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AN ECONOMIC ANALYSIS TO DETERMINE THE CONSUMPTION RATE OF IRAQI CITIZENS FROM LIVESTOCK PRODUCTION IN 2024 (EXCLUDING THE KURDISTAN REGION)

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SUMMARY

Food security priorities in the nations focus on elements of production of fishes and animals which are crucial elements in the food chains of life. Other countries of the world make every effort to secure the availability of these goods to their citizens and this is achieved by either manufacturing them locally, or in cases where they have no capacity to do so, they go to imports. They are necessary so as to satisfy the protein requirements of the body and can also be viewed as valuable indicators of the development and livelihood of society. The quantity of animal protein that is consumed by each individual in Iraq remains significantly below that of the rich countries and even in some countries that are neighbours. According to the World Health Organization (WHO) recommendation, a daily intake of at least 35 grams and not more than 80 grams of net animal protein is required and the average daily intake in Iraq was close to 20 grams, as of 2024. The research addresses a serious issue: despite the evident increase in the level of incomes and consumer purchases, the importation of red and white meat, eggs, dairy products, and powdered milk has increased, the real consumption of animal products remains lower than the minimum threshold, recommended by the WHO, although the growth rates are very high. The primary aim of this research is to explore ways of fulfilling minimum net protein requirement of animals to be included in the development plan (2023-2027). Key findings indicate that the minimum level of intake that is recommended by the WHO should be implemented at a national standard as soon as possible. In order to bridge the gap in supply and to become self-sufficient, the report also recommends the establishment of a holistic agricultural economic policy that would ensure the personal food security and the investment in the animal production industry. The findings of the research must be used to ensure that, planners and policymakers come up with agricultural policies that will improve on the flow, availability, and stability of food commodities, thus improving on industrial, economic, and nutritional outcomes. The reason is that these are products that are of strategic importance to the consumption of households as well as in other economic activities on a larger scale.

Key words: animal protein consumption, food security, livestock production, import dependency, self-sufficiency.

INTRODUCTION

Consuming animal products is essential for human nutrition, as they are a source of animal protein [3]. Protein is essential for the repair of injured tissues and the formation of new tissues throughout development. Protein is also required for the biochemical processes in the body, as well as for the production of many hormones and enzymes [20][1]. The human body needs animal products to get the critical amino acids it can't make on its own. Some examples of foods high in protein are red meat (about 30.5%), milk (about 26.5%), and eggs (about 47%) [17] [6].

Patterns of animal protein consumption exhibit regional differences, as some countries exceed animal protein consumption requirements, while others, including Iraq, consume far less than the recommended levels. On the whole, there seems to exist an inverse relationship between the rate of protein consumption and the rate of agricultural engagement of the population [24][9][12]. Countries characterized by relatively greater agricultural workforce proportions display lower levels of livestock protein consumption, on average [25]. For example, in developed countries, about 10% of the population is employed in agriculture, while in less developed countries, like Iraq, 60% of the population works in agriculture; however, their animal protein consumption is still below the average [5] [14].

Even while Iraq is importing more meat, eggs, and dairy, the average Iraqi still doesn't get nearly enough protein—just under 35 grammes per day, according to the World Health Organisation (WHO) [7] [10]. The present consumption is 20 grammes, which is a great deviation [23]. Even with this issue, the fact that Iraqis have increased disposable income, and are spending more on consumer goods indicates that it is not producing enough meat to meet its nutritional needs [22] [16] [21].

This research fills that need by investigating the causes of Iraqis' insufficient intake of animal protein. As stated in Iraq's five-year development plan (2023–2027), this research aims to investigate the obstacles to the country's pursuit of the World Health Organization's daily recommended intake of 35 grams. The objective of this study is to improve local animal production, ensure food security, lower food import levels, and lessen the reliance on food aid through policies and investments in animal production.

Key contribution

- Emphasizes the gap between the average intake of animal protein from Iraq, which is 20 grams per day, compared to 35 grams per day as the minimum intake recommended by WHO.
- Assesses the shortfalls of animal products' production in Iraq and the requirement for specialized enhancement in production within the country.
- Outlines ways to achieve self-sufficiency in animal products and lessen the imports to improve the national food security.
- Assists in bringing into action the short-term plan to achieve the minimum intake of animal protein by 2027 and bring improvement to the policies and the agricultural strategies of the country.

MATERIAL AND METHODS

This study uses a quantitative analysis approach to evaluate the consumption of animal protein in Iraq. Data were collected from several reliable sources to ensure the robustness of the findings. The primary data sources included the Iraq Knowledge Network, which provided national survey data on animal protein consumption patterns; the Central Statistical Organization and the Ministry of Planning, that provided information on the population, the agricultural production and consumption rate; and the World Health Organization (WHO), that gave the recommended daily intake of animal protein (35 grams a day). Further information about imports of animal products, red meat, poultry, eggs, and dairy were obtained in the Baghdad Chamber of Commerce. Meanwhile, the General Directorate of Livestock and Veterinary Services of the Ministry of Agriculture provided information on production of domestic animals, such as red meat, poultry, milk and eggs. The focus on the present study also used

the findings of scholarly theses and academic studies which explored the consumption of animal proteins in Iraq to complement the existing information.

The steps used in calculating the current situation of animal protein consumption included a number of repetitive steps. The mean per capita consumption of animal protein was obtained by dividing the total national production and imports of each animal product by the size of population in Iraq. In order to assess the degree of self-sufficiency, the degree of self-sufficiency of each product was computed by using the formula:

$$\text{Self sufficiency Ratio} = \frac{\text{local production}}{\text{Total consumption}} \times 100 \quad (1)$$

Equation 1 determines the ratio of each animal product that is fulfilled by the domestic production and the dependency on imports. The calculation of shortfall was also done by comparing the current domestic production in Iraq with the recommended quantities of intake especially the differences in per capita consumption [8].

Also, the research utilized the trend analysis of past data on local production, consumption, and imports to determine long-term trends and project into the future. They estimated the increase of animal products production by forecasting, which would be needed to satisfy the WHO required minimum per capita intake of animal protein of 35 grams per day in 2027. This entailed determining the growth in local production required in each of the animal products such as the red meat, poultry, milk and eggs, given the estimated population growth and the per capita consumption needed.

The comparative methods were also applied in the analysis of the per capita consumption of animal protein in Iraq compared to the world and recommended by WHO thus showing the gap between what is being currently consumed in Iraq and what is recommended by the international standards. This holistic solution gave a clear picture of the food security problem in Iraq concerning animal protein and it also gave an idea of the needed steps to bridge the consumption gap.

RESULTS AND DISCUSSION

The three sections of the study include the following: firstly, the consumption of meat in Iraq, secondly, the consumption of proteins per capita in Iraq, and thirdly, the development of livestock producing industry in Iraq.

THE FIRST SECTION

Iraqi Animal Product Consumption

Key animal products' local production and import statistics are shown in Table (1). The average Iraqi diet consists largely of animal products, including eggs, raw milk, poultry, fish, and red meat.

Table 1. In 2024, both domestic and imported animal products will be available for consumption, with the exception of the Kurdistan area

Animal production	Local production (1000 ton)	Imports (1000 ton)	Available consumption (1000 ton)	% Of shortage
Fish	50	65	115	56.5
Egg	883	2.6	3.5	74.2
Red meat	160	36	196	18.3
Raw milk	285	2436	2721	89.5
Chicken	57	418	475	88
(no .)	(mill. egg)	(bill .)	(bill .)	

Source: Ministry of Planning/Department of Agriculture Statistics/The Center for Statistical Analysis 2024

Lack of local output is equal to imports divided by local consumption * 100% *

There were 160,000 metric tonnes of red meat, 57,000 metric tonnes of poultry, 50,000 metric tonnes of fish, 285,000 metric tonnes of raw milk, and 883 million eggs produced in Iraq in 2024. To satisfy domestic consumption needs, however, imports are heavily relied upon. Raw milk totalled 2,436,000 metric tonnes, 36,000 metric tonnes of red meat, 418,000 metric tonnes of chicken, 65,000 metric tonnes of fish, and 2.6 billion eggs were imported by the country [2].

The big gap in local production shows that there must be an adjustment in the agricultural policies in the area of local production of white meat, milk, and eggs [15].

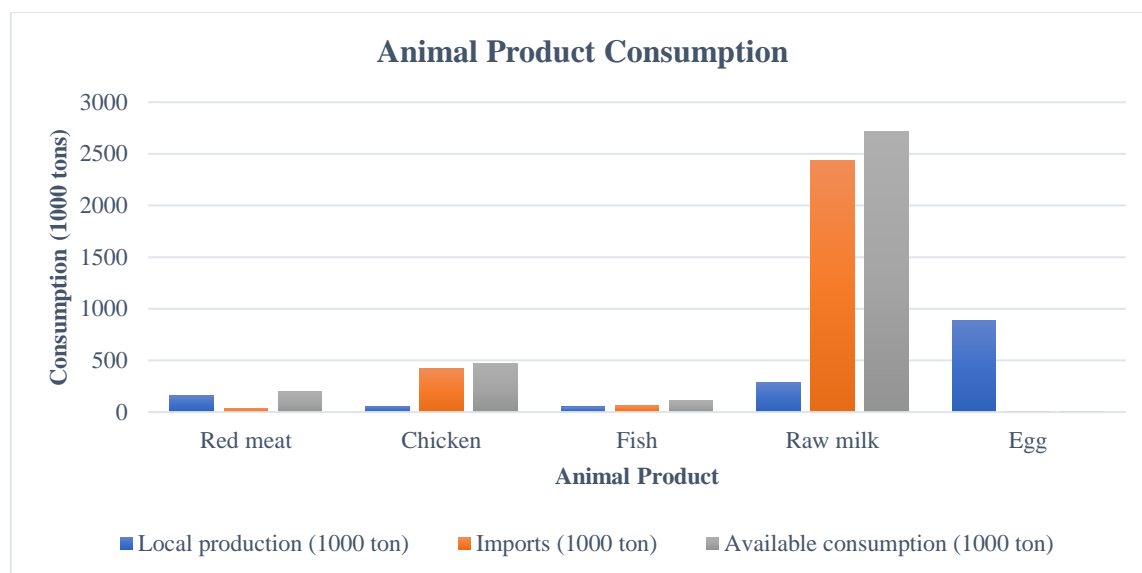


Figure 1. Animal Products Consumption

Figure 1 presents an analysis of Iraq's animal product consumption in 2024. It delineates the disparity between domestic production, imports, and overall consumption (in 1000 tonnes) of essential animal goods such as eggs, raw milk, chicken, fish, and red meat. At the very top of each bar is the percentage shortage for that product; this highlights how heavily we rely on imports to satisfy our domestic consumption needs. Chicken, raw milk, and eggs are in especially short supply in Iraq, according to the statistics, highlighting the difficulties the country has in becoming animal product self-sufficient.

Achieving Self-Sufficiency Rates Values of ratios

The ratios of Iraq's self-sufficiency for different animal products are presented in Table (2). It reveals that whereas Iraq can meet its own demand for red meat to the tune of 79%, it can only cope with raw milk to the tune of 10.5%. Additionally, home production of both table eggs and white meat is at an alarmingly low level, highlighting the pressing need for measures to enhance self-sufficiency [4] [13].

Table 2. The percentage of domestically produced, domestically consumed, and self-sufficient animal products (apart from the Kurdistan region in 2024)

Animal production	Local production (1000 ton)	Local consumption	Shortage	*% self sufficiency
Fish	50	129	- 79	38.7
Red meat	160	202	- 42	79
Egg	883	3.6	- 2.7	23
Chicken	57	470	- 413	12.1
Raw milk	285	2722	- 2464	10.5
(No .)	(Mill. egg)	(Bill. egg)	(Bill. egg)	

Source: ministry of planning/Dep. of Agr. statistics / The cent. agr. of statistics 2024

$$* \% \text{ self-sufficiency} = \text{local production} / \text{local consumption} * 100\%$$

THE SECOND SECTION

Average Intake of Animal Protein

The average daily intake of animal products in Iraq is detailed in Table (3). In comparison to the World Health Organization's daily recommended minimum of 35 grams of animal protein, Iraq's consumption falls well short, as shown in the table. The typical American consumes significantly less than the recommended 35 grams of red meat per day, at only 17 grams [19][18].

Table 3. Average intake of animal products such as milk, eggs, chicken, and red meat (except Kurdistan region in 2024).

Animal product	Average cons. g/day	Average cons. Kg/month	Average cons. Kg/year
Raw milk	230	6.843	82.5
Red meat	17	0.510	6.1
Egg	16.2	0.484 g = 9 egg	110
Chicken	39.5	1.187	14.2
Fish	10.8	0.325	3.9

According to the study, there are 33 million people living in Iraq. Source: Based on the Ministry of Planning's and the Central Organization for Statistics' 2024 projections

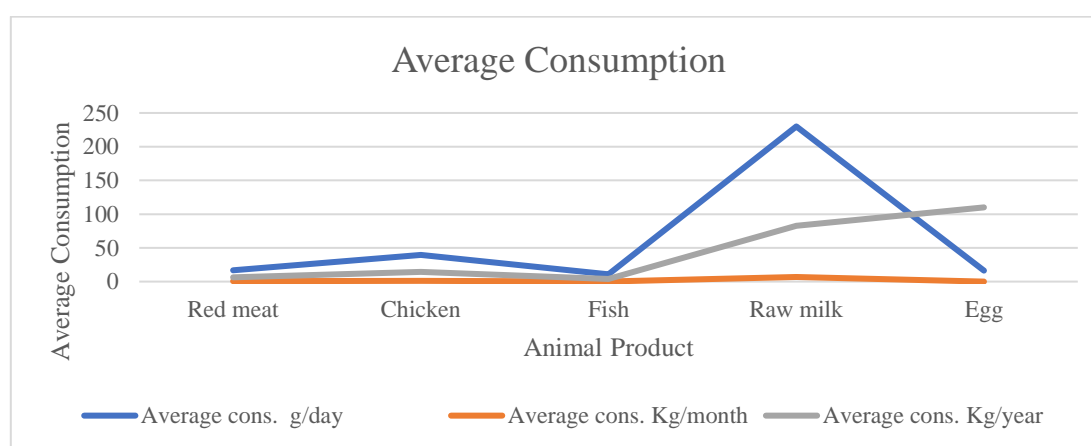


Figure 2. Average Consumption of Animal Products (g/day, Kg/month, Kg/year)

Figure 2 shows the average consumption of different animal products on a daily, monthly, and annual basis. The numbers show the typical consumption of each commodity in grammes daily, kilogrammes monthly, and kilogrammes annually.

Per Head Consumption of Animal Protein

Table 4 describes the sources of animal protein consumed per head in Iraq for 2024. It describes the composition of protein in animal food products consumed in Iraq.

Table 4. Average amount of protein sources consumed per person in 2024

Average cons. g/year	Average cons. g/month	Average cons. g/day	Animal product
0.396	0.033	1.10	Frozen sheep meat
0.48	0.040	1.40	frozen Beef
0.012	0.001	0.001	Buffalo meat
0.72	0.060	2.00	Imported red meat
9.072	0.756	25.2	Frozen chicken
2.7	0.225	7.50	Fresh river fish
0.90	0.075	2.5	Frozen fish
0.036	0.003	0.002	canned fish

10 egg	9 egg	1.7	eggs
2.64	0.220	7.322	Fresh sheep meat
1.512	0.126	4.20	Fresh Beef
0.072	0.006	0.002	Goat meat
0.036	0.003	0.000	Camel meat
0.36	0.030	1.0	Other (imported)
5.148	0.429	14.3	Live chicken
0.288	0.024	0.80	Fresh sea fish
0.000	0.000	0.000	dried fish
0.072	0.006	0.33	raw milk

Source: ministry of planning / Dep. of Agr. statistics / The cen. Organization of statics 2024

Global Comparison of Animal Protein Intake

Table 5 analyses the average daily consumption of animal protein around the world and finds that Iraq's consumption is significantly lower than the average of 72.3 grams.

Table 5. The average amount of net animal protein consumed worldwide per person in 2024

Animal protein	% Of meat without bones and lipids 100g	% of bones	% of lipids	% of protein of net global protein source g/day
Fish	55	15	30	19
Red meat	57.2	20.6	22	18
Eggs	82.9	12.3	4.8	12.8
chicken	86.2	12.6	1.2	19
Raw milk	96.7	-	3.3	3.5
				72.3

Source: World Health organization Geneva 2024.

Estimated Per Capita Consumption of Net Animal Protein

Table 6 displays the projected average per capita consumption of net animal protein in Iraq for 2024, showing the disparity between the existing intake and the recommended amount by the World Health Organization.

Table 6: Estimates of Average Per Capita Consumption of Net Animal Protein in Iraq for the Year 2024 (Excluding the Kurdistan Region)

Source at Animal product	Average cons. Per capita at Animal production g/day	Average cons. Per capita of net Animal protein source g/day
Raw milk	220	7.5
Red meat	17	1.9
Eggs	16.2	2.1
chicken	39	6.5
Fish	10.8	2.0
Total		20

Source: determined by the researcher using the Central Organization of Statistics 2024 data.

THE THIRD SECTION

Development of Animal Production Performance in Iraq

This is the performance of Iraq's livestock production sector in 2024, as shown in Table 7. A meagre 5.3% of raw milk and 12.1% of poultry are supplied domestically by the country, indicating that animal product self-sufficiency is still low [5].

Table 7. Development performance of animal production in Iraq except kurdistan region

Animal production	Individual need kg/year	Need of Iraq from animal prod.	Local prod. 1000 ton/year	Consumption 1000 ton/year	% Self-sufficiency of local prod. To the need	% Self-sufficiency of cons. To the need
3.6 Billion eggs	23.5	96	883 million egg	3.6 Billion eggs	23.5	96
Red meat	23	960	160	202	16.7	21
Raw milk	180	5400	285	2722	5.3	50
chicken	11	330	57	470	17.3	142
fish	5	150	50	129	33.3	86

Source: calculated by the researcher based on unpublished data / Ministry of Agr. / Agricultural statistic 2024.

Minimum Net Animal Protein Intake

Table 8 displays the average daily consumption of net animal protein in Iraq per capita, as well as the amount needed to achieve the 35 grams recommended by the World Health Organisation [11].

Table 8. Average per capita consumption of the minimum net animal protein (grams/day) for the year 2024 (excluding the kurdistan region)

Animal production	Individual need Kg/ year	Average protein cons. of net minimum g/day	Average cons. Of Iraqi individual from net source of protein. g/day
Chicken	11	5.01	6.5
Red meat	32	9.91	1.9
Egg	125 egg	1.94	2.1
Fish	5	1.3	2
Raw milk	180	16.92	7.5
Total	*	35**	20***

Source: * World Health Organization, Geneva, 2024 ** Ministry of Agriculture / Department of Agr. Statistics 2024 *** determined by the researcher using information from the Central Organization of Statistics 2024.

Development Strategy for Animal Protein

Iraq plans to raise its per capita consumption of animal protein to the amount recommended by the World Health Organization (2023–2027), as shown in Table 9.

Table 9. Development strategy (2023–2027) to minimize the drawbacks of animal protein

Year	Red meat g/day	Chicken	Fish	Raw milk	Eggs	Total net protein
2023	2.56	7.7	1.83	9.30	2.30	23.7
2024	2.82	8.5	2.32	10.30	2.50	26.1
2025	3.12	9.4	2.32	11.40	2.80	29.0
2026	3.44	10.4	2.46	12.60	3.10	32.0
2027	3.77	11.49	2.69	13.90	3.40	35.0

Source: determined by the researcher using development. Plan (2023–2027) as a basis.

Domestic Production Growth Rates

Table 10 displays the rates of increase required to reach the aim of 35 grammes of net animal protein per day per capita by 2027.

Table 10. Domestic growth rates in production are needed in order to achieve the minimum per capita consumption of net animal protein (35 g/day)

Animal production	Local production 1000 tons	average growth production to reach the minimum (35 g/ day)	Local growth prod. to reach minimum. (35g/day) (1000 ton
Fish	50	%24	62
Eggs	883 million eggs	%28	1.13 billion eggs
Red meat	160	%30	208
Raw milk	285	%68	479
Chicken	57	%38	79

Source: calculated by the research

DISCUSSION

These results show the extent to which Iraq is deficient in terms of its capacity to domesticate animal protein. The basic commodities such as chicken, milk, and eggs are facing shortage in Iraq and the nation has had to heavily depend on imports. This is a situation that brings risks in food security in global market changes.

The increased production within the country would reduce dependency on imports by Iraq and this would have economic effects such as stabilising the local market and saving the money. Iraq should collaborate to improve its policy on agriculture since it is only 79 percent self-sufficient in red meat and as low as 10.5 percent in raw milk.

The policy implications are obvious, that Iraq should walk the walk in the field of agriculture, particularly in the fields of poultry, dairy and cattle [26]. Growing these industries will help Iraq become less dependent on food imports and increase food security in the country. The government may help farmers become more productive by offering them incentives, transferring technology to them, and organising training programs.

Assumption and Recommendation

Invest into raising animals: Government programs should promote the production of white meat, milk, and eggs from local farms.

The government should take specific measures to guarantee a steady supply of animal products in order to increase food security.

To guarantee self-sufficiency by 2027, policies should be aligned with the five-year plan. Pay close attention to the objectives stated in the Five-Year Development Plan (2023–2027).

CONCLUSION

The results of this study show that Iraq has a long way to go before it can satisfy its population's demand for animal protein. Iraq continues to confront severe shortages in domestic production of animal goods, especially raw milk, table eggs, white meat, and red meat, even though the country's imports of these items have increased. These shortcomings have revealed that food security and economic stability are threatened by this high dependency on imports. The ratio of raw milk and white meat self-sufficiency is also still beyond disbelievable and the total protein intake per head in the country is much less than the recommended 35 grammes per day by the World Health Organisation. The daily protein intake of the Iraqis is pathetic at 20 grammes. Most of the protein is contained in chicken and raw milk with very little in red meat and seafood. To reach the minimum dietary allowance, Iraq must produce more meat, dairy, and eggs domestically in great quantities. Studies such as these underscore the importance of investing in the cattle, poultry, and dairy sector to increase domestic production of agriculture, reduce

reliance on foreign producers, and ensure food security in the long-term. These efforts are essential in order to enhance nutritional outcomes in general and meet the growing protein needs of Iraqi people.

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