

EFFECT OF FIXED AND CONTINUOUS NON-GENETIC FACTORS ON LENGTH OF SERVICE PERIOD IN SIMMENTAL COWS

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Abstract: Cattle reproduction is a highly important field and complex stage of production with large reserves of milk, meat, breeding cattle and by-products. In scientific literature, fertility is generally assessed through age at first conception, gestation length, length of service period, calving interval, and calf birth weight. Determination of the effect of particular non-genetic factors on the above traits is a vital step in cattle breeding and reproduction. Length of service period is largely governed by the effect of non-genetic factors, viz. fixed effects generally including the effect of breeding region, season of birth, calving season, year of birth, calf sex and their interactions, and continuous or regression effects including age at first conception or age at calving. The effect of fixed and continuous non-genetic factors on length of service period was analysed in 245 Simmental cows (907 service period) in three breeding regions, with the effect of season of birth as a fixed factor and cow age at first conception as a continuous factor being highly significant ($P < 0.01$), and that of season of calving being significant ($P < 0.05$). The effect of breeding region, year of birth, parity group or age and calf sex was statistically non-significant ($P > 0.05$). Therefore, the coefficient of determination showing the level of variation in service period as explained by the effect of non-genetic factors fitted in the model was low (0.078).

Key words: Simmental breed, service period, fixed non-genetic effects, continuous non-genetic effects, coefficient of determination

