

CONTRIBUTIONS REGARDING IMPROVEMENT OF PRODUCTIVE PERFORMANCES AT KABIR POULTRY BREED

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Abstract

Poultry meat is considered an important food for human nourishment, due to its sensorial qualities and also to protein content with high nutritive values and with a reduced input in calories. Consumption of natural products started to be one of the main aims of population, fact for which also the Romanian farmers started to implement poultry rearing in traditional system in open air.

In the current paper we aimed to study the growing performances of Kabir poultry breed, through analysis of morph-productive indicators.

Regarding weight the first differences with statistical significance were observed in day 28 when mean values were 543.9 ± 8.52 g for chickens from batch Lexp-1 and 620.0 ± 12.39 g for chickens from batch Lexp-2 ($p > 0.001$). Referring at fodder consumption, the highest values were highlighted during period in which was administrated GROWING type fodder (period 14 – 35 days) those ones being 1508.23 g/head at batch Lexp-1 and 1597.13 g/head at batch Lexp-2.

The obtained data resulted from the current study highlighted the fact that Kabir poultry breed present a good outturn regarding growing, being also more resistant.

Key words: weight, Kabir, fodder consumption

INTRODUCTION

Rearing of domestic birds represents a viable source for fulfilling the nutritive demands of consumers from qualitative and quantitative point of view [2], [8]. Knowing and management of factors which influence the avian productions represent trumps for increasing of those productions, in conditions of economical efficiency [1], [11]. When suitable technologies for birds rearing are applied could be obtained substantial incomes for farmers [3], [5].

Also, avian sector present a strategic importance in development of national economy, because have a single purpose – fulfilling the population needs for food products and assuring of industrial units with raw materials [7].

At world level, bird meat gain a very important position along foods with animal

origin, due to its nutritive qualities and low costs for processing, in comparison with other sources of animal origin proteins [4], [6]. Avian breeds destined for meat production belongs to Ord. *Galliformes*, those ones being: hen, turkey hen, guinea fowl, pheasant, quail and partridge [9].

In the last period, consumers' trend is for products as natural as can be, so farmers must introduce also in Romania the traditional rearing system in open air [10].

Researchers come to support farmers with new hybrids which could have a much better adaptability for this type of rearing.

So, in the current paper we aimed to study the growing performances of Kabir breed chickens, by analysing the morph-productive indicators.

MATERIAL AND METHOD

Biological material was represented by 60 one day chickens (30 females - Lexp-1 and 30 males- Lexp-2), Kabir breed achieved from Agroland firm, and grown till the age of 50 days.

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During growing period were administrated to chickens mixed fodders achieved from S.C. FEEMAN S.R.L, commercialized under VIVABIO brand as follows: Starter natural chicken, Growing natural chicken and Finishing natural chicken.

NATURAL fodder assortment was designed to optimize the foddering costs and obtained performances, but made into a direct correlation with chickens' nutritive demands (tab. 1).

Table 1 Chemical composition of *Vivabio Natural* fodder assortment (MU/kg)

Component	Fodder type		
	STARTER	GROWING	FINISHING
Crude protein	20.04%	18.00%	15.00%
M.E. birds	11.75 MJ	11.14 MJ	11.38 MJ
Fat	2.45%	2.90%	2.80%
Cellulose	3.65%	4.25%	4.51%
Methionine	0.45%	0.33%	0.27%
Methionine+Cystine	0.80%	0.65%	0.57%
Lysine	1.03%	0.90%	0.65%
Calcium	0.91%	0.54%	0.52%
Phosphorous	0.60%	0.26%	0.25%
Sodium	0.14%	0.13%	0.18%
Vitamin A	13477 UI	11000 UI	9000 UI
Vitamin D	5000 UI	5000 UI	4000 UI
Vitamin E	75 UI	75 UI	50 UI
Coccidiostatic	-	present	absent

During research were tracked the main morph-productive indexes (dynamics of corporal weight, fodder consumption, dynamics of growing gain as well as feed conversion index).

Appreciation of weight increasing was realised by individual weightings of chickens from each batch (females and males), from one day age till 50 days.

Weighting was individually realised on batches, using a table scale with a weighting domain between 0.1–5000 g, precision being ± 0.1 g.

Fodder consumption, dynamics of growing gain and feed conversion index were calculated with specific formulas.

Data obtained during research and from laboratory analysis were statistically processed and interpreted. So, were calculated primary, position and variation (arithmetic mean, respectively variance, standard deviation, means' standard deviation and variation coefficient), establishing the significance of differences

between those two analysed batches, were was, through ANOVA test.

RESULTS AND DISCUSSIONS

Regarding the weight, at populating, the established mean for chickens allocated in batch Lexp-1 (pullets) was 38.17 ± 0.69 g minimum being 28 g and maximum value reaching 47 g. For batch Lexp-2 (males) variation limits were between 30 g and 40 g mean being at a level of 39.9 ± 0.70 g. Analysis of differences between means didn't reported differences with statistical significance ($p < 0.5$).

After first seven days of growing, chickens allocated in batch Lexp-1 reached a mean weight of 92.97 ± 2.32 g and for the ones distributed in batch Lexp-2, mean weight at age of 7 days was 96.3 ± 2.47 g.

Neither statistically speaking nor at this monitoring stage weren't observed differences with statistical significance ($p < 0.5$) (tab. 2).

Table 2 Evolution of weight at chickens from Kabir breed

Age (days)	Batches	$\bar{X} \pm S_{\bar{X}}(g)$	V%	Min. (g)	Max. (g)
1	Lexp-1	38.17±0.69	9.92	28	47
	Lexp-2	39.9±0.70	9.63	30	47
Anova test		Lexp-1 vs. Lexp-2 = n.s.; $\hat{F}(3.09) < F\alpha(4.01)pt. 1: 58 GL$			
7	Lexp-1	92.97±2.32	13.7	64	114
	Lexp-2	96.3±2.47	14.06	65	121
Anova test		Lexp-1 vs. Lexp-2 = n.s.; $\hat{F}(0.96) < F\alpha(4.01)pt. 1: 58 GL$			
14	Lexp-1	207.5±3.77	9.96	169	256
	Lexp-2	214.9±3.89	9.93	183	269
Anova test		Lexp-1 vs. Lexp-2 = n.s.; $\hat{F}(1.87) < F\alpha(4.01)pt. 1: 58 GL$			
21	Lexp-1	374.5±7.10	10.39	300	451
	Lexp-2	386.0±6.97	9.89	330	489
Anova test		Lexp-1 vs. Lexp-2 = n.s.; $\hat{F}(1.32) < F\alpha(4.01)pt. 1: 58 GL$			
28	Lexp-1	543.9±8.52	8.58	441	616
	Lexp-2	620.0±12.39	10.94	460	762
Anova test		Lexp-1 vs. Lexp-2 = ***; $\hat{F}(25.57) > F\alpha(12.01)pt. 1: 18 GL$			
35	Lexp-1	769.40±14.09	10.03	613	877
	Lexp-2	885.1±14.94	9.24	693	1039
Anova test		Lexp-1 vs. Lexp-2 = ***; $\hat{F}(25.38) > F\alpha(12.01)pt. 1: 18 GL$			
42	Lexp-1	1019.0±13.46	7.25	950	1250
	Lexp-2	1241.0±17.11	7.55	1090	1390
Anova test		Lexp-1 vs. Lexp-2 = ***; $\hat{F}(60.15) > F\alpha(12.01)pt. 1: 18 GL$			
50	Lexp-1	1378.0±17.24	6.85	1100	1550
	Lexp-2	1618.0±10.87	3.68	1500	1700
Anova test		Lexp-1 vs. Lexp-2 = ***; $\hat{F}(32.15) > F\alpha(12.01)pt. 1: 18 GL$			

The first differences with statistical significance were observed in day 28 when mean weight of pullets distributed in experimental batch Lexp-1 was 543.9±8.52 g minimum being 441 g and maximum value reaching till 877 g. Regarding variation coefficient this one recorded a value of 8.58%, fact which offers to batch a very good homogeneity.

For batch Lexp-2 minimum founded value during weightings was 460 g while maximum reached 762 g mean being 620.0±12.39 g. Regarding studied character that one was heterogeneous in the case of batch Lexp-2, value for variation coefficient being 10.94% (tab. 2).

Very significant differences between those two batches were kept till the last day of determinations, moment in which the established mean weight for batch Lexp-1 was 1378.0±17.24g and for batch Lexp-2 mean being at a level of 1618.0±10.87g.

Speaking about fodder consumption, calculated mean for Lexp-1 in period 1-14

days (while was administrated STARTER type fodder) was 587.12 g/head and feed conversion index was 1.43 kg nc/kg gain. For batch Lexp-2 fodder consumption in the same period was 595.66 g/head, feed conversion index being 1.46 kg nc/kg gain (tab. 3).

For period 14-35 days, period in which was administrated GROWING type fodder, consumption for batch Lexp-1 was 1508.23 g/head and feed conversion index was 1.57 kg nc/kg gain. For batch Lexp-2 feed conversion index was 1.88 kg nc/kg gain with a fodder consumption of 1597.13 g/head.

FINISHING type fodder was administrated during period 35-50 days, period in which fodder consumption recorded by chickens from batch Lexp-1 was 1225.5 g/head (conversion index being 0.80 kg nc/kg gain) and for birds distributed in batch Lexp-2 was recorded a fodder consumption of 1394.67 g/head with a conversion index of 0.84 kg nc/kg gain (tab. 3).

Table 3 Fodder consumption and feed conversion index

Duration (days)	Fodder consumption/head (g)		Conversion index (kg nc/kg gain)	
	Lexp-1	Lexp-1	Lexp-2	Lexp-2
1-7 days	255.73	255.00	0.95	0.98
7-14 days	331.40	340.67	0.60	0.61
STARTER	587.12	595.66	1.43	1.46
14-21 days	457.00	450.17	0.55	0.57
21-28 days	463.33	493.17	0.44	0.57
28-35 days	587.90	653.80	0.52	0.55
GROWING	1508.23	1597.13	1.57	1.88
35-42 days	602.17	690.00	0.41	0.51
42-50 days	623.33	704.67	0.41	0.36
FINISHING	1225.5	1394.67	0.80	0.84

Regarding daily mean gain in period 1-14 days the average was 12.09 ± 0.27 g/head at batch Lexp-1 and 12.50 ± 0.30 g/head at batch Lexp-2 (tab. 4).

In period 14-35 days was recorded a daily mean gain of 25.54 ± 0.68 g/head for pullets (batch Lexp-1) and 30.46 ± 0.68 g/head at

batch Lexp-2. Analysis of means between those two batches highlighted very significant differences ($p > 0.001$).

For the last period (35–50 days) daily mean gain was 43.47 ± 1.67 g/head at batch Lexp-1 and 52.35 ± 1.27 g/head at batch Lexp-2 differences being also very significant (tab. 4).

Table 4 Dynamics of growing gain (g/head) at Kabir breed chickens

Age (days)	Batch	Weight of chickens (g)		Daily mean gain (g/cap)			
		At the beginning of the week	At the end of the week	$\bar{X} \pm s_{\bar{x}}$ (g/head)	V%	Min. (g/head)	Max (g/head)
Fodder type: STARTER							
1–14	Lexp-1	38.17±0.69	207.5±3.77	12.09±0,27	12.42	9.28	15.92
	Lexp-2	39.9±0.70	214.9±3.89	12.50±0,30	12.23	10.07	16.71
Significance of differences between means ANOVA				Lexp-1 vs. Lexp-2 = n.s.; $\hat{F}(0.99) < F_{\alpha}(4.01)_{pt. 1: 58 GL}$			
Fodder type: GROWING							
14–35	Lexp-1	207.5±3.77	769.40±14,09	25.54±0.68	14.62	17.68	31.00
	Lexp-2	214.9±3.89	885.1±14,94	30.46±0.68	12.42	21.95	37.95
Significance of differences between means ANOVA				Lexp-1 vs. Lexp-2 = ***; $\hat{F}(25.67) > F_{\alpha}(12.01)_{pt. 1: 18 GL}$			
Fodder type: FINISHING							
35–50	Lexp-1	769.40±14.09	1378.0±17.24	43.47±1.67	21.13	21.07	66.92
	Lexp-2	885.1±14.94	1600.0±13.57	52.35±1.27	13.33	36.5	65.64
Significance of differences between means ANOVA				Lexp-1 vs. Lexp-2 = ***; $\hat{F}(17.76) > F_{\alpha}(12.01)_{pt. 1: 18 GL}$			

CONCLUSIONS

Based on the obtained results during organization of those two experimental series it is confirmed the fact that Kabir breed chickens are more resistant, having a good outcome at growing.

Regarding weight, at batch Lexp-1 weight at populating was 38.17 ± 0.69 g and

39.9 ± 0.70 g at batch Lexp-2, and in day 50 mean values were 1378.0 ± 17.24 g at batch Lexp-1 and 1618.0 ± 10.87 g at batch Lexp-2, differences between those two batches being very significant.

Speaking about dynamics of growing gain (g/head) at batch Lexp-1 in period 1-7 days mean value was 7.83 ± 0.35 g/head and at batch

Lexp-2 was 8.06 ± 0.34 g/head. For period 42–50 days were highlighted mean values of 51.34 ± 3.06 g/head at batch Lexp-1 and 53.86 ± 3.01 g/head at batch Lexp-2. Growing gain was also calculated for periods in which fodder was administrated, so for stage 1-14 days (starter) the obtained mean values for batch Lexp-1 were 12.09 ± 0.27 g/head and 12.50 ± 0.30 g/head for batch Lexp-2 differences between those two batches being insignificant. In period 14-35 days (growing) differences between those two batches regarding growing gain were very significant, differences which were kept also during finishing stage (35–50 days) when mean values were 43.47 ± 1.67 g/head for batch Lexp-1 and 52.35 ± 1.27 g/head for batch Lexp-2.

Regarding fodder consumption during period 1–7 days this one was 36.53 g for batch Lexp-1 with a feed conversion index of 0.98 kg nc/kg gain and 36.43 g/head for batch Lexp-2 where conversion index recorded a mean value of 0.95 kg nc/kg gain. In the last day, day 50, mean value for fodder consumption reached 89.05 g/head for batch Lexp-1 and 100.67 g/head for batch Lexp-2, feed conversion index being 0.36 kg nc/kg gain respectively 0.41 kg nc/kg gain.

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