



AN ECONOMIC STUDY TO ESTIMATE THE AVERAGE CONSUMPTION PER CAPITA OF ANIMAL PROTEIN IN IRAQ FOR THE YEAR 2016

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Abstract

That all the vocabulary of animal production and fish enter the channels of strategic food and prioritize food security and seek various countries of the world to provide these products to their peoples through domestic production or import in the absence of the possibilities to produce as one of the most important goods that meet the requirements to satisfy the needs of the human body of protein and one of the most important Standards to measure the development and welfare of peoples. With an average per capita consumption of animal protein of the net (Almsdersenh, 2016) (20 g /day) per capita, while the World Health Organization indicate that the minimum per capita consumption of animal protein of the net source (35 g /day) and maximum (80g /day) (World Health Organization,2015). For it came research problem in spite of increase in the broad import of red and white meat, eggs, dairy products, dry milk. An level of per capita consumption of animal products reality taking evolution and quickly, but it still did not reach the level of the minimum protein Animal of the net source (35 g /day) so came the goal of the research is to reach a minimum of animal protein of the net source through the plan next five-year (2013-2017) as research reached several conclusions as the study recommended the adoption of a minimum of an individual who recommended consumption Organization global health sector to cover the deficit and reach self-sufficiency.

Key words: Animal Protein, Self – sufficiency

Introduction

The importance of animal products lies in the fact that they contain protein needed to build new tissues during human growth or to compensate for damaged ones. Also, the protein enters in the formation of some hormones and enzymes necessary for the biological interactions within the human body as well as it contains the essential amino acids for the body (AL-Dabisi,1986). On the other hand, these animal products contain different proportions of protein (egg 47%, red meat 30.5%, and milk 26.5%) (Thomas Zico, 1954). In addition, the amount of animal protein obtained varies by regions. In some countries, average per capita consumption is much higher than necessary and *vice versa* in other countries. In fact, there is an inverse relation between the percentage of workers in agriculture sector and the average consumption of animal protein. In general, (10%) of developed countries population are employed in agriculture compared (60%)

in developing countries (Edgar Arizanino, 2009), with a significant difference in animal protein consumption. Iraq is still suffering from a shortage in producing different kinds of animal products, despite the availability of all factors required for production of these products. As a result, the level of animal protein consumption by the Iraqi individual is still much less than its level in developed countries or even in some developing countries, despite increase in the income and consumer spending. The research aims to recognize the current reality of the animal products consumption, the average consumption per capita of animal protein, and the possibility of reaching the world minimum level of animal protein consumption.

Material and methods

The researcher depended on the quantitative analytical approach of the general survey data of the Iraq Knowledge Network/Central statistics organization/

Ministry of planning. The research relied on reports of the general directorate of livestock and veterinary / Ministry of Agriculture, Baghdad chamber of commerce, world Health organization, and many theses about the levels of animal protein consumption.

Results and discussion

For the purpose of achieving the research objective, the research has been divided into three section. The first, the reality of animal products consumption in Iraq. The second, the current reality of the average consumption per capita of animal protein. The third, the development performance of animal production in Iraq.

The First Section: The reality of animal products consumption in Iraq. Most animal products, especially red and white meat, fish, raw milk and eggs are considered the most important goods in the basket of Iraqi consumers. This section would focus on two main subjects. The first is about domestic production, imports and percentage of shortage in domestic production. The second is related to the percentage of self-sufficiency of animal products.

A- The domestic production and Imports available for animal products consumption. As table 1 shows, the quantities of locally produced animal products are (160) thousand tons of red meat, (57) thousand tons of chicken, (50) thousand tons of fish, (285) thousand tons of raw milk and (883) million egg. The imported quantities, however are (36) thousand tons of red meat (418), thousands of chicken, (65) thousand tons of fish, (2436) thousand tons of raw milk and (2.6) billion egg. Also the table explains the percentage of shortage in domestic production of animal products mentioned above. The percentage of shortage are (18.3%) for red meat, (88%) for chicken, (89.5%) for raw milk, and (74.2%) for eggs. These percentages of shortage in animal products, especially for white meat, raw milk and egg, they show

Table 1: The Domestic production and Imports Available for Animal products consumption except Kurdistan region in 2016.

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

Agr. statistics/The cent. arg. of statistics 2016 Source : ministry of planning / Dep. of Shortage in local production = imports / local consumption * 100%*

requires essential efforts and revision of government plans to increase the domestic production and to reduce the imports of these products, especially with the availability of necessary elements needed to increase domestic production in Iraq.

B- The Domestic consumption and self – sufficiency proportion of Animal products.

Table 2: Domestic production and domestic consumption and self- sufficiency % of animal products (except Kurdistan region in 1916)

| Animal Products | Local production (1000 ton) | Imports (1000 ton) | Available consumption (1000 ton) | % of Shortage |
|-----------------|-----------------------------|--------------------|----------------------------------|---------------|
| Red meat | 160 | 202 | - 42 | 79 |
| Chicken | 57 | 470 | - 413 | 12.1 |
| Fish | 50 | 129 | -79 | 38.7 |
| Raw milk | 285 | 2722 | -2464 | 10.5 |
| Egg | 883 | 3.6 | -2.7 | 23 |
| (no.) | (mill. egg) | (bill.) | (bill.) | |

Agr. statistics/The cent. arg. of statistics 2016 Source : ministry of planning / Dep. of Shortage in local production = imports / local consumption * 100%*

This section reviews the average consumption per capita of red and white meat raw milk, and eggs. Also, it Reviews the average consumption per capita of Animal protein sources, World average consumption per capita of animal protein net source, and Iraq average consumption per capita of animal protein net source

- 1- The average consumption per capita of red and white meat, raw milk and eggs. Table 3 shows estimates of average consumption per capita for red meat (17g/day) and (6.1Kg/year), for chicken (39.5g/day) and (14.2 kg/year), for fish (10.8g/day) and (3.9kg/year), for raw milk (230g/day) and (82.5 Kg/year), and for eggs (16.2g/day) and (110egg/year).

Table 3: Average consumption of red meat, Chicken, milk, and eggs for animal products (except Kurdistan region in 1916)

| Animal product | Average cons. g/day | Average cons. Kg/month | Average cons. Kg/year |
|----------------|---------------------|------------------------|-----------------------|
| Red meat | 17 | 0.510 | 6.1 |
| Chicken | 39.5 | 1.187 | 14.2 |
| Fish | 10.3 | 0.325 | 3.9 |
| Rraw milk | 230 | 6.843 | 82.5 |
| Egg | 16.2 | 0.484 | 110 |
| (no.) | (egg) | (g=9 egg) | (egg) |

By the researcher based on the no. of population of Iraq (33 million) Source : According to the estimation of ministry of planning / the central org. of statistics 2016

2- The average consumption per capita of animal protein sources for the year 2013 except Kurdistan region

Table 4 shows the average consumption per capita in Iraq according to the types of animal protein sources, domestic, imported and on daily, monthly, and yearly bases.

Table 4: Average consumption per capita of protein sources for 2016

| Animal product | Average cons. g/day | Average cons. Kg/month | Average cons. Kg/year |
|-------------------|---------------------|------------------------|-----------------------|
| Fresh sheep meat | 7.322 | 0.220 | 2.64 |
| Frozen sheep meat | 1.10 | 0.033 | 0.396 |
| Fresh Beef | 4.20 | 0.126 | 1.512 |
| Frozen Beef | 1.40 | 0.040 | 0.48 |
| Goat meat | 0.002 | 0.006 | 0.072 |
| Buffalo meat | 0.001 | 0.001 | 0.012 |
| Camel meat | 0.000 | 0.003 | 0.016 |
| Imported red meat | 2.0 | 0.060 | 0.72 |
| Other (imported) | 1.0 | 0.030 | 0.36 |
| Frozen chicken | 25.2 | 0.756 | 9.072 |
| Live chicken | 14.3 | 0.429 | 5.148 |
| Fresh river fish | 7.5 | 0.225 | 2.7 |
| Fresh sea fish | 0.80 | 0.024 | 0.288 |
| Frozen fish | 2.5 | 0.075 | 0.90 |
| Dried fish | 0.0 | 0.00 | 0.00 |
| Canned fish | 0.002 | 0.003 | 0.036 |
| Raw milk | 0.33 | 0.006 | 0.072 |
| Eggs (billion) | 1.7 | 9 (egg) | 110 (egg) |

of Agr. statistics/The cen. Organization of statics 2016 Source: ministry of planning/Dep.

Table 5: Global average consumption per capita of net animal protein source 2016.

| Animal protein | meat % 100 g without bones and | bones % 100g | Lipids% 100g | %protein of net global |
|----------------|--------------------------------------|-----------------|-----------------|------------------------------|
| | | | | |
| red meat | 57.2 | 20.6 | 22 | 18 |
| Chicken | 86.2 | 12.6 | 1.2 | 19 |
| Fish | 55.00 | 15.0 | 30 | 19 |
| raw milk | 96.7 | --- | 3.3 | 3.5 |
| egg | 82.9 | 12.3 | 4.8 | 12.8 |
| 72.3 | | | | Total |

Source : World Health organization Geneva 2016

3- The world average consumption per capita of net animal protein source for the year 2013

Table 5 explains the global average consumption per capita of net animal protein source (72.3g/day), which is very close to the upper limit determined by the world

Health organization (80g/day)

4- average consumption per capita of an Iraqi from net animal protein source for 2013 except Kurdistan Region.

Table 6 shows the average consumption per capita of animal products and the average consumption per capita of the net animal protein source (20g/day). This average is not reached to the minimum average that is determined by world Health organization The (35g/day), as well as the maximum average recommended by the same organization (80 g/day). Accordingly, this requires a serious study to find out the reasons which lead to this significant decline in the consumption of this animal protein necessary to build the human body.

Table 6: Estimation at average consumption per capita Iraq of net animal protein source 2016 except Kurd, 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 |
|--------------------------|---|---|
| Red meat | 17 | 1.9 |
| Chicken | 39 | 6.5 |
| Fish | 10.8 | 2.0 |
| Row milk | 220 | 7.5 |
| egg | 16.2 | 2.1 |

The third section : the development of performance of Animal production in Iraq for 2013 Except Kurdistan Region.

This section deals with the development plan and developmental performance of animal production in Iraq, the average consumption per capita of minimum net of net animal protein, as well as the growth rate of local production to reach the minimum level of net animal protein consumption. As Table 7 shows the developmental performance of animal production in Iraq, the need of individual and the total need in Iraq for animal products and the low quantities of local production compared to actual consumption. As table 7 indicates, the self – sufficiency ratio of domestic production of red meat is (16.7%), white meat (22.3%), chicken (17.5%), fish (33.3%), raw milk (5.3%), and eggs (23.5%). Also the table explains the self – sufficiency ratio of consumption to the needs of Iraq These ratios give clear indication of domestic production shortage, failure of production development to keep up with increased population, and inability of local production To meet the needs of Iraqi citizens for animal protein Thus, there is an urgent need to reconsider Many aspects related to production of such products On the other hand, table 8 shows the average consumption per capita of minimum animal protein source

Table 7: Development performance of animal production in Iraq except Kurd region

| Animal | Individual need Kg/year | Need of Iraq from animal prod 1000 ton /year | Local production 1000 ton /year | Consumption 1000 ton /year | %self- sufficiency of Local production To the need | %self - sufficiency cons, to need |
|----------|-------------------------|--|---------------------------------|----------------------------|--|-----------------------------------|
| red meat | 23 | 960 | 160 | 202 | 16.7 | 21 |
| Chicken | 11 | 330 | 57 | 470 | 17.3 | 142 |
| Fish | 5 | 150 | 50 | 129 | 33.3 | 86 |
| Row milk | 180 | 5400 | 285 | 2722 | 5.3 | 50 |
| egg | 125 | 3.75 | 883 | 3.6 | 23.5 | 96 |
| | egg. | billion egg | million egg | billion egg | | |

source: calculated by the researcher based on unpublished data / ministry at Agr./ Agricultural statistics 2016.

Table 8: Average cons. Per capita of minimum animal protein source net compared to the same average of the Iraqi individual except Kurd region 2016

| 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 |
|-------------------|--------------------------|---|---|
| red meat | 32 | 9.91 | 1.9 |
| chicken | 11 | 5.01 | 6.5 |
| fish | 5 | 1.3 | 2 |
| row milk | 180 | 16.92 | 7.5 |
| egg | 125 egg | 1.94 | 2.1 |
| | * | 35** | 20*** |

Source : * Ministry of agricultural / Dept. of Agri. Statistics 2016 ** world Health Org. Geneva 2016 *** calculated by the researcher based on data of central org. of statistics 2016

net compared to the same average of the Iraqi individual. As the table indicates, there is a clear decline in consuming animal protein from red meat and row milk compared to the But there is no problem for consuming the minimum of white meat and eggs. This is a clear indication of a shortage in bridging the needs of Iraq for animal protein net source of red meat and row milk.

Table 9 outlines the development plan put by the government of Iraq as a programme of action to achieve self- sufficiency in all agricultural products especially animal protein products.

Table 9: Development plan (2013 -2017) to achieve the minimum animal protein cons. From the net source

| Year | Red meat g/day | chicken | Fish | Row milk | eggs | Total net protein |
|------|----------------|---------|------|----------|------|-------------------|
| 2013 | 2.56 | 7.7 | 1.83 | 9.30 | 2.30 | 23.7 |
| 2014 | 2.82 | 8.5 | 2.32 | 10.30 | 2.50 | 26.1 |
| 2015 | 3.12 | 9.4 | 2.32 | 11.40 | 2.80 | 29.0 |
| 2016 | 3.44 | 10.4 | 2.46 | 12.60 | 3.10 | 32.0 |
| 2017 | 3.77 | 11.49 | 2.69 | 13.90 | 3.40 | 35.0 |

Source : calculated by the researcher based on deve.plan (2013-2017)

Table 10: Average local production growth to reach the minimum cons, of net animal protein source (35 g/day)

| Animal product | Local production ton)1000) | average growth production to reach the minimum(35R/day) | Local growth prod, to minimum (35 g/day) (1000 ton) |
|----------------|----------------------------|---|--|
| Red meat | 160 | 30% | 208 |
| chicken | 57 | 38% | 79 |
| fish | 50 | 24% | 62 |
| row milk | 285 | 68% | 479 |
| eggs | 883 | 28% | 1.13 |
| | Mill. egg | | bill. egg |

Source : calculated by the researcher

As the table shows, the five – year plan seeks to reach the minimum (35g/day) of animal protein consumption from the net source by the end of 2017

Table 10 shows the current local production quantities of animal protein products, the percentage increase needed to reach the minimum consumption (35g/day). as well as production growth amount to reach the minimum consumption, According to table ten.

Red meat needs an increase of (30%) or (208) thousand tons, chicken need (38%) or (79) thousand tons and fish (24%) or (62) thousand tons row milk (68%) or (479) thousand tons, and eggs (28%) or (1.13) billion egg

Conclusions

1. The parentage of domestic production shortage for red meat is (18.3%), for white meat is (82.2%) [chicken (88%) and fish (56.5%)], for raw milk is (89.5%), and for eggs is (74.2%).
2. The domestic production shortage for red meat is (42) thousand tons, for white meat is (492) thousand tons [Chicken (413) and fish (79) thousand tons], for raw milk is (2464) thousand tons and for eggs is (2.7) billion egg.

3. The percentages of self-sufficiency are (79%) for red meat, (17.8) for white meat [(12.1%) for chicken and (38.7%) for fish], (10.5%) for raw milk, and (23%) for eggs.
4. The imported quantities are (36) thousand tons of red meat, (483) thousand tons of white meat [(418) of chicken and (65) of fish], (2436) thousand tons of raw milk, and (2.6) billion egg.
5. The average consumption per capita is (17g/day) of red meat, (39.5g/day) of chicken, (10.3g/day) of fish, (230g/day) of raw milk, and (16.2g/day) of eggs.
6. The average consumption per capita of the net animal protein source from red meat has been estimated to be (1.9g/day), chicken (6.5g/day), fish (2.0g/day), raw milk (7.5 g/day) and eggs (2.1g/day).
7. The average consumption per capita of the net animal protein source is estimated to be (20g/day)
8. The domestic production growth proportions required to reach the minimum consumption of animal protein from the net source is estimated about (30%) for red meat, (38%) for chicken and (24%) for fish], (68%) for raw milk and (28%) for eggs.
9. The adoption of the minimum (35 g/day) as an average consumption per capita of animal protein.
10. To achieve the target above, it is necessary to increase domestic production to (208) thousand tons of red meat, (141) thousand tons of white meat [(79) thousand tons of chicken and (62) thousand tons of fish], (479) thousand tons of raw milk, and (1.13) billion of eggs.
11. It is necessary to work on reducing the imports of animal products because they constitute a major burden on the national economy of hard currency.
12. Developing an economic and agricultural policy that ensures the food security for Iraqi people.
13. Increase the investments in this sector because its importance to achieve self-sufficiency in animal products and to meet the growing shortage in domestic production by increasing the financial allocations for this sector with the support of private sector and adopting the principle of partnership with

public sector.

References

- Ahmed, D.E. and A-S-Hani (1995-2013). Estimating supply function for red meat in Iraq for the period. *J. Agric. Sci.*, **47(6)**: 1504-1499
- Ali, M.H. and M.A.Farhan (2014). Measuring the Economic Efficiency of fish Floding in Gages in Iraq. *J. Agrice. Sci.*, **46(1)**: 54-46
- Al- Dabisi, Abdurazak Majeed (1986). Animal products Reality and need/Ministry of planning /Agricultural planning commission.
- A-T. Abdul Mageed (2012-2022). U.K.Jubra. Predict quantities of available of capita consumption of red meat, chicken and fish in Iraq for the period. *J. Agric. Sci.*, **47(4)**: 1013-998.
- Al-Saho, N.A.A and B.H.H. Badri (1985- 2013). An Economic Analysis of Demand of Iraqi imports of chicken for the period. *J. Agrice. Sci.*, **47(2)**: 573 - 563
- Arizanino, Edgar (2009). Growth of Food consumption in Iraq. The program of Agricultural business development.
- Baghdad chamber of commerce Department of Agricultural products pricing (2015).
- Hussan, A.S. and M.A.Ahmed (2015). Marketing margin of locally produced milk caws in the province of Baghdad. District ABU-Ghraib for productive season. *J. Agrice, cei*, **48(2)**: 623-618
- Farhan. M.O. and H.K. Jasim (1985-2013). An Estimation of Individual Demand Function for chicken in Iraq for the period. *J. Agric. Sic.*, **46(3)**: 425-416.
- FAO (2012). Technical Bulletin, **(21)**.
- Ministry of Agriculture (2015). Department of Agricultural Statistics.
- Ministry of Agriculture (2012). The Directorate of Animal Live Stock and Veterinary.
- Ministry of Planning (2014). Department of national Accounts.
- Ministry of Planning (2011). The central organization of startistics, Iraq knowledge ner work.
- Thomas Zico (1954). Animal Husbandry, University of Pennsy/Vania
- World Health Organization (2015). Reports Geneva.