The Performance of Eight Breeds of Swine in Crossbreeding

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Crossbreeding is becoming the fashion in swine breeding these days. Many of the breeders who previously insisted on purebreeding are presently shifting to crossbreeding and often ask the question, what breed should they use to cross with their purebred sows?? The question is of course difficult to answer because the outcome of the crossing depends on many factors some of which are, the breeds of sow the farmers have to start with, their objective from the enterprise whether, producing weaners, fattening them to bacon weight or both and of course the consumer preference and the economic situation (i.e. price of feed, labor and product).

The experiment which was conducted at Lennoxville from 1968 to 1976 produced information on the merit of the 8 breeds which were involved and which are widely used in Canada. Information related to growth, fertility and carcass quality of these breeds when used for crossing. The results are summarized in Table 1 which presents the "general combining ability" of the breeds which means the superiority or inferiority of the crosses involving this breed (whether used as sire or as dam) as compared to the crosses of other breeds in any particular character. It shows that the three white breeds, Landrace, Yorkshire and Lacombe produced crossbred sows which excelled in the reproductive traits such as litter size and weight at birth and at weaning. The Hampshire produced sows capable of transmitting to their progeny excellent carcass quality. Progeny with Large Black ancestry were generally faster in growth rate than those from the other breeds. Gilts with Tamworth and Yorkshire ancestry were the youngest to reach puberty and when farrowed, gave litters with the lowest preweaning mortality rate. The Berkshire breed was decisively inferior to all the other breeds in the various traits studied.

The results showed that not all crosses among the white breeds involved (Yorkshire, Landrace, Lacombe) produced superior crossbred sows in spite of that individually they were superior to the coloured breeds. For example, although Landrace x Yorkshire ranked highest in reproductive performance, the Lacombe x Yorkshire and Lacomeb x Landrace crosses were not particularly impressive. This indicates that the "specific combining ability refers to any particular combination of two breeds).

The crosses among coloured breeds were generally very poor in reproductive traits and carcass quality. Eight of the highest ten ranking crosses in reproductive performance and seven of those in carcass quality involved crosses among white and coloured breeds. The findings showed that, with one exception, the crosses which ranked high in reproductive traits such as Landrace x Yorkshire, Large Black x Landrace, Duroc x Lacombe and Large Black x Lacombe ranked relatively low in their potential for producing market pigs of high quality, both as two breed crosses or as dams for three-breed-cross pigs. The only cross which was superior in both potentials was the Hampshire x Landrace cross. Sows of this cross ranked 3rd in litter weight at weaning, first in their potential for producing superior 3-breed-cross pigs f slaughter while male pigs destined f slaughter ranked second in mark performance.

The results of the second phase this study in which different combinatic of market pigs were compared show that among pure breeds, Hampshire a Duroc boars excelled as terminal sir for the production of high quality pigs slaughter, as compared to boars fr Yorkshire, Landrace, and Lacon breeds. The performance of ba crosses involving the Hamshire a Duroc breeds such as Hampshir (Hampshire x Landrace) or Duro (Duroc x Yorkshire) was not studie this experiement and may prove adv tageous. However, if the breeders mainly interested in 3-breed-cros the combinations which ranked high in this experiment were: Duroc (Hampshire x Landrace), Hampshir (Landrace x Yorkshire), Duroc x (La racce x Yorkshire) and Hampshir (Duroc x Lacombe).

One thing to expect when crossing breeds of diffe colors, is multicolored litters such as this Duro Large Black-Landrace litter born at Lennoxville

General Combining ability (and ranking) of the eight breeds of origin involved in the crossing.

	Yorkshire	Landrace	Lacombe	Hampshire	Duroc	Berkshire	Large Black	Tamwort
112 day weight	46.6 (8)	50.1 (1)	49.5 (4)	48.8 (5)	49.6 (3)	47.1 (7)	49.9 (2)	48.5 (6
Age at puberty	205 (1)	211 (3)	212 (4)	212 (4)	213 (7)	212 (4)	214 (8)	205 (1
Litter size at birth	10.0 (3)	10.3 (1)	10.2 (2)	9.5 (5)	9.9 (4)	9.5 (5)	9.1 (8)	9.5 (5
Litter wt at birth	13.3 (4)	15.3 (1)	14.3 (2)	13.2 (5)	13.8 (3)	13.0 (7)	13.2 (5)	12.9 (8)
Pig average daily gain	179 (2)	175 (3)	172 (4)	172 (4)	167 (7)	167 (7)	186 (1)	168 (6)
Litter mortality	16.7 (2)	17.3 (3)	18.7 (6)	17.7 (4)	19.1 (7)	20.0 (8)	18.0 (5)	16.2 (1)
Litter size at 21 days	8.4 (2)	8.6 (1)	8.3 (3)	8.0 (5)	7.8 (7)	7.8 (7)	8.1 (4)	
Litter weght at 21 days	42.4 (2)	43.1 (1)	41.2 (4)	39.9 (5)	39.0 (7)	37.7 (8)	41.5 (3)	39.2 (6)
kilograms of weaned pigs	72.4 (1)	69.7 (3)	68.8 (4)	67.0 (5)	65.3 (8)	65.7 (7)	70.1 (2)	66.0 (6)
Age at slaughter	201.9 (4)	200.3 (1)	202.3 (5)	201.3 (3)	203.3 (6)	205.1 (8)	200.9 (2)	203.8 (7)
Backfat thickness	7.51 (5)	7.45 (2)	7.45 (5)	7.28 (1)	7.60 (7)	7.58 (6)	7.81 (8)	7.50 (4)