CHICKEN BREEDS OF INDIA

Ghagus

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Introduction

Chicken farming in India has become an industrial enterprise utilizing commercial lines of layers and broilers. However 30 % egg and meat production is contributed by local populations which are primarily reared in backyard system with almost negligible inputs. There are 18 defined chicken breeds distributed in various regions of the country. The egg production of local breeds is 50 to 60 eggs per year but the commodity fetches comparatively higher price in market due to preferential consumption. Very little information is available on the characteristics of majority of indigenous breeds of chicken. These breeds are important genetic resource owing to their adaptive traits and socio-cultural practices of local communities rearing them. Ghagus is an important chicken breed found in Karnataka. There is almost negligible literature available on this breed. To document the Ghagus breed of chicken a survey was conducted in the tract to record information on morphometric characters, management practices and production attributes.

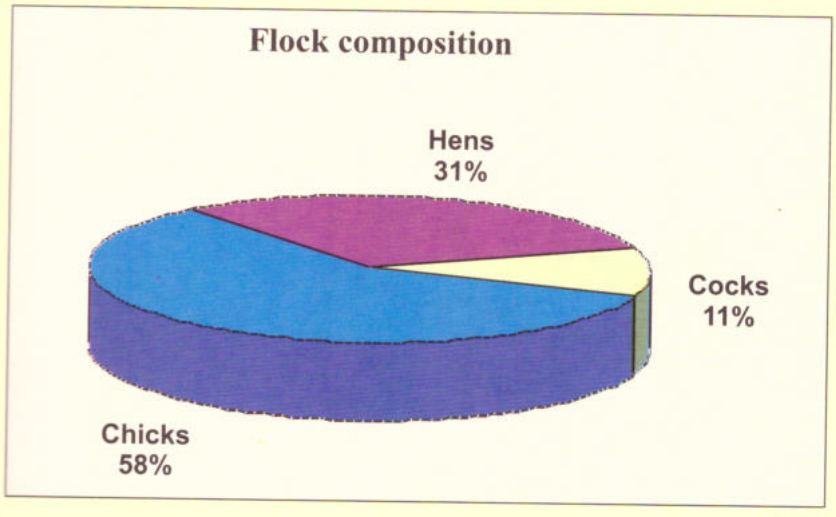
Distribution

Ghagus birds are distributed in Kolar and adjoining parts of Bangalore districts of Karnataka, and Chittoor and Anantapur districts of Andhra Pradesh. The birds might have derived its name by a peculiar sound and locally known as Desi or Ghegu. Ghagus birds are mainly kept for meat and egg purpose. Farmers maintain Aseel / Danki birds for recreation / game purposes. There is a lot of intermixing among these breeds. Animal Husbandry Department have been supplying Giriraja birds to

increase egg production in backyard system, but it is not successful because the hens do not brood and the cocks are unable to compete with local cocks for mating. These birds are mainly reared by Kukarni community. Average bird cost between Rs 200 to 500.

Management Practices

The birds are reared in the backyard under system. The average flock size is 27 ranging from 10 to 60 birds. Housing of birds is open. Sometimes the shelter is provided under the dry fodder stack. The fodder stack is kept at a height of about 1 to 1.5 feet above the ground on stone pillars. Birds use this space to keep away from sun and predators. Cocks are tied by a rope and to avoid coiling of rope steel strips are used on both ends. Scavenging with supplementation of kitchen waste is the most common feeding system. Ragi, wheat, broken rice etc are fed as supplement feed. The farmers maintain crossbred cows as dairy enterprise and the leftover concentrate from these dairy animals is consumed by these birds. The growth rate is good as compared to chicken of nearby areas. Vaccination is done



against Fowl pox and Ranikhet. Brooding is usual. The hanging bamboo basket with paddy straw bedding is used for hatching of chicks. Broody hen protects the chicks and there is very little loss due to praying by cats, dogs, eagles, etc. Hen/cock even makes a particular sound to warn chicks from predators so that they run for safety. Tamarind cultivation is prevalent as a cottage industry in this area.

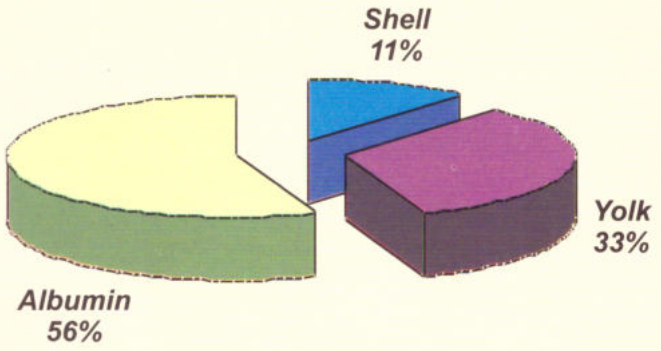
Morphological Characteristics

The predominant plumage color observed is brown followed by black Cocks have shinning bluish black feathers on breast, tail and thighs. Neck is covered with golden feathers. Throat in some cases is loose and hanging. Wattles are small and red in colour. Comb is red and pea or single type. Hens are generally brown or black in colour. The newly hatched chicks are light in colour and grow darker with age. Ear lobes are mostly red. Shank is yellow. Ghagus look mixture of Aseel type and Desi egg laying birds. The birds are smaller in size as compared to Aseel, Danki and Kalasthi but egg production is more than these breeds.

Performance

The adult cocks and hens weigh on an average 2.16±0.25 and 1.43±0.81kg respectively. Age at first egg was 5 to 8 months depending upon the supplement feed provided to chicks. The hen lays 15 to 20 eggs in a laying cycle of 25 to 30 days. The clutch size is 4 to 6. Then it becomes broody and incubates eggs for 21-22 days. The hen broods the chicks for about 2 to 3 months before entering into the next laying cycle. The average egg production is 45 to 60 eggs in a year. There are three laying cycles. The mortality is high during summer. Average egg weight was 40.25±2.39g. Egg shell was mostly brown and strong with average thickness of 34.86±0.70µ. Egg yolk was yellow in colour. Albumin index, yolk index and haugh units were 0.069±0.001, 0.389±0.001 and 76.79±2.93 respectively.

Egg composition

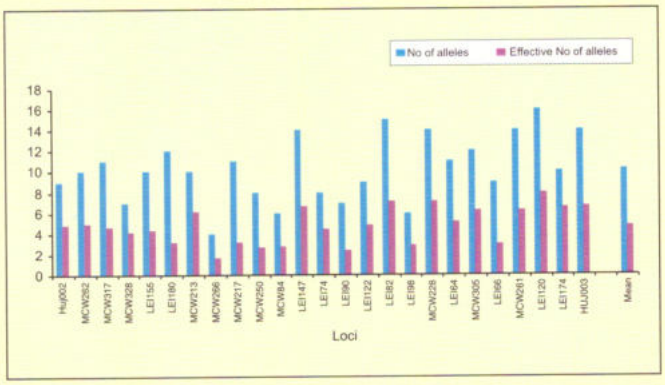


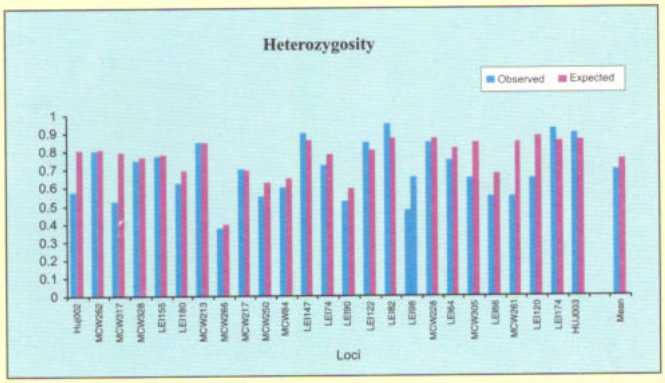
Parameter		Average
Body weight (kg)	Cock	2.16 ± 0.25
	Hen	1.433 ± 0.81
Age at first egg (mo)		5.75 ± 0.255
Egg production/cycle		17.34 ± 0.69
Hatchability on total egg basis (%)		81.36
Egg wt. (g)		40.25 ± 2.39
Shell wt. (g)		4.54 ± 0.37
Yolk wt. (g)		13.30 ± 1.02
Albumin wt. (g)		22.41 ± 1.23
Shell Thickness (μ)		34.86 ± 0.70
Shell Colour (%)	Light Brown	42
	Brown	58
Albumin Index		0.069 ± 0.001
Yolk Index		0.389 ± 0.001
Haugh units		76.79 ± 2.93
Alb.-Ht (mm)		4.83 ± 0.18
Alb. Width (mm)		70.30 ± 3.45
Yolk Ht. (mm)		15.20 ± 0.38
Yolk-width (mm)		39.20 ± 0.86

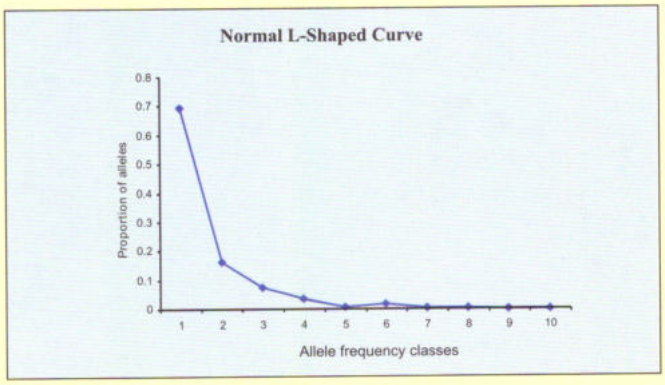
Genetic Architecture

Molecular characterization of Ghagus breed revealed a total of 257 alleles. Mean number and effective number of alleles were 10.28±3.10 and 4.81±1.76 respectively. A high percentage of alleles were at very low frequency and could be lost due to chance. This is reflected in

small effective number of alleles. Heterozygosity values were quite high indicating a good degree of variability in Ghagus population. Average observed and expected heterozygosity values were 0.70 and 0.77 respectively. The test for Hardy-Weinberg equilibrium revealed 13 loci not to be in H-W proportions meaning thereby the forces which affect gene and genotypic frequencies are acting on the population. The F_{IS} value significantly different from zero (0.093) pointing towards some degree of population structure. The test for mutation drift equilibrium revealed no severe reduction in population size in the recent past which is corroborated by a normal L-shaped curve.







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