Global Journal of Business, Economics, and Management: Current Issues

Volume 14, Issue 2, (2024) 106-118

www.wjbem.eu

The Ukrainian-Russian war and its economic effects on food security in the Arab world

Sundus Jasim Shaaibith* , Department of Economics, College of Administration and Economics, University of Al-Qadisiyah, Iraq.

Slim Mahfoudh, Higher Institute of Business Administration. Sfax. Tunisia.

Suggested Citation:

Shaaibith, S.J. & Mahfoudh, S. (2024). The Ukrainian-Russian war and its economic effects on food security in the Arab world. *Global Journal of Business, Economics, and Management: Current Issues. 14(2),* 106-118. https://doi.org/10.18844/gjbem.v14i2.9216

Received from January 12, 2024; revised from April 13, 2024; accepted from June 29, 2024.

Selection and peer review under the responsibility of Prof. Dr. Andreea Claudia Serban, Bucharest Academy of Economic Studies, Romania.

Abstract

The start of the Russian-Ukrainian conflict and the harsh sanctions imposed on Russia by the West have led to serious worries for the security of food in the Arab world. This study examines the degree to which Arab nations rely on imports of wheat, maize, fertilizer, and wheat flour from Russia and Ukraine, emphasizing the difficulties that may arise from long-term disruptions in these supply networks. Food security concerns have already been made worse by the conflict's already unheard-of price increases for fertilizers and wheat. This analysis highlights the urgent necessity for national emergency programs and complementing Arab policies to address these effects given the Arab region's considerable reliance on these imports, which account for substantial sections of Russia's and Ukraine's total exports. The study intends to define food security, investigate its dimensions and drivers, and investigate the role of technology in reducing supply-demand gaps through an extensive literature analysis. It also aims to showcase the accomplishments of Arab nations in this area and offer doable suggestions to improve food security in the face of the current crisis.

Keywords: Economy; food security; policies; Ukrainian-Russian war

* ADDRESS FOR CORRESPONDENCE: Sundus Jasim Shaaibith , Department of Economics, College of Administration and Economics, University of Al-Qadisiyah, Iraq.

E-mail address: sundus.shaaibith@qu.edu.iq

1. INTRODUCTION

With the outbreak of the Russian-Ukrainian war, the imposition of severe and increasing sanctions by Western countries on Russia, and the potential halt of exports from both nations, including grain exports, concerns have grown about the crisis's impact on food security in Arab countries. Many Arab nations heavily depend on grain imports from Ukraine and Russia (Kraemer-Eis et al., 2024; Kozlowski, 2023; van Meijl et al., 2024).

This research examines the extent of Arab countries' dependence on imports of wheat, corn, fertilizer, and wheat flour from Russia and Ukraine. It highlights the challenges Arab countries may face in securing their grain, flour, and bread supplies if the war prolongs or if Russia faces extensive sanctions and boycotts, hindering its ability to export to foreign markets. These scenarios have already driven wheat and fertilizer prices to unprecedented levels not seen in 14 years (Ali et al., 2022; Zhang et al., 2023).

1.1. Research problem

When Russia declared war on Ukraine, global attention swiftly turned to the conflict, monitoring its progression and repercussions on local, regional, and international scales. Although the war is confined to European soil, its economic impacts quickly manifested thousands of miles away, notably in the Arab region and other developing countries (Deng et al., 2022; Marson & Saccone, 2023). This is unsurprising given the strong and growing trade relationships between the conflict parties and the Arab region, particularly in the food security sector. Many Arab countries heavily rely on food imports from Russia and Ukraine, especially wheat.

The Russian-Ukrainian war has jeopardized Arab food security, presenting a significant challenge that extends beyond the sharp rise in food prices in many Arab markets. The war has also affected strategic stock levels of essential commodities, which have decreased to critical levels. The ongoing conflict on Ukrainian territory has further ignited Arab food commodity prices, underscoring the urgent need for developing national emergency programs and Arab complementary policies. These measures are essential not only to confront and contain the repercussions or hedge against further price increases but also to bridge the widening gap in Arab food security.

1.2. Purpose of study

This study aims to address several questions related to the research problem by defining food security, examining the dimensions and determinants of Arab food security, and highlighting the most prominent challenges facing it. Additionally, the study explores the role of technology in bridging the gap between food supply and demand. It also presents some achievements and contributions of Arab countries in the field of food security and offers recommendations that we hope will help address the crisis.

2. METHOD AND MATERIALS

The present study utilizes a literature review methodology to thoroughly address the research objectives of food security in the Arab world. The study aims to define food security, examine its dimensions and determinants, and identify the most significant challenges by methodically reviewing relevant policy documents from Arab countries, books, reports from international organizations such as the FAO and WHO, and existing academic journals. In addition, the literature review will examine how technology might help close the gap between the supply and demand for food while highlighting the accomplishments and contributions of Arab nations in this area. This method makes it possible to synthesize a large body of current knowledge, offering a solid theoretical framework and a basis for making well-informed recommendations to address the Arab region's food security dilemma.

3. RESULTS

3.1. The nature of food security

3.1.1. The concept of food security

Food security is a concept emphasized by many international organizations, such as the Food and Agriculture Organization (FAO, 2022). It has become a critical issue, replacing the notion of self-sufficiency in response to the global standard of living as an indicator of a country's ability to meet its citizens' needs (Abu Hammour, 2022). Food security, introduced by international organizations and adopted by governments, is now considered alongside other crucial terms such as national security, strategic security, and social security. These terms highlight the necessity of confronting threats to society from both local and external sources, ensuring the distribution of food, and making it accessible to all community members. Increasing crop production to meet local consumption needs is a fundamental aspect of Arab food security (Lin et al., 2023).

Arab countries have achieved self-sufficiency and an export surplus in some food commodities, such as vegetables and fish. However, despite increased production of grains and other crops, the value of the food commodity gap has continued to rise, with significant deficits in several major crops. Arab countries import approximately half of their cereal needs, 63% of their vegetable oil needs, and 71% of their sugar needs. These commodities accounted for about 76% of the value of the main food commodities gap in 2007 (Al-Qardali, 2016).

3.2. Determinants of Arab food security

The capacities and capabilities of countries for agricultural production and their achievements in food security depend on their balance of basic agricultural resources and their efficiency in exploiting and distributing these resources among alternative uses. Optimal compatibility between resources also plays a crucial role. Generally, the Arab region is rich in natural agricultural resources, which can support increased agricultural production and better levels of food security. Proper utilization of these resources, coupled with a conducive climate for agricultural investment and appropriate mechanisms for providing necessary financing for agricultural development, is essential (Harvey, 2022).

3.3. Components and Dimensions of Food Security:

The concept of food security includes four main components identified by the Food and Agriculture Organization of the United Nations (FAO, 2022), as follows:

- Obtaining food: It is represented by the existence of various resources or sufficient income to obtain food.
- Availability of food: It means the presence of a sufficient amount of food for local consumption, with imports or access to food aid regularly.
- Use of food: in the sense of using foodstuffs and treating them appropriately, by storing them well, while recognizing and applying healthy nutrition practices.
  Stability: meaning the availability of food at all times, even if those times are specific to emergencies, as the subject of our study of the impact of the Russian-Ukrainian war on Arab food security.

3.4. Dimensions of food security

Food security also includes several dimensions, most notably:

- The ethical dimension: This is related to the current and future human condition, because food is essential in human life, and for this reason, food or food security must be harmed.
- The social dimension: It is the dimension that is affected by the overall social elements, and among those elements is the control over the increase in population and fertility with population planning, and collective movement in society.
- The economic dimension: The economic dimension helps to secure food security, and is through the availability of several elements, including natural resources, services, the development of industry, and the existence of communications and transportation (supply chains).
- The political dimension: It is related to the role of the state in supervising policies and programs related to food security and development in all fields, including agricultural development, to maintain national security strategies.

3.5. The most prominent challenges facing Arab food security

The COVID-19 crisis: Arab countries have made tremendous efforts to diversify the food basket in the past few years, and agricultural output in the Arab world has increased from $75.2 billion in 1997 to $98 billion in 2007 and $140.75 billion in 2017. However, Arab countries face great challenges in the security file. The food crisis was exacerbated by the emergence of the Coronavirus, at which time the Arab world realized the importance of food security after the world witnessed closures of various economic sectors, including global food supply chains, especially in terms of food processing and closing markets, and imposing restrictions on the movement of goods and people that resulted in a shortage of manpower to contribute to agricultural production, as Arab countries depend mainly on importing their basic needs of foodstuffs, despite the availability of natural resources necessary for agriculture (Kusa, 2023).

3.5.1. First: Exports of wheat, corn, and wheat flour from Russia and Ukraine

Russia and Ukraine's exports of wheat and corn represent a very large part of the global exports of these two products, as Table 1 shows the exports of Russia and Ukraine during the year 2020, and their percentage of the total global exports. World wheat exports, 1.2% of corn exports, and 2.2% of wheat flour exports (Bárcena, 2022).

On the other hand, Ukraine's wheat exports amounted to 9.4% of the total global exports in 2020, its corn exports accounted for 15.1% of global exports, and wheat flour accounted for 1.9%, and accordingly, the exports of these two countries amounted to about 55,323 thousand tons of wheat in 2020, It represented 28.8% of world exports, about 30,242 thousand tons of corn, representing 16.3% of world exports, and about 468 thousand tons of wheat flour, representing 4.1% of world exports. These figures indicate the great importance of Russia and Ukraine in production and export. Wheat and maize globally, and the risk of their exports being cut off from international markets (Tanchum, 2022).

Table 1

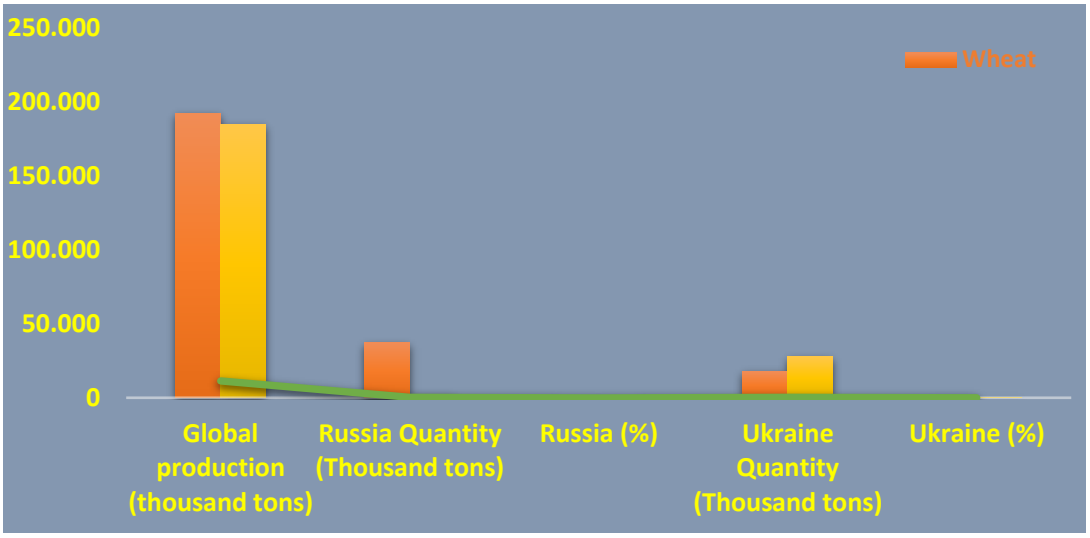
Russia's and Ukraine's exports of wheat, corn, and wheat Flour in 2020

Types	Global production (Thousand tons)	Russia		Ukraine	
		Quantity (Thousand tons)	Its percentage of world exports (%)	Quantity (Thousand tons)	Its percentage of world exports (%)
Wheat	192,579	37,267	19.4	18,056	9.4
Corn	185,133	2,289	1.2	27,952	15.1
Wheat flour	11,386	247	2.2	222	1.9

Russia's and Ukraine's exports of wheat, corn, and wheat Flour 2020 are displayed in Table 1. Figure 1 shows Russia's and Ukraine's exports of wheat, Maize, and wheat flour in 2020.

Figure 1

Russia's and Ukraine's exports of wheat, Maize, and wheat flour in 2020



3.5.2. Second: Wheat exports from Russia and Ukraine to Arab countries

Arab countries depend heavily on wheat imports from Russia and Ukraine, as data shows that Arab countries imported about 13,165 thousand tons of wheat from Russia (for $2,847 million) and about 7,598 thousand tons from Ukraine (for $1,527 million) in 2020. Russian wheat imports to Arab countries accounted for 35.3% of Russia's total wheat exports, while Ukrainian wheat imports to Arab countries accounted for 42.1% of Ukraine's total wheat exports. Accordingly, the total wheat imports to the Arab countries amounted to about 20,763 thousand tons in 2020, representing about 10.8% of the total global wheat exports, which indicates the great dependence of the Arab countries on this commodity on the one hand, and the importance of the Arab market for wheat on the other hand. As for the total cost of importing wheat from Russia and Ukraine to the Arab countries, it amounted to about 4,374 million dollars.

Table 2

Arab countries' imports of wheat from Russia, 2020

The country	Ranks globally in wheat	Wheat imports from Russia (thousand tons)	Its percentage of Russia's wheat imports to Arab countries is (%)	Its percentage is of Russia's total wheat exports (%)
Egypt	1	8,254.6	62.7	22.1
Sudan	5	1,333.4	10.1	3.6
Yemen	8	796.1	6.0	3.6
Arab Emirates	10	674.6	5.1	1.8
Oman	18	429.1	3.3	1.2
Morocco	19	426.5	3.2	1.1
Jordan	27	292.7	2.2	0.8
Saudi Arabia	28	246.5	1.9	0.7
Libya	36	170.7	1.3	0.5
Lebanon	38	159.4	1.2	0.4
Mauritania	39	158.1	1.2	0.4
Tunisia	44	111.3	0.8	0.3

Qatar	51	82.0	0.6	0.2
Somalia	65	29.7	0.2	0.1
Iraq	89	0.1	0.0004	0.0001
All Arab countries	**13,164.6**		**35.3**	

Table 2 displays Arab countries' imports of wheat from Russia, in 2020. Figure 2 shows Arab countries' imports of wheat from Russia, in 2020.

Figure 2

Arab countries' imports of wheat from Russia, 2020

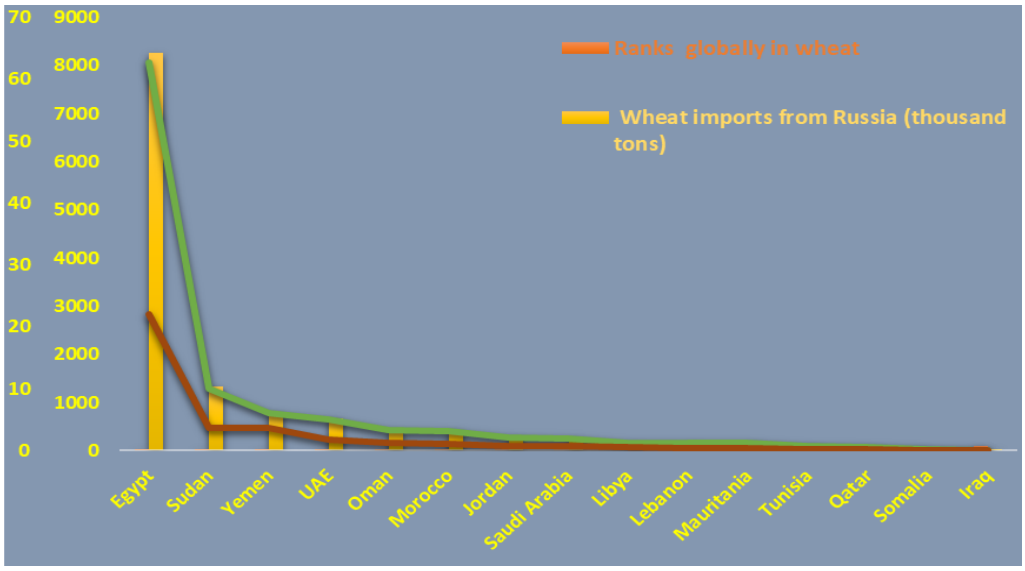


Table 3 displays Arab countries' imports of wheat from Ukraine, in 2020. Figure 3 shows Arab countries' imports of wheat from Ukraine, in 2020.

Table 3

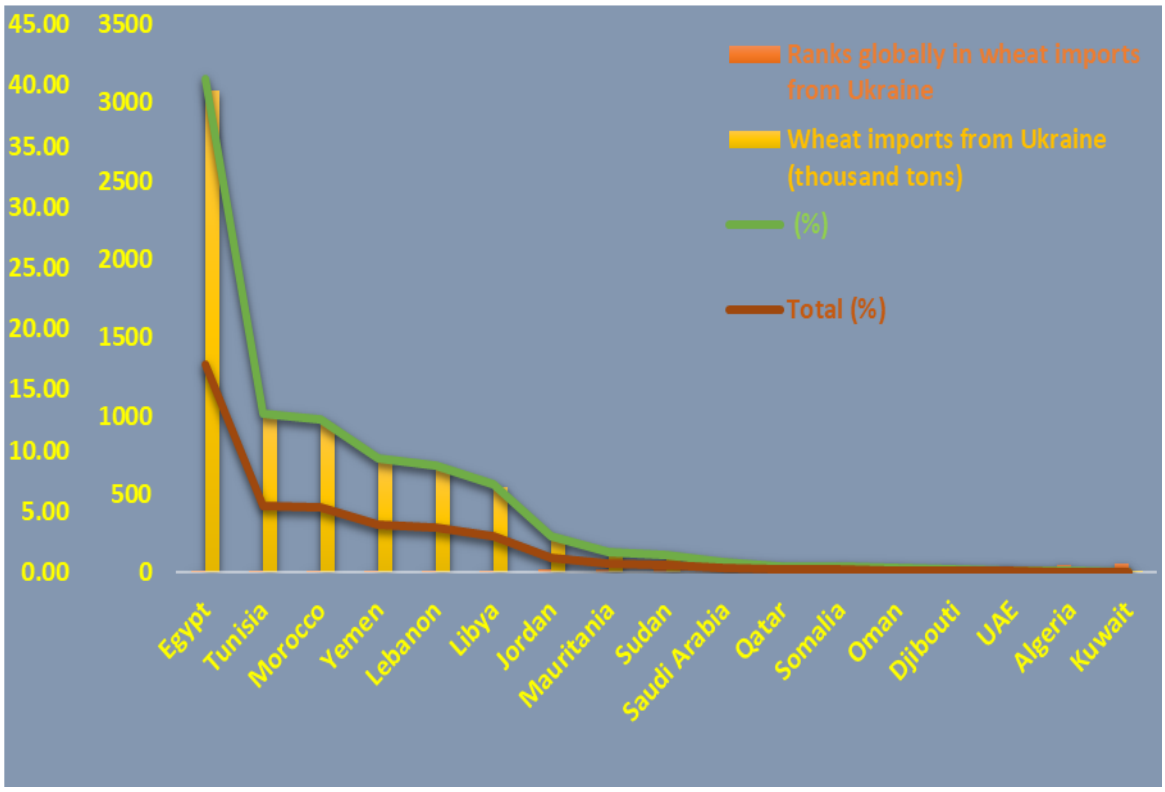
Arab countries' imports of wheat from Ukraine, 2020

The country	Ranks globally in wheat imports from Ukraine	Wheat imports from Ukraine (thousand tons)	Its percentage of Ukraine's wheat imports to Arab countries is (%)	Its percentage is of Ukraine's total wheat exports (%)
Egypt	1	3,075.2	40.5	**17.0**
Tunisia	6	984.0	13.0	**5.4**
Morocco	7	952.0	12.5	**5.3**
Yemen	8	708.2	9.3	**3.9**
Lebanon	9	669.7	8.8	**3.7**
Libya	12	546.4	7.2	**3.0**
Jordan	18	224.1	2.9	**1.2**
Mauritania	21	126.1	1.7	**0.7**
Sudan	23	109.5	1.4	**0.6**
Saudi Arabia	27	64.2	0.8	**0.4**
Qatar	31	40.6	0.5	**0.2**
Somalia	32	40.0	0.5	**0.2**
Oman	36	24.2	0.3	**0.1**
Djibouti	39	17.1	0.2	**0.1**
Arab Emirates	40	11.1	0.1	**0.1**
Algeria	47	5.4	0.1	**0.0**
Kuwait	56	0.3	0.005	**0.002**
All Arab countries	7,598.2	100.0	**42.1**	

Shaaibith, S.J. & Mahfoudh, S. (2024). The Ukrainian-Russian war and its economic effects on food security in the Arab world. *Global Journal of Business, Economics, and Management: Current Issues. 14(2),* 106-118. https://doi.org/10.18844/gjbem.v14i2.9216

Figure 3

Arab countries' imports of wheat from Ukraine, 2020



As for each country, Egypt ranked first in the world in importing both Russian and Ukrainian wheat, as it imported about 8,255 thousand tons of Russian wheat and about 3,075 thousand tons of Ukrainian wheat in 2020. Thus, Egypt imported 62.7% of wheat imports. Russia to Arab countries and 22.1% of Russia's total wheat exports, 40.5% of all Ukrainian wheat imports to Arab countries, and 17.0% of Ukraine's total wheat exports. Imports amounted to about 1,504 thousand tons, Sudan (1,443 thousand tons), Morocco (1,379 thousand tons), Tunisia (1,095 thousand tons), Lebanon (829 thousand tons), Libya (717 thousand tons), the Arab Emirates (686 thousand tons), Jordan (517 thousand tons), Oman (453 thousand tons), Saudi Arabia (311 thousand tons), Mauritania (284 thousand tons), Qatar (73 thousand tons), Somalia (70 thousand tons), Djibouti (17 thousand tons), Algeria (5 thousand tons), Kuwait (0.3 thousand tons), and Iraq (0.1 thousand tons).

3.5.3. Third: corn exports from Russia and Ukraine to Arab countries

The data in Tables 4 and 5 show that the Arab countries imported about 130 thousand tons of corn from Russia (at a cost of about $24 million) and about 5,740 thousand tons from Ukraine (for $991 million) in 2020. Russian corn imports to these countries accounted for The Arab countries accounted for 5.7% of Russia's total corn exports, while Ukrainian corn imports to Arab countries accounted for 20.5% of Ukraine's total corn exports. Accordingly, the total corn imports to the Arab countries amounted to about 5,870 thousand tons in 2020, representing about 19.4% of the total global corn exports, which indicates the great dependence of the Arab countries on this commodity on the one hand, and the importance of the Arab market for corn on the other hand. As for the total cost of importing corn from Russia and Ukraine to the Arab countries, it amounted to about $1,016 million. Figure 4 shows Arab countries' imports of corn from Russia, in 2020. Figure 5 displays Arab countries' imports of corn from Ukraine – 2020.

Shaaibith, S.J. & Mahfoudh, S. (2024). The Ukrainian-Russian war and its economic effects on food security in the Arab world. *Global Journal of Business, Economics, and Management: Current Issues. 14(2),* 106-118. https://doi.org/10.18844/gjbem.v14i2.9216

Table 4

Arab countries' imports of corn from Russia, 2020

The country	Its global rank in importing corn from Russia	Imports of corn from Russia (thousand tons)	Its percentage of Russia's corn imports to Arab countries (%)	Its share of Russia's total corn exports (%)
Libya	6	97.3	74.9	4.3
Oman	13	25.7	19.8	1.1
Lebanon	22	5.6	4.3	1.2
Egypt	26	0.8	0.6	0.03
Jordan	28	0.5	0.4	0.02
All Arab countries	129.9		100.0	5.7

Figure 4

Arab countries' imports of corn from Russia, 2020

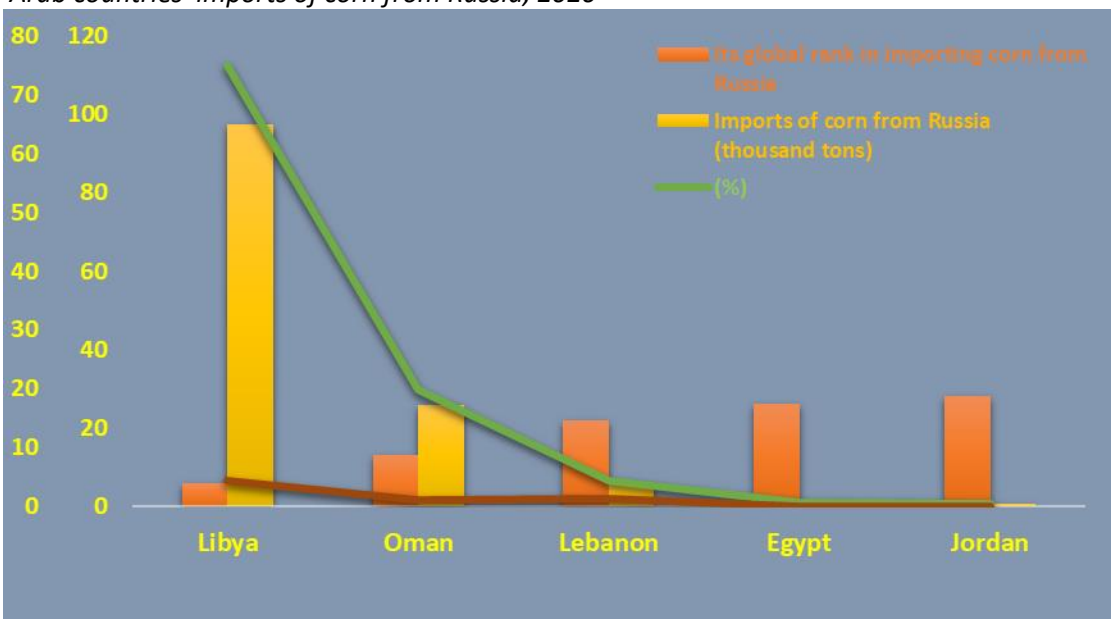


Table 5

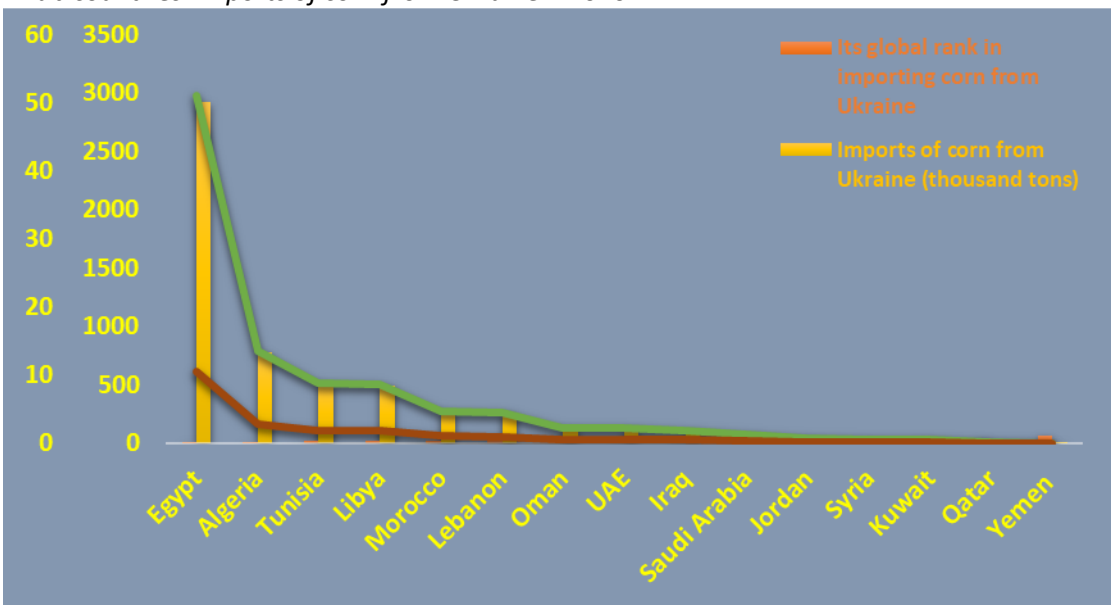
Arab countries' imports of corn from Ukraine – 2020

The Country	Its global rank in importing corn from Ukraine	Imports of corn from Ukraine (thousand tons)	Its percentage of Ukraine's corn imports to Arab countries (%)	Its share of Ukraine's total corn exports (%)
Egypt	3	2,923.9	50.9	10.5
Algeria	9	772.6	13.5	2.8
Tunisia	14	507.6	8.8	1.8
Libya	15	495.4	8.6	1.8
Morocco	18	269.9	4.7	1.0

Lebanon	19	260.3	4.5	0.9
Oman	22	125.5	2.2	0.4
Arab Emirates	23	118.3	2.1	0.4
Iraq	25	110.4	1.9	0.4
Saudi Arabia	26	71.7	1.2	0.3
Jordan	29	38.3	0.7	0.1
Syria	31	21.8	0.4	0.1
Kuwait	32	21.6	0.4	0.1
Qatar	42	3.0	0.1	0.01
Yemen	60	0.14	0.002	0.001
All Arab countries		5,740.3	122.2	20.5

Figure 5

Arab countries' imports of corn from Ukraine – 2020



At the level of each country, Egypt ranked third in the world in importing corn from Ukraine and ranked 26 in the world in importing from Russia, as it imported about 2,924 thousand tons of Ukrainian corn and about 0.8 thousand tons of Russian corn, and accordingly, Egypt would have imported 50.9% of the total. Ukrainian corn imports to Arab countries account for 10.5% of Ukraine's total corn exports, 0.6% of Russian corn imports to Arab countries, and 0.03% of Russia's total corn exports. Egypt was followed in terms of the volume of corn imports from Russia and Ukraine. Algeria, with a total import of about 773 thousand tons, Libya (593 thousand tons), Tunisia (508 thousand tons), Morocco (270 thousand tons), Lebanon (266 thousand tons), the Sultanate of Oman (151 thousand tons), and the United Arab Emirates (118 thousand tons), Iraq (110 thousand tons), Saudi Arabia (72 thousand tons), Jordan (39 thousand tons), Syria and Kuwait (22 thousand tons each), Qatar (3 thousand tons), and Yemen (0.1 thousand tons).

3.5.4. Fourth: Exports of wheat flour from Russia and Ukraine to the Arab countries

At the level of each country, Egypt ranked third in the world in importing corn from Ukraine and ranked 26 in the world in importing from Russia, as it imported about 2,924 thousand tons of Ukrainian corn and about

0.8 thousand tons of Russian corn, and accordingly, Egypt would have imported 50.9% of the total. Ukrainian corn imports to Arab countries account for 10.5% of Ukraine's total corn exports, 0.6% of Russian corn imports to Arab countries, and 0.03% of Russia's total corn exports. Egypt was followed by Algeria in terms of corn imports from Russia and Ukraine. With total imports amounting to about 773 thousand tons, Libya (593 thousand tons), Tunisia (508 thousand tons), Morocco (270 thousand tons), Lebanon (266 thousand tons), the Sultanate of Oman (151 thousand tons), and the United Arab Emirates (118 One thousand tons), Iraq (110 thousand tons), Saudi Arabia (72 thousand tons), Jordan (39 thousand tons), Syria and Kuwait (22 thousand tons each), Qatar (3 thousand tons), and Yemen (0.1 thousand tons) (Human Rights Watch, 2022; Araujo-Enciso & Fellmann 2020). Table 6 displays Arab countries' imports of wheat flour from Russia – 2020. Figure 6 shows Arab countries' imports of wheat flour from Russia – 2020.

Table 6

Arab countries' imports of wheat flour from Russia – 2020

The country	Its global rank in importing wheat flour from Russia	Imports of wheat flour from Russia (thousand tons)	Its percentage of wheat flour imports from Russia to Arab countries (%)	Its share of Russia's total flour exports (%)
Iraq	13	4,218.3	95.4	1.7
Arab Emirates	21	201.1	4.6	0.1
Jordan	31	0.82	0.02	0.00
Saudi Arabia	38	0.017	0.0004	0.00
Qatar	39	0.006	0.0001	0.00
All Arab countries		4,420.2	100.0	1.8

Figure 6

Arab countries' imports of wheat flour from Russia – 2020

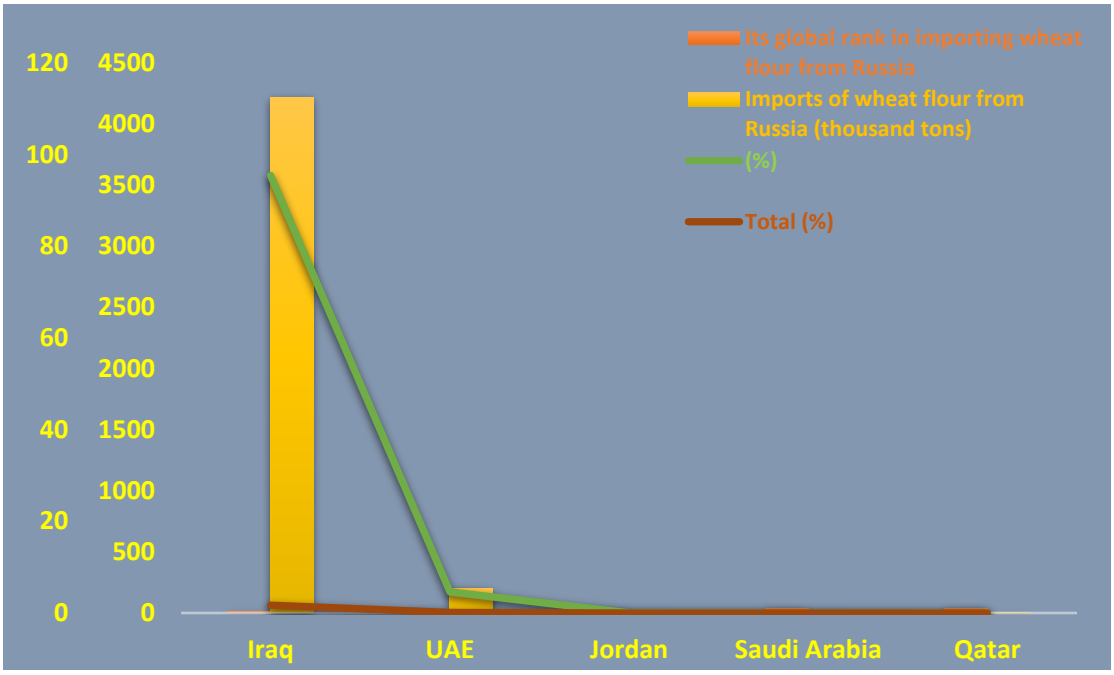


Table 7 displays Arab countries' imports of wheat flour from Ukraine- 2020. Figure 7 shows Arab countries' imports of wheat flour from Ukraine- 2020.

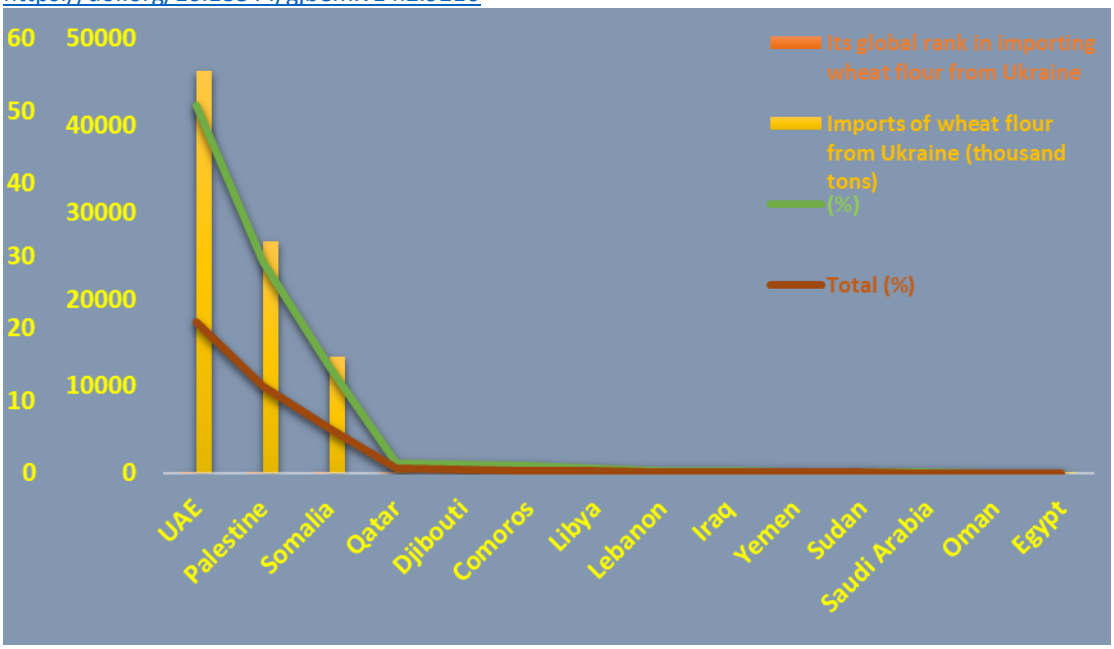
Table 7

Arab countries' imports of wheat flour from Ukraine- 2020

The country	Its global rank in importing wheat flour from Ukraine	Imports of wheat flour from Ukraine (thousand tons)	Percentage of Ukraine's imports of wheat flour to Arab countries (%)	Its share of Ukraine's total exports of wheat flour (%)
Arab Emirates	1	46,349.4	50.8	20.9
Palestine	3	26,613.9	29.1	12.0
Somalia	8	13,426.0	14.7	6.1
Qatar	15	1,276.8	1.4	0.6
Djibouti	17	1,071.0	1.2	0.5
Comoros	18	993.1	1.1	0.4
Libya	21	581.0	0.6	0.3
Lebanon	24	294.9	0.3	0.1
Iraq	25	271.5	0.3	0.1
Yemen	29	169.5	0.2	0.1
Sudan	30	150.0	0.2	0.1
Saudi Arabia	39	92.2	0.1	0.0
Oman	50	24.5	0.0	0.0
Egypt	82	0.04	0.00	0.00
All Arab countries		91,313.6	122.2	41.2

Figure 7

Arab countries' imports of wheat flour from Ukraine- 2020



4. CONCLUSION

The Arab countries depend heavily on wheat imports from Russia and Ukraine, as the Arab countries imported about 13,165 thousand tons of wheat from Russia (for $2,847 million) and about 7,598 thousand tons from Ukraine (for $1,527 million) in 2020. Russian wheat imports to Arab countries accounted for 35.3% of Russia's total wheat exports, while Ukrainian wheat imports to Arab countries accounted for 42.1% of Ukraine's total wheat exports. Accordingly, the total wheat imports to the Arab countries amounted to about 20,763 thousand tons in the year 2020, representing about 10.8% of the total global wheat exports, which indicates the great dependence of the Arab countries on this commodity on the one hand, and the importance of the Arab market about wheat on the other hand. Arab countries imported about 130 thousand tons of corn from Russia (at a cost of about $24 million) and about 5,740 thousand tons from Ukraine (for $991 million) in 2020.

Russian corn imports to Arab countries accounted for 5.7% of Russia's total exports. Of corn, while Ukrainian corn imports to Arab countries accounted for 20.5% of Ukraine's total corn exports. Accordingly, the total corn imports to the Arab countries amounted to about 5,870 thousand tons in the year 2020, representing about 19.4% of the total global corn exports, which also indicates the great dependence of the Arab countries on this commodity on the one hand and the importance of the Arab market about corn on the one hand. On the other hand, this crisis shows the need for Arab countries to seek to enhance food security on their own, by investing in joint Arab agricultural projects, in light of the presence of huge financial surpluses and vast arable land throughout the Arab world.

Conflict of Interest: The authors declare no conflict of interest.

Ethical Approval: This research did not involve any human participants.

Funding: This research received no external funding.

REFERENCES

Abu Hammour, M. (2022). The implications of international transformations and conflicts on food security in the Arab world: a case study of Russia and Ukraine war, Jordan. *Middle Eastern Studies Journal, Center for Middle East Studies, 26*(100), 90.

Shaaibith, S.J. & Mahfoudh, S. (2024). The Ukrainian-Russian war and its economic effects on food security in the Arab world. *Global Journal of Business, Economics, and Management: Current Issues. 14(2),* 106-118. https://doi.org/10.18844/gjbem.v14i2.9216

Ali, A. A., Azaroual, F., Bourhriba, O., & Dadush, U. (2022). The economic implications of the war in Ukraine for Africa and Morocco. *Policy Center for the New South, PB-11/22, February*. https://www.policycenter.ma/sites/default/files/2022-02/PB_11-22_Dadush.pdf

Al-Qardali, A. M. B. (2016). The development of the concept of food security and its socio-anthropological dimensions, Cairo, Journal of Social Work. *The Egyptian Association of Social Workers, 3*(55), 111.

Araujo-Enciso, S. R., & Fellmann, T. (2020). Yield variability and harvest failures in Russia, Ukraine, and Kazakhstan and their possible impact on food security in the Middle East and North Africa. *Journal of agricultural economics*, *71*(2), 493-516. https://onlinelibrary.wiley.com/doi/abs/10.1111/1477-9552.12367

Bárcena, I. A. (2022). The economic and financial effects on Latin America and the Caribbean of the conflict between the Russian Federation and Ukraine. https://repositorio.cepal.org/handle/11362/47832

Deng, Z., Li, C., Wang, Z., Kang, P., Hu, Y., Pan, H., & Liu, G. (2022). The Russia–Ukraine war disproportionately threatens the nutrition security of developing countries. *Discover Sustainability*, *3*(1), 40. https://link.springer.com/article/10.1007/s43621-022-00112-8

Harvey, F. (2022). Ukraine invasion may lead to worldwide food crisis, warns UN. *The Guardian*, *14*.

Human Rights Watch. (2022). Russia's Invasion of Ukraine Exacerbates Hunger in Middle East, North Africa. Available online at: https://www.hrw.org/news/2022/03/21/russias-invasion-ukraine-exacerbates-hunger-middle-east-north-africa

Kozlowski, A. R. (2023). The war and tourism: security issues and business opportunities in shadow of Russian war against Ukraine. *Quality & Quantity*, 1-18. https://link.springer.com/article/10.1007/s11135-023-01762-0

Kraemer-Eis, H., Block, J., Botsari, A., Lang, F., Lorenzen, S., & Diegel, W. (2024). Entrepreneurial finance in Europe and the Russian war against Ukraine. *The Journal of Technology Transfer*, 1-33. https://link.springer.com/article/10.1007/s10961-024-10067-9

Kusa, I. (2023). The Ukraine-Russia Grain Deal: A Success or Failure. *Washington, DC: Wilson Center*.

Lin, F., Li, X., Jia, N., Feng, F., Huang, H., Huang, J., & Song, X. P. (2023). The impact of the Russia-Ukraine conflict on global food security. *Global Food Security*, *36*, 100661. https://www.sciencedirect.com/science/article/pii/S2211912422000517

Marson, M., & Saccone, D. (2023). Fed with import and starved by war: Estimating the consequences of the Russia-Ukraine conflict on cereals trade and global hunger. *International Economics and Economic Policy*, *20*(3), 413-423. https://link.springer.com/article/10.1007/s10368-023-00564-x

Tanchum, M. (2022). The Russia-Ukraine War has turned Egypt's Food crisis into an existential threat to the Economy. Washington, DC: Middle East Institute. https://www.mei.edu/sites/default/files/2022-03/The%20Russia-Ukraine%20War%20has%20Turned%20Egypt's%20Food%20Crisis%20%20into%20an%20Existential%20Threat%20to%20the%20Economy%20.pdf

The Food and Agriculture Organization. (2022). The Importance of Ukraine and the Russian Federation for Global Agricultural Markets and the Risks Associated with the Current Conflict 25 March 2022 Update. Rome: The Food and Agriculture Organization (FAO)

van Meijl, H., Bartelings, H., van Berkum, S., Cui, H. D., Kristkova, Z. S., & van Zeist, W. J. (2024). The Russia-Ukraine war decreases food affordability but could reduce global greenhouse gas emissions. *Communications Earth & Environment*, *5*(1), 59. https://www.nature.com/articles/s43247-024-01208-x

Zhang, Z., Abdullah, M. J., Xu, G., Matsubae, K., & Zeng, X. (2023). Countries' vulnerability to food supply disruptions caused by the Russia–Ukraine war from a trade dependency perspective. *Scientific Reports*, *13*(1), 16591. https://www.nature.com/articles/s41598-023-43883-4