EVALUATION MANAGEMENT BROILER PRODUCTION PROJECTS AT BAGHDAD PROVINCE USING MANAGEMENT CRITERIA

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ABSTRACT

This research aims were to evaluate management of broiler production projects in Baghdad province via using the criteria of management, included production index and economic figure (PI and EF) that specified to those projects. in addition to criteria of economic efficiency also applied (INME) index number of management efficiency, in order to the research requirements, data were obtained based on a questionnaire prepared for this purpose, which was collected by personal interview of (60) projects of the broiler production projects from (516) projects representing 11.6% of the research community in Baghdad province in 2016. The results show that mean of PI and EF was (338). The increase in these two criteria is generally due to control of management procedures, while 48% of the sample projects according to the INME index gave values higher than 100. This reflects the effect of the high level of management efficiency on FCR and consequently on the level of production of meat broiler. The results were also shown in accordance with the economic and financial criteria used in the evaluation of meat broiler projects. All the categories of projects achieved positive returns. The research concluded that the sample projects are economically merit, with the benefit cost ratio (1.5). Also the broiler projects rely little on the permanent work represented by the number of administrators. This is confirmed by the low percentage of fixed costs, The research recommends to adoption of modern administrative, production and technical methods to manage the production of broiler projects and to encourage investment in such of these projects because of their economic efficiency and featured in the short cycle of capital.

Keywords: production Index, index number of management efficiency, economic efficiency criteria.
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مجلة العلوم الزراعية العراقية -2019 :50(عدد خاص):84-91 فائق وعلي

تقييم إدارة مشاريع انتاج فروج اللحم في محافظة بغداد باستخدام معايير الادارة

مروة فاروق فائق
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المُستخلص

يهدف البحث الى تقييم ادارة مشاريع انتاج فروج اللحم في محافظة بغداد باستخدام معايير الادارة المتضمنة مقياسي الدليل الإنتاجي والمؤشر الاقتصادي (PI, EF) الخاصة بهذه المشاريع كذلك تم تطبيق معايير الكفاءة الاقتصادية إضافة الى مؤشر الرقم القياسي لكفاءة الادارة INME ولغرض الايفاء بمتطلبات البحث تم الحصول على البيانات بالاعتماد على استمارة استبانة اعدت لهذا الغرض جمعت بالمقابلة الشخصية لـ (60) مشروع من مشاريع انتاج فروج اللحم البالغة (516) مشروع مثلت 11.6% من مجتمع البحث في محافظة بغداد لعام 2016، واظهرت النتائج ان معدل قيمة مقياس PI وEF بلغت (338) ويعود سبب ارتفاع هذين المقياسيين بصورة عامة الى ضبط الإجراءات الإدارية، في حين سجلت 48% من مشاريع العينة وفقاً لمؤشر INME قيماً اعلى من 100 وهذا عكس اثر مستوى كفاءة الإدارة العالية على FCR وبالتالي على مستوى الإنتاج من لحوم الدجاج، كذلك أظهرت النتائج وفقاً للمعايير الاقتصادية والمالية المستخدمة في تقييم مشاريع فروج اللحم ان جميع فئات المشاريع حققت عوائداً إيجابية واستنتج البحث ان مشاريع العينة ذات جدارة اقتصادية اذ بلغ مؤشر عائد الدينار المستثمر (1.5)، كذلك استنتج ان مشاريع فروج اللحم تعتمد بشكل قليل على العمل الدائمي والمتمثل بأعداد الإداريين وهذا ما تؤكده نسبة انخفاض التكاليف الثابتة، ويوصي البحث بالتأكيد على اتباع الأساليب الإدارية والإنتاجية والتقنية الحديثة لإدارة مشاريع انتاج فروج اللحم والعمل على تشجيع الاستثمار في مثل تلك المشاريع لما لها من كفاءة اقتصادية وتميزها بقصر دورة رأس المال.

الكلمات المفتاحية: الدليل الانتاجي، الرقم القياسي لكفاءة الإدارة، معايير الكفاءة الاقتصادية.
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INTRODUCTION

In the circumstances of the application of the free economic system and under the requirements of the mechanisms of the market, the management of projects became important because the private sector represented a major sector in production, especially in the production of meat broiler. As these projects are characterized by features that make the traditional models and approaches in the management of their work needs to be adapted to the nature of their productive relations. The management of these projects faces many determinants, and this is evident in the lack of keeping pace with the developments in the modern methods of scientific management, especially in the category of small projects, and this reality requires more efforts to develop management and definition of modern scientific management methods to ensure the integration of planning processes, implementation and good management projects for the development of the agricultural sector (20). So Agricultural and cooperative projects are mainly agricultural development in the economies of many countries (21). Thus this research concerned the evaluation of the management of broiler projects via using the management criteria for these projects production index and economic figure (PI and EF) in addition to applying the criteria of economic efficiency which are among the best indicators in evaluating the achievements of these projects (8). The breeding of meat broilers is now known as the chicken industry (2). With the beginning of the third millennium and the spread of the idea of globalization and commercial globalization and the world as one village began some new trends in the meat industry, including the increase in global demand for consumption of poultry meats with the restriction of this demand for red meat because of the advantage of these meat of higher nutritional value is rich in animal protein as it is about 19% with low energy content (low fat), making it desirable for those interested in the issue of the determination or control of weight (19). In addition, poultry meats is characterized by the essential nutrients because it contains a high percentage of mineral salts (7). The proportions of dressing in poultry meats was 75% compared to cows and sheep which reached 64% (18). Broiler production projects have low costs and have fast-returns compared to livestock production, because of the production cycle for it's between 7-8 weeks (10). In Iraq, the importance of poultry production is increasing. Moreover, these projects provide jobs for tens of thousands of unemployed people, since most of the poultry production projects in Iraq are small and widespread in most of its governorates (17). In addition, stability and low for prices are very important because it leads to the stability of the prices of meat cattle and directed the consumer towards it because it is cheaper and healthier than red meat and thus access to an important food for limits income people (3). The problem of this research is one of the administrative, technical and production problems that most of the broiler production projects suffer from, which leads to decrease in the efficiency of these projects because of their poor management and delay in carrying out their duties and not following any modern management concepts that enable them to achieve their goals efficiently. There are many weaknesses in the completion of the production processes of those projects with waste of some productive resources and not mix them in the best way that leads to the decline in productivity and thus increase costs and low profits obtained, which makes them work with a low productivity and economic efficiency away from the required level, so the goal of the research is to evaluate the management of projects those produce meat broilers through use management criteria for those projects containing the production index PI and economic figure EF, as well as application of index number of management efficiency (INME), and some economic and financial criteria to evaluation the efficiency of these projects to carry out their production operations

MATERIALS AND METHODS

The research requirements were provided by obtaining statistical data using a questionnaire form prepared for this purpose, a random sample of (60) broiler production projects from a statistical population which reached to (516) projects were collected in Baghdad

province representing 11.6% of the research community in 2016

RESULTS AND DISCUSSION

In order to implement the criteria of management on the projects of broiler production were must calculate costs and revenues and to facilitate calculation of the projects were divided into three categories of research depend on production capacity as it was noted that the most categories of a number of projects are the first category (35) project The second category (17) project, and finally came the third category (more than 30) thousand birds and the number of its projects were (8) project as shown in table 1.

Table 1. Categories of Broiler Production Projects depending on production capacity

production capacity (thousands of chicks)	NO. of Projects	Percentage %
First Category (1-15)	35	58.33
Second Category (15.1-30)	17	28.33
Third Category (more than 30)	8	13.33

Source: depended on the data of questionnaire.

Costs

The results in Table 2 shows the total cost items of broiler production projects at the level of the research sample and for the three categories. The total cost of the first category of variable and fixed costs reached (5180122.658) thousand IQD with relative importance reached 29.871% of the total costs, while the total cost of the second category reached (6086602.303) thousand IQD with a contribution rate amounted to 35.098% of the total costs, The total cost of third category reached (6075052.820) thousand IQD and the contribution rate was 35.031% of the total costs. The total costs of meat broiler production reached (17341777.781) thousand IQD. The results showed that the percentage of variable cost contribution to total costs reached 90.028%. The percentage of fixed costs to total costs was 9.972%. This indicates that the activity of broiler production projects differs from traditional agricultural projects, which characterized by higher fixed costs. The variable cost items for these projects included (chicks, chaff, forage, gas, fuel & oil, electricity, maintenance, medicines and vaccines, water, manual labor, and other costs).

Table 2. Total Costs (Thousands IQD) for Broiler production projects

Sample Category (thousands of chicks)	Variable Costs	Fixed Costs	Total Costs	Percentage %
(1-15)	4623813.85	556308.808	5180122.658	29.871
(15.1-30)	5475782.225	610820.078	6086602.303	35.098
(more than 30)	5512884	562168.82	6075052.820	35.031
Total	15612480.08	1729297.706	17341777.781	100.000
Percentage %	90.028	9.972		100.000

Source: depended on the data of questionnaire.

Revenues

The results of table 3 show the revenues of broiler production projects at the level of the research sample in the three categories. The total revenue of the sample was (25670847.43) thousand IQD distributed among the three categories. The highest percentage of revenues obtained from third category which reached 38.252% of the total revenues, with a value of (9819696) thousand IQD, while the lowest percentage of revenues obtained from the first category, which amounted to 26.470% of the total revenues with value of (6794994.375) thousand IQD. It was noted that the share of revenues from the production of broiler meat was 99.520%, which is the largest percentage of total revenues of the sample reached (255,477,243) thousand IQD, while the percentage of revenues of poultry excreta was 0.480% of the total revenues of the sample which reached (123125) thousand IQD.

Table 3. Revenues (Thousands IQD) of broiler production projects

Sample Category (thousands of chicks)	Revenue Value	Percentage %
(1-15)	6794994.375	26.470
(15.1-30)	9056157.05	35.278
(more than 30)	9819696	38.252
Total	25670847.43	100.000

Source: depended on the data of questionnaire.

Production index (PI) and Economic figure (EF)

The PI and EF indices were used to evaluate the management of broiler production projects and to identify the efficiency of the production and economic performance of the meat broiler flocks. Poultry manufacturers companies are racing to achieve high values of these criteria (12). The bird body weight of the marketed is not the indicator that the breeding batch is good performance, but the good performance achieves the highest weight of the marketed and the lowest mortality percent and the shortest time of breeding and the feed conversion efficiency, such a batch will achieve high economic returns for owners of broiler projects (19). The PI, EF and feed conversion ratio (FCR) are calculated by the following equations (16) (4):

$$\mathbf{PI} = \frac{\boldsymbol{body\ weight\ (gm) x\ activity\ percent}}{\boldsymbol{days\ number\ of\ breeding\ x\ Food\ Conversion\ Ratio\ x\ 10}}$$

$$\mathbf{EF}=\frac{\boldsymbol{Total\ weight\ of\ marketed\ broiler\ (kg)}}{\boldsymbol{number\ of\ total\ chicks\ \ x\ days\ number\ of\ breeding\ \ xFood\ Conversion\ Ratio}} \boldsymbol{X10000}$$

$$\mathbf{FCR}= \frac{\boldsymbol{consumed\ Feed\ per\ spacific\ time\ (gm)}}{\boldsymbol{weight\ increase\ per\ the\ same\ time\ (gm)}}$$

These two criteria are calculated for each batch of the broiler projects which reached (245) batches for (60) projects of research sample projects, the highest value of them (710), the lowest value of them reached (164), while the mean of each indicator at the level of the research sample (338). The increase in these criteria due to improving administrative procedures and quality of health care, so the feed conversion ratio and the body of bird weight increase of the marketed resulted in an increase in the productivity performance of both criteria PI and EF. The mortality percent of breeding flocks in the sample projects was 15% while the mean of feed conversion ratio (FCR) at the level of the research sample was (1.61) Kg feed per 1 kg meat from broiler meat, this ratio in agreement with the global measurements, ranging from (1.6-1.8) kg, as any increase in this ratio increases the amount of feed consumed and causing financial losses of producers (11). Also should not neglected any decimal number for FCR that may reduce the costs (22).'

Index Number of Management Efficiency (INME)

INME is calculated according to the following equation (1):

$$\mathbf{INME}= \frac{\mathbf{Y.b_1 + E.b_2}}{\mathbf{YA.b_1 + EA.b_2}}$$

Y= the experience years number of the project manager, b_1= the estimated regression parameter of the effect of experience years number of project manager on the productivity of one hall of the broilers meat of the research sample projects, E= manager's level of education, b_2= the estimated regression parameter of the effect of manager's level of education on the productivity of one hall of the broilers meat of the research sample projects, YA= mean of experience years of manager's projects for sample research, EA= mean of educational levels of projects managers. The mean of INME at the level of the research sample was 102.729 and the highest value was (180) while the lowest value was (40). 48% of the projects of meat broiler production which reached (60) gave value higher than 100 (high management efficiency) as shown in Table 4. This reflects the impact of the management efficiency level on the feed conversion ratio FCR and thus on the level of chicken meat production as well as it shows the technical efficiency in use the production inputs, which affected by the level of management

efficiency. When the level of management efficiency is increased which represented by the average of INME, the efficiency of the feed conversion ratio increases thus production increases. When INME is, lower than average, the marginal output of the production factors will decrease. Consequently, the efficiency of feed conversion ratio FCR decreases.

Table 4. INME for Broiler production projects

No. of Project	INME	No. of Project	INME
1	122.881	17	47.000
2	160.000	18	40.000
3	135.593	19	68.000
4	63.559	20	80.508
5	84.746	21	70.000
6	80.508	22	160.000
7	161.017	23	93.220
8	114.407	24	180.000
9	63.559	25	101.695
10	169.492	26	59.322
11	72.034	27	160.000
12	84.746	28	72.034
13	70.000	29	122.881
14	127.119	30	97.458
15	84.746	31	67.000
16	101.695	32	63.559
No. of Project	**INME**	**No. of Project**	**INME**
33	120.000	47	144.068
34	55.085	48	46.610
35	110.000	49	170.000
36	177.966	50	80.508
37	130.000	51	93.220
38	125.000	52	140.000
39	88.000	53	106.000
40	61.000	54	130.000
41	88.983	55	88.983
42	43.000	56	67.797
43	152.542	57	110.169
44	110.000	58	101.695
45	80.508	59	76.271
46	152.542	60	135.000

Source: depended on the data of questionnaire.

Economic efficiency criteria

A number of economic and financial criteria have been adopted for the purpose of conducting the financial and economic evaluation of broiler production projects in accordance with the research objectives to determine the economically merit of them as shown in Tables 5 and 6

1. Profits: The difference between total income and total costs (14). The results showed that all categories of broiler projects achieved profits. The total value of profits for these projects at the level of the research sample reached 8329069.644 thousand IQD, while the highest percentage of profits obtained from the third category which reached 44.959% with a value (3744643.18) thousand IQD. While the lowest percent of profits obtained from the first category with value reached (1614871.717) thousand IQD

2. Net cash income: The farm's ability to earn cash and it is the difference between cash farm income and cash costs (15). Cash income include the sale of meat and excreta of poultry. While cash costs included variable costs. It was found that all the sample categories achieved a positive net cash income, the third category gave the highest value reached (4306812) thousand IQD from total net cash income of the sample by 42.818%, while the lowest value of net cash income (2171180.525) thousand IQD obtained from the first category by 21.586%. The net cash income of the sample projects reached (10058367.35) thousand IQD

3. Net Farm Income: The main criteria for calculating the economic efficiency of the farm and calculated according the following equation (5).

Net farm income = net cash income + change in value of assets + amount of family consumption

It's value at the level of the research sample reached (10212942.93) thousand IQD, The first category gave 2234495.2 thousand IQD, the second category amounted to 3631229.225 thousand IQD, while the net farm income of the third category reached (4347218.5) thousand IQD, the results showed that net cash income compound 98% of net farm income at the sample level this indicates to the low

amount of family consumption and the low change in the value of annual assets

4. Return to Labor: it is important criteria for calculating the economic efficiency of the farm in general and management in particular, which is equal to net farm income after subtracting the amount of interest on capital (8). The value of the return to labor of the research sample projects reached 8963944.519 thousand IQD, which was the lowest value obtained from the small projects (first category) which amounted to about (1864590.092) thousand IQD, while the highest value obtained from large projects (third category) which reached (3906187.78) thousand IQD. This criteria represents 89% of the value of net farm income. This indicates that broiler production projects rely little on the permanent work of the number of managers, which is confirmed by the low rate of fixed costs

5. Return to Management: calculated according the following equation (6):

Return to Management= Net farm income - (capital interest percent + management work wages).

The return to management was positive and reached (8963944.519) thousand IQD at the level of the research sample. It's value in the third category reached 3906187.78 thousand IQD while in the second category reached 3193166.647 thousand IQD, finally it's reached 1864590.092 thousand IQD in first category.

6. Benefit Cost Ratio: it is indicator of the financial evaluation of the performance of the production units and calculated by subtracting the annual returns from the annual costs of the project (9).

The value of the benefit cost ratio in broiler production projects at the level of the research sample reached (1.5), thus these projects are economically merit as the one dinar spent in it earned a higher income than the total costs. The highest value of Benefit Cost Ratio obtained from third category reached (1.6) while the lowest value obtained from the first category reached (1.3).

7. Break-even point: The break-even point means that it is the lowest level of production or sales level that the project can operate without loss (13). it is calculated according to the following equations (8):

Quantity at break-even point= total fixed costs TFC / (mean of output unit price PY – average of total variable costs TVC).

Value at break-even = total fixed costs TFC / (total variable costs TVC / total revenue TR) - 1

The quantity of production at the break-even point in the projects of the research sample reached (628.259) tons. This amount represents the lowest quantity of production where the total costs are equal to the total income. In this case the quantity of production at the break-even point is agreement with the economic logic where the selling price average of products of each category at the level of the research sample is greater than the average production variable cost, also quantity of sales was not negative, the highest quantity of production at the break-even point obtained from the second category which reached 222.438 tons and decreasing in the third category to 200.206 tons. The value of production at the break-even point reached the highest value in the second category which was (1010207.648) thousand IQD followed by the third category which gave (1001349.094) thousand IQD and decreased in the first category to (817530.878) thousand IQD. Thus the value of production at the break-even point of the projects at the sample level reached (2843399.751) thousand IQD. The value of production represents the achieved revenue at the break-even point, which is the minimum income that generates economic profit.

Table 5. Evaluation criteria for broiler production projects

Criteria / Sample Category (thousands of chicks)	Return to Management (thousands IQD)	Return to Labor (thousands IQD)	Net Farm Income (thousands IQD)	Net cash income (thousands IQD)	Profits (thousands IQD)
(1-15)	1742140.092	1864590.092	2234495.2	2171180.525	1614871.717
(15.1-30)	3075066.647	3193166.647	3631229.225	3580374.825	2969554.747
(more than 30)	3820837.780	3906187.78	4347218.5	4306812	3744643.18
Total	8638044.519	8963944.519	10212942.93	10058367.35	8329069.644

Source: depended on the data of questionnaire.

Table 6. Evaluation criteria for broiler production projects

Criteria / Sample Category (thousands of chicks)	Value at break-even point (thousands IQD)	Quantity at break-even point (Ton)	Benefit Cost Ratio
(1-15)	817530.878	202.686	1.3
(15.1-30)	1010207.648	222.438	1.5
(more than 30)	1001349.094	200.206	1.6
Total	2843399.751	628.259	*1.5

Source: depended on the data of questionnaire.

(*) Research Sample. The research concluded that the poultry industry is different from the traditional agricultural projects, which are characterized by high fixed costs, which represents the percentage of variable cost with contribution reached 90.028% of the total costs, which is higher than the fixed contribution rate, which reached 9.972%. The research also concluded that the sample projects have good economic merit so the Benefit Cost Ratio was 1.5, as well as the broiler projects rely little on the permanent work of the number of managers. This is confirmed by the low percentage of fixed costs. So The two criteria return to labor and returns to management formed 89% and 86% respectively from net farm income. The research also recommends to adoption of modern administrative, production and technical methods to manage broilers production projects and encourage investment in these projects because of their economic efficiency and it is characterized by a short cycle of capital, keep the duration of breeding for broiler (40) day as well as using strains with high productivity efficient.

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