

AGRICULTURAL PRODUCTION, TRADE AND STOCKS IN THE CONTEXT OF RUSSIA'S INVASION OF UKRAINE

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UNIVERSITY

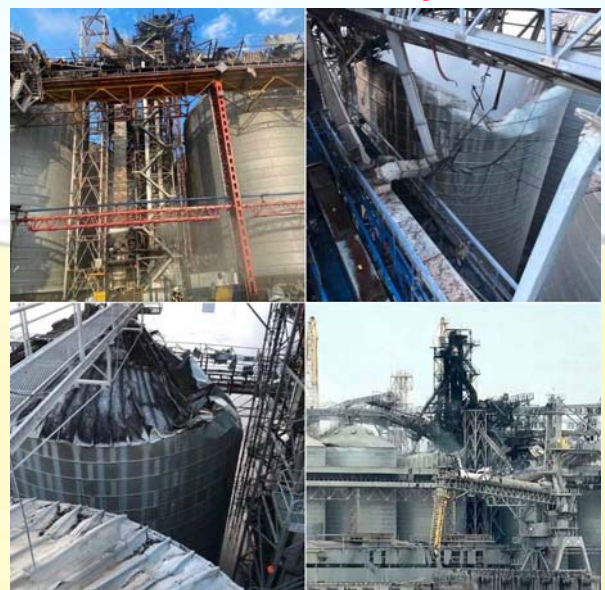
Agricultural Economics

OUTLINE:

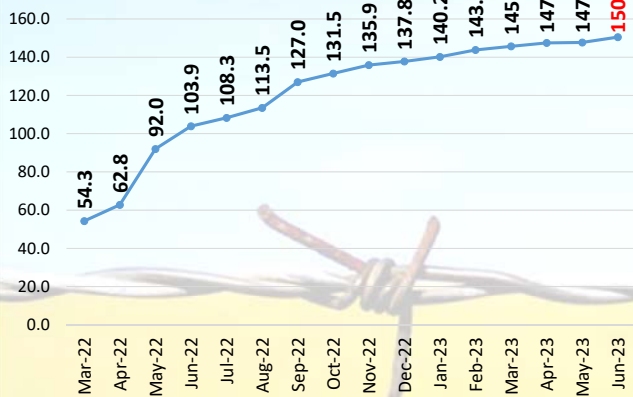
- Damages and losses from the war to Ukrainian economy
- Export of ag commodities from Ukraine and "Grain initiative"
- Influence of the war on the world grain markets
- Forecast of grain production and export from Ukraine and Russia



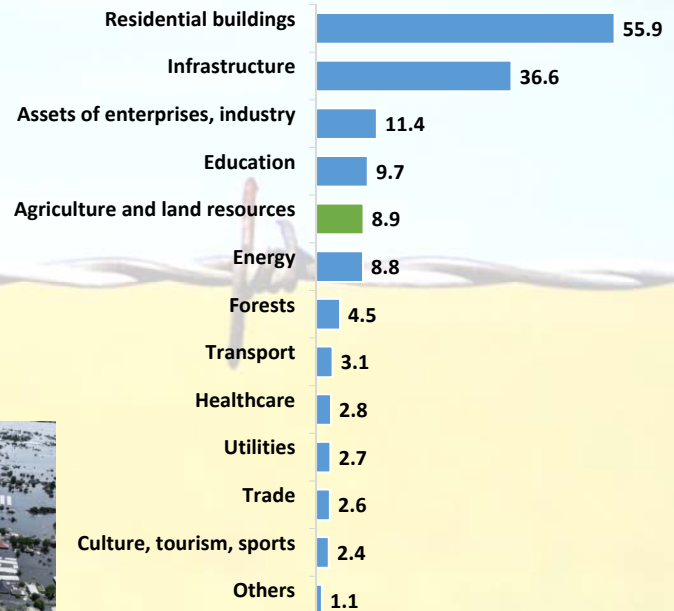
Russian attacks, Odesa region



DIRECT DAMAGES TO UKRAINIAN ECONOMY, \$ billion

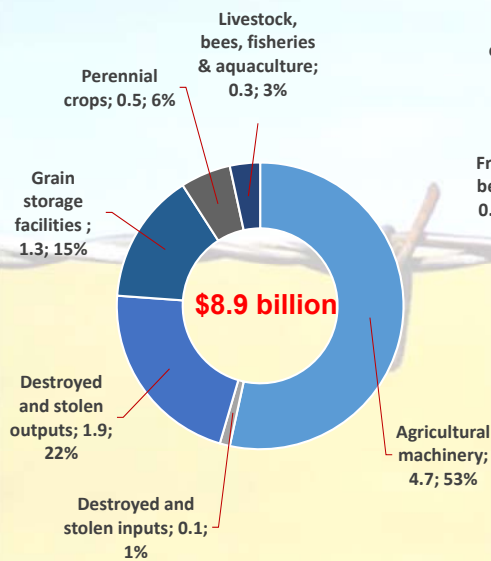


\$150.5 billion



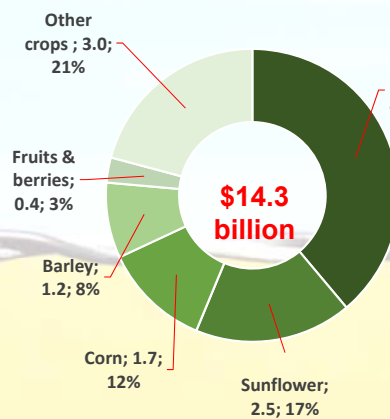
Source: Kyiv School of Economics, July 2023

DIRECT DAMAGE FROM THE WAR TO UKRAINIAN AGRICULTURE, \$ billion

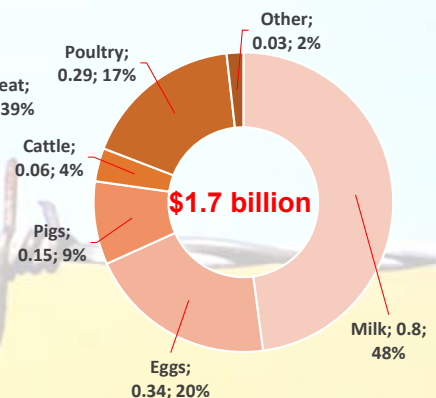


INDIRECT LOSSES FROM THE WAR TO UKRAINIAN AGRICULTURE, \$ billion

Crop losses due to lower production, \$ billion



Livestock losses due to lower production, \$ billion

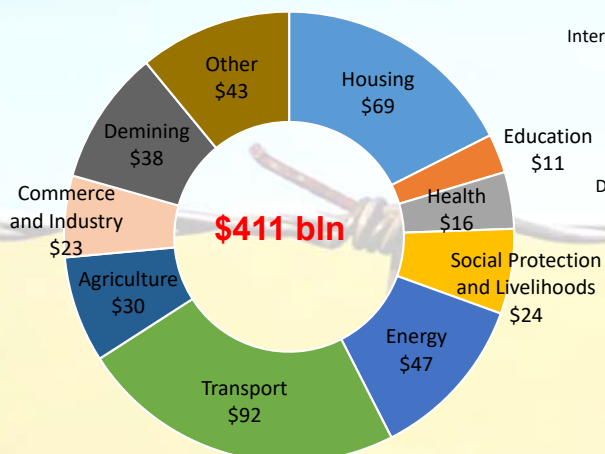


Other losses: \$15.6 billion

- due to decrease in the prices for export-oriented commodities - \$14.5 billion;
- due to decrease in the prices for fertilizers - \$377.1 million;
- due to decrease in the prices for fuel - \$467.4 million;
- recultivation of the land affected by battles and missiles - \$183.9 million;
- fisheries and aquaculture losses - \$53.8 million

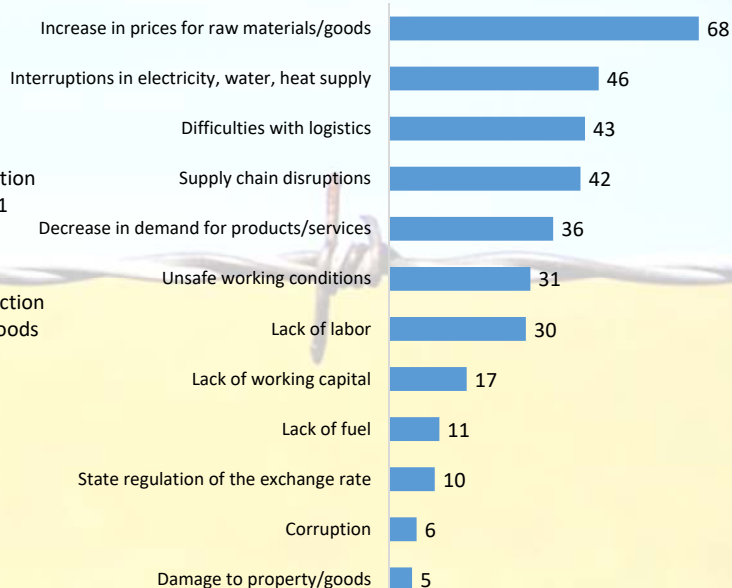
Source: Kyiv School of Economics

DIRECT NEEDS FOR RECOVERY UKRAINIAN ECONOMY, billion \$



Source: World Bank

PROBLEMS THAT HINDER UKRAINIAN ECONOMY RECOVERY AND DEVELOPMENT, %

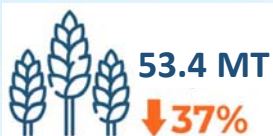


Source: Institute for Economic Research and Policy Consulting (IER) survey, March 2023

CHANGES IN AGRICULTURE FOR THE YEAR OF THE WAR IN UKRAINE (2022 to 2021)

PRODUCTION

Grain



Oil seeds



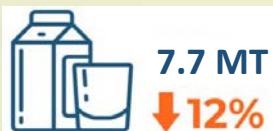
Sugar beets



Meat, all types



Milk



Eggs

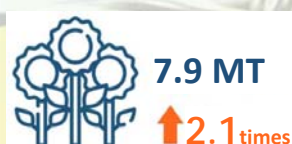


EXPORT

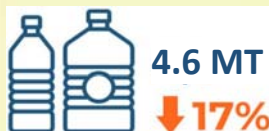
Grain



Oil seeds

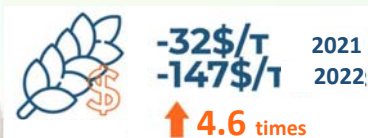


Vegetable oil

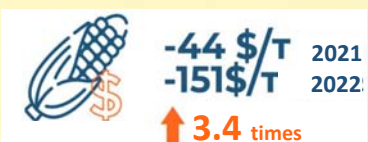


THE PRICE GAP BETWEEN THE WORLD AND DOMESTIC PRICES AT THE END OF THE YEAR

Wheat



Corn



Source: based on data of Ministry of Agrarian Policy and Food of Ukraine, State Customs Service of Ukraine and UCAB

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

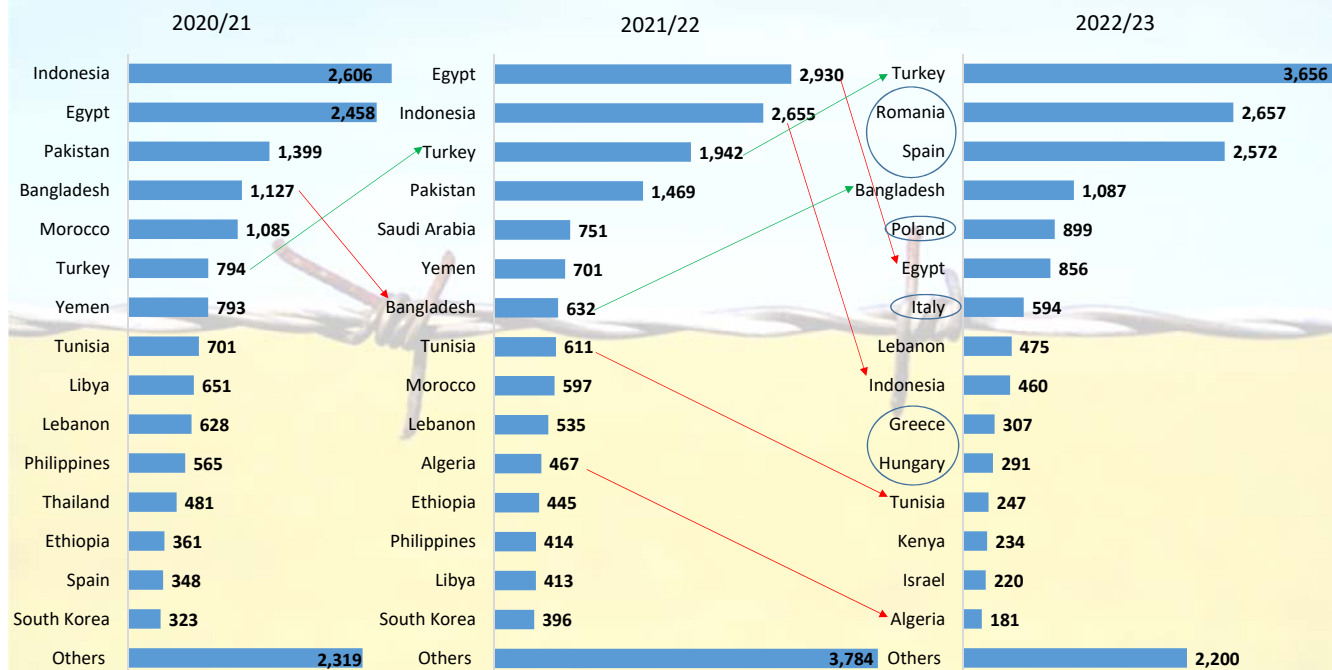
	2020/2021 MY Total	2021/2022 MY		2022/2023 MY		2023/2024 MY Total, as for August 25, 2023
		Total	including June 2022	Total	including June 2023	
Grain and legumes, total	43,939	48,508	1,403	49,079	3,783	4,302
• wheat	16,413	18,741	143	16,900	1,385	1,694
• barley	4,210	5,752	36	2,713	66	459
• rye	15.8	161.9	0	18.0	0	0.6
• corn	22,596	23,535	1,212	29,299	2,325	1871
Wheat flour	123.7	69.4	1.9	148.1	11.4	10.5
Other flour	1.1	1.5	0.1	6.2	0.6	0.7
<i>Total flour</i>	<i>124.8</i>	<i>70.9</i>	<i>2.0</i>	<i>154.3</i>	<i>12.0</i>	<i>11.2</i>
Total export (grain + flour)	44,105	48,579	1,405	49,233	3,795	4,313

Source: based on data of State Customs Service of Ukraine

Dynamics of grain exports from Ukraine, thousand tonnes

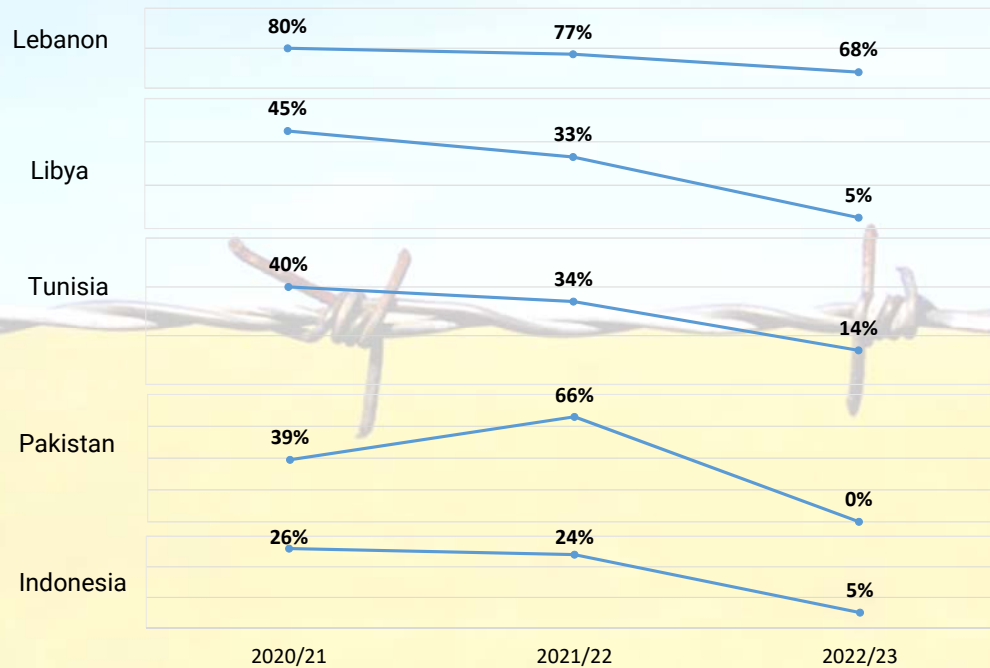


GEOGRAPHY OF WHEAT EXPORT FROM UKRAINE (July 1 – June 31), thousand tonnes

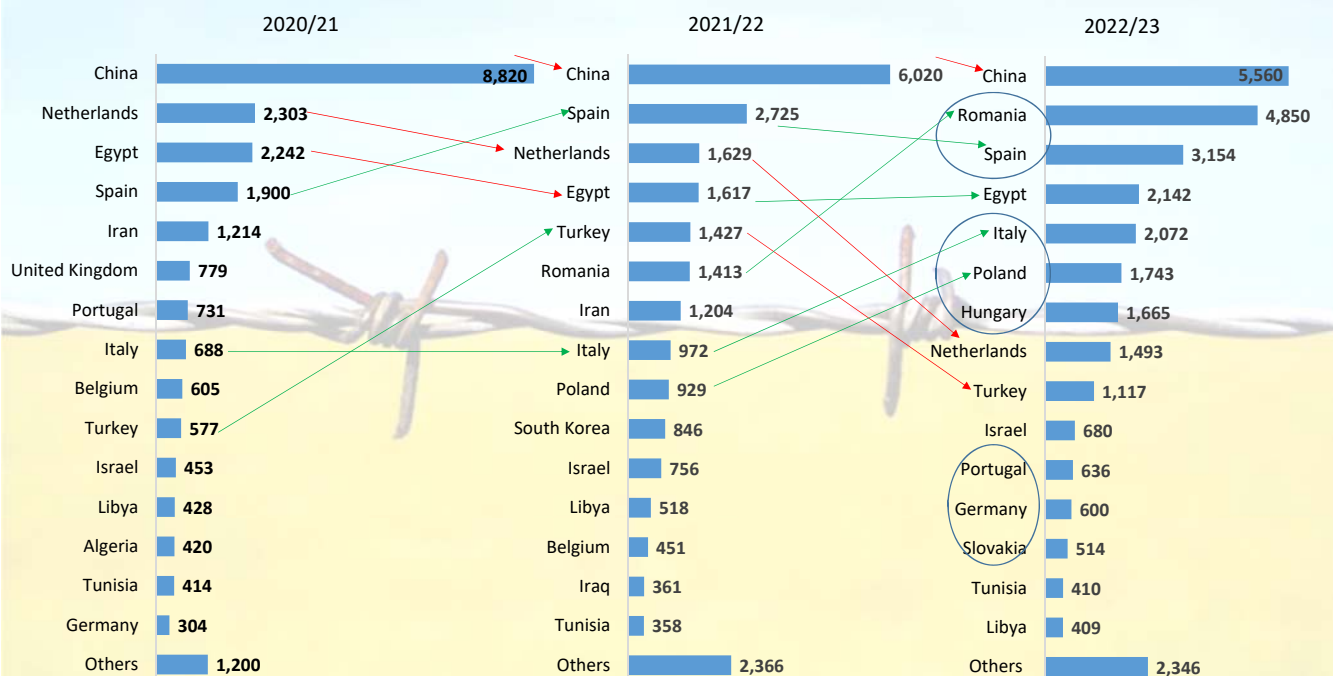


Source: based on data of State Customs Service of Ukraine

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

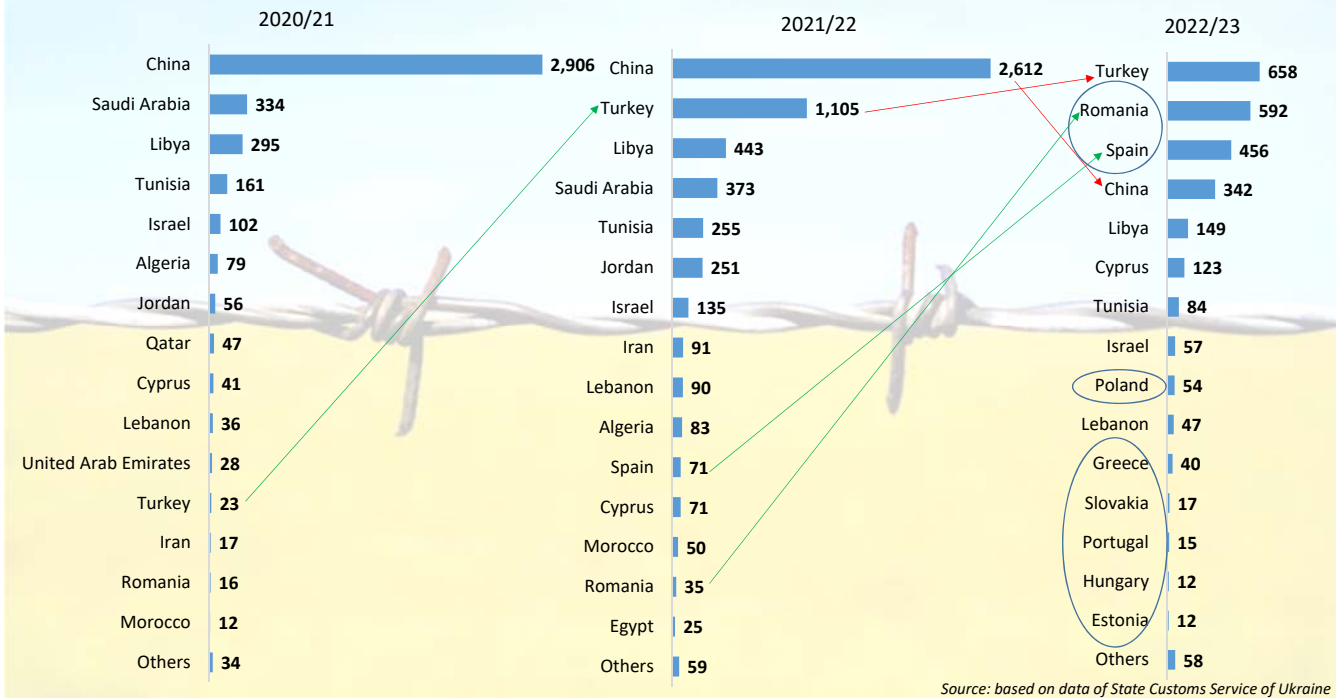


GEOGRAPHY OF CORN EXPORT FROM UKRAINE, July 1 - June 31, thousand tonnes

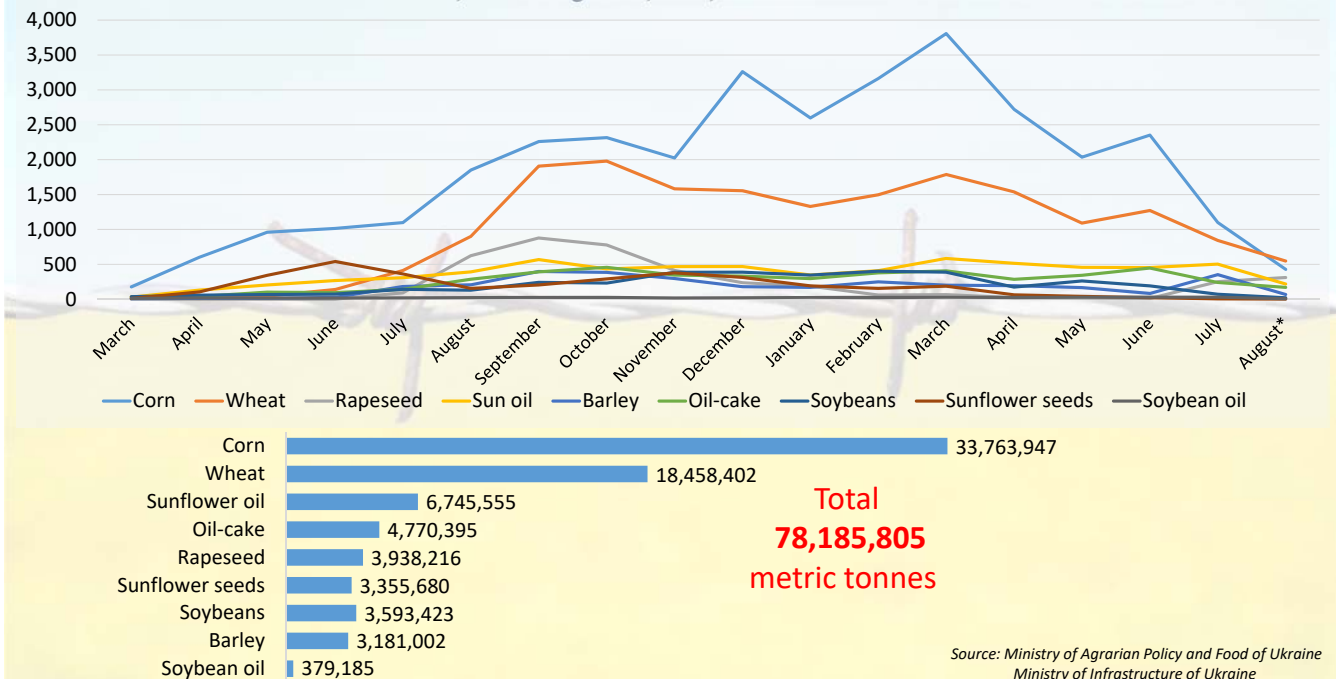


Source: based on data of State Customs Service of Ukraine

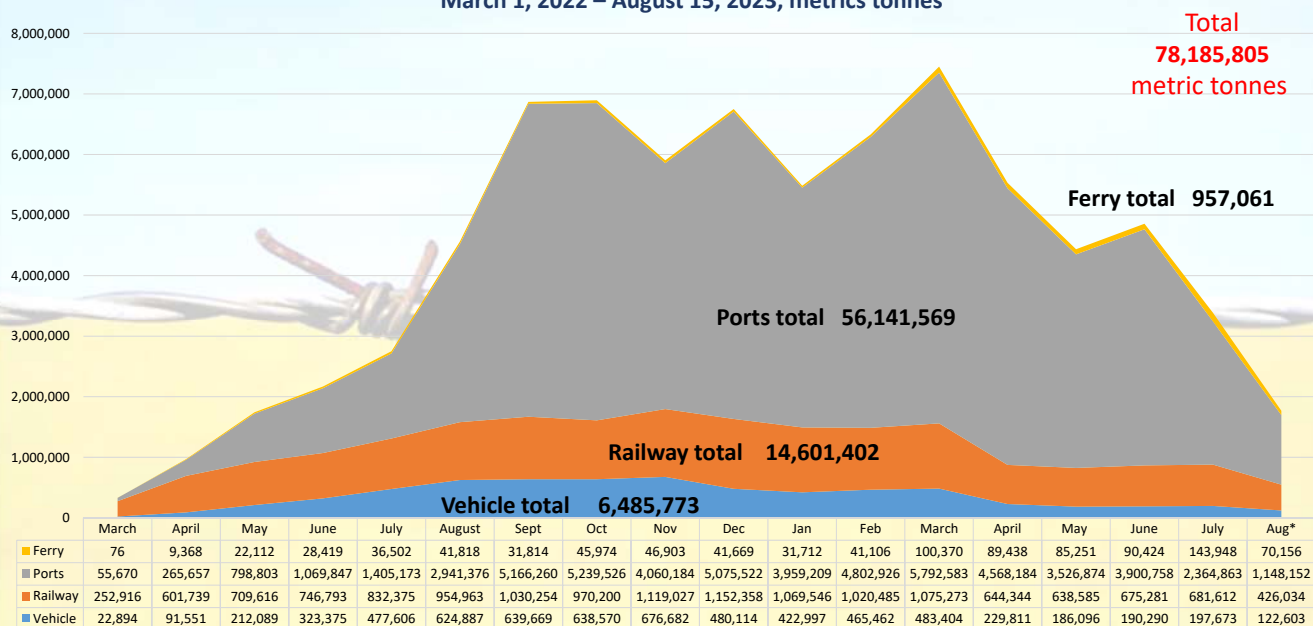
GEOGRAPHY OF BARLEY EXPORT FROM UKRAINE, July 1 - June 31, thousand tonnes



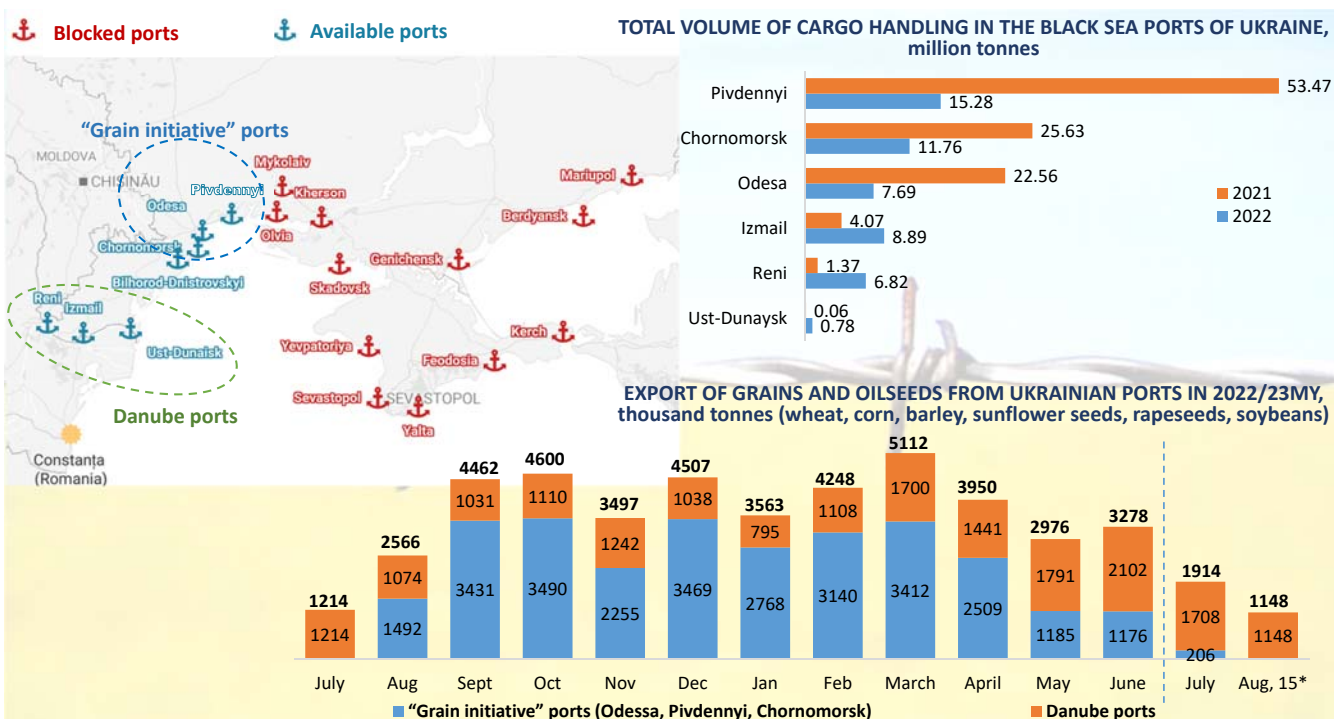
BORDER-CROSSING FROM UKRAINE DURING THE WAR TIME BY TYPES OF AGRICULTURAL PRODUCTS, March 1, 2022 – August 15, 2023, thousand metric tonnes



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



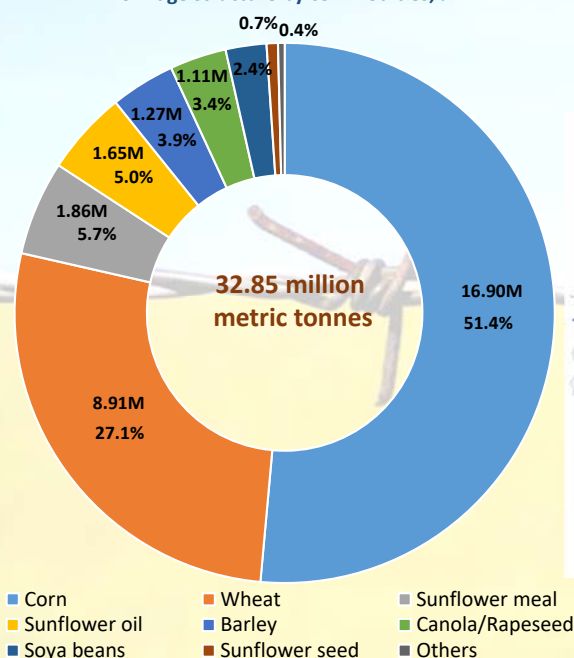
Source: Ministry of Agrarian Policy and Food of Ukraine and Ministry of Infrastructure of Ukraine



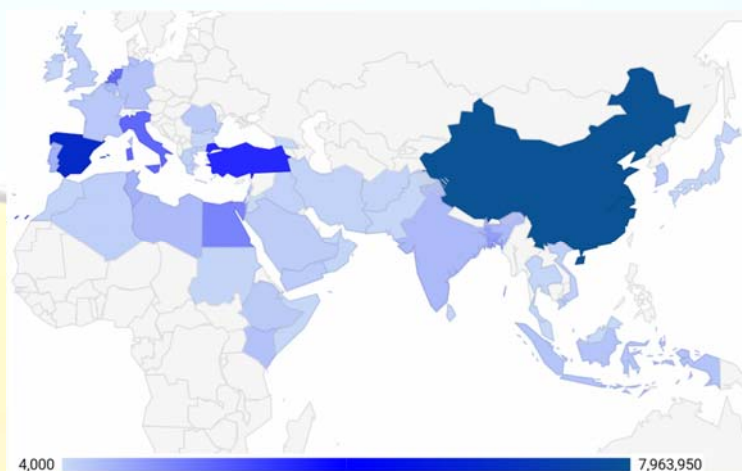
Source: based on the data of the Black Sea Grain Initiative Joint Coordination Centre, Ministry of Agrarian Policy and Food of Ukraine and Ministry of Infrastructure of Ukraine

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

Tonnage structure by commodities, %

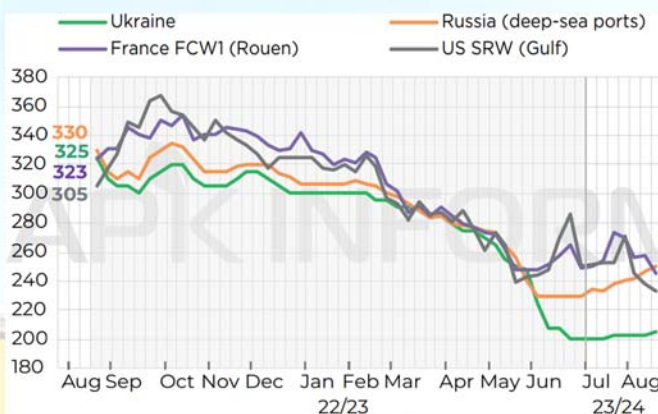


Destinations



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

Dynamics of milling wheat prices, USD/t



IMPACT OF THE WAR ON GRAIN PRICES

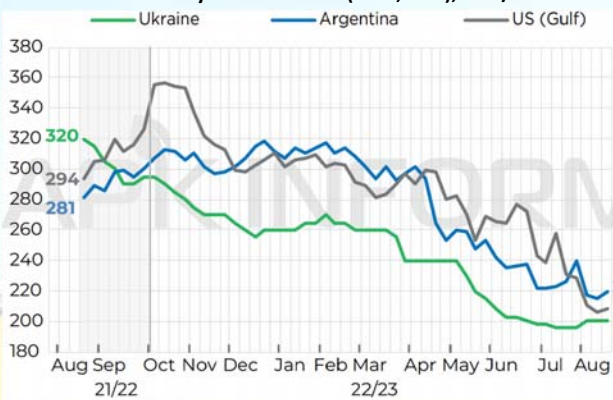
Price dynamics of feed wheat (offer, FOB), USD/t



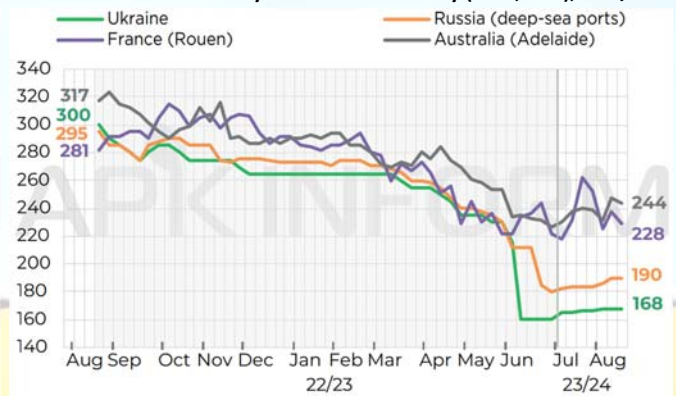
	Stock / month	Country of origin	Terms of delivery	August 18	August 11	August 4	July 28	weekly change		
									USD/t	%
The futures market										
Wheat	CBOT, Sept.	USA	EXW	225.3	230.2	232.6	258.8	- 4.9	- 2.1%	
Wheat	CBOT, August	Black Sea	FOB	-	246.0	241.8	234.3	-	-	
Milling wheat	Euronext, Sept.	France	CPT Rouen	253.4	260.1	257.3	273.9	- 6.7	- 2.6 %	
Wheat	LIFFE, Nov.	EU	EXW	240.5	248.7	251.8	259.3	- 8.2	- 3.3 %	
Wheat	BCA, Sept.	Argentina	EXW	251.0	235.0	271.1	274.0	- 2.0	- 0.8 %	
Cash market										
Wheat SRW	August	USA	CPT Gulf of Mex.	237.6	237.6	245.4	271.6	- 4.9	- 2.1 %	
Wheat hard	August	Argentina	FOB	323.0	330.0	330.0	328.0	- 7.0	- 2.1 %	
Wheat FCW1	August	France	FOB	245.0	261.0	256.0	270.0	- 12.0	- 4.7%	

IMPACT OF THE WAR ON GRAIN PRICES

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



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



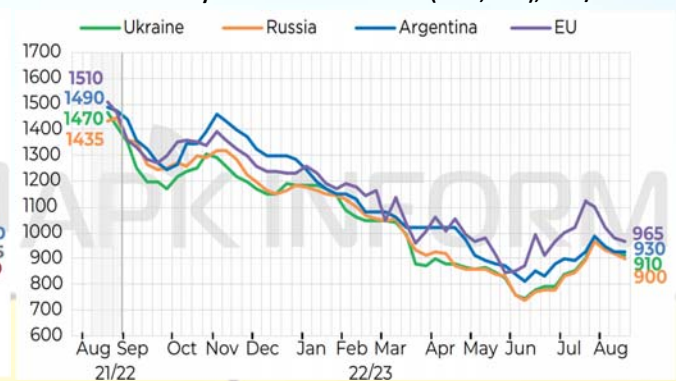
	Stock / month	Country of origin	Terms of delivery	August 18	August 11	August 4	July 28	weekly change	
								USD/t	%
The futures market									
Corn yellow	CBOT, Sep.	United States	EXW	188.7	186.8	190.6	205.1	+1.9	+ 1.1 %
Corn	Euronext, Nov.	France	FOB	234.9	245.0	251.6	274.2	- 10.1	- 4.1 %
Corn hard	BCA, Sept.	Argentina	EXW	187.0	188.5	197.5	198.5	- 1.5	- 0.8 %
Cash market									
Corn yellow	August	USA	CPT Gulf of Mex.	208.5	206.5	210.3	228.7	+ 2.0	+ 1.0 %
Corn	August	Argentina	FOB	220.0	215.0	217.0	240.0	+ 5.0	+ 2.3 %
Fodder barley	August	France	FOB	228.4	237.6	225.3	252.1	- 9.2	- 3.9 %

IMPACT OF THE WAR ON OIL COMMODITIES PRICES

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



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



	Stock / month	Country of origin	Terms of delivery	August 18	August 11	August 4	July 28	weekly change		
									USD/t	%
The futures market										
Soybeans	CBOT, Sept.	United States	EXW	500.7	514.8	530.6	546.2	-14.0	-2.8 %	
Soybeans	BCA, Sept.	Argentina	EXW	362.0	353.5	355.0	368.5	+8.5	+2.4 %	
Cash market										
Soybeans	August	USA	CPT Gulf of Mex.	538.8	554.5	575.7	580.9	-14.2	-2.6 %	
Soybeans	August	Argentina	FOB	513.0	532.0	556.0	556.0	+17.0	+3.3 %	
Soybeans	Sept.	Brazil	FOB	534.0	546.0	544.0	529.0	-9.0	-1.7 %	
Sunflower oil	Sept.	EU	FOB Rotterdam	965.0	980.0	1020.0	1100.0	-15.0	-1.5 %	
Sunflower oil	August	Argentina	FOB	930.0	930.0	950.0	985.0	0	0 %	

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
Winter crops total, including:	8,973.5	9,029.4	5,449.4	60.3 %
• winter wheat	6,714.4	6,538.4	3,758.8	57.5 %
• winter barley	1,080.4	969.0	612.5	63.2 %
• winter rye	166.8	108.5	79.2	73.0 %
• winter rapeseeds	1,011.9	1,413.5	998.9	70.7 %

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

SOWN AREA OF SPRING CROPS IN UKRAINE thousand hectares

Crops	2021	2022	2023	2023 to 2022	2023 to 2021
Total (selected crops)	15633.2	12327.0	12907.0	104.71%	82.56%
Spring cereals and legumes	7586.0	6196.9	5672.2	90.47%	73.91%
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

HARVESTING OF GRAIN, LEGUMES AND OIL CROPS IN UKRAINE, as of August 25, 2023

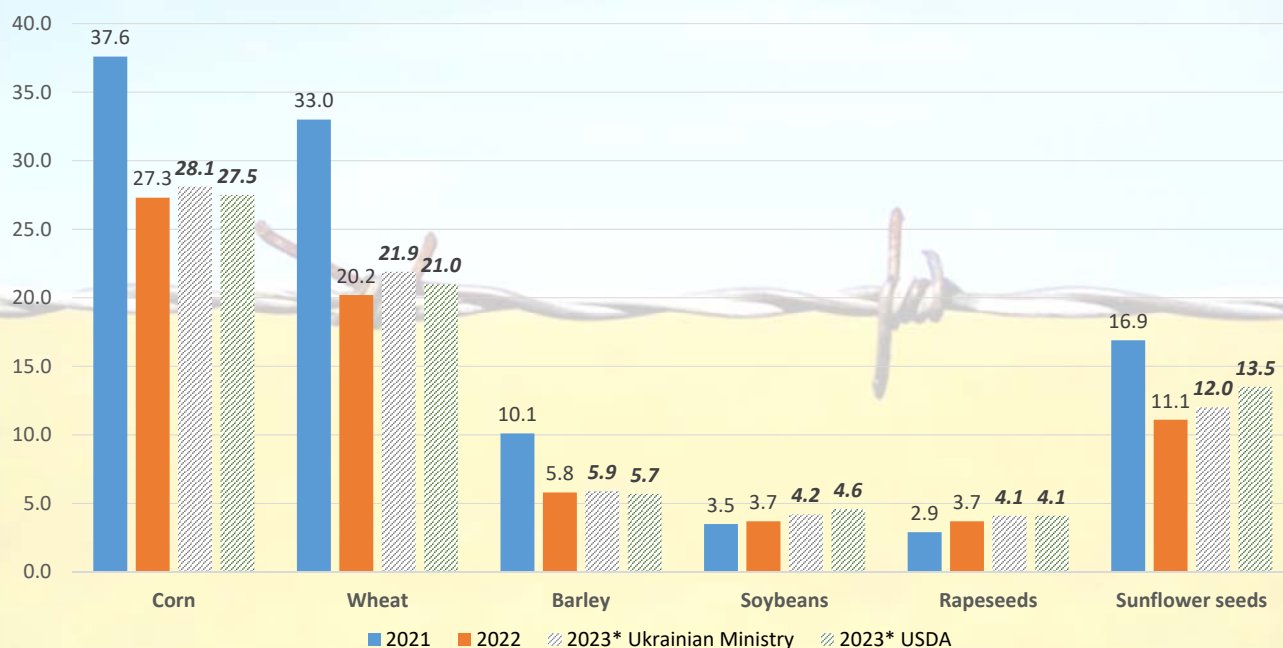
Crops	Harvested, thousand hectares		2023*		Harvested to forecast 2023*, %	Harvested 2023*, thousand metric tonnes	Average yields, metric tonnes per hectare			Change in yields per hectare 2022 to 2021, %
	2021	2022	Forecast, thousand hectares	Harvested, thousand hectares			2021	2022	2023*	
Grain and legumes total, including:	15,299.2	10,969.7	10,557.7	6,294.7	59.6%	28,107.5	5.50	4.88	4.47	-11.5 %
• wheat	7,073.0	4,979.4	4,646.4	4,646.5	100.0%	21,938.5	4.64	4.05	4.72	-12.7 %
• barley	2,467.7	1,666.5	1,492.9	1,483.9	99.4%	5,766.0	3.92	3.47	3.89	-11.5 %
• peas	240.4	118.1	150.0	154.0	102.7%	385.6	2.43	2.28	2.50	-6.2 %
• buckwheat	84.2	115.9	141.5	2.0	1.4%	2.9	1.30	1.37	1.47	5.4 %
• millet	77.9	44.7	83.4	8.2	9.8%	14.4	2.52	2.28	1.76	-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	1,425.6	1,389.1	97.4%	3,985.1	2.95	2.86	2.87	-2.0 %
Sunflower	6,482.4	4,825.5	5,307.5	0			2.52	2.18		-13.9 %

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

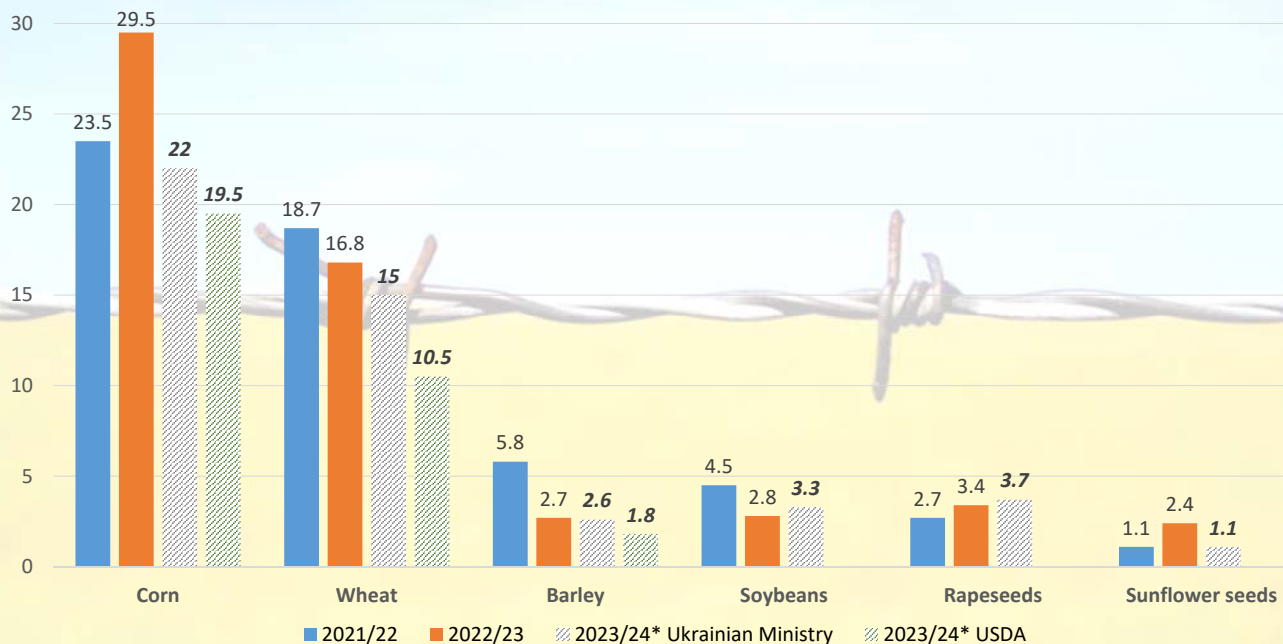


FORECAST OF HARVEST OF GRAIN, LEGUMES AND OIL CROPS IN UKRAINE IN 2023, million metric tonnes



Source: based on data of Ministry of Agrarian Policy and Food of Ukraine, as of August 18, 2023 and USDA, as of August 11, 2023

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



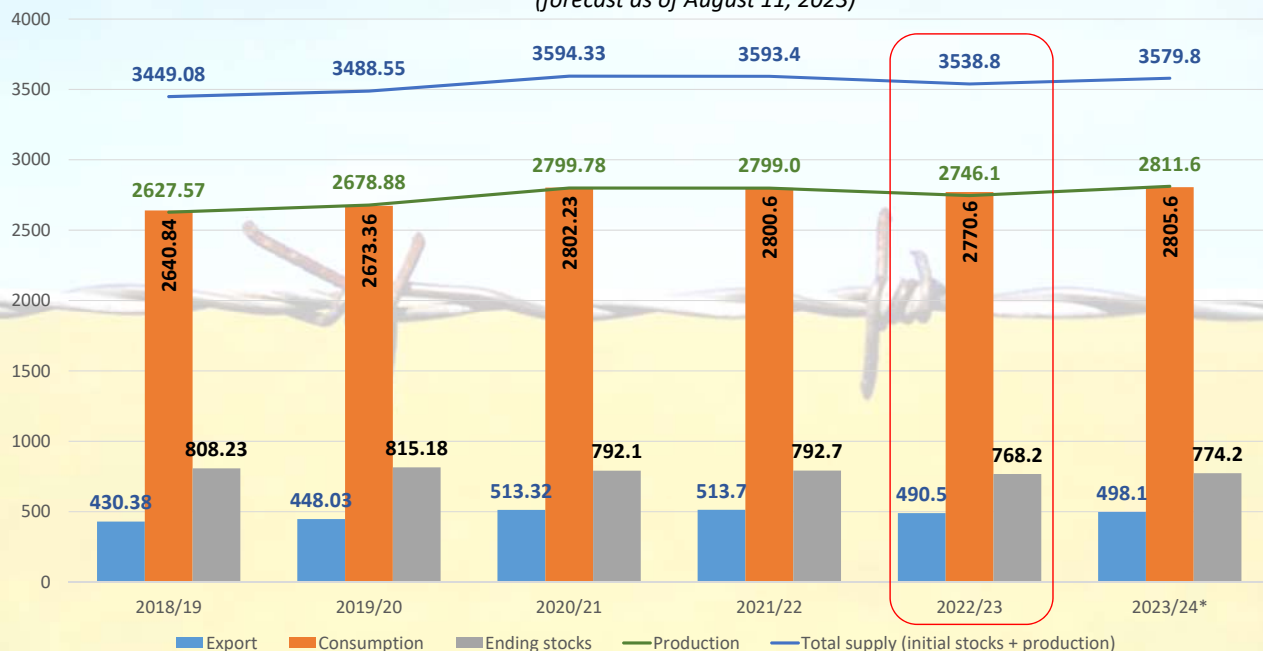
Source: based on data of Ukrainian Grain Association and USDA, as of August 11, 2023

BALANCE OF SUPPLY AND DEMAND OF GRAIN AND LEGUMES IN UKRAINE (*forecast as of August 16, 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	12,445	3,603	in +2,6 times	-71.1%
Sown area, thousand hectares	15,995	12,171	10,977	-23.9%	-9.8%
Harvested area, thousand hectares	15,948	11,773	10,712	-26.2%	-9.0%
Yield, tonnes / hectare	5.39	4.58	4.96	-15.0%	+8.2%
Gross harvest	86,010	53,864	53,085	-37.4%	-1.4%
Import	125	153	131	+22.7%	-14.6%
Total supply	90,952	66,462	56,818	-26.9%	-14.5%
Domestic consumption:	26,276	16,427	17,171	-37.5%	+4.5%
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	1,450	1,569	-13.0%	+8.2%
losses	5,692	1,996	1,427	-64.9%	-28.5%
other (alcohol, malt, starch, etc.)	982	793	830	-19.2%	+4.6%
Export	52,243	46,432	32,338	-11.1%	-30.4%
Total distribution (demand)	78,507	62,859	49,509	-19.9%	-21.2%
Ending stocks	12,445	3,603	7,310	-71.1%	in +2 times
Ratio of ending stocks to distribution	16%	6%	15%		

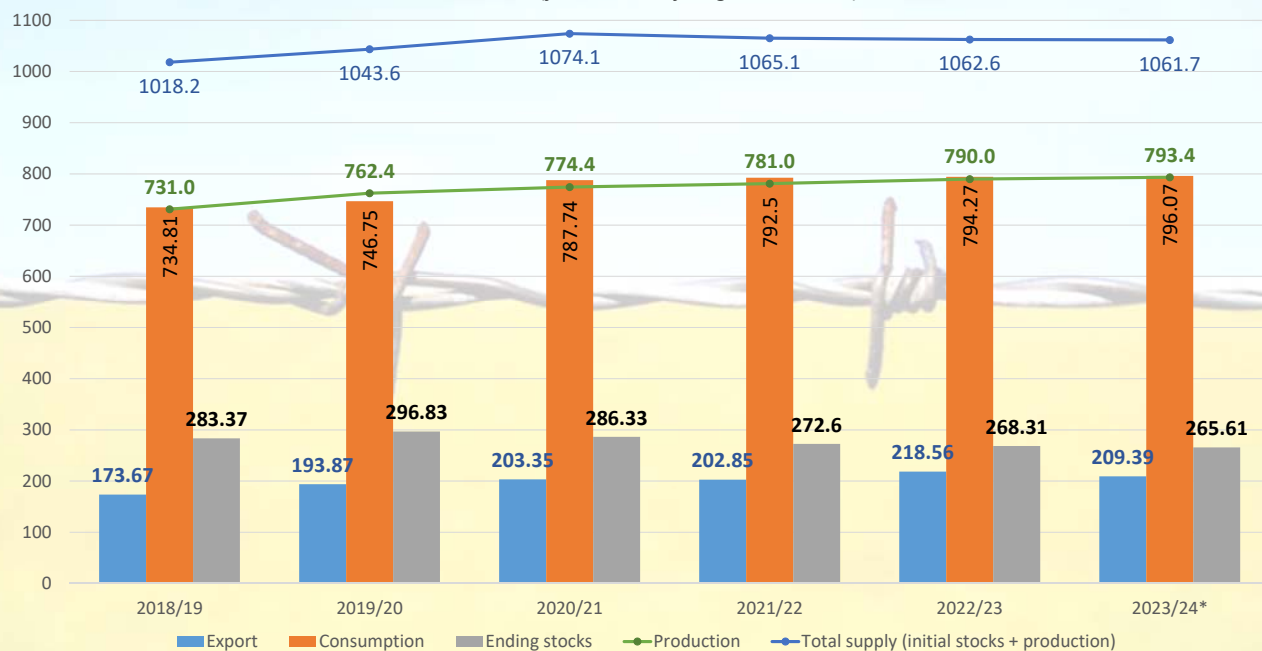
Source: based on "APK-Inform", the State Statistic Service of Ukraine and the State Customs Service of Ukraine

DYNAMICS OF WORLD GRAIN DEMAND AND SUPPLY, million metric tonnes (forecast as of August 11, 2023)



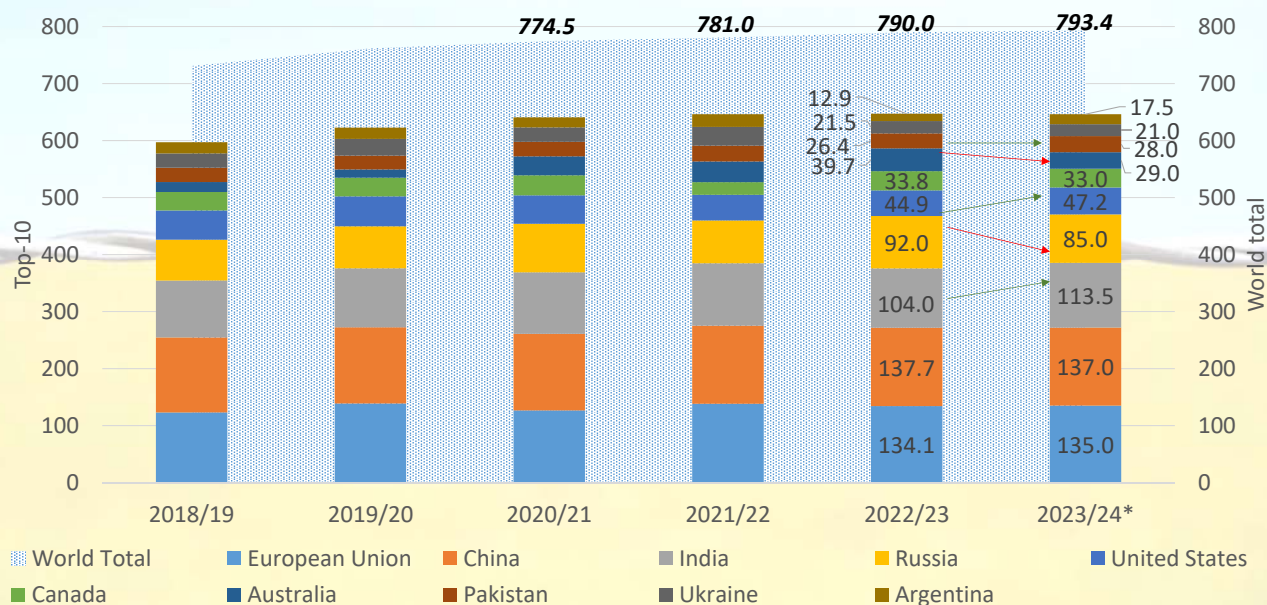
Source: based on the data of the USDA

DYNAMICS OF WORLD WHEAT DEMAND AND SUPPLY, million metric tonnes
(forecast as of August 11, 2023)



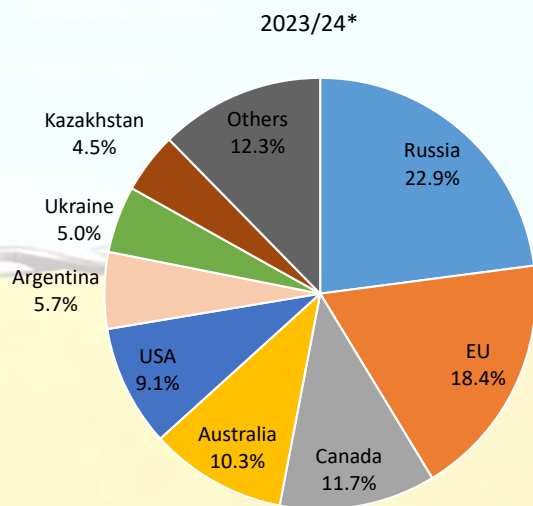
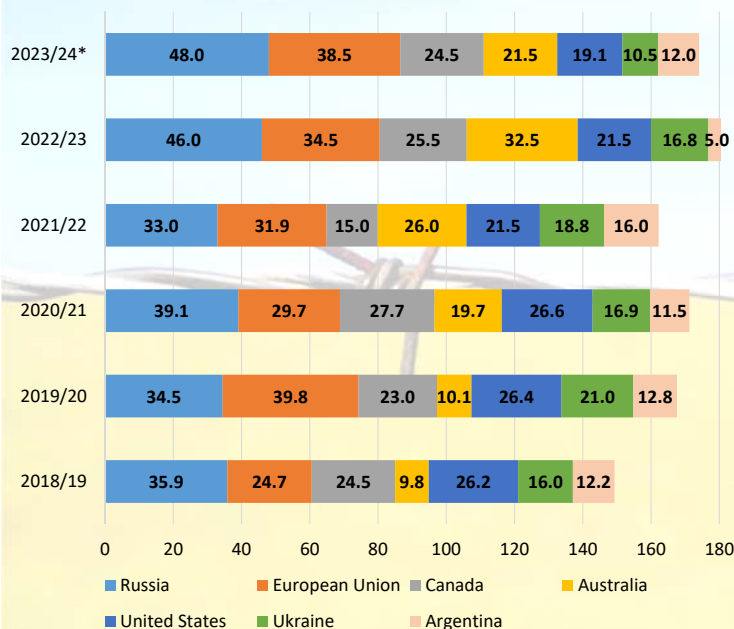
Source: based on the data of the USDA

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



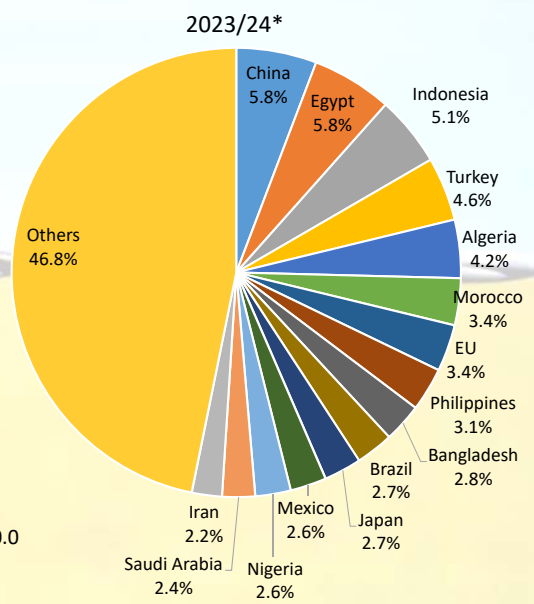
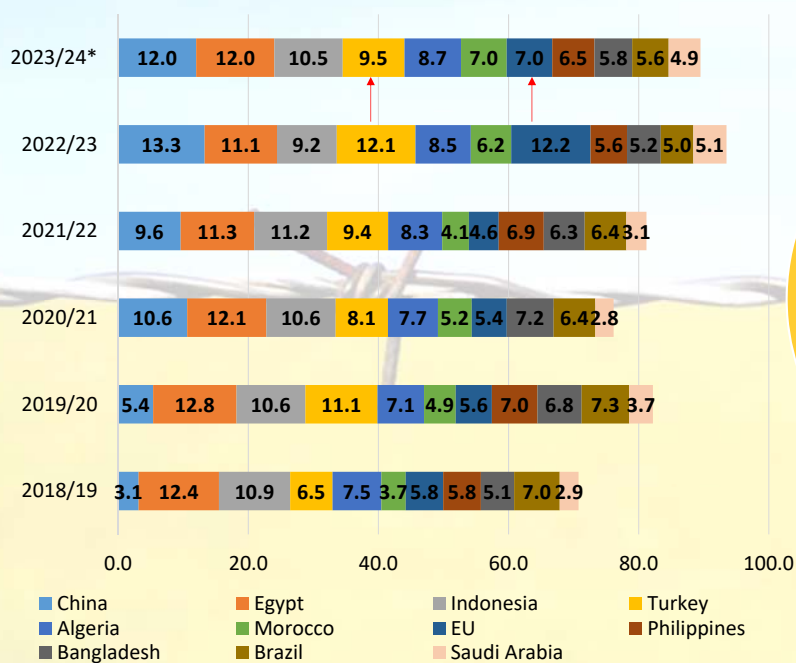
Source: based on the data of the USDA

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



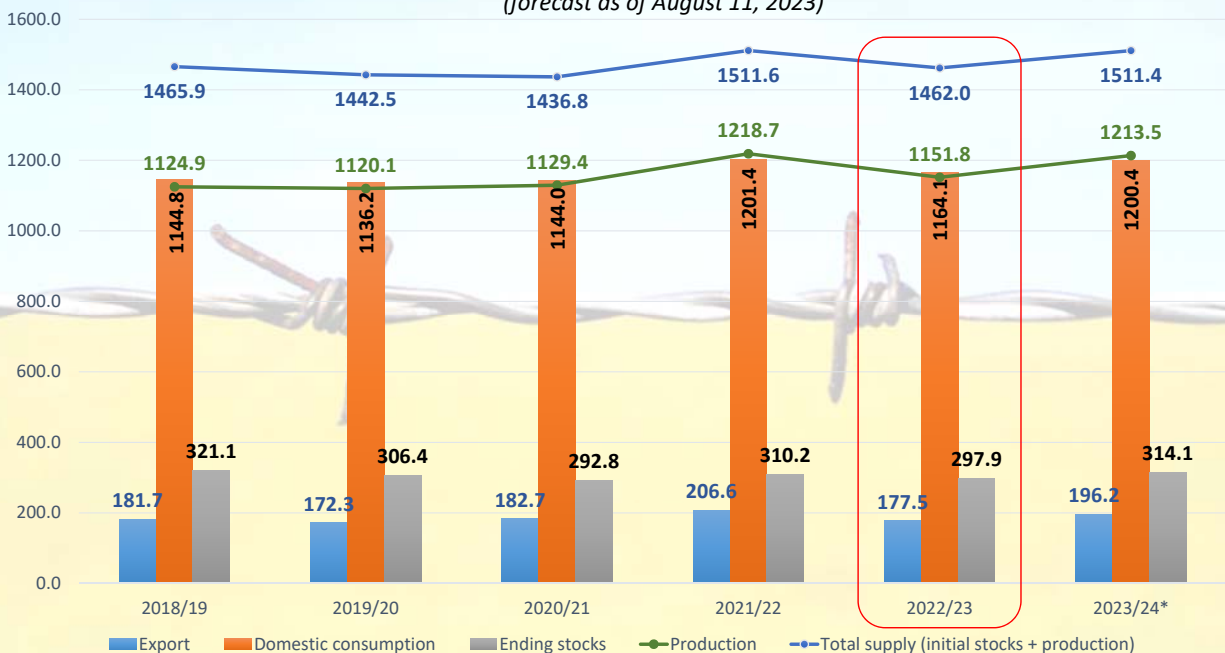
Source: based on the data of the USDA

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



Source: based on the data of the USDA

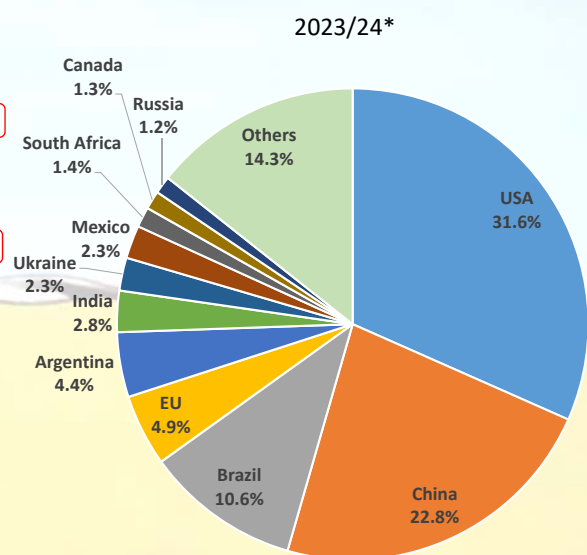
DYNAMICS OF WORLD CORN DEMAND AND SUPPLY, million metric tonnes
(forecast as of August 11, 2023)



Source: based on the data of the USDA

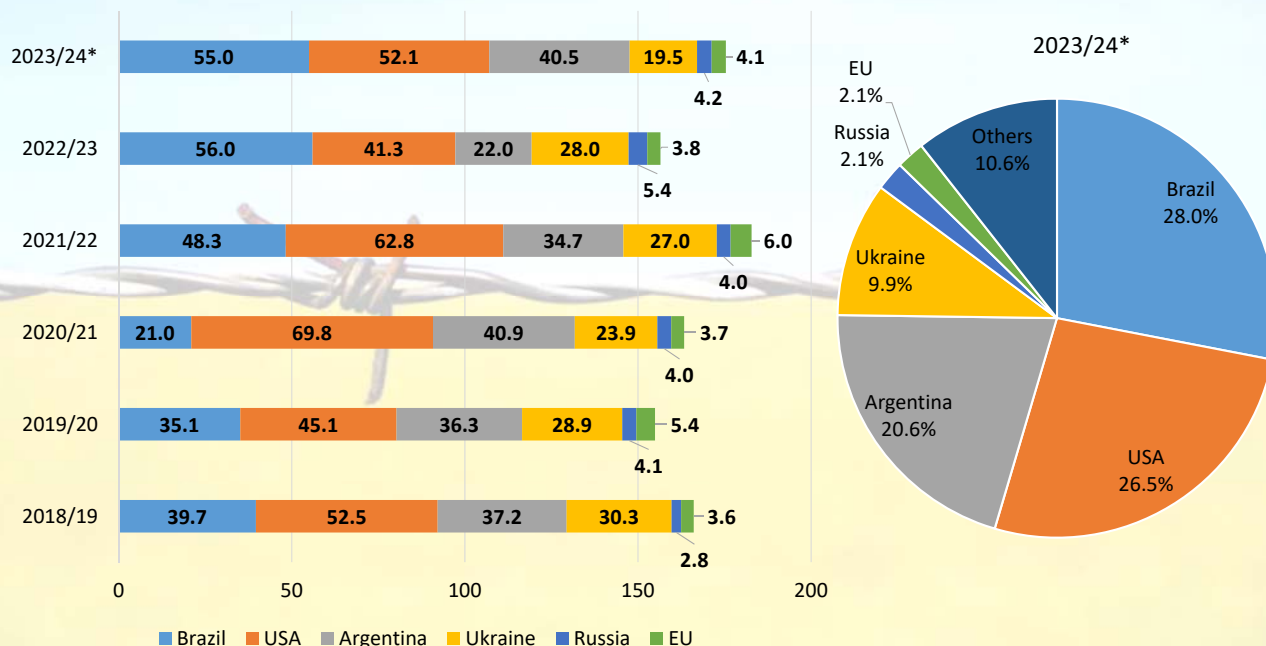
WORLD CORN PRODUCTION, million metric tonnes
(forecast as of August, 2023)

No	Country	2021/22	2022/23	2023/24*	change 2022/23-2021/22	change 2023/24*-2022/23
1	USA	382,893	348,751	383,832	-9%	+10%
2	China	272,552	277,200	277,000	+2%	-0.1%
3	Brazil	116,000	135,000	129,000	+16%	-4%
4	EU	71,519	52,229	59,700	-27%	+14%
5	Argentina	49,500	34,000	54,000	-31%	+59%
6	India	33,730	36,000	34,300	+7%	-5%
7	Ukraine	42,126	27,000	27,500	-36%	+2%
8	Mexico	26,762	26,500	27,400	-1%	+3%
9	South Africa	16,137	17,000	16,800	+5%	-1%
10	Canada	14,611	14,539	15,300	-1%	+5%
11	Russia	15,225	15,832	14,600	+4%	-8%
12	Indonesia	12,700	12,900	13,100	+2%	+2%
13	Nigeria	12,745	12,735	12,000	-0.1%	-6%
14	Pakistan	10,635	9,331	10,500	-12%	+13%
15	Ethiopia	9,400	10,200	10,400	+9%	+2%
	Others	132,177	122,563	128,069	-7%	+5%
	Total	1,218,712	1,151,780	1,213,501	-6%	+5%



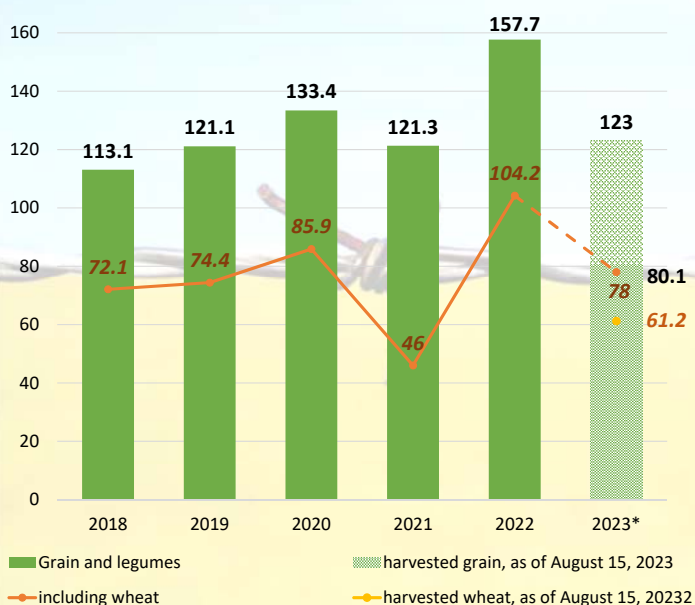
Source: based on the data of the USDA

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

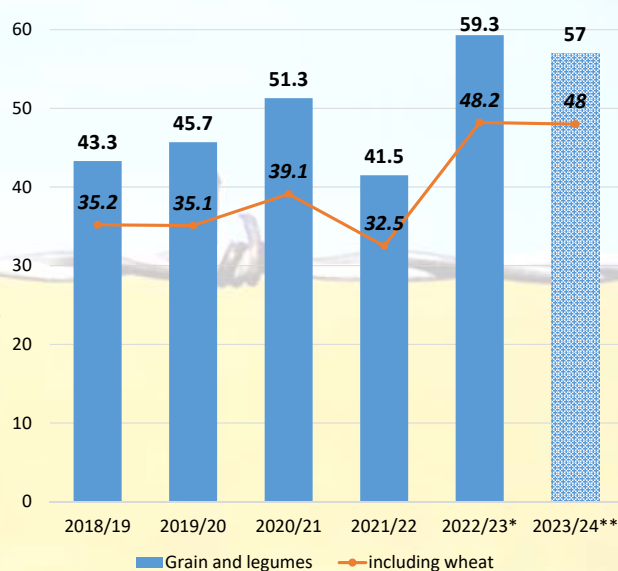


Source: based on the data of the USDA

FORECAST OF GRAIN AND LEGUMES PRODUCTION IN RUSSIA, million tonnes

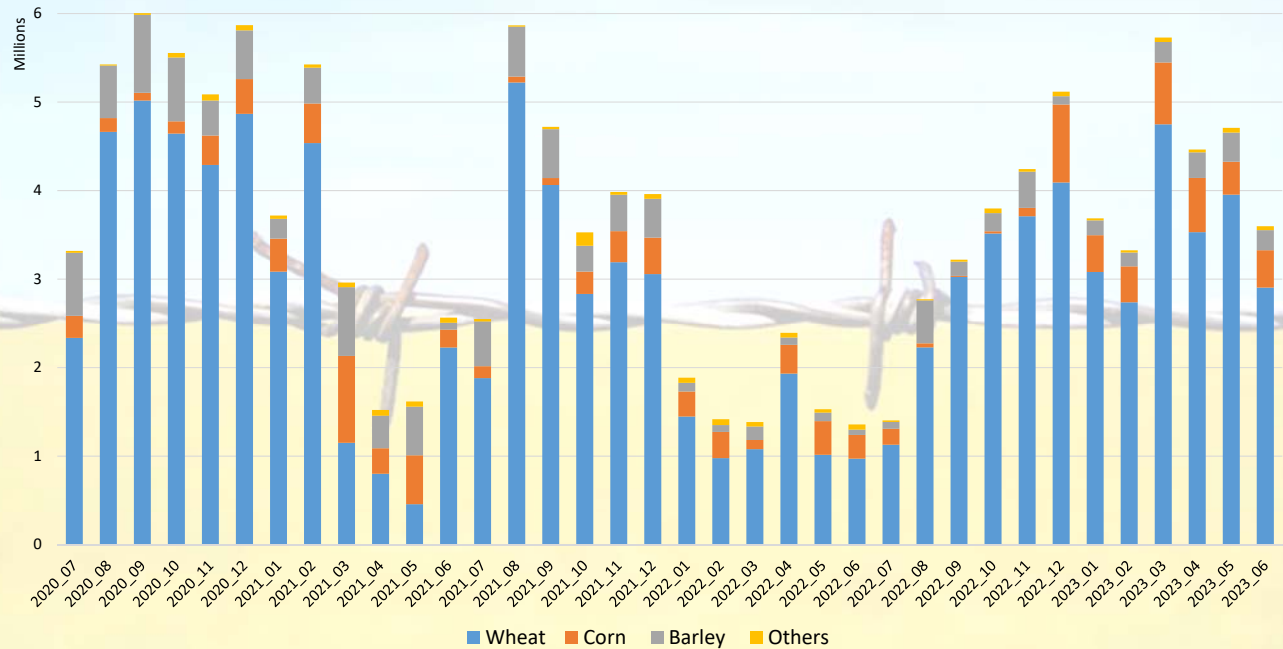


FORECAST OF GRAIN EXPORT FROM RUSSIA, million tonnes



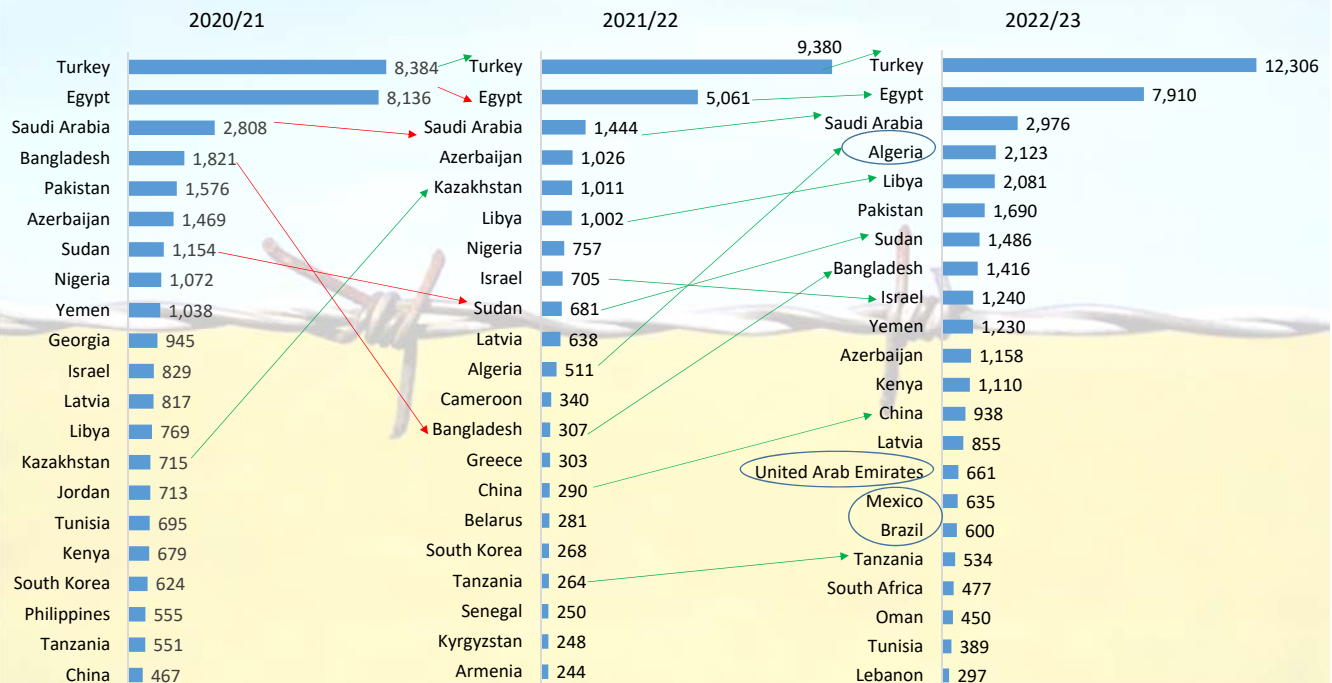
Source: based on Ministry of Agriculture of the Russian Federation

EXPORT OF GRAINS FROM RUSSIA BY COMMODITIES, million tonnes



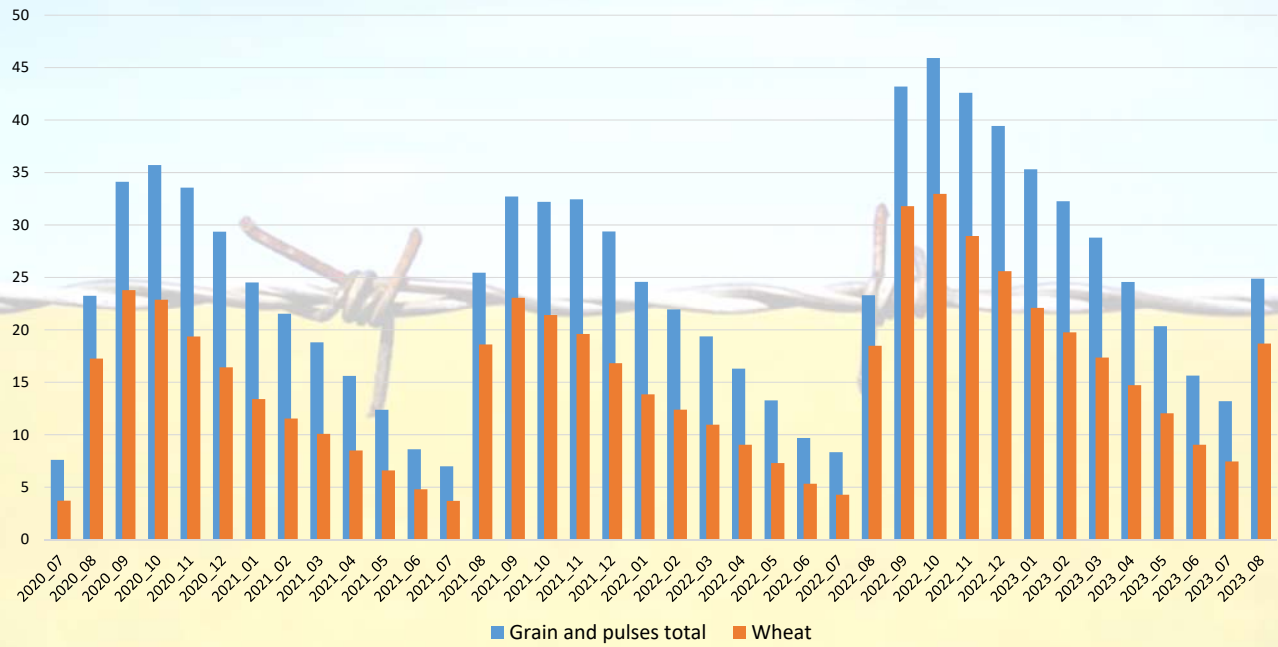
Source: Federal State Statistics Service of the Russian Federation

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



Source: Federal State Statistics Service of the Russian Federation

DYNAMICS OF STOCKS IN RUSSIA, million tonnes



Source: Federal State Statistics Service of the Russian Federation

UKRAINIAN GAS TRANSMISSION SYSTEM



Source: International Energy Charter Secretariat

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



Source: International Energy Charter Secretariat

Thank you!

Questions?