



The Russo-Ukrainian War Is A Threat To Food Security In The Arab World

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ABSTRACT

The research focuses on the growing food security crisis in the Middle East and North Africa. Western sanctions against Russia have led to a sharp rise in energy and food prices, which will have an impact on global energy and commodity markets in the long run. The Russian invasion has forced Ukraine to ban the export of wheat, oats, millet, buckwheat and other foods for its own domestic food supply. It is worth highlighting that in 2021, Russia and Ukraine together exported more than a quarter of the world's wheat, a decline or failure of which places a heavy burden on the economies of its major importers. The coronavirus epidemic has highlighted vulnerabilities in global supply chains, public health systems, and food and energy security. Arab countries rely heavily on grain imported from Russia and Ukraine, buying more than 60 percent of their wheat from the two countries. States that have previously faced economic problems or conflicts have now found themselves in an even more difficult situation, for which they are urgently seeking solutions. But even if importers want to replace Russia and Ukraine, they will have to face a number of challenges when looking for alternative sources of wheat supply. Rising energy prices are exacerbating the problem and leading to drastic increases in food and wheat prices. And the high price of oil makes it quite expensive to import wheat from distant producers, whether in North or South America or Australia.

Keywords: Russo-Ukrainian war, food security, arab world, economy, riots

1. Introduction

The Middle East and North Africa (MENA) region is one of the world's largest importers of cereals and other basic foodstuffs. Nearly 17 percent of international wheat imports go to these states — about 76 to 88 percent of which flow to three countries: Algeria, Egypt, and Morocco. Food imports per capita are higher than in any other region and in some countries can reach 25 or even 50 percent of domestic consumption (Climate Diplomacy, n.d.). The reasons for the high dependence on food imports are the following:

1. Low production capacity (due to climatic constraints and lack of irrigation facilities),
2. Rapidly growing domestic demand (the countries of the Middle East have the fastest growing populations in the world) and
3. Decades of structural economic problems and export-oriented agricultural policies that have eroded local food production capacities (FAO, 2016).

Import dependence, on the other hand, makes them more vulnerable to price fluctuations in international food markets caused by restrictive trade policies, financial speculation, fluctuating energy prices or adverse climatic events in major exporting countries.

2. The Impact of the Russian-Ukraine War on Food Trade and Supply Chains

The Russian invasion of Ukraine has exposed the vulnerabilities behind the energy system and will inevitably accelerate the global food crisis. Some regions are more affected than others. Like the COVID-19 crisis, this war is affecting agriculture, food production and a direct threat to food security. Existing inequalities are increasing. In West Africa, for example, where overfishing and the devastating fish oil and fish meal industry are already threatening livelihoods, the proportion of

hungry people has risen to record levels (Tazrouiti, 2022). With regard to fragile countries such as Syria, Lebanon or Yemen in the Middle East and North Africa, millions of households are struggling with soaring food prices.

According to the UN, food prices rose to an all-time high in March 2022 as a result of Russia's invasion of Ukraine, and this trend could continue worldwide. MENA countries are mainly dependent on Ukraine and / or Russia for their food imports, especially cereals. Russia and Ukraine are the world's two largest grain exporters. In 2020, Russia accounted for 18.7 percent of world wheat exports and Ukraine for 9.1 percent. 40 percent of wheat and corn exports from Ukraine go to the Middle East. The ongoing conflict is causing serious disruptions in the cereals and oilseeds supply chain, raising food prices and significantly raising domestic production costs in the agricultural sector. Russia and Ukraine account for more than 30 percent of global trade in wheat, 32 percent for barley, 17 percent for corn, and more than 50 percent for sunflower oil, seeds, and feed. Lebanon, for example, is also heavily dependent on wheat imports from Ukraine and Russia. Customs data show that in 2020, Lebanon imported 81 percent of its wheat consumption from Ukraine and 15 percent from Russia (The Guardian, 2022).

Millions of people in the Middle East and North Africa have suffered from the severe consequences of hunger and malnutrition long before the COVID-19 pandemic disrupted supply chains and pushed back public spending. Now the war in Ukraine is exacerbating the food insecurity that has characterized it so far (Arabi21, 2022). According to the World Bank, in 2020, 20 percent of the world's population facing food insecurity lived in the MENA region, which accounts for 6 percent of the world's population (Tazrouiti, 2022). With millions of people living in deep poverty in one of the world's most unequal regions, rising food prices are likely to have a devastating effect. There is a cyclical link between food insecurity and conflict: food insecurity exacerbates conflicts and conflicts worsen the food security situation.

3. Serious Import Dependence

It is important to know that the Middle East and North Africa region is generally highly dependent on food imports, although there are significant differences between states. While Turkey and Israel, for example, rely less on external food markets, Saudi Arabia or Egypt rely heavily on them. This situation makes the region particularly vulnerable to the effects of fluctuations in international food prices. At the same time, the political stability of many MENA countries has long been linked to their ability to provide affordable prices for bread and other basic foodstuffs through a system of stocks and subsidies. Flares of food inflation, whether caused by external shocks or the abolition of subsidies, have often been accompanied by protests and violent repression. In Egypt, for example, bloody riots broke out after the abolition of bread subsidies in 1977 (Masrawy, 2015)¹, and similar incidents took place in other MENA countries. The combination of political fragility and high dependence on international food markets can easily lead to social instability in many MENA countries, often as a result of rising global food prices. A good example of this is the series of

¹ „Egyptian bread riots”: The 1977 “Egyptian bread riots” (Intifadatu-l-Khubz) was a series of rebellions that affected several major cities in Egypt. Thousands of people attended the events of January 18-19, 1977, due to the abolition of state subsidies for basic foodstuffs. 70 people died and more than 550 were wounded in the protests. The uprisings could only be curbed after the deployment of the army. See Masrawy, 2015.

revolutions that shook the region in 2011 - often referred to as the “Arab Spring” - which coincided with the historic peak of the FAO² food price index (FAO, 2022a). Since December 2010, a revolutionary wave of violent and non-violent protests in Tunisia has spread rapidly to other states in North Africa and the Middle East, leading to the overthrow of autocratic regimes in Tunisia and Egypt and the protracted conflicts in Syria, Libya and Yemen, but there were also protests and clashes with government forces in many other countries. However, the role of food inflation in triggering the Arab Spring should be treated with caution (Climate Diplomacy, n.d.). The problem is much more complex, as in addition to the rise in the food price index, deepening social inequalities and years of political disenfranchisement also played a significant role in the outbreak of local revolutions, which also acted as a catalyst.

As the latest IPCC³ report shows, the MENA region is one of the most sensitive areas in the world in terms of climate (Climate Diplomacy, n.d.). The region is already experiencing environmental stressors such as water scarcity, air pollution and poor waste management, as well as declining soil fertility, biodiversity and marine life. Affected communities are feeling the effects of climate change on food and water security. Falling yields and incomes, especially for smallholders, are deteriorating livelihoods, especially for the poorest households, mainly from agriculture. It is noteworthy that the situation in Yemen within the region has been described as the worst humanitarian crisis in the world, with 80 percent of the population in need. According to the United Nations, the number of people in need of food aid in the country could rise to more than 17 million in the second half of 2022 (Al-Arifi, 2022).

4. The Report of Human Rights Watch (HRW) and Greenpeace

According to a Human Rights Watch report (HRW, 2022) released in March, governments must ensure that the conflict in Ukraine does not exacerbate the food crisis in the Middle East and North Africa, and protect the right of everyone to have access to affordable, adequate food. The disruptions associated with the Russo-Ukrainian war are already exacerbating the rising food prices and deepening poverty.

„Global food chains are demanding global solidarity in times of crisis,” said Lama Fakih, director of Human Rights Watch in the Middle East and North Africa. *„Without concerted action to address food security and affordability, the conflict in Ukraine will deepen the global food crisis, especially in the Middle East and North Africa”* (CNN, 2022).

According to HRW, everyone has the right to adequate and sufficient food under international human rights law. Russia’s invasion of Ukraine has led to rising prices for bread and other staple foods, especially in countries in the Middle East and North Africa that are heavily dependent on grain from Ukraine, so governments need to take urgent action to protect the right to food.

According to the FAO, Ukraine has one-third of the world’s most fertile soil and 45 percent of its exports are of agricultural origin (FAO, 2022b). It is one of the world's leading exporters of sunflower oil, rapeseed, barley, corn, wheat and poultry. Much of the country’s wheat production comes from areas of eastern Ukraine where the current conflict is most severe. On March 9, 2022, Ukraine banned the export of grain and other food products to prevent a domestic humanitarian crisis. Even if these

² FAO: Food and Agriculture Organization of the United Nations

³ IPCC: Intergovernmental Panel on Climate Change

supply chain disruptions are resolved soon, the problems are expected to persist as farmers flee the fighting and the conflict destroys infrastructure and equipment. Fighting can also severely set back the upcoming harvest. As already mentioned, the prices of basic foodstuffs have already risen worldwide due to the disruption of the food supply chain caused by the epidemic, and this has been exacerbated by the conflict.

Another international organization, Greenpeace, has also made recommendations. According to it, national governments need to develop and fund public policies that build long-term resilience and strengthen the food sovereignty of local communities. This includes reducing industrialized food production and working to produce healthy food for people. Moving towards a sustainable food system based on food sovereignty and organic farming is critical to the future of people and the planet (Tazroui, 2022). Most countries in the world need to play a proactive role in negotiating the effects of climate change. This includes mitigation and adaptation plans and ensuring that rich polluting countries meet their commitments to pay for the devastating losses and damage caused by the climate crisis.

5. Direct Effects on Arab Countries

In the following, we examine in detail the reactions to the problems described above in different Arab countries. In the description, we distinguish four groups: the Gulf countries, the North African region, the Arab states affected by crises and conflicts, and the most populous Arab country with a population of more than 105 million (Worldometer, 2022), Egypt. We can also see similarities and differences between the crisis management of different Arab countries. Oil-rich states are striving for future self-sufficiency, for which they are mobilizing great energies. Countries in a fragile economy, on the other hand, are in need of international aid and are trying to stockpile and import from elsewhere, which is hampered by high fuel prices due to soaring oil prices.

5.1. The Richer States of the Gulf

This group is definitely worth discussing separately, as the countries in this region are at a much higher level in terms of resources and economic opportunities than other Arab states, making their crisis management completely different. According to the Food and Agriculture Organization of the United Nations, wheat imports from Russia and Ukraine are the highest in the United Arab Emirates (54 percent) and the Sultanate of Oman (70 percent). The FAO has indicated that the two countries will be severely affected by the consequences of the Russian war against Ukraine. According to the report, it is not the purchase of wheat that will cause the problem, but the rise in prices, which has already reached critical levels in recent years.

The UAE has already begun to develop its food security strategy before the crisis unfolds. Recognizing food insecurity in the past, they are investing more and more in local agricultural production, increasing storage capacity, diversifying food suppliers and expanding agricultural investment in regions with significant arable land. The United Arab Emirates has set up a Food Security Council, and the Gulf Cooperation Council has adopted a proposal in Kuwait to set up a regional network to provide food security (Agsiw, 2022).

There are Arab countries in the Gulf, such as Saudi Arabia, that want to proactively overcome the food crisis. The Kingdom plans to produce durum wheat in quantities to cover domestic consumption. Saudi official sources have reported that a program is underway to produce high-yield, high-quality durum wheat varieties in three phases (Al Arabiya, 2022). The resulting varieties will be characterized by high acclimatization capacity and genetic stability. It will take more than eight years to produce

the varieties, but following the fast-growing wheat program will shorten the period to five years and new durum varieties will be created by crossing. The Ministry of Agriculture, like some other important crops, has managed to create an investment opportunity to produce durum wheat locally. The goal of the desert country is to keep wheat available at all times so that a high level of food security can be achieved.

5.2. Food Price Inflation in North Africa

Regardless of the Russo-Ukrainian war, food inflation in North Africa's Arab countries, Tunisia, Algeria, and Morocco is at an unprecedented rate since the outbreak of the Arab Spring more than a decade ago. The lack of adequate measures to address the negative effects of increased water scarcity and climate change also plays a role in food fragility.

The main vulnerability of these states, as already mentioned, is their high dependence on grain imports for human consumption and animal feed. The global average price of cereals increased by 27.3 percent in September 2021 compared to September of the previous year, and prices have risen at an even faster pace since then. For households in Tunisia, Algeria and Morocco, the food crisis is most felt in the price of bread. The price of wheat used to make bread at the end of the third quarter of 2021 was \$ 271 per tonne, an annual increase of 22 percent. In the fourth quarter of 2021, prices continued to rise as global inventories shrank as crops in the United States, Canada, Russia, and other producers in the Black Sea region were damaged by droughts, frost, and heavy rainfall (Tanchum, 2021).

The figures described above date back to before the Russo-Ukrainian war, but the current conflict will exacerbate the current situation, as, as already mentioned, these two countries export larger quantities of cereals to both the Middle East and North Africa. There are few immediate solutions to the problems of the states in the MENA region that are contributing to the food and water crisis. The construction of new dams, irrigation systems and desalination plants, as well as additional power plants operating them, requires a large amount of capital investment, which is not incidentally extremely time-consuming. Addressing these issues would require, above all, good governance in policy planning and implementation.

In response to growing food security concerns, Arab states in North Africa are pursuing food protectionist policies to prevent inflation and protect local food supplies. These countries have reduced or banned exports of key foods in the past month due to concerns about rising food and fuel prices. Algeria has announced a ban on exports of wheat, sugar, vegetable oil, pasta and semolina, and Morocco will reduce tomato exports.

5.3. Difficulties in Arab States Affected by Crises and Conflicts

Lebanon is extremely affected by the crisis. In 2020, about 80 percent of the Arab country's total wheat imports came from Ukraine and another 15 percent from Russia, according to official customs data (AP News, 2022). On 25 February, the Lebanese economy minister said the country's wheat reserves were only enough for a month, as an explosion in the capital's port on 4 August 2020 destroyed the Beirut grain silos (AP News, 2022), which had previously provided four months of wheat reserves. The industry minister said in a Twitter message on March 5 that Lebanon is starting to feed wheat and other alternative sources of supply are being explored. The minister also added that this is not a crisis in Lebanon specifically, but a global one (Bouchikian, 2022). The government is trying to import wheat from Canada, Australia and the United States. On 13 March, Turkey announced that it would donate more than 500 000 tonnes of food aid to Lebanon.

More than 40 percent of Libya's wheat imports come from Ukraine. The Ministry of Economy and Trade said on February 26 that the country had sufficient strategic wheat reserves for six months, but still failed to prevent flour supply disruptions in several Libyan cities (Al Wasat, 2022). The Libyan government has stabilized prices to resolve the crisis (up to 110 Libyan dinars / 22 US dollars can be requested for 50 kg of flour) (Al Wasat, 2022). However, after a decade of intermittent armed conflict, a political stalemate, the collapse of central power and the emergence of irresponsible warlords, much of the population needs support, and if this crisis is not properly addressed, severe food shortages could occur in the African Arab country.

Syria is already suffering from severe wheat shortages due to the long-running economic crisis and the infrastructure destroyed in decades of armed conflict. The Syrian government is relying primarily on Russia to close the shortage of wheat imports. In December 2021, the government reached an agreement with Russia to import 1 million tons of wheat from a Russian loan in 2022. According to the World Food Program, 13.4 million people in Syria are suffering from food shortages. In December 2021, the Food and Agriculture Organization of the United Nations estimated that Syria's wheat production in 2021 would fall short of projected needs by about 1.6 million tons, in part because Syria is experiencing an acute drought (Reliefweb, 2021). The Ukraine-Russia conflict is likely to exacerbate the current Syrian crisis, especially because of the suspension of the wheat import agreement between Russia and Syria. The Syrian government took measures at the end of February to add wheat and fuel reserves (Reliefweb, 2021). They have also committed themselves to prioritizing the financing of wheat imports. The north-western Syrian authorities supply the area with wheat and flour procured through Turkey (Reliefweb, 2021).

The years of war in Yemen have led to a particularly serious humanitarian crisis. The war in Ukraine is likely to exacerbate food insecurity as it imports at least 27 percent of the country's wheat from Ukraine and 8 percent from Russia. More than half of the population is in need of food aid due to soaring food prices in recent years, while the sharp devaluation of the Yemeni rial has made imported food, oil and other necessities more expensive and has dramatically reduced household purchasing power.

Iraq continues to suffer from drought, and the Iraqi Ministry of Agriculture has recently cut agricultural crop production in the country's irrigated areas by 50 percent over the previous year due to surface water shortages, according to a report by the Global Agricultural Information Network (GAIN). The USDA⁴ forecasts wheat production for 2022-23 at 3.25 million tons, well below the estimated 5.47 million tons for 2021-22. Therefore, in addition to the steady increase in wheat consumption in Iraq, imports are expected to reach 3.4 million tonnes in 2022-23, an increase of 1.2 million tonnes compared to 2021-2022 (Donley, 2022). Iraq is trying to disengage itself from the negative effects of the Russo-Ukrainian war, so it imports wheat mainly from Australia and is therefore willing to charge a much higher price (Aldroubi, 2022).

5.4. Wheat accumulation in Egypt

More than 70 million Egyptians are in need of „subsidized bread” (Salem et al. 2021). In addition, as already mentioned, Egypt is the world's largest buyer of wheat and the largest importer of wheat from both Russia and Ukraine. In 2021, about 80 percent of Egypt's wheat imports came from Russia and Ukraine. On 23 February, Prime Minister Mustafa Madbuli stated at a government meeting that

⁴ USDA: United States Department of Agriculture

Egypt's current wheat stock was sufficient for four months. In mid-April, the local crop was harvested, so the stock expanded to about nine months. In August 2021, President Abd el-Fatha es-Sisi announced that the \$ 3 billion-a-year bread subsidy would be abolished (Sky News Arabia, 2021). The issue of bread subsidies has been extremely politically sensitive since the 1977 „bread riots” that erupted after President Anwar Sadat announced the abolition of subsidies for flour, rice and cooking oil (Al Masry Al Youm, 2013).

6. Conclusion

Arab countries in the Middle East and North Africa are in need of imports of various cereals, but their imports are now facing obstacles. We can also see similarities and differences between the crisis management of different Arab countries. Responses to the problem vary from country to country: resource-poor or conflict-ridden states need external support (such as Lebanon, Yemen or Syria), more prosperous Gulf oil states are developing proactive strategies (such as the United Arab Emirates or Saudi Arabia), North African countries (Morocco, Tunisia, Algeria) are banning exports and stockpiling their stocks, but they do not have long-term strategies, while Iraq, which earns high revenue from oil exports, is looking for new, distant suppliers (such as Australia). What is certain is that if the supply of cereals continues to stagnate, there could be an unprecedented food shortage and food security crisis in the Arab states, which are already economically failing. The Russian-Ukrainian conflict threatens a global food crisis that could increase hunger and malnutrition in the Middle East, North Africa, Central Asia and beyond. The Food and Agriculture Organization has stressed that food prices and poverty rates will continue to rise at an alarming rate in 2022 and 2023. If this really happens, the region is likely to face increasingly frequent waves of protest and instability. Various foods and their raw materials, fuel and fertilizer could become rare commodities that, if the fighting in Ukraine continues, few will be able to enjoy it in some areas in the future. The war erupted after a two-year pandemic that worsened living conditions around the world, reduced financial resources and hit poor countries particularly hard. Fiscal difficulties and inflation have also been accompanied by extreme weather in the form of floods and droughts, which have exacerbated the already significant stress situation in the world economy, hampering recovery.

References

- Agsiw (2022): وأفريقيا الأوسط الشرق في الغذائي الأمن انعدام تعمق الأوكرانية الأزمة [Ukraine crisis exacerbates food insecurity in the Middle East and Africa]. *Agsiw*, 2022.04.11. Source: <https://agsiw.org/ar/the-ukraine-crisis-deepens-food-insecurity-across-the-middle-east-and-africa-arabic/>
- Al Arabiya (2022): المحلي الاستهلاك تغطي بكميات "الديورم قمح" لإنتاج تخطط السعودية [Saudi Arabia plans to produce durum wheat in quantities that will cover domestic consumption]. *Al Arabiya*, 2022.04.03. Source: <https://tinyurl.com/5n66st9y>
- Al-Arifi (2022): اليمن تُهدد مسبوقه غير جوع أزمة..أوكرانيا وحرب المانحين دعم تراجع [Decline in donor support and war in Ukraine: unprecedented famine crisis threatens Yemen]. *Al Jazeera*, 2022.03.17. Source: <https://tinyurl.com/bdytz945>
- Aldroubi, Mina (2022): Iraq's multibillion-dollar wheat import bill: how war in Ukraine affects the wider world. *The National News*, 2022.02.25. Source: <https://www.thenationalnews.com/mena/2022/02/25/ukraine-war-leaves-iraq-facing-multibillion-dollar-wheat-import-bill/>

- Al Masry Al Youm (2013): 1977-2013. الجوع وثورة الخبز انتفاضة. [Bread Rebellion and the Revolution of the Hungry]. *Al Masry Al Youm*, 2013.01.16. Source: <https://www.almasryalyoum.com/news/details/282271>
- Al Wasat (2022): الدقيق أزمة لحل آليات 5 تحدد «الوحدة» بحكومة الاقتصاد وزارة [The Ministry of Economy identifies five means to address the flour crisis]. *Al Wasat*, 2022.03.03. Source: <http://alwasat.ly/news/libya/351293>
- AP News (2022): Ukraine crisis worries Lebanon over its wheat reserves. *Ap News*, 2022.02.25. Source: <https://apnews.com/article/russia-ukraine-business-europe-economy-agriculture-df5ed70d8a8111e3f0eb4402cf0474c6>
- Arabi21 (2022): عالمية غذاء أزمة في بالتسبب تهدد أوكرانيا حرب [The war in Ukraine threatens a global food crisis]. *Arabi21*, 2022.03.21. Source: <https://tinyurl.com/3t8yctm6>
- Bouchikian, George (2022): Twitter comment. *Twitter*, 2022.03.05. Source: <https://mobile.twitter.com/Gbouchikian22/status/1500177862854426627>
- Climate Diplomacy (n.d.): Food price volatility and fragility in the MENA region. *Climate Diplomacy*. Source: <https://climate-diplomacy.org/case-studies/food-price-volatility-and-fragility-mena-region>
- CNN (2022): Invasion could worsen food crisis in the Middle East and North Africa, says Human Rights Watch. *CNN*, 2022.03.21. Source: https://edition.cnn.com/europe/live-news/ukraine-russia-putin-news-03-21-22/h_3489da6e052f33fedbf5675d1c0f6439
- Donley, Arvin (2022): Drought forcing Iraq to increase wheat imports. *World-grain*, 2022.04.19. Source: <https://www.world-grain.com/articles/16785-drought-forcing-iraq-to-increase-wheat-imports>
- FAO (2016): الأذنى للشرق الإقليمي والزراعة الأغذية منظمة مؤتمر [FAO Regional Conference for the Middle East]. *FAO*, 2016. Source: <https://www.fao.org/3/mp852a/mp852a.pdf>
- FAO (2022a): حالة في الأغذية العالم [World food situation]. *FAO*, 2022.04.08. Source: <https://www.fao.org/worldfoodsituation/foodpricesindex/ar/>
- FAO (2022b): The importance of Ukraine and the Russian Federation for global agricultural markets and the risks associated with the current conflict. *FAO*, 2022. Source: <https://www.fao.org/3/cb9013en/cb9013en.pdf>
- HRW (2022): أفريقيا وشمال الأوسط الشرق في الجوع يُفاقم لأوكرانيا الروسي الغزو [The Russian invasion of Ukraine is exacerbating hunger in the Middle East and North Africa]. *HRW*, 2022.03.21. Source: <https://www.hrw.org/ar/news/2022/03/21/381463>
- Masrawy (2015) الخبز انتفاضة عن نادرة وصور فيديو [Rare video and images of the bread riot]. *Masrawy*, 2015.01.20. Source: <https://tinyurl.com/2fpx9fmw>
- Reliefweb (2021): Special Report: 2021 FAO Crop and Food Supply Assessment Mission to the Syrian Arab Republic. *Reliefweb*, 2021.12.17. Source: <https://reliefweb.int/report/syrian-arab-republic/special-report-2021-fao-crop-and-food-supply-assessment-mission-syrian>
- Salem, Aida – Omaima, Ismail – Mamdouh Rana (2021): The state and subsidized bread: Stuck between a strained budget and public anger. *Madamaasr*, 2021.12.22. Source:

<https://www.madamasr.com/en/2021/12/22/feature/politics/the-state-and-subsidized-bread-stuck-between-a-strained-budget-and-public-anger/>

Sky News Arabiya (2021): المدعوم الخبز سعر لرفع الوقت حان: السيسي [Es-Sissi: It is time to raise the price of subsidized bread]. *Sky News Arabia*, 2021.08.03. Source: <https://tinyurl.com/4ccmxvpd>

Tanchum, Michael (2021): The Fragile State of Food Security in the Maghreb: Implication of the 2021 Cereal Grains Crisis in Tunisia, Algeria, and Morocco. *MEI*. 2021.11.09. Source: <https://www.mei.edu/publications/fragile-state-food-security-maghreb-implication-2021-cereal-grains-crisis-tunisia>

Tazrouti, Mohammed (2022): The invasion of Ukraine is supercharging food insecurity in the Middle East and North Africa. *Greenpeace*, 2022.04.12. Source: <https://www.greenpeace.org/international/story/53163/russia-invasion-of-ukraine-supercharging-food-insecurity-middle-east-north-africa/>

The Guardian (2022): Global food prices rise to highest ever levels after Russian invasion. *The Guardian*, 2022.04.08. Source: <https://www.theguardian.com/global-development/2022/apr/08/global-food-prices-rise-to-highest-ever-levels-after-russian-invasion-ukraine-wheat>

Worldometer (2022): Egypt population. Source: <https://www.worldometers.info/world-population/egypt-population/>