



Growth and production traits of domestic geese in local conditions of Kashmir, India

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Received: 27 December 2013; Accepted: 24 January 2014

Key words: Body weight, Clutch, Incubation period, Hatchability, Maturity

Geese have interesting biological characteristics, such as a high juvenile growth rate, a good adaptation to free range and grazing, high dietary quality of meat (Romanov 1999) and disease resistance (NRC 1991) but yet have remained neglected in many countries including India to the extent that not even basic statistics are available. Perusal of literature reveals meagre scientific studies being carried out on geese across the world and the situation is more dismal as far as research on domestic geese in India is concerned. To generate a baseline data on available domestic geese germplasm the present study was planned.

The study was conducted in Srinagar, Ganderbal and Bandipora districts of the Kashmir valley. The geese rearing areas in these districts were identified and during the survey, body weight of 746 adult geese was recorded and 112 geese rearers were interviewed to gather information regarding the production parameters. Growth in terms of body weight of different age groups was recorded by weighing available birds at the time of survey. Age at sexual maturity was calculated on the basis of the information collected from the farmers about the age of their birds at the time of laying first egg. Egg production characteristics in terms of pattern of laying, clutch size, number of laying cycles in a year, and total number of eggs laid in a year was recorded as reported by the farmers. Hatchability and incubation period (days) was ascertained on the basis of the inputs provided by the farmers during the study. The data was tabulated, classified and analyzed as per Snedecor and Cochran (1980).

Growth: Body weight of different age groups (Table 1) in the present study showed an increasing trend with increasing age. Several authors have observed similar trends in the growth of goslings (Murawska and Bochno 2008, and Kumar *et al.* 2009). Average gosling weight in the studied geese was lower than Tamil Nadu geese (Kumar *et al.* 2009) and Turkish geese (Kumar *et al.* 2009) but was higher than Magpie Goose as reported by Whitehead and Tschirne (1990).

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Table 1. Growth in domestic geese of Kashmir

Age	Body weight (g)
0–4 weeks	89.285±9.472
3 months	2875±0.243
6 months	3189±0.186
9 months	3342±0.124
12 months	3625±0.092
24 months	3742±0.148
36 months or more	3980±0.488

Age at sexual maturity (ASM): Age at sexual maturity or age at first egg was 13.733±0.534 months in Kashmir geese. Juodka *et al.* (2012) and Hasani (2005) indicated an earlier ASM for Vishtines geese and geese in Azarbaijan area respectively. ASM in Kashmir geese was more than in the local ducks of Kashmir where it has been reported to be 11.5 months (Bihaqi 2012).

Egg production: Average clutch size in domestic geese in the survey was reported to be 9.445±0.298 eggs, which was higher than Tamil Nadu geese (Kumar *et al.* 2009) but lower than the Cotton Pygmy-geese (Upadhyaya and Saikia 2012). Total number of eggs laid in an year averaged to 12.38±0.575 in the observed geese. Although the total number of eggs laid per year by geese is lower compared to most other poultry species (Buckland and Guy 2002), Kashmir geese in particular appeared to lay even lesser number of eggs per laying season than most of the other goose breeds such as Chinese, Amorsstream, Balien Eu, Nungan Mieu and Rung Eu geese as mentioned by Buckland and Guy (2002). Banerjee (2013) has also reported more number of eggs laid by the geese in West Bengal. However, Zhedong goose lays lesser number of eggs per laying season, while as Yili, Turkish, Romney, Podkarpacka and Celler Gans geese lay almost similar number of eggs per laying season (Buckland and Guy 2002).

Egg laying showed an alternate pattern in the present survey, which may be due to the time required for egg formation, estimated to vary from 42 to 44 h in white Roman geese (Xiang and Guang 1996).

Opinion regarding the laying cycle in domestic geese varied among the surveyed farmers. 44.07 % of the farmers reported a single laying cycle in a year, whereas 52.54% farmers mentioned of having two cycles. Very few farmers (3.39 %) indicated of having even three cycles in a year. Apart from Chinese and Roman geese, which may lay up to 3 – 4 clutches in a year, average goose have been reported to lay 2 clutches of 15 – 18 eggs each season (Wurtz 1995).

Hatchability and incubation period: Hatchability of the Kashmir geese eggs in field conditions was surveyed to be 83.37 ± 2.49 % in the present study, which was higher than the Tamil Nadu geese (Kumar *et al.* 2009) and was also higher than the domestic duck of Kashmir (Bihaqi 2012). In the geese of Azarbaijan area, hatchability was estimated to range between 62.68 and 85.71 % (Hasani 2005).

Reports among the farmers, about the incubation period of Kashmir geese eggs varied in the present survey, with 81.03 % of farmers indicating an incubation period of 30 – 32 days and 18.97 % reporting 40 to 41 days of incubation period. Reports about the incubation period in literature was also varying with Buckland and Guy (2002) reporting an incubation period of 30 days while Wurtz (1995) indicates the period to be ranging from 29 to 32 days. However, incubation period in Canada and Egyptian geese has been reported to be 35 days (Clauer and Skinner 2007).

It is concluded that domestic geese of Kashmir showed fast growth and acceptable hatchability but poor egg production which needs to be addressed.

SUMMARY

A study was planned to record growth and production characteristics of domestic geese of Kashmir in Srinagar, Ganderbal and Bandipora districts of the Kashmir valley. The geese rearing areas in these districts were identified and during the survey, growth and other production characteristics were studied. Body weight of different age groups was seen to show an increasing trend with increasing age. Goslings on an average weighed 89.285 ± 9.472 g and a sharp increase was observed in the body weight at 3-month of age. Age at sexual maturity, average clutch size and hatchability of eggs was 13.733 ± 0.534 months, 9.445 ± 0.298 eggs and 83.37 ± 2.49 %. Incubation period of goose eggs varied, with 81.03 % of farmers indicating an incubation period of 30 – 32 days and 18.97 % reporting 40 – 41 days of incubation period. It is concluded that domestic geese of Kashmir showed fast growth and acceptable hatchability but poor egg production which needs to be addressed.

REFERENCES

- Banerjee S. 2013. Morphological traits of duck and geese breeds of West Bengal, India. *Animal Genetic Resources* **52**: 1–16.
- Bihaqi S F A. 2012. 'Documentation and Characterization of Local Ducks of Kashmir.' M.V.Sc. thesis submitted to Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Shalimar.
- Buckland R and Guy G. 2002. *Goose Production*, FAO Animal Production and Health Paper – 154. FAO Corporate Document Repository, Rome.
- Clauer P J and Skinner J L. 2007. *Raising Waterfowl* (A3311). Cooperative Extension Publishing, Madison.
- Hasani A R. 2005. Investigation on distribution, raising status, production traits and phenotypic characterization of geese in Azarbaijan area. *Azarbaijan Sharghi Agricultural and Natural Resources Research Center, Azarbaijan Sharghi (Iran)*, **23623**: 67 <http://agrisis.areo.ir/HomePage.aspx?TabID=15589&Site=agrisis.areo&Lang=en-US>
- Juodka R, Kiskiene A, Skurdeniene I, Ribikauskas V and Nainiene R. 2012. Lithuanian Vishtines Goose Breed. *World's Poultry Science Journal* **68**: 51–62.
- Kumar R A, Iyue M and Venkataramanan R. 2009. Growth and hatch performance of geese in Hilly Terrain of Nilgiris. *Proceedings of IV World Waterfowl Conference*. Thrissur, India, 11–13 November. pp. 115–123.
- Murawska D. and Bochno R. 2008. Age related changes in the percentage content of carcass parts in geese. *Journal of Central European Agriculture* **9**: 211–16.
- NRC 1991. *Microlivestock: Little Known Small Animals with Promising Economic Future*. National Academy Press, Washington D. C, USA. pp 10–113.
- Romanov M N. 1999. Goose Production Efficiency as Influenced by Genotype, Nutrition and Production System. *World's Poultry Science Journal* **55**: 281–94.
- Saatci M, Kirmizibayrak T, Aksoy A R and Tilki M. 2005. Egg weight, shape index and hatching weight and interrelationships among these traits in native Turkish geese with different coloured feathers. *Turkish Journal of Veterinary and Animal Sciences* **29**: 353–57.
- Snedecor G W and Cochran W G. 1980. *Statistical Methods*. 7th edn. Iowa State University Press Ames, Iowa.
- Upadhyaya S and Saikia P K. 2012. Clutch size and egg characteristics of cotton pygmy-geese in Assam (India). *Asian Journal of Conservation Biology* **1**(1): 31–34.
- Whitehead P J and Tschirne K. 1990. Eggs and hatchlings of the magpie goose. *Anseranas semipalmata*. *Emu - Australian Ornithology* **90**(3): 154 – 60.
- Wurtz T L. 1995. Domestic geese: biological weed control in an agricultural setting. *Ecological Applications* **5**(3): 570–78.
- Xiang M C and Guang W H. 1996. Ovulation and egg formation in the white Roman geese. *Acta Veterinaria Et Zootechnica Sinica* **27**: 32–39.