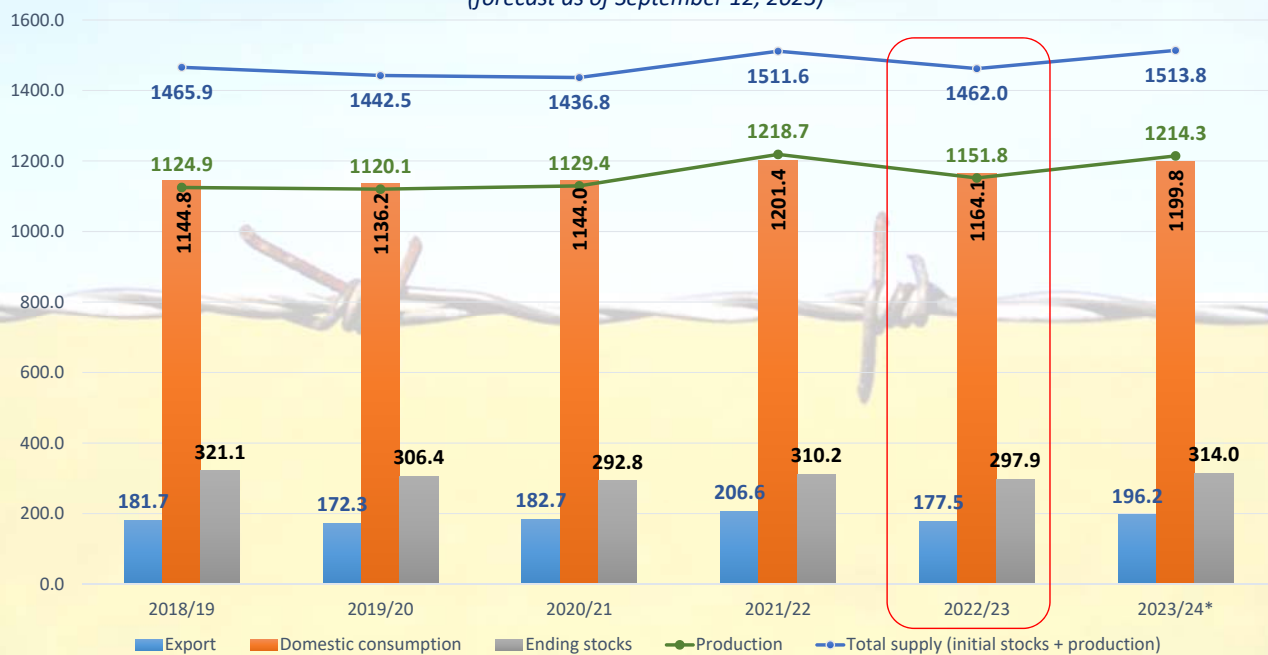


Source: based on the data of the USDA

WORLD WHEAT IMPORT BY THE MAIN IMPORTING COUNTRIES, million metric tonnes
(forecast as of September 12, 2023)

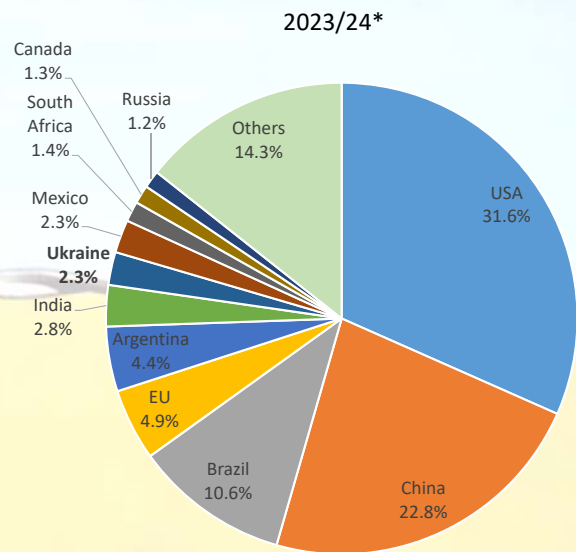


DYNAMICS OF WORLD CORN DEMAND AND SUPPLY, million metric tonnes
(forecast as of September 12, 2023)



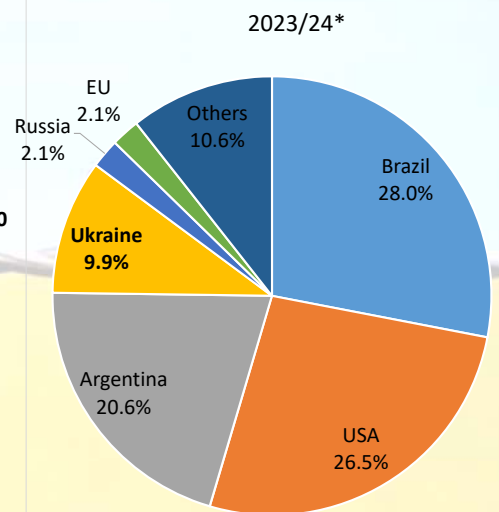
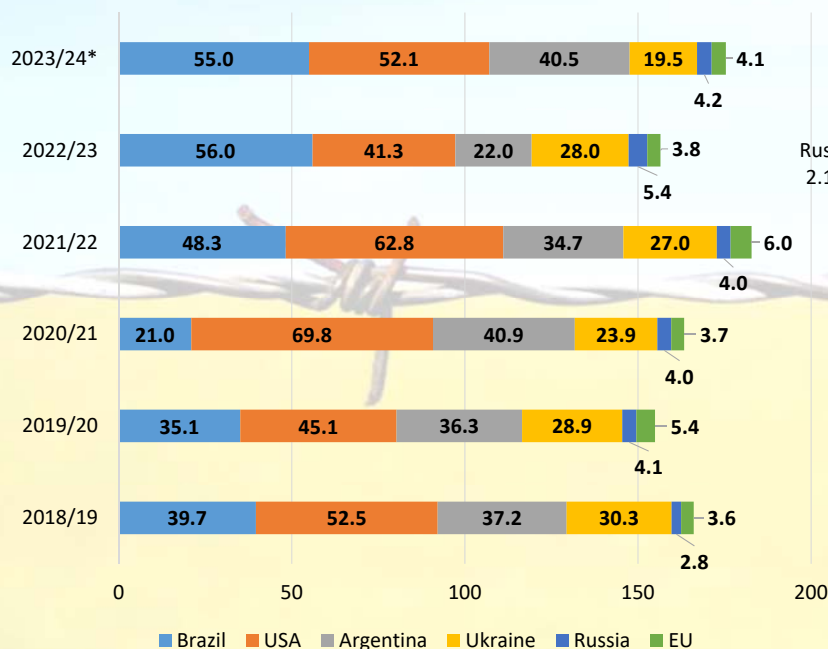
WORLD CORN PRODUCTION, million metric tonnes
(forecast as of September 12, 2023)

Nº	Country	2021/22	2022/23	2023/24*	change 2022/23- 2021/22	change 2023/24*- 2022/23
1	USA	382.89	348.75	384.42	-9%	+10%
2	China	272.55	277.20	277.00	+2%	-0.1%
3	Brazil	116.00	135.00	129.00	+18%	-6%
4	EU	71.52	52.23	59.40	-27%	+14%
5	Argentina	49.50	34.00	54.00	-31%	+59%
6	India	33.73	36.00	34.30	+7%	-5%
7	Ukraine	42.13	27.30	28.00	-36%	+4%
8	Mexico	26.76	26.50	27.40	+5%	-2%
9	South Africa	16.14	17.00	16.80	+6%	-2%
10	Canada	14.61	14.54	15.30	-1%	+5%
11	Russia	15.23	15.83	14.60	+4%	-8%
12	Indonesia	12.70	12.90	13.10	+2%	+2%
13	Nigeria	12.75	12.74	12.00	-0.1%	-6%
14	Pakistan	10.64	9.33	10.50	-12%	+13%
15	Ethiopia	9.40	10.20	10.40	+9%	+2%
	Others	132.18	122.56	128.07	-7%	+5%
	Total	1218.71	1151.78	1214.29	-5%	+5%



Source: based on the data of the USDA

WORLD CORN EXPORT FROM KEY EXPORTING COUNTRIES, million metric tonnes
(forecast as of September 12, 2023)



Source: based on the data of the USDA

HARVESTING OF GRAIN, LEGUMES AND OIL CROPS IN RUSSIA, as of September 15, 2023

Commodity	Produced in 2021, million tonnes	Produced in 2022, million tonnes	2023*			
			Planted, million hectares	Harvested, million hectares	Yield, tonnes per hectare	Produced, million tonnes
Grains and legumes, total	121.39	157.68	48.04	36.50 (76.0%)	3.29	119.8
including:						
• Wheat	76.05	104.24	29.77	23.90 (80.3 %)	3.61	86.5
• Corn	15.24	15.85	2.64	0.16 (6.1 %)	5.95	0.96
• Barley	17.99	23.39	7.99	7.00 (87.6%)	2.94	20.5
• Buckwheat	0.92	1.22	1.29	0.11 (8.5 %)	1.25	0.13
• Rice	1.08	0.92	0.18	0.01 (5.6 %)	6.59	0.05
Rapeseeds	2.79	4.71	2.11	1.10 (52.1 %)	2.38	2.70
Soybeans	4.76	6.30	3.63	0.22 (6.1 %)	2.07	0.46
Sunflower seeds	15.66	15.74	9.82	0.61 (6.2 %)	2.28	1.40

**Including at least 7 MT
from occupied territories:**

- Crimea - 2.3
- Donetsk region - 0.7
- Luhansk region - 0.9
- Kherson region - 1.5
- Zaporizhzhia region - 1.5

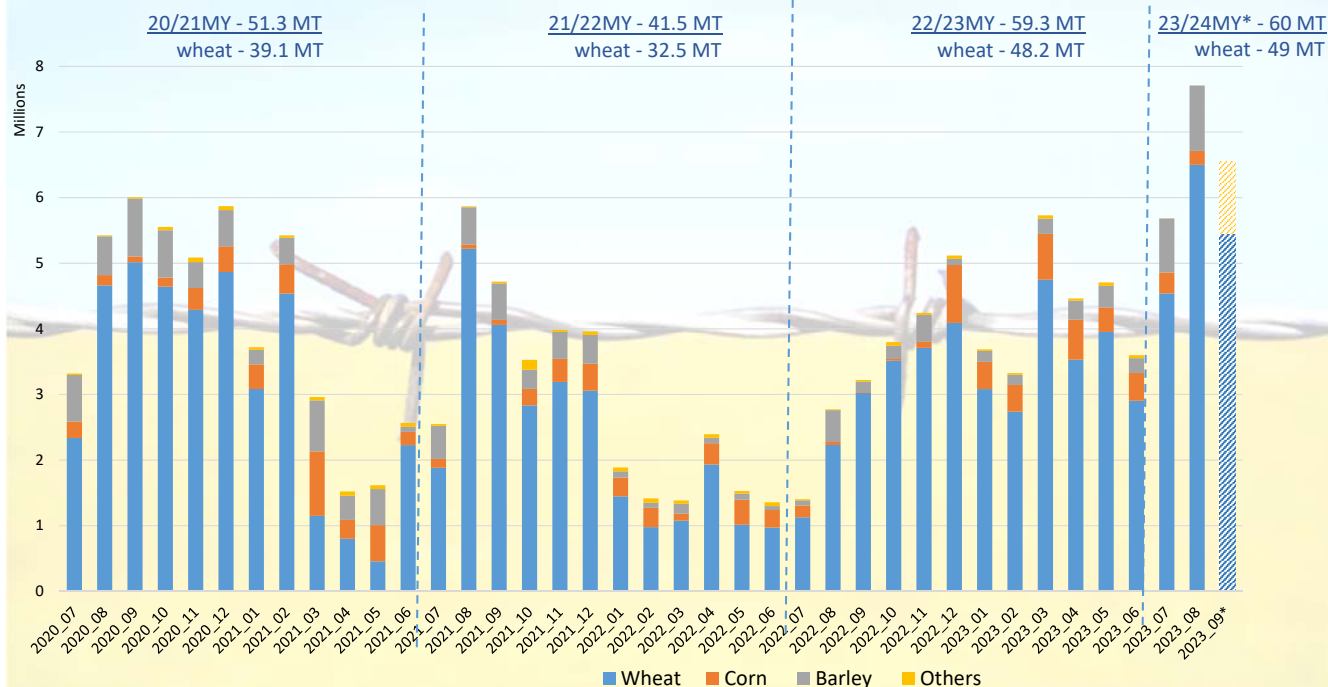
2023 grain and legumes harvest forecast – **130 million tonnes**, including:

- wheat – 91 million tonnes
- corn – 15 million tonnes
- barley – 23 million tonnes

- ✓ In 2023, the **winter crops** sowing area is expected at **20 million hectares**.
- ✓ 7.9 million hectares were sown so far.

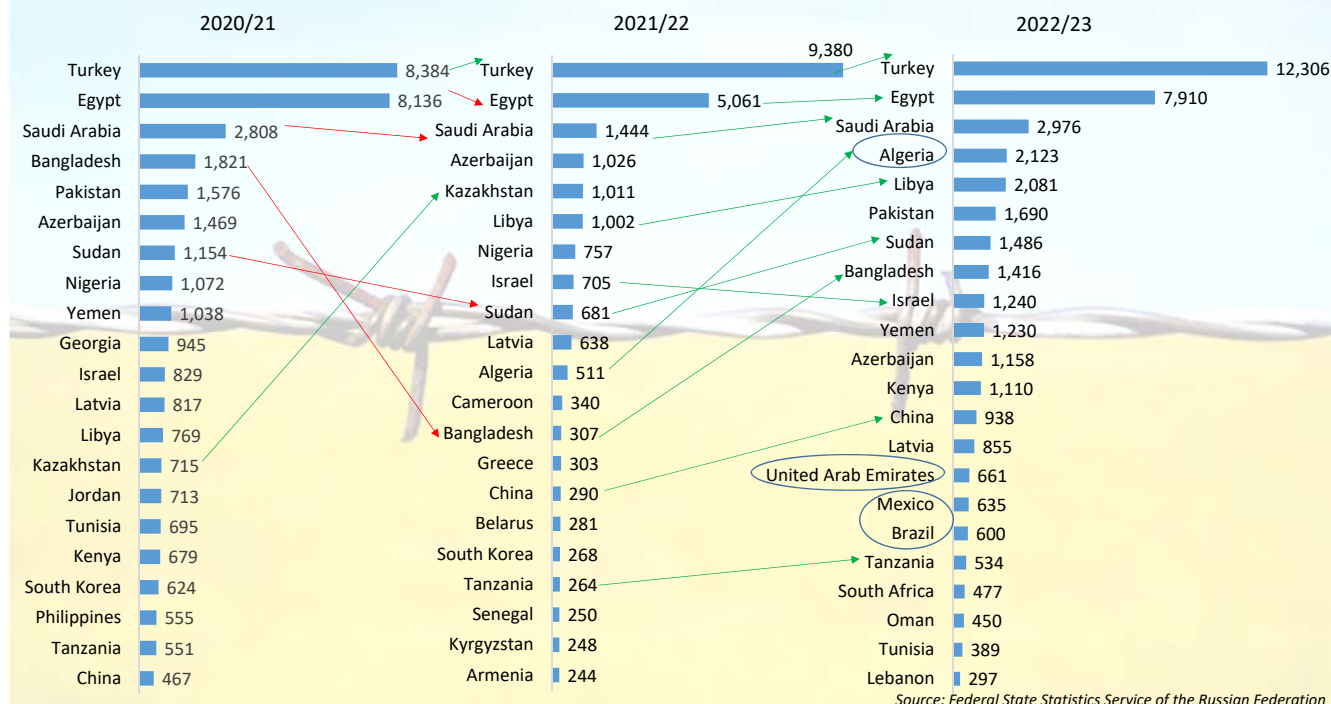
Source: Ministry of Agriculture of the Russian Federation

EXPORT OF GRAINS FROM RUSSIA BY COMMODITIES, million metric tonnes

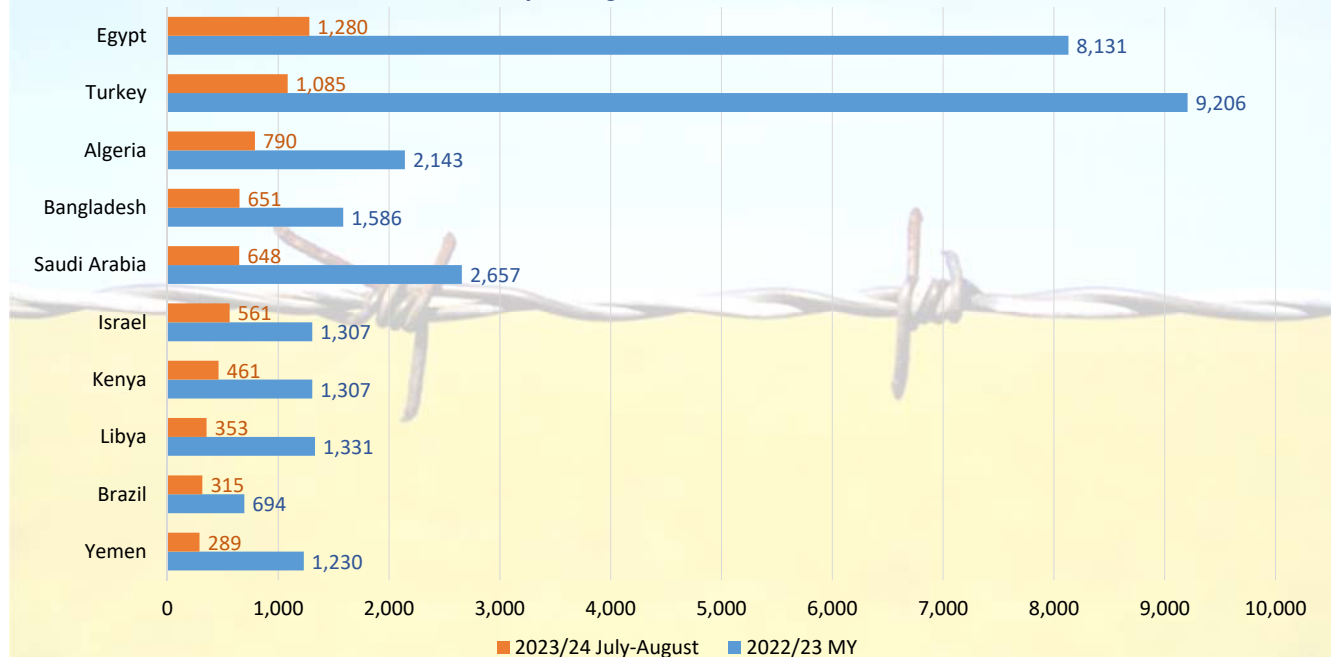


Source: Federal State Statistics Service of the Russian Federation

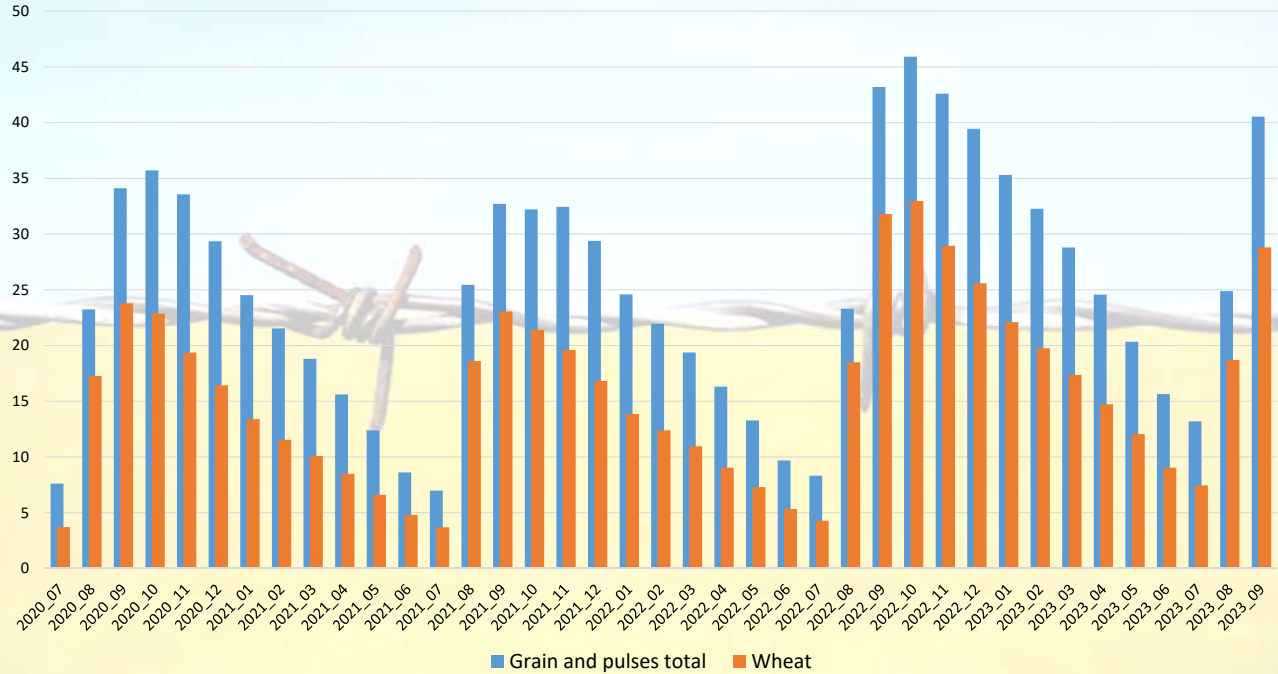
GEOGRAPHY OF GRAIN EXPORT FROM RUSSIA, July 1 - June 31, thousand tonnes



TOP-10 IMPORTERS OF WHEAT FROM RUSSIA, July 1 – August 31, 2023, thousand tonnes



DYNAMICS OF STOCKS IN RUSSIA, million tonnes



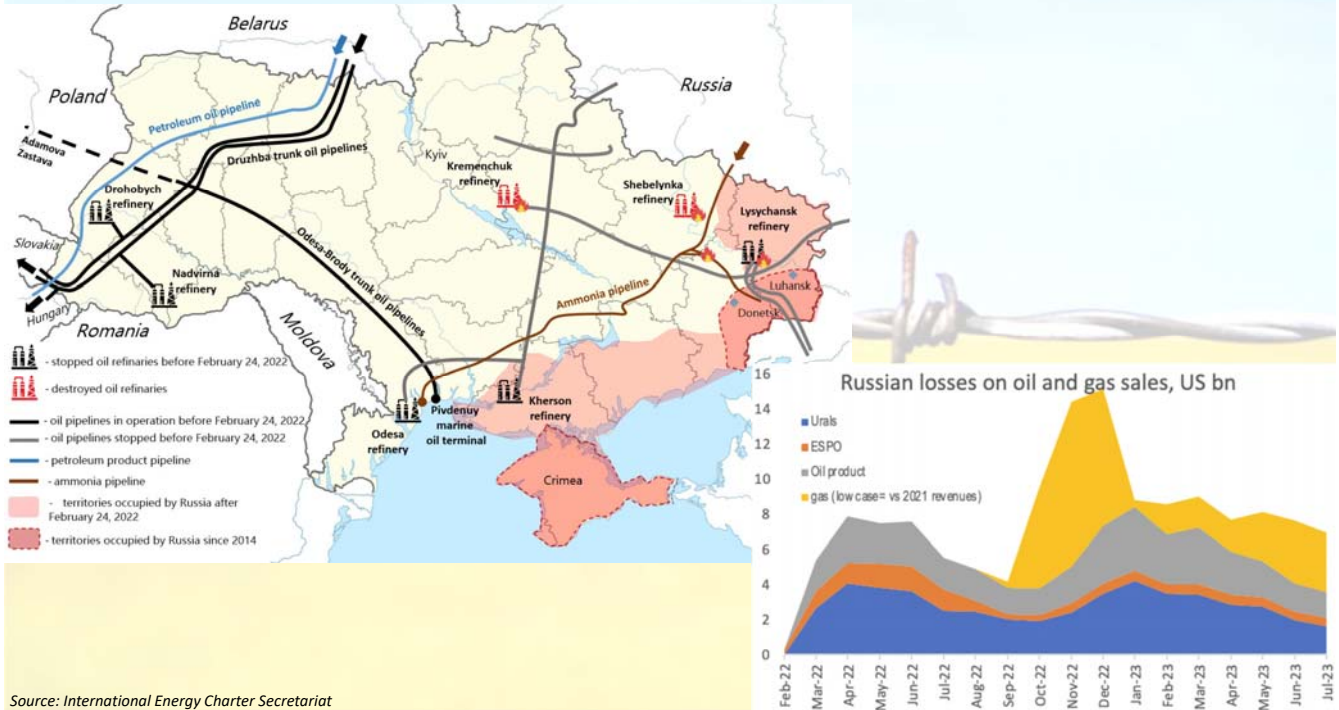
Source: Federal State Statistics Service of the Russian Federation

Extra thoughts: Why else is Ukraine so important for Russia? - UKRAINIAN GAS TRANSMISSION SYSTEM



Source: International Energy Charter Secretariat

OIL REFINERIES, OIL & PETROLEUM TRANSPORTATION SYSTEM AND AMMONIA PIPELINE IN UKRAINE



Thank you!

Questions?