

Patcharavadee Singtong 2010: Prediction of Breeding Values and Heterosis Estimation of Reproductive Traits in Sows. Master of Science (Animal Breeding), Major Field: Animal Breeding, Department of Animal Science. Thesis Advisor: Associate Professor Neramit Sookmanee, Ph.D. 99 pages.

The object of this study was to compute genetic parameters and heterosis effects of five traits related to sows reproductive performance. Six thousand three hundred and twenty six data of Landrace (L), Yorkshire (Y) and crossbred sows were recorded and analyzed. YL was crossed between Yorkshire boar and Landrace sows. LY was crossed between Landrace boar and Yorkshire sows. Reproductive traits investigated were number born alive (NBA), average birth weight (ABW), number weaned (NW) average weaning weight (AWW) and weaning to estrus interval (WEI). A mixed linear model were used to estimate the variance components, heritabilities, repeatabilities, genotypic and phenotypic correlations by Restricted Maximum Likelihood (REML) and estimate breeding values (EBV) by Best Linear Unbiased Prediction (BLUP) procedures. The study traits of YL and LY were computed for heterosis effects.

Direct heritability of NBA, ABW, NW, AWW and WEI were 0.07, 0.05, 0.02, 0.02 and 0.009, respectively. The maternal heritability were 0.03, 0.009, 0.04, 0.008 and 0.02, respectively. The repeatabilities of NBA, ABW, NW, AWW and WEI were 0.13, 0.06, 0.07, 0.04 and 0.04, respectively. The genetic correlations between NBA and NW, NBA and AWW, NBA and WEI, ABW and AWW, NW and AWW, NW and WEI were positive but genetic correlations between NBA and ABW, ABW and NW, ABW and WEI, AWW and WEI were negative. The genetic correlations between direct effect and maternal effect of NBA, ABW and WEI were positive (0.17, 0.94 and 0.58) but NW and AWW were negative (-0.09 and -0.23). The reproductive traits heritable and repeatable in this population were low. LY heterosis figures of NBA, ABW, NW, AWW and WEI were 4.10, 0.31, 2.43, -0.70 and 6.18 percents, respectively. YL heterosis figures of NBA, ABW, NW, AWW and WEI were 4.30, 0.31, 2.43, -0.23 and 4.59 percents, respectively.

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Student's signature

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Thesis Advisor's signature