

# CHICKEN BREEDS OF INDIA

*Kalasthi*



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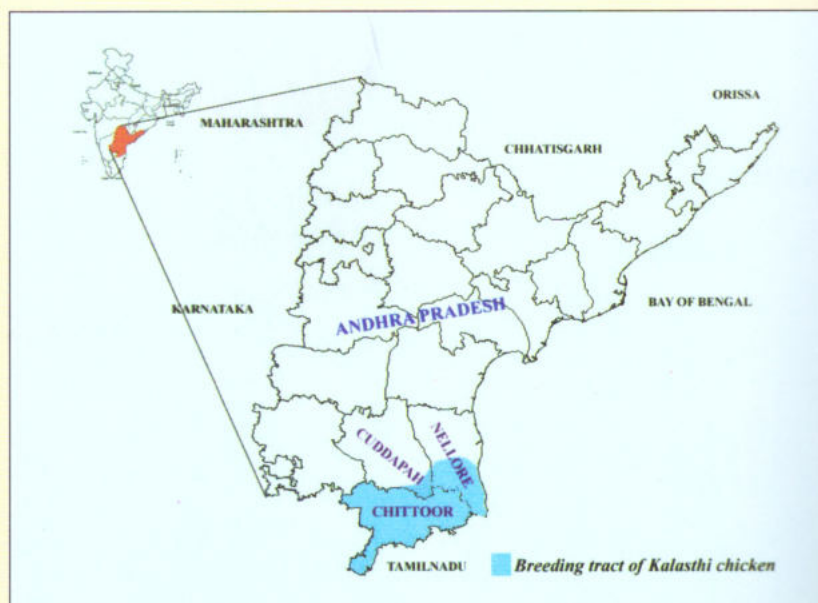


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The indigenous chicken breeds normally referred as Desi chicken are facing threat owing to late sexual maturity, poor egg production, slow growth, broodiness, small egg and body size. These characteristics make our native birds vulnerable to economic forces. The indigenous poultry is facing threat from introduction of poultry strains of broiler and layers which are scientifically managed on economic considerations while most of the poultry populations in India are predominantly backyard poultry. Kalasthi breed of chicken is quite hardy and adapted to their environment and have been intricately associated with culture of the farmers/breeders which maintain them. Kalasthi birds are maintained on negligible input (almost zero) and provide a good source of animal protein for the breeders/farmers and a source of entertainment and betting by using these birds in cock fights which is common among the tribals of the region. No information is available in literature on the characteristics of this breed. To document Kalasthi breed of chicken, a survey was conducted in the tract to record information on morphometric characters, management practices and production attributes.

### **Distribution**

Kalasthi birds are distributed in Chittoor and adjoining parts of Nellore and Cuddapah districts of Andhra Pradesh. This breed might have been named after the name of the area i.e. Sri Kalahasti in Chittoor district where these birds are found. However, in the breeding tract, the birds are known not by the name Kalasthi but as 'desi'.





## Utility

Kalasthi birds are mainly kept for meat purpose and cocks are occasionally used for fighting. The utility of these birds for egg production is not much due to very small number of eggs (30-40 eggs) per year. The consumption of eggs of desi birds as a source of animal protein is very little in this area owing to high returns from the sale of chicks.

## Management Practices

The birds are reared in the backyard system. Average flock size is 13.6 ranging from 3 to 53. On an average, a flock comprises of 57, 28 and 15 per cent of chicks, hens and cocks respectively. Housing of birds is open. Birds spend their nights on trees or rooftops. Fighting cocks



are kept individually under baskets. Scavenging with supplementation of kitchen waste is the most common feeding system. Some grains like paddy, bajra, etc. are also fed. Birds are vaccinated against Fowl pox and Ranikhet. Brooding is a usual.

### Flock size & composition

Flock Size		13.6 (3-53)
Flock composition (%)	Chicks	56.6
	Hens	28.1
	Cocks	15.3

## Morphological Characteristics

The predominant plumage colour is bluish black followed by brown. Cocks have shining bluish black feathers. Neck is long and is covered with golden feathers. Brown colored birds have dark brown feathers on neck and bluish black or dark brown on tail. Wings are dorsally set exposing thighs covered with smooth feathers. Wattles are small and red in colour. Comb is red and is

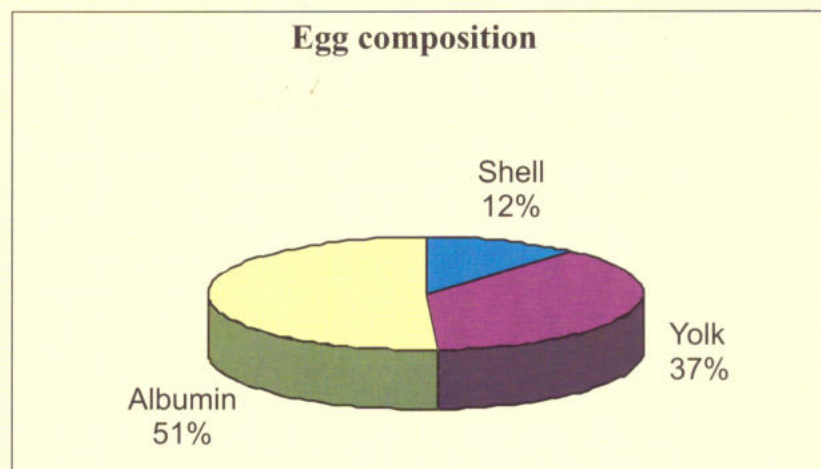
of pea or mixed type. Some birds with single comb are also available. Beak is small and yellow in colour. Skin is white or pinkish in colour. Earlobe is red in color, and is large in cocks and small in hens. Ear's hole is covered with small feathers (hairs) of the same color as that



on the body. Legs are long. Shank is grayish in color in black colored birds and yellow in brown birds. Kalasthi birds resemble Danki birds except that they are smaller in size; peacock type bluish in colour and have smaller spur.

### Performance

Average weight of cocks and hens is  $2.48 \pm 0.13$  and  $1.85 \pm 0.10$  kg respectively. Hens start laying eggs at the age of about 5-9 months. On an average a hen undergoes three cycles of egg laying in a year producing about 11.3 eggs per cycle. Average annual egg production is about 34. Hatchability on total egg basis varies from 60 - 85 percent. Average egg weight is  $42.91 \pm 1.94$  g. Egg shell is mostly brown and has average thickness of  $37.09 \mu$ . Egg yolk is deep yellow in colour. Albumin index, yolk index and haugh units are  $0.05 \pm 0.00$ ,  $0.35 \pm 0.02$  and  $68.81 \pm 2.19$  respectively.





Parameter		Average
Body weight (kg)	Cock	2.482 ± 0.13 (11)
	Hen	1.85 ± 0.102 (27)
Age at first egg (mo)		7.16 ± 0.24 (25)
Egg production/cycle		11.3 ± 0.39 (37)
Hatchability on total egg basis (%)		72.14 (28)
Egg wt. (g)		42.91 ± 1.94 (11)
Shell wt. (g)		5.02 ± 0.28
Yolk wt. (g)		16.05
Albumin wt. (g)		21.84
Shell Thickness ( $\mu$ )		37.09 ± 1.19
Shell Colour (%)	Light Brown	36
	Brown	45
	Dark Brown	19
Albumin Index		0.055 ± 0.00
Yolk Index		0.351 ± 0.02
Haugh units		68.81 ± 2.19
Alb.-Ht (mm)		4.28 ± 0.29
Alb. Width (mm)		78.29 ± 2.44
Yolk Ht. (mm)		14.83 ± 0.57
Yolk-width (mm)		42.75 ± 1.08

### Genetic Architecture

The microsatellite analysis of Kalasthi revealed large variation in all the 25 loci. The total number of alleles were 241 which varied from 5 (LEI 166) to 15 (LEI 82) with a mean of  $9.64 \pm 2.66$ . Effective number of alleles was  $4.80 \pm 1.73$ . The significant reduction from total number of alleles to effective number is attributed to low frequency of large number of alleles. Comparison of Kalasthi with other 14 populations of India revealed 2 alleles to be private to this population (LEI 90, size 192 and LEI 147, size 291). Heterozygosity values ranged from 0.52 (LEI 164) to 0.93 (MCW 228 and LEI 174) with an average of  $0.72 \pm 0.13$ . Average expected heterozygosity was 0.77 which is slightly more than the observed value. The  $F_{IS}$  value was quite low (0.058) but significantly different from zero. The test for genetic bottleneck revealed that Kalasthi has not undergone recent reduction in effective population size which is substantiated by qualitative test (Normal L shaped curve).

