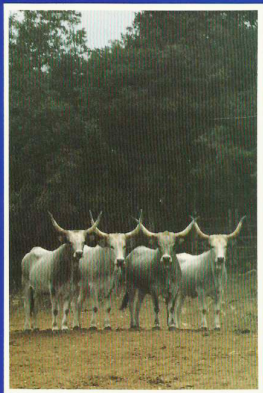


**SOCIETY FOR VETERINARY ETHOLOGY**  
**SUMMER MEETING 1990**



*Breeding density and Muscovy Duck behaviour.*

G. Paci, M. Marzoni, M. Bagliacca, L. Bartalena and C. Fedeli -

page 112

**Proceedings**

MONTECATINI TERME, PISTOIA, ITALIA 17-19 MAGGIO 1990

## BREEDING DENSITY AND MUSCOVY DUCK BEHAVIOUR.

Gisella Paci\*, Margherita Marzoni Fecia di Cossato \*, M. Bagliacca \*, L. Bartalena\*\* and Carlotta Fedeli Avanzi \*

\* Dept. of Animal Production Science, University of Pisa, Pisa, Italy

\*\* Inst. of Endocr., Humane Medicine Faculty, University of Pisa, Tirrenia, Italy .

**Aim of the study:** The study was carried out to determine the effect of breeding density on Muscovy duck behaviour and reproductive performance.

**Material and methods:** 11 month old ducks (2 males and 9 females), reared in an outdoor pen under natural light, were monitored during the last part of their egg-laying period.

The experimental period lasted 9 weeks (wk) and the animals were submitted to the following densities: 1<sup>ST</sup> throughout 2<sup>ND</sup> wk: 1 bird/m<sup>2</sup>(D1); 3<sup>RD</sup> wk: 2 birds/m<sup>2</sup> (D2); 4<sup>TH</sup> wk: D1; 5<sup>TH</sup> wk: 6 birds/m<sup>2</sup>(D6); 6<sup>TH</sup> wk: D1; 7<sup>TH</sup> wk: 4 birds/m<sup>2</sup>(D4); 8<sup>TH</sup> thro. 9<sup>TH</sup> wk: D1.

The following parameters were recorded: egg-production, individual live weight (LW), serum cortisol level and behavioural activities:

- Eggs were collected daily during the whole trial;

- LW were monitored twice a wk (on both the 2<sup>ND</sup> and the 7<sup>TH</sup> day).

- Blood samples (single morning blood sample) were drawn the same day of LW-determinations.

- Bird activities were recorded by VCR during a 12h period (8.00 to 20.00h) on the 1<sup>ST</sup> and 5<sup>TH</sup> day of each wk.

Serum cortisol was measured by RIA method (Cortisol Test Cambridge Medical Technology, MA - USA). Behavioural data were obtained in two 90min observational sessions (Morning: 08.30h to 10.00h; Afternoon: 15.00h to 16.30h) with an *ad libitum* sampling method. The group activities considered were: **feeding**, **drinking**, **resting** (standing and lying), **comfort** (preening, wing-flapping, head-scratching, feather-shaking and feather-raising) and **agonistic behaviour** (pecking, threatening, chasing). Serum cortisol data and LW data were analyzed by least squares considering animal, density and sampling day (day of wkly remarks) as categorical variables and time as a continuous variable. Egg production and behavioural data were analyzed by analysis of frequencies distribution and log linear models considering density, sex, sampling-day and replicate (morning or afternoon) as categorical variables and time as a continuous variable.

**Results and discussion:** Egg production did not differ between these although a reduction was observed in the high density these. Significant differences were observed between LW. An increase in LW was observed in D2 while a significant reduction was noted in D6 and D4 (2551, 2343, 2289g, resp.; P<.01). Serum cortisol concentration was higher in the increased density conditions. The highest value was observed in D4 while the lowest one in D2 (3.86±.414 vs. 1.82±.414 nmol/l; P<.01).