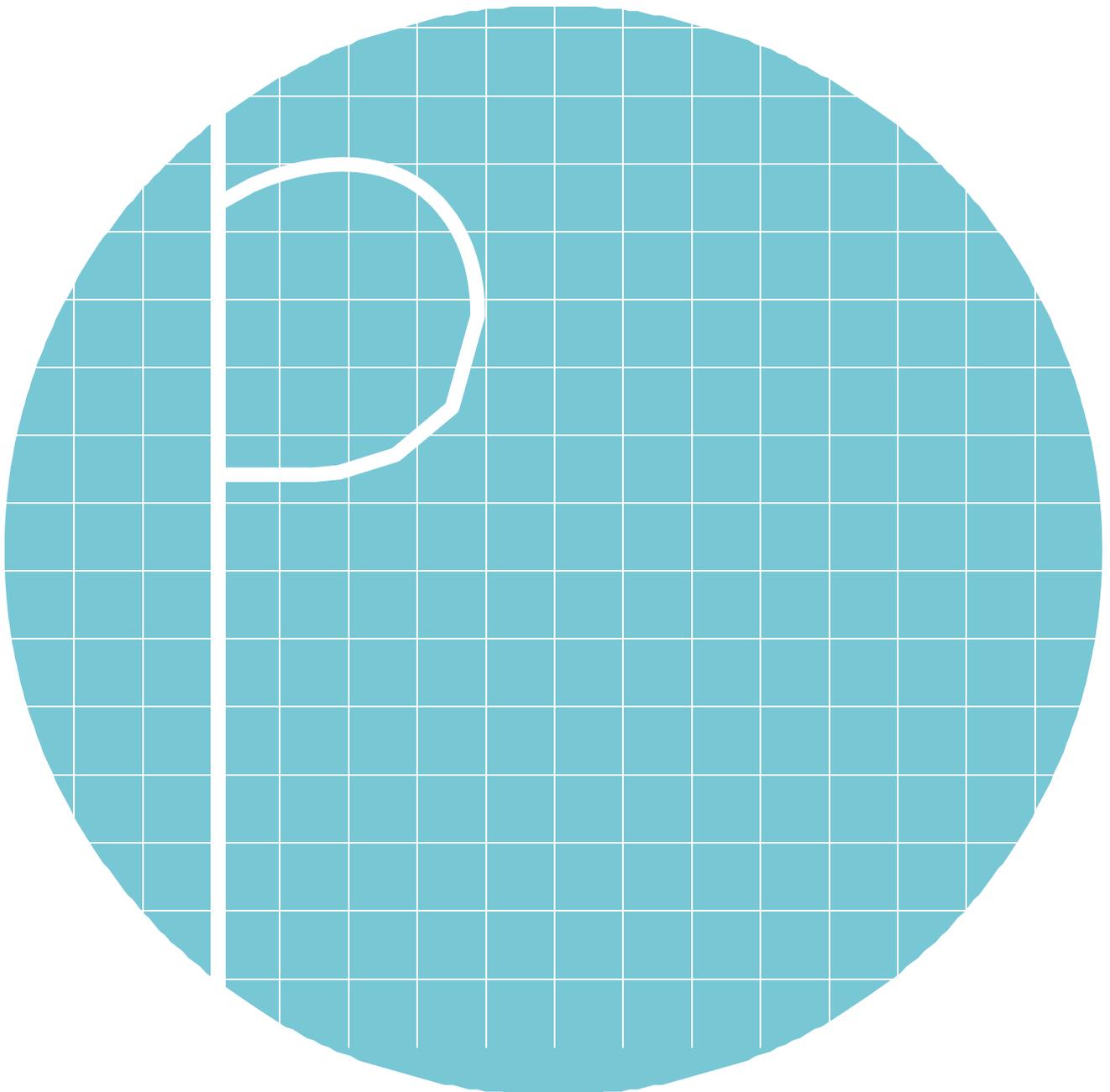


Paper: War and new food routes

How conflict is reshaping global food supplies





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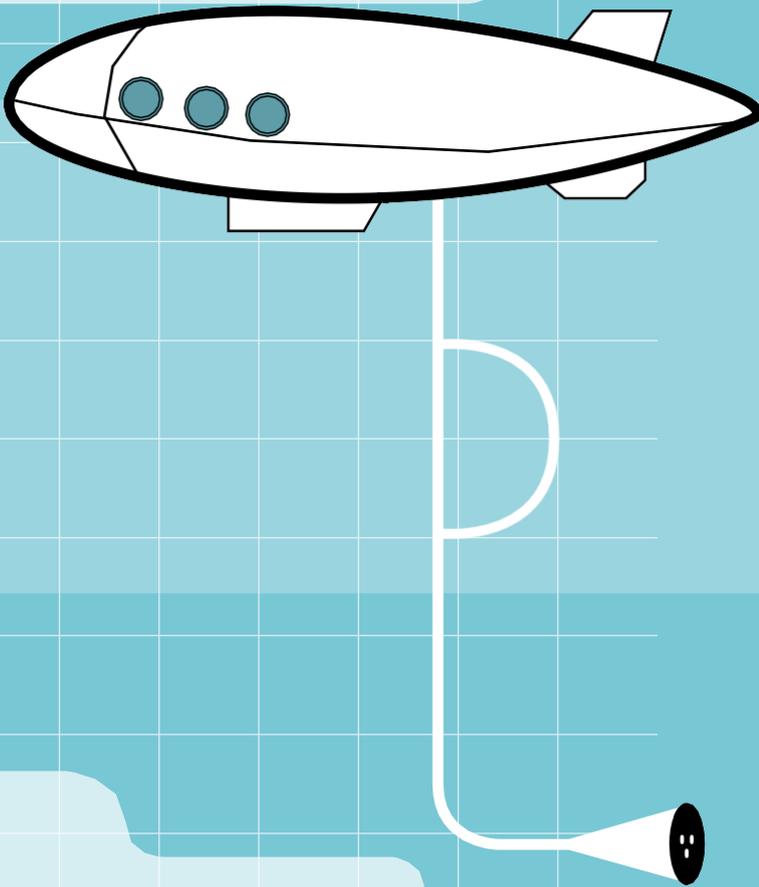
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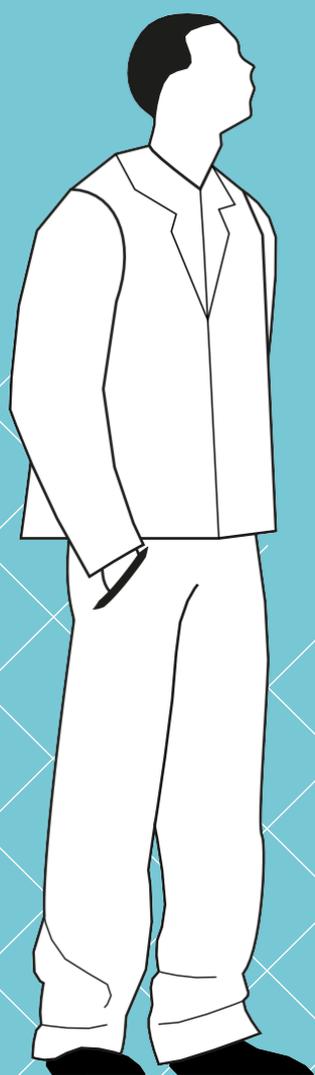
In the first few months of the war we saw a complete blockade of maritime shipments of grain and other agricultural products from Ukraine across the Black Sea. It was only with the “Black Sea Grain Initiative” Agreement signed in Istanbul that global food supplies were able to breathe a sigh of relief. But now, the failure to renew the Agreement raises serious questions about the global stability of prices and the economic and social stability of many countries, especially the poorer ones.

After 500 days of war we find ourselves dealing with the effects that the invasion. Ukraine has generated. But what has happened in recent months? What has changed?



Abstract

- Russia's invasion of Ukraine in February 2022 led to a complete blockade of maritime shipments of grain and other agricultural products from Ukraine via the Black Sea. After 5 months of tensions on international markets, an important agreement was reached between Russia and Ukraine on 22 July 2022 with the mediation of Turkey and the United Nations: the Black Sea Grain Initiative.
- Thanks to the Agreement, 33 million tons of agricultural products were released onto international markets in one year. Just over half of this is corn at 17 million tons. The remaining 27% is wheat with 9 million tons while 5% sunflower oil with 1.6 million tons. Finally, 17% is attributable to other products for 5.4 million tons.
- Among the countries that have benefited most from the Agreement, China ranks top, followed by Spain and Turkey. Italy ranks fourth with 6.3% of the total. The UN Agreement has also proven to be vital for many of the most vulnerable countries in terms of food supplies.
- These months of war have contributed to reshaping production geographies on a global scale with Ukrainian agricultural production progressively weakening. In 2022, 22% less land was sown in Ukraine, with a loss of 2 million hectares, equal to almost the entire area of Belgium.
- Focusing on wheat, for the year 2023 a production drop of 47% is estimated in Ukraine while in the same period Russia reported an increase in production of 13%. Similar discussion also on the stocks front with Ukrainian wheat reserves which will reach the minimum values of 3.6 million tons in 2023/2024 with a decrease of 66% compared to the year before the invasion.
- In this reference context, Moscow's declared objective is to aim to expand its influence on African and Middle Eastern countries, which are particularly dependent on international supplies of cereals. In fact, USDA estimates predict a record value for Russian wheat exports of 45 million tons in 2022/23, up 36% compared to the previous year.



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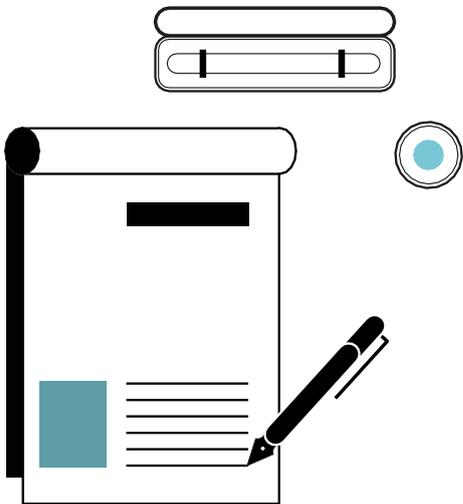
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1.



1. The Black Sea Grain Initiative

Russia's invasion of Ukraine in February 2022 led to a complete blockade of maritime shipments of grain and other agricultural products from Ukraine via the Black Sea. After 5 months of tensions on international markets and intense concerns for the poorest areas of the planet, on 22 July 2022 an important agreement was reached between Russia and Ukraine with the mediation of Turkey and the United Nations: the Black Sea Grain Initiative. The Agreement established a safe corridor for the export of food products to the Black Sea with the unblocking of 3 Ukrainian ports: Yuzhny, Chornomorsk and Odessa. In the month of November 2022 the Agreement was renewed and the further extensions that followed brought us to 17 July, the day on which the agreement, unfortunately, came to an end, with

the non-renewal due to Kremlin opposition.

The agreement averted a prolonged supply deficit on the markets and its non renewal generated concerns that immediately pushed up the prices of the main cereals on international markets.

But the war has not only hindered the flow of goods, it has also affected the agricultural fabric of Ukraine, one of the main "granaries" of the world, whose production and storage capacity is largely affected.

Just over 500 days after the start of the conflict between Russia and Ukraine, the facts and numbers analysed in this work confirm that food is one of the main terrains on which the game of future global geopolitical balances is being played.

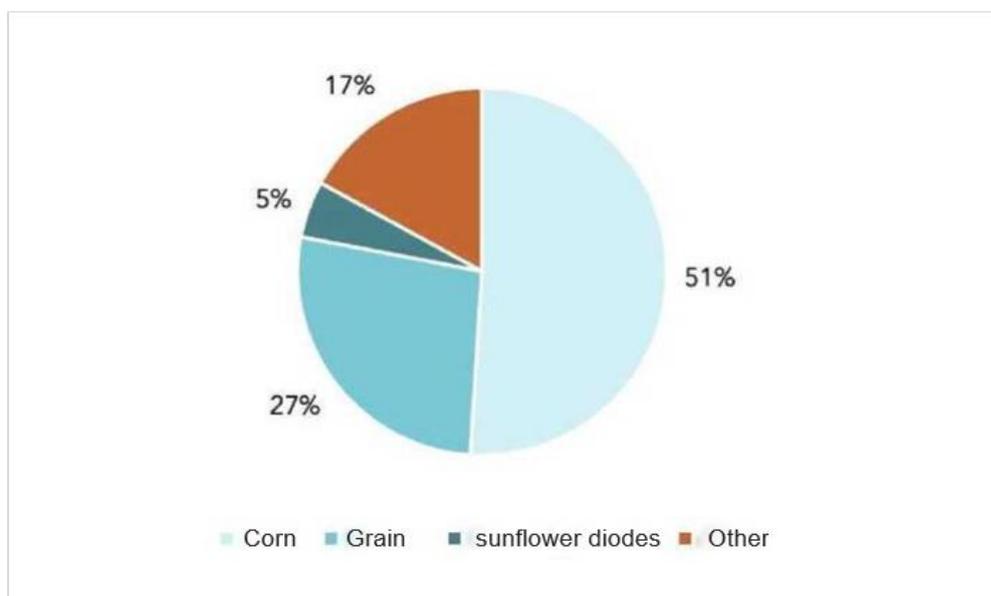
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2. The effects of a year of agreement

Thanks to the Agreement, 32.8 million tons of food and agricultural products were released onto international markets in one year. Just over half of these are corn (16.9 million tons), 27% wheat (8.9 million tons), 5% sunflower oil (1.6 million tons) and 17% other products (5.4 million tons).

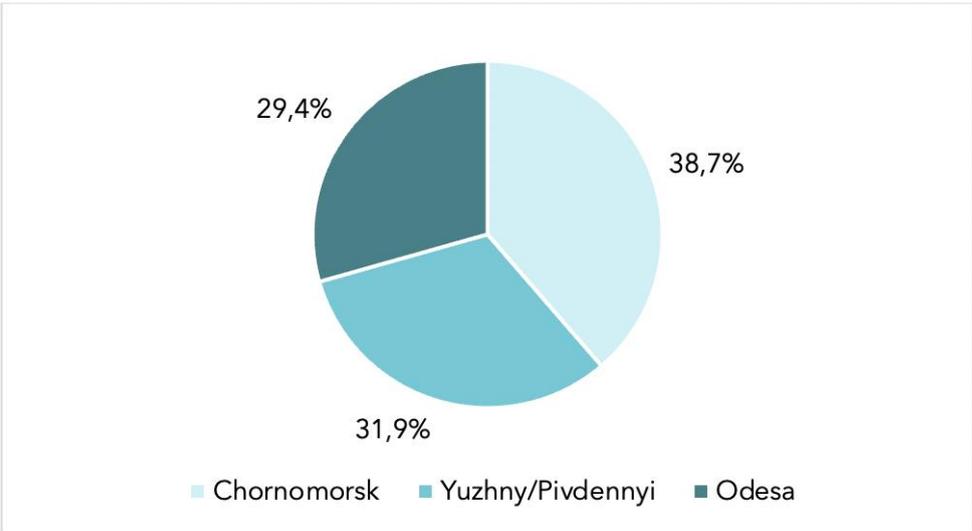
Graph 2.1: % total products exported from the 3 ports of the Agreement (Aug 2022-Jul 2023)



Source: Elaboration by the Divulga Study Centre on UN data

Among the ports most affected was Chornomorsk, from which 12.7 million tons of products departed (39% of the total), followed by Yuzhny with 10.5 million tons (32%) and Odessa with 9.6 million tons (29.4%).

Graph 2.2: % of products departed for ports of the Agreement (Aug 2022-Jul 2023)

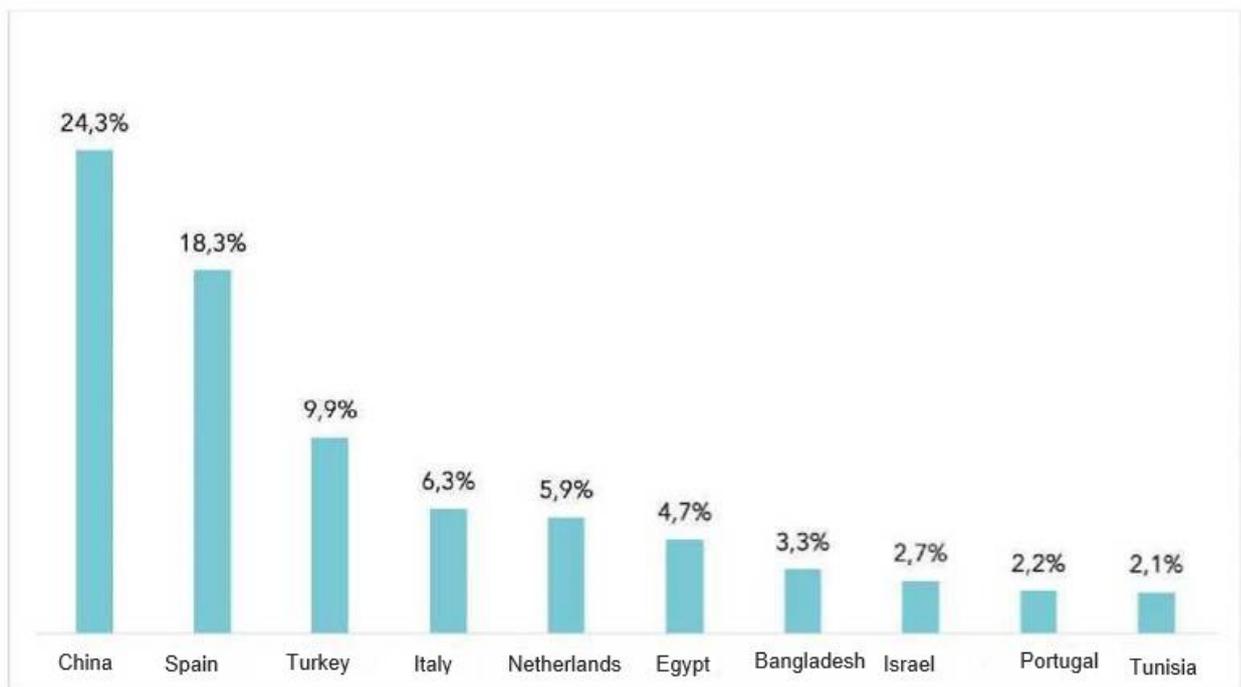


Source: Elaboration by the Divulga Study Centre on UN data

Among the countries that benefited most from the Agreement, China sits in first place with almost 8 million tons imported, equal to 24.3% of the total. Spain follows with just under 6 million tons (18.3%) and Turkey with 3.2 million tons (9.9%). Italy is positioned in

fourth place with approximately 2 million tons of imported agricultural commodities, equal to 6.3% of the total. The UN Agreement has proven vital for many of the vulnerable countries in terms of food supplies. In fact, 57% of the products arrived in these countries.

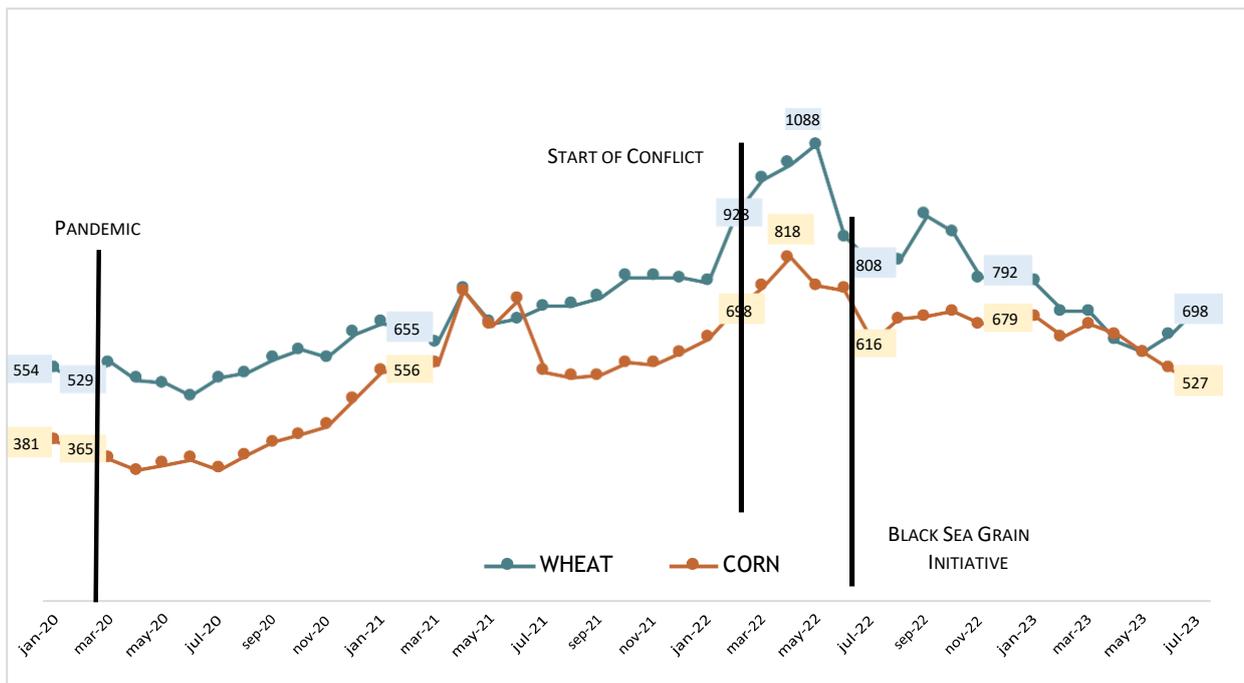
Graph 2.3: % top 10 destination countries per total of products that departed from the 3 ports (Aug 2022-Jul 2023)



Source: Elaboration by the Divulga Study Centre on UN data

The failure to reach an agreement on Black Sea wheat could also probably cause a new surge in prices, generating a crowding-out effect on international markets and partially nullifying the breath of fresh air guaranteed by the Agreement. In fact, with the unblocking of the Black Sea ports and the Black Sea Grain Initiative, prices have progressively fallen, and from July 2022 to today both wheat and corn have seen a drop in their prices, with drops of 30% in recent weeks.

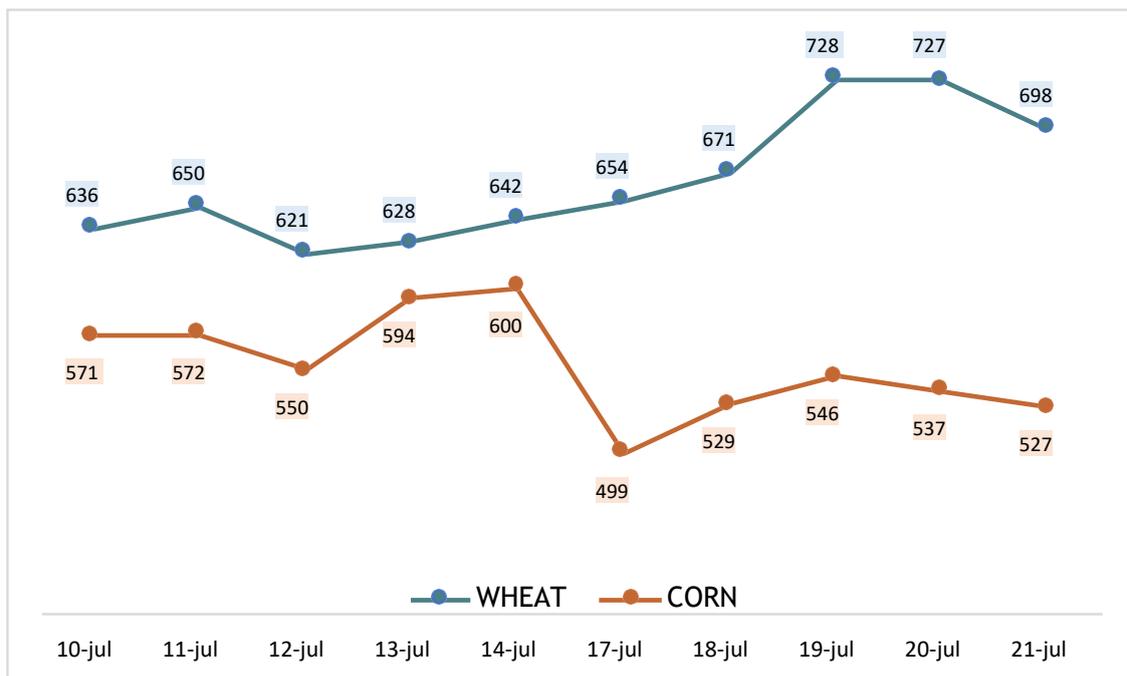
Graph 2.4: Average monthly futures prices on the Chicago market (US cents per bushel)



Source: Elaboration by the Divulga Study Centre on Cbot

However, observing the daily prices of the last two weeks - and therefore from the moment in which the possibility of a non-renewal of the agreement on the Black Sea Grain Initiative became increasingly concrete - wheat prices have resumed their upward trend. In fact, in just two weeks, between Monday 10 July 2023 and Friday 21, the price of wheat rose by 9.6%. In the 3 days following the failure to reach an agreement, wheat and corn prices grew by 11% and 9% respectively.

Graph 2.5: Daily futures prices on the Chicago market (US cents per bushel)



Source: Elaboration by the Divulga Study Centre on Cbot

Box 1: The benefits for Italy

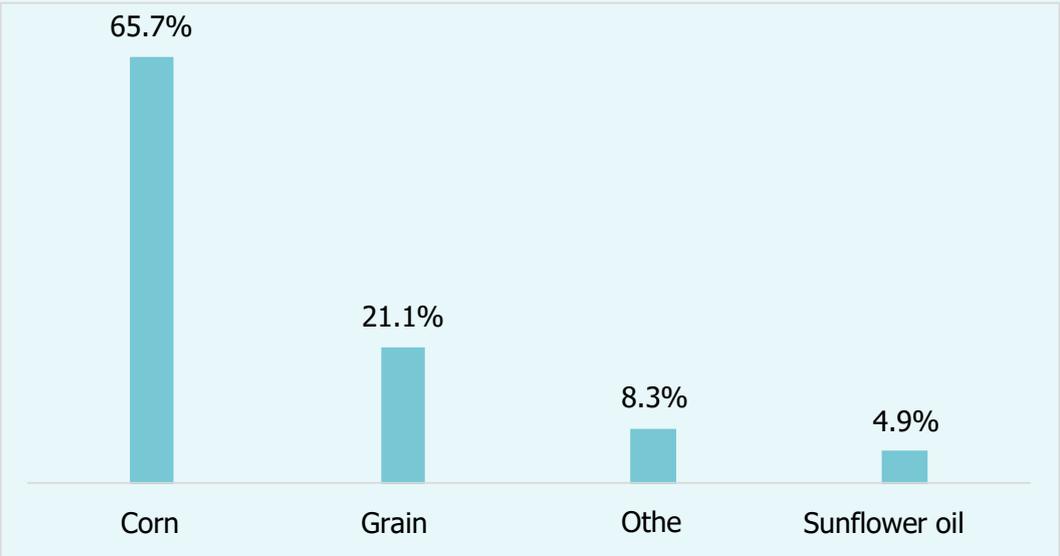
The Agreement guaranteed the arrival of approximately 2.1 million tons of products. Of this, two-thirds consist of corn, which is crucial for the easing of cost pressures on domestic livestock farming. During these twelve months, the Agreement also guaranteed 435 thousand tons of wheat (21.1%) and 100 thousand tons of sunflower oil (4.9%) to Italy.

Graph 2.6: Ton. that arrived in Italy from the 3 ports of the Agreement (Aug 2022-Jul 2023)



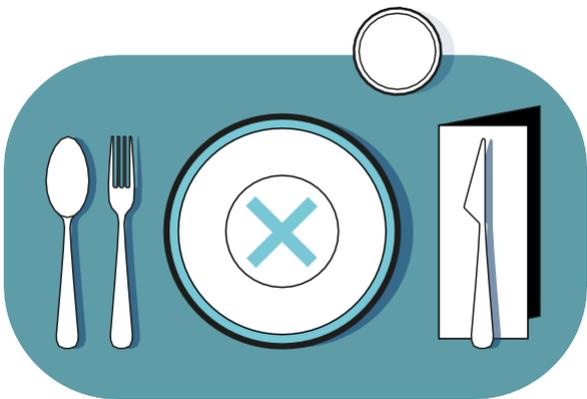
Source: Elaboration by the Divulga Study Centre on UN data

Graph 2.7: % that arrived in Italy from the 3 ports of the (Aug Agreement 2022-Jul 2023)



Source: Elaboration by the Divulga Study Centre on UN data

3.

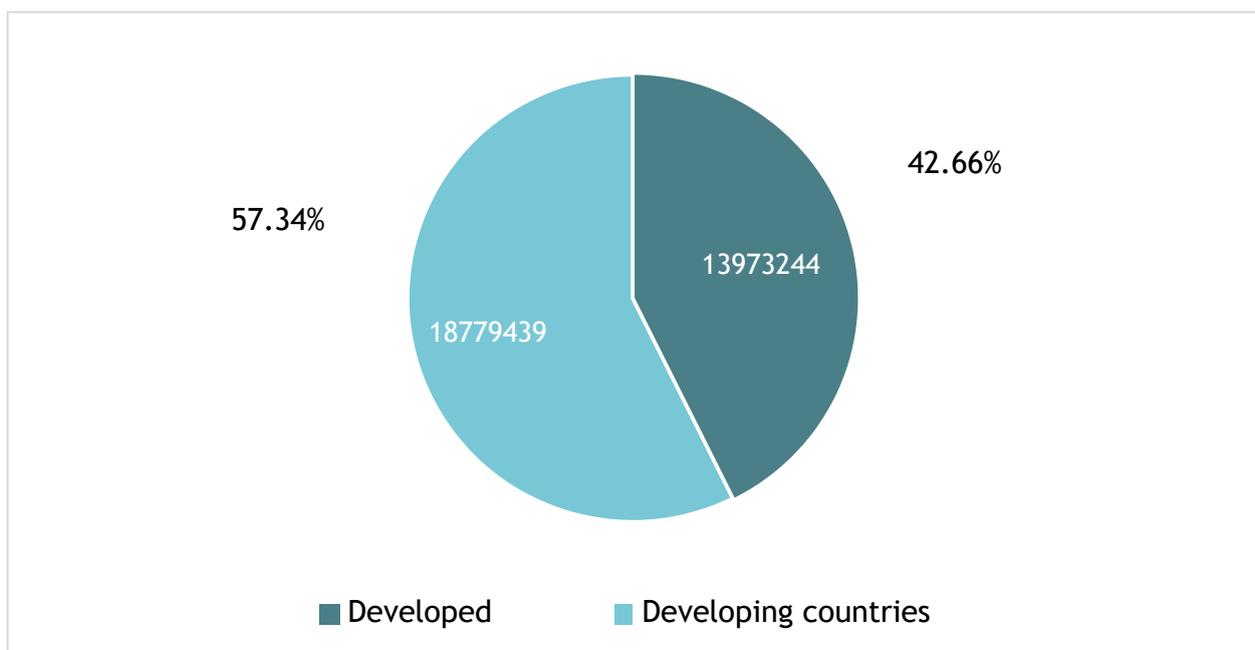


3. Respite for world hunger

The Agreement signed in Istanbul was particularly crucial for the effects generated on the most vulnerable countries. There are 258 million people in 58 countries who, according to the latest Global Report on Food Crises

2023, had to deal with high levels of acute food insecurity in 2022 with a share that reached 22.7% of the population: the value highest in recent years (1).

Graph 3.1: % and tons out of the total imported products for developed countries/developing countries (Aug 2022-Jul 2023)

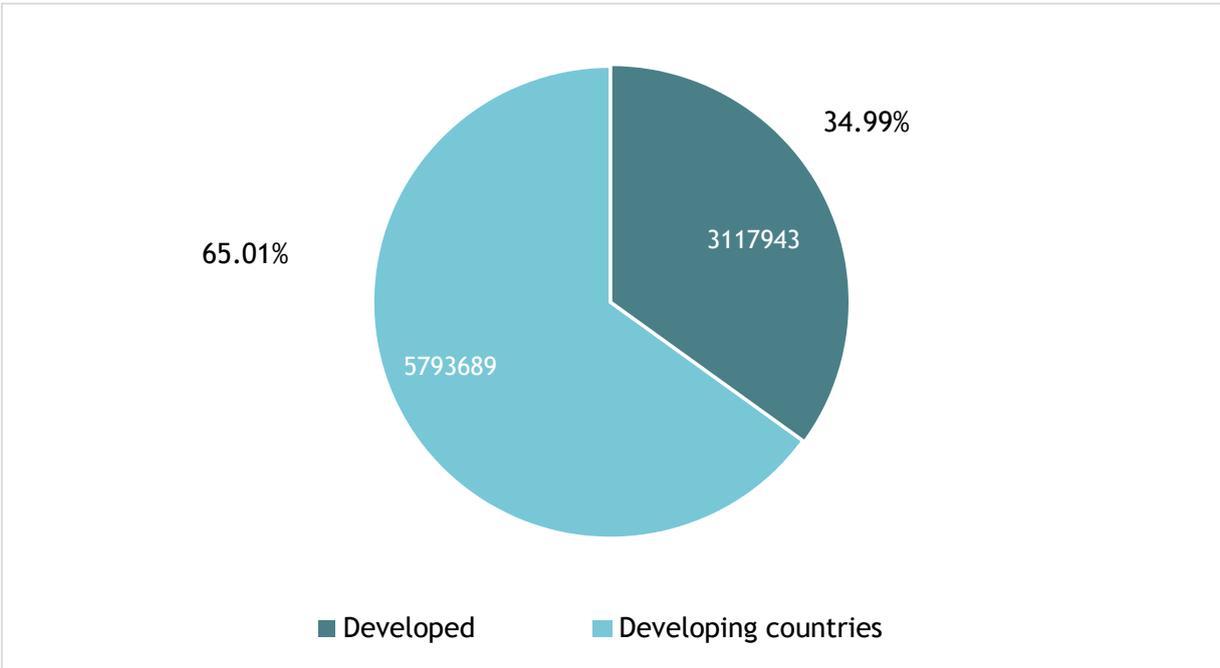


Source: Elaboration by the Divulga Study Centre on UN data

With over 18.8 million tons of agricultural products released in developing countries, the Agreement has undoubtedly contributed to easing the pressure on these areas, averting even deeper crises. This is 57.3% of the total exported from the Black Sea ports (graph 3.1).

Focusing the analysis only on the exports of soft wheat mainly intended for the production of bread in the poorest areas, and therefore crucial for the socio-economic stability of these areas, 65% of the exports of soft wheat from the Black Sea ports reached precisely these areas.

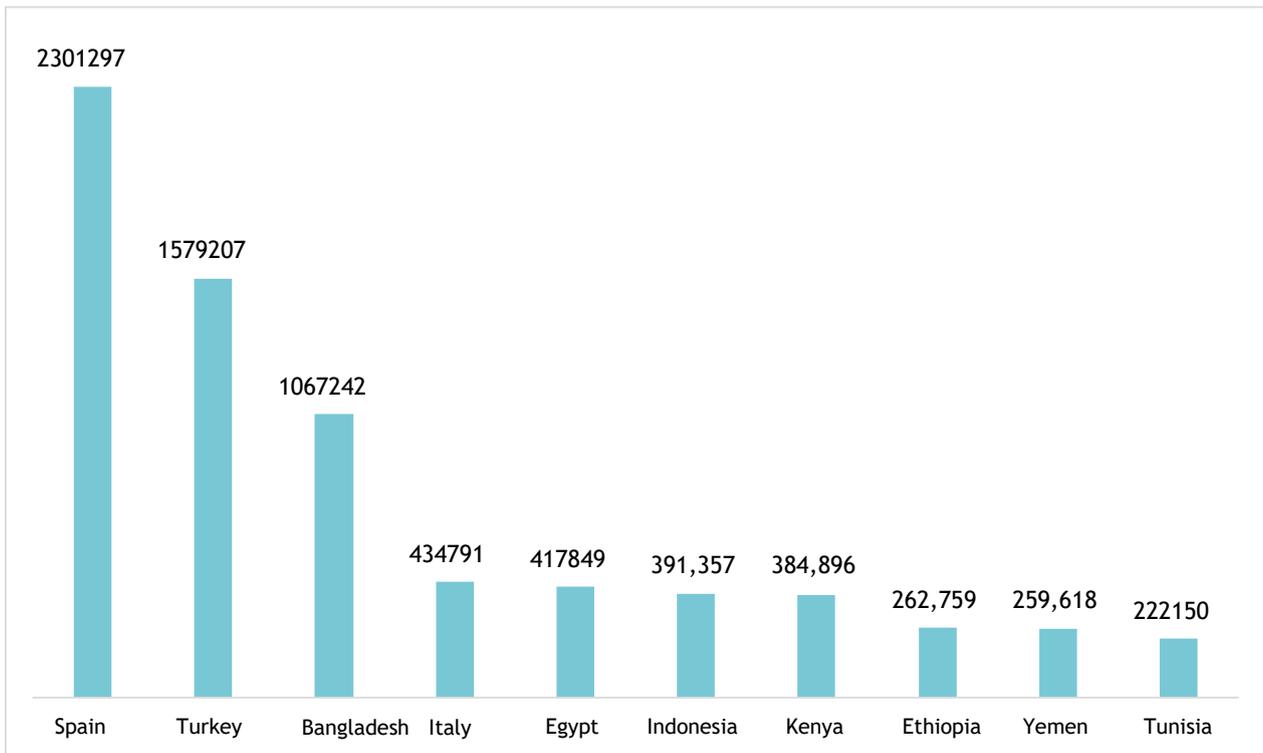
Graph 3.2: % and tons of imported wheat developed for countries/developing countries (Aug 2022-Jul 2023)



Source: Elaboration by the Divulga Study Centre on UN data

Among the top ten importers, seven have serious problems with access to food by the population. Among these are Bangladesh (1.1 million), Egypt (418 thousand), Indonesia (391 thousand), Kenya (385 thousand), Ethiopia (263 thousand), Yemen (260 thousand) and Tunisia with 222 thousand tons.

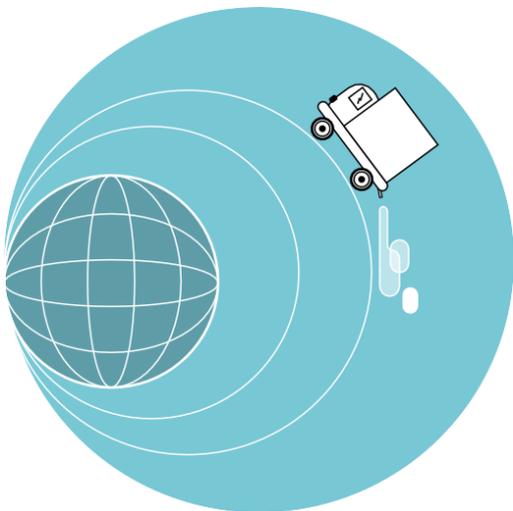
Graph 3.3: Ton. top 10 destination countries for grain from the ports of the Agreement (Aug 2022-Jul 2023)



Source: Elaboration by the Divulga Study Centre on UN data

If we take low-income countries into consideration, Ethiopia is the one that imported the most wheat thanks to the Agreement with 262 thousand tons, followed by Yemen with 259 thousand and Afghanistan with 130 thousand. However, among those with medium-low incomes, Bangladesh leads the ranking with almost 1.1 million tons, followed by Egypt with 417 thousand and Indonesia with 391 thousand. Failure to renew the Agreement could contribute to fueling internal pressures in countries with very precarious internal conditions of access to food. The concrete risk is that of seeing situations similar to those experienced between 2010 and 2013, when the sharp increases in bread prices resulted in a series of revolts and disorders that marked the so-called Arab Spring period. This was accompanied and followed by massive migratory flows which involved in particular the European countries bordering the Mediterranean and above all Italy.

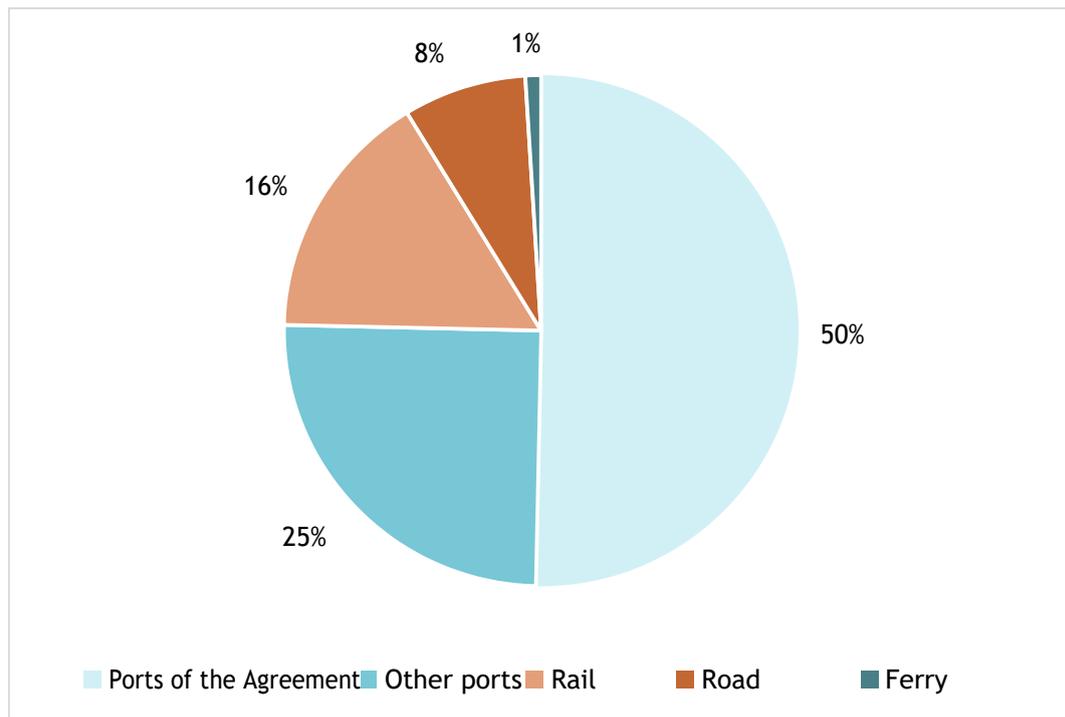
4.



4. Alternatives to the Black Sea

Before the war, 90% of Ukraine's agricultural exports were made by sea (2). The blockade of the Black Sea ports, which characterised the first 5 months of the conflict, paralysed Ukrainian exports throughout the world. As we can see from graph 4.1, the ports have guaranteed the export of 75% of agricultural products with 50% handled in the ports involved in the Agreement and 25% from other ports. The remaining 16% of exports were moved via the railway networks and 8% by road. In addition to the significant role of the Agreement, therefore, a good part of agricultural exports from Ukraine have been guaranteed thanks to the so-called 'Solidarity Corridors' established by the EU in May 2022 (2).

Graph 4.1: Methods of transporting agricultural products (Aug 2022-Jun 2023)



Source: Elaboration by the Divulga Study Centre on data from the Ukrainian Ministry of Agriculture and Ministry of Infrastructure

If a new agreement is not reached, Ukraine will probably be forced to shift its exports to longer and more expensive routes, first and foremost the Danube. The river could be the most viable route for Ukrainian food products, albeit with many difficulties. In fact, in addition to being a more expensive and longer route, the heat wave we are experiencing is also affecting the Danube area, lowering its water levels and making navigation more complex (3). In addition to the Danube, Ukrainian exports could flow into the land and rail routes supported by the so-called 'Solidarity Corridors' (4) established by the EU in order to facilitate Ukraine's food exports via various land routes. The latter, however, are put to the test by requests for limitations on Ukrainian wheat exports from several Eastern European countries, such as Poland, Bulgaria, Romania, Slovakia and Hungary, which suffer the inevitable depression of internal prices (5).

5.

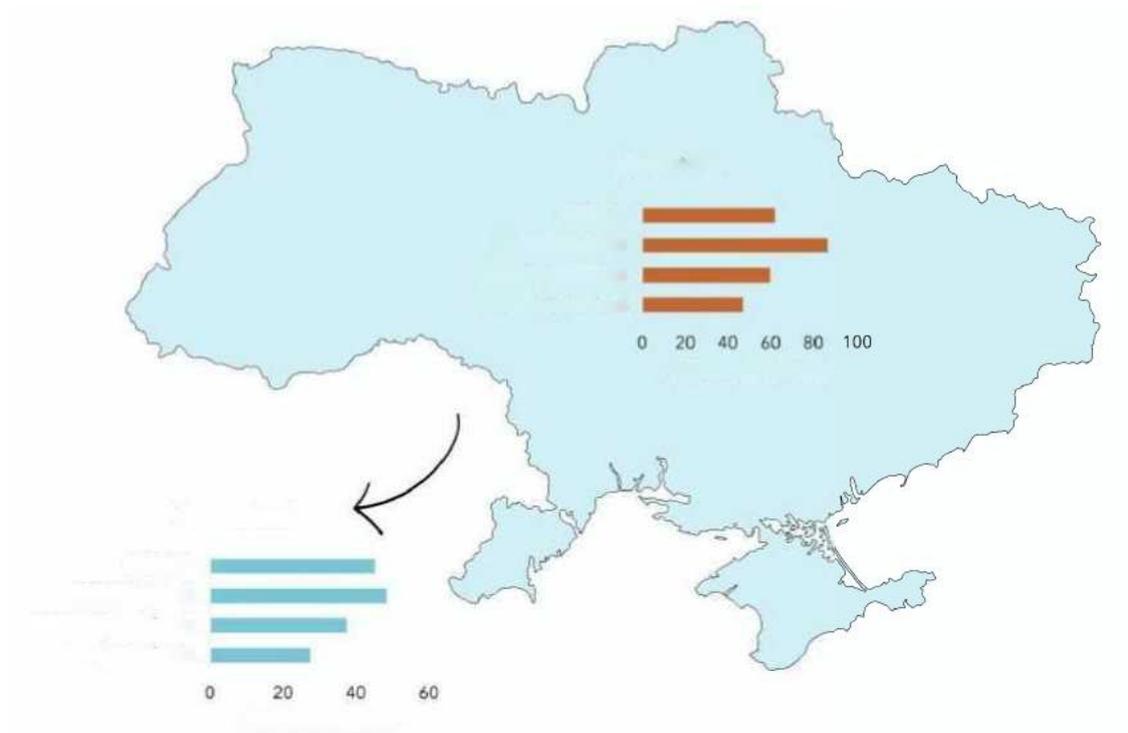


5. The food war

In recent months, Ukrainian agricultural production has progressively weakened. War operations have inevitably weakened the national production potential. In

2022, 22% less land was sown in Ukraine with a loss of 2 million hectares equal to almost the entire surface area of Belgium (2).

Image 5.1: Ukraine production and exports (2020-2023, million tons)



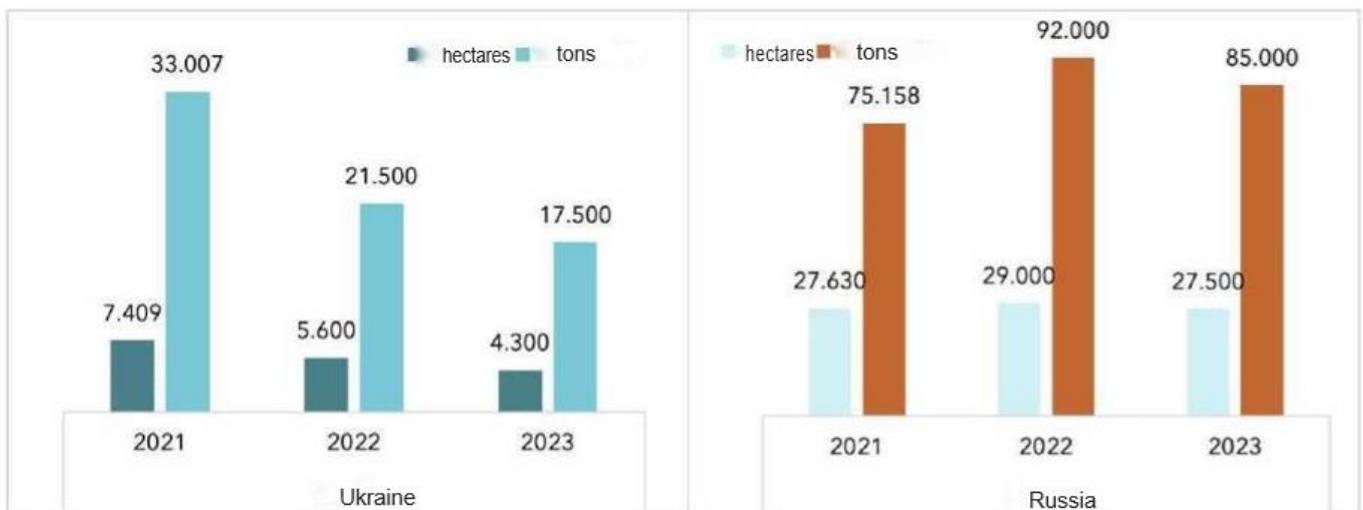
Source: EU Council

5.1 Grain

Going into the detail of individual productions, for wheat the estimates for the year 2023 confirm a setback with a 42% drop in surface areas compared to 2021, the period before the conflict and a related production collapse of 47%. Ukrainian wheat production could reach the minimum value of 17.5 million tons in 2023 compared to a production of approximately double

recorded in 2021. In the same period, Russia recorded an inverse trend with an increase in production of 13% although the surface areas remained almost stable compared to the pre-war period. An increase in yields that brought Russian production to 85 million tons of wheat produced in 2023, with an increase of 10 million tons from 2021.

Graph 5.1: Grain areas and production in Ukraine and Russia (2021-2023, thousands)

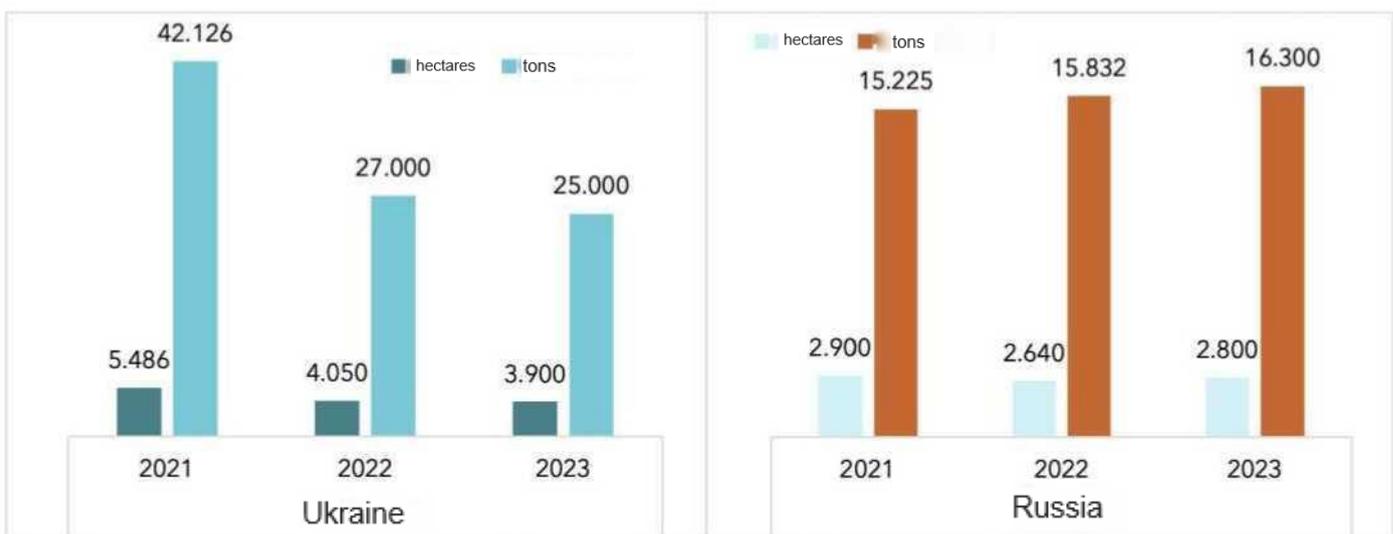


Source: Elaboration by the Divulga Study Centre on USDA data

5.2 Corn

It is a similar discussion regarding corn production. Also in this case, Ukraine has recorded a drop of more than 40% in production, compared to pre-conflict times, from a cut of around 30% in cultivated areas in the same period. The Ukrainian setback corresponds to a growth in Russian corn production of 7% with 16.3 million tons.

Graph 5.2: Corn areas and production in Ukraine and Russia (2021-2023, thousands)



Source: Elaboration by the Divulga Study Centre on USDA data

5.3 Sunflowers

There was also a setback for sunflower seeds, oil and cake, for which Ukraine was the main exporting country in the world with over 1/3 of global exports before the invasion. The war operations have generated a reduction in

30% in production also fueled by a 15% contraction in cultivated areas. The decline in Ukrainian production corresponds to a 6% increase in the Russian product, attributable to an improvement in yields as the surface areas remain stable.

Graph 5.3: Surface areas and production of sunflower seeds, oil and cake in Ukraine and Russia (2021-2023, thousands)

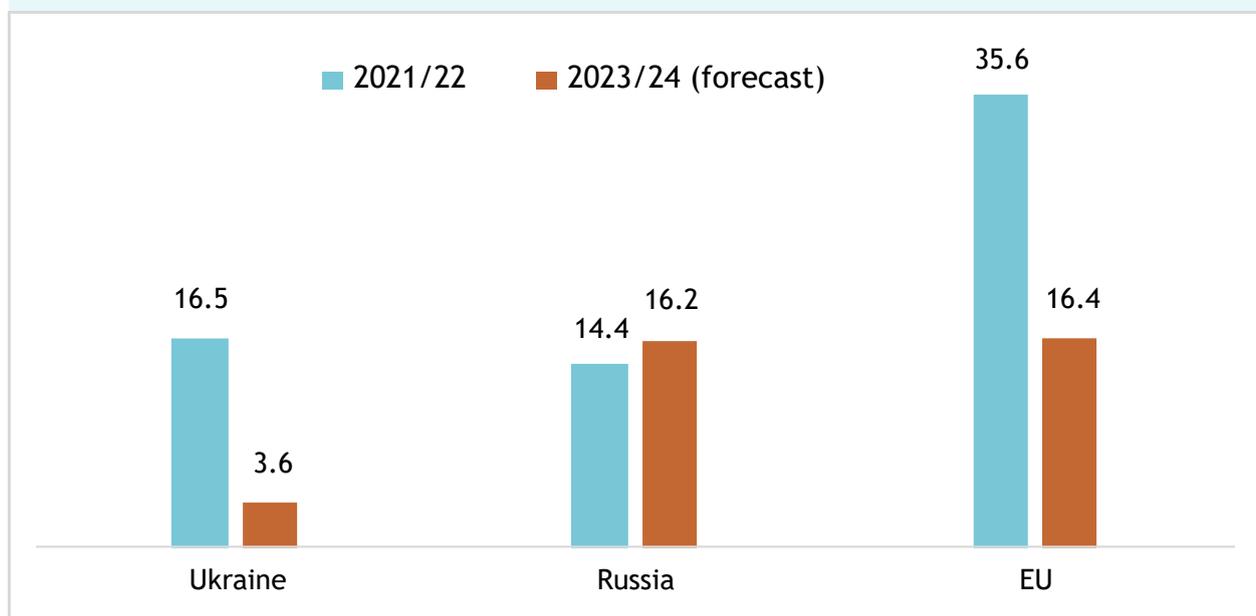


Source: Elaboration by the Divulga Study Centre on USDA data

Box 2: Stocks

The production difficulties in Ukraine come in a period characterised by a decline in cereal stocks worldwide which has seen a reduction of 4% compared to the pre-war period and with values close to the minimum levels in the last decade. Uncertainty on international markets, together with war operations, have inevitably affected these dynamics, with Ukraine being forced to empty its silos in recent months also due to energy interruptions which did not allow the refrigeration of stocks. The 2023/2024 forecasts for Ukrainian cereal stocks see a 78% drop in quantities compared to before the outbreak of the conflict, while Russia records an increase of 13%. EU availability also showed a negative figure, recording -54% compared to the year before the conflict.

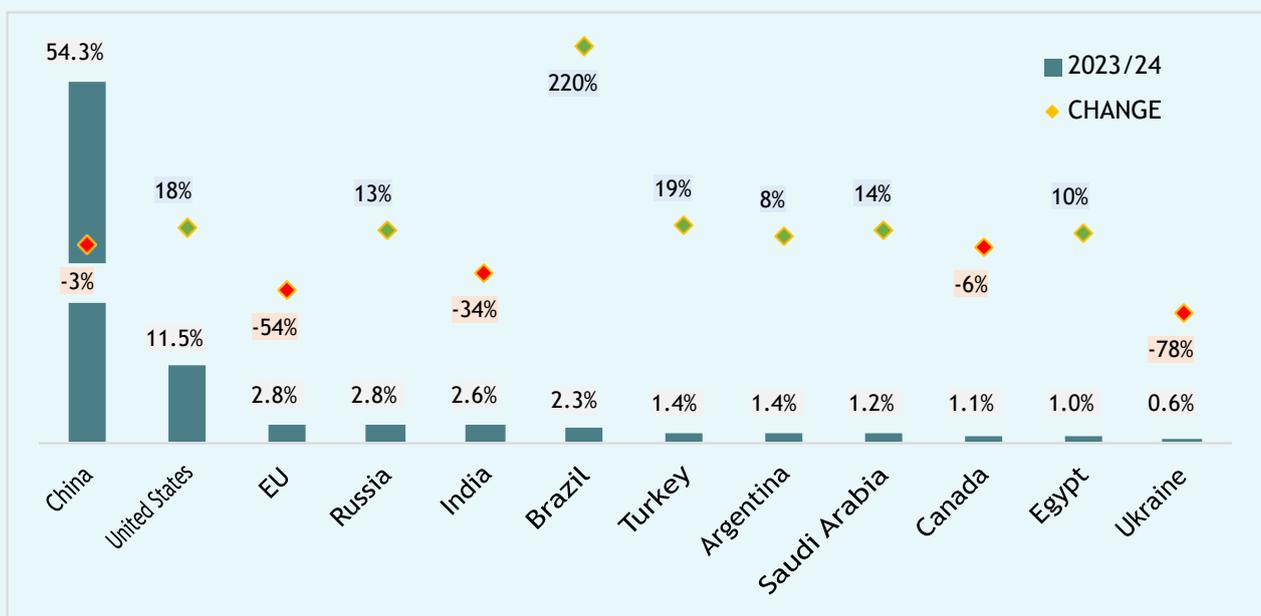
Graph 5.4: Stocks: Ukraine, Russia and EU (million tons)



Source: Elaboration by Divulga Study Centre on International Grains Council (Igc) data

The value of Ukrainian stocks will reach the minimum value of 3.6 million tons in 2023/2024 compared to the 11 million tons recorded 10 years ago. Most of the world's stocks remain the prerogative of China which alone holds over 54% of global cereal stocks. Next in the ranking are the United States (11.5%), the EU (2.8%), Russia (2.8%), India (2.6%) and Brazil (2.3%). From these data it is clearly evident how these months of conflict have contributed to redesigning the geography of world supplies.

Graph 5.5:% Cereal stocks (excluding rice) out of the World total



Source: Elaboration by Divulga Study Centre on International Grains Council (Igc) data

Going into more detail, it should be noted that China holds 53.5% of wheat stocks, followed by the EU (6.2%), the United States (5.4%) and India (4.6%).

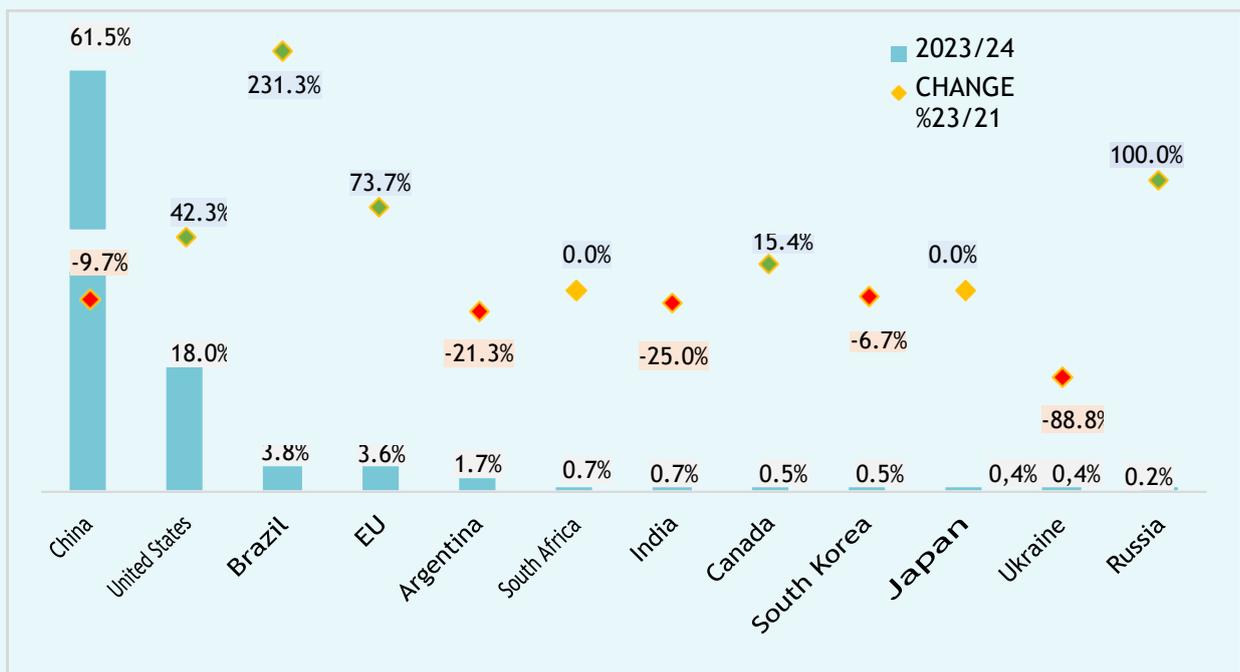
Graph 5.6: % Wheat stocks out of the World total



Source: Elaboration by Divulga Study Centre on International Grains Council (Igc) data

Also for corn, China holds the largest quantities of stocks equal to 61.5% followed by the United States (18%) and Brazil (3.8%). Since the outbreak of the conflict, there has been an 89% drop in Ukrainian stocks while Russia has doubled its quantity.

Graph 5.7: % Corn stocks out of the World total



Source: Elaboration by Divulga Study Centre on International Grains Council (Igc) data

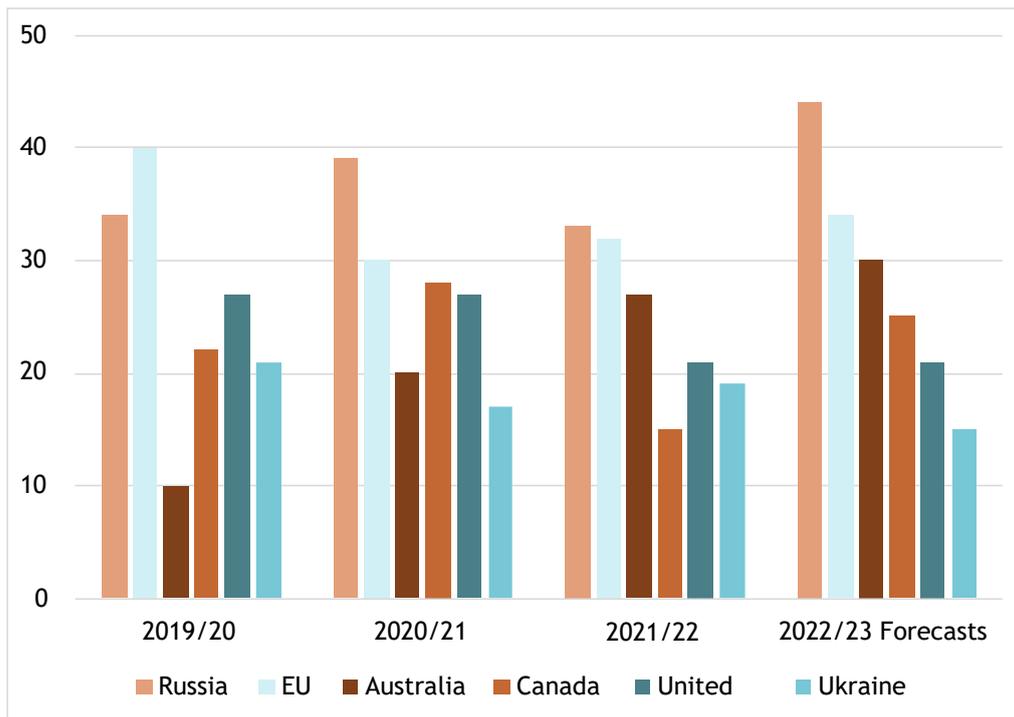
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6. The new geographies of export

Moscow's declared objective is to expand its influence on African and Middle Eastern countries, which are particularly vulnerable and dependent on international supplies of cereals. USDA estimates predict a record value for Russian wheat exports of 45 million tons in 2022/23, up 36% compared to the previous year and 3.5 million tons more than the record recorded in 2017/18. Values well above the second largest wheat exporter, the EU (6).

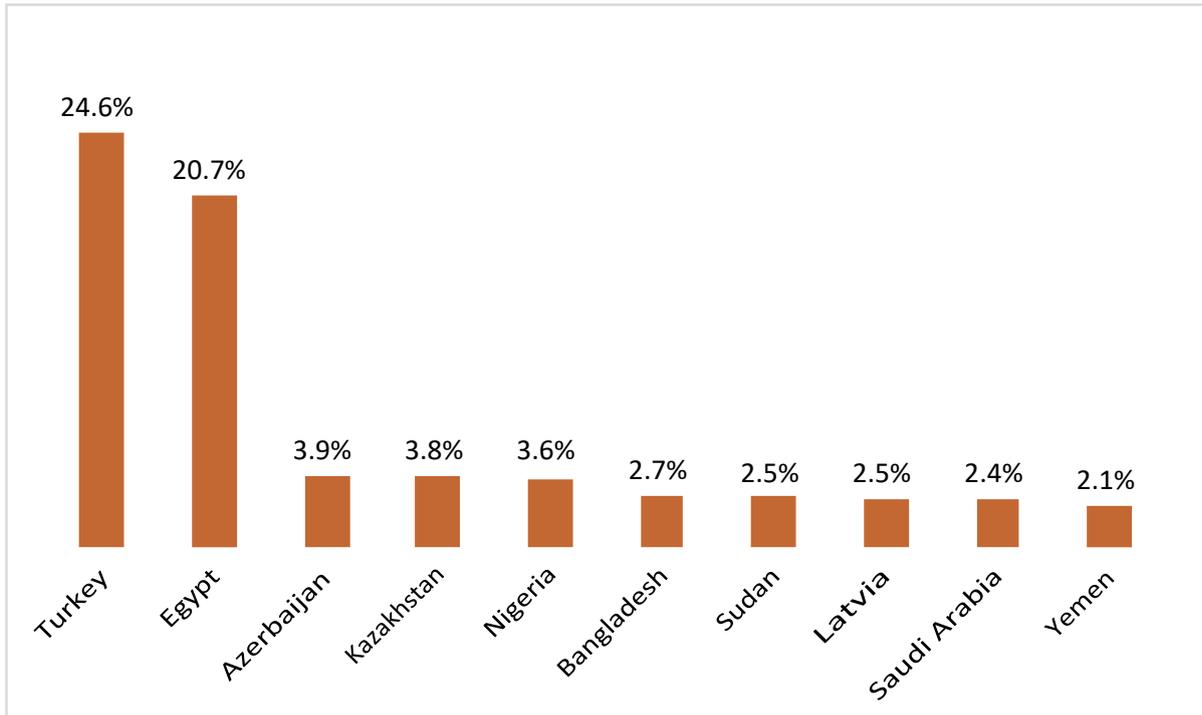
Graph 6.1: Global wheat exports (000 tons)



Source: Elaboration by the Divulga Study Centre on USDA data

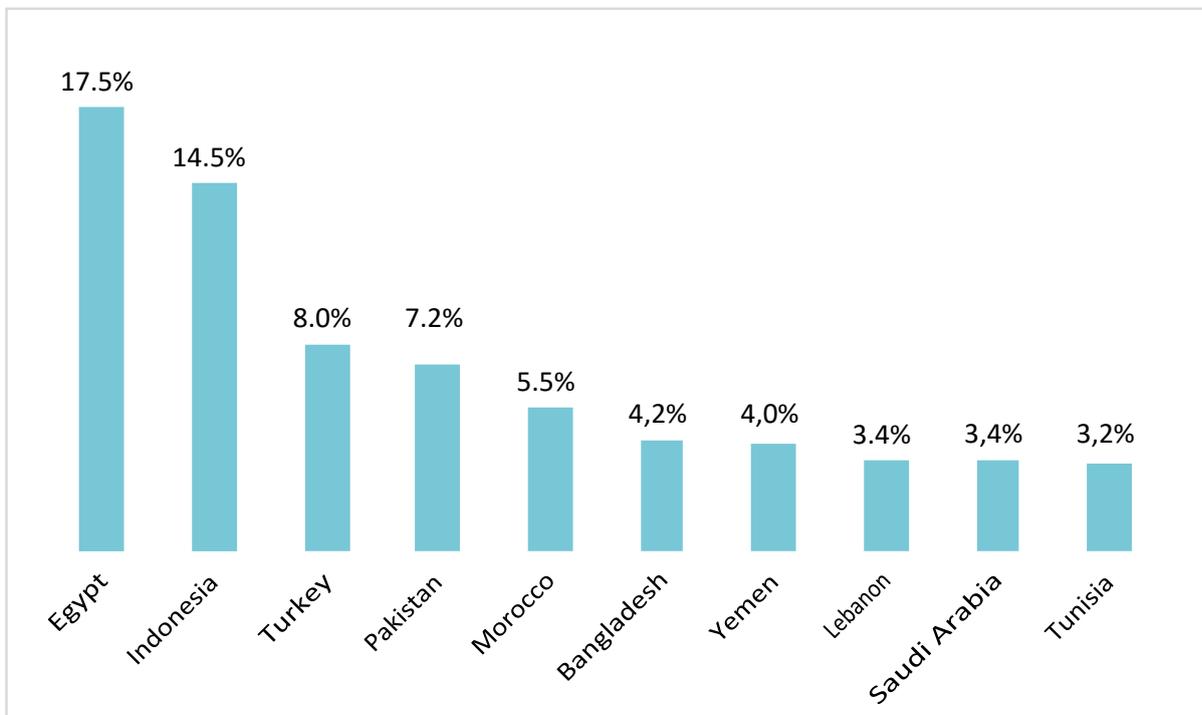
According to FAO data, in the top 10 of Russian wheat exports we find two large Mediterranean countries such as Turkey and Egypt, which together cover approximately half of the total (45.3%) (graph 6.2). The same two countries channel 25.5% of Ukrainian wheat and together with Indonesia (14.5%), Pakistan (7.2%) and Morocco (5.5%) represent just over half of the volumes exported by the country (graph 6.3).

Graph 6.2: Wheat export destination Russia (weight %)



Source: Elaboration by the Divulga Study Centre on FAO data (2021)

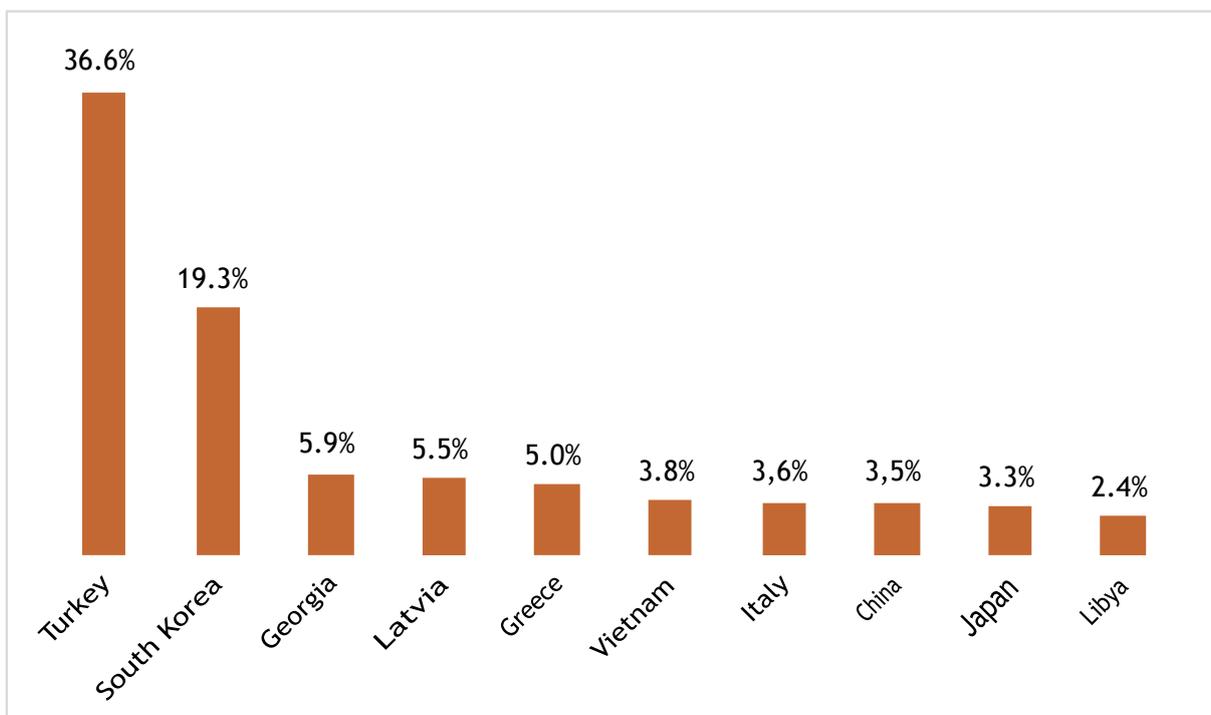
Graph 6.3: Wheat export destination Ukraine (weight %)



Source: Elaboration by the Divulga Study Centre on FAO data (2021)

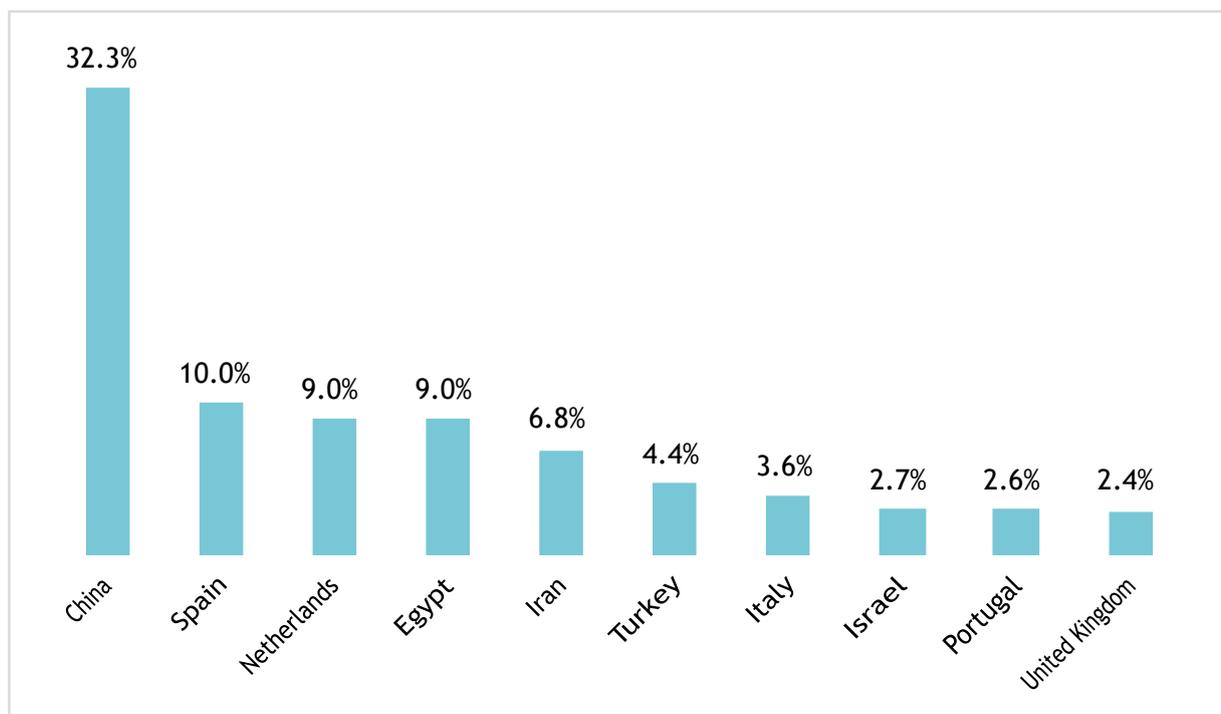
For Russian corn, the first destination is Turkey which alone covers more than a third of the total (36.6%), followed by South Korea (19.3%) and Georgia (5.9%) (graph 6.4). For Ukraine, approximately a third of the corn is sold in China (32.3%) followed by Spain (10%), the Netherlands and Egypt (9% for both) (graph 6.5).

Graph 6.4: Corn export destination Russia (weight %)



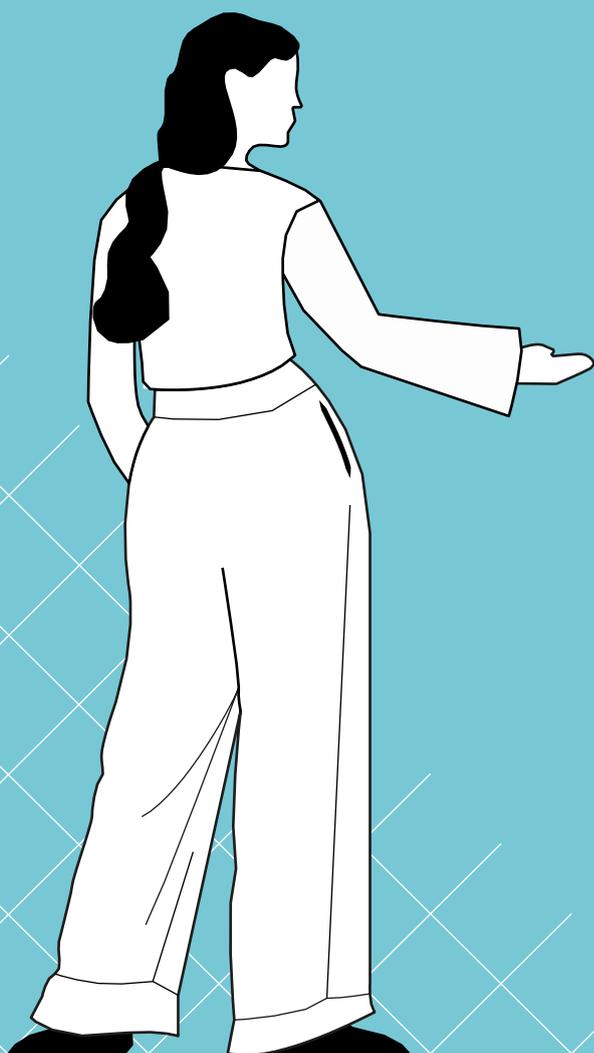
Source: Elaboration by the Divulga Study Centre on FAO data (2021)

Graph 6.5: Corn export destination Ukraine (weight %)



Source: Elaboration by the Divulga Study Centre on FAO data (2021)

b.



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