

## **MORPHOLOGICAL PERFORMANCE OF THE GUINEA FOWL (*NUMIDA MELEAGRIS*) POPULATION IN BIHOR COUNTY**

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### **Abstract**

*The study presents the partial results, regarding the morphological performances of some birds of the order Galliformes, the genus Numida, the species Numidameleagris, from the territory of Bihor county. The presented work was carried out in three private farms in Oradea as well as on the territory of Bihor County, being analyzed 252 specimens from the guinea fowl population, respectively 40 males and 212 females. The following morphological parameters were analyzed: knowledge of breed characteristics as well as the quality of eggs intended for incubation (egg weight, mineral shell thickness, format index and Haugh index).*

**Key words:** Breed traits, dynamic, incubation, eggs weight, shell thickness.

### **INTRODUCTION**

The gray guinea fowl comes from the African continent, where it was domesticated in antiquity. Throughout history, the numbers on the European continent have been reduced numerically, a repopulation and a better spread of this species being made after 1500 AD, a period in which, probably, the Romanian territory was also populated. It is not known exactly the moment of propagation of the number of guinea fowl in the North-West of the country, but it is known that the local population raises these birds, along with palmipeds, to obtain traditional products from their meat, which have special organoleptic properties.

### **MATERIALS AND METHODS**

The data collected were obtained from private farms, namely: in the C1 farm, 65 heads (10 males and 55 females), the C2 farm, 99 heads (16 males and 83 females), the C3 farm, 88 heads (14 males and 74 females). As biological material were used birds of both sexes, of different ages, (hatching, in the juvenile period, when reaching sexual maturity, in the active period of reproduction).

Were used the following materials and working devices: technical and analytical digital balances, calipers, Petri plates and flat glass plates, small incubators (50-200 eggs/ series) portable ovoscope, camera,

computer equipped with spreadsheet software, depending on the experimental method addressed.

The results obtained were compared with the reference values in the literature (Sauveur, B., 1988; MG Usturoi, 1999; Vacaru-Opriș I. et al., 2002).

The experimentally obtained data were centralized and statistically processed.

## RESULTS AND DISCUSSION

Of all the populations analyzed, the most precocious birds existed in farm 3, where the lowest mortality was recorded. The age of laying the first egg varied between 202-212 days.

The qualitative parameters of the hatching eggs were analyzed in dynamics, starting from the beginning of laying (29-33 weeks), passing successively through the laying top (34-36 weeks), the laying plateau (37-50 weeks) and ending with the end laying eggs (65 weeks).

The average weight of the eggs changed from  $43.9 \pm 0.5\text{g}$  at the beginning of laying to  $46.6 \pm 0.8\text{g}$ .

The average thickness of the mineral shell evolved inversely proportionally, in relation to the weight of the eggs, decreasing from the value of  $0.500 \pm 0.008\text{ mm}$ , to the value of  $0.470 \pm 0.005\text{ mm}$ , at the end of laying (table1).

Table 1

Dynamics of the incubation eggs weight (g), during laying period, in the studied Grey Guinea fowl populations

Moment of egg laying	C1 (n=25)		C2 (n=25)		C3 (n=25)		Average farms	
	$\bar{X} \pm s_{\bar{x}}$ (g)	V%	$\bar{X} \pm s_{\bar{x}}$ (g)	V%	$\bar{X} \pm s_{\bar{x}}$ (g)	V%	$\bar{X} \pm s_{\bar{x}}$ (g)	V%
Beginning (29 weeks)	43,2 $\pm$ 0,5	6,2	44,8 $\pm$ 0,3	9,3	43,7 $\pm$ 0,7	11,7	43,9 $\pm$ 0,5	10,2
Top (35 weeks)	44,1 $\pm$ 0,4	9,7	45,3 $\pm$ 0,3	5,4	44,9 $\pm$ 0,6	6,9	44,8 $\pm$ 0,4	7,1
Plateau (43 weeks)	45,4 $\pm$ 0,7	8,1	46,1 $\pm$ 0,5	6,9	45,8 $\pm$ 0,5	5,4	45,8 $\pm$ 0,6	6,2
The end (65 weeks)	46,3 $\pm$ 0,9	9,3	46,9 $\pm$ 0,8	8,2	46,5 $\pm$ 0,8	9,8	46,6 $\pm$ 0,8	9,3

Index eggs format has changed during production period, varying between the limits of 75.5% and 77.4% (population average) (table 2)

Table 2

Values of the shape index (%) of the incubation eggs, across the laying period

Moment of egg laying	C1 (n=25)		C2 (n=25)		C3(n=25)		Average farms	
	$\bar{X} \pm s_{\bar{x}} (\%)$	V%	$\bar{X} \pm s_{\bar{x}} (\%)$	V%	$\bar{X} \pm s_{\bar{x}} (\%)$	V%	$\bar{X} \pm s_{\bar{x}} (\%)$	V%
Beginning (29 weeks)	75,00 $\pm 1,7$	12,4	76,00 $\pm 0,7$	7,9	75,51 $\pm 1,1$	9,5	75,5 $\pm 1,2$	18,3
Top (35 weeks)	75,51 $\pm 1,4$	5,1	76,47 $\pm 0,6$	6,8	76,00 $\pm 0,5$	6,4	76,0 $\pm 0,8$	6,2
Plateau (43 weeks)	76,00 $\pm 0,7$	8,7	76,92 $\pm 1,1$	8,1	76,47 $\pm 1,8$	8,5	76,5 $\pm 1,2$	8,4
The end (65 weeks)	76,92 $\pm 1,3$	7,1	77,78 $\pm 0,6$	7,9	77,36 $\pm 0,6$	7,5	77,4 $\pm 0,8$	7,6

The Haugh index, which shows the most synthetic the quality of the egg, had average values between 75.3 U.H. and 77.7 UH, with the highest value at the beginning of laying (77.7 UH) (table 3), a situation that confirms the quality of the eggs produced, which are successfully suitable for incubation (standard: 75-82 UH – Usturoi M., 1999).

Table 3

Haugh index values (U.H.), across the laying period in Grey Guinea fowl studied population

Moment of egg laying	C1(n=25)		C2(n=25)		C3(n=25)		Average farms	
	$\bar{X} \pm s_{\bar{x}}$ (U.H.)	V%	$\bar{X} \pm s_{\bar{x}}$ (U.H.)	V%	$\bar{X} \pm s_{\bar{x}}$ (U.H.)	V%	$\bar{X} \pm s_{\bar{x}}$ (U.H.)	V%
Beginning (29 weeks)	77,2 $\pm 1,1$	11,8	78,0 $\pm 1,3$	11,5	77,8 $\pm 1,4$	11,7	77,7 $\pm 1,3$	11,1
Top (35 weeks)	76,1 $\pm 1,8$	13,9	76,3 $\pm 1,6$	11,3	75,8 $\pm 1,7$	12,4	76,1 $\pm 1,6$	12,3
Plateau (43 weeks)	75,5 $\pm 1,8$	12,5	76,0 $\pm 1,4$	12,4	75,4 $\pm 1,1$	11,6	75,6 $\pm 1,4$	12,1
The end (65 weeks)	75,2 $\pm 1,3$	11,8	75,7 $\pm 0,9$	11,1	75,1 $\pm 1,5$	10,3	75,3 $\pm 1,2$	11,2

## CONCLUSIONS

The specimens of the *Numidameleagris* population, existing in the private farms in Bihor county were characterized by a spawning intensity of 86.5% in the laying top, in these conditions obtaining an average annual production of 161.6 eggs / bird, the value being 5% lower than the recommendations of the standard (170 eggs per introduced female / year), (Dodu M.2010).

The quality of the hatching eggs was assessed as mediocre to good, even in the conditions in which the eggshell became more and

more friable towards the end of the reproduction period, the statistical parameters of the incubation process revealed, as a whole, a fertility value of 89.3% (95-97% in standard), an hatchability of 78.4% (85% in standard) and a hatching percentage of 69.8% (compared to 80% allowed for this species).

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