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Performance of Harringhata Black chicken under field conditions

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Backyard poultry, one of the most sustainable production systems based essentially on the traditional practices and local/desi birds with hardly any dependence on external inputs including chicks, contributes to livelihoods and provides good source of protein and ready cash for the family. Eggs and meat produced under this system cost less but fetch a much higher price than that from commercial poultry. In this system few desi hens (5–20) are kept by the family which are mostly taken care by women. Desi chickens are good brooders and efficient mothers. They are known for adaptability to local agro-climatic conditions. They vary greatly in their plumage pattern, comb type and body confirmation.

Harringhata Black, one of the 15 registered breeds of chicken in India, is found chiefly in West Bengal (Mohapatra and Panda 1981). It is black, small bodied with the typical conformation of a layer, but a poor one. No other information on its characteristics and performance is available in literature. Hence the present investigation was taken up to estimate the population, and to study the management practices, morphological and performance characteristics of Harringhata Black breed of chicken in its native tract.

The study was undertaken in the breeding tract of Harringhata Black chicken comprising Haringhata Block of Nadia district and adjoining areas of Nadia and North 24 Parganas districts in West Bengal. Information were recorded on population of Harringhata Black, flock structure and size, management practices, and morphological characters from 2,509 households spread over 17 Gram Panchayats. Performance parameters, viz. mortality, growth, reproduction and egg production were recorded from hatching onwards up to fourth cycle of egg laying from Harringhata Black birds maintained by 150 households; 21 eggs were collected for studying quality parameters.

Distribution, flock size and population: Harringhata Black breed is limited mainly to Haringhata Block of Nadia District, West Bengal. Sparse population of the breed is also found in adjoining blocks, viz. Chakdaha block in Nadia district; and Gaighata, Amdanga, Habra-II and Bongaon in North 24 Pargana district. Majority of poultry keepers were either landless or had marginal land. About 34% of the poultry keepers were landless who owned about 35% of birds with a flock size of 8.17 while 48% had up to 0.5 acres of land and owned about 45% of birds with a flock size of 7.37. Flock size was maximum (11.04) with the farmers having 2–5 acres of land but they owned only about 3% of total birds. Average flock size was 7.9 which included 3.25 Harringhata Black birds. On an average, a flock consisted of 62% chicks, 33% hens and 5% cocks. Estimated population of Harringhata Black in the breeding tract was 63,600. About 51% of this population was in Haringhata block, 24% in Chakdah, 11% in Gaighata, 8% in Amdanga, 5% in Habra II and 1% in Bongaon blocks.

Management practices: Harringhata Black breed is reared in the traditional backyard system and is managed mainly by women (99.7%). It is used both for meat and eggs. Birds are kept in the free range system. This is supplemented with kitchen waste and paddy grains but no commercial feed is given. Broodiness is usual but to maximize the egg production, farmers don't practice it every time. Farmers set eggs of 3–4 hens under one broody hen for hatching and other broody hens again start egg production after few days. Common diseases like fever, cold, drowsiness, diarrhea, chalky or greenish faeces, worm infestation, pox, etc. were reported by the farmers and both herbal and allopathic treatments were given. However, majority of the poultry keepers do not vaccinate their birds against any disease.

Morphological characteristics: Plumage colour is black in both the sexes. Some cocks have brown feathers on neck and wings. Plumage pattern is solid. Skin is off-white in colour. Comb is red, mainly single and small in size. Earlobe is red or white. Eye ring colour is brownish red. Beak is blackish in appearance. Wattles are small and red in color. Shank color is blackish grey or yellow. Few birds had tuft of feathers on head**.**

Performance: Body weights at different ages are given in Table 1, and production and reproduction characteristics in Table 2. Weight at hatching was 29.5±0.13g and was comparable to 28.95 g reported by Tantia *et al.* (2006) in

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Table 1. Body weights (g)

Weight at	Male		Female		Overall		
	Average	N	Average	N	Average	N	Range
Hatching	-	-	-	-	29.5±0.13	1771	20–40
8 weeks	-	-	-	-	269.1±2.12	924	130–590
16 weeks	663.9±12.11	122	618.6±5.60	570	626.6±5.08	692	320–1120
6 months	1087.9±16.19	82	981.8±7.33	400	999.9±6.68	482	600–1600
8 months	1139.2±25.43	37	1062.8±10.91	201	1074.7±10.02	238	800–1400
10 months	1283.7±60.66	8	1120.6±17.98	91	1133.8±17.24	99	840–1700

Table 2. Production and reproduction characteristics

Trait	N	Average	Range
Age at first egg (months)	339	5.63±0.04	3.5–8.2
Laying period (days)	899	15.00±0.30	4 - 38
Incubation period (days)	492	20.36±0.23	17–23
Brooding period (days)	131	63.52±0.20	18–115
Hatching interval (days)	44	88.14±3.01	56–144
Clutch size (days)	1617	5.98±0.51	1–15
Clutch interval (days)	801	2.21±0.32	1–9
No of eggs/cycle	899	12.32±0.19	4–25

Ankleshwar breed. These birds attained about 1 kg of body weight at 6 months age and thereafter gain was very little. Body weight at 10 months of age averaged 1.28±0.06kg in cocks and 1.12±0.02kg in hens. Body weight in Harringhata Black was higher than that of Busra (Vij *et al.* 2009) but lower than that of other Indian breeds like Aseel (Terminal Report 1996–99), Miri (Vijh *et al.* 2005), Ankleshwar (Tantia *et al.* 2006), Danki, Kalasthi and Ghagus (Vij *et al.* 2006a), Punjab Brown (Vij *et al.* 2006b), Daothigir (Vij *et al.* 2007) and Tellichery (Vij *et al.* 2008). Average age at first egg (5.63 months) in Harringhata Black hens was similar to that in Ankleshwar hens (Tantia *et al.* 2006). This was, however, lower than that of Aseel (Terminal Report 96–99). On an average, a hen completed 3.69 laying cycles per year with brooding and 7.95 without brooding. Annual egg production was 45 with brooding and 98 without brooding. Egg production of Harringhata Black was higher than that of Aseel, Danki and Kalasthi breeds but was similar to other India breeds. Average clutch size and clutch interval were 5.98 and 2.21 days respectively. Number of chicks per hatch ranged from 4 to 17 with an average of 9.45. Hatching percentage was 77.4 on total egg basis and was comparable to 73.97 in Aseel (Terminal Report 96–99) and 84.4 in Ankleshwar (Tantia *et al.* 2006). Dressing % was 60 which was similar to that in Ankleshwar (Tantia *et al.* 2006) but was lower than that in Aseel (Terminal Report 96–99)**.** Mortality was 8.02% during 0–1 week, 17.67% up to 1 month and 27.13% during 1–2 months of age. This included loses due to accidents and predation.

Egg characteristics: Eggs were small in size, weighing about 28–44g with an average of 36.53±1.07g similar to that of Ankleshwar breed (35.09g) as reported by (Tantia *et al.* 2006). Only Busra breed had lower (31.5g) egg weight (Vij *et al.* 2009) while all other Indian breeds had higher (>40g) egg weight (Vij *et al.* 2006a, 2006b, 2007 and 2008) than that of Harringhata Black. Shell colour was mostly light brown (79%) followed by cream white (17%) and brown (4%). Shell was quite strong having average thickness of 0.34±0.01mm. Yolk was yellow in colour in 52% of eggs, deep yellow in 38% and light yellow in 10%. Albumen was thick in more than 90% of eggs. On an average, an egg was composed of 55% albumen, 32% yolk and 15% shell (including membranes). Blood and meat spots were absent. Albumen index, yolk index and haugh units were 0.07±0.00, 0.47±0.04, 76.97±1.70 respectively which were almost similar to that of other Indian breeds (Vijh *et al.* 2005, Tantia *et al.* 2006, Vij *et al.* 2006a, 2007, 2008, and 2009).

SUMMARY

Harringhata Black is a meat-cum-egg type backyard chicken breed found in Haringhata Block of Nadia District in West Bengal. Birds of this breed are agile and able to dodge the predators. Estimated population of Harringhata Black in the breeding tract was 63,600. Broodiness is usual. Plumage is black and pattern is solid. Comb is red, mainly single. Body weight at 10 months of age averaged 1.12±0.02 kg in hens and 1.28±0.06 kg in cocks. Average age at first egg was 5.63±0.04 months. Annual egg production was 45 with brooding and 98 without brooding. Average egg weight was 36.53±1.07g. Albumen index, yolk index and haugh units were 0.07±0.00, 0.47±0.04, 76.97±1.70 respectively. Production of Harringhata Black under field condition without any supplementation is comparable with other Indian breeds of chicken. It has the potential for higher production which needs to be exploited through selection, feed supplementation, vaccination and creating awareness among poultry keepers.

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