

FOOD GAP OF RED MEAT IN EGYPT
Dr. Alia A. EL_Gendy Dr. Hussein M. EL_Berry
Food Tech. Rec. Inst. A.R.C

ABSTRACT:

This study focused on identifying the gap in red meat in Egypt, during the period (2000 – 2015). To achieve the objectives of this study, methods of quantitative and qualitative analysis was used. Results showed an increasing trend in producing, consumption, percapita consumption as well as food gap in red meat in Egypt during the period under study.

INTRODUCTION:

Providing food requirements for people considered one of the main problems faced the government where great efforts is provided to decrease the food gap in many goods, mainly the main sources of animal protein mainly red meat. The world Health Organization (WHO) recommended about 56 unit of animal protein/day for each individual, while it reach only 20 unit/day for Egyptian one. According to the data of the year 2014 i.e. the percapita consumption of animal protein is lower than that of the world recommendation one.

Alaa and others (2014)ⁱ stated many variables which have a direct impact on the coefficient of food security for red meat which is, the amount of production, quantity of imports and exports, and the amount of red meat consumption and those variables explain about 52 % of the factors affecting food security for red meat changes, and the study, recommends to increase food security coefficient of red meat from 0.013 to 0.3 to from a strategic stock enough for domestic consumption of six months at least and to achieve that the study recommended applying many polices of it, encouraging investment in livestock sector, following fiscal polices to increase the real percapita income to insure food security of red meat to all the community, following suitable strategy by feed manufacturer and rationalizing the consumption of red meat in urban and rural areas.

In a study for the **central Agency** for Mobilization and statistics on economics of red meat in Egypt (2015)ⁱⁱ. The study returned the main reasons of the food gap in red meat in Egypt represented in the consequence increase in the consumption in respect to the local production of red meat and this shortage mainly due to shortage of fodder, using animals in agriculture labor, small scale breeder and low fertility of animal, the matter which is reflected in low number of cattles. The study recommended using of new methods of breeding, developing of projects concerned with animal breeding and enhance of genetic inheritance of animals, encouraging local fattening meat projects such as young beef fattening projects and ensuring suitable means through extension as well as producing proper foddors. Also, the study recommended sharing of agriculture

extension agency and media in directing both the breeder and the consumer towards production and consumption of meat.

Tahany (2015)ⁱⁱⁱ study deteremeatated problems of animal protein production in Egypt in three problems: the first: unavailability of self-financing of small breeder, small size loans and its high rates of interest, the second: sources of buying of animals i.e., absences of specialized markets in buying and selling, and third problem: epidemic diseases and waste disposal problems.

In economic study for the main indicators of achieving food security of red meat in Egypt **Somaya and Others** (2017)^{iv} estimated the strategic stock of red meat, by 0.29 million tons, sufficient for the consumption of 93 day (about 3.1 months). Instead of 6 months, in order to realize food security.

Hanady (2016)^v study stated factors affecting consumption of red meat by population number, domestic production, imports, percapita consumption, retail price of red meat, yearly individual income and retail prices of substitutes goods i.e. poultry and fish. Results declare that consumption increase by increasing of family size, also it increased in rural areas in Alex. Governorate comparing to urban one.

Objectives:

The main objective of this study is determination of food gap in red meat in Egypt during the period (2000 – 2015), through determining production, consumption of red meat during the period under study, as well as determining percapita consumption and self-sufficiency in red meat in Egypt during the same period and making recommendations in the light of results.

Data sources and methodology:

This research depended on published data of economic affairs sector (EAS), food balance sheet, and the data base in the national information center in the central agency for public mobilization and statistics. Also, this research depends on descriptive and quantitative analysis methods mainly, simple and multi-regression analysis, using Spss and using Excel programs in forecasting.

RESULTS:

Table (1,2) Show the development of number of cattles in Egypt during the period (2000 – 2015) and the result show an increasing in number of cattles reach it maximum during the year (2012) where it reach 20104 thousand ton and its minimum in 2000 (14944 thousand ton), and a significant increasement reach about 274.8 thousand ton represent about 1.4% of the average which reach about 18115 thousand ton.

Results of table (3,4) showing an increasing trend in production of red met during the period (2000 – 2015) with a significant increase reach 16.3 thousand ton, while it shows a significant decrease during the period (2012 – 2014) reach about 4.09.

As for consumption of red meat the same tables (3,4) shows an increasing trend during the period under study (2000 – 2015) reach 27.34

FOOD GAP OF RED MEAT IN EGYPT**3**

thousand ton which represent 2.4 of the average which reach about 1154 thousand ton.

As for the gap in red meat table (3,4) show a significant increase in red meat gap during the period under study reach 20,49 thousand ton which represent 1.2 thousand ton of the average which reach 306 thousand ton. In regard to self sufficiency of red meat table (3,4) show decreasing trend reach its maximum during 2011 and the minimum during 2001 with a significant decrease reach 1.22 thousand ton of the average which reach 74 thousand ton.

Table (3) shows the development of percapita consumption of red meat during the period (2000 – 2015) which illustrate a hesitated and instable values reaches its maximum during the year 2007 (where it reaches 13 K.gm/year) and its minimum during the year 2001 (Where it reaches 9.1 K.gm/year) from the previously mentioned results it is obvious that there is a gab in one of the most important sources of animal protein that is red meat which the previous studies related it to the deficiency of both and dry fodder and genetic inheritance animals.

Table (1): Number of cattles according to type during the period (2000: 2015) No. (1000).

Years	Cows	% of Total	buffalos	% of Total	Sheep	% of Total	Goats	% of Total	Camel	% of Total	Total
2000	3530	23.6	3379	22.6	4469	29.9	3425	22.9	141	0.9	14944
2001	3801	24.4	3523	22.6	4671	29.9	3479	22.3	134	0.9	15608
2002	4000	24.4	3550	21.7	5105	31.2	3582	21.9	127	0.8	16364
2003	4227	25.0	3777	22.4	4939	29.2	3811	22.6	135	0.8	16889
2004	4369	25.3	3845	22.2	5043	29.2	3889	22.5	135	0.8	17281
2005	4484	25.6	3885	22.2	5232	29.9	3803	21.7	120	0.7	17524
2006	4607	25.7	3938	21.9	5385	30.0	3877	21.6	148	0.8	17955
2007	4977	26.4	4141	21.9	5476	29.0	4210	22.3	84	0.4	18888
2008	5023	26.3	4052	21.2	5498	28.7	4450	23.3	105	0.5	19128
2009	5000	26.1	4000	20.9	5500	28.7	4550	23.7	110	0.6	19160
2010	4729	24.0	3818	19.4	5529	28.0	5529	28.0	111	0.6	19716
2011	4780	24.5	3883	19.9	5365	27.5	5365	27.5	137	0.7	19530
2012	4948	24.6	4166	20.7	5429	27.0	5420	27.0	141	0.7	20104
2013	4745	23.8	3915	19.6	5566	27.9	5564	27.9	153	0.8	19943
2014	4769	25.7	3950	21.3	5503	29.6	4186	22.5	158	0.9	18566
2015	4883	26.8	3702	20.3	5463	29.9	4046	22.2	153	0.8	18247
Total	72872	-	61524	-	84173	-	69186	-	2092	-	289847
Average	4554.5	25.1	3845.3	21.2	5260.8	29.0	4324.1	23.9	130.8	0.7	18115.4

Source: Ministry of Agriculture and land Reclamation, Central Administration for Agric. Economic, Various Editions of Agric. Economic Bulletin.

Table (2): Statistical analysis of the numbers of cattles during the period (2000 – 2015).

Items	Function	Average	Change rate %	R2	F
Cows	$\hat{Y} = 3893.37 + 77.75 X_i$ (27.238) *	4555	1.7	0.66	27.68 **
Buffalo	$\hat{Y} = 3621 + 26.382 X_i$ (2.621) *	3845	0.69	0.33	6.87 **
Sheep	$\hat{Y} = 4769.4 + 57.813 X_i$ (5.678) **	5305	0.88	0.69	32.24 **
Goats	$\hat{Y} = 3374 + 111.11 X_i$ (3.763) **	4324	2.9	0.50	14.16 **
Camels	$\hat{Y} = 106.06 - 1.512 X_i + 0.680 X_i^2$ (- 2.477) ** (2.317) **	131	-	0.49	6.3 **
Total	$\hat{Y} = 1077.97 + 274.79 X_i$ (5.689) **	18160	1.4	0.70	32.37 **

Source: data of table No.2.

** Signification at 1% level.

\hat{Y} = evaluated value of number of variable in one thousand head during the year i.

X = Time variable in the years where i = 1,2,3,4,.....16.

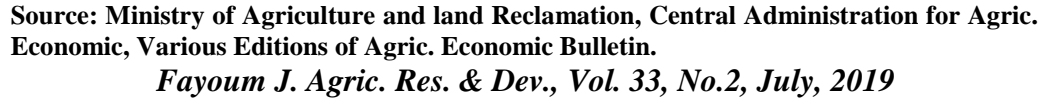
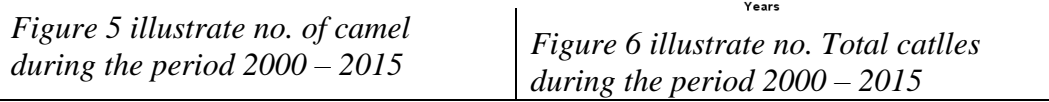
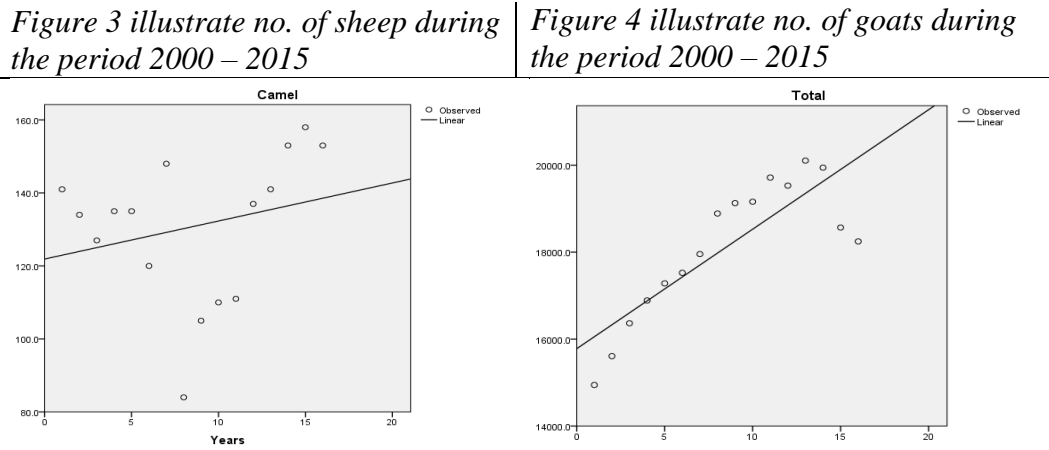
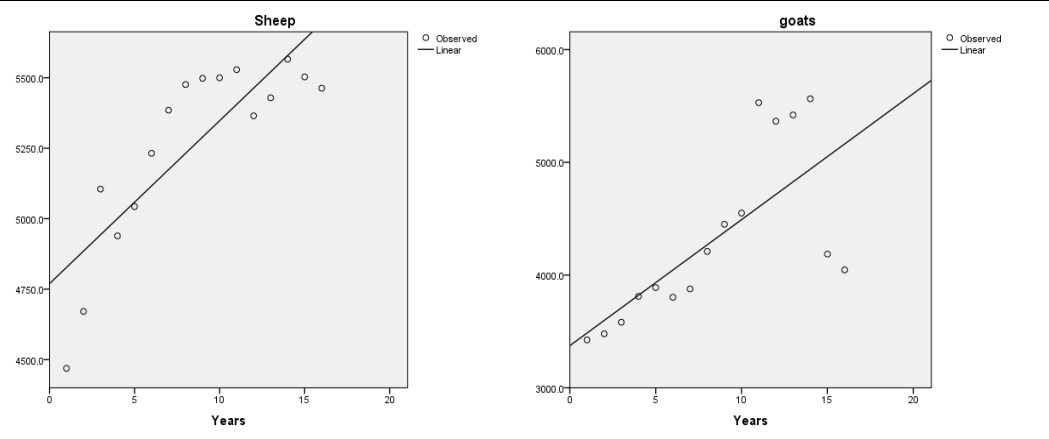
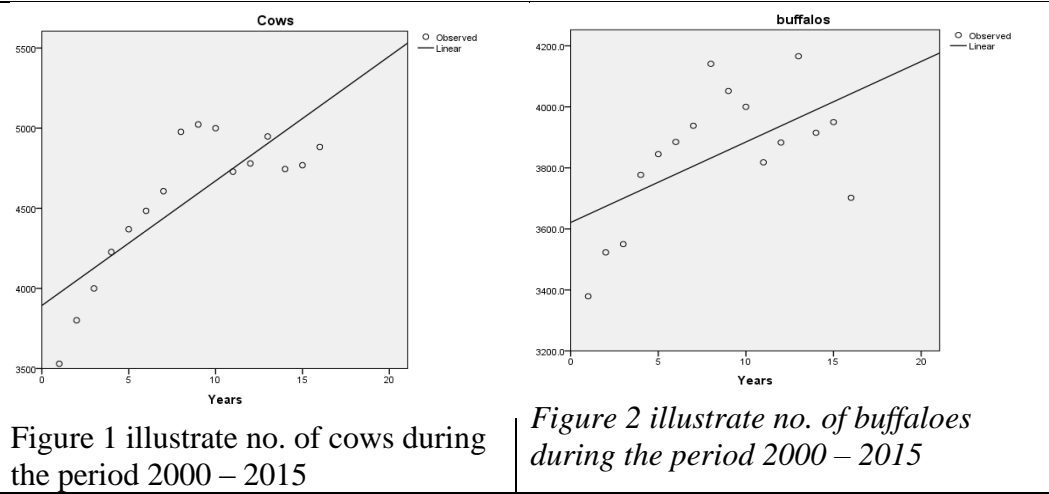


Figure 1 illustrate no. of cows during the period 2000 – 2015

Figure 2 illustrate no. of buffalos during the period 2000 – 2015

Figure 3 illustrate no. of sheep during the period 2000 – 2015

Figure 4 illustrate no. of goats during the period 2000 – 2015

Figure 5 illustrate no. of camel during the period 2000 – 2015

Figure 6 illustrate no. Total cattles during the period 2000 – 2015

Source: Ministry of Agriculture and land Reclamation, Central Administration for Agric. Economic, Various Editions of Agric. Economic Bulletin.
 Fayoum J. Agric. Res. & Dev., Vol. 33, No.2, July, 2019

Table (3): production, consumption, and food gap in red meat during the period 2000 :2015. (In 1000 ton)

Years	Production	Consumption	Meat Gap	% Of Self-sufficiency	Percapita Consumption gm./day
2000	694	930	236	75	11.0
2001	695	790	95	88	9.1
2002	821	960	139	86	10.8
2003	804	1020	216	79	11.2
2004	819	960	141	85	10.4
2005	819	1130	311	72	11.1
2006	880	1310	430	67	12.7
2007	921	1380	459	67	13.0
2008	961	1180	219	81	10.9
2009	980	1220	240	80	10.9
2010	1007	1360	353	74	12.0
2011	1037	1410	373	74	12.0
2012	788	1100	312	72	9.2
2013	780	1100	320	71	9.7
2014	769	1200	431	64	10.1
2015	793	1408	615	56.3	11.4
Total	13568	18458	4890	-	175.5
Average	848	1153.6	305.6	74.5	11.0

Source: Ministry of Agriculture and land Reclamation, Central Administration for Agric. Economic, Various Editions of Agric. Economic Bulletin.

Table (4): statistical analysis of production, consumption, and food gap in red meat during the period 2000 : 2015.

Items	Function	Average	Change rate %	R2	F
Production	$\hat{Y} = 581.293 + 76.34 X_i - 4.09 X_i^2$ (5.068) ** (- 4.745) **	848	-	0.67	13.14 **
Consumption	$\hat{Y} = 921.09 + 27.338 X_i$ (3.544) **	1154	2.4	0.47	12.56 **
Food Gap	$\hat{Y} = 131.475 + 20.488 X_i$ (3.796) **	306	1.24	0.51	14.41 **
Self-sufficiency	$\hat{Y} = 18.920 - 1.227 X_i$ (-3.504) **	74	1.7	0.47	12.27 **
Percapita consumption gm/day	$\hat{Y} = 9.692 + 0.434 X_i - 0.026 X_i^2$ (1.741) ** (- 1.808) **	11	-	0.21	1.6

Source: data of table No.3.

**Signification at 1% level.

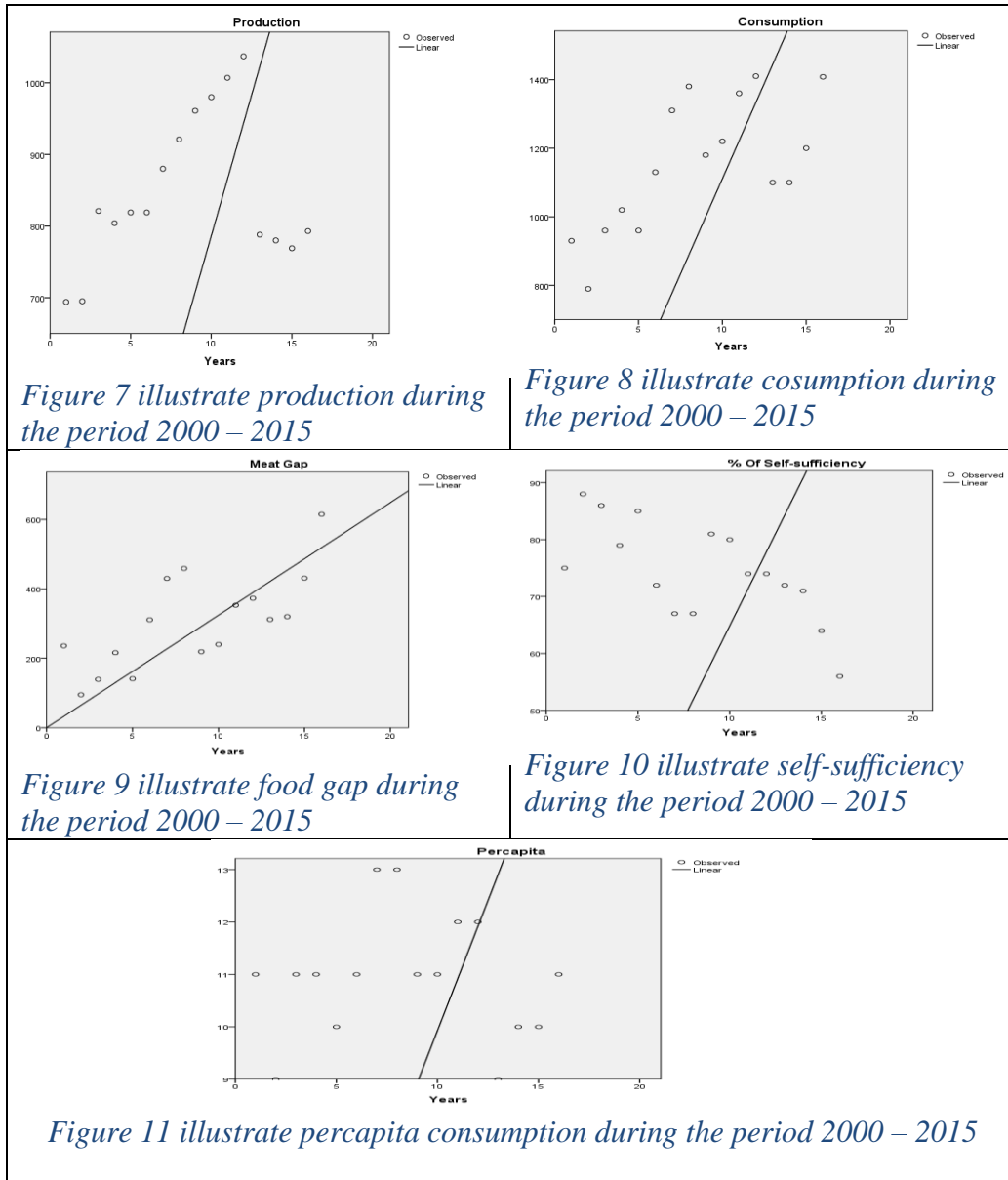
Forecasting of number of cattles, production, consumption, the gap and self-sufficiency of red meat during the period 2016 – 2019.

Results of table (5) shows that instead of the expected increasing of number of the cattles producing meat, also the expected increase in production of meat, this increasement will be insufficient for the expected consumption where the rate of the

Fayoum J. Agric. Res. & Dev., Vol. 33, No.2, July, 2019

FOOD GAP OF RED MEAT IN EGYPT

increasement of consumption is more than the rate of increasement in production the mater witch lead to the increasement in the food gap of red meat and also decreasment in expected of self-sufficiency.



Source: Ministry of Agriculture and land Reclamation, Central Administration for Agric. Economic, Various Editions of Agric. Economic Bulletin.

Table (5): forecasting of No. of cattles, production, consumption, food gap and self-sufficiency in red meat during the period 2016 : 2019.

Items	Average 2013 – 2015	Forecasting period			
		2016	2017	2018	2019
No. of cattles (No. 1000)	18919	18522	18797	19071	19346
Production (in 1000 ton)	781	865	872	879	886
Consumption (in 1000 ton)	1236	1371	1398	1426	1453
Food Gap (in 1000 ton)	455	492	512	533	553
Self-sufficiency %	64	63	62	60	59

Source: tables of (1,3).

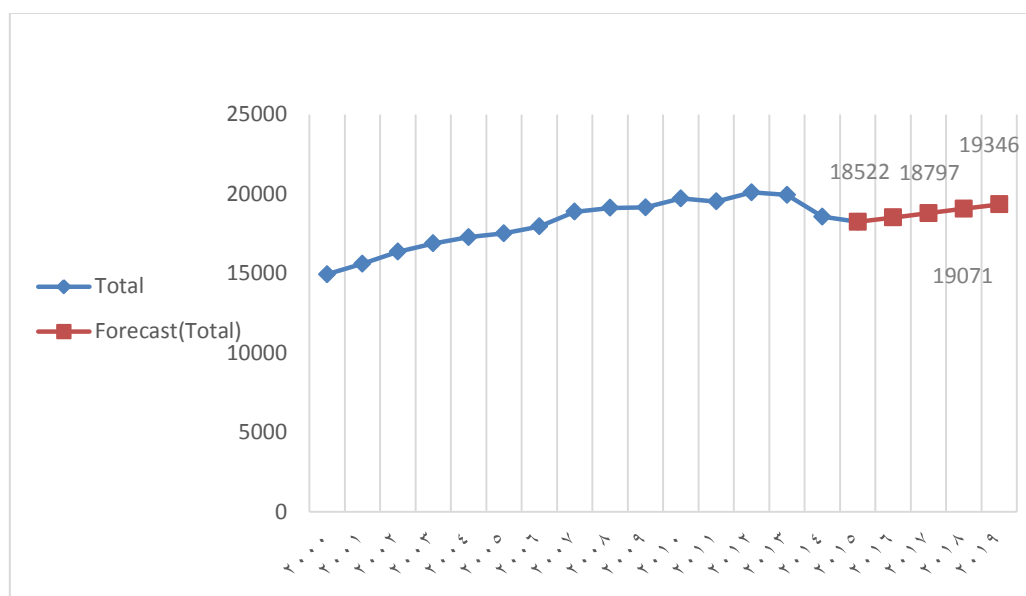


Figure 12 expected number of cattles during the period 2016 : 2019

Source: table of 5.

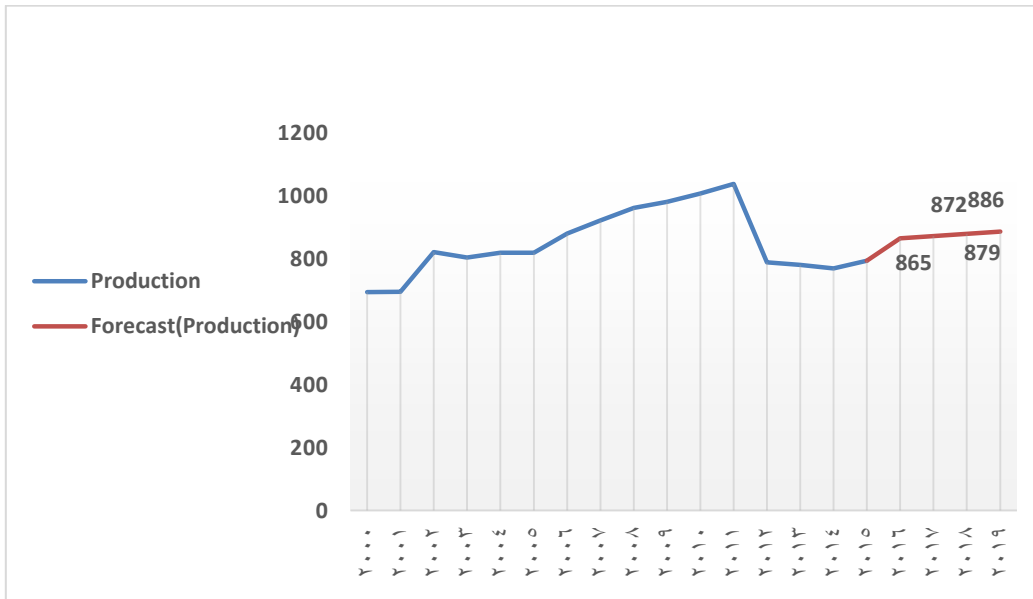


Figure 13 expected production of red meat during the period 2016 : 2019

Source: table of 5.

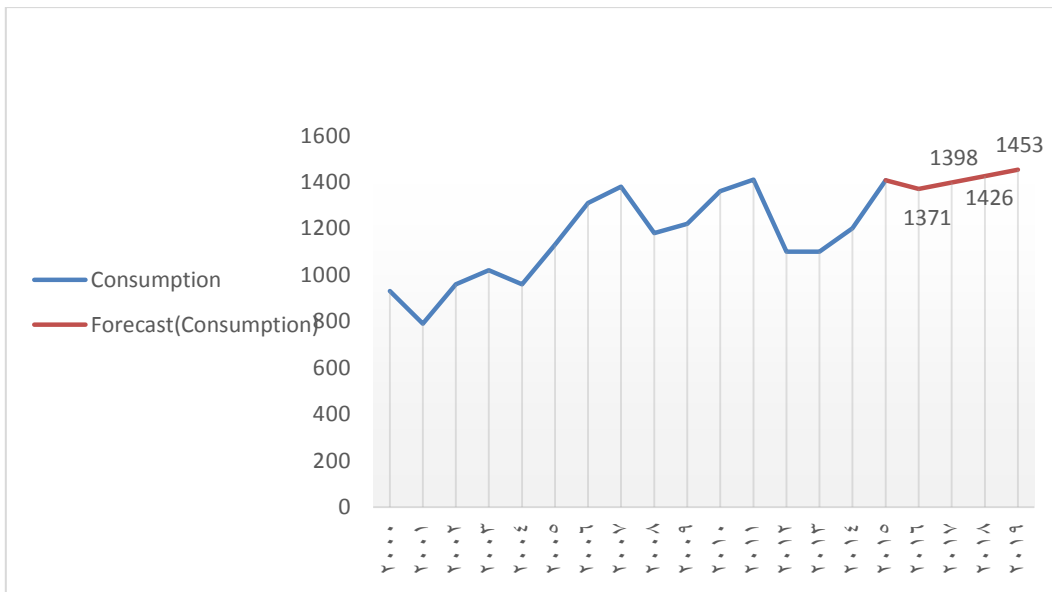


Figure 14 expected consumption of red meat during the period 2016 : 2019

Source: table of 5.

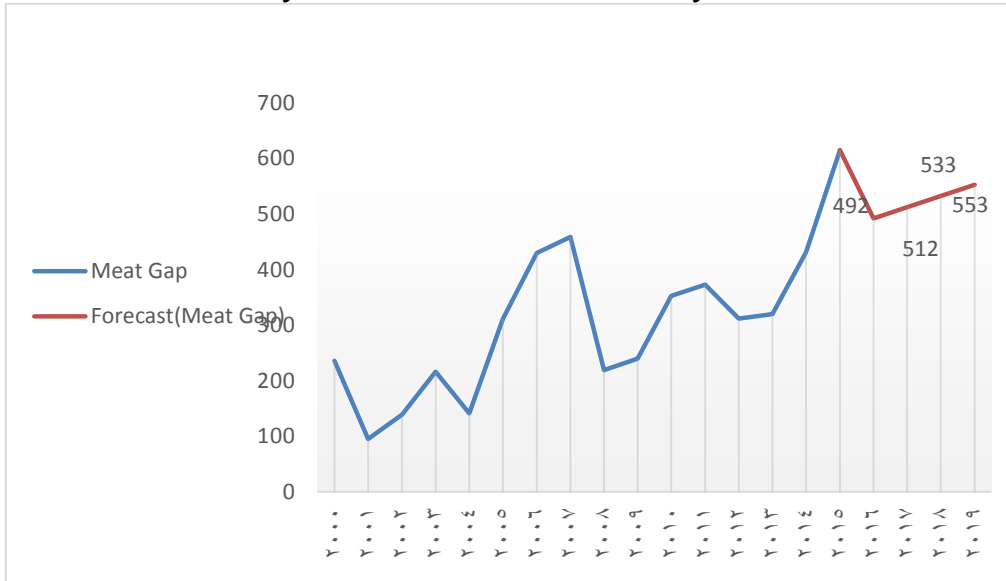


Figure 15 expected food gap during the period 2016 : 2019

Source: table of 5.

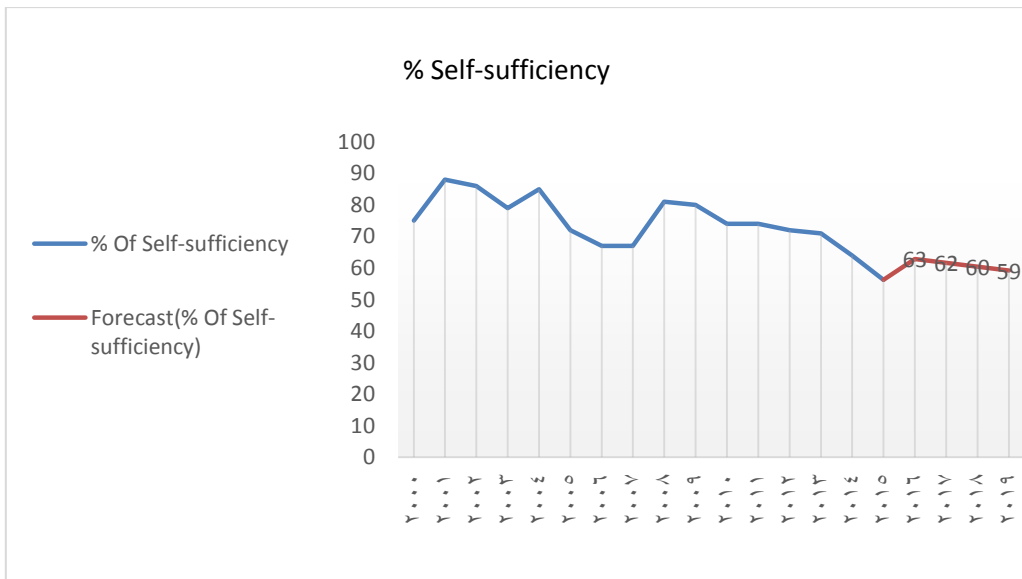


Figure 16 expected self-sufficiency during the period 2016 : 2019

Source: table of 5.

References:

- ⁱ - Alla Ahmed Kotb and Doaa Ismeal Morsy, “Econometric Model for the food security Coefficient” Egyptian Journal of Agricultural Economics, Volume (24), No (1), March 2014.
- ⁱⁱ - Central Agency for Mobilization and statistics “studying economics of red meat in Egypt” publication, August 2015.
- ⁱⁱⁱ - Tahany Saleh Bayomy “Economical study for the determination of animal protein production in Egypt and Sharkia governorate”, Egyptian Journal of Agricultural Economics, Volume (25), No (2), June 2015.
- ^{iv} - Somaya Mostafa Ismail and Others “economic study for the main indicators of achieving food security of red meat in Egypt” Egyptian Journal of Agricultural Economics, Volume (27), No (1), March 2017.
- ^v - Hanady Mostafa Abd El-Radi, “Economic study on meat consumption in Egypt and Alexandria Governorate” Egyptian Journal of Agricultural Economics, Volume (26), No (1), December 2016.

الفجوة الغذائية في اللحوم الحمراء في مصر
أ.د/ عليه علي الجندي أ.د/ حسين محمد أحمد البري
معهد بحوث تكنولوجيا الأغذية – مركز البحوث الزراعية

الملخص العربي:-

تناولت هذه الدراسة تطور كل من أعداد الماشية المنتجة للحوم الحمراء خلال الفترة من (٢٠٠٠ – ٢٠١٥) وكذلك إنتاج وإستهلاك والفجوة الغذائية ونصيب الفرد ونسبة الإكتفاء الذاتي من تلك اللحوم. وقد أوضحت نتائج الدراسة أن هناك زيادة معنوية في أعداد الماشية بإستثناء الإبل. أيضا أوضحت الدراسة أن هناك زيادة معنوية في كل من الفجوة الغذائية من اللحوم الحمراء والتي تُعد أهم مصدر من مصادر البروتين الحيواني، وقد أرجعت العديد من الدراسات التي أوردتها الدراسة أنها ترجع إلي النقص في إنتاج الأعلاف الخضراء والجافة، بالإضافة إلي تدهور الصفات الوراثية، وإستخدام الحيوانات المنتجة للحوم في أغراض أخرى كالعمل المزرعي. ولذا توصي الدراسة بضرورة الإهتمام بتوفير مصادر الأعلاف والإهتمام بتحسين الصفات الوراثية للحيوان، وعدم إستخدامه في غير الأغراض المخصصة لها.