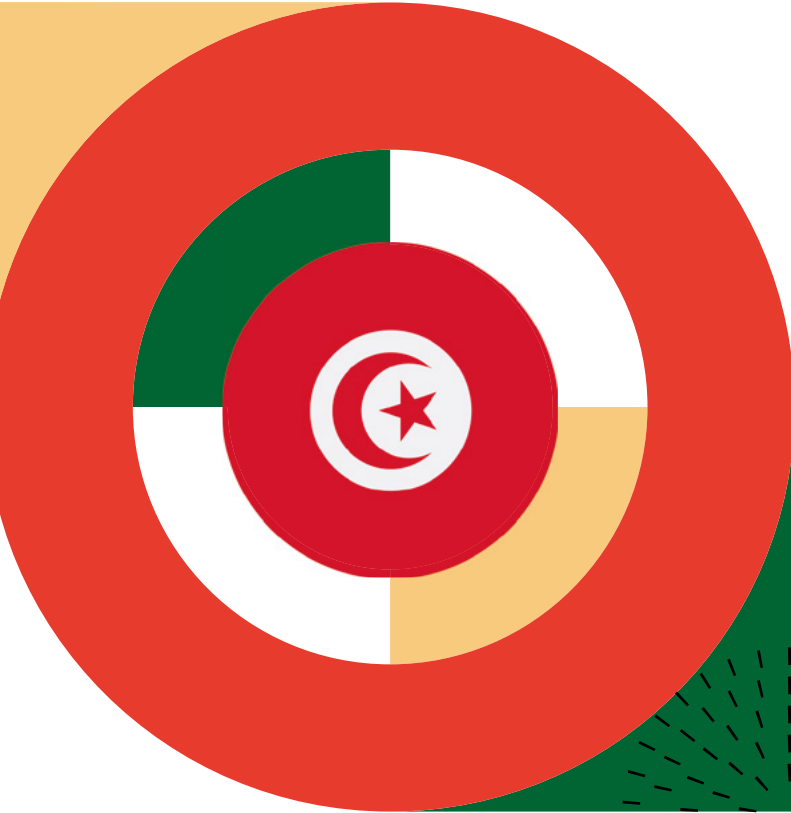


# The impact of the Russian-Ukrainian war on the Tunisian food system



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In mid 2018, he launched a consulting office "Global Acumen" offering intellectual services around strategic development and institutional development in various sectors including agribusiness.

He has served as a senior expert for several international organizations in Tunisia and abroad, such as the OECD, GIZ, FAO, WFP and the United Nations Office in Madagascar.



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## Summary

The ongoing war between Ukraine and Russia that started in February 2022 has strongly impacted the food status at the global level and in North African countries.

Tunisia, whose food situation has already been weakened by the effects of the crisis resulting from COVID 19 pandemic in the years 2019 and 2020, has been compelled to manage the impact of the Russian-Ukrainian war in a context marked by ailing public finances and faltering economic growth.

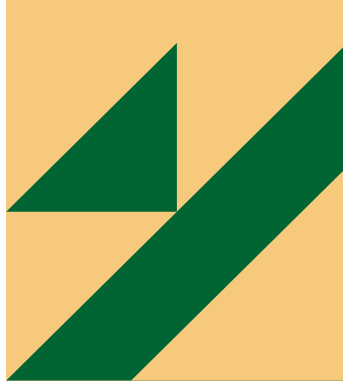
This climate has brought to the surface a certain capacity for food resilience on the part of all actors in the Tunisian food system, but has also brought to light several cyclical vulnerabilities. Indeed, several strategic sectors such as the cereal and milk sectors have displayed alarming signs with respect to several aspects related to food security.

The methodology employed in this study has been designed around an analysis of the macroeconomic impact of the war until the end of September 2022 by examining changes in the main macroeconomic aggregates related to food availability and access for citizens. The study then focused on indicators relating to four key food value chains for Tunisians: cereals, red meat, milk, and fruit and vegetables.

Subsequently, the study focused on the impact of this war as felt on a microeconomic level. To this end, 400 farmers were surveyed in November 2022, along with a number of institutional actors and experts for each value chain.

Based on the analyses conducted, impacts at various levels of the value chains studied were highlighted, calling for a consolidation of all current food policies.

In addition, reviewing certain policy and strategic choices from the dual perspective of strengthening global food resilience and food sovereignty for certain commodity chains in the face of internal and external crises and shocks was identified as very important within the current context and in light of the medium- and long-term global context. This has been detailed in the recommendation section of the current study.



## SECTION 1: SCOPING, OBJECTIVES AND KEY CONCEPTS

### I. Introduction and Scoping of the Study

The ongoing war between Russia and Ukraine that started on February 24, 2022 has had a strong impact on food security worldwide and in North African countries. Indeed, these countries have suffered the direct impact of this conflict on their grain imports and the indirect impact on international food prices and production factors along with those linked to protectionist choices made by some countries exporting commodities.

Tunisia, which had suffered the full effect of the COVID 19 pandemic crisis during 2020 and 2021, found itself in 2022 under the impact of the Russian-Ukrainian war.

This context has highlighted several structural vulnerabilities linked, among other things, to the political choices made in the past, which have caused the food system as a whole, but especially certain import-dependent sectors, to be so exposed to difficulties. Consequently, its level of food security has deteriorated as evidenced by the global food security index.

Indeed, several strategic sectors for the country such as cereals or milk have experienced alarming trends at the level food security dimensions.

In view of the growing global food crisis experienced in 2022, of which a large number of uncertainties remain, the North Africa office of the Rosa Luxembourg Fondation launched this study with a view to enlightening civil society actors and all other interested institutions on the impact of the war mentioned on access to food in Tunisia and to formulate thoughts on the policy choices and strategies needed to make the Tunisian food system more resilient and sustainable.

## II. Objectives and initial questions of the Study

The objective of this study is to provide answers from research, documentary and situational analysis but also from the field (through targeted surveys) to the following main questions:

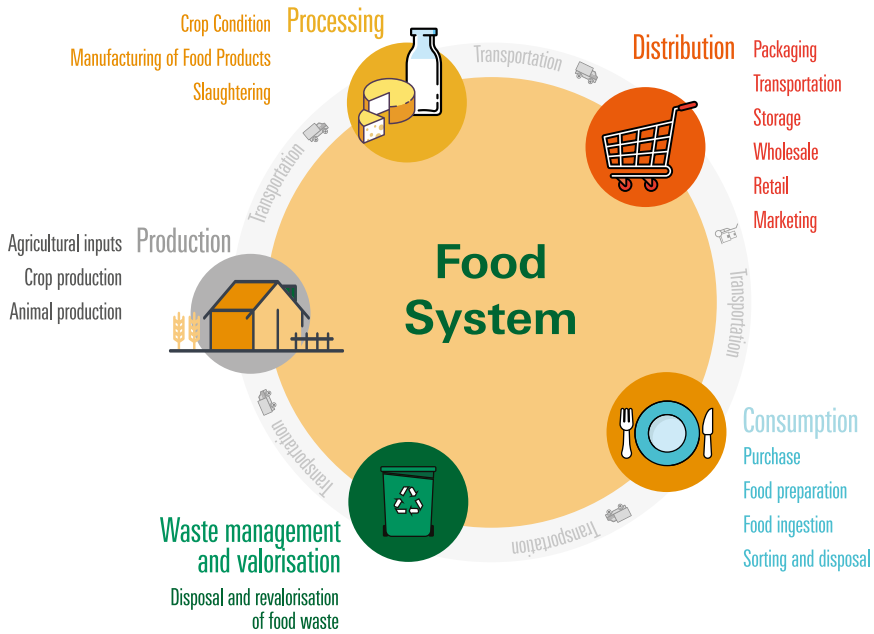
- How has the food crisis induced by the war in Ukraine affected the food system in Tunisia? Which value chains in particular?
- What lessons can be learned from this crisis to strengthen the resilience of the Tunisian food system and further consolidate the country's food security and sovereignty?
- What adjustments in policy choices and strategies are recommended to bring about efficient and sustainable change, taking into account Tunisia's structural inflexibilities and situational opportunities?

## III. Key Concepts

This section will present the key concepts associated with the initial questions of this study. In particular, this includes the concept of food security as it relates to food self-sufficiency and food sovereignty.

### 1. Food system

A food system includes all elements (natural resources, people, inputs, processes, infrastructure, institutions, products, etc.) and activities related to the production, processing, distribution, preparation and consumption of food and the outputs of these activities, including socio-economic and environmental impacts.



Source: viablecollectivities.org

According to the commonly accepted definition, for a food system to be sustainable, it must ensure food security, which means the access to a sufficient quantity and qualitative nutrition for all citizens while ensuring economic profitability of activities, social sustainability and have a positive or neutral impact on natural resources.

According to this definition, a food system is qualified as resilient when it possesses an overall capacity within its constituent elements to guarantee food security over time, i.e. even in times of crises and disasters.

## 2. Vulnerability, risk and crisis in the agri-food sector

Vulnerability can be described as the conditions - determined by physical, social, economic and environmental factors or processes - that increase the likelihood of an individual, community, asset or system being affected by hazards.

Being vulnerable increases the likelihood that the food system will be "worse off than before" or will collapse as a result of a shock.



A risk is a probability that a specific effect will occur in a given period or under specific circumstances.

The notion of crisis is inseparable from that of risk. The risk as a random phenomenon can generate by its repercussions a real crisis (extraordinary and abnormal situation).

We distinguish two types of crises: cyclical crises and structural crises.

In the agri-food sector, a crisis can be defined as an emergency situation in which the functioning of a major part or all of the food system is seriously disrupted and the normal management and control processes of the organization are no longer effective.

The disruption of the normal processes of the organization may be of such proportions that the continuity of food supply to citizens is threatened.

### 3. Food security

The Universal Declaration of Human Rights of the United Nations (1948) established the right to food of the people as a priority. This right is the basis of the definition of food security adopted by the FAO, which means for a country "to have at its disposal, at all times, an adequate level of basic commodities to satisfy the growth of consumption and to mitigate fluctuations in production and prices" (World Food Conference, 1974 and 1996).

History has shown us that a country that manages to meet the needs of its population by producing or importing sufficient quantities does not ensure food security in the sense of the universal definition. In any case, this is not a sustainable strategy and is certainly not effective in times of major crises or disasters (economic crisis, social crises, floods, wars, etc.)

In addition to the sufficient availability of food, a State must therefore ensure physical and economic access, regularity in time and space, biological and nutritional quality and cultural acceptability of food. Access thus becomes even more crucial than food availability. Other dimensions have proven to be equally important, such as food utilization and the sustainability of food systems.

Improving a country's food security must therefore cover the four main dimensions, summarized in the following table:

Dimension	Explanation
<b>Availability</b>	This is the physical availability of food, it is determined by the levels of local production, imports and the means used to ensure and store it.
<b>Access</b>	Physical and economic access for all human beings refers to food distribution policies, including prices, as well as those relating to household income and expenditure.
<b>Quality</b>	It refers to short- and long-term food safety, as well as adequate nutritional value and balanced diets. This dimension also incorporates the food utilization component, which includes good food consumption practices and how the human body optimizes food.
<b>Stability</b>	This dimension encompasses the factors of the stability of access to food and its quality and the sustainability of supplies over the long term. Several factors limit the resilience of food systems such as climate change, misuse of natural resources, economic, health and political crises...

Source: Introduction to food security concepts, FAO, 2008 and our synthesis

From there, it becomes important to emphasize that ensuring food security challenges a country's long-term capacity to:

**Adopt and make coherent long-term policies with multiple objectives and successfully implement them through medium-term strategies and action plans:**

- Thoughtful economic and sectoral policies (International Trade, Agricultural and Agri-food Production, Logistics, Food Distribution, etc.),
- Social policies favoring equity and equal and continuous access to food (fight against poverty, reduction of economic precariousness and inequalities, protection of purchasing power, etc.)
- Policies to orient consumption patterns towards quality, health and well-being.
- And finally, policies of optimal management of natural resources (water and land in particular), preservation of the natural environment (marine systems, ecosystems, etc.) and the fight against the effects of climate change (drought, heat and water stress, desertification).

## **Implement risk reduction strategies to strengthen the overall resilience of food systems in crisis and disaster situations.**

### **4. Food governance**

From the above, it becomes clear that achieving harmony between the various policies and strategies to ensure a country's food security requires optimal governance to implement rules, adopt best practices and ensure the adoption of thoughtful, participatory and inclusive decision-making processes.

Governance therefore refers to "the set of processes that enable actors (public, private, civil society) to articulate their interests, frame and prioritize issues, make decisions, implement, monitor and enforce them" (FAO, 2015).

Coordination mechanisms or space for stakeholder dialogue can take various forms such as local platforms, local food projects, local food councils (Rastoin, 2014).

### **5. Food self-sufficiency**

Food self-sufficiency is a concept that means the ability of a country to meet the food needs of its entire population from its own domestic production to meet final demand (FAO, 1999).


Food self-sufficiency thus has both a major advantage and a major disadvantage:

- Advantage: The reduction of risks for a country in the face of price fluctuations and quantitative supply on the international market
- Disadvantage: Inefficiency in the use of natural and human resources in activities that are sometimes not very competitive.

To balance this advantage and disadvantage, some analysts define food self-sufficiency as the neutrality of the agri-food trade balance over the long term. This implies an unreal flexibility to adapt very quickly in the case of crises and/or disasters.

### **6. Food Sovereignty**

The notion of "food sovereignty" appeared for the first time in 1996 during the Food Summit by the international organization of farmers via campesina. It was then linked to concerns about the accelerated liberalization of world agricultural markets and its impact on national food systems.



It is a powerful and innovative concept that describes the vision of small-scale farmers and their communities. It is rooted in the ongoing global struggles of peasants, fisherfolk, indigenous peoples and landless workers around the world to control their own resources and livelihoods.

While according to FAO, food sovereignty is defined as “the international law that allows countries and groups of countries to implement agricultural policies that are best suited to their populations without having a negative impact on the population of other countries.” (FAO, 1996).

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### **Box 1: Food sovereignty and strengthening food security**

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An in-depth analysis of the two concepts shows that food sovereignty can contribute to strengthening food security in several ways.

Indeed, it can help to

- Promote the use of sustainable practices and encourage farmers to grow varieties adapted to local conditions while optimizing agricultural productivity.
- Increase the resilience of populations to climatic and economic shocks by promoting food self-sufficiency through local production adapted to the vulnerabilities of each production area and reducing the need for food imports by promoting the production and processing of local products.
- Improve the nutritional quality of food by encouraging the consumption of local products and promoting a balanced diet.
- Strengthen the participation of local communities in the preservation of natural resources and the fight against the effects of climate change.

Thus, during the war in Ukraine, several countries have initiated urgent political changes oriented to “sovereignty” in response to the food crisis caused by this war. As an example, we can cite that:

- Countries such as Jamaica and Grenada have implemented policies to increase domestic food production since the beginning of the pandemic. Jamaica has launched a Grow What We Eat initiative to increase food sufficiency by increasing local production and improving access to food. Grenada has increased the number of agricultural projects to promote food self-sufficiency, such as government grants and loans to small-scale farmers and the establishment of agri-food processing centres to support value-added production.
  - China took the choice to increase its production of basic foodstuffs, including increasing the cultivated area, improving yields, increasing investment in agriculture and strengthening monitoring and quality control mechanisms.
  - European Union countries, despite the difficulties associated with the health crisis, have been able to maintain their food supply chain, thanks to the implementation of measures to protect workers in agriculture and food processing.
-

## VI. Methodology followed

### 1. Adopting a systemic approach to analysis

The complexity of the environment and the interdependence of socio-economic, health and nutritional issues call for the use of a systemic and sustainable approach of food to understand the impact of the war in Ukraine on Tunisia.

### 2. Analysis of the macro-economic impact

At the national level, the crisis induced by the war in Ukraine has impacted the major macroeconomic balances already weakened by political instability and the COVID 19 crisis as of 2019.

This report first analyzes the impact of the war in Ukraine on the various aspects of food security in Tunisia.

This will be followed by an analysis of the macroeconomic impact of the war up to the end of September 2022, which will cover the following macroeconomic aggregates:

- The trends in inflation and food prices in Tunisia
- The evolution of the food import bill and its impact on the country's trade balance
- Trends in agricultural investment
- The evolution of the agricultural and agri-food sector's added value

### 3. Targeting a few key value chains and an agricultural field survey

Our analysis of key agricultural value chains' contribution to Tunisia's GDP has enabled us to select four key value chains for a more in-depth understanding of the impact of the war in Ukraine.

These value chains are listed in order of importance:

- Cereals (7% of GDP),
- Animal production excluding the poultry sector (milk and red meat ~ estimate: 30% of GDP)
- And finally, vegetables and fruit (48% of GDP).

For these value chains, a survey was designed and conducted among 500 farmers in 6 major regions of Tunisia with the support of the Tunisian Union of Agriculture and Fisheries (UTAP, from the French acronym Union Tunisienne de l'Agriculture et de la Pêche). Indeed, this number was set based on the register of members of UTAP in terms of number of farmers by agricultural activity and by region. This analysis has allowed us to retain the following targets by region and by activity:

<b>Crops</b>	<b>Number of Farmers targeted</b>	<b>Distribution of the sample over the regions</b>
<b>Breeding</b>	186 Breeders	North: 62
		South: 62
		Center: 62
<b>Arboriculture</b>	165 Operators	Center 110
		South: 40
		North: 15
<b>Vegetable crops</b>	75 Operators	North: 34
		South: 34
		Center: 7
<b>Cereal farming</b>	40 cereal farmers	North: 30
		South: 10
<b>Aquaculture and fishing</b>	34 Fish farmers	
<b>Sample size: 500</b>		

This agricultural survey was coupled with a series of interviews with institutional and active support actors to better understand the impact of the war on other value chain components.

#### 4. Summary of the main findings of the macro-economic and bottom-up analysis and recommendations

The study will conclude by synthesizing the main findings and results of the macro-economic analysis and the targeted value chain actors in order to draw up concrete and well-founded recommendations that will be of benefit to decision-making actors, but also to the media and civil society actors to contribute to the public debate on this issue.



## **SECTION 2: ANALYSIS OF THE IMPACT OF THE WAR ON THE MAIN MACRO-ECONOMIC AGGREGATES AND THE TUNISIAN FOOD SYSTEM**

### **I. The position of Ukraine and Russia in the international food markets and the state of food security in the world**

The Russian Federation and Ukraine are among the largest producers of agricultural products in the world. They are therefore major players in the world trade of food and agricultural products.

#### **1. Cereals**

By 2021, wheat exports from both countries accounted for about 30% of the global market. In contrast, the Russian Federation has a comparatively small share of the global maize export market, as this was only 3% between 2016-2017 and 2020-2021.

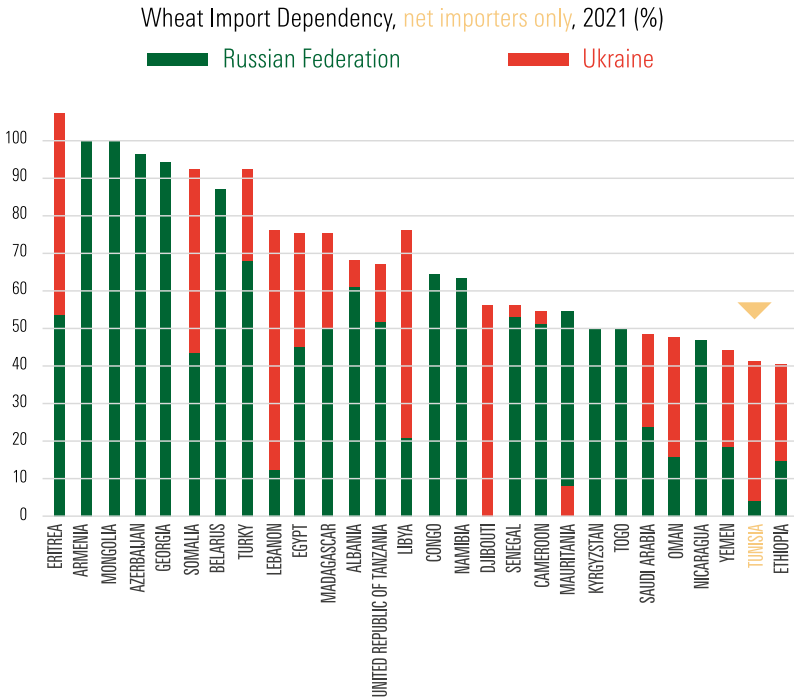
Ukraine held a more prominent position in this market during the same period, with corn exports averaging 16% of global volumes, making it the fourth largest exporter of the grain.

Nearly 50 countries depend on the Russian Federation and Ukraine for at least 30% of their import wheat needs.

This percentage even reaches 50% for 26 of these countries. Historically, the countries of North Africa, including Tunisia, used to obtain their wheat supplies from these markets.



## Some Countries are heavily reliant on wheat imports from Ukraine and the Russian Federation



### 2. Sunflower oil

In addition, sunflower oil exports from the two countries represent 78% of the world supply.

### 3. Agricultural fertilizers

The Russian Federation is also a major exporter of fertilizers. Thus, in 2021, it ranked first among exporters of nitrogen fertilizers, second among suppliers of potassium and third among exporters of phosphate fertilizers, globally.

## II. The evolution of international prices of inputs and food products and the state of food security in the world following the Russo-Ukrainian war

The lingering war between Ukraine and Russia has worsened the state of food security for many countries that depend on the world market for the grains, vegetable oils and fertilizers produced by these two countries.

The global impact has been felt primarily in terms of world food supply, where both availability in a timely manner has been threatened and prices have reached alarming highs, particularly in the month following the outbreak of the war.

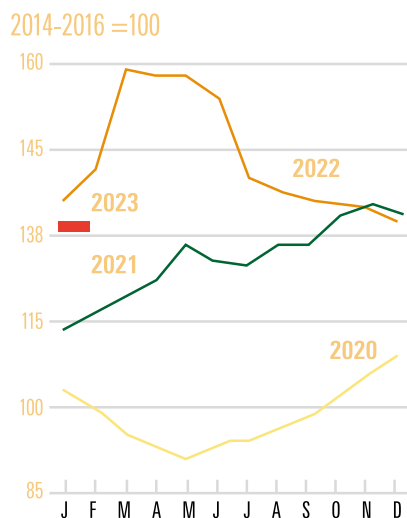
World prices in 2022, while remaining very high compared to the pre-COVID 19 period, have been declining steadily since April 2022 and are even approaching 2021 prices as of September 2022, with the exception of cereals and certain essential fertilizers.

Indeed, for cereals, the FAO Cereal Price Index has recorded a 3% increase over September 2022 due to:

— **World wheat prices increased by 3.2%** mainly due to continued uncertainties over the Black Sea Grain Initiative. Tighter supplies in the United States of America, following a downward revision of production, also contributed to the strengthening of markets.

— **International corn prices increased by 4.3%.** This was due to weaker production prospects in the United States of America and the European Union, as well as dry weather in Argentina during the planting season and uncertainty about the future of exports from Ukraine.

### FAO Food Price Index

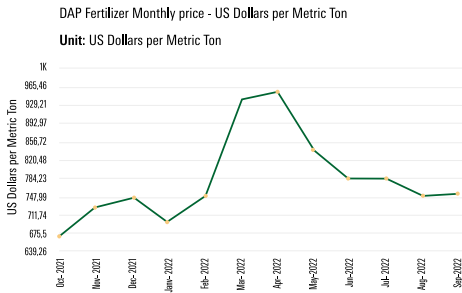


— **World barley prices rose only slightly (+0.3%)**, as increased global supplies due to improved production prospects in the European Union helped limit price increases.

As for fertilizers, prices remain globally above 2021 levels, which are themselves well above pre-COVID 19 prices. However, DAP (Di-Ammon Phosphate) and TSP (Triple Superphosphate) prices have relatively settled down compared to the record levels of March and April 2022.

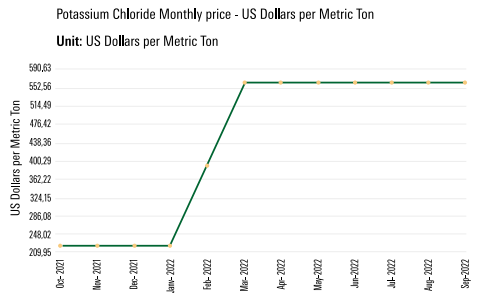
On the other hand, the prices of potassium chloride and urea remain at unstable and alarming levels.

### Monthly evolution of the DAP price



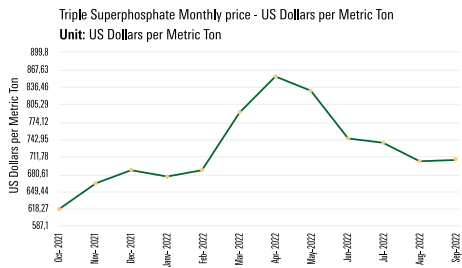
Description: DAP (diammonium phosphate), standard size, bulk, spot, f.o.b. US Gulf

### Monthly evolution of KCL price



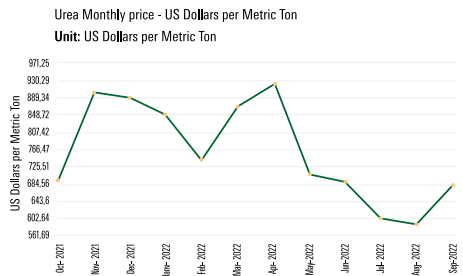
Description: Potassium chloride (muriate of potash), standard grade, spot, f.o.b, Vancouver

### Monthly evolution of TSP price



Description: TSP (triple superphosphate), bulk, spot, beginning October 2006, Tunisian origin, granular, f.o.b, previously US ori, f.o.b, US Gulf

### Monthly evolution of Urea price



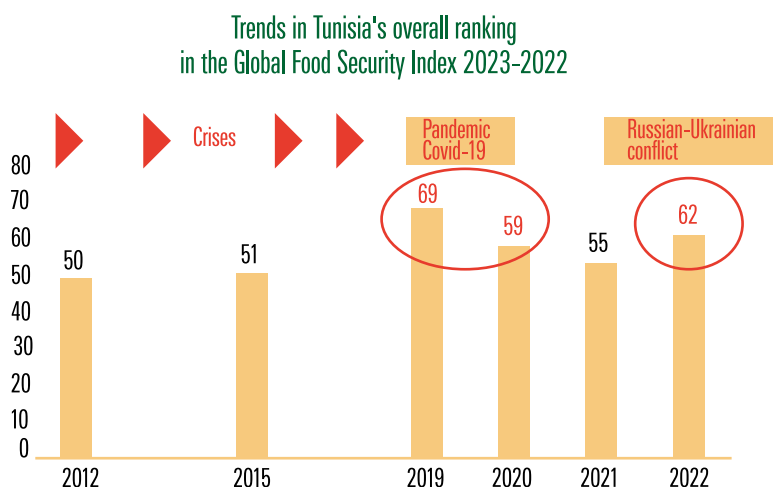
Description: Urea, (Black Sea), bulk, spot, f.o.b, Black Sea (primarily Yuzhnyy) beginning July 1991 , for 1985-91 (June) f.o.b, Eastern Europe

Consequently, the threats to food security, particularly for the aspects of “Availability” and “Access” at the global level, persist and remain high despite the slight overall decline in food prices since the fall of 2022

### III. Trends in the state of food security in Tunisia in 2022

#### 1. Assessment through the Global Food Security Index

The Global Food Security Index (GFSI) developed by Economist Impact takes into account affordability, availability, quality and safety of food, as well as natural resources and resilience, to rank 113 countries.



The index is based on a consistent framework and assesses food security across three dimensions: affordability, availability and utilization. Data for the calculation of this global indicator comes from several sources including the FAO’s annual State of Food Insecurity in the World (SOFI) reports, IFPRI’s IFM, and other documents.

Each dimension of the Global Food Security Index is measured by a set of food and nutrition security indicators. The indicators are standardized and then aggregated, allowing for cross-country comparisons.

## 2. Chronological changes in Tunisia's ranking

The 2022 edition of the report "The State of Food Security and Nutrition in the World", indicates that, compared to other countries, Tunisia is losing ground in its fight to eliminate hunger and malnutrition. Indeed, between 2012 and 2018, Tunisia was always among the middle group in the ranking in relation to the global index in question.

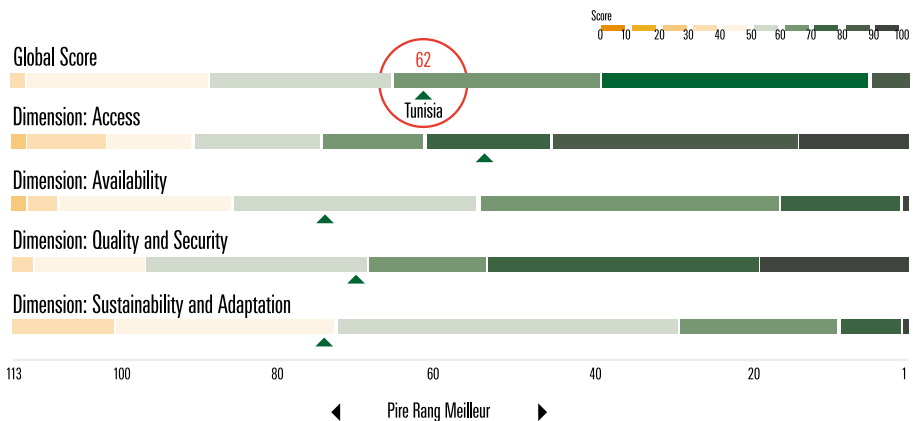
As a whole, very few variations are to be highlighted apart from the years of drought when the issue of water and heat stress emerged circumstantially.

In 2019, with the crisis arising from the COVID 19, the rapid increase in international prices of food imported by Tunisia, the decisions of self-containment of the population for a month and a half with the resulting lay-off of millions of people, traffic difficulties, repeated curfews impacting restaurants ... have strongly impacted the food security of the country in a global socio-economic context of major constraints on public finances. As a result, Tunisia's ranking has dropped by 18 points compared to 2015!

The situation improved slightly in 2020 and 2021 but went backwards in 2022 with the impact of the Russian-Ukrainian conflict on the world economy in general and on Tunisia in particular, given the difficulty of obtaining supplies of certain products and the continued worsening of the public finance situation.

Thus in 2022, Tunisia occupied the 62nd place. The dimension that has experienced a dramatic decline is the dimension of Access!

### Tunisia's global ranking and ranking by dimension according to the 2022 Global Food Security Index



In this paragraph, we will look at deviations from the world average in the first two dimensions because they would be the most impacted by crises such as the war in Ukraine. For each of these dimensions, sub-indicators are measured by this index. If Tunisia's deviation is greater than the world average, the extent of the deviation will be represented in blue, otherwise in red. This work will allow us to identify some essential factors of resilience of the national food system and those that increase vulnerabilities.

### 3. Pro-resilience and vulnerability-enhancing factors in 2022

An examination of the deviations of the sub-indicators of each of the Global Food Security Index dimensions for Tunisia compared to the world shows that Tunisia has strengths that would allow for a certain level of acceptable food resilience, but also weaknesses that are expressed in the form of critical vulnerabilities during crises and moments of vulnerability such as those induced by the war in Ukraine.

	<b>Pro-resilience factors</b>	<b>Vulnerability factors</b>
<b>Dimension: Availability</b>	<p>Encouraging farm production prices.</p> <p>Access to extension, technology and agricultural education.</p> <p>A good level of agricultural infrastructure.</p> <p>Adequate overall supply.</p>	<p>Financing of farmers and agricultural investments.</p> <p>Weak innovation in the agricultural sector.</p> <p>Weaknesses in supply chain logistics.</p> <p>Weak political commitment to food security.</p>
<b>Dimension : Access</b>	<p>A low poverty rate compared to many other countries.</p> <p>The existence of programs enhancing food security.</p>	<p>Imports of the main agricultural products (cereals, sugar, vegetable oils, etc.).</p> <p>Costs of agricultural and food imports.</p>

## IV. Analysis of the impact of the war on the main macroeconomic aggregates and the Tunisian food system

### 1. Impact on prices and citizens' purchasing: Inflation and record increase in food prices

Compared to October 2021, the overall inflation rate reached the level of 9.2% in October 2022. The price increase covered all components of the consumer basket without exception.

Thus, in 2022, the overall purchasing power of the Tunisian has deteriorated sharply in particular in the face of relatively modest increases in wages or the SMIG (guaranteed interprofessional minimum wage) and SMAG (guaranteed minimum agricultural wage) that are not proportionate to the increase in the cost of living.

In the same month and still compared to the price level in October 2021, the increase in food prices was the highest: +12.9% over one year.

It should be noted that according to the methodology for calculating the family consumer price index (base 100 in 2015), the food basket weighs 26.2% in the structure of monthly purchases of Tunisians.

GROUPS	Weighting %	Oct 22
		Oct 21
<b>Food and non-alcoholic beverages</b>	<b>26.2</b>	<b>12.9%</b>
Alcoholic beverages and tobacco	2.8	6.6%
Clothing and footwear	7.4	9.7%
Housing, water, gas, electricity and other fuels	19.0	7.0%
Furniture, household items and routine household maintenance	5.9	11.6%
Health	5.8	4.1%
Transport	12.7	8.5%
Communications	4.6	2.2%
Leisure and culture	2.1	7.7%
Education	3.2	8.7%
Restaurants and Hotels	4.6	9.6%
Other goods and services	5.6	9.4%
<b>Overall</b>	<b>100.0</b>	<b>9.2%</b>

Source: INS

The examination of the increase in food prices at the end of October 2022 stems, bearing in mind the magnitude of the change, mainly from the following groups:

- Edible oils: +20.8%,
- Meat: + 17%, in particular following the increase in prices of red meat (lamb meat + 21%)
- Vegetables: + 14.3% (Prices of fresh vegetables have increased by 18.5% or more strongly than canned vegetables)
- Milk, cheese and eggs: + 12% (the increase for eggs was 33.3%)
- Fruit: +11.6

<b>Food and non-alcoholic beverages</b>	12.9
<b>Foodstuffs</b>	13.3
Bread and cereals	6.5
Meats	17.0
Fish	11.8
Milk, cheese and eggs	12.3
Edible oils	20.3
Fruits	11.6
Vegetables	14.3
Sugar, jam, honey, chocolate and candy	6.3
<b>Soft drink</b>	8.2
Coffee, tea and cocoa	6.8
Mineral waters, soft drinks and fruit juices	8.8

Source: INS

## 2. Food trade balance

At the end of October 2022, exports of food have increased in value by 30.8% against an increase in the value of imports of 26.8%.

Despite this effort, the food trade balance showed a deficit at the end of October 2022 which reached 2 012.8 MD. As for the coverage rate, it stood at 69.4%.

The cereal bill is on the rise, mainly for durum wheat. Equally important in terms of food imports, sugar and vegetable oils have shown an increase of 109.5% for the former and 65.6% for the latter compared to the same period of the year 2021.



On the other hand, the export revenues of olive oil, the first important item in food exports, have increased by 33.0%, seafood products have recorded an increase of 25.8% while those of citrus recorded a decline of 16.4% compared to the same period of the previous year.

### Food trade balance at the end of October 2022

	10 months 2021	10 months 2022	Var: in % 2022/2021
<b>EXPORT in MD</b>	3494.8	4570.8	30.8%
<b>IMPORT in MD</b>	5194.0	6583.6	26.8%
<b>DEFICIT in MD</b>	-1699.3	-2012.8	-313.5 MD
<b>COVERAGE RATE in %</b>	67.3%	69.4%	-

The registered deficit is essentially the outcome of the increase in the value of imports of cereals (+42.7%), vegetable oils (+118.0%), sugar (+125.8%) and soya meal (+112.2%), this is despite the increase in exports of olive oil (+39.3%).

While trends in the imports of major food products at the end of October 2022 are as follows:

### Trends in main imported products: As of October 2021 - 2022

Products	2021	2022	2022/21	2021	2022	2022/21	2021	2022	2022/21
	Quantity (1000 T)		%	Value (MD)		%	Price (DT/Kg)		%
<b>Durum wheat</b>	464.5	441.2	-5.0	490.8	863.4	75.9	1.06	1.96	85.2
<b>Soft wheat</b>	1121.3	1133	1.0	916.5	1458.5	59.1	0.82	1.29	57.5
<b>Barley</b>	850.6	558.9	-34.3	653.6	682.4	4.4	0.77	1.22	58.9
<b>Corn</b>	785.7	732.5	-6.8	620.3	821.6	32.5	0.79	1.12	42.1
<b>Potatoes</b>	1.9	5.8	205.3	3.0	10.3	243.3	1.58	1.78	12.5
<b>Meat</b>	1.3	2.7	107.7	7.2	28.2	291.7	5.54	10.44	88.6
<b>Milk and derivatives</b>	11.8	13.7	16.1	81.9	132.9	62.3	6.94	9.70	39.8
<b>Vegetable oils</b>	161.5	222	37.5	469.0	1022.6	118.0	2.90	4.61	58.6
<b>Sugar</b>	154.5	225.1	46.7	164.9	372.4	125.8	1.07	1.65	55.0
<b>soya-meal</b>	74.9	114.8	53.3	93.9	199.3	112.2	1.25	1.74	38.5

Quantities of imported cereals were lower than in 2021 for durum wheat (-5%), barley (-34.4%) and corn (-6.8%). Only soft wheat imports have increased slightly (+1%).

On the other hand, the increase in international cereal prices meant that the value of cereal imports (with the exception of barley) exploded. Thus, the value of imports of durum wheat increased by 75.9%, soft wheat by 59.1% and corn by 32.5%. The increase for barley was only 4.4% and this under the effect of the sharp decline in quantities imported and not prices. Which deepened the trade balance deficit.

Tunisia has also imported more quantities of red meat and milk and derivatives and potatoes, sugar and soya compared to October 2021. The increase in the value of meat imports reached 291.7% or almost 3 times what the country paid in the same period in 2021. The price effect of these products also contributed to the widening of the deficit.

Finally, imports of potatoes have shown an increase of 243.3% in value.

On the export side, the quantities exported of fruit vegetables, olive oil and seafood products have increased by the end of October 2022. Even with the upward trend in overall food prices on the world commodity markets this has only helped to absorb a small part of the effect of the increase in the import bill at the end of October 2022.

### Trends in the main exported products : At the end of October 2021 - 2022

Products	2021	2022	2022/21	2021	2022	2022/21	2021	2022	2022/21
Olive oil	Quantities (1000 T)		%	Value (MD)		%	Price (DT/Kg)		%
<b>Fishing products</b>	159.8	167.2	4.6	1314.6	1831.6	39.3	8.23	10.95	33.2
<b>Dates</b>	20.8	23.4	12.5	435.9	501.1	15.0	10.96	21.41	2.2
<b>Citrus fruits</b>	16.9	12.6	-25	24.4	20.5	-16.0	1.44	1.63	12.7
<b>Tomatoes</b>	21.2	23.9	12.6	128.2	145.4	13.4	6.04	6.08	0.7

Source: Calculations of the ONAGRI according to the data of the INS

### 3. Growth and agricultural and agri-food added value

The national economy saw its gross domestic product (GDP) progress in quarterly variation by 0.4% in the third quarter of the year, whereas it had contracted slightly in the previous quarter (-0.2%).

The national economy recorded a quarterly increase in real gross domestic product (GDP) of 0.4% in the third quarter of the year, after a slight decline in the previous quarter (-0.2%).

Thus, over the three months from July to September, gross domestic product grew at an annual rate of 2.9%, marking an upswing compared with the previous two quarters (2.3% and 2.6% respectively).

Despite a difficult global environment and a highly inflationary context, economic activity is pursuing its recovery process after the health crisis of 2020; this process is as yet unfinished, given that national income is still below its level at the end of 2019.

	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022
<b>Gross domestic product</b>	-5.9	-0.9	16.9	1.7	2.7	2.3	2.6	2.9
<b>Agriculture and fisheries</b>	1.0	-4.9	-2.6	-0.7	-2.6	3.1	1.9	1.1
<b>Agrifoods industries</b>	-7.6	-14.9	2.0	-2.2	3.0	9.6	0.6	-6.8

## 4. Agricultural investments

According to the dashboard drawn up by the National Agricultural Observatory (ONAGRI, Ministry of Agriculture), the dynamics of investment in the agricultural sector did not improve during the first eight months of 2022.

### a. Dynamics of declared investments > 60 thousand dinars

The agricultural investments declared for projects over 60 MD to the Agency for the Promotion of Agricultural Investments (public body charged by the State to receive these declarations at the regional and national level, and to verify the realization of investments to be able to grant the incentives allocated by the State according to the type of investment) has declined by 10% at the end of August 2022.

In return, the administration has doubled its efforts to approve the investment applications submitted, which indicates a good responsiveness in the current economic context and a possible positive effect from 2023/2024.

### Investments approved by APIA by the end of August 2022 (>60,000 TD per project)

	Unit	Valeur		Variation
		At the end of August 2022	At the end of August 2021	2022/2021 (%)
<b>Inv. Declared</b>	MD	807.0	896.6	-10.0
<b>Inv. Approved</b>	MD	383.2	272.3	40.7
<b>Of which:</b>				
<b>Agriculture</b>	MD	230.5	210.0	9.8
<b>Fishing</b>	MD	33.9	14.8	129.5
<b>Aquaculture</b>	MD	18.3	0.9	1995.2
<b>Services</b>	MD	48.8	29.7	64.2
<b>Primary processing Int.</b>	MD	51.6	16.9	205.6
<b>Number of approved projects</b>	Unités	2014	1949	3.3
<b>By region</b>	<b>%</b>			<b>points</b>
<b>Northwest</b>		16	14	-2
<b>Northeast</b>		22	22	0
<b>West Central</b>		18	26	8
<b>East Central</b>		25	19	-6
<b>Southwest</b>		5	8	3
<b>Southeast</b>		13	11	-2
<b>Through funding sources</b>				<b>(%)</b>
<b>Self funding</b>	MD	197.024	135.73	45.2
<b>Bank credits</b>	MD	83.015	53.723	54.5
<b>Investment grants</b>	MD	103.177	82.826	24.6
<b>Land loans</b>	MD	5.648	5.518	2.4
<b>Land purchases</b>	Ha	359	350	2.6

Source APIA

### b. Dynamics of investments made < 60 thousand dinars

According to the Directorate General in charge of Finance and Investment at the Ministry of Agriculture (DGFIOP), which monitors investments of amounts < 60 MD, the investments made have declined slightly (-0.8%) at the end of August 2022 compared to the same period in 2021.

Investments in equipment and the purchase of livestock recorded the largest decline, which could be linked to the severe crisis affecting the dairy and beef sectors.

On the other hand, investments in construction and irrigation have improved considerably, which would indicate a certain orientation towards fruit and vegetable activities, including primary processing.

#### Investments made by the DGFIOF at the end of August 2022 (<60000 DT per project)

	Unit	Value		Variation
		At the end of August 2022	At the end of August 2021	2022/2021 % Inv.
<b>Inv. achieved</b>	MD	31.6	31.9	-0.8%
<b>of which:</b>				
<b>Equipment</b>	MD	3.2	4.4	-27.8%
<b>Construction</b>	MD	4.4	3.1	42.4%
<b>Livestock</b>	MD	3.1	4.0	-20.4%
<b>Plantations</b>	MD	2.6	2.9	-8.8%
<b>Irrigation</b>	MD	14.5	13.6	6.6%
<b>Fishing</b>	MD	2.8	3.1	-9.60%
<b>Erosion control</b>	MD	1.0	0.9	7.90%
<b>Number of projects</b>		4405	4229	4.20%
<b>By region</b>	%			
<b>Northwest</b>		8.11	5.57	-2.5%
<b>Northeast</b>		6.6	8.41	1.8%
<b>West Central</b>		19.74	23.84	4.1%
<b>East Central</b>		9.53	10.03	0.5%
<b>Southwest</b>		10.92	6.32	-4.6%
<b>Southeast</b>		45.11	45.83	0.7%
<b>Through funding sources</b>	MD			
<b>Self funding</b>		18.77	18.616	80.0%
<b>Bank credits</b>		0.412	0.216	90.7%
<b>Investment grants</b>		12.424	13.097	-4.7%

Source DGFIOF

## 5. Conclusion

The analysis of the different macroeconomic aggregates clearly demonstrated that the armed conflict between Russia and Ukraine, which began in February 2022, has impacted on the one hand the national food security in a significant way in terms of access and availability. Indeed, six to eight months after the conflict, food and overall inflation reached unprecedented levels (even during the COVID 19 pandemic). On the other hand, macroeconomic balances have also been affected, as the trade balance deficit grew even larger (weighing even more heavily on the country's balance of payments and foreign exchange stock), and the dynamic of agricultural investment (which was to guarantee a recovery in the coming years) weakened despite the efforts of the state, leading to availability and shortages issues for certain products.

The second part of this report will look more specifically at certain strategic sectors that have been more exposed to this shock and invest their sources of vulnerability.



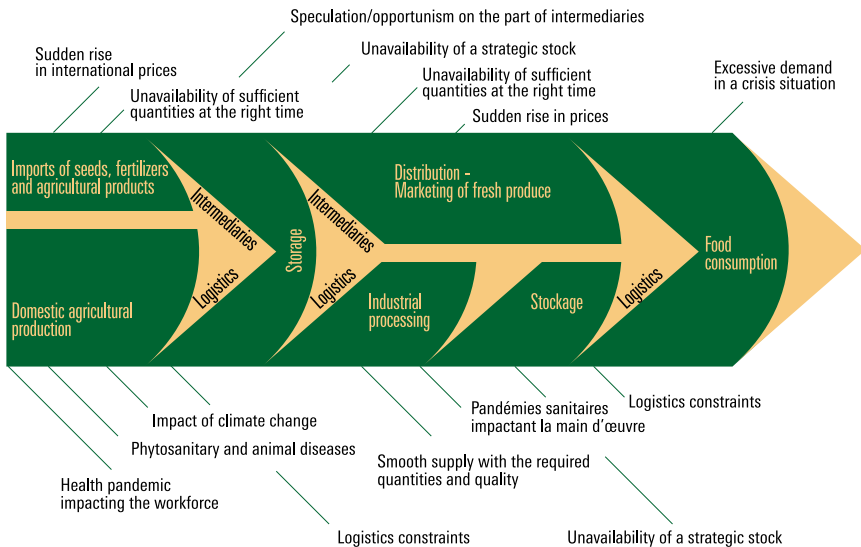
## SECTION 3: ANALYSIS OF THE IMPACT OF THE WAR ON THE TUNISIAN FOOD SYSTEM

### I. Tunisian food system and risk chain

In 2022, the World Food Programme Office has carried out a strategy for strengthening the resilience of the Tunisian food system by 2030.

This study presents the main risks and vulnerabilities that could lead to a crisis as follows:

Risks associated with the Tunisian agri-food system



Source: Strategy for strengthening the resilience of the Tunisian food system by 2030, WFP, 2022

This representation of chain risks, shows that the most important factors that can impact the food system in Tunisia are related to:

- The availability and rising prices of agricultural production inputs,
- Speculative and opportunistic behavior of intermediaries involved in collection and transfers between actors in the sector
- The flow and quality of supplies to industries
- Disruptions in the supply of consumers, who would be subject to excessive “psychological” demand.

The war between Russia and Ukraine has had an impact on several significant agri-food chain segments in Tunisia.

Its effects could therefore trigger crises in the sectors that depend on external markets and are affected by the rise in prices of inputs and basic agricultural products. These crises may be exacerbated by other behaviors such as excess demand based on psychological and/or opportunistic factors as well as other structural factors.

In order to better understand the impact of this external shock on the Tunisian food system, a field survey in collaboration with the Tunisian Union of Agriculture and Fisheries (UTAP) was conducted to identify the sources of vulnerability of the most impacted sectors, at the level of the national agricultural production chain.

Additional institutional interviews were conducted along with interviews with other actors active in the field at the level of value chains. In order to assess the overall impact of the war on the Tunisian food system.

## II. Analysis of the perception of the impact of the Russian-Ukrainian war by agricultural producers in the target sectors

A field survey was conducted among 500 farmers to understand their perception of the impact of the war in Ukraine on their activity and income. In accordance with the methodological approach explained in Section I of this report, the farmers surveyed are active in the following value chains: Cereals, cattle and sheep breeding, fruit and vegetable growing.



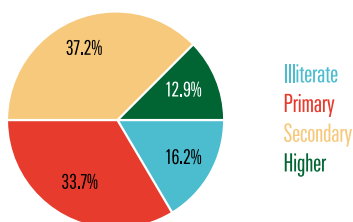
A total of 403 people responded to the survey, which represents a very positive response rate of over 80%.

Analysis of the perception of each group of farmers will therefore shed light on the impact of the war in Ukraine on the first two components - agricultural inputs and production - for the main sectors targeted in this study.

## 1. Survey respondents' structure and comparison with the sample

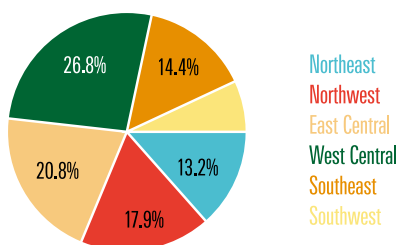
50% of the survey respondents were farmers with secondary and higher levels of education, while 33.7% were farmers with primary education.

Distribution of respondents by level of education



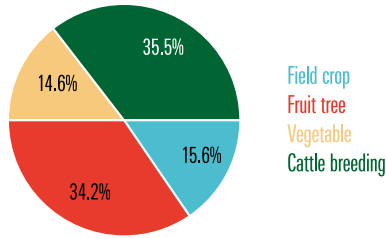
Farmers active in the North East and West represent 31% of the respondents, those in the Center 47% and those in the South 22%.

Distribution of respondents by broad region



Farmers with more than 10 ha of agricultural land represent 32.5% of the respondents. Those with less than 5 ha represent 29.7% of the respondents, 1% of whom do not have any agricultural land because they are active in cattle breeding.

### Main agricultural activity



■ Farmers active in the production of vegetables and fruits represent nearly half of the respondents to the survey, those in field crops 15.6% and cattle breeding 35.5%.

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### To retain

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Analysis of the structure of respondents to the agricultural survey and its comparison with the target sample (see Methodology/Section 1) shows that in addition to a response rate of over 80%, the response rates by targeted value chain and by region were very close to the sampling objectives.

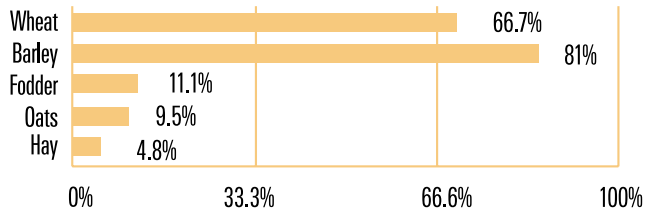
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## 2. Perception of the impact of the war on cereal farmers

■ In the sample, farmers involved in field crops targeted mainly barley and wheat for the 2020/2021 season. Feed crops (if hay is included) ranked second and were targeted by 15% of farmers. Oats ranked third with 9.5% and is becoming an interesting cereal product given its increasing consumption by citizens looking for dietary alternatives to conventional cereals. Finally, some farmers in different areas have targeted pulses.

■ This distribution, even if it does not apply to all cereal farmers in Tunisia, suggests the problem of a lack of respect for the agricultural rotation by several farmers.

### Crop type for the 2020/2021 season

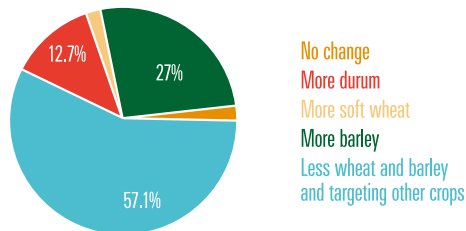


This hinders the sector from reaching productivity levels that would reduce reliance on imports.

■ During the 2021/2022 season, 57% of grain farmers did not change their activity. However, the continued increase in global barley prices in the COVID 19 period has led 27% of farmers to grow more barley.

■ Finally 12.7% of respondents grew more durum wheat compared to the previous season. This allows us to posit that grain farmers are quite reactive to changes in market conditions especially with respect to barley (grain for feed and food).

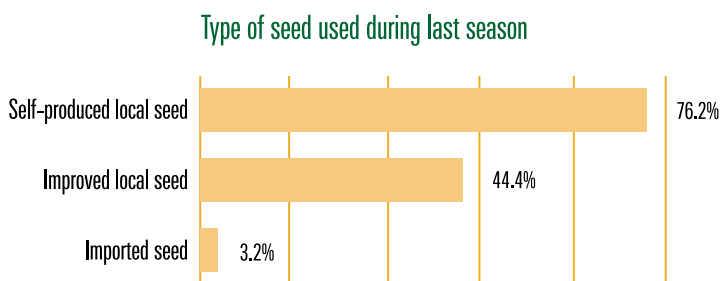
### Change in activity in the 2021/2022 season



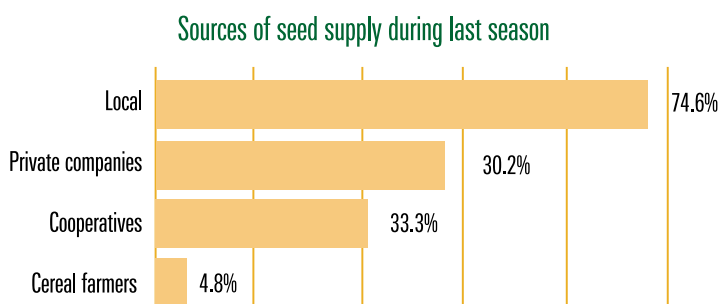
■ During the last season the surveyed cereal farmers used more than ¾ of their self-produced seeds locally. In another response, nearly 70% of the cereal farmers confirmed that they kept more quantities of cereals for themselves than usual. These two factors explain, among other causes, why the quantities collected of wheat during the previous season were largely lower than the national production.

■ It should also be noted that the use of self-produced seeds has an impact on crop yields both quantitatively and qualitatively.

Finally, almost 44% of the respondents seem to aim for better yields by using local improved seeds and only 3% of the sample used imported seeds.



Cereal farmers who used non self-produced seeds were more likely to buy from cooperatives (33.3%) and from private seed sellers (30%).



81% of the cereal farmers surveyed stated that they had been impacted by the current war between Russia and Ukraine compared to 19% who stated that they had not experienced any noticeable impact on their activities. A closer look at the respondents' answers reveals that the majority of unaffected cereal farmers are growing barley and pulses.

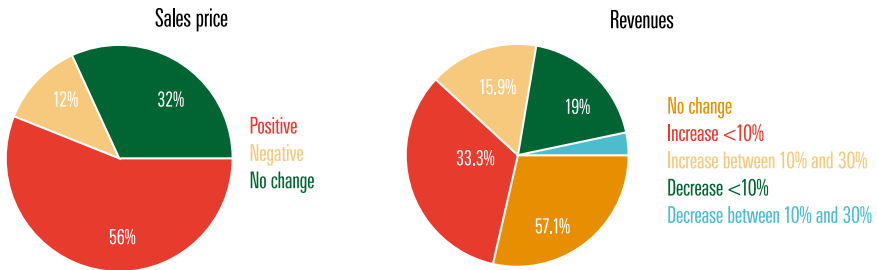
Only 31.4% of cereal farmers who reported being impacted by the Russian-Ukrainian war said that the war had negatively affected seed availability. More than 2/3 of the respondents did not perceive any impact at this level.

On the other hand, 91% of cereal farmers who said they were impacted by the Russian-Ukrainian war confirm its negative effects on the availability of fertilizers and phytosanitary products.

The improvement of wheat reception prices during the year 2022 that was perceived as a positive impact of the effects of the Russian-Ukrainian war by 56% of the cereal farmers improved the revenues for half of them.

On the other hand, 19% of cereal farmers reported a decline in their revenues, mainly due to a poor harvest and unfavorable weather conditions.

### Impact of the Russian-Ukrainian war on prices and income of cereal farmers

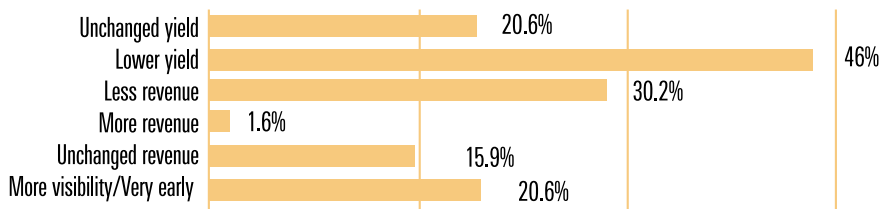


As for forecasts, for the 2022/2023 season, cereal farmers highlight two major trends:

- Unfavorable weather conditions for 61% of respondents (drought, lack of water);
- Insufficient availability and access to inputs, particularly fertilizers, for 51% of respondents;

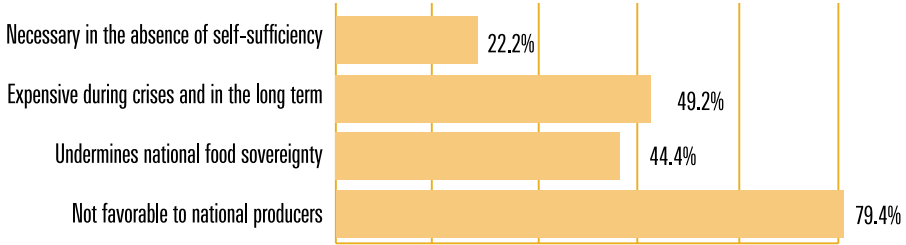
These forecasts explain the reason why 46% of cereal growers are expecting a decline in yields during the 2022/2023 season. A decline in yields that they also expect to result in a decline in revenue if receiving price levels do not increase.

### Cereal farmers' forecasts for the 2022/2023 season compared to 2021/2022



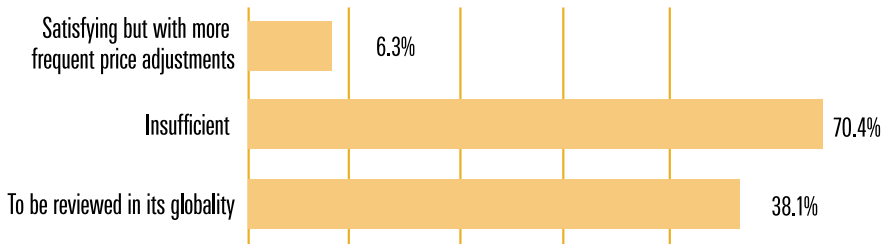
■ Regarding farmers' perception of the import policy, 79.4% of respondents consider that it is not favorable to domestic grain producers. At the same time, almost half of the respondents believe that this policy is costly for the State and the taxpayer during external crises and in the long term.

### Grain farmers' perceptions of grain import policy



■ Finally, the vast majority of cereal farmers consider the production subsidy policy to be inadequate. More than a third of respondents believe that this policy should be completely revised.

### Cereal farmers' perception of the policy of cereal production subsidies



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- The impact of the Russian-Ukrainian war has been negatively perceived by cereal growers primarily at two levels: income and the availability of production factors (essentially fertilizers and phytosanitary products).
  - The structural problems of the cereal sector (in particular linked to poorly sustainable agronomic practices) combined with an increased fragility induced by hydric and thermal stress (effects of climate change), have accentuated the current impact of the Russian-Ukrainian war on farmers.
  - Faced with the crisis induced by the Russian-Ukrainian war, cereal farmers have shown encouraging signs of resilience in several forms:
    - An increased use of improved local seed, which is more available and allows for improved yields;
    - An adaptation of the activity by a fringe of cereal farmers by producing more barley;
  - The establishment of larger reserves of cereal production for self-consumption and for the next season's seed.
  - The resilience of cereal farmers has been strengthened by the measure taken by the State to increase the price at reception. This measure alleviated some of the impact of the Russian-Ukrainian war on grain farmers' income.
  - Cereal farmers share the perception that the 2022/2023 season will pose the same or even greater challenges in terms of productivity and profitability (particularly with the persistence of drought).
  - The cereal growers interviewed consider that it is necessary to revise the farmers' subsidy policy to better protect the sector against the effects of crises. Many of them believe that action should be taken on grain imports to better serve the interests of national grain farmers and regain more food sovereignty.
  - Finally, despite the efforts of the State, investment in the sector still seems to be unattractive, which limits the prospects for significant change in the short and medium term.
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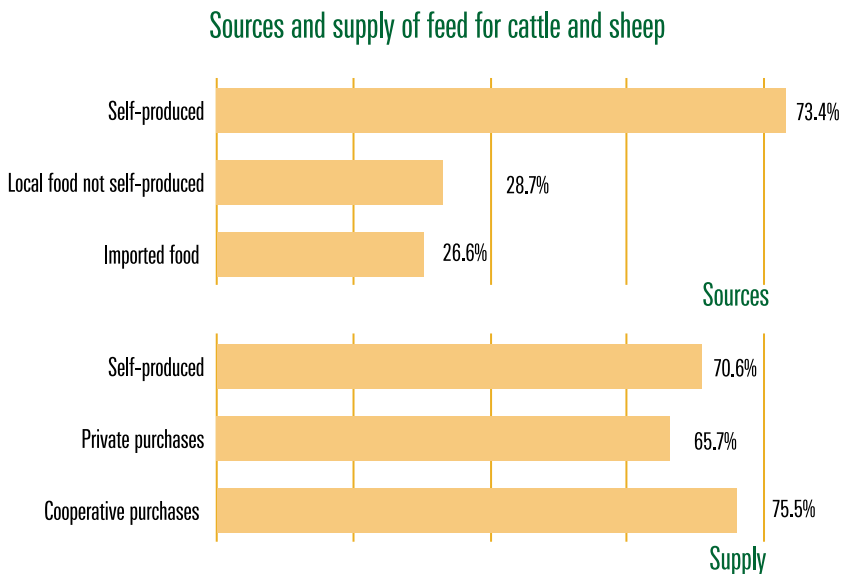
## 3. Perception of the impact of the war by milk and red meat producers

- 143 farmers provided responses to the survey; nearly 89% of them stated that they raise sheep compared to 47% for beef breeding.
- Beef breeders responding to the survey were predominantly red meat producers (91%). Milk producers accounted for nearly half of the beef breeding respondents.

■ Sheep breeders who have agricultural land seem to be more interested in non-fodder crops. Those growing fodder crops account for less than 10%.

■ Beef breeders are mainly growing fodder crops.

■ More than 70% of the breeders confirm that they rely mainly on self-production as the primary source of feed for their sheep and cattle herds. More than 2/3 of the respondents seem to need to resort to complementary purchases. The main source of feed purchased is from agricultural cooperatives (75%), followed closely by the purchase of feed from the private sector (66%).



■ 72% of the breeders surveyed stated that they had been impacted by the current war between Russia and Ukraine versus 27% stating that they had not experienced any noticeable impact on their activities.

■ A close examination of the respondents' answers reveals that almost all of the unaffected breeders are raising sheep.

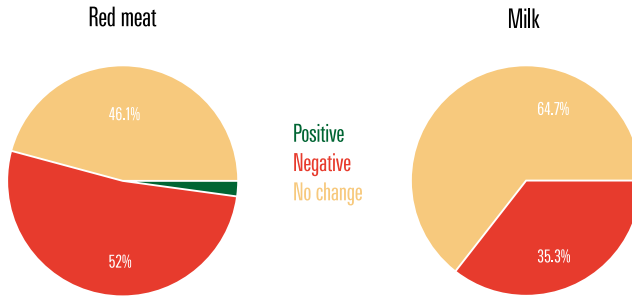
■ Almost all of the breeders surveyed stated that they were negatively impacted by the war on the availability of animal feed, seeds, and products for the treatment of plant or animal diseases.

■ 52% of the breeders engaged in the production of red meat stated a negative impact of the war on the selling prices of their products against 46% stating that they did not experience any noticeable change in the prices.



■ Milk prices are set by the state. Dairy farmers declared that these prices have not varied. For almost a third of them, the impact of the war has been felt negatively in terms of the prices currently charged.

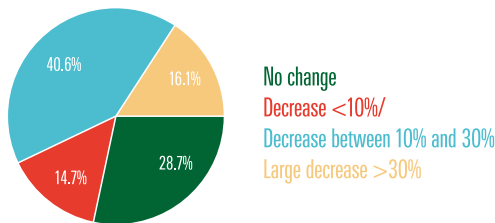
### Impact of the Russian-Ukrainian war on the sale prices of red meat and milk



■ In response to a follow-up question, farmers state that prices have not changed in a way that is proportionate to the increase in feed or production costs.

This explains the perception of farmers regarding the impact of the war on their income. 60% of them declare a decline in income. For 16% of them this decrease exceeded 30% in comparison to previous years. For 29%, the drop in revenues was between 10 and 30%.

### Impact of the war on the income of breeders



■ The freezing of milk prices in the face of a vertiginous increase in production costs explains the current crisis in the milk sector, which has been going on for months without any outcome satisfying all stakeholders in the sector (as of the beginning of December 2022).

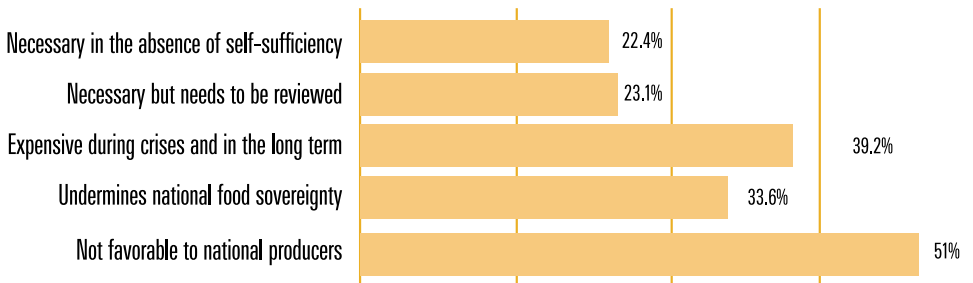
As for the forecasts for the 2022/2023 season the surveyed breeders highlight two important trends:

- Unfavorable weather conditions according to 71% of respondents (drought, lack of water) ;
- Insufficient availability and access to feed for 12% of respondents;

Thus, we understand the reason why 60% of them expect lower yields (for red meat producers).

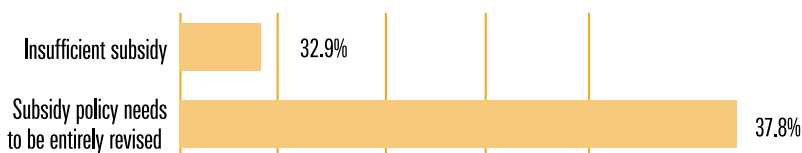
Relating to the perception of breeders on the feed import policy, 51% of respondents consider that it is not favorable to national producers. Similarly, nearly 40% of respondents believe that it is costly for the State and the taxpayer during external crises and in the long term. Finally, 1/3 of respondents believe that it is weakening national sovereignty in terms of animal production.

### Breeders' perception of the feed import policy (barley, maize, etc.)



1/3 of dairy cattle breeders consider the production subsidy policy to be insufficient and that the State's policy in this area should be completely revised.

### Dairy farmers' perceptions of the milk subsidy policy



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## To retain

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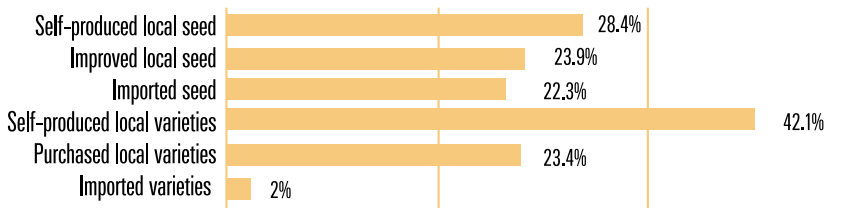
- Sheep farming does not seem to be directly affected by the Russian-Ukrainian war, since farmers rely on local fodder production. It is rather the effects of climate change and the availability of grasslands that would impact this predominantly extensive type of breeding in Tunisia.
  - On the other hand, beef farmers claim to be greatly affected by the Russian-Ukrainian war:
    - More than a third of milk producers stated that they had to deal with an unsustainable increase in the price of raw materials, and a large proportion thought that the policy of subsidizing milk producers should be revised.
    - Half of the breeders involved in red meat production confirmed a negative impact of the war on the selling prices of their products.
  - A good part of the beef breeders think that it is necessary to reconsider the policy related to the import of raw material necessary to the beef breeders to better protect their interests.
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## 4. Perception of the impact of the war among fruit and vegetable farmers

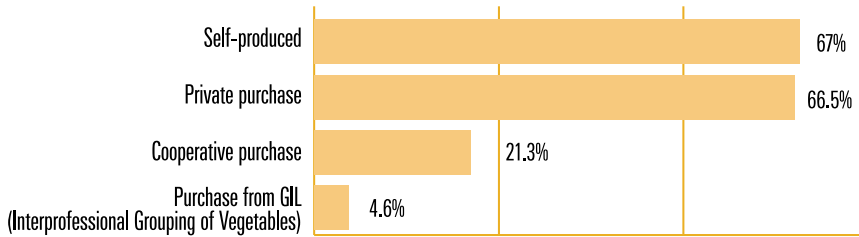
■ Fruit and vegetable farmers seem to rely more (42%) on self-produced local varieties during the crisis caused by the War in Ukraine. Otherwise, as a second option, they turn to purchasing local varieties mainly from private operators or to a lesser extent from cooperatives.

■ 28% of the seeds used by vegetable producers are local, self-produced seeds, followed closely (24%) by improved local seeds and imported seeds purchased from private operators or cooperatives.

### Seeds and varieties used by fruit and vegetable producers



### Main sources of seeds and varieties

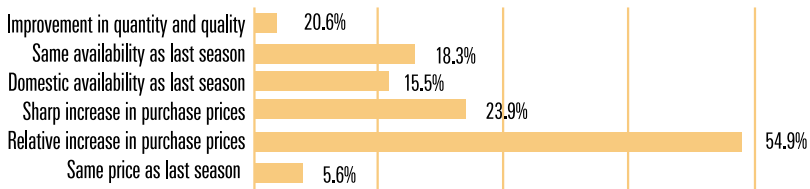


64% of fruit and vegetable farmers surveyed say they have been impacted by the crisis arising from the Russian-Ukrainian war.

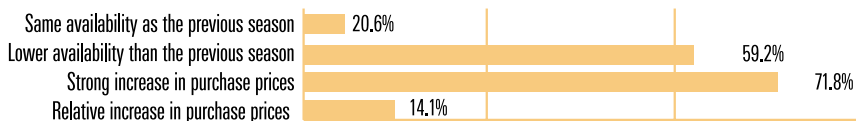
In terms of production factors, this impact seems to be mainly related to:

- The relative increase in seed and variety purchase prices
- The sharp increase in purchase prices and the lack of availability of fertilizers and phytosanitary products

### Impact of the Russian-Ukrainian war on the availability and prices of fruit and vegetable seeds and varieties



### Impact of the Russian-Ukrainian war on the availability and prices of fertilizers and pesticide products



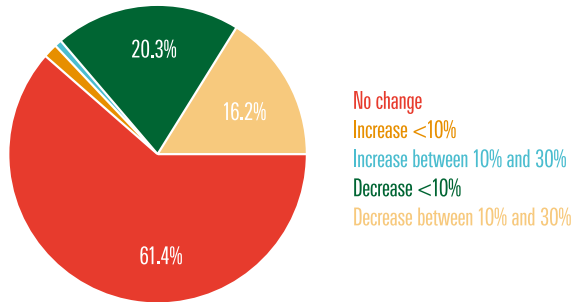
With regard to sales prices, the impact of the war seems to be mainly perceived as negative (for 79% of respondents).

18.3% stated that there is no impact felt.

Almost 2/3 of the fruit and vegetable farmers confirm that the Russian-Ukrainian war has not had an impact on their income.

The remaining fruit and vegetable producers mostly argue that the Russian-Ukrainian war has had a negative impact on their income.

### Impact of the war on the income of fruit and vegetable producers



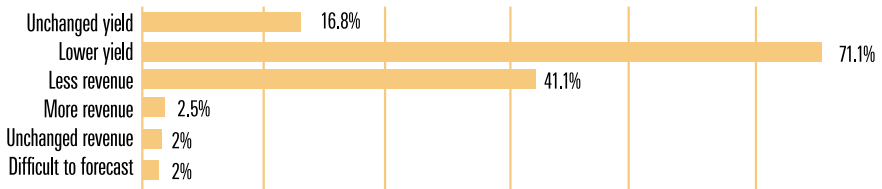
Regarding forecasts for the 2022/2023 season, 94% of the fruit and vegetable producers surveyed emphasize that the effect of the crisis resulting from the Russian-Ukrainian war will have a multiplier effect in conjunction with the unfavorable weather conditions (drought, lack of water) ;

Thus, we understand the reason why 71% of the latter expect lower yields and consequently lower revenues for 41% of them.

### Severe trends in the 2022/2023 season compared to 2021/2022 according to fruit and vegetable producers



### Fruit and vegetable producers' forecast for the 2022/2023 season compared to 2021/2022



■ To explain the increase in consumer prices of fruits and vegetables during 2022, producers indicate the increase in input costs (57%) followed by speculation of intermediaries (52%).

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### To retain

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Vegetable and fruit producers seem to be less directly affected by the effects of the Russian-Ukrainian war. They relate their main difficulties to the problems of drought and climate change.

Issues related to procurement of raw materials and, above all, the increase in their prices partly account for the rise in prices of vegetables and fruit at the consumer level.

The opportunist nature of intermediaries and speculation also partly explain the rise in prices of vegetables and fruit at the consumer level.

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## III. Further explanations from other stakeholders in the food system

To complement our study by exploring the other components of the Tunisian food system that have been impacted by the war, a number of discussions were held with other key actors, working in the four sectors covered by this study. These helped to provide a better understanding of the impacts felt by stakeholders other than farmers and breeders, active in various levels of sectors (production, collection, storage, industrial processing, distribution, marketing and consumption) and to detect the worsening factors, as well as the measures undertaken by the State to mitigate these impacts.

The main impacts that emerged from these interviews are summarized in the following tables by sector.

## 1. "Cereals" sector

### a. The main impacts raised

<b>Sector level</b>	<b>Impact raised in connection with the Russian-Ukrainian War</b>
<b>Production</b>	Reduced access (more expensive prices) and availability of certain important raw materials.
	Combined with the effects of drought and the increase and unavailability of spare parts for some agricultural machinery.
<b>Collection/ storage</b>	Financial balance and profitability deteriorated among cooperatives and private actors active in collection and storage due to the increase in transport and operating costs (fuel, etc.) combined with a collection that is lower than the objectives announced and planned at the national level.
<b>Industrial processing</b>	Punctual quantitative and qualitative disruptions in the supply of flour mills and industries of cereal derivatives and bakeries.
	Deteriorating profitability of millers, industrials and bakers due to the increase in energy costs and delays in access to State subsidies.
<b>Distribution and Marketing</b>	Punctual disruptions of wholesale and retail supply.
	Increasing number of infringements linked to opportunistic behaviour and speculation among intermediaries.
<b>Consumption</b>	Disturbance in the delivery of cereal derivatives.
	Emergence of a black market and attempts to raise prices, especially in some bakeries.

In view of the effects of the crisis, the State has taken the following measures:

<b>Sector level</b>	<b>State measures</b>
<b>Production</b>	Improving reference prices for the reception of cereals by the cereal office and private collectors.
	Implementation of an emergency plan aimed at achieving self-sufficiency in durum wheat by 2023. This will reduce the import bill of cereals and limit the weight of this bill on the state budget.
	Setting fertilizer prices for the 2022/2023 campaign.
<b>Collection and storage</b>	No measure cited.
<b>Industrial processing</b>	No measure cited.
<b>Distribution and Marketing</b>	Law on the fight against speculation.
	Increased oversight to prevent opportunistic behaviour by intermediaries.
<b>Consumption</b>	No measures besides optimizing rations during short, occasional supply shortages.

## b. Proposals collected

According to our discussions with the key informants, the State and stakeholders in the “cereal” sector must improve the availability of and access to agricultural inputs, better manage public imports, and take into consideration unfavorable climate conditions, which could further weaken the financial condition of the sector’s actors.

## 2. “Milk” sector

### a. The main impacts raised

Sector level	Impact Raised
<b>Production</b>	Production costs becoming very high for dairy farmers. Significant reduction in milk production. Accelerated abandonment of livestock, either for red meat production or into informal and smuggling networks.
<b>Collection and storage</b>	Increase in the sale of milk outside formal collection channels. Worsened profitability of milk collection centers which proposed an increase of 20 millimes/liter to farmers out of their own resources in addition to the increased transport and operating costs (fuel, electricity, etc.) and a lower collection than in previous years.
<b>Industrial processing</b>	Quantitative and qualitative disturbances in the supply of milk and dairy production plants. Factories are turning to the production of more quantities of milk derivatives (yoghurt, butter, cheese, etc.) to improve the profitability of their activity as they are facing reductions in the supply of raw materials, an increase in energy and operating costs in addition to delays in access to State subsidies.
<b>Distribution and Marketing</b>	Punctual disturbances in the supply of wholesalers and retailers. Increased infringements linked to opportunistic behaviour and speculation among intermediaries.
<b>Consumption</b>	Fairly long-lasting shortages. Emergence of a black market and attempts to raise prices at all levels.



In view of the effects of the crisis, the State has taken the following measures:

<b>Sector level</b>	<b>State measures</b>
<b>Production</b>	200 millimes/liter increase in the subsidy granted to farmers (deemed insufficient by farmers). Fixing fertilizer prices for 2022/2023 barley and fodder production (used to feed dairy cows).
<b>Collection and storage</b>	No measure. Non-State measure: collection centers have taken the initiative to add a subsidy of 20 millimes/litre collected from dairy cow farmers.
<b>Industrial processing</b>	No measure cited.
<b>Distribution and Marketing</b>	Law on the fight against speculation. Increased oversight to prevent opportunistic behaviour by intermediaries. Prohibition of sales outside of large and medium stores and groceries.
<b>Consumption</b>	No measures besides optimizing rations during short, occasional supply shortages.

## b. Proposals collected

Our discussions with key informants allowed us to determine that the problem of subsidy amounts and distribution within the dairy sector is becoming recurrent and alarming with every exogenous crisis that arises. The crisis resulting from the Russian-Ukrainian war has caused production costs to skyrocket for farmers.

Faced with this, the State and stakeholders in the sector urgently need to reach an agreement and establish effective subsidy mechanisms to boost production and continued satisfaction of national demand for milk.

### 3. “Red Meat” sector

#### a. The main impacts raised

Sector level	Impact Raised
<b>Production</b>	Production costs becoming very high for beef farmers in particular. Competition due to the increase in the abandonment of dairy cows for the production of red meat.
<b>Collection/storage</b>	Increased energy and operating costs.
<b>Industrial processing</b>	Rising energy and operating costs.
<b>Distribution/ Marketing</b>	Rising energy and operating costs.
<b>Consumption</b>	Declining demand in the face of rising prices and overall declining purchasing power.

The government does not seem to have taken any particular measures to address the impact of the crisis, except for the setting of fertilizer prices for the 2022/2023 season, which could improve the cost of production to a certain extent for livestock breeders who produce part of their animal feed needs.

#### b. Proposals collected

Based on our discussions with key informants, we noted that the impact of the crisis resulting from the Russian-Ukrainian war was limited to a reduction in consumer demand due to reduced purchasing power and a relative increase in the sale price of red meat.

Improving citizens’ purchasing power seems to be the main priority to be targeted by the State and the operators of the sector to boost demand.

## 4. “Fruits and Vegetables” sector

### a. The main impacts raised

<b>Sector level</b>	Impact Raised.
<b>Production</b>	High production costs for farmers engaged in fruit and vegetable production. Combined effect of drought and lack of irrigation water.
<b>Collection/storage</b>	Difficulties in storing fruits and vegetables at refrigerated storage facilities for fear of being penalized for speculation. Higher storage costs at refrigerated storage facilities due to rising energy prices.
<b>Industrial processing</b>	Increased energy and operating costs.
<b>Distribution/ Marketing</b>	Increased transportation costs.
<b>Consumption</b>	Increase in consumer prices.

In response to this impact of the crisis, the State seems to be concentrating its efforts on reducing the opportunistic behaviour of intermediaries and combating speculation.

### b. Proposals collected

The priority for the sector stakeholders seems to be to address the problem related to the application of the law fighting against speculators among refrigerated storage companies, to improve access to inputs and water for producers and to improve consumers’ purchasing power.

## 5. Conclusion

It is clear that the most impacted sectors were those that depend most on imported production factors. The emergency measures such as the increase in the purchase price for cereal farmers, have helped to mitigate the production crisis. The increase in production costs in this case was offset by a higher producer selling price, which was supported by the Tunisian state, by maintaining the consumer selling price (.ie. not lifting subsidies on basic necessities) has also mitigated the effects of this rise in consumption. This is not the case for producers in the Milk-producing sector since the selling price of milk has not increased, and the cost has not been passed on to consumers,

nor supported by the State. This increase in costs has clearly been supported by farmers, which endangers the future of the sector, which is already suffering from several structural problems.

The other sectors that have not declared to perceive a significant impact such as fruits and vegetables and sheep farming are those where the consumer prices have shown the strongest increases, as these are prices of free products, it is the consumers who have suffered this cost increase.

Finally, it is important to note that in view of the climatic conditions and the drought that the country is experiencing, in addition to the low level of subsidies and funding granted to farmers, even the sectors that have been the least impacted at the production level may be impacted at other levels such as storage, distribution and consumption, which are more vulnerable to other factors induced by the war, such as the increase in transport prices, and may also experience a boomrang effect induced by a general crisis of sustained inflation, the direct effects of higher prices and lower consumption.



## SECTION 4: RECOMMENDATIONS

Drawing on the analysis conducted in sections 2 and 3 of this study, the following main recommendations are put forward to decision-makers and influential stakeholders in the Tunisian food system.

Revise the food policy and agri-food strategies taking into account the prospects of possible recurrence of crises such as COVID 19 or the impact of wars between agricultural and food powers, combined with the structural vulnerabilities of the Tunisian food system and the greater effects of climate change.

In this context, looking at this policy through the prism of food sovereignty would mean improving the protection of the national food system and public finances from the effects of unsustainable shocks caused by the rise in international prices of inputs and strategic foodstuffs. The State should carry out a national agrarian and fiscal reform that would make it possible to limit the reliance on food import and to put in place policies to strengthen food resilience in the country in order to better take into account the interests of national actors, particularly farmers and small farmers, and to better protect their rights, while also protecting the rights of consumers to access healthy food.

Create a fund for food sovereignty in order to limit the use of external funding to finance these national reforms and limit the intervention of donors in drafting national agricultural policies.

Ensure better coherence between all policies impacting food security in order to strengthen national capacities for crisis management and resilience of the Tunisian food system in its totality and at the territorial level, to make it sustainable and resilient to effects of external shocks (crises and natural disasters).

Strengthen consultation, inclusiveness and good governance mechanisms within the food chains and ensure continuous debate among State institutions and stakeholders in the sectors to improve crisis management.

Promote monitoring and foresight mechanisms and consider ways to make simplified and more flexible administrative procedures, particularly for public imports of foodstuffs in the event of crises such as the one caused by the Russian-Ukrainian war. This means defining objective legal criteria for declaring a state of food emergency in the event of a major crisis that would justify recourse to a more flexible public procurement procedure than the one adopted in normal times.

Further examine the territorial and local resilience mechanisms adopted by cereal and livestock farmers, and to consider compensation measures and incentive funding in order to sustain them in the future.

To improve the financial situation and income of small-scale farmers, particularly women, by resolving the problem of debt, reviewing insurance regulations and risks related to climate change, and establishing a social security system and putting an end to income disparities between men and women in the agricultural sector.

Improve the profitability of formal actors in the sector, particularly those involved in production, storage and processing, by accelerating the disbursement of subsidies to industrial processors and making taxation more flexible in times of crisis. This will increase the resilience of the chains to shocks.

Reconsider the ecosystem dynamics involved in the supply of production inputs to farmers in order to integrate more traceability and transparency for increased efficiency. Digitalization could be an interesting approach for improvement.

Enhance the control of formal and informal intermediaries and border smuggling while ensuring that formal collection and storage actors do not develop a “fear” dynamic. This can be achieved in part by introducing digitalized collection and storage processes to promote the traceability of flows and transparency of financial transactions, and limit informal trade

Improve citizens’ purchasing power as quickly as possible by restoring a balance between the four pillars: wealth creation (growth), control of overall inflation, wage increases and targeted social assistance and compensation. Unless this balance is achieved, improving purchasing power would mean further burdening the state budget.

A global reform that puts at the center the agricultural policy of the country in order to improve as soon as possible the situation of the farmers and the purchasing power of the citizen, and to prioritize the strategic national objectives. This cannot be achieved by pursuing the current austerities policies based only on a logic of financial balances that prioritizes the repayment of the debt over the real needs of the population, the preservation of ecosystems, natural resources, and local knowledge.



