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Muscling Selection in Swine and Its Effect on Carcass Traits

J. D. Wheat, R. H. Hines, and D. H. Kropf

We are attempting to develop a well-muscled line of Durocs by selecting for minimum backfat and maximum loin eye area as estimated by the Anscan and to form a control line by randomly selecting from the same base population. The lines will be compared for performance and carcass traits, including incidence of pale soft exudative carcasses. Expected and realized heritability estimates for carcass traits will be calculated.

Pigs in the base population were farrowed in May 1971. Twenty boar pigs were randomly selected in July 1971 with the remainder castrated. The 182 pigs in 25 litters were self-fed in groups of 20-28 in outside 50 x 100 ft. pens. When gilts and boars weighed about 220 pounds backfat and loin eye area were estimated and each estimate was adjusted to 220 pounds liveweight.

When litter size, sex ratio and selecting 20 boars made it possible, three barrows from each litter were slaughtered at 220 pounds in the departmental meat laboratory. Three barrows per litter were not available in all cases, but 51 barrows were slaughtered and detailed carcass data were collected.

The select line was formed by breeding the four most desirable boars to the 20 selected gilts. Gilts and boars were selected using a simple index with backfat thickness and loin eye area equally emphasized. The control line was formed by using four randomly chosen boars to breed 20 randomly chosen gilts. When an individual was chosen to go into both the select and control lines, a coin was tossed to determine his assignment.

Gilts in the two lines were bred in January 1972, and farrowed in May. Only nine gilts in the select line and thirteen in the control line farrowed. Ten boar pigs per line were randomly chosen, in early August. From the ten in each line, four will be selected to sire the next generation of pigs. The 138 pigs in the present generation are being fed outside.

The experiment will continue five generations and then be reevaluated. In the meantime, comparative line data will be analyzed as they become available.