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J D. Wheat

Donald H. Kropf

C H. Chang

See next page for additional authors

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Selection for muscling in swine and its effect on carcass traits

Authors

J D. Wheat, Donald H. Kropf, C H. Chang, and Robert H. Hines

Selection for Muscling in Swine and Its Effect on Carcass Traits

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

Summary

Line differences in weight, litter size at different ages, and in age, loin eye area, and backfat thickness of pigs (adjusted to 200 pounds live weight) were not significant. Sex differences in weight and backfat thickness were significant. Dam groups of progeny differed significantly ($P < .01$) in weights at birth and at 14 and 28 days old and in age, loin eye area, and backfat thickness adjusted to 220 pounds live weight. Hams produced by barrows in the select line were significantly ($P < .01$) darker and firmer than those from barrows in the control line.

Introduction

In producing a meat-type hog, carcass quantity is increased but carcass quality possibly is decreased (by increasing the incidence of pale, soft, watery carcasses and susceptibility to stress). This study was designed to compare production and carcass traits of a control line and a select line of Durocs originating from the same base population.

Procedure

Animals in the select line were chosen on the basis of an index in which maximum loin eye area and minimum backfat thickness estimated by the An/Scan, adjusted to 220 pounds live weight, received equal emphasis. Selection within the control line was random.

Carcass information was obtained in the Animal Science and Industry Department's meat laboratory, where one to three barrows from each litter in both lines were slaughtered.

Results and Discussion

Boars were 0.13 pound heavier than gilts at birth and 0.28 and 0.42 pound heavier when 14 and 28 days old, respectively. Boars reached 220 pounds eight days earlier than gilts and 13 days earlier than barrows. At 220 pounds live weight, boars had 0.07 inch less backfat than gilts, which in turn had 0.4 inch less than barrows; and gilts had 0.33 square inch more estimated loin eye area than boars, which had 0.19 square inch advantage over barrows.

Sire effects on adjusted backfat thickness in their progeny and dam differences were highly significant ($P < .01$) for weight at birth and at 14 and 28 days and for age, loin eye area, and backfat thickness (adjusted to 220 pounds).

Heritability estimated from paternal half-sib correlations for weight and litter size at different ages ranged from 0.0 for 14-day weight to 0.33 for litter size at birth. Heritability estimates for carcass traits, generally larger than those for performance traits, ranged from zero for loin marbling score to 0.51 for percentage of lean cuts.