

## INFLUENCE OF FEEDING ON THE WEIGHT OF BROILER CHICKENS

M COLĂ, FLORICA COLĂ

**Keywords:** amino acids, combined fodder, carcasses, protein-energy level

### ABSTRACT

As compared to the results obtained, it is recommended for the practical application during 1-45 days a feed of 2900 kcal E.M./kg combined fodder having 21 % P.B. with 1,1 % lysine and 0,450 % methionine and with a protein-energy ratio of 139. At 45 days the chickens gained on average a body weight of 1178 g with a consumption of 2,2 kg combined fodder per 1 kg gain in live weight. For the finishing period 46-60 days it is recommended the feed of 3100 kcal/kg of combined fodder with 19 % P.B., having 0,920 % lysine and 0,410 % methionine and a protein-energy ratio of 163; with the help of this feed it has been obtained, in that period, an average gain of 0,582 kg, with a consumption of 2,35 kg combined fodder per kg gain.

### INTRODUCTION

Among the factors which contribute to get better results in poultry farm a very important role is held by rational feeding. To this effect it is necessary to be taken into account the nutritive requirements, to ensure a high production, a better capitalization of feed and a normal sanitary condition of the poultry. In order to control the requirements of energy and protein, quantitatively, as well as the ratio of the content of amino acids, it is necessary to know both the energy-protein level and the optimum doses of amino acids for different categories of poultry. A positive influence on the increase of weight gain has been found also by supplementing with lysine and methionine the nutrients for chickens in order to balance feeds.

### MATERIAL AND METHOD

The researches were carried out at S.C. VITALL S.R.L. Coșovenii in the year 2013, being followed the need of energy and amino acids in Cornish-Rock broilers, on a flock of 640 broilers, divided into 2 experimental groups. Within each group there have been formed 10 variants, each variant having 32 broilers.

Within the groups it was studied, during the rearing and fattening of chickens, (1-45 days) and during the finishing period (46-60 days), 2 energy-protein levels different and balanced in amino acids, considered as control group, and inside each group have been experimented 10 variants, where lysine and methionine have been decreased or increased as compared to the control group by 10-20 %, single or associated, according to the scheme in table 1.

**Table 1**

**Scheme of the experience**

Experimental group	Variant	Protein level, energy and amino acids during the period of rearing and finishing	
		0 – 45 days	46 – 60 days
	1	NB lysine reduced by 10 %	NB lysine reduced by 10 %
	2	NB methionine reduced by 10 %	NB methionine reduced by 10 %
	3	NB lysine and methionine reduced by 10 %	NB lysine and methionine reduced by 10 %
	4	Basic feed 2900 kcal EM/Kg combined	Basic feed 3100 kcal EM/Kg combined

1	M	fodder; 21 %PB, balanced in amino acids: lysine 1,100 % and methionine 0,450 %	fodder; 19 %PB, balanced in amino acids: lysine 0,995 % and methionine 0,407+- %
	5	NB lysine increased by 10 %	NB lysine increased by 10 %
	6	NB methionine increased by 10 %	NB methionine increased by 10 %
	7	NB lysine and methionine increased by 10 %	NB lysine and methionine increased by 10 %
	8	NB lysine increased by 20 %	NB lysine increased by 20 %
	9	NB methionine increased by 20 %	NB methionine increased by 20 %
	10	NB lysine and methionine increased by 20 %	NB lysine and methionine increased by 20 %
2	11	NB lysine reduced by 10 %	NB lysine reduced by 10 %
	12	NB methionine reduced by 10 %	NB methionine reduced by 10 %
	13	NB lysine and methionine reduced by 10 %	NB lysine and methionine reduced by 10 %
	14	M Basic feed2900 kcal EM/Kg combined fodder; 23 % PB, balanced in amino acids: lysine1,100 % and methionine0,450 %	M Basic feed3100 kcal EM/Kg combined fodder; 21 % PB, balanced in amino acids: lysine1,100 % and methionine0,450 %
	15	NB lysine increased by 10 %	NB lysine increased by 10 %
	16	NB methionine increased by 10 %	NB methionine increased by 10 %
	17	NB lysine and methionine increased by 10 %	NB lysine and methionine increased by 10 %
	18	NB lysine increased by 20 %	NB lysine increased by 20 %
	19	NB methionine increased by 20 %	NB methionine increased by 20 %
	20	NB lysine and methionine increased by 20 %	NB lysine and methionine increased by 20 %

**NB = basic feed**

## RESULTS AND DISCUSSIONS

The body weight of chickens has been monitored by periodical individual weighing, and the results obtained are presented in table 2.

From the analysis of the data it results that the body weight of the chickens has not registered, in the 20 variants, significant differences. At each energy-protein level the values obtained at the experimental variants, as compared to control variants, have ranged, at the age of 30 days, for the feed of 2900 kcal/kg combined fodder and 21 % P.B., between  $579,37 \pm 12,04$  and  $631,56 \pm 8,52$  g, as compared to  $606,87 \pm 12,82$  g the weight of control variant, and for the feed of 2900 kcal/kg combined fodder and 23 % P.B. , the registered weight varied between  $408,31 \pm 15,57$  g and  $605,62 \pm 13,41$  g, as compared to  $522,81 \pm 12,76$  g the weight in control variant.

At the age of 45 days the body weight, within each energy-protein level and in totality, registered small differences, but insignificant. For the energy-protein level of 2900 kcal/kg combined fodder and 21 % P.B. the body weight varied between  $1159,37 \pm 23,57$  g and  $1225,39 \pm 29,62$  g, as compared to control variant which had the weight of  $1178,12 \pm 24,17$  g, and for the energy-protein level of 2900 kcal/kg combined fodder and 23 % P.B., the values ranged between  $1034,06 \pm 30,02$  g to  $1208,75 \pm 24,23$  g as compared to  $1095,93 \pm 22,27$  g the weight of control variant.

At the age of 60 days, it is noticed the same thing, namely the differences of weight within the de 2 groups of 10 experimental variants are not statistically ensured. It is noticed at the level of 3100 kcal/kg combined fodder 19 % P.B. between  $1667,18 \pm 38,80$  g and  $1771,87 \pm 41,71$  g as compared to  $1700,00 \pm 35,32$  g the weight of control variant.

At the level of 3100 kcal/kg the combined fodder and 21 % P.B. it is registered the fluctuation from  $1592,81 \pm 38,99$  g to  $1745,62 \pm 38,81$  g as compared to  $1638,12 \pm 34,49$  g the weight of control variant.

**Table 2**

**Evolution of body weight in broilers**

Group	Variants	Weight (g) at:							
		Beginning of experience		30 days		45 days		60 days	
			%		%		%		%
1	1	50,94±0,10	97,02	579,37±12,04	95,47	1159,37±23,57	98,41	1689,37±36,40	99,37
	2	52,50±0,10	100,00	590,62±10,42	97,32	1173,12±21,69	99,58	1695,00±36,42	99,71
	3	52,81±0,92	100,59	582,81±9,82	96,04	1184,37±22,39	100,53	1732,18±35,07	101,89
	4 - M	52,50±1,00	100,00	606,87±12,82	100,00	1178,12±24,17	100,00	1700,00±35,32	100,00
	5	51,25±1,00	97,62	622,81±14,63	102,63	1192,18±29,15	101,19	1687,50±37,95	91,26
	6	51,87±1,22	98,80	631,56±8,52	104,07	1206,25±22,59	102,39	1697,81±33,41	99,87
	7	52,81±1,02	100,59	620,93±12,05	102,32	1182,32±24,75	100,37	1706,56±38,51	100,39
	8	53,43±1,23	101,77	593,12±9,36	97,73	1161,87±23,08	98,62	1667,18±38,80	98,07
	9	53,12±1,13	101,18	615,62±15,01	101,44	1209,06±30,13	102,63	1735,93±46,60	102,11
	10	52,18±1,16	99,39	629,06±14,49	103,66	1225,39±29,62	104,06	1771,87±41,71	104,25
2	11	51,56±1,10	97,06	599,06±13,62	114,58	1208,75±24,23	110,29	1745,62±38,81	106,56
	12	52,81±1,02	99,42	605,62±13,41	115,83	1175,00±25,14	107,21	1690,62±37,10	103,20
	13	54,37±0,99	102,35	604,37±14,03	115,60	1188,75±28,93	108,47	1722,50±41,50	105,15
	14 - M	53,12±0,83	100,00	522,81±12,76	100,00	1095,93±22,27	100,00	1638,12±34,49	100,00
	15	52,81±1,02	99,42	511,56±18,58	97,85	1091,25±30,26	99,57	1691,56±39,25	103,26
	16	52,50±1,09	98,83	508,75±15,24	97,31	1091,87±28,93	99,63	1679,06±38,50	102,50
	17	54,06±1,08	101,77	408,31±15,75	91,87	1040,93±26,02	94,98	1623,12±39,58	99,08
	18	53,75±0,86	101,19	547,50±17,10	104,72	1148,43±29,52	104,79	1745,00±39,81	106,52
	19	51,87±1,22	97,65	491,87±17,28	94,08	1034,06±30,02	94,35	1592,81±38,99	97,23
	20	54,68±1,00	102,94	492,50±22,60	94,20	1048,12±37,40	95,64	1672,18±20,45	102,08

Although the differences are insignificant, the values registered in group 1, variant 4 – control, having the energy-protein level of 2900 kcal/kg combined fodder and 21 % P.B. during the period up to 45 days and 3100 kcal/kg combined fodder and with 19 % P.B., in the finishing period from 45 to 60 days, it is noticed that are slightly higher than in group 2, variant 14, which at the energy-protein level of 2900 kcal/kg combined fodder and 23 % P.B. during the period up to 45 days and 3100 kcal/kg combined fodder with 21 % P.B. in the finishing period from 46 to 60 days.

This fact shows that the feed used in group 1, variant 4 of control, balanced in amino acids, it is preferable than the feed used in group 2, variant 14, as with a protein consumption more reduced may be practically obtained the same results.

Energy-protein ratios within the 20 variants had values comprised between 126 and 139 during the period 1-45 days and between 147 and 163 during the period 46-60 days.

**CONCLUSIONS**

The results obtained led to the following conclusions:

1. In group 1, which received the feed of 2900 kcal/kg combined fodder with 21 % P.B. in the first period and 3100 kcal/kg combined fodder with 19 % in the finishing period, balanced in limiting essential amino acids (lysine, methionine, cystine), as compared to that in the group 2 which had the feed of 2900 kcal/kg combined fodder with 23 % P.B. in the first period and 3100 kcal E.M./kg combined fodder with 21 % P.B. in the finishing period were registered small differences, but which are statistically ensured in respect of the body weight of chickens at the age of 60 days.

2. Within the feeds mentioned and balanced in limiting essential amino acids, a variation up and down of lysine and methionine does not produce obvious modifications favourable or not favourable in body and weight growth of broilers up to the age of 60 days.

3. As compared to the obtained results, it is recommended for the practical application during the period 1-45 days of the feed of 2900 kcal E.M./kg combined fodder having 21 % P.B. with 1,1 % lysine and 0,450 % methionine and with an energy-protein ratio of 139. At 45 days the chickens gained, on average, a body weight of 1178 g with a consumption of 2,2 kg combined fodder per 1 kg gain in live weight.

4. For the finishing period ranging between 46-60 days it is recommended the feed of 3100 kcal/kg combined fodder with 19 % P.B., having 0,920 % lysine and 0,410 % methionine and an energy-protein ratio of 163; with the help of this feed, during that period it has been obtained an average gain of 0,582 kg, with a consumption of 2,35 kg combined fodder per kg gain.

#### BIBLIOGRAPHY

**1. Dinescu, S. et al.**, 2003, "*Rearing of farm animals. Efficient techniques in rearing pigs and poultry. Vol. II*". AGRIS Publishing House – Editorial Team of Agricultural Magazines, Bucharest.

**2. Hebean, N. et al.**, 1994, *Translation "Poultry nutrition and feed" by M. Larbier (Nutrition et alimentation de volailles, INRAS-France)*. ALUTUS Publishing House, Bucharest.

**3. Sauveur, B.**, 1988, "*Reproduction des volailles et production d'oeufs*". INRA Paris, France.

**4. Usturoi M.G.**, 2008, "*Poultry*". ION IONESCU DE LA BRAD Publishing House, Iași.

**5. Văcaru-Opriș I. et al.**, 2005, *Systems and technologies for rearing broilers*, CERES Publishing House, Bucharest.