

24. PHYSICAL AND GENETIC CHARACTERISATION OF THREE STRAINS OF GOATS IN TANZANIA

Chalya, J.N., MSc. (Agric.), (1998)

Supervisors: Dr. G. Kifaro and Prof. P. S. Gwakisa

Genetic and physical characterization of goat strains from three geographically separated regions in Tanzania (Mtwara, Kigoma and Dodoma) was carried out to determine the genetic variation and differences in body measurements and body weights at different ages. The three strains showed limited genetic variation as revealed by DNA amplification with arbitrary primers. Although greater genetic heterogeneity was documented between individuals of any two strains than any two individuals within strains, statistical comparison of homogeneity within and between strains was not significant ($X^2=0.56$, $P>0.05$). As expected, Mtwara goats were more distant from the other two strains, and heterozygosity was higher in this strain than in the other two strains. No significant differences were shown between the strains in terms of body weights and growth rate, at all ages. Strain effect was significant on wither height, body length and rump height. Wither height was significant (<0.05) at 8 weeks, body length at weaning ($P<0.05$) and rump height at 8 weeks ($P<0.001$) and at weaning ($P<0.01$), respectively. Dodoma goats were taller at rump and withers while Kigoma goats exerted longer bodies than Dodoma goats. It is assumed that, the three strains involved in this study may not be significantly different to be contemplated as discrete breeds. The differences shown in this study have been described as a result of selective forces and sampling effect in geographically isolated locations. It is concluded that the lack of striking physical differences between the three strains, notwithstanding, the strains represent unique genetic pools, whose value should not necessarily be judged by gross physical differences, but by the genes that have enabled their survival ability to produce in the extreme conditions in their locations.