

MORPHOLOGICAL AND GENETIC CHARACTERIZATION OF INDIGENOUS CATTLE IN NORTH CENTRAL PROVINCE OF SRILANKA

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The indigenous cattle populations represent 73% of 1.55 million cattle in the country and are distributed mainly in the low country dry zone. They are small, low yielding animals and believed to be a blend of exotic genotypes. However, no proper documentation is available on the genetic description of these cattle. The present study was carried out to characterize the different indigenous cattle types in North Central Province (NCP) of Sri Lanka as a part of a research conducted island wide. A comprehensive field survey was carried out to collect data on the phenotypic characteristics of 132 cattle and their farming system, using a pre-tested questionnaire. The indigenous animals were located based on the information provided by field veterinary surgeons and farmers. The preliminary genetic characterization done using two bovine microsatellite markers named BM 2113 and ILSTS013 (40 indigenous and 2 each from Sahiwal, Friesian and Jersey) are reported in this communication. Morphological and molecular data were analysed using the Microsoft Excel and Minitab version 11.

The indigenous cattle are reared for meat (33.8%), milk (23.9%) and dual purposes (42.3%) in herds ranging in size from 10-125. Extensive (96.3%) and semi intensive (3.7%) production systems exist with zero or low input level basis with natural mating. The milk yield averaged 1.07 l/day, lactation length averaged 159 days and the dry period was 173 days. The gestation period ranged 280-290 days with age at first calving at 3.05 years and the calving interval was between 275 to 730 days. The heart girth, height at withers, body length, width of hips, head length and head width of mature male animal in cm were 133±0.9, 101±0.6, 107±0.8, 32±0.3, 41±0.3 and 16±0.1, respectively, and those of mature females were 125±2.8, 100±1.9, 104±2.6, 28±0.9, 38±0.9 and 16±0.5 respectively. The head length and the width of hips in males and females were significantly different ($p < 0.05$) while there were no differences between the sexes in other measurements. The coat colour varied widely from black, brown to white and no significant difference was observed in body measurements ($p > 0.05$) in different coat colour. The hair type was short, glossy, and straight. Heads were wide with flat fore head, curved circular horns and medium erect ears. The body was stocky without a significant hump. Tail lengths were different and females had small or medium size hanging udders with cylindrical teats.

According to the dendrogram generated by the information of microsatellite markers, the exotic breeds tested formed a separate cluster, which diverged at 40%, and one of the cattle from Kahatagasdigiliya diverged from the rest of the population very early (at 29.29%). The rest formed clusters with similarity levels of 70%, 57% and 50% and four clusters showed 100% similarity level. The dendrogram depicted high genetic variation among the indigenous cattle in the area. This preliminary study revealed that the indigenous cattle in NCP are highly diverse phenotypically as well as genotypically. Further investigation with more markers is needed to establish the level of genetic variation in the population.