

Analysis of pre-weaning growth and litter size of Duroc, Landrace and Large White breeds and their crosses

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Swine industry is well established particularly in the Western and Northwestern provinces. Recommendation of a suitable exotic swine breed such as Large White (LW), Landrace (LR) or Duroc (DC), or a cross for a particular province requires performance testing of available breeds and crosses under the conditions considered. The objectives of the study were to: 1) estimate performance of three pure breeds (i.e. LW, LR, and DC), and crossbred pigs from LW sires and LR dams (LWxLR) with respect to litter size, birth weight (BWT) and weaning weight (WWT) of pigs; 2) determine the effect of sex of piglings on the above traits; and 3) estimate heterosis % of the traits.

This study was conducted in an intensively managed private farm located in the Northwestern Province. BWT and WWT were measured in kg from 93, 113, 235 and 121 piglings of DC, LR and LW breeds and LRxLW cross, respectively. Litter size of 62 dams and sex of piglings were recorded. ANOVA procedure was used to determine the effects of genotype, sex and genotype*sex interaction on BWT and WWT, and effect of genotype on litter size. Genotypic means were compared by DNMR test (at $P=0.05$ level) and used to obtain heterosis %.

Mean litter size of LRxLW, LW, LR and DC dams were 12.1, 9.04, 8.07 and 7.31 piglings, respectively. The differences in litter size among the pure breeds were not significant. However, LRxLW cross was significantly superior to the three pure breeds. Heterosis level gained by the cross was 41.44 %. This indicates the effectiveness of crossing LW and LR breeds in improving litter size. Mean BWT of DC, LW, LR and LW*LR were 1.23, 1.44, 1.63 and 1.58, respectively. LW and LRxLW were significantly heavier than others. Heterosis realized for BWT was 2.9%. LR and LRxLW had significantly lower WWT (5.46 and 5.40, respectively) than DC (5.92) but were not different from LW (5.72). Thus heterosis % for WWT was zero. Males were significantly heavier in both BWT and WWT (1.52 and 5.77, respectively) compared with females (1.45 and 5.49, respectively). Breed*sex interaction was not significant. Thus it can be concluded that LRxLW (two-way) cross could increase litter size effectively and DC has the potential to be used as the terminal sire in a three-way cross [i.e. DC x (LRxLW)] to achieve higher pre-weaning gain in piglings.

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