

Swine

Genetic Evaluation of Mating Systems Involving Duroc, Yorkshire, Landrace and Spot Swine

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Commercial swine producers recognize the value of crossbreeding as a very high percentage of the pigs produced are of crossbred origin. Much of the swine crossbreeding research has been done at Oklahoma, and the general response from crossbreeding is known. Of all traits evaluated, reproductive performance has shown the greatest response. Crossbred sows farrow and wean larger litters than purebred sows, and crossbred pigs grow faster and more efficiently than purebreds.

However, there is little information available on the performance of some potentially productive breeds. Also, male reproductive efficiency has not been sufficiently evaluated to identify mating systems that maximize total production efficiency. Are specific combinations of three or four breeds more efficient than rotation crosses? How important is the boar to reproductive efficiency? Can total efficiency be improved with the use of crossbred boars and crossbred sows?

In an effort to answer these questions, Project 1620 was initiated to evaluate the purebred performance, and the combining ability of Duroc, Yorkshire, Spot, and Landrace in two-breed, three-breed, and four-breed crosses.

Four purebred herds were established at the Experimental Swine Farm at Stillwater. In the first phase, purebred boars and gilts are mated in all combinations to produce purebred and two-breed cross pigs. The first pig crop was produced in the fall of 1977 and consisted of 19 litters from purebred Duroc females, 20 from purebred Yorkshire females, and 18 from each of purebred Spot and Landrace females. Crossbred gilts from these litters will be mated to purebred and crossbred boars to evaluate three and four-breed cross systems. Thirty boars and 180 gilts will be mated at the Southwest Livestock and Forage Research Station. All breeding stock for this phase will come from

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the Stillwater foundation herds. Differences in conception rate and litter size between purebred and crossbred boars and between various combinations of crossbred gilts will be evaluated. In addition, boars will be castrated to evaluate testicular and sexual development.

Several replications of each phase will be completed. New boars are constantly being introduced into the foundation herds at Stillwater to maintain a broad genetic base for each breed.
