

## EFFECT OF ENERGO-PROTEIC RATIO BY FEED OF BROILERS FROM 1 DAY TO 48 DAYS

### EFFECTUL RAPORTULUI ENERGO-PROTEIC DIN HRANA BROILERILOR DE LA 1 ZI PÂNĂ LA 48 DE ZILE

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*In this experiment we have studied the bioproductives effects of energy-protein ratio at different levels of crude protein and metabolizable energy, concerning broilers age. The experiments were carried out from one day chicken which was fed in three periods. First period from 1 day till 20 days, second period from 21 days to 30 days third period from 31 till 48 days. The experiments were brought about in four experimental groups. Each group was fed differently concerning energy-protein ratio. At the 48 broilers were slaughtered and cut into anatomical parts like breast in-bone, wings, thighs, back and neck and fat pad. For all period the chicken was weighed randomly periodically and also was estimated feed conversion and feed consuming.*

**Keywords:** energy-protein ratio, feed conversion, commercial anatomical cuts, breast in bone, thighs, fat pad

#### Introduction

Animal nutrition could be conceived like a triangle which is in angle with three points: proteins-energy-minerals. Proteins are the main plastic form of body and without proteins is not possible the life. The proteins represent between 13,7-21% from weight of carcass. Energy has like feeding source carbohydrates, lipids and also proteins. Strategically body deposits are proteins and lipids, but main energy deposits are corporal lipids, which represent between 4-11,5% from weight of carcass. Third components of metabolic triangle are minerals and vitamins.

According to Prof. PhD (Drinceanu D.1994, ) the life of every cell is insoluble bound by interactions between organic and inorganic components.

From the costs of the meat industry feeding represents between 60-80%, and also protein costs is double like energy (Leeson S., and Summers J.D.,1997), (Larbier M., Leclercq B., 1994). We are concerned in our experiments for that to reduce price costs by using cheap products from local market, like sun-flower meal and toasted soy beans.

We are interested about of associative effects of components of recipes and also about productive and economical effects. According of classical requirements from years 60-80 poultry feeding, is reported to metabolically energy and crude protein ratio, which represent number of metabolically calories by percent of crude protein. This ratio is rather a statistically concept alike nutritional concept. In this ratio we don't know about channeling effects of energy towards body deposit or towards animal sustaining.

At the same time crude protein don't tell about digestibility of crude protein and about how much that is available for poultry. For those moderns norms strive to change that ratio by ratio of digestive amino acids reported to metabolically energy.

In other point of view moderns hybrids has strong capacity of compensatory growth and channeling of nutrients toward strategically deposits such as breast muscle and thighs muscles. Even when is feeding with low concentrated recipes ad libitum chicken is able to growing and deposit nutrients in body mass. According with genetically program, in the first part of live chicken is prone to deposit protein in body and in the second par of productive live is prone to deposit lipids (Driha, Ana, 2000).

### Materials and Methods

Experiment was carried out in springtime of year 2005 in a poultry company Petra in Arad. This experiment was brought about in fours groups of chickens allotted with 1150 birds by each group totally been 4600 birds.

This chickens has weighing randomly and periodically whith 30 birds by each group, recording weight, feeding consumption, mortality and body gain. Hybrid used was Ross 308. growing period was for 48 days and experiment schedule was acording with table 1

For statistical estimate we had used Snedecor ( F) test, Tukey test .

Table 1

General organization scheme of experiment

Time of carried out	Aims	Groups	Tipe of experiment	Energ-proteic ratio Kcal /1 % CP				
				age	L1.1	L1.2	L1.3	L1.4
2005; 1 marth- 17 april	Effect of energy-proteic ratio upon broilers	4 lots ☒ weiting randomy	tree phasial experiment	1-20	158	147	135	126
				21-30	122	136	143	150
				31-48	164	170	180	190

## Results and Discussion

In the first phase of starting from 1-20 days we try to test recipes isocaloric and we observed that groups L1.3 and L1.4, which had received feed with ratio very tight is weighing better. In the first group which is feed with high level of fat, because the bile is not totally functional weighting response is not adequate.

At age of 21 days we change schedule of feeding that the group L1.1 received lowest level energy 2550 kcal ME/kg and group L1.4 received highest level of energy 3035 kcal ME/kg. That made like feed conversion to be into 1.78 at group L1.1 and 1.5 at group L1.4. Between this groups appear distinct significance (p 1%). Group L1.2 and group L1.3 it is gradually between group L1.1 and group L1.4. The conclusion is that ratio very thigh (ME-CP) into group L1.1 and L1.2, it is not enough for sustaining high speed of growth. Rather ratio level of group L1.4 is better at level 150.4 ratio obtain best results for feed conversion that meaning 1.5 feed conversion/kg.

At age of 31 days we try to testing recipes with isoproteic level and are observed same sensibility for level of energy. Mortality and morbidity increased at group L1.1 with high level of protein. At same group appear gout, SDS. and wet litter.

Mortality in experiment was according to table number 2. Excessive level of protein is harmful affecting the growth and reduces lipid deposit in carcass by increasing level of uric acids (Spiridon, G. 1985).

Statistically assessment show that breast muscle are significance high weight for group L1.3 and L1.4 comparing with group L1.1 and L 1.2. Results is same for male and for female. Same assessment is about the thighs. Fat pad is significant high at group L 1.4.

The results of feed consuming are illustrated in table 2 and figure 2 Growing dynamic it is illustrated by figure 1. Figure 3 and 4 illustrated results of cutting into anatomical parts.

Table 2.

## Feed consumptions and mortality of broilers in experiment

Specification		L 1.1	L 1.2	L 1.3	L 1.4
<b>Feeded consum grams-period</b>		<b>885</b>	<b>846</b>	<b>843</b>	<b>872</b>
	1-20 days	158.05 (ME/CP)	147.29 (ME/CP)	135.07 (ME/CP)	126.91 (ME/CP)
	21-30 days	<b>482</b> 122.14 (ME/CP)	<b>477</b> 136.22 (ME/CP)	<b>426</b> 143.90 (ME/CP)	<b>423</b> 150.44 (ME/CP)
	31-48 days	<b>2130</b> 164.23 (ME/CP)	<b>1990</b> 169.32 (ME/CP)	<b>1880</b> 180.61 (ME/CP)	<b>1780</b> 190.7 (ME/CP)
	<b>TOTAL</b>	<b>3497</b>	<b>3497</b>	<b>3075</b>	<b>3149</b>
<b>mortality</b>	numbers	<b>41</b>	<b>32</b>	<b>24</b>	<b>28</b>
	%	3,6	2,8	2,1	2,4

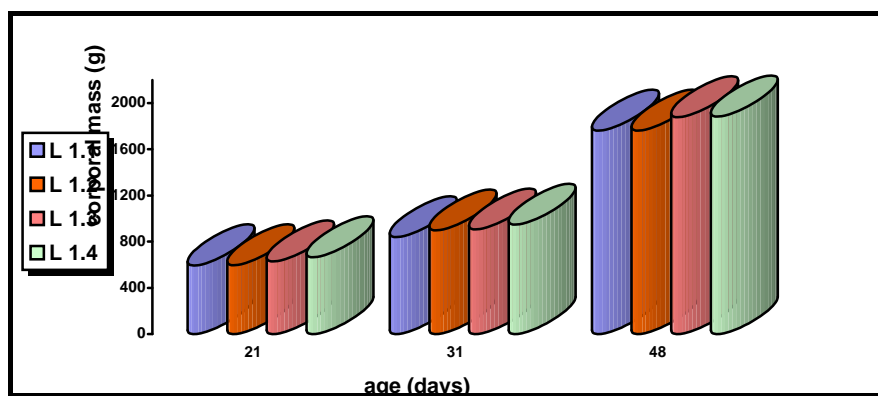


Figure 1. Average body weight evolution by age and lots in experiment

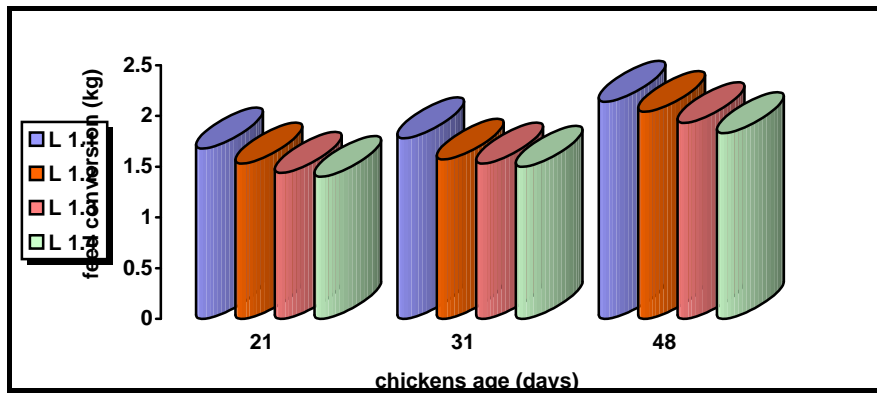


Figure 2. Average feed conversion by lots and age in experiment

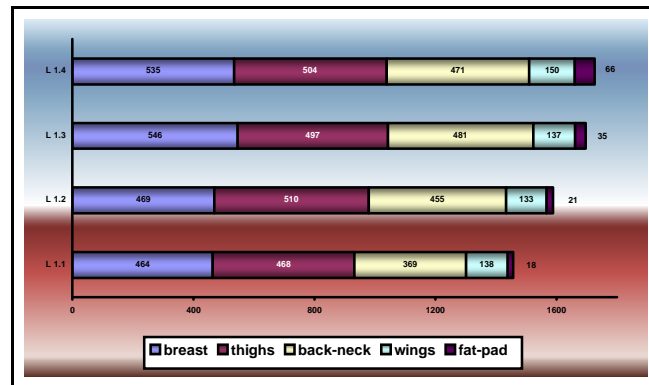


Figure 3. Weight of cutting parts, in experiment, for male broilers, slaughtered at 48 days of age

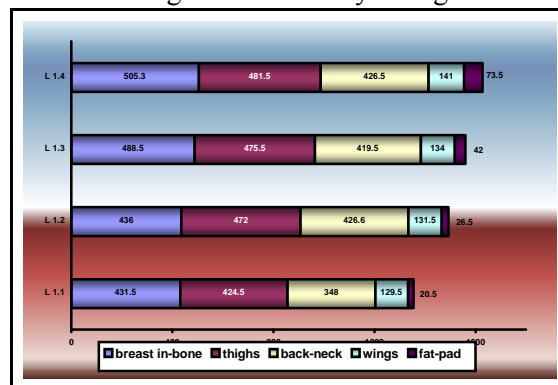


Figure 4. Weight of cutting parts, in first experiment, for broiler females, slaughtered at 48 days of age

## Conclusions

Allowances with narrow energo-proteic ratio and without covering energy level is not recommended in feeding broilers for following reasons;

increase feed conversion without good weight gain,  
made waste of feed,  
increase excreta of uric acid and wetting the litter.

Allowances with narrow energo-proteic ratio warrant good feed conversion and growth if energetical requirement is satisfied at level 3000-3150kcal ME/kg

Allowances with tight energo-proteic ratio with covering energy level at 3000-3150 kcal ME / kg CF, could be used at starting of broilers because it warranted a good weight gain, and good feed conversion.

Allowances with wide energo-proteic ratio with covering energy level at 3000-3150 kcal EM/kg CF could be used also for finishing modern broilers because her voracious appetite could compensate lightly deficiency of protein and energy.

Growing of broilers in small and middle farms could be made with cheap recipes for which protein could be allowed;

Put together soy bean meal with sun flower meal which compensate needful for methionine and lysine avoiding purchase of syntactical amino acids.

Replace partially or integrally of soy bean meal with full-fat soy (which is half in price cost) at the age when level of bile secretion of broilers reach at good level necessary for fat metabolism.

High level of energy for finishing period it is positively correlated with increase of breast and thigh quantity.

Females are more sensible to response effects of energy increases like male chicks

Male chicks are more sensible to response effect of protein increasing in food like females chicks.

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