

STUDIES ON THE HATCHING PROCESS ANALYSIS OF DUCK POPULATION (*Anas platyrhynchos domesticus*) BRED IN BIHOR COUNTY

Dodu Monica Angelica*

*University of Oradea, Faculty of Environmental Protection, 26 Gen. Magheru St., 410048 Oradea; Romania, e-mail: monica_dodu@yahoo.com

Abstract

The project includes partial results on the characterization and identification of birds of the order Anseriformes, Anas platyrhynchos domesticus species, Pekin breed, in Bihor county. The researches have been conducted in three private farms in Oradea and Bihor county, on a total of 105 specimens of Pekin breed, 15 males and 90 females. Study parameters refer to the analysis of the incubation process, namely: %% clear eggs and % fertility, % dead embryos on every biological control exercised and cumulated, % hatching potential; % hatching; the weight of dead chicks and their classification on quality levels. Fertility has reached 84%, while the hatching capacity stood at 69.8%, normal values for the populations studied.

Key words: Pekin ducks, incubation process analysis, quality, eggs, fertility of the eggs.

INTRODUCTION

The Pekin breed was imported from China by the British, and crossed with local populations of other breeds, from where it spread elsewhere in Europe, in households, including in our country. It is suitable both for meat production growth or fattening for fatty liver, and, why not, as gene carrier for the formation of high-productivity hybrids.

Although the population prefers growing geese, there are medium-sized farms that have flocks of ducks from this race. Moreover, the Pekin breed presents valuable productive morphological indices and an amazing capacity of acclimatization, consequently, suited both for extensive and intensive operating systems.

MATERIALS AND METHODS

Three private farms situated around Oradea were studied (conventionally named C1, C2, C3) to identify valuable resources that exist in these populations of birds, a number of 15 males and 90 females being studied. The analyzed specimens were distributed as follows: in the C1 farm 35 heads (5 males and 30 females); in the C2 farm 28 heads (4 males and 24 females), in C3 farm 42 heads (6 males and 36 females).

To obtain the experimental results were used working methods recommended by the literature (B. Sauveur, 1988; Vacaru Opriș I. et al., 2000, 2002), and the biological and logistical materials needed.

Biological material used in experiments consisted of birds of both sexes at different ages (hatching juvenile period, to reach sexual maturity, the active period of reproduction). Were used and hatching eggs of the species studied at different times of the laying cycle (onset, peak, plateau, end).

On completion of incubation time, we calculated the percentage of hatching potential and the hatching rate. After hatching the following aspects were assessed: body weight, viability, morphological appearance, identifying any defects of conformation, finally realizing the screening of the newly hatched products in quality grades.

RESULTS AND DISCUSSION

The data on the results of incubation, egg fertility, number of dead embryos, hatching potential and hatches, is presented in Table 1.

The fertility index obtained is between 83.3% and 84.7%, these values are falling in the breed standard, suggesting the quality of the males used in breeding.

The best value was noticed in the eggs from the population C2. The proportion of dead embryos in levels I and II ranged between 13.9% and 14.8%, with a higher incidence on farm flock C3. The calculated hatching percentage ranged between 68.4% and 70.7% (peak of laying), hovering around the recommended value by literature (70%).

Table 1

Incubation process analysis in studied Pekin ducks farms

Laying moment	Farm	Fertilitatea (%)	Embrioni morți la mirajul I		Embrioni morți la mirajul II		Pui eclozionați (cap.)	Eclozabilitatea (%)	Ecloziunea (%)
			Buc.	%	Buc.	%			
Onset 33-34 wks	C1	82,9	4	8,5	3	6,4	32	82,0	68,0
	C2	84,7	4	8,8	2	4,4	33	84,5	71,6
	C3	82,5	6	9,6	4	6,4	42	80,7	66,5

	Total crescătorii	83,3	14	9,0	9	5,8	107	82,2	68,4
Peak 37-38 wks)	C1	84,7	15	8,8	9	5,3	120	83,4	70,6
	C2	85,1	14	9,9	5	3,6	101	84,1	71,6
	C3	84,4	18	8,5	12	5,7	148	83,1	70,1
	Total crescătorii	84,7	47	9,0	26	5,0	369	83,5	70,7
Plateau 42-43 wks)	C1	84,0	14	8,9	8	5,1	110	83,3	70,0
	C3	83,6	17	8,7	11	5,6	136	82,9	69,3
	Total crescătorii	84,0	44	9,2	23	4,8	337	83,4	70,0
Ceasing 48-49 wks	C1	83,1	10	8,9	6	5,3	77	82,9	68,9
	C2	84,0	9	9,6	4	4,3	66	83,5	70,2
	C3	82,9	15	10,7	7	5,0	95	81,1	67,3
	Total crescătorii	83,3	34	9,8	17	4,9	238	82,3	68,6
Total:		84,0	139	9,2	75	20	1051	83,1	69,8

After hatching, resulting buds were classified according to body weight, viability and appearance (Table 2). This way we had a proportion of 97.6% first class buds, 2.2% second class buds and 0.2% third class buds.

Table 2
Weight of the day old Pekin ducklings and their allocation to a certain quality class

Farm	Boboci eclozionați (cap.)	Boboci clasa I			Boboci clasa a II-a			Boboci clasa a III-a		
		Cap.	Greutate medie (g)	%	Cap.	Greutatea medie(g)	%	Cap.	Greutatea medie(g)	%
C1	339	329	62,2	97,1	9	47,5	2,7	1	40,8	0,3
C2	291	283	64,7	97,3	8	48,9	2,7	0	41,3	0,0
C3	421	415	61,0	98,6	5	47,1	1,2	2	41,3	0,5
Total:	1051	1027	-	97,6	22	-	2,2	3	-	0,2

CONCLUSIONS

The Pekin breed fertility rate reached 84%, while the hatching capacity stood at 69.8%, normal values for the studied populations. The prospects for growth are optimistic in the sense of willingness of Bihor County population to increase production of meat ducks and, in the background, for egg production. This calls, for reducing the number of dead embryos, the improvement of the currently used incubation techniques and the adaptation to specific palmfooted embryo development.

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
4. Stăncioiu N., 1979, Bazele fiziologice ale producției de ouă, Ed. Ceres, București.
5. Usturoi M.G., 1999 – Incubația la păsările domestice, Ed. Ion Ionescu de la Brad, Iași.
6. Usturoi M. G., 2004 – Producerea ouălor de consum, Ed. Ion Ionescu de la Brad, Iași.
7. Usturoi M.G., 2008, Creșterea păsărilor. Editura Ion Ionescu de la Brad, Iași.
8. Vacaru-Opriș I., 1993, Tehnologia creșterii păsărilor. Vol I și II. Lito, Universitatea Agronomică, Iași.
9. Vacaru-Opriș, I. și col., 2000, 2007, Tratat de Avicultură. Vol I. Editura Ceres, București.
10. Vacaru-Opriș, I. și col., 2002, Tratat de Avicultură. Vol II. Editura Ceres, București.
11. Van, I și col. (1999). Creșterea păsărilor în gospodăriile populației, Editura Corvin, Deva.