CHICKEN BREEDS OF INDIA

Nicobari

R.K. Vijh
R.N. Chatterjee
P.K. Vij
M.S. Tantia
S.P.S. Ahlawat

National Bureau of Animal Genetic Resources

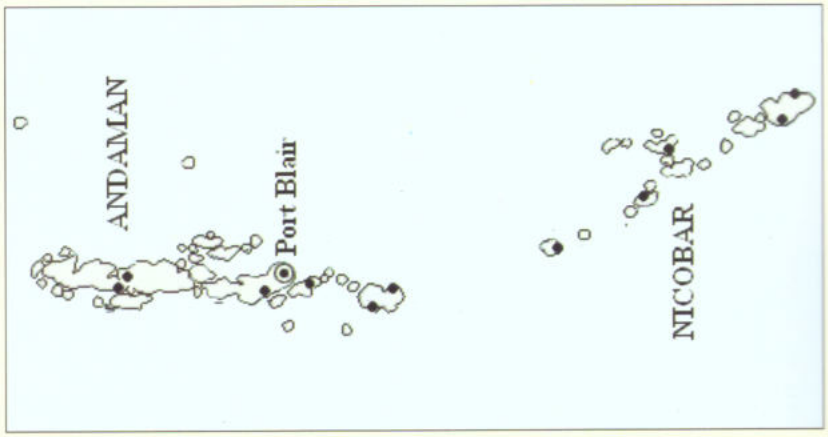
PO Box 129, Karnal 132 001

The poultry farming in Andaman and Nicobar group of islands is a back yard endeavor. The Nicobari chicken is the main source of supply for the animal protein in the form of eggs. Most of the chicken eggs are produced in A & N islands under semi-intensive system of rearing. Due to high humidity in these islands, the naked neck and frizzle fowl conditions are not rare. The average egg production of Nicobari chicken is quite high compared to the desi/ local indigenous birds. This is attributed to the fact that the chicken in these islands are crosses of high egg producing stocks/breeds which were distributed as a part of improvement program. Nicobari fowl is locally known as Takniet hyum. Takniet (in Nicobari language) means short legged and hyum means chicken. The origin of Nicobari fowl seems to be from crosses of different exotic and indigenous fowl of Nicobari group of Islands. Nicobari tribes probably were responsible for development of this breed under natural condition.

Nicobari fowl originated long back in Nicobar group of Islands and has been supposedly developed by Nicobari tribes. The Nicobari tribes inhabit mainly Car Nicobar, Chowra, Bampooka, Teressa, Katchal, Camorta, Nancowrie, Trinket, Pillomillo, Little Nicobar, Kondul and Great Nicobar, where the Nicobari fowls are reared completely under free range condition. Nicobari tribes are most advanced among all the six tribes which inhabit these islands.

Native Tract and Distribution

Nicobari fowl is distributed through out Nicobar group of Islands as well some parts of Andaman group of Islands. The Andaman



and Nicobar group of Islands is situated between 6°45'N and 13° 41'N latitudes and 92° 12' E and 93°57'E longitudes in the Bay of Bengal. The total area of Andaman and Nicobar group of Islands is 8249 sq. Km. The estimated population is about 8000 birds.

Management

In Andaman and Nicobar group of Islands the birds are mostly kept in free range but provided supplemental feeding. Generally, the birds after laying go to the nearby forest in search of feed and come back at dusk. In free range condition the birds fulfill their nutritional requirement for maintenance and production by searching and consuming feed around the households or in the forests. The owners also provide supplemental feed like rice, wheat, kitchen waste and coconut grating to the birds. Housing is provided only at night. In some cases they stay on trees during night. Small low cost houses made up of local materials are used for shelter. In the corners of the house bamboo basket is provided for egg laying. Nicobari fowl is comparatively resistant to Ranikhet Disease, Marek's disease, IBD, Salmonella, E. Coli and Coccidiosis. Generally, vaccination against various poultry diseases is not provided to the birds.

Physical Characters

Nicobari fowl is a brownish matty coloured hardy bird. Black or white coloured birds are also found. The plumage pattern is solid. They are medium sized with short leg. They have compact body conformity. These birds have mostly single red coloured comb. Rarely pea combed birds are also found. Wattles and ear lobes are pinkish in colour. The shank and skin is pinkish white. They have short and thick neck, black plumage tipped with brown shade, breast bulging in front, medium sized tail and long saddle feathers fitting well with tail.

Stress Tolerance

Andaman and Nicobar Islands have hot and humid climate, with temperature varies from 23.3°C to 30.5°C and humidity from 74-90%. However, the mortality of Nicobari foul under field condition is quite low except the first few weeks of life.

Breed Utility

Nicobari fowl produces highest number of eggs under free-range condition with supplementary feeding among all the indigenous breeds of India. Nicobari fowl is mainly used for egg purpose.

Genetic Architecture

Population genetic parameters were estimated on the basis of data generated on 25 dinucleotide repeat Microsatellite loci. A total of 218 alleles were observed in the Nicobari chicken with a mean value of 8.72 ±0.47 alleles per locus. The number of alleles with a frequency of > 5% was 5.16. The effective number of alleles in Nicobari chicken were found to be 4.81 ± 0.31 which represent the alleles which are unlikely to be lost by chance. The large number of alleles per locus represent the variability existing in the Nicobari chicken. Only two alleles (one each in locus MCW 317 and MCW 266) were observed that were considered private to Nicobari since they were not present in any of the other indigenous chicken populations. The global inbreeding estimate (Fis) was found to be 0.12 for the Nicobari chicken. The value is statistically different from zero and point towards existence of feeble genetic structure. Out of a total of 25 microsatellite loci 8 loci exhibit negative values which point toward outbreeding of the population. The mean heterozygosity value was found to be 0.68 while the expected heterozygosity values in Nicobari chicken was calculated as 0.78. The difference in the observed and expected heterozygosity was significant and point toward the existence of population structure. The reason can be attributed to non random union of gametes, selection leading to increased homozygosity. The Nicobari chicken was also tested for deviation from the HWP (Hardy Weinberg Proportions). It was observed that 9 Loci highly significantly deviated from HWP (≤ 0.001), 3 loci deviated at 5% level of significance and 11 loci did not deviate from HWP. The Nicobari fowl did not show any deviation from mutation drift equilibrium in the qualitative test. However the quantitative tests under TPM and IAM revealed a recent founder event and small effective population size in the not too early generations.

Performance

The performance of Nicobari chicken were compared from field and farm conditions and various production and reproduction parameters are presented in the table.

Egg production characteristics under field and farm condition

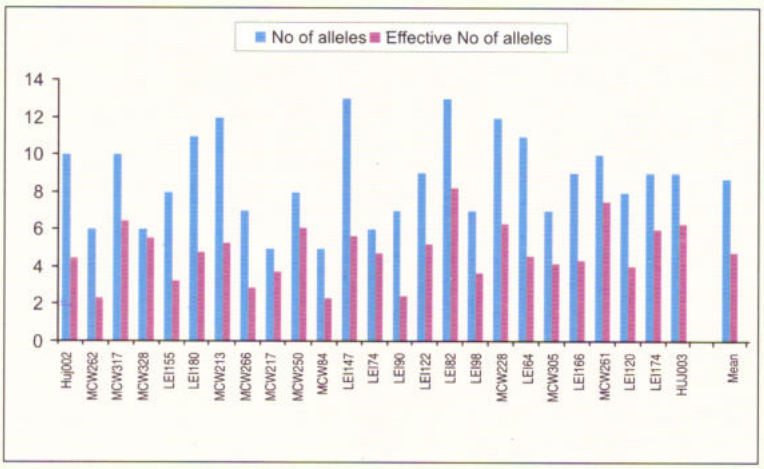
Traits	Under field condition	Deep litter condition
Age at first egg (days)	201.63 ± 0.78, (143-280)	188.10± 1.06 (175-196)
Annual egg production	148.7±1.09(112-237)	161.16±3.67(146-171)
Age at 50% production (days)	218.41 ± 2.16	215.70 ± 4.16
Age at culling (days)	467.3± 5.08 (301-572)	537.01± 4.11(501-581)
Egg weight (g)	44.01 ± 0.61	45.02 ± 1.62
Broodiness	Sometimes	Rare
Fertility(%)	87.13±3.42(66-98)	76.61±1.01(62-86)
Hatchability of fertile eggs (%)	-	82.07±1.98(72-91)
Hatchability of total eggs (%)	76.02±1.60(40-46)	68.87±1.32(60-86)

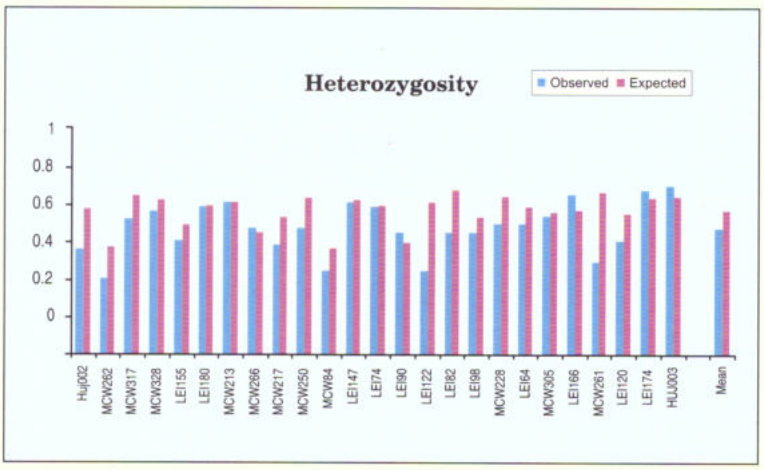
Egg Quality Traits

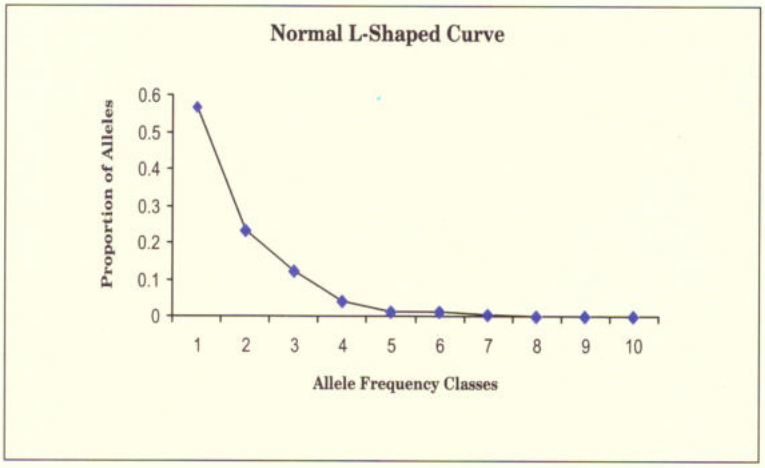
Traits	Brown	Black	White
Albumin index	0.94± 0.06	0.78±0.04	0.71±0.03
Yolk index	0.29± 0.01	0.30±0.01	0.34±0.01
Shell weight(g)	5.84±0.12	6.00±0.20	6.63±0.12
Albumin weight (g)	24.41±0.54	24.99±0.67	26.67±0.83
Yolk weight (g)	18.81±0.87	17.63±0.67	18.02±0.47
Egg weight (g)	50.93±0.91	52.01±0.83	54.39±0.87
Shell colour	White or creamy white	White or light brown	White or brownish white
Shell strength	Mostly strong	Mostly strong	Strong
Albumin quality	Thick	Thick	Thick

Growth Characteristics

Traits	Field	Farm (deep litter)
Weight at hatching(g)	32.61±0.47(25-45)	34.01±0.58(31-46)
Weight at 8th weeks (g)	238.93±5.62(145-315)	268.16±9.61(185-325)
Weight at 12th weeks (g)	399.55±4.69(172-465)	426.16±7.12(335-640)
Weight maturity (g)	913.29±10.5(660-1445)	1163.16±16.61(935-1360)
Weight at slaughter (g)	About 1200 g (M) about 900 – 1000 g (F)	1801.01±21.16 (M) 1332.23±22.61 (F)
Age at slaughter	About 9 months (M) About 2 years (F)	-







Leaflet # 36, 2006

Printing :– INTECH GRAPHICS, KARNAL : 0184-2271451, 3292951