

CHICKEN BREEDS OF INDIA

Punjab Brown



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Backyard poultry farming is an important practice in rural areas. Indigenous or desi birds are the backbone of rural poultry. These birds are scavenging type and require very little almost negligible input for their survival and production. Increasing demand of poultry products and consequently commercialization of poultry industry resulted in fast deterioration of purity of local birds/breeds. Rearing of few birds (5-20) in the backyard system adds significantly to the nutrition and economy of rural people. Eggs and meat of desi birds are preferred over that of commercial birds due to their characteristic flavor and fetch more price. Native chicken are known to be good forgers, efficient mothers, require less care to grow and are, therefore, most suited for raising poultry under village conditions.



There is a need to define existing chicken populations/breeds and develop their improvement and conservation programmes to benefit large number of rural people. Punjab Brown breed of chicken has been mentioned in literature but there is no detailed information on this breed. Therefore, an attempt has been made to characterize and evaluate this breed in its native tract.

Distribution

Birds of Punjab Brown breed are available in rural areas of Punjab and Haryana. These birds are also available in the slums on the outskirts of cities and the owners are doing a good business because of readily available market.



Utility

These are used both for meat as well as egg production. In Punjab, these birds are maintained both by progressive farmers as well as by poor families. While the former keep these for home consumption, the later sell live birds/chicks and eggs to earn livelihood. In Haryana, mostly these are maintained as cash reserve by few low-income families located in one part of the village.

Flock Size and Composition

Number of birds per household mostly varies from 3 to 15. Average flock size is 8.7. About 60 to 70 per cent of birds are of Punjab Brown type. Flocks of pure Punjab Brown birds are very few (2-3%).



Management Practices

The birds are reared in the backyard system. Shelter is provided mostly during night. Enclosures are small; single storied and mostly made up of mud (68%). Chicks are kept under a basket made up of bamboo sticks. Birds are set free in the



morning and scavenge the whole day in the vicinity of house of the farmer. Farmers feed whole grains (wheat, broken rice, etc.) in morning and evening only. Kitchen waste is fed



to the birds in a routine manner. Eggs for hatching are put on paddy husk on floor or in a basket. The broody hen is made to sit on the eggs, and then it is covered with a basket. Sometimes the hen is made to sit in an earthen pot 'Hara'

which is covered with a stone and placed in one corner of the room meant for family members. During the hatching period of 21 - 22 days, the hen is regularly fed grains and water. Birds are not vaccinated against any disease.

Morphological Characteristics

Plumage colour is mostly brown. Some black or white coloured birds with golden colour on neck, wings and tail are also available. The pattern is usually solid but sometimes it is spotted or striped. Males in particular have black spots/stripes on neck, wings and tail. Neck is darker in colour (brown/golden) than the rest of the body. Skin is white.



Shank is yellow. Ear lobes are mostly brown but sometimes white or grey depending upon the plumage colour. Wattles are red, large sized in males and small in females. Eye ring is red. Comb is red, single type and erect in position. Beak is yellow.

Performance

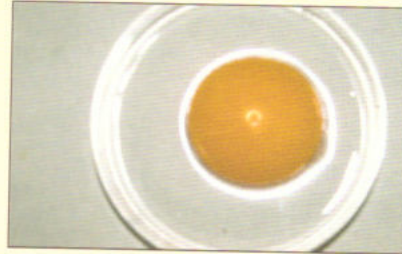
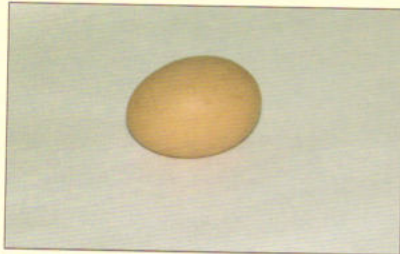
Hen starts laying eggs at the age of about 5-6 months. Clutch size is about 4-5 days. They lay about 15-20 eggs in one laying period of around 25-30 days. Then the hen becomes broody and incubates eggs for 21-22 days. After hatching, it broods the chicks for 30-45 days and then the hen enters in to next laying cycle. Each laying cycle takes about 3 months of time and in a year a bird under goes at the most 4 laying cycles. Average egg production is around 60-80 eggs per year. Hatchability is about 60-80 per cent on total egg basis. It is low in summer as compared to that in winter. Mortality up to one month ranges from 10 to 30 per cent.



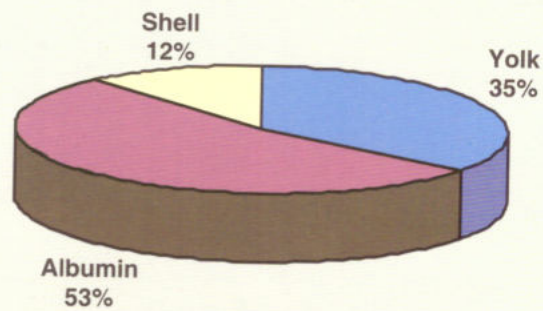
Parameter	Average
Average weight of Cock (kg)	2.149±0.940
Average weight of Hen (kg)	1.567±0.038
Age at first egg (months)	5-6
Clutch size (days)	4-5
Average egg production per year	60-80
Hatchability % (total egg basis)	60-80
Mortality up to one month (%)	10-30

Egg characteristics

Parameter		Frequency / Average
Shell colour (in % of eggs)	light brown	61
	brown	25
	dark brown	14
Egg wt (g)		46.002±1.191
Shell wt (g)		5.412±0.205
Albumin wt (g)		24.355±0.629
Yolk wt (g)		16.235±0.476
Shell thickness (mm)		0.33±0.007
Albumin consistency	thick	
Yolk colour (in % of eggs)	yellow	54
	deep yellow	39
	light yellow	7
Yolk index		0.409±0.005
Albumin index		0.100±0.006
Haugh units		82.80±0.980

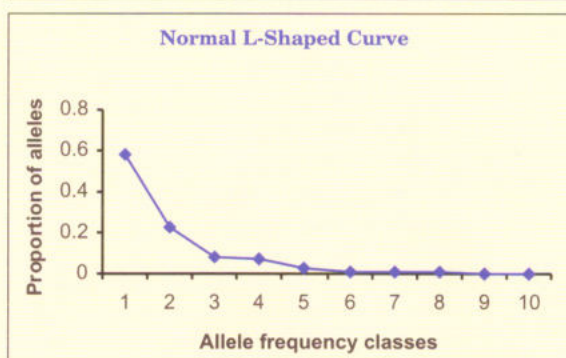
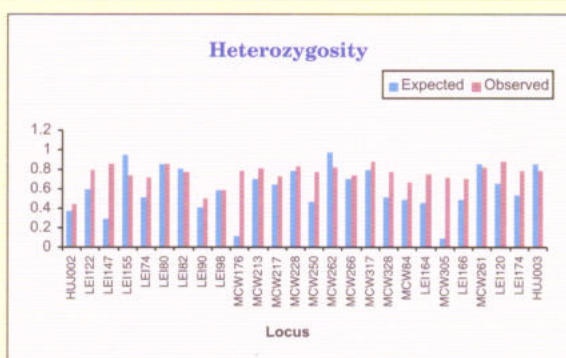
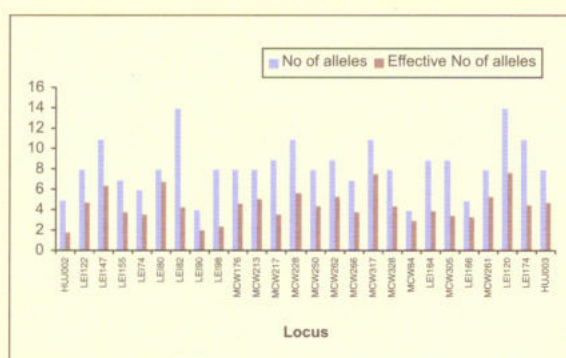


Egg Composition



Genetic Architecture

Microsatellite loci (26) revealed average No of alleles and average effective No of alleles as 8.05 ± 0.258 and 4.34 ± 0.168 respectively. High number of alleles signifies allelic richness. The average expected and observed heterozygosity are 0.74 and 0.61, respectively, which is quite high and does not point towards a loss of variability due to various forces acting on the population and creating a population structure. The population is in Hardy-Weinberg Proportions in approximately 50% of the loci. The qualitative and quantitative tests for heterozygosity excess revealed Punjab Brown birds in Mutation Drift equilibrium.



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