ANALELE UNIVERSITATII DIN ORADEA
FASCICULA: ECOTOXICOLOGIE, ZOOTEHNIE SI TEHNOLOGII DE INDUSTRIE ALIMENTARA, VOL. VII, ANUL 7, 2008

THE INFLUENCE OF ENERGY SOURCES FROM THE COMBINED NUTRIMENTS ON THE EFFIENCY AT SACRIFICE AND CARCASS QUALITY AT HEN BROILERS

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Abstract

To produce a high quality carcass must be assured sources of energy and protein so that the energy-protein report to be optimal and to put in value the heterozis effect .

Key words: energy sources, nutriments, experimental lot

INTRODUCTION

Recent research shows that the feed intake is modified with 1% in inverse relationship with each degree Celsius plus or minus from the thermal neutrality area. The increasing of energy concentrations of combined nutriment is associated with the decreasing of consumption and vice versa. We can therefore say that the poultry's appetite is manifested rather towards energy than for forage because the daily energy intake is more constant than the quantity of nutriments.

The changes of nutriment's energy concentration determine also corresponding changes at the nutritive level (proteins, amino acids, vitamins and minerals), in order to maintain an optimal relation between them. An increase of energy concentration of combined nutriment determine the corresponding increase in the level of other nutritive and vice versa (Mierliță D, 2003).

In the case of the use of some recipes with low energy level, it has recourse to the protein in the body to assure the energy needs, and may appear a tough process of loss that will affect vital functions of the body (Drinceanu D., 2000).

Walker and col, 1995, showed that the type of feeding affect the carcass composition. Using a recipes with a high concentration of energy during the growth period, resulted in obtaining a largest quantity of meat carcass, but the increase of growth was lower than when it was used a recipe with lower energy level in the first phase of growth, followed in the last phase of growth by a recipe with a lot of energy.

In this direction register and this paperwork, for the purposes of efficient use of macrocomponents from the combined nutriments intended for feeding chickens for meat and influences that they have on the quality of the carcass through specific alimentary factors.

The quality of meat is under the dependence of some sensory factors, hygiene and toxicology, and in equal measure, under the influence of factors related to its nutritional value, as well as technology for processing it (Scheper J., 1962, cit. de Vacaru-Opriş 1., 2002).

For a nutritional the quality of meat is determined by its content in protein, fat, mineral substances, vitamins, etc.. In a high-quality meat it doesn’t have to make obvious substances and micro-organisms of contamination and pollution.

For a specialist in animal breeding, meat quality comes only from animals healthy, rested and with a good fattening. The color of meat is given the hue (tone), intensity and brightness (capacity luster).

Meat is the consistency of resistance against the pressing fingers. In the case of the three experimental lots the best consistency presented the meat from the chickens from the witness group.

MATERIAL AND METHODS

For the production of chicken meat, our country has 9 lines pure active of genotypes of hybrids "ROBRO-69"; "ROBRO-70"; "ROBRO-2000" and "mini-ROBRO" white hybrid and 6 lines producing broilers with special qualities for alternative systems of growth "RUSTIC-ROBRO-2000" by darkness.

For this experience we have used hybrid ROSS 308, hybrid which at the age of 42 days, when there are used both sexes reaches an average weight of 2500g.

To study the experimental factors, the source of energy and the percentages in which they enter in the structure of combined nutriment, over the quality indices for poultry, was used method groups.

The experimental period was 42 days, being divided in three phases:

- **Phase I - starter**: 0-21 days;
- **Phase II - Growth:** 21-35 days;
- **Phase III - Finishing:** 35-42 days.

The research was carried out on 90 chicken broilers of a day with an initial weight between 38-42g. On the first day of life the chickens were divided randomized into three variants trial of 30 chicken /lot, of which 50% male and 50% female, like this **the experimental lot1 (L1-M)** - was fed by a combined nutriment in which the basic energy component was represented by corn; **experimental lot 2 (L2)** -at which it was administrated a combined nutriment in which was introduced as energy components the barley in percentage of 25% and various percents of maize(phase I 28.37%; phase II of 30.22%, stage III of 32.90%); **experimental group 3 (L3)** – foraged with combined nutriment in which the basic energy component was barley (40%) and different percentages of maize(starter 11.79% growth 30.22%; finishing16, 5%).

RESULTS AND DISCUSSION

At the end of the experience of each lot were slaughtered 5 chicken of which 3 males and 2 females with a view to determining the efficiency to slaughter.

The weight of slaughtered chickens represented an average weight of the lot being determined the main indices of slaughterhouse: the efficiency of commercial carcass, : the efficiency of grill carcass, and the organs mass and share of the pieces cut from the carcass. Results are presented in tables 1 and 2.

In the case of this analyzed indicator, from the data presented in table 1 can be seen the differences between lots since the beginning of technology of slaughter of poultry, starting from a weight of chicken if lot of control of 2291.5 g / head higher up to 282 g / head than the cororale weights from chickens in the other two trial versions (L2 and L3).

Table 1

Evolution of the yelt carcase (g)

Specification		L_1 (M) - maize			L_2 – 25% barley			L_3 – 40% barley		
		$x \pm s_x$	V%	Dif.	$x \pm s_x$	V%	Dif.	$x \pm s_x$	V%	Dif.
Living mass (g/head)		2291,5±81,04	7,07	-	2170,2±98,06	9,47	-115,8	2009,3±75,7	10,39	-282,2
Mass after bleeding and (g/head)		1980,0±92,87	11,00	-	1884,2±79,4	9,49	-95,80	1740,3±67,24	8,93	-239,7
Mass of full alimentary canal (g)		218,3±3,27	18,31	-	221,70±2,98	21,2	+3,40	260,1±11,21	12,74	+41,80
Mass of carcass (g/head)		1769,7±85,28	11,36	-	1659,5±90,31	14,47	-110,20	1479,64±54,8	9,83	-290,06
Mass of organs(g)	Liver	55,08±7,00	27,58	-	52,67±6,04	21,30	-2,41	50,66±6,09	23,0	-4,42
	Gizzard	31,37±1,95	13,96	-	33,54±3,47	26,95	+2,17	34,45±1,65	11,47	+3,08
	Heart	18,48±0,83	11,78	-	19,29±2,72	16,73	+0,81	23,28±2,72	19,78	+4,80
	Total organs	104,9±11,72	12,08	-	105,50±9,31	17,24	+0,60	108,39±10,1	13,12	+3,49
Mass of cut pieces (g)	Chest	559,9±43,25	16,13	-	521,43±14,90	6,66	-38,47	458,98±23,21	11,12	-100,92
	Hunkers	618,16±18,46	7,64	-	553,12±29,4	13,45	-65,04	484,58±26,63	13,45	-133,58
	Wings	198,85±2,65	3,13	-	199,14±5,76	7,18	+0,29	177,40±7,26	9,52	-21,45
	Dorsum	393,76±32,61	19,05	-	386,01±18,03	12,03	-7,75	358,81±27,03	17,39	-34,95
Abdominal fat (g)		38,57±12,6	28,3	-	45,80±15,2	32,91	+7,23	46,16±6,09	23,0	+7,59
Fat around the gizzard (g)		15,21±6,21	19,42	-	18,25±11,4	17,74	+3,04	20,41±7,65	11,47	+5,20

In table 2 is presented the evolution of efficiency at slaughter so that the best efficiency at slaughter commercial carcass (carcass without internal organs: liver, gizzard and heart) had the control lot (L1-M) with 81.49%

compared to the experimental lots at which it has been lower by 3.91%

Specifications		L_1 (M) - maize			L_2 – 25% barley			L_3 – 40% barley		
		$x \pm s_x$	V%	t	$x \pm s_x$	V%	t	$x \pm s_x$	V%	t
Efficiency at slaughter	Commercial carcass	81,49±1,15	3,78	-	80,10±1,43	3,60	0,379	78,31±1,08	2,75	1,216
	Grill carcass	77,23±0,81	2,14	-	75,47±1,47	2,81	0,933	73,64±1,76	3,20	1,456
Share of cut pieces (% from grill carcass)	Chest	31,64±0,93	5,88	-	31,42±0,62	3,82	0,503	31,02±0,37	2,42	0,475
	Hunkers	34,93±1,22	6,95	-	33,33±0,89	5,34	0,675	32,75±0,40	2,44	1,350
	Wings	11,18±0,64	11,53	-	12,00±0,22	3,75	0,942	11,99±0,27	4,58	0,88
	Dorsum	22,25±1,29	11,54	-	23,26±0,45	4,08	-	24,25±0,57	4,66	1,075
Share of organs (% from the commercial carcass)	Liver	2,95±0,36	24,74	-	3,03±0,18	10,62	0,734	3,22±0,95	51,4	0,337
	Gizzard	1,68±0,08	9,72	-	1,93±0,19	21,96	0,185	2,19±0,09	8,54	1,878
	Heart	0,99±0,07	12,71	-	1,11±0,11	23,19	0,271	1,48±0,14	17,12	0,423
	Total organs	5,62±0,58	20,71	-	6,07±0,68	22,57	0,372	6,89±0,67	19,59	1,027
Abdominal fat (% from the grill carcass)		2,18±0,41	15,23	-	2,76±0,32	18,46	0,358	3,12±0,55	31,64	0,769
Fat around the gizzard (% from the grill carcass)		0,86±0,05	11,34	-	1,10±0,07	21,42	0,421	1,38±0,09	27,21	0,391

Table 2

The evolution of efficiency at the slaughter (%)

A similar trend was observed in the case of grill carcasses (the share of the cut pieces: chest, legs, wings, back) so that the efficiency at slaughter obtained by the witness lot is 77.23% higher with 2.28% in case of lot 2, and with 4.60% in case of lot 3.

The share of the intern organs from the commercial carcass is another analyzed indicator, in this case not registering significant differences between lots. Also, a similar evolution has the share of the various pieces cut from the grill carcass, the best results are signing for control lot L1-M.

CONCLUSION

The efficiency at slaughter between the three experimental lots are noted differences in terms of body weight so that the highest efficiency to slaughter had the witness lot of 81.49% higher with 3.91% compared to the experimental lot 3 (L3) and 1.71% compared to the experimental lot 2 (L2);

The quality of poultry meat presents differences between lots so that at the witness lot to which in the food as cereal component was added to maize, it was noticed that the tenderness of meat was better by the fact that fat was deposited interfibrilar compared to experimental lots 2 and 3 (L2 and L3) to which in the food were introduced different percentages of barley and where it was found that the highest percentage of fat was deposited in the abdominal cavity.

REFERENCES

1. Drinceanu D. (2000) – Biotehnologii în nutriția animalelor, Editura EUROBIT, Timişoara;
2. Mierliță D. (2003)-Nutriția şi alimentația păsărilor. În "Creşterea găinilor ouătoare şi a puilor de carne", autor Mariana Dinea;Editura Risoprint, Cluj-Napoca;
3. Walker A.W. şi col. (1995)– Recent findings on the effect of nutrition on the growth of specific broilers carcass components, in Recent Advances in Animal Nutrition, Nottingham University Press.
4. Vacaru-Opris I.(coord.) (2002)- Tratat de avicultura Vol II Editura Ceres Bucuresti