

Studies Concerning the Dynamics of Productive Indicators on Gray Guinea Fowl (*Numida Meleagris*)

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Abstract

Growing guinea-fowls is an area of less research activity, although meat and eggs from this species are increasingly sought by consumers around the world. In addition, there is a number of very valuable biological features that makes this sector such attractive. This paper deals with a study on the productive performance of the gray guinea fowl under controlled ambient conditions. The biological material consisted of 50 specimens of guinea-fowls, purchased from a producer in our country. Those guinea fowls were grown according to the species-specific technology, from one day to 77 days. The target indicators were body weight, weight gain, feed consumption and stockholding proportion, determined in accordance with the poultry research methodology. The data were statistically processed using the Anova (Analysis of variance) program. For the gray guinea fowl, the growing period has been divided into three stages of age, differentiated by the protein level of the feed. At the time of population, the body weight of birds was 28.09 ± 0.35 g, and on the day of slaughter (77th day), 1923.76 ± 18.29 g. This weight was achieved with a feed conversion index of 1: 3.64.

The gray guinea fowl exhibits good organic resistance and ensures satisfactory meat production under conditions of optimal nutrient feeding.

Keywords: *body weight, consumption, guinea fowl*

INTRODUCTION

Compared to other livestock breeding sectors, poultry farming is seen as an important and cost-effective livestock production because, for a long time, domestic poultry have been grown only in small numbers and empirically, with no scientific concern about diet, shelter and rational care (Usturoi, 2008).

On animal protein assurance, a remarkable role is played by animal husbandry, and in this livestock sector, poultry farmin is a very important branch. Poultry, in addition to its fine taste, contains a lot of nutrients very useful for our body. It is especially appreciated as a source of animal protein with high nutritional value and low calories intake. That's why breeds for meat production have been created and based on these

we got hybrids specialized in this direction; like goose, ducks, turkeys and even guinea fowl.

Growing guinea fowls can be a profitable business with the use of modern technology and a good quality biological material. Meat and eggs from those species are increasingly sought by consumers around the world.

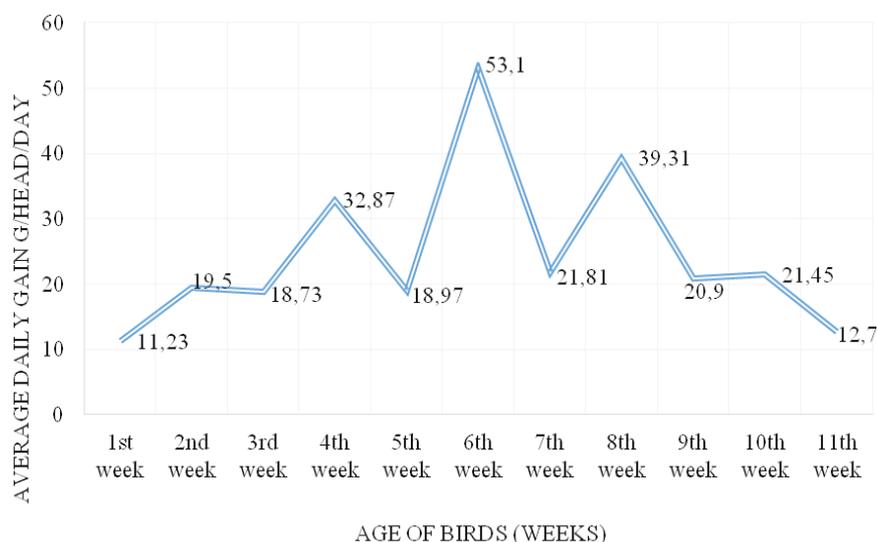
Guinea fowl has a number of very valuable biological features that make this sector such attractive.

MATERIALS AND METHODS

The studied biological material consisted of 50 guinea fowls specimens, purchased from a producer in our country; were grown according to the species-specific technology, from 1st day to 77th day. During the research, one of the monitored

Table 1. Dynamics of body weight on the studied birds

Age (weeks)	Statistical estimators			
	mean±sd	cv	Min (g)	Max (g)
0	28.09±0.35	9.02	23.57	34.77
1	106.68±1.52	9.92	85.34	136.88
2	241.33±3.04	8.71	202.18	290.56
3	372.31±3.67	7.14	321.77	424.32
4	604.57±6.82	8.03	426.98	666.53
5	732.39±9.81	9.46	474.55	832.06
6	1109.08±11.28	7.23	771.90	1224.33
7	1258.79±11.84	6.65	1009.83	1401.04
8	1534.19±13.28	6.34	1254.31	1699.89
9	1681.55±16.07	6.67	1441.02	1873.09
10	1832.68±19.37	7.38	1454.21	2109.32
11	1923.76±18.29g	6.94	1555.63	2235.45

**Figure 1.** The average daily gain of the studied birds

indicators was the body weight by weighing individually the entire guinea fowl flock on the first day of each week using an electronic balance ATZ 1200 (Axis, Gdańsk, Poland). At the end of each week of life of guinea fowls, the average daily gain (ADG) according to the formula $(Fw-Iw)/n$, where Fw- final weight, Iw-initial weight, n-number of days, was calculated. Other indicators were the consumption of combined fodder (average daily consumption, feed conversion ratio) and stockholding proportion. The concentration of energy in the mixtures administered to the guinea fowl was about 2760 kcal ME/kg feed with 27.44% CP within the first 21 days of age, after that we administered a mixture of 2651 kcal ME/kg feed with 25.13% C.P. The stocking density was about

4.1 heads/m². The data was statistically processed using the Anova soft (Analysis of variance).

RESULTS AND DISCUSSIONS

Body weight is a factor that greatly condenses the quantitative and qualitative production of meat that can be obtained from a bird. On the first day of live, the registered body weights ranged between 23.57 g and 34.77 g, the mean value for this moment of life was 28.09±0.35 g. In the next periods, the body weight of the birds progressively increased, reaching 106.68±1.52 g at the end of the first week of life, 732.39±9.81 g at the end of 5th week and 1923.76±18.29 g at the end of the growth period (77th day). In terms of variability, the studied characteristic showed a fairly good

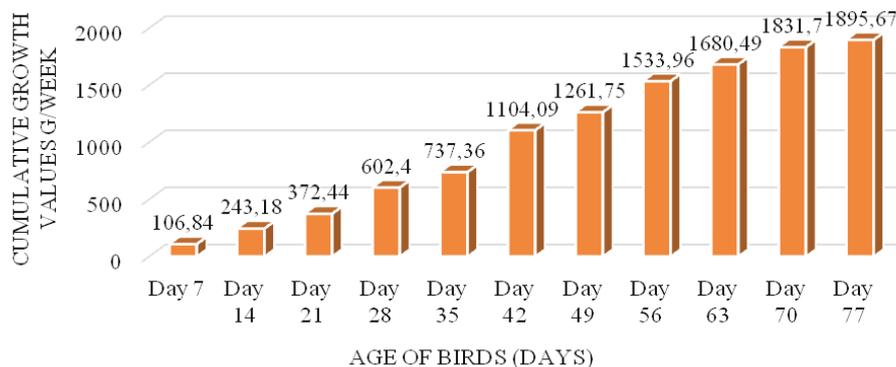


Figure 2. Dynamics of cumulative growth on the studied birds

Table 2. The consumption of combined fodder in studied birds

Age (weeks)	Number of birds	Average consumption (g/head)		FCR (kg feed intake/kg BW gain)
		Per day	Cumulated	
1	50	22.87	160.09	2.04
2	50	48.56	500.01	2.48
3	50	71.41	999.88	3.81
4	50	116.97	1818.67	3.36
5	50	97.12	2498.51	5.11
6	50	119.00	3331.51	2.07
7	50	94.21	3990.98	4.32
8	50	111.41	4770.85	2.90
9	49	117.13	5590.76	3.01
10	48	114.19	6390.09	5.02
11	48	85.69	6989.92	6.02
Average		81.94 g/head	3.64 kg cf/kg increase	

homogeneity, with coefficients of variation within the range of 6.34-9.92% (Table 1).

Concerning the body weight of the birds studied, the results obtained by us (1923.76 ± 18.29 g) were well above those recorded by Bernacki *et al.* (2013) who found the average body weight of 1081 g in 12-week-old grey guinea fowl not improved for meat traits.

The daily average gain varied around 20 g/head/day. For this indicator, the lowest values were obtained after the first week, 11.23 g/head/day, and the highest values were reached in the 6th week, 53.1 g/head/day. In the last week of our experience (11th), the average daily gain of our birds recorded a level of only 12.7 g/head/day (Figure 1).

Regarding the cumulative growth, it had a steady growth, with the exception of the 21st day, when it reached 372.44 g and the 49th day with a value of 1261.75 g. At the end of the experimental period, the cumulative weight gain was 1895.67 g (Figure 2).

The average consumption of combined fodder was 81.94 g/head, with values ranging from 22.87 g/head/day (week 1) and 119.00 g/head/day (week 6). The lowest value was recorded in the 1st week with 22.87 g/head/day, after that in the 7th week 94.21 g/head/day and 11th week with 85.69 g/head/day (Table 2).

The average daily feed consumption of combined birds of the experience was 81.94 g / head / day, resulting in a total consumption of 6989.92 g / head / day compared to Kerketta and Mishra (2016) obtained a combined feed consumption of 5789 g.

For the feed conversion index, Frątczak *et al.* (2002) obtained values of 3.5 kg feed intake/kg BW gain, Tufarelli *et al.* (2007) of 3.74-3.86 kg feed intake/kg BW gain, and Kerketta and Mishra (2016), of 3.74 kg feed intake/kg BW gain. These results were achieved with the slaughter of birds at the age of 11 weeks, similar to our experiment.

Actual losses over the entire period of the experience were 4%. Two cases of mortality were

Table 3. Stockholding proportion

Age (weeks)	Number of birds		Mortality		
	At the beginning of the week	At the end of the week	Number	%	Cumulated (%)
1	50	50	0	0	0
2	50	50	0	0	0
3	50	50	0	0	0
4	50	50	0	0	0
5	50	50	0	0	0
6	50	50	0	0	0
7	50	50	0	0	0
8	50	50	0	0	0
9	50	49	1	2	2
10	49	48	1	2	4
11	48	48	0	0	4

recorded in the 9th and 10th wee, due to mechanical accidents that caused bleeding in the internal organs, namely the liver, which, due to the onset of the fatty liver syndrome it became very brittle (Table 3).

The recorded mortality indicates diseases due to prolonged hypokinesia, and associated with a high energy level of compound feed, has resulted in fatty liver syndrome.

CONCLUSIONS

The final conclusion of our study is that ensuring optimum conditions of microclimate and a high quality food helps to achieve good performance in raising guinea fowl for poultry production.

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