

RESEARCH ON INFLUENCE OF NUTRITIONAL PARAMETERS ON UNIT COSTS IN BIO TYPE BROILER CARCASSES

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Abstract

A production cost means all costs for inputs consumption performed by the enterprise for goods and services produced and offered. Production costs are very meaningful about business quality and it is a decision-making condition for every producer; lowest cost level is the standard in choosing the right option.

These researches were intended to give an overview about these problems. Objectives were first to find unit costs for feeds and kg carcass to broilers type Bio and second to reduce unit costs by changing energy and protein content of feeds for these broilers.

Experiments were performed at S.D.E. Avicola Moara Domneasă with 150 broilers type Bio of Plymouth Rock race divided in three treatments based of nutritive value of combined feed given (ME, E1, E2). Experimental period had 84 days same as in production technology of ecological chicks. Data that was obtained during the experiment was processed and so it was noticed that best slaughtering results were obtained in group E2 (receiving a combined feed with diminished energy level). Finally unit costs were analyzed per kg processed feed (1,366 E2– 1,362 EM lei) and per kg carcass (15,044 E1 – 15,223 E2 lei).

Key words: *Bio chickens, carcass, unit cost, feed.*

INTRODUCTION

You should assess effects on profitability before cutting feed costs. Increasing the levels of nutritional parameters means higher feed costs. Improving poultry performances are offering higher incomes. This will lead to higher profits compared to the increase of feed costs. Obviously maximum profit is being obtained when incomes are higher above costs not as a result of cutting feed costs (Tudorache et al., 2009; Tudorache et al., 2010). It is very important to understand the difference between decreasing feed cost by bird and decreasing feed cost by kg live weight or carcass parts (Tudorache et al., 2012). Decreasing nutritional parameters in diets are offering little reduction of feed cost by bird. Performances will be decreased and results reported to live weight will trigger an increase of production costs (Van et al., 2003; Waller, 2007).

MATERIALS AND METHODS

Experiment was performed at S.D.E. Avicola Moara Domneasca which is the research farm

of the University of Agricultural Science and Veterinary Medicine Bucharest on broilers of type Bio supplied in three experimental variants with uniformity of body weight and sex percentage and the experimental plan in blocks was used. Plymouth Rock bared was used for this experiment and birds were raised according to standard technology for this broiler and in the same management, feeding and watering conditions. Three treatments were performed for each experimental flock to determine quantitative and qualitative features and experiments were performed in the same time interval and on the same biological material and in the same unit.

Working schedule realized for broilers of type Bio was as following:

- treatment I (M): constant energy level and constant protein level;
- treatment II (E1): variable protein level and constant energy level;
- treatment III (E2): constant protein level and variable energy level.

5 groups by treatment with 10 heads each were used in all three experiments (table 1).

Groups were formed at one day of age with chicks from the same hatchery. Chicks came from parents of same age to diminish genetically influence on final results. Experimental interval had 84 days. Two phases feeding technology was used. Feed combination used in experiments was produces at I.B.N.A. – Balo-tești according to feeding requirements of the broiler used and based on the experimental schedule.

The following performance traits: live weight, feed consumption and livability were established for each treatment and they were followed weekly during the experiment.

Table 1. Work schedule for Bio type broilers

Specification	U.M.	Phase		
		Rising		
		T ₁	T ₂	T ₃
Time	days	28	28	28
Flock	birds	50	50	50
Pens	no.	5	5	5
ME	MJ/kg	100	100	93.46
Protein	%	100	95.00	100
Specification	U.M.	Phase		
		Finishing		
		T ₁	T ₂	T ₃
Time	days	56	56	56
Flock	birds	50	50	50
Pens	no.	5	5	5
ME	MJ/kg	100	100	92.90
Protein	%	100	94.51	100

To find slaughtering performances 25% of birds were slaughtered for control at 84 days of age. Chicks were weighted before slaughtering and chicks representing the average weight of the flock were chosen.

After slaughtering by cervical dislocation chicks were de-feathered, weighted and cut and weights of carcass, breast, legs, wings, internal organs and rest of carcass were found.

Obtained data were registered and statistically processed and costs by product unit of analyzed broiler type for every experimental group were calculated based on obtained results.

RESULTS AND DISCUSSIONS

Minimizing production costs is crucial for maximizing profit and so the relationship between production cost and a competitive price is emphasized and this is allowing a good capitalization of productive factors available

4 . Which has also consequences for external trade concerning the competitiveness of products and the efficiency of international trade. When we are facing an increase of feedstuffs costs and so any increase of feeding costs first reaction is usually to find a solution against the financial impact for your own business which usually means a reduction of nutrient levels recommended in diet to reduce feed cost by ton. For this reason these trials aimed finding both unit cost of product at the Bio broiler and the possible reduction of production cost by diminishing feed cost by unit 1 , 6 .In this way, unit costs for carcass were found by taking into account composition and cost of used diets and consumption and cost of other resources and final production performances and also slaughtering performances obtained with broilers type Bio by experimental groups. Average feed price by unit for each experimental group (table 2 and figure 1) were calculated based on combined feeds consumption by production phase and based on production cost for every feed combination.

Table 2. Average unit cost of diet used for broilers type Bio

Specification	Time (days)	Processed feed consumption (grams)	Production cost (lei/kg)	Average cost (lei/kg)
EM	Starter	0-28	1243.99	1.44
	Finisher	29 - 84	6959.05	1.39
E1	Starter	0-28	1232.74	1.41
	Finisher	29 - 84	7304.05	1.37
E2	Starter	0-28	1291.13	1.40
	Finisher	29 - 84	7297.10	1.36

Presented data are showing that production costs for the combined feed of type of Bio broilers differ is different by experimental group and average unit cost is varying between 1.366 lei/kg at E1 group and 1.398 lei/kg at EM group.

Table 3 and figure 2 are showing final production performances of broilers type Bio The Bio broilers have average weights between 2496.14 g in E1 group and 2439.84 g in E2 group at 12 weeks of age. Variations of protein and energy levels have no influence on results. There are no statistically assured differences between results. Best feed intake is at EM

group with constant energy and protein levels and the least favorable feed intake is at E2 group with variable energy level between 3.34 – 3.52. All differences between groups are statistically assured.

Table 3. Final production performances of the Bio broiler

Specification	MU	Group		
		EM	E1	E2
Live weight	g	2456.00	2496.14	2439.84.
Feed intake	kg	3.34	3.42	3.52
Variability	%	93.80	91.80	89.60
Slaughtering output	%	79.70	79.90	81.20
Carcass weight	g	1957.43	1994.41	1981.15

Chicks livability is also better in EM (mortality 6.2 %) and weaker in E2 (mortality 10.4 %) but differences between groups are not statistically assured. So best production results of Bio broilers are those of EM group with feed intake very significantly lower compared the other two groups and slaughtering performances are showing that best output of Bio broiler (81.20%) is obtained in E2 group with variable energy.

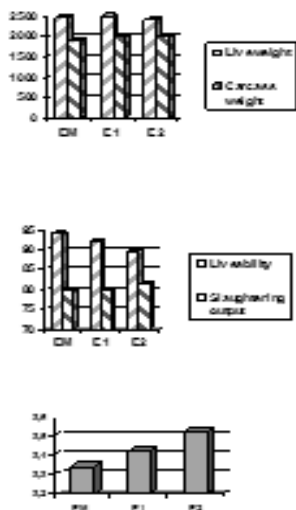


Figure 1. Final production performances of the Bio broiler

Day old acquisition price plus expenses for transport and slaughtering have been taken into account to find unit cost in carcass. Slaughtering output of every experimental group has been also taken into account for

finding raw materials cost. This output is between 66.30 and 67.30 % in Bio broiler for processing without head and feet after recovering internal organs. Table 4 and figure 3 are showing the results about the unit cost of meat in carcass for every type of chickens and for every experimental group. After the calculation of these costs acquisition price was of 9113.83 lei/ton in EM group and higher in the other two groups (9157.79 lei/ton in E1 and 9291.47 lei/ton in E2). In control group total cost by unit was intermediate (15130.13 lei/to) compared to E1 (15044.22 lei/ton) and E2 (15223.23 lei/ton).

Table 4. Unit cost of meat in carcass in Bio chicken

Specification	M.U.	Group		
		EM	E1	E2
Transport cost	lei	9113.83	9157.79	9291.47
Catering cost	lei	151.20	151.20	151.20
Organs harvest	lei	9265.03	9308.99	9442.67
Total meat cost	lei	455.00	437.10	437.1
Slaughtering output	lei	8810.03	8871.89	9005.57
Raw materials cost	%	66.30	67.20	67.30
Slaughtering cost	lei	13288.13	13202.22	13381.23
Total costs	lei	1842.00	1842.00	1842.00
Transport cost	lei	15130.13	15044.22	15223.23

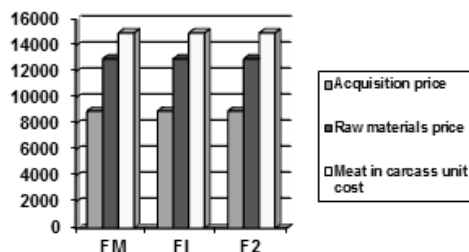


Figure 2. Acquisition price, raw materials cost and unit cost of meat in carcass at the Bio broiler

CONCLUSIONS

Researches described in this paper are pointing to the following conclusions:

- production performances (average daily gain, Feed intake, Variability) are different by experimental group and they are usually better in control group EM excepting body weight in E1 group and slaughtering output in E1 and E2 groups;

- average unit cost of diet is different by experimental group and is between 1.3661 lei/kg in E1 group and 1.398 lei/kg in EM group;
- unit cost of product 'live meat production' is between 9113.83 lei/ton in EM group and 9291.47 lei in E2 group and for the product meat in carcass costs are varying between 15044.22 lei/ton in E1 group and 15223.23 lei/ton in E2 group;
- by reducing nutrient parameters of diet feed cost by unit will be diminished but production performances will be also diminished
- these effects emphasize that when we are dealing with an increase of feed costs we could reduce nutrient levels in diet but the financial impact on whole activity has to be evaluated before taking such a decision.

ACKNOWLEDGEMENTS

This research work was carried out with the support of Ministry of Agriculture, Forests and

Rural Development and was financed from Project PS, No. 349/2006.

REFERENCES

- Project no. 349/2006-2010, P.S., MADR
- Tudorache M., Van I., Custură I., Popescu Micloșanu E., Custură D., 2009. Researches on growth performances in Bio – poultry, *Lucrări Științifice – Universitatea de Științe Agronomice și Medicină Veterinară, Facultatea de Zootehnie, Seria D, Vol. LII, p. 343-349, ISSN 1224-4295*
- Tudorache M., Van I., Custură I., Popescu Micloșanu E., Custură D., 2010. Study on unit cost of bio - type broilers, *Lucrări științifice, Seria D, Vol. LIII, Zootehnie, București, p. 270 – 276, ISSN 1843-6048.*
- Tudorache M., Van I., Custură I., Popescu-Micloșanu E., Popa M. A., 2012. Study on unit cost of certificate-type broilers, *Scientific Papers - University of Agronomic Sciences and Veterinary Medicine of Bucharest, Faculty of Animal Science, Seria D, Vol. LV, p. 250-255, ISSN 2285-5750, ISSN – L 2285-5750.*
- Van I., Damian A., Marin Gh., Cofas V., Custură I., Covașă A.M., 2003. *Creșterea și industrializarea puilor de carne*; Ed. Ceres, București, 480 pag., ISBN 973-40-0604-5.
- Waller A., 2007, *Economic approach to the production of broilers*, Ross Tech Notes, September.