

Alongkorn Kongcharoen 2012: Estimates of Genetic Parameter for Litter Size in Different Parities of Crossbred Large White and Landrace Sows. Master of Science (Animal Breeding), Major Field: Animal Breeding, Department of Animal Science. Thesis Advisor: Associate Professor Wanee Chaiwatanasin, Ph.D. 115 pages.

Genetic parameters were estimated for number of total piglets (NTB), number of piglets born alive (NBA), number of weaning (NW), litter birth weight (LBW) and litter weight at weaning (LWW) at different parities using 26,739 Large White and Landrace crossbred litter records of 1,334 sows, born from 2003 to 2009, from private farms in the Central part of Thailand. Estimation of (co)variance components was carried out by Restricted Maximum Likelihood (REML) method under animal model with direct additive, maternal additive, and dominant gene effects. Heritability of (h_a^2) NTB, NBA, NW, LBW and LWW ranged from 0.002 - 0.078, 0.002 - 0.073, 0.009 - 0.309, 0.002 - 0.090, and 0.003 - 0.044, respectively. Maternal heritabilities (h_m^2) for NTB, NBA, NW, LBW and LWW were 0.018 - 0.139, 0.004 - 0.041, 0.007 - 0.178, 0.017 - 0.123, and 0.007 - 0.279, respectively. The proportion of dominance variance (d^2) for NTB, NBA, NW, LBW and LWW were 0.015 - 0.129, 0.011 - 0.116, 0.012 - 0.119, 0.003 - 0.109, and 0.011 - 0.034, respectively. The genetic correlations between all five traits at different parities were positive and ranged from -0.94 to 1.00. The results indicated that genetic variances for these traits could be different between parities, and that genetic correlation between different parities can be much smaller than one. In situations like these, selection to improve NTB, NBA, NW, LBW and LWW should be done using breeding value estimated from multiple-parity genetic evaluation of animal.

Student's signature

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