

ESTIMATION OF GENETIC AND PHENOTYPIC TRENDS FOR PERFORMANCE TRAITS IN MALABARI GOATS

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The present study was conducted to estimate the genetic and phenotypic trends of various growth traits and lactation milk yield of Malabari goats in farmers flock. Data were collected from 2233 Malabari goats sired by 108 bucks, spread over a period of ten years from 2005 to 2015 in the seven field centers *viz.* Thaliparambu, Thalassery, Badagara, Perambra, Kottakal, Tanur and Tirur under All India Co-ordinated Research Projects on Malabari goat improvement. Estimation of genetic and phenotypic trends helps to determine the effectiveness of selection in a population over the years. Monitoring of genetic advancement over the years helps to design most appropriate breeding strategies and aids in maximizing genetic gain. The data was adjusted for significant non-genetic effects such as centre, season and year of birth, using mixed linear models. It is noted that the centre and season of birth had significant effect ($P < 0.01$) on all traits. Summer and autumn seasons were observed to be more favourable seasons of birth for the body weight and production traits in Malabari goats. Heritability estimates of various growth traits *viz.* three, six, nine and twelve month body weight were 0.22 ± 0.14 , 0.56 ± 0.09 , 0.64 ± 0.26 and 0.54 ± 0.17 , respectively. Heritability of lactation milk yield was estimated as 0.18 ± 0.05 . Genetic trends of different traits were estimated using Best Linear Unbiased Prediction (BLUP) method. Breeding values of each buck were estimated by fitting a multi trait animal model. Genetic trend of various growth traits *viz.* three, six, nine and twelve month body weight were 0.82 ± 0.48 , 0.62 ± 0.17 , 0.42 ± 0.14 and 0.21 ± 0.07 , respectively. Phenotypic trend of growth traits *viz.* three, six, nine and twelve month body weight were 0.53 ± 0.29 , 0.57 ± 0.31 , 0.29 ± 0.65 , 0.46 ± 0.09 , respectively. The genetic and phenotypic trend of lactation milk yield was 0.19 ± 0.13 and 0.074 ± 0.004 , respectively. All the traits had positive genetic trend, depicting that breeding and selection strategies followed for improvement of Malabari goats by AICRP unit has been found effective over last ten years.

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OVARIAN EXPRESSION LEVELS OF GDF9 AND RBP4 GENES IN SOVIET CHINCHILLA AND GREY GIANT RABBITS

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Growth differentiation factor 9 (GDF9) and Retinol Binding Protein 4 (RBP4) genes have been shown to be involved in reproduction in many mammalian species. GDF9 has been reported to aid normal ovarian folliculogenesis while RBP4 gene expression is associated with litter size in pigs and goats. However, related information about the ovarian expression of the GDF9 and RBP4 genes of Soviet Chinchilla and Grey Giant rabbits were rarely reported. The present study was conducted to analyze the ovarian expression of GDF9 and RBP4 genes in Soviet Chinchilla and Grey Giant rabbits. RNA was extracted from the ovaries of both breeds ($n=6$). The expression pattern of GDF9 and RBP4 genes were analyzed using quantitative real time polymerase chain reaction (qRT-PCR). The fold changes in the relative expression of the genes were normalized by the β -actin as the reference gene. Relative expression of GDF9 mRNA was higher in the ovaries of Soviet Chinchilla than Grey Giant but the difference was not significant ($P > 0.05$). Relative expression of RBP4 gene was significantly higher in the ovaries of Soviet Chinchilla than Grey Giant ($P < 0.05$). The results of the present study suggest the significant effect of the GDF9 and RBP4 genes on rabbit reproduction and further studies are needed to define the role of these genes as candidate genes for reproductive traits in rabbits.

