ESTIMATION OF GENETIC AND PHENOTYPIC PARAMETERS AND GENETIC AND ENVIRONMENTAL TRENDS OF PRE-WEANING GROWTH TRAITS OF JAPANESE BLACK CALVES USING ANIMAL MODEL

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Data collected on 1739 records of Japanese Black calves during the period from 1937 to 2002. The herd belongs to the Department of Livestock and Grassland Science, National Agricultural Research Center for Western Region, Oda city, Shimane Prefecture. The objectives were to estimate heritability, maternal effect and genetic and phenotypic correlations between birth weight, weaning weight and average daily gain from birth to weaning, to estimate calves breeding values and to evaluate genetic and phenotypic trends for these traits. Heritability estimates of birth weight, weaning and average daily gain were 0.39, 0.11 and 0.26, respectively. The corresponding maternal components were 0.10, 0.10 and 0.11, respectively. Genetic correlations between birth weight and weaning, birth weight and average daily gain and weaning weight and average daily gain were 0.30, -0.17 and 0.86, respectively. The corresponding phenotypic correlations were 0.19, -0.33 and 0.90, respectively. Calves breeding values ranged between -17.93 and 2.83, between -4.72 and 18.08 and between -0.070 and 0.182 kg for birth weight, weaning weight and average daily gain, respectively. Regression coefficients of breeding values of birth weight, weaning weight and average daily gain on year of calving were not significant and accounted for 0.011±0.012, -0.02±0.02 and -0.0002±0.0002, respectively. The corresponding regression coefficients of the phenotypic values of weaning weight and average daily gain of year of calving were significant and accounted for 2.16±0.31 and 0.013±0.0092, respectively, however, that of birth weight was not significant (0.18±0.10). Breeding values fluctuated across years of study with no certain trend. Similar trend was observed for phenotypic values. It is concluded that environment may have higher influence on calves performance than genetic. Selection has never been practiced in this herd.