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Association study of FxI gene deficiency with repeat breeding incidences in dairy cattle

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Repeat breeding is a common disorder with high economic losses in Indian cattle. The Incidence of repeat breeding varies between 5-32% in cows and 6-30% in buffaloes. Incidence of repeat breeding was far higher in crossbred cows (17.57%) as compared to buffaloes (12.74%) and indigenous cows (8.64%). FXI gene deficiency is a 76-bp insertion of an imperfect poly- adenine (Poly-A) tract occurring in exon 12, this insertion introduces a stop codon that results in a FXI protein lacking the functional protease domain encoded by exons 13, 14 and 15. Blood samples were collected from randomly selected 200 Karan Fries cattle (HFxTP crossbred) maintained at cattle yard of National Dairy Research Institute, Karnal. DNA polymorphism using PCR technique was carried out to genotype the animals for FXI deficiency with reported primers to amplify exon 12 (244 and/or 320 bp PCR products) of FXI gene. No polymorphism was detected at FXI gene exon 12 of Karan Fries cattle. Data on repeat breeding incidences was collected from Current Reproduction Records of Karan Fries cattle from maintained in NDRI farm. The animals given more than three services (once or more than once) during recording period were considered as a single observation of repeat breeder. Association of Factor XI gene variants with repeat breeder and normal animals was to be calculated using following Chi square test χ^2 test (Snedecor and Cochran, 1967) but there was no polymorphism at FXI gene exon 12 of Karan Fries cattle, hence, it was not feasible to explore association with repeat breeding.

Keywords: repeat breeding, polymorphism, karan fries, fxi