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Short communication

Cereals market: a focus on Italian import and price volatility in a war period

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Abstract. The conflict between Ukraine and Russia raises several questions and uncertainty about the cereal supply chain and market trends. This international crisis and other factors influencing the market, such as the environmental and climate ones, have placed greater attention on Italy's dependence on foreign countries for some important products for our agri-food industry, including cereals and feed for the livestock sector. The Italian pasta industry, as well as bakery products, need a constant and large supply of wheat, which often comes from foreign markets. This also applies to the livestock sector, with relevant imports of raw materials from abroad for the feed sector. International events also affected Italian cereal imports, although Italy does not strongly depend on the Black Sea for these products. This article provides an analysis of the Italian import of cereals in the recent period when market instability linked to the conflict and other factors emerged. The study also focuses on the forecast for the future and on the role of price dynamics.

Keywords: cereal prices, cereal products, Italian imports, forecasting, Black Sea Grain Initiative.

JEL codes: F01, F51, Q11.

HIGHLIGHTS

- The international crisis has further highlighted Italy's dependence on foreign countries for cereals.
- International events also affected cereals' Italian imports, especially on the price side, although Italy does not strongly depend on the Black Sea.
- International cooperation between countries is becoming increasingly important to face current and future challenges.
- Caution must be employed in forecasting cereals production and prices because different events cause uncertainty.

1. INTRODUCTION

The COVID-19 pandemic and the war in Ukraine created significant challenges such as price volatility, sudden price hikes and supply chain disruptions, including food staples both for developed and developing countries.

Russia and Ukraine are key suppliers of wheat globally with a share of 28% in 2021 (FAO, 2022). The conflict drastically reduced the supply of wheat exports from these regions until the signing of the Black Sea Grain Initiative¹ (Mottaleb *et al.*, 2022).

The negative impacts of the conflict, specifically on energy, fertilizer and feed prices, and the consequence of food price inflation affecting consumer decisions, with purchasing power decreasing globally due to the economic slowdown is well-known (Benhassi, El Haiba, 2022; Fang, Shao, 2022). In 2021 Russia was the world's top natural gas exporter, second-largest oil exporter, and third-largest coal exporter (IEA, 2023). Russia is also the world's top exporter of nitrogen fertilizers and a leading supplier of potassic and phosphorous fertilizers (FAO, 2022) with a share of more than 15% of global fertilizer exports in 2020 (UNCTAD, 2022). Many European countries import a significant share of their energy from Russia, such as natural gas (35%), crude oil (20%) and coal (40%) (World Bank, 2022). Inputs-costs are continuing to be above average, although energy and fertilizer prices have started to slow down. Russia's aggression against Ukraine with the actions taken in response to the aggression have significant implications both on the supply and demand side given the role of these economies in the global agricultural and input markets. Reduced cereals and oilseeds export availability from Ukraine hiked up international food and feed prices, and global energy and fertilizer prices.

The agri-food sector is strictly related to energy and fertilizer prices which, as stressed, have an impact on the contribution to food price increases. However, several actions such as the suspension of import duties and quotas on Ukrainian exports to the European Union (EU), as well as the Solidarity Lanes and the Black Sea Grain Initiative have eased trade by alleviating economic pressure (EC, 2023). As pointed out in the World Bank Outlook (2022), prices changed for key food and non-food commodities. Since April 2022, the world crude oil price increased by almost half, palm oil and wheat prices rose by two-thirds and natural gas and fertilizer prices have more than doubled. Whilst maize and rice prices were less affected by the crisis, with world rice prices declining over the year. Prices increased after the conflict, even though the fertilizer price increase happened before the start of the war because of the export ban imposed by China (Hebebrand, Laborde, 2022).

Global agriculture also is facing another important challenge in terms of capacity for resistance and adapt-

ability to the impacts caused by several phenomena of climate change. The "La Niña" climatic pattern in the Pacific Ocean has affected most of the EU regions and winter droughts have deteriorated water availability in areas where water recorded new low flow levels. Extreme weather events are becoming more frequent, increasing uncertainty in agriculture. The causes of grain yield variations and prices around the world are a research topic of primary interest also considering recent market shocks. Scholars are more often investigating the extent to which grain prices were affected by climate variability or mediated through climate-influencing factors (Steen *et al.*, 2023; Kumar, 2022; Ljungqvist *et al.*, 2022).

The international crisis and other factors – such as the environmental ones – influencing the market, have placed greater attention on Italy's dependence on foreign countries for some productions that are important for the Italian agri-food industry, including cereals, vegetable oils and animal feed. International events also affected Italian cereal imports, although Italy does not strongly depend on the Black Sea for these products.

Italy is particularly interested in global market cereals trends, given its foreign dependence on raw materials for relevant industries such as pasta and cereal derivatives. The total export of cereal derivatives exceeded six billion euros in 2022, more than 13% of all Italian agri-food exports. Pasta is a "Made in Italy" product that is constantly growing on international markets. Italy is the first pasta-producing country with 3.5 million tons per year and more than 100 mills dedicated exclusively to milling durum wheat of the over 300 that process wheat. Added to these, there are 120 pasta-producing companies, many with centuries-old traditions, which employ over 10,000 people. In 2022, the Italian export of pasta reached a record value of 2.8 billion euros, equal to about two million tons. Exports to EU countries are about half of the total, and other important markets are North America and Asia. Germany, the United Kingdom, the United States of America (USA) and France are the main destination markets, accounting for over 50% of Italian exports.

Concerning the effect of the energy crisis, Arzeni *et al.* (2022), using Italian FADN (Farm Accountancy Data Network) data, identified and quantified the different components of production costs. From the analysis an increase in the durum wheat production costs, energy and fertilizers ones clearly emerged. The authors also observed the effects on the Italian farms' economic performance in the first months of the conflict. These costs surged, showing a percentage increase in current costs between 76% and 80%.

Within this perspective, the aim of this short communication is twofold: a) providing an overview of the

¹ The Black Sea Grain Initiative was a deal brokered between Russia and Ukraine by the United Nations and Turkey, signed in Istanbul on 22 July to safely export grain from certain ports of Ukraine.

major cereals' prices and trade evolution, at both international and national level; b) offering an analysis of the effects of the international crisis on cereal imports by Italy. The manuscript is organized in the following sections. Section 2 focuses on the international cereals markets; section 3 shows data on the Italian import of cereal products; section 4 gives an overview of international prices, and the final section includes discussions and some lessons learned.

2. INTERNATIONAL CEREALS MARKET OVERVIEW

According to data from the International Grains Council (IGC), world cereals production amounted to 2,270 million tons in the year 2021/2022, a value that has increased over the last few years (Table 1). Maize is the main cereal by production volume, amounting to more than 1,180 million tons in the reference year. Much of the maize produced is used in animal feed, rather than for human consumption or industrial use. Over a third of cereal production is wheat, with over 780 million tons in 2021/2022. Unlike maize, most of the wheat produced is intended for human consumption. Maize and wheat represent most cereals produced worldwide (86.7%), followed by barley, with more than 180 million tons produced in 2021/2022, used mainly as animal feed.

According to the OECD/FAO Outlook (2022), over the next decade cereal production is expected to increase by 343 million tons (+12%). Almost half of this increase will come from maize, while wheat and rice account for about 20% each, and 10% is other coarse grains. More than half of the increase in wheat will originate in India, Russia and Canada. The USA, China and Brazil account for more than half of the increase in maize production.

The majority of world cereal production in 2021/2022 was concentrated in three areas: the USA, with around 440 million tons, China with 419 million and the EU, where cereal production was just over 291 million tons (OECD/FAO, 2022). Overall, about half of the world's cereal production and consumption (food, industry and seeds) flow from these three areas. Other areas playing a notable role in the production and export of cereal products are India, with over 160 million tons produced, and Russia with 114 million tons.

Globally, about 18% of cereal production is traded internationally, ranging from less than 3% for rye to 24% for wheat (IGC, 2023). Trade in cereals presently accounts for about 18% of global consumption and is projected to marginally increase by 2031. It is an important source of food and feed for importing countries. The share of traded cereals production is projected to marginally increase by 2031, largely due to wheat and rice. In volume terms, net cereal surpluses and deficits show a clear regional pattern (OECD-FAO, 2022). Traditionally, the Americas and Europe supply cereals to Asia and Africa, where rising food demand from growing populations and higher feed demand from expanding livestock sectors means that demand will expand faster than domestic production (OECD-FAO, 2022). Russia was the main wheat exporter in 2021/2022, with almost 36 million tons exported (Table 2).

Over the past five years, Russia and Ukraine accounted on average for 10% and 3% of world wheat production respectively (OECD, 2022). These two countries are the first and fifth exporters of grain with a share amounting to 20% for Russia and 10% for Ukraine. The role of these countries as grain suppliers to global markets is well established, especially in developing countries. Most of the smaller emerging econo-

Table 1. World supply and demand of grains, 2021/2022 (million tons)

Product	Opening stocks	Production	Total supply	Use				Exports	Closing stocks
				Food	Feed	Industrial	Total a)		
Wheat	292.1	782.2	1,074.3	538.1	145.6	23.3	769.4	183.1	304.9
Maize	274.6	1,184.8	1,459.4	133.0	705.9	314.8	1,195.5	186.6	263.8
Barley	31.7	151.3	183.0	7.3	104.0	30.6	153.0	29.5	30.0
Sorghum	5.8	62.9	68.7	31.5	5.6	24.0	63.0	7.8	5.8
Oats	3.8	25.7	29.6	5.6	17.0	0.1	25.3	2.5	4.3
Rye	1.5	13.7	15.2	6.5	5.0	1.5	13.7	0.4	1.5
Other Grains	6.4	48.5	54.9	23.1	19.4	1.2	48.2	0.3	6.7
Total Grains	615.9	2,269.1	2,885.0	745.0	1,002.5	395.5	2,268.1	410.1	616.9

a) Including seed and waste.

Source: IGC, 2023.

Table 2. Wheat and maize world trade (million tons).

Wheat			
Exports		Imports	
	2021/2022		2021/2022
Russia	35.7	Far East Asia	57.9
EU	28.0	of which Pacific Asia	46.2
USA	26.0	Africa	55.1
Canada	25.0	Near East Asia	25.8
Ukraine	18.0	S America	15.5
Australia	16.3	N & C America	12.5
Argentina	14.2	Europe	8.2
Kazakhstan	6.8	CIS	7.4
Eight major exporters	170.0	Oceania	1.1
Others	13.1	Others	2.0
World Total	183.1	World Total	183.1
Maize			
Exports		Imports	
	2021/2022		2021/2022
USA	63.2	Far East Asia	68.8
Brazil	38.1	N & C America	28.8
Argentina	32.6	Africa	25.1
Ukraine	31.1	Near East Asia	23.3
Four major exporters	165.0	Europe	22.7
EU	2.9	S America	16.6
Canada	1.5	Cis	0.4
Others	17.1	Others	0.9
World Total	186.6	World Total	186.6

Source: own elaboration from IGC (2023).

mies and developing ones depend heavily on Russian and Ukrainian supplies. African countries, developing Europe, and the Middle East import wheat from Russia and Ukraine. Developed countries mainly the USA, Australia, Canada, and the EU, are not reliant on Russia and Ukraine products, being themselves major suppliers of grains and oilseeds (World Bank, 2022).

3. ITALIAN IMPORT OF CEREALS PRODUCTS IN A WAR PERIOD

The international crisis has further highlighted Italy's dependence on foreign countries for some important

products for our agri-food industry, including cereals and feed for the livestock sector. The Italian pasta industry, as well as bakery products, need a constant and large supply of wheat, which often comes from foreign markets. This also applies to the livestock sector, with relevant imports of raw materials from abroad for feed. Russia and Ukraine are among the world's leading exporters of cereals and products for the feed industry, and the current crisis is inevitably having consequences on the availability and prices of these raw materials.

The degree of self-sufficiency is computed as a percentage share of domestic production compared to estimated domestic consumption. This index is particularly low for common wheat and maize, around 35-40%. For maize, due to a sharp increase in imports in recent years, there is a further erosion of the level of self-sufficiency. For durum wheat this index is higher and improving (70%); however, it is still far from self-sufficiency and the recent domestic price decline could worsen this situation due to possible fewer plantings and available production. For all these products, Italian exports are marginal.

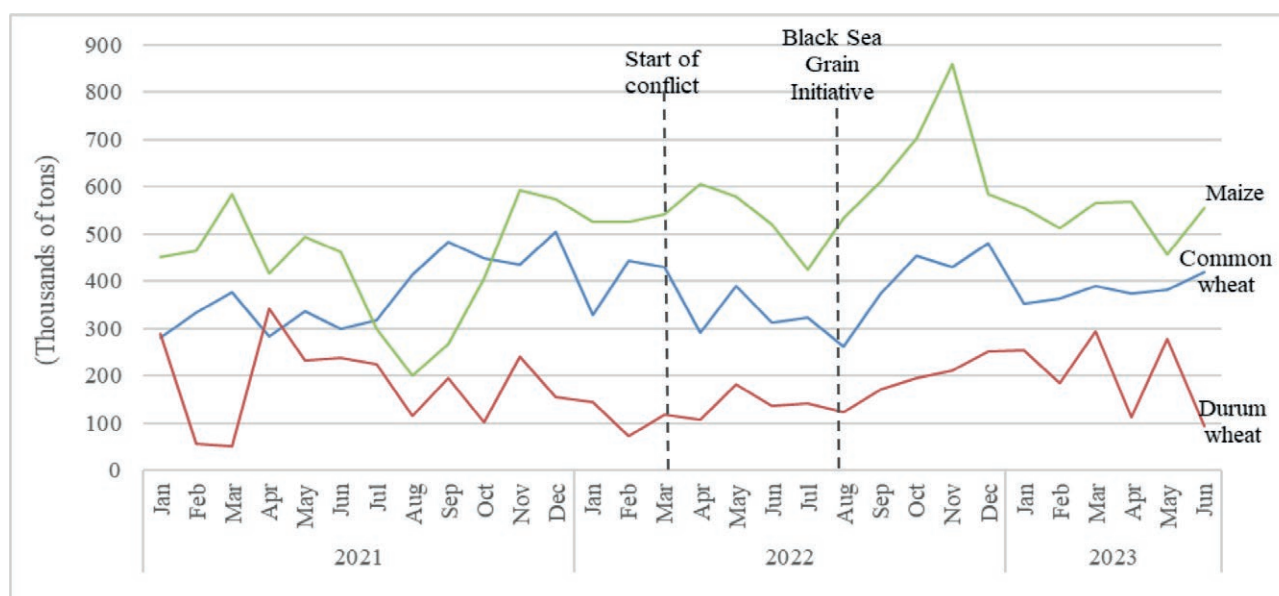
In 2022 Italy imported over 14 million tons of cereals, for a value of 4.9 billion euros. These are mainly maize and wheat, which together represent over 93% of foreign cereal purchases. Due to the increase in international prices, in 2022 the value of Italy's cereal imports rose by over 50% while imported volumes by only 12%. Driving this trend are maize imports which, after the decline in the last two years, are rising by over 80% in value and 30% in volume compared to 2021 (Table 3). Also, for other cereals, there is a strong misalignment between the trend in value, clearly growing, and quantity, essentially stable compared to 2022 (slow down for durum wheat). Two issues are emerging: on the one hand, the aforementioned increase in import prices drives the dynamics of trade value in the last year, on the other, we observe how, even in a year characterized by conflict and market instability, the cereal supply to Italy does not seem to be affected². The monthly analysis of the Italian cereal imports also confirms this trend (Figure 1). Indeed, after a supply contraction in the first months since the start of the conflict, as early as July, in conjunction with the signature of the Black Sea agreement and the market tensions easing, the supply trend is back in line with 2021. Therefore, both the agreement and other initiatives put in place to limit the effects of the conflict on commodities have generated some beneficial effects. In particular, the EU has become a key

² The only drop in quantity, linked to various factors, is that of durum wheat imports, for which the role of supplier worldwide and for Italy is marginal.

Table 3. Italy's import of cereals (excluding sowing), 2019-2022.

Product	Values (Million Euros)				Quantity (Thousands of tons)			
	2019	2020	2021	2022	2019	2020	2021	2022
Durum wheat	618.5	798.4	721.3	912.5	2,413.8	3,025.5	2,239.3	1,848.0
Common wheat	925.9	864.6	1,097.4	1,556.3	4,573.2	4,355.4	4,506.1	4,512.5
Rye, barley, and oats	95.9	86.1	140.3	199.8	517.3	505.6	670.9	753.2
Maize	1,042.6	977.9	1,119.8	2,116.1	6,297.5	5,975.3	5,209.3	7,012.1
Paddy rice	17.6	8.9	18.6	26.2	49.2	19.1	48.6	41.3
Other cereals	43.9	52.9	48.3	89.8	143.4	176.1	113.0	189.9
Total cereals (excl. sowing)	2,744.4	2,788.7	3,145.7	4,900.6	13,994.3	14,056.9	12,787.1	14,356.9
Weight % on Agri-food imports	6.2%	6.6%	6.5%	7.9%				

Source: own elaboration on ISTAT, Commercio estero.

Figure 1. Italian import trends of common wheat, durum wheat and maize.

Source: own elaboration on ISTAT, Commercio estero.

importer and transshipment point for Ukrainian grains under the Solidarity Lanes initiative and the zeroing of import duties on these products from Ukraine (USDA, 2023). However, these initiatives also produced political tensions in Eastern Europe. The high quantities of Ukrainian cereals arriving in neighbouring countries, such as Poland and Hungary, and the resulting damage to local farmers, have led to the application of import restrictions from Ukraine.

A further interesting aspect emerges from the analysis of the cereal sector's weight on the total value of agri-food imports. This value has been 6-6.5% in recent years while in 2022 it reached 7.9%. Although the inflationary

dynamics in 2022 concerned the entire agri-food sector, both the cereal sector and seed oil were markedly affected by the increase in prices, given the global role of Russia and Ukraine as producers and suppliers. Added to this is the joint effect of other factors, such as the environmental and speculative ones as previously stressed.

The structure of Italy's main cereal suppliers did not undergo major changes after the start of the conflict. In 2022 for common wheat, Hungary, France, Austria, and Slovenia continue to concentrate more than half of imports (Table 4). Unexpectedly, the role of Ukraine is strengthened, thanks to the incentive measures put in place by the EU. This trend is also confirmed by the data

Table 4. Italy's main suppliers of durum and common wheat and maize (excluding sowing), percentage shares.

Durum wheat			Common wheat			Maize		
Countries	2021	2022	Countries	2021	2022	Countries	2021	2022
Canada	45.8%	32.9%	Hungary	22.6%	18.4%	Ukraine	15.1%	17.6%
France	6.8%	18.4%	France	15.7%	16.5%	Hungary	29.4%	17.5%
Greece	8.1%	14.7%	Austria	12.0%	9.4%	Brazil	2.4%	12.3%
Australia	17.5%	7.4%	Slovenia	8.0%	8.2%	Croatia	10.3%	12.2%
United States	6.8%	6.9%	Ukraine	2.7%	7.9%	Slovenia	11.3%	9.2%
Kazakhstan	3.4%	5.5%	Croatia	5.7%	7.7%	Romania	7.0%	8.1%
Austria	1.2%	2.6%	Romania	5.5%	6.5%	Austria	9.1%	6.1%
Turkey	1.7%	2.5%	Canada	4.4%	4.7%	France	3.8%	5.6%
Russia	2.6%	2.2%	Germany	5.2%	4.2%	South Africa	3.2%	3.0%
Slovakia	0.3%	1.8%	Kazakhstan	1.1%	3.7%	Republic of Moldova	0.7%	2.0%

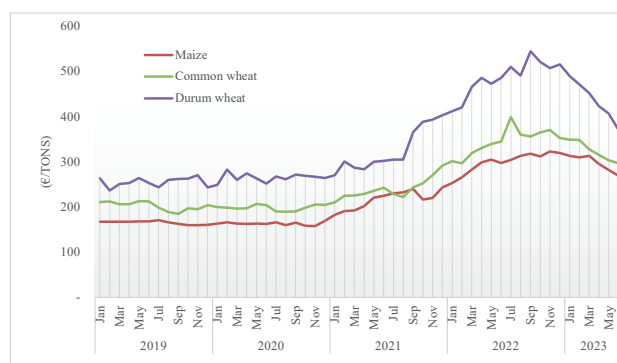
Percentage shares are calculated on quantities.

Source: own elaboration on ISTAT, Commercio estero.

for the first months of 2023, with a further increase in the percentage weight of Ukraine.

Canada remains Italy's reference market for the supply of durum wheat, although the volume share decreased significantly in 2022, going from 46% in 2021 to 33% in 2022. The weight of France as a supplier to Italy is growing sharply (18% in 2022), offsetting the lower flows from Canada, as already happened in 2019 (Figure 2). In 2022 France and Canada together supply more than half of our imports. Australia's role is downsizing, after the peak reached last year. The changes in the weight of durum wheat suppliers are mainly linked to aspects other than those generated by the conflict, primarily, the production trend in Canada. The excellent Canadian production of the last year is determining a further increase in Canada's weight as an Italian supplier in the first months of 2023; consequently, France and Australia reduce their role.

Ukraine, in addition to being among the main world exporters, is also a key actor as a supplier of maize to Italy. Ukraine in 2022 became Italy's top supplier of maize (excluding sowing), with 1.23 million tons, up sharply from 785,000 tons in 2021. This translates into a more than doubled value of imports, with a sharp increase in the average unit import value. In the first months of 2023, as already seen for common wheat, Ukraine's role as a supplier to Italy rises for maize. In 2022, also the role of Brazil as a supplier of maize to Italy has grown, reaching 12% equal to over 860 thousand tons. Brazil, offsetting the collapse of production in Argentina linked to drought, is also climbing positions worldwide among producers and exporters of cereal products, gaining from the scenario strongly conditioned by geopolitical tensions and climatic adversities.

Figure 2. Trend of the average unit value of Italian imports (€/Tons).

Source: own elaboration on ISTAT, Commercio estero.

The reduction of tensions in the international cereal markets since mid-2022 affected the average unit import values of these products, which after a first stabilization at the beginning of 2023 started to decrease. Despite this reduction, the values remain higher compared to the former period. Figure 2 shows a similar trend for all products. Although the conflict has worsened inflation dynamics, these were already underway since mid-2021, with several factors such as the bans imposed by China, post-COVID effects and speculations.

4. THE ROLE OF PRICES

Understanding the cereal prices dynamic is worthwhile for many actors. For the agricultural sector, cereals' sale is a source of revenue; for industries, they are input

Figure 3. Price trends of grains and oilseed from January 2022.

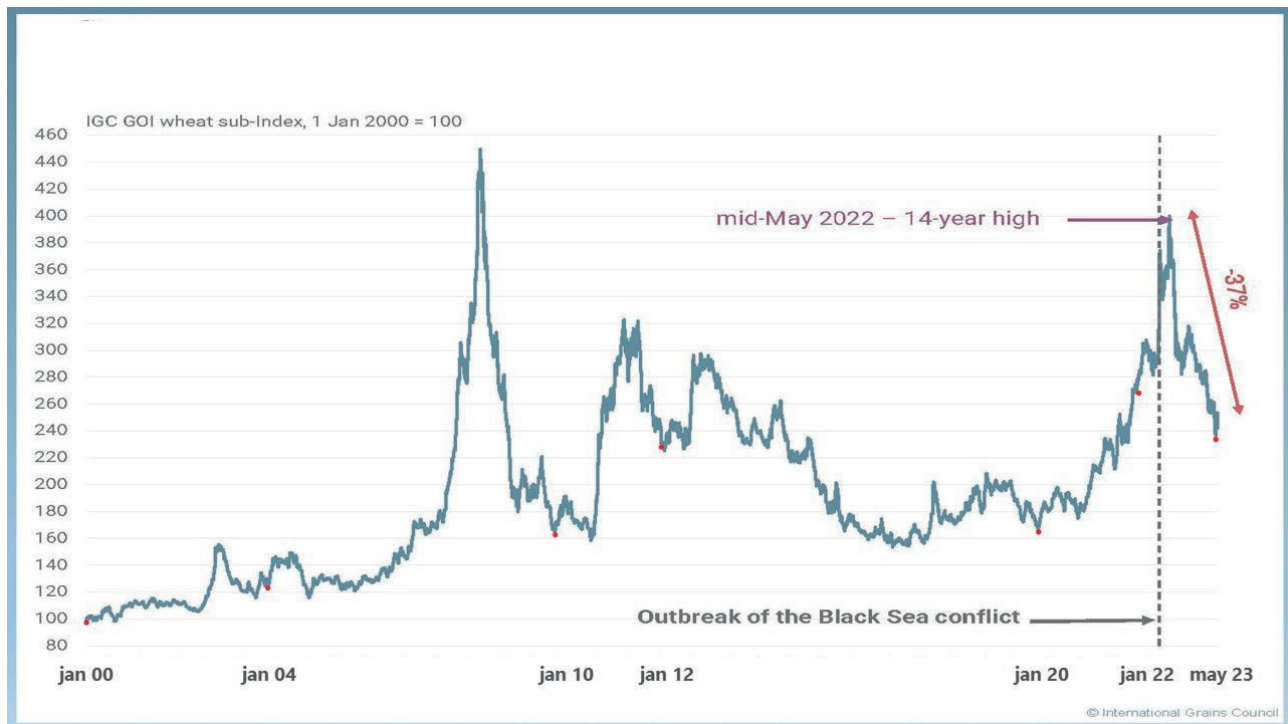
Source: IGC (2023).

in the production processes; for countries where cereals are a huge export portion, their prices impact key macroeconomic variables, such as the current account balance in terms of trade and exchange rates (Kwas *et al.*, 2022). Santeramo *et al.* (2018) proposed a critical and exhaustive review by supplying a different classification of grain price volatility drivers. By distinguishing between endogenous and exogenous causes the authors emphasized the contribution of endogenous factors in affecting price volatility. As the literature pointed out, seasonality impacts on barley and wheat real prices (Jumah, Kunst, 2008), as well as the link between food and energy prices or the fertilizer role and transportation costs particularly on the wheat market (Baffes, Haniotis, 2010). The interesting work of Haile *et al.* (2015) emphasized that reducing agriculture commodities' price volatility may positively affect food supply around the world, specifically in developing countries. Furthermore, they show how the linkage between energy and the financial market is related to volatility and this link can somehow undermine agricultural prices. Karali *et al.* (2020), show how fundamental supply and market news plays a relevant role in explaining cereal futures price movements.

A fall in international prices has been observed starting from July 2022; until this date, a daily increase

was seen mainly due to the Black Sea conflict. From July to March 2023, the market prices fell because of the Northern Hemisphere supply pressure, the currency movements, and the Black Sea Grain Initiative (Figures 3, 4 and 5).

Looking at the commodities level, we can observe that the wheat price index reported a downtrend (-38%) mainly due to weather worries in Argentina, Canada, the EU and the USA (Figure 5). If we go further at the disaggregated level, just two markets, Thailand for rice and Argentina for soybean meal, buck the trends. Generally, concerning maize, the IGC price index marked a decline (-28%), with a downside even in this case linked to seasonal weakness in South American markets (IGC, 2023). Cereal prices, such as wheat and maize, have fallen by a quarter from their record highs of a year ago. Wheat prices dropped by 3.5% in May. The cereal price index decline was mainly driven by a sharp reduction in maize prices which dropped by 21% (World Bank, 2023). Similarly, wheat prices with a 3% reduction, while rice prices increased by 1%. In comparison to last year, both maize and wheat prices slowed down by 19%, contrary to the rice prices which are 16% higher. The World Bank reports a comparison in prices with those of January 2021; from this perspective, maize prices

Figure 4. Wheat price historical index trend.

Source: IGC, 2023.

are 4% lower, and wheat and rice prices are 1% and 3% higher, respectively.

The IGC wheat index in Figure 4 shows the wheat prices' trend. A rebound is clear in January 2022 followed by a strong contraction in the months after. However, from a historical perspective, prices were generally high in the last two years.

Several factors and financial market pressures affect prices, above all cereal prices. Since September 2022, the US dollar has generally experienced a decline even if an upturn is reported recently. The depreciation in Argentina, Egypt, Pakistan, and Russia affected too, as well as the price of crude oil falling by 40% starting from March 2022. The world economy faced a sharp rise in the inflation rate in 2022 in both developed and developing countries. Recovering demand after the COVID-19 crisis and the conflict constrained supply and triggered higher commodity prices globally, particularly food and energy items (due to the Russian position in the energy market). The appreciation of the US dollar and the devaluations of the national currencies against the US dollar aggravated inflation in many developing countries (IMF, 2022; World Bank, 2023). Supply policy facts have a role in combatting inflation. Table 5 reports the commodity prices index. After

touching a near two-year low in late May 2023, the wheat price index rebounded at the beginning of June; this change is due to the weather conditions in some key countries (Argentina, Canada, EU, and USA). The maize index instead is low, even if there is some uncertainty because of possible drought conditions in the future projections (AMIS, 2023).

Prices in Italy reached peaks in the summer of 2022 and started a decline in autumn. The price of soft wheat was also supported by the tensions that occurred in the maize supply balance. In 2022, the difference between durum wheat and soft wheat and maize rose, linked to the further tensions affecting durum wheat. In the first months of 2023 the maize price has dropped due to the positive news from Brazil and North American sowing; the price of common wheat, related to corn, has dropped. Durum wheat greatly reduced the spread given an improving offer.

What we would probably have expected is a different scenario to what we are experiencing today, with a return to worldwide conditions like those of 2019. But everything is changed, and we will have to pay attention to international facts that may strongly affect expectations by changing the current view. The main forces that condition the forecast are dry settings and damaged

Figure 5. Main cereals prices trend – price index.

Source: IGC, 2023.

Table 5. Commodity Price Index.

	June 2023 average*	Change	
		June/May 2023	June 2023/ June 2022
Grains and oilseeds (GOI) index	264.2	+0.1%	-23.1%
Wheat	241.3	-1.1%	-31.8%
Maize	251.6	-2.6%	-25.0%
Rice	204.9	-0.1%	+15.8%
Soybeans	266.3	+2.5%	-20.3%

* Jan 2000=100, derived from daily export quotations.

Source: AMIS, 2023.

crops in the USA and China, along with the real geopolitical uncertainty in the Black Sea region, grain and oilseed futures markets are likely to maintain a risk premium, by keeping prices high.

Since June 2023, the prices of wheat, maize and soybean have again risen and the market the most affected by this are North African countries that are large importers from Russia and Ukraine. The Black Sea Grain Initiative has allowed the exportation of more than 32 million metric tons of food commodities from

three Ukrainian Black Sea ports, mitigating price fluctuations. However, wheat prices after a decline observed in past months, rebounded in June 2023 driven by the dry weather conditions in the USA and Canada and by the new escalation of international tensions which led to the non-renewal of the Black Sea Grain Initiative in July (figure 6). Therefore, it will be necessary to continue monitoring the market to understand what will happen at a global level, given the existing uncertainty at the international level.

Figure 6. Wheat volatility from July 2022 to June 2023, standard deviation in percentage terms of daily price movements.



Source: AMIS, 2023.

5. CONCLUSION

The invasion of Ukraine by Russia has extremely altered the world on the economic side through products and energy markets, trade, financial markets, and food prices. While countries have recovered from the COVID-19 consequences, the conflict has intensified troubles in the global food supply chain. The Black Sea Grain Initiative reached on July 22, 2022, between Ukraine and Russia, allowed exports of grain and other agricultural products. The deal has been crucial in keeping the food flow from Ukraine to the rest of the world. But something broke and in recent months Russia negated the agreement arguing that the sanctions applied by the Western Countries have greatly damaged its food and fertilizer exports. Even though sanctions include exemptions for food and fertilizer, Russia is arguing that sanctions directed to its people and the state-owned agricultural bank are not facilitating the exports for three years by contravening the deal agreed. This determines a revision of the forecasts, by increasing the uncertainty about future trends, with the need to continue monitoring the changes in the geopolitical, climatic, and financial situation, and their effects on the cereal market.

The consequences of what happened confirm that the market will remain volatile, although the northern hemisphere production grants a large supply. Some lessons can be drawn from what happened. First, the analysis of the Italian trade data emphasizes the resilience, once again, of the agrifood sector and the capacity of the cereals sector, raw and processed, to react to international crises. The data analysis draws attention to the limited impact of conflict on Italy's supply of cereals. This is linked on the one hand to low Italian dependence on the Black Sea area and, on the other, to the ability to react, moving towards other suppliers. Such crises highlight the importance of diversifying supply sources of basic

commodities to reduce the risks associated with overreliance on confined sources group countries.

Nevertheless, the conflict also affected Italian cereal imports, particularly on the price path. The crude oil price surge, linked to the international crisis, has contributed to the rapid rise in fertilizer prices by nearly 76% compared to 2021. The increase in fertilizer prices has relevant consequences also on cereal prices and crop production, particularly for wheat, along the entire value chain. However, cereal prices increased before 2022 and the Russian invasion has only exacerbated the trend already present on the market. Such events have led some countries to adopt protectionist measures of internal markets with the implementation of export bans on wheat and other grains. This further worsened the global market, pushing up cereal prices.

International cooperation between countries is becoming increasingly important to guarantee trade in goods and prevent countries from adopting restrictive measures, especially in times of crisis and uncertainty. Improving cooperation among countries using trade agreements offers ways to face current and future challenges. Due to the still existing market uncertainty, it will be necessary to continue monitoring trends to understand the possible effects on prices and supply.

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