SOW WEIGHT CHARACTERISTICS FOR VARIOUS TWO-BREED CROSSES

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Story in Brief

Records on sow weight at breeding, day 110 of gestation and weaning were available for 496 farrowings by two-breed cross females involving the Duroc, Landrace, Spotted and Yorkshire breeds. The data were analyzed to characterize differences in sow weights existing between these breed groups. Yorkshire-Landrace and Spotted-Landrace sows were found to be significantly lighter on average than Yorkshire-Duroc, Spotted-Duroc or Duroc-Yorkshire females at all three points in the production cycle. Sow breeds ranked essentially the same for weight at all three times, even when records were adjusted for differences in litter size and weights. Differences between mature sow weights, and hence maintenance feed requirements, need to be considered when evaluating the overall efficiency of different sow breeds.

Introduction

Crossbred females have long been recommended for commercial swine production. It is important therefore to characterize different crosses for their productive efficiency. One component of this efficiency is the feed required to maintain the breeding herd. Knowledge of expected sow breed weights at various stages of the production cycle would allow determination of feed requirements for different breeds of sow.

The purpose of this study was to estimate sow weights (at breeding, day 110 of gestation and weaning) for various two-breed cross females involving the Duroc, Landrace, Spotted and Yorkshire breeds.

Materials and Methods

Foundation herds of the Duroc, Landrace, Spotted and Yorkshire breeds were maintained at the Stillwater Experimental Swine Farm, and generated the two-breed cross females for this study. These females produced 496 litters at the Southwest Livestock and Forage Research Station over five consecutive fall and spring farrowing seasons. Numbers of litters produced by each sow breed group are given in Table 1. Only gilts produced litters in the first season (fall of 1977), but both gilts and a random sample of sows had litters in subsequent seasons. Of the 496 litters produced, 315 were out of gilts and 181 were second parity sow litters.

Females were hand-mated during eight week breeding seasons starting in mid-May and mid-November each year, and maintained in groups of 20 in pasture lots until day 110 of gestation. A daily ration of approximately five pounds per head of a 15 percent crude protein corn or milo based diet was fed on a pen basis during the period. Sows were farrowed in individual farrowing crates with wood slatted floors. Three to seven days post farrowing each sow and litter was moved to a separate concrete

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Table 1. Number of sow weight records by breed of dam.

Breeding of dam	Number of sows with records at: Breeding, day 110, and weaning[a]	Breeding and subsequent rebreeding
Duroc-Yorkshire	33	8
Duroc-Landrace	45	18
Duroc-Spotted	40	14
Yorkshire-Duroc	46	18
Yorkshire-Landrace	47	18
Yorkshire-Spotted	36	11
Landrace-Duroc	44	17
Landrace-Yorkshire	32	13
Landrace-Spotted	34	14
Spotted-Duroc	43	15
Spotted-Yorkshire	44	16
Spotted-Landrace	52	19
Totals	496	181

[a]485 cows had weaning weight records.

floored pen in an open front nursery barn. Sows were fed ad lib during lactation. Piglets were allowed access to creep feed from 21 days of age, and sows were removed from their litters at 42 days.

Litters produced by these females represented all possible three- and four-breed crosses involving the Duroc, Landrace, Spotted and Yorkshire breeds. The litter performance of these females has been reported by Buchanan et al (1983). In addition to litter sizes and weights at birth, 21 and 42 days of age; sow weights at breeding, 110 days of gestation and weaning were also recorded.

The effects of breeding of the dam on sow weights and weight changes were analyzed such that season farrowed, parity and the interaction of breeding of the dam and parity were accounted for.

Results and Discussion

Sow weights at breeding, day 110 of gestation and weaning are given for the various breed groups in Table 2. Season farrowed, parity, breed of dam and size of the dam were found to be important sources of variation for all three traits. In general, Yorkshire-Landrace and Spotted Landrace sow means were significantly lighter than Yorkshire-Duroc, Spotted-Duroc or Duroc-Yorkshire sows for all traits. Breed groups ranked essentially the same for all three weights. Adjusting sow weight at day 110 of gestation for differences in litter size born and mean pig birth weight, and adjusting sow weight at weaning for differences in 42 day litter size and mean pig weight, had only a minimal effect on breed group ranking. Therefore, sow weight differences appear to exist independently of litter size and weight produced, and to persist through the production cycle (at least to the second parity).

Sow weight changes during gestation (day 110 weight minus breeding weight), lactation (weaning weight minus day 110 weight), and over the production cycle (rebreeding weight minus gilt breeding weight) are presented in Table 3. Season farrowed and sire of the dam were important

Table 2. Mean sow weights for different types of crossbred dams.

Breeding of dam[a]	Sow weight (lbs) at Breeding	Day 110 of gestation	Weaning
Yorkshire-Duroc	312	421	406[b]
Spotted-Duroc	301[b]	418	394[b]
Duroc-Yorkshire	305[b]	402	396[b]
Landrace-Duroc	300	398	384
Landrace-Yorkshire	296	398	380[b]
Duroc-Landrace	295[b]	389	366[b]
Duroc-Spotted	272[b]	381	372[b]
Spotted-Yorkshire	285[b]	366	376[b]
Landrace-Spotted	272	364	364
Yorkshire-Spotted	272[b]	352	353
Spotted-Landrace	256[b]	347	342
Yorkshire-Landrace	266[b]	343	335

[a]Breed of sire of dam-breed of dam of dam.
[b]Indicates a switch in rank relative to day 110.

Table 3. Mean sow weight changes for different types of crossbred dams.

Breeding of dam[a]	Sow weight change (lbs) during Gestation	Lactation	Cycle
Spotted-Duroc	117	-21	97
Duroc-Spotted	109	-6	84
Yorkshire-Duroc	108	-15	63
Landrace-Yorkshire	103	-20	60
Landrace-Duroc	98	-14	78
Duroc-Yorkshire	97	-5	75
Duroc-Landrace	94	-22	73
Landrace-Spotted	93	-2	54
Spotted-Landrace	91	-5	55
Spotted-Yorkshire	81	+10	70
Yorkshire-Spotted	80	0	72
Yorkshire-Landrace	77	-7	56

[a]Breed of sire of dam-breed of dam of dam.

sources of variation for all three traits. Parity and breeding of the dam were important only for gestation weight change. Spotted-Duroc females gained significantly more weight during gestation than Spotted-Yorkshire, Yorkshire-Spotted or Yorkshire-Landrace females. Otherwise there were no significant breed differences for weight change during gestation, lactation or over the entire cycle - supporting the suggestion that breed group differences for sow weights tend to persist throughout the production cycle.

Literature Cited

Buchanan, D.S. et al. 1983. Okla. Agr. Exp. Sta. Res. Report MP-114:195.