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Duane L. Davis

Robert H. Hines

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Scrotal Measurements and Visual Scores of Boar
Testicle Size Correlated With Testicle Weight

D. L. Davis and R. H. Hines

Summary

Scrotal measurements and visual scores of testicle size were determined for 59 boars used in nutrition and physiology studies. The best predictors of testicular weight were visual scores (average of 3 observers) and partial-circumference measurements. Though visual score was an accurate predictor within groups scored at the same time, it was not a dependable predictor when it included combined scores of groups scored at different times.

Introduction

Sperm produced per boar is important since sperm production, together with libido, determines the number of females that can be served by a boar in a particular time interval. Artificial insemination increases the importance of sperm production because it makes possible the maximum use of each ejaculate (maximum number of inseminations per ejaculate). In view of such considerations, accurately predicting a boar's sperm-producing abilities would be useful.

Research indicates that weight of a young bulls' testes is highly correlated with sperm production and that scrotal circumference provides a good estimate of testicular weight. Therefore, we investigated the correlation between scrotal measurements and testicular weight for young

boars.

Procedures

Boars were crossbred (Duroc x Hampshire x Yorkshire) and purebred Yorkshire weighing an average of 258 lbs. After boars were slaughtered, their testicles were removed, trimmed, and weighed to the nearest gram; and their length and width were measured with calipers.

Measurements before slaughter (in situ) were made with the boar restrained. Width and length of each testis and total width of the two testes were measured with calipers. Testes were palpated, within the scrotum, to determine caliper placement. Due to the position of the boar's scrotum, it is not possible to measure total circumference, so we obtained partial circumference (for length, width, and total combined width) by measuring the length of wire reaching (1) from the body wall immediately dorsal to the testis to the body wall immediately ventral to the testis (for length); (2) from the body wall immediately lateral to the left testis to the body wall immediately lateral to the right testis (for total width); and (3) from the body wall immediately lateral to the testis to the septum separating the two testes (for width of each testis). All measurements were at the widest part. In addition, three observers scored testes size (from 1⁻ to 6⁺ with 6⁺ the largest and 3⁰ average).

Results and Discussion

Correlations between measurements and testicular weight are given in table 44 . The highest correlations were for visual scores and partial circumference measurements. Differences in testicular weight can be detected visually; the correlation decreased, however, when results of trials 1 and 2 were combined. Regression equations indicated an average 3 was equivalent to 400 grams for combined testes weight in trial 1 and 453 grams in trial 2. Therefore, the scoring scale changed when observations were separated by time, even though the same observers scored both trials.

Correlations with visual scores and partial circumference are good enough to provide useful predictor of testes weight. We have collected testicular and epididymal tissue from 17 boars; we plan to measure testicular and epididymal sperm to determine the relationships of testicular weight, testicular sperm, and epididymal sperm reserves.

Table 44 . Correlations between testicular measurements and testicular weight.

Item	Number of observations	Correlation with testicular weight
Actual measurements ^a		
Length	39	.84
Width	40	.84
Scrotal measurements		
Length ^b	59	.52
Width ^b	17	.37
Length x width ^c	17	.62
Total width ^b	59	.42
Partial circumference ^d		
Width	14	.74
Length	42	.65
Length x width	14	.84
Total width	59	.47
Visual score ^e		
Trial 1	28	.74
Trial 2	14	.85
Trials 1 and 2 combined	42	.47

^a Testicles removed at slaughter.

^b Measured with calipers.

^c Product of length and width.

^d Measured with a soft wire. (See text for details.)

^e Average of three observers.