

Results and Discussion

Estrus was induced in all sows within three days after treatment (table 1). Estradiol benzoate and DES appear to have similar effects on the induction of estrus in ovariectomized sows. The addition of progesterone or testosterone propionate to the implant did not inhibit the ability of estradiol to cause estrus. Although estrogen should still be present and released from the implants at three weeks after treatment, the sows no longer exhibited standing estrus.

When progesterone is present in large quantities, it inhibits the ability of estrogen to cause standing estrus in sows. Therefore, treatment of sows with estrogen during the estrous cycle will not cause the induction of estrus, but if anestrus gilts are injected with estradiol benzoate, estrus occurs.

Testicular Characteristics of Duroc, Hampshire and Cross-Bred Boars at 7.5 Months of Age

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Story in Brief

Fifty-four boars of Duroc (D), Hampshire (H) and DxH breeding were castrated at 7.5 months of age to determine if breed influences testicular development. Testes, capita-corpora epididymides and caudae epididymides were weighed and homogenized and sperm numbers were determined by microscopic count. Breed of boar did not influence significantly testes or epididymidal weights or sperm numbers. Although these young boars had about 90 percent as many testicular sperm as mature boars they had only about half as many epididymidal sperm as mature boars.

Introduction

Age to puberty is a major factor that influences an animal's ability to be used in a breeding program. Numerous studies have been reported on sexual development and reproductive performance of gilts, but information related to pubertal development of boars is limited.

Much information is available on crossbred gilts and they are recommended in many commercial breeding programs. However, little information is available on the effects of crossbreeding on reproductive development of boars. The objective of the present study was to determine if crossbreeding influences the numbers of testicular and epididymidal sperm near puberty in boars.

Materials and Methods

Sixteen Duroc, 11 Hampshire and 27 crossbred (DxH, HxD) boars were castrated at approximately 7.5 months of age. About half of the boars of each breed were castrated in the Spring of 1974 and the other half were castrated in the Fall of 1974.

Testes, capita-corpora epididymides and caudae epididymides were weighed and homogenized in physiological saline with 0.05 percent Triton X-100 and 100 ppm merthiolate added. Sperm numbers in the epididymides and the testes were determined microscopically using a hemacytometer.

Results and Discussion

None of the reproductive criteria measured was altered significantly by the season that the boars were castrated. Breed of boar did not influence significantly the testes or epididymidal weights (table 1). But testes from crossbred boars tended to be heavier (669.5 g) than those from Duroc (598.4 g) and Hampshire boars (642.3 g). These weights are about 70 percent of the average that we have observed in mature boars.

Sperm numbers in the epididymides and testes were not affected by breed of boar. Total testes sperm in these young boars was about 90 percent of the number that we have observed in mature boars. However, there were only about half as many epididymidal sperm in these young boars compared to the number found in mature boars. After sperm are formed in the testes they are transported to the epididymides where maturation occurs during a 10 to 14 day period before they are ejaculated. Therefore, young boars may have testes sperm numbers similar to mature boars, but they are not fully sexually developed because less sperm are undergoing maturation in the epididymides.

Table 1. Gonadal and Epididymal Weights and Sperm Numbers in 7.5 Month-Old Boars

Criteria	Breeds		
	Duroc	Hampshire	DxH
Boars (no.)	16	11	27
Testes Wt. (g)	598.4 ± 31.4 ¹	642.3 ± 37.8	669.5 ± 24.1
Total Testes Sperm (X 10 ⁹)	110.9 ± 30.1	75.2 ± 36.3	88.2 ± 23.2
C-C ² epididymal wt. (g)	89.8 ± 4.6	92.2 ± 5.6	87.7 ± 3.6
C-C epididymal sperm (X 10 ⁹)	58.7 ± 6.6	78.2 ± 8.0	67.8 ± 5.1
Caudia epididymal wt. (g)	85.5 ± 4.18	82.7 ± 5.0	94.6 ± 3.2
Cauda epididymal sperm (X 10 ⁹)	125.2 ± 13.8	100.6 ± 16.6	127.5 ± 10.6

¹ Means ± Standard errors.

² Capita-Corpora.