



CHALLENGES FACING FOOD SECURITY IN IRAQ, CEREAL CROPS AS MODEL

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Abstract

Food security in any country is linked to the sustainability of life. Therefore, countries seek to achieve food security by multiple means, whether through local production of food and agricultural commodities, to meet the needs of local consumption, as well as by importing from abroad those goods (food and agricultural) that cannot be produced in the country, of course, the import has serious financial consequences, especially if the country does not possess the natural, human and technical capabilities of agricultural production, furthermore if it does not take into account the diversification of its income sources by obtaining hard currency, and it depends on a depleted resource (oil) as is in the case of Iraq, which is one of the developing countries that witnessed a serious decline in its agricultural production over the past years.

The importance of achieving food security, which is divided into two types. The first is absolute food security, and the second is relative food security. We have discussed in this research the issue of food security for strategic cereal crops in Iraq, focusing on the wheat crop, as one of the most important strategic cereal crops in Iraq in particular, and contains a good nutritional value. Where the cereal crops production in Iraq faced challenges, including poor productivity, desertification, erratic rainfall, and fluctuation.

Iraq is one among the countries that suffered from the problem of low levels of cereal crops production, including wheat, which led to a food gap in this product, caused that Iraqi government went to the import to resolve this problem and to cover the consumption.

Key words : food security, cereal crops production, relative food security, absolute food security, wheat.

Introduction

Almost no two disagree about the role of agriculture in achieving food security, because the agricultural renaissance is capable of producing agricultural crops that will contribute to meeting the population's needs for agricultural and food commodities. Iraq is among the countries that need to do more towards achieving agricultural development, especially by producing strategic grain crops, including wheat, which our research focuses on, as it is one of the most important cereal crops that are described as the strategy in Iraq, as it represents a staple food for the Iraqi individual, which is included in the vocabulary of his daily food. The importance of the

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wheat crop in Iraq is highlighted by the fact that it is grown in most of the Iraqi provinces, and contributes to providing income for farmers in those governorates, and contributes to providing them with income, in addition to that, reducing the external import, to achieve the food security of the country, but this crop suffers from low productivity, as a result of many factors, including its cultivation depends on rain which suffers from instability, as well as high soil salinity and a decrease in its fertility.

Food security is described as an essential pillar for achieving the strategic security of the country. Therefore, the issue of adopting economic policies aimed at achieving the food security of the country, in order to reduce dependence on importing food from abroad, which would

reduce the dependency of the country in economic and political terms.

Iraq suffers from the problem of diminishing strategic cereal crops production, of which wheat is an essential part of it, which means that there are challenges facing achieving the food security of the country from that substance. What are the most important challenges facing the achievement of agricultural development of basic grains? What works to achieve the food security of the country from that article.

Achieving food security from strategic grain crops in Iraq, including wheat, is linked to the mechanisms of facing challenges that hinder the low level of agricultural production of grains in general and wheat crops in particular.

Almost two do not differ on the importance of agriculture as one of the economic activities that contribute to achieving economic development. Therefore, achieving agricultural development has a major role in achieving the food security of the country, whether through the production of agricultural and food commodities that meet the needs of the local market, or by exporting the surplus production. The agricultural that the country produces, and obtaining hard currency, to import food commodities that the country does not have a comparative advantage in, so it is imported into the country from abroad. In addition, achieving agricultural development contributes greatly to diversifying sources of income and improving the position of the trade balance (reducing the level of import and improving the Level of exports) and the consequent issues of fighting unemployment, reducing poverty, and improving the environmental reality.

Despite the importance of agriculture in Iraq is the second-largest contributor to the formation of the gross domestic product after the oil sector, and it is a source of providing entry to workers in this important sector, as well as providing the hard currency for agricultural products in which production exceeds the need of the local market, including the resort to export. And what could improve the balance of payments situation, we say despite the importance of agriculture, but its contribution remained relatively small, as agriculture accounted for 3.9% of the GDP in 2009 (Alaa *et al.*, 2019). Then in 2016, it reached about 5.5%, then it decreased from 2018 to reach about 1.9% (AMF, 2018).

As for food security, there are multiple definitions that I dealt with, as the Food and Agriculture Organization (FAO) defined food security as the condition that ensures that all individuals have access at all times to their needs of good food that guarantees them an active and healthy

life (Ahmed, 2009).

He also knew that it is the level at which individuals get enough food that meets their basic needs in a way that suits their tastes, in order to enjoy a healthy and active life (WFP, 2018).

The concept of food security is divided into two levels (Siham *et al.*, 2009):

- Absolute food security, which means that a country meets its food needs through local production.
- Relative food security means that a country secures its needs for food, whether by local or imported production, thus securing those needs in cooperation with others.

Therefore, reaching the level of achieving food security in any country means investing and exploiting the natural, human and financial capabilities to produce enough food to meet the needs of the people of the country, and this does not happen except through the application of the principle of comparative advantage and we mean the situation in which the country increases its production of goods that He has the resources to produce it, to achieve a surplus of it issued abroad to obtain the hard currency and import the goods that the country does not have the capabilities of its production.

Materials and Methods

The research objectives are divided into the Analysis of the amount of Iraqi production of cereal crops in general, and wheat in particular and diagnosis of the most important challenges that hinder the achievement of food security from cereal crops in general, and wheat in particular.

Collected samples

We relied on the statistics for various years issued by the Ministry of Planning and Development Cooperation / The Central Agency for Statistics and Information Technology. We also relied on the statistics issued by the Arab Monetary Fund / the Arab Economic Report for separate years, as well as the statistics of the Arab Organization for Agricultural Development and the Food and Agriculture Organization FAO.

Data analysis

One of the most important indicators through which it is possible to determine the level of achieving food security in a country is self-sufficiency, which means the country's ability to Providing sufficient food to satisfy the needs of its residents from local production (Abdallah *et al.*, 2012).

The self-sufficiency rate can be calculated from the

following formula:

Self-sufficiency ratio = (the amount of domestic production / the amount of consumption) * 100

Results and Discussion

The reality of wheat production and consumption in Iraq

Wheat production

Almost two do not differ on the importance of producing grains (wheat, barley, rice, corn) in Iraq, as they are strategic crops and a major food source for the population, as most of the cultivated areas are devoted to grain production, the most important of which is wheat. These crops have witnessed fluctuation in the level of local production, due to several reasons, including the expansion of production of other agricultural crops, and climatic fluctuations as a result of drought, in addition to the fact that most areas planted with grains depend in a way that they water upon the fluctuations in their fall.

In our research, we will focus on wheat crop production in Iraq, where its cultivation constitutes the largest area of the total crop area for grain production in the country, as the area planted with wheat in Iraq reached 5788 thousand donums during the period 2004-2012. The barley crop came second, as the cultivated area of it during the same period at the top accounted for 4165 thousand donums. While the average cultivated area planted with summer grains (rice and yellow corn), respectively, about 3065 and 5041 thousand acres. The donums yield varied, as the highest for wheat and barley crops reached 495.8 and 432.6 kg / donum respectively, and with regard to summer crops, it reached about 752 and 548.5 km / donum, respectively (Safia, 2015).

The importance of this crop (wheat) also stems in developing countries, including Iraq, as it is a strategic crop, the food of individuals depends on it, as it is a major food source according to the prevailing pattern of consumption, so it was named the king of food crops, as

Table 1: Crops cultivation and production in Iraq for the period 2014-2018.

Year	Area (1000 donum)	Production (1000 ton)	Productive (Kg/Donum)
2014	14011	7093	506.245
2015	5458	3266	598.387
2016	5217	3993	765.382
2017	5443	3728	684.916
2018	3769	2450	650.039

Source: Ministry of Planning and Development Cooperation. Central Agency for Statistics and Information Technology. Crops and vegetables production report for the year 2018.

it is a key element in the food basket in developing countries, including Iraq (Shaker and Abbas, 2018).

We note in table 1 the cultivated area, grain production and the productivity of one donum in Iraq for the years 2014-2018, where there is a decrease in the areas cultivated with cereal crops, compared to this decrease in production, which reached its maximum in 2014 by about 7093 tons in 2014 to record a decrease over the following years, Then it reaches 2450 tons in 2018. As for the productivity of one donum, it recorded an increase from 506,245 kg / donum in 2014 to reach the highest level during 2016, when it reached about 765,382 kg / donum, and it decreased in 2018 to reach 650,039 kg / donums.

Table 2: The cultivated area, production and productivity of wheat crop in Iraq for the period 2014-2018.

Year	Area (1000 donum)	Production (1000 ton)	Productive (Kg/Donum)
2014	4585	3043	664
2015	4147	2645	638
2016	3697	3053	826
2017	4216	2974	705
2018	3153	2178	690

Source: Ministry of Planning and Development Cooperation. Central Agency for Statistics and Information Technology. Crops and vegetables production report for the year 2018.

(Table 2) shows the area planted with wheat crops for the period 2014-2018, where the largest area under cultivation was during the year 2014 when it amounted to about 4,585,000 dunums. This naturally affected production quantities, during which in 2014 it amounted to about 3043 thousand tons, then it decreased in 2018 to reach production amount to 2178 thousand tons. The productivity of wheat crop remained low compared to developed countries, as it did not exceed 826 kg/donum, which is the highest productivity figure reached during 2016 and recorded a decline in 2018 to reach about 690 kg/donum.

Consumption of wheat

Studies indicate that Iraq consumes about 5.6 million tons of wheat crop, and according to the statement of the General Company for Grain Trade, Iraq needs about this crop about 4.5-5 million tons annually, and it imports about 2 million tons on average (www.arabiceuronews.com) According to the forecasts of one of the studies published in one of the local magazines in Iraq, the volume of local consumption of wheat was estimated for the period from 2010-2020 as in (Table 3).

Whatever the case may be, regarding the statements

Table 3: Estimates of wheat consumption in Iraq for the period 2010-2020.

Year	Volume of consumption (million tons)
2014	5.711
2015	5.767
2016	5.877
2017	6.040
2018	6.202
2019	6.368
2020	6.539

Sours: Qusay, Q.K., A.N. Saad and K.E. Ahalam (2010). Economic analysis for future expectation for production & consumption for Wheat in Iraq for period 2010- 2020 by using expectation model. *Anbar journal of agricultural sciences*, **8(4)**: 264-280.

about domestic consumption as well as the predictions indicated by some studies, it can be said that Iraq consumes about 5- 6 million tons annually of wheat.

Food security and self-sufficiency of the wheat crop in Iraq

Table 4: Self-Sufficiency and Food Gap from Wheat Crop in Iraq for the period 2014-2020.

Year	Self- sufficiency %	The food gap
2014	53.28	-2668
2015	45.86	-3122
2016	51.94	-2824
2017	49.23	-3066
2018	35.11	-4024

(Table 4) shows the percentage of self-sufficiency of the wheat crop in Iraq, as the local production of that basic foodstuff does not cover the need for local consumption, so there is a decline in the percentage of self-sufficiency, and an increase in the level of food deficit for this basic material, which means that Iraq is within the system of countries Which depends on the import to cover the need of its population for the wheat crop, and this will naturally have financial implications, if the challenges behind the low level of production in Iraq are not addressed, so it is necessary to highlight the most important of these challenges.

Challenges facing the achievement of agricultural food security in Iraq

The contribution of agriculture to the gross domestic product

The percentage of the contribution of agriculture to the gross domestic product in Iraq was recorded about 6.9% in 2013 and then decreased during the years 2014, 2015, 2016, to reach about 5.6%, 5.4%, and 5.5%, respectively, and reached in 2018 is about 1.9%. As shown

in (Table 5).

Table 5: Contribution of agriculture to gross domestic product in Iraq (%).

Year	The contribution of agriculture to the gross domestic product %
2013	6.9
2014	5.6
2015	5.4
2016	5.5
2017	3.5
2018	1.9

The labor force in agriculture

In connection with the paragraph of the contribution of agriculture to the gross domestic product, which recorded a relatively low, but it provides 20% of the agricultural workforce, in addition to this, about 30% of the population currently lives in rural areas, with the result that poverty rates reach For about 50%, the decrease in the level of production leads to a decrease in the level of incomes. The lack of opportunities to establish other activities such as food processing and transport and storage services leads to high poverty rates.

Decreased productivity

The yield of cereal crops in developed countries is about 4.155 kg/hectare, as well as wheat productivity about 4,000 kg/hectare, and barley about 3,637 kg/hectare, compared to that we find that there is a decrease in the productivity of one dunum in Iraq, where it indicates (Table 2). To the decrease in productivity per dunum (one hectare = 10 dunums), as it reached about 664 kg/dunums in 2014 and rose in 2017 to about 705 kg/dunums, and in 2018 it decreased to about 690 kg/dunums.

Quality of agricultural production of the wheat crop

The low quality of the wheat crop in Iraq, including its ability to catch diseases that lead to a lower level of production from it

Natural challenges

These challenges can be divided into a group of factors, including (Hussein, 2014):

Climate conditions due to high temperatures and increased drought due to fluctuation and irregularity of the amount of rain.

The phenomenon of desertification, where Iraq suffers from high soil salinity, which negatively affected the productivity of the agricultural sector, as it loses about 5% annually of agricultural land as a result of saturation by solar radiation and salts. Within this framework, studies indicate that the proportion of lands suffering from

desertification has reached About 38.10% is expected to reach about 50% of the total area in the coming years.

Insufficient water resources to meet the need for agricultural production, as a result of the erratic and poor rainfall, as well as abuses of the water share by the neighboring countries from which Iraq's water resources (surface water) originate, as well as waste and misuse of water in Iraq.

Technical factors

Agriculture in Iraq suffers from a low level of agricultural technologies from agricultural mechanization and modern irrigation methods (sprinkler and drip irrigation) and improved seeds and pesticides to combat pests and diseases to which agricultural crops are subjected, which led to a low level of agricultural production, then its inability to meet the need Its population is agricultural crops, which led to a weak level of food security.

Commodity dumping and lack of protection

The agricultural sector in Iraq suffers from its lack of protection from the commodity dumping policy, which led to Iraq turning into a net importer of all agricultural and food crops from neighboring countries, which led to a low level of agricultural production and its weak contribution to local output. Total, as noted above.

Conclusion

Despite the importance of agriculture in Iraq in terms of manpower and population that depend on it as a source of livelihood, its contribution to the gross domestic product is low.

The wheat crop constitutes the largest area of the total crop area for grain production in Iraq, as the area planted with the wheat crop in Iraq amounted to 5788 thousand donums during the period 2004-2012, and the barley crop came in second place, where the cultivated area of it during the same period in the above was 4165 thousand Acres.

The productivity of the wheat crop in Iraq suffers from its decline compared to productivity at the global level and developed countries.

Low technologies used in agricultural production in Iraq.

Iraq suffers from a food deficit with regard to the wheat crop, despite its basic nutritional importance to the population, as it constitutes the main meal for the population in Iraq.

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