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THE ASSESSMENT OF INCUBATION PROCESS IN THE TURKEY POPULATION, (*MELEAGRIS GALLOPAVO L*) REARED IN BIHOR COUNTRY

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Abstract

This paper presents partial results, regarding the identifying and characterizing of certain domestic poultry populations, belonging to Galliformes, Meleagris gallopavo domesticus species. The experimental results and the case studies have been run in 3 private farms of breed fowls, from Bihor county area, being analyzed a number of 22 males and 88 females. The studied parameters refer to the incubation process analysis, namely: infertile eggs% and % eggs fertility; % eggs with dead embryos after each biological control exercised and cumulated; % of hatchability; % hatching percentage; weight of the new hatched chicks and their classifying on quality classes.

Key words: improved bronzed turkey, quality, eggs, yield,

INTRODUCTION

The efficiency of the breeding sector, of the incubation process has been analyzed in terms of fertility (87%) and hatching (65.8%). Hatcher value is below the average standard of breed (80%), which requires taking all technological measures, in order to remedy the situation in incubation. However, over 94% of hatched chicks were classified in the I-st class of quality.

The origin of this breed lies in the Northern-American continent, being approved in 1877. Although the turkey populations, which is a common breed, has been existing in our country since the beginning of the XVIII-th century, originated in Europe, in the 20th century have started the imports of valuable pure breeds. The first imports of improved Brozed breeders were made in 1950.

Currently, in Bihor county, there is a reduced number of turkey populations, compared, for example, web-footed species, which have a long tradition of growth is in the west part of country. Most specimens, although they phenotypic fall in the standard of improved Brozed breed, they present different degrees of hatching with unimproved local populations, which is an undesirable fact, breed purification representing a goal to be achieved in the future.

MATERIALS AND METHODS

There were studied 3 poultry farms, situated in Oradea town, conventionally assigned with: C1, C2 and C3 notations, in order to identify the valuable resources existing in these populations of fowls, being analyzed a number of 11 males and 80 females. Therefore, in case of farm C1 there were analyzed: 32 pieces (4 males and 28 females); farm C2: 22 pieces (2 males and 20 females); farm C3: 37 pieces (5 males and 32 females).

In order to obtain experimental results, there were used working methods, recommended by the literature (B. Sauveur, 1988; Vacaru-Opriș I. et al., 2000, 2002), and also necessary materials of biological and logistical nature.

The material used in the experiment consisted in birds of both sexes and of different ages (hatching in the juvenile period, reaching sexual maturity, the active period of reproduction). There were also used hatching eggs belonging to the studied species, in different periods of the laying cycle (onset, peak, plateau, end).

After introducing the eggs in the incubator, two mirages were accomplished, at different times (first mirage in 7 days and second mirage in 25 days).

The infertile eggs have been highlighted in the first mirage, and those with dead embryos have been identified and removed in both biological controls of incubation.

At the end of incubation process, there was calculated the percentage of hatchability and hatching. After hatching the following aspects were assessed: body weight, viability, their morphological appearance, identifying any defects of conformation, finally classifying the new hatched chicks on quality classes.

RESULTS AND DISCUSSION

The biological control of incubation was conducted in 2 different periods (day 7 and day 25) during the 28 days of embryonic development. Data regarding the hatching development and the results are listed in Table 1.

Laying moment	Farm	Fertility (%)	Embryos dead the mirage I piece %		Embryos dead the mirage II piece %		Chicks hatched (cap.)	Hatchability (%)	Hatching (%)
Onset (32 wks)	C1	85,0	6	11,3	5	9,4	40	75,7	64,3
	C2	88,0	4	12,0	3	9,0	25	76,1	66,9
	C3	86,6	7	11,7	6	10,0	45	74,9	64,9
	Total farms	86,3	17	11,6	14	9,6	110	75,5	65,1
Peak (35 wks)	C1	88,3	12	10,0	12	10,0	93	77,3	68,3
	C2	88,7	9	11,3	7	8,8	62	77,4	68,7
	C3	87,5	13	10,9	12	10,0	91	76,1	66,6
	Total farms	88,1	34	10,7	31	9,7	246	76,9	67,7
Plateau (43 wks)	C1	87,1	10	10,7	9	9,7	71	76,6	66,7
	C2	88,3	7	11,7	5	8,4	46	77,3	68,3
	C3	87,1	10	10,7	9	9,7	71	76,6	66,7
	Total farms	87,4	27	11,0	23	9,3	188	76,7	67,1
Ceasing (51 wks)	C1	88,0	4	12,0	3	9,0	25	76,1	66,9
	C2	88,7	3	11,3	2	7,5	21	78,8	69,9
	C3	85,0	3	11,3	3	11,3	20	73,5	62,4
	Total farms	87,3	10	11,6	8	9,3	66	76,1	66,5
Total:		87,5	88	11,0	76	38	610	76,5	66,9

Incubation process analyses in Improved Bronzed turkeys breed, from the studied farms

Table 1.

Fertility of eggs was assessed as being very good, falling in the range of 86.3% (at the beginning of laying) - 88.1% (the peak of laying), while the literature recommends the following index of fertility: 80-85% for this breed (Bessarabov, 1985, quoted by Vacaru-Opris, 2002).

The best value for fertility was obtained by the eggs from group C2, with the recommendation of using the studied males in order to improve the studied character in other populations.

The hatchability presented low values, but relatively normal for this poultry category, falling in the range of 75.5 - 76.9. Hatching percentage can be interpreted as being very good, as long as literature establishes 60-65%, normal hatching for the studied turkey breed. Thus, hatching varied, depending on the period of laying, between the limits of 65.1% (beginning of lay) -67.7% (peak of laying).

After completing the 28 days of embryonic development, the hatched chicks were classified on quality classes, depending on weight, overall appearance and vitality (Table 2).

Table2

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Farm	Chicken hatched (head)	chicks I-st class			chicks II-st class			chicks III-st class				
		head	Weight average (g)	%	head	Weight average (g)	%	head	Weight average (g)	%		
C1	229	215	55,2	93,9	10	49,7	4,4	4	44,5	1,7		
C2	154	144	53,7	93,5	8	49,4	5,2	2	43,9	1,3		
C3	227	218	57,6	96,0	8	50,8	3,5	1	44,7	0,4		
Total farms	610	577	-	94,6	26	-	4,3	7	-	1,1		

Day old turkey chicks weight, Imported Bronzed breed and their belongings to quality

Thus, the chicks from I-st class represented 94.6% of hatched chicks, while chicks from II-nd class and III-rd class, have been pointed at a rate of 4.3% and 1.1%.

CONCLUSIONS

The improved Brozed turkey breed, existing in the private poultry farms from Bihor County ,was characterized by a value below the average standard hatching process of race (80%), which requires to take all technological measures, in order to remedy the situation of hatching. It is recommended the selection of valuable males, identified in the study, in order to be used for the increasing of fertility proportion in other similar populations.

REFERENCES

- 1. Beaugard H., 1988, L'aviculture francaise, Ed. R.Rosset, Paris.
- 2. Sauveur B., 1988, Reproduction des volailles et production d'oeufs. Institut National de la Recherche Agronomique, Paris.
- 3. Sandu Gh., 1995, Modele experimentale în zootehnie, Ed. Coral-Sanivet, București
- Stăncioiu N., 1979, Bazele fiziologice ale producției de ouă, Ed. Ceres, Bucureşti. 5.Usturoi M.G., 1999, Incubația la păsările domestice, Ed. Ion Ionescu de la Brad, Iași.
- 5. Usturoi M. G., 2004, Producerea ouălor de consum, Ed. Ion Ionescu de la Brad, Iași.
- 6. Usturoi M.G., 2008, Creșterea păsărilor. Editura Ion Ionescu de la Brad, Iași.
- 7. Vacaru-Opriș I., 1993, Tehnologia creșterii păsărilor. Vol I și II. Lito, Universitatea Agronomică, Iași.
- 8. Vacaru-Opriș, I., 2000, Tratat de Avicultură. Vol I. Editura Ceres, București.
- 9. 9. Vacaru-Opriș, I., 2002, Tratat de Avicultură. Vol II. Editura Ceres, București.
- 10. Van I., 1999, Creșterea păsărilor în gospodăriile populației, Editura Corvin, Deva.