

## The food gap of the most important agricultural products in Iraq for the period 2003-2020 and ways to face it

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### *Abstract*

*Purpose: To identify the size of the food gap for the main agricultural products and crops in Iraq, which reflects to us the extent to which agricultural production in particular and the agricultural sector in general have declined.*

*Theoretical framework: The theoretical side of the research dealt with the definition of self-sufficiency and the food gap, as well as identifying the reality of agricultural production in Iraq during the study period, as well as the reality of the food gap for the most important agricultural, plant and animal products.*

*Design/methodology/approach: In reviewing the research problem, the researcher adopted the method of deductive and descriptive analysis based on the presentation and detail of official data on agricultural production and import in Iraq for the period (2003-2020).*

*Findings: The study showed that the size of the food gap for the most important agricultural products in Iraq for the period from 2003 to 2020 amounted to a minimum (48%) and a maximum (100%), as a result of the weak economic policy in general and agricultural policy in particular, as well as, the Deterioration of the security situation and the scarcity of water resources.*

*Research, Practical & Social implications: The results of the research showed the Magnitude of the food gap, which reflects the decline and deterioration in the volume of agricultural production in Iraq during the study period, and the dangerous of this situation on food security and self-sufficiency for members of the Iraqi society.*

*Originality/value: This study is unique in analyzing the food gap of the main food products in Iraq during the period (2003-2020) in a specific and focused manner, given that the size of the food gap is a mirror that reflects the reality of the agricultural sector of any country.*

*Keywords: food gap, Food security, agricultural production, self-sufficiency.*

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## **Introduction**

The agricultural sector in Iraq is characterized by the underdevelopment of the productive force and the decline in the volume of agricultural production for most crops and agricultural products, and their failure to keeping up with the needs of local demand, this resulted in a decline in self-sufficiency rates and a widening of the food gap year after year. This decline in the reality of the agricultural sector is attributed to a group of factors and circumstances that Iraq experienced after 2003, From the deteriorating security situation and the residues of military operations, as well as the backwardness of agricultural production methods and Techniques, and failure to keeping up with the level of agricultural technology in the world, in light of the increasing population growth and the expansion of the volume of domestic demand, as such the agricultural policy has also been unable to develop strategic plans that would advance the reality of the agricultural sector and achieve real agricultural development in it, Therefore the size of the food gap widened as a result of dependence on the outside to cover the deficit of available food to meet the need of local demand, This in turn constitutes a great danger to Iraq's national and food security, as well as a huge leak of Foreign currency to the outside the Country and not benefiting from it in developing the productive structure of the Iraqi economy. Therefore, it is necessary to determine the size of the food gap and to work out a strategy to ensure the expansion and development of the agricultural sector, thus increasing the volume of agricultural production and reducing dependence on the outside in providing food to members of the Iraqi society.

## **Material working methods**

First: the definition of self-sufficiency

Complete self-sufficiency is (the ability of the community to achieve complete self-reliance, resources and self-possibilities in producing all its food needs locally), It means in other words self-food security without the need for others. That is, the country, the state, or the group of states linked in a particular framework, A common market, for example, wants to be self-sufficient (MAJEED, 2020), By providing all the food needs of their people completely, so that they are not exposed to possible external threats or risks, as well as providing the necessary money for the economic development process of their countries instead of wasting this money in buying food or consumer goods from outside.

Several questions are raised here about the importance or feasibility of following policies that lead to achieving complete self-

sufficiency for any country, and whether this is a positive option in light of the current external changes in the world, and is it rational in terms of optimal use of available resources and capabilities (Al-Salam, 1998)?

To answer these questions, we say, first: that self-sufficiency must be linked to the economic level and the economic and living standards of the population (i.e., the size of the real income), Meaning, is self-sufficiency at the minimum, average, or highest food needs for that country? Perhaps there is a country that is completely self-sufficient, the surplus may be exported from agricultural production, but it only achieves the minimum food needs of its population, due to the low level of real incomes of individuals and their inability to meet their needs at the average or acceptable level. Second: It may be decided to achieve self-sufficiency as a national goal that must be implemented, even if this leads to bearing high economic costs (i.e., when the cost of local products is higher than the imported ones, or when the productivity of the resources destined for the production of agricultural commodities is lower than their productivity if directed towards production other products). Third: The degree of rationality of complete self-sufficiency in economic terms of any country depends on several factors, including (the availability or limitedness of agricultural resources, open regional or international trade at the level of resources and products, the level of technical and technological progress in the field of agricultural production and industrialization, the living and economic standard of society)(Blasim Jamil Khalaf, 2013).

Accordingly, the extent to which economic and social benefits are achieved from complete self-sufficiency depends on the nature and size of the natural human and material resources owned by that country or that nation, as it is not necessary to achieve complete self-sufficiency in order to achieve food security or the economic well-being of society, but the important thing is to achieve and provide an advanced agricultural production base that enables the productive forces in that country (when the need arises) to achieve sufficient agricultural production to meet the all community need for healthy food of good quality and at a competitive cost at the local and foreign levels (Al-Din, 2018). in general, self-sufficiency can be divided into three levels or degrees of self-sufficiency, the first is safe self-sufficiency, as self-sufficiency is safe when the quantity produced of the local agricultural commodity is equal to or greater than the quantity consumed by members of the community, and the second is the safe food deficit The self-sufficiency of food commodities in the event of a food deficit is safe when the produced quantity of the local food commodity is less than the quantity available for consumption by the members of the community and greater than half of it, that is when the ratio of domestic production to available for consumption is

between (50% - 100%), as for the third, it is the dangerous food deficit, that is when the available locally produced food constitutes less than half of the quantity available for consumption of that commodity, meaning that the ratio of local production to the available for consumption is limited between (0% - 50%)(Majeed, 2010)(Ruqayyah Abdul-Mahdi, 2021).

#### Second: Definition of the food gap

The term food gap refers to (the difference between the local production of food and the requirements of community members to consume of it, and during a specific period of time) (Majeed, 2010), as whenever the greater this difference (i.e., higher the food gap index), this indicates a decline in agricultural production for that country and an increase in its dependence on the outside in providing its food, which exposes it to many risks that threaten its food and national security, as well as a deficit in the trade balance of crops and agricultural products and a diversion of Foreign currency in non-productive areas (as food is often a consumer good)(I. K, 2018), accordingly, the food gap index reflects the volume of food imports, and the extent of that country's dependence on the outside in providing food to the members of its community, most of the countries with high rates of food gap are backward countries and weak front the international community, as their decisions and external positions are affected by their food needs and fear of the dangerous of interruption in food supplies, which mean are may causes greater societal risks threaten the demise of the governments of those countries.

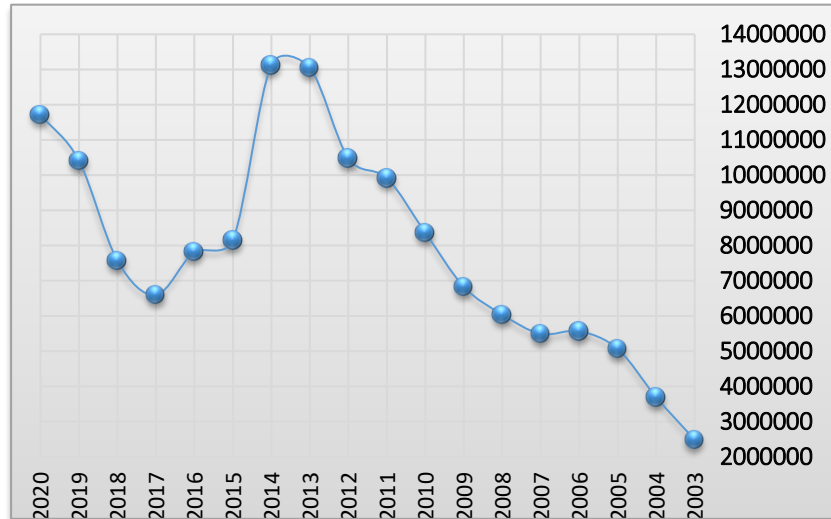
The food gap is also characterized by fluctuation from year to year, due to the change of factors affecting it, such as (Amal Busmina, 2022):

- The volume of agricultural production, as whenever the greater the volume of agricultural production year after year, as the smaller the size of the food gap for that country.
- Rationalizing the final consumption of community members, especially the main food commodities, which leads to reducing the volume of commodities available for consumption, and then reducing imports and ultimately reducing the size of the food gap.
- Reducing the population growth rate to the optimum level could reduce the food needs and thus reduce the food gap.
- International food prices, as whenever the higher the imported food bill, the more local production will be encouraged, and then the food gap will be reduced.

### Third: the reality of agricultural production in Iraq for the period 2003-2020

The agricultural product in Iraq increased from (2486865.5) million dinars in 2003 to (5568985.7) million dinars in 2006, Then it decreased slightly in 2007, but it returned and rose in following years until it reached in 2014 (13128622.6) million dinars, which is an increase of twice the volume of production in 2006, which is the highest value reached by agricultural production over the study period (2003-2020), This large increase is due to the volume of support provided to the agricultural sector in Iraq since 2008 and the following years to 2014, according to the so-called agricultural initiative(Majeed et al., 2022), as a result of the weakness of the agricultural policy followed at the time and its inability to build a good agricultural production base, as well as the weakness of proper planning of the amounts spent within the agricultural initiative and its failure to direct the right direction to build a modern agricultural production base, It has come back and fallen the volume of agricultural production in the following years of 2014 until it reached in 2017 (6598384.8) million dinars, i.e. it became close to the volume of production in 2006, and then returned and increased the volume of agricultural production for the following years, as a result of the victory over terrorism, the liberation of agricultural lands in the central and northern regions, and the restoration of stability, albeit in a relative manner, to those areas, which encouraged her people to return to work and production (Numbers, 2020). And the improvement continued in the level of agricultural production for the following years, until the year 2020 reached (11716003.5) million dinars, it is close to the size of agricultural production in 2014, it is expected that the improvement in the volume of agricultural production will continue for the following years as a result of the continuation of security stability in all of Iraq and the increase of interest in the agricultural sector by the Iraqi government and directing the appropriate support to it to increase its production, to face the potential global food crisis and the possibility of food supply interruption to Iraq or an increase in its prices as a result of the Russian-Ukrainian war, and Chart (1) that shows the volume of agricultural production in Iraq for the period from 2003 to 2020.

**Chart (1) The size of agricultural production in Iraq for the period 2003-2020 at current prices**



Source: From the work of the researcher based on:

- Ministry of Planning, Central Statistical Organization, National Accounts Directorate, different years.

## Analysis and discussion

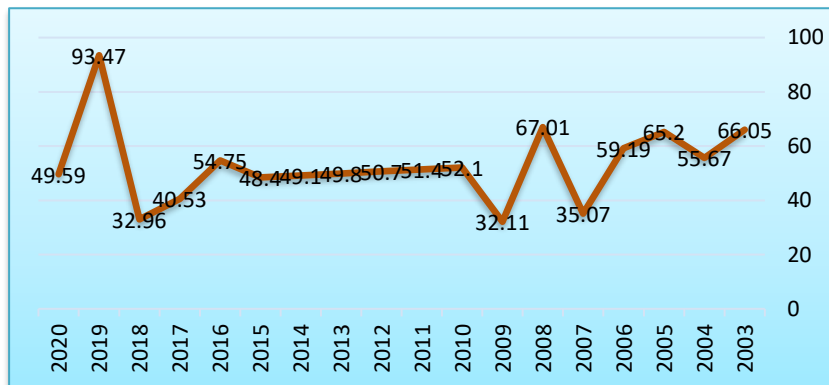
First: the reality of the food gap in Iraq for the period 2003-2020

Achieving food security, even at its lowest level in Iraq, requires resorting to imports, as a result of the failure to achieve the level of safe self-sufficiency for most agricultural products (plant and animal), Which increases the degree of vulnerability of the Iraqi economy, because it is highly dependent on imports to provide food for its members, and with global food prices on the rise since the COVID-19 crisis, as well as the Russia-Ukrainian war, the drain of foreign currency will limit the possibility of economic development for any sector of the national economy.

As Iraq, according to the data in Table (1) and (2) below, depends on imports approximately (60%) of its needs of plant food and (48%) of its needs of animal food, the import bill is mainly paid from its only resource, which is crude oil, and if we take into account the possibility of a decline in demand for crude oil in the future as a result of finding other energy alternatives instead of crude oil, the danger will increase in Iraq's inability to provide the minimum amount of food for members of its society. on the other hand, the water problem in Iraq appears,

which was one of the reasons for the decline in agricultural production for the years (2015-2017), as is clear from the above-mentioned Figure No. (1), as the revenues of the Tigris and Euphrates rivers and their tributaries decreased during this period by a large percentage, as shown in Chart (2) below, as it decreased in 2015 to (48.4 billion cubic meters) and the decline continued until the year 2018 (32.96 billion cubic meters), and then, water revenues recorded a significant improvement in 2019, and returned and decreased significantly in 2020 (49.59 billion cubic meters), this oscillation is attributed in the water revenues of Iraq from the Tigris and Euphrates rivers and their tributaries is attributed to the fluctuation of water releases by the riparian neighboring countries, and non-compliance of these countries to the quotas of Iraq's water resources agreed upon in accordance with the agreements of the riparian countries, as well as climate change, high temperatures in Iraq, low amounts of rain and the absence of an effective water policy that works to establish dams and lakes to store water resources in anticipation of times of water scarcity (Adnan Ahmad, Amina Abdul-Ilah, 2019).

**Chart (2) The revenues of the Tigris and Euphrates rivers and their tributaries for the period 2003-2020 (billion cubic meters)**



Source: From the work of the researcher based on:

- The Central Agency for Statistics and Information Technology, Water Resources Reports for Different Years.
- Republic of Iraq, Ministry of Planning, Agricultural Statistical Atlas, various parts for different years.

Second: The reality of the food gap in Iraq for the most important vegetable products for the period 2003-2020

We review here the size of the food gap for the most important crops and plant products, which constitute a major food for members of the Iraqi society, in the forefront of which are the strategic crops

from the cereal group, and as shown in Table (1) below, As we note that the reality of the food gap for crops (lentils, beans and soybeans) recorded very high levels of the size of the food gap, amounting to an average for the period 2003-2020 of (100%), meaning that it falls within the very dangerous food deficit, as for the crops (wheat, rice and chickpeas), the levels of the food gap were recorded by more than half, which means that they fall within the degrees of dangerous food deficit, That is, more than half of the food needs of members of the Iraqi society are provided by import. As for the crops (corn, potatoes, and tomatoes) they were within the safe food deficit, as the average food gap for them was less than (50%). In general, and as shown in Table (1), the fluctuation in the levels of the food gap for most vegetable crops is because of to several reasons, including the deteriorating security situation and abandoning agriculture in many areas because of to terrorism, as well as the scarcity and fluctuation of water resources, as we previously indicated, as well as the weak agricultural policy in Iraq. And its inability to build an agricultural production base based on correct scientific foundations.

**Table (1) The food gap for the most important vegetable crops in Iraq for the period (2003-2020)**

average	tomatoes	potatoes	Bean oil soy	lentils	chickpeas	rice	Maize	Wheat	years
50	32	8	100	98	38	74	6	44	2003
44	5	16	100	90	17	61	4	60	2004
51	8	17	100	93	44	62	21	63	2005
39	20	13	100	3	37	69	10	65	2006
51	44	22	100	84	43	53	7	57	2007
61	24	21	100	96	88	72	14	73	2008
65	38	23	100	100	97	79	15	70	2009
65	39	47	100	100	97	81	7	50	2010
55	9	10	100	100	81	74	5	57	2011
53	10	7	100	100	81	70	3	52	2012
54	10	21	100	100	87	64	3	44	2013
54	15	36	100	100	91	58	4	30	2014
72	52	72	100	100	96	85	35	38	2015
75	66	70	100	100	100	75	54	35	2016
76	79	59	100	100	100	66	59	47	2017
81	52	74	100	100	100	98	59	62	2018
69	44	50	100	100	100	57	64	34	2019
66	39	38	100	100	100	57	65	28	2020
60	33	34	100	92	78	70	24	50	average

Source: From the work of the researcher based on:



- Data of the Food and Agriculture Organization of the United Nations, production and import for the years 2003-2020.

Third: The reality of the food gap in Iraq for the most important animal products for the period 2003-2020

We review here the size of the food gap for the most important crops and animal products, which constitute the main food for the members of Iraqi society, and as shown in Table (2) below, as we note that the reality of the food gap for products (table eggs, natural honey, chicken meat, and cow cheese) recorded high levels of the size of the food gap, reaching an average for the period 2003-2020 of (64-86%), meaning that it falls within the dangerous food deficit, as for the products (beef, sheep meat and animal butter), they fall within the degrees of safe food deficit in varying proportions (10%, 3%, 25%) respectively for the average study period.

**Table (2) The food gap for the most important animal crops in Iraq for the period (2003-2020)**

average	cow cheese	animal butter	sheep meat	Chicken	Beef	Natural honey	table eggs	years
28	66	2	0	17	6	66	41	2003
32	70	15	1	38	7	75	15	2004
30	80	10	2	27	5	80	7	2005
41	88	12	2	52	13	89	29	2006
47	84	60	1	61	5	58	61	2007
51	67	68	2	78	5	65	73	2008
60	91	53	18	90	10	72	84	2009
56	91	34	6	83	6	93	81	2010
51	91	14	2	81	11	80	79	2011
51	79	10	2	80	17	84	83	2012
54	86	24	3	80	19	83	84	2013
48	91	10	2	59	3	82	85	2014
53	92	20	2	74	9	86	89	2015
54	93	24	2	70	8	93	89	2016
58	93	29	3	79	16	93	90	2017
54	94	18	1	65	14	95	88	2018
48	92	27	1	38	14	88	73	2019
46	93	26	1	73	14	78	38	2020
48	86	25	3	64	10	81	66	average

Source: From the work of the researcher based on:

- Data of the Food and Agriculture Organization of the United Nations, production and import for the years 2003-2020.

The reality of the food gap (plant and animal), for the crops and products dealt with in this study, indicates the weakness or lack of food security in Iraq, this threatens the continuity of its food supply if there is any problem in the outside world that prevents the arrival or difficulty of obtaining food for members of the Iraqi community or its prices rise in a way that deprives the majority of the members of the community from obtaining their sufficiency of food, as happened as a result of the outbreak of the Russian-Ukrainian war recently. as members of the Iraqi society suffered from the high food bill, although government support for the prices of most agricultural products and crops, this support did not prevent the members of Iraqi society completely from being harmed, as a result of the failure of local production to meet the minimum food needs, as was previously explained in this study.

## **CONCLUSIONS**

- 1- The size of the food gap for plant crops covered by the study amounted to (60%) for the average period 2003-2020, which is within the degree of dangerous food deficit.
- 2- The size of the food gap for animal products covered by the study amounted to (48%) for the average period 2003-2020, which is within the degree of safe food deficit.
- 3- Crops (soybeans, lentils, rice and chickpeas) recorded the highest levels of food deficit, as the food gap ratios for them ranged between (70%) to (100%).
- 4- Products (chicken meat, table eggs, natural honey and cow cheese) recorded the highest levels of food deficit, as their food gap ratios ranged from (64%) to (86%).
- 5- Weak agricultural policy, the deteriorating security situation, climate change, and the scarcity of water resources are among the most important reasons for weak agricultural production and the widening food gap for most crops and agricultural products in Iraq.

## **Recommendations**

- 1- Activating the role of agricultural policy by restructuring government support for the agricultural sector in a way that works to build a real production base.

2- Creating and providing the appropriate production environment, especially the infrastructure of the agricultural sector, particularly water and electricity.

3- That the support directed to agriculture in Iraq be according to priority, so that priority is given to those crops and agricultural products that formed high rates of deficit and food gap in them, such as (soybeans, lentils, rice and chickpeas) for vegetable crops, and (chicken meat, table eggs, natural honey and cow cheese) for the products of animals.

4- Activating the role of agricultural research centers, in cooperation with agricultural extension institutions, to work on importing advanced agricultural technology that is appropriate for the agricultural environment in Iraq, and to train or encourage local farmers to use it in an economically efficient manner.

5- Attention to the file of water resources and working on developing immediate and future plans to preserve and sustain water resources in Iraq for all regions and for all members of Iraqi society.

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