Vet Call

Bull Breeding Soundness Evaluations: Are They Worthwhile?

One out of every five young bulls evaluated for breeding soundness will be either a questionable or unsatisfactory potential breeder. For those cattlemen purchasing young bulls and utilizing them in a single-sire mating situation, the risk could be substantial.

The value of return placed on performing breeding soundness evaluations (BSE) has been reported to be between $15 - $20 per cow exposed; as high as $45 per replacement heifer exposed. It will obviously vary according to length of breeding season, bull-to-female ratio and feed costs.

Herd fertility can be influenced, as well. One study reports that over a 90-day breeding season, bulls used in a multiple-sire mating situation that were classified as satisfactory potential breeders from properly performed BSE had a 5 percent greater pregnancy rate than bulls randomly selected without a BSE. Greater differences would be expected with a shorter breeding season.

When Should They Be Performed?

BSE's should be performed at least 30 to 60 days before the breeding season. Should any bull not pass, this will allow time to either re-examine the bull before turn-out or the opportunity to purchase a replacement bull. It is recommended that all bulls be examined each year prior to the breeding season.

What's Involved in the Process?

The BSE consists of three components: physical examination, scrotal circumference and semen quality. The bull is first restrained in a squeeze chute or alleyway that is safe to work around for both the bull and attendants. The bull's head may be caught in the head catch, but it is not required. Since evaluation of the scrotum and scrotal circumference generally takes place from the rear of the animal, a bar is generally placed behind the bull. A chest rope or sling is useful to place under the chest and just behind the front legs, secured to the squeeze chutes. This prevents the bull from occasionally buckling the front legs during electro-ejaculation. Identification, preferably permanent, is made at this time and recorded.

The physical examination does not examine blood counts, vital signs or serum chemistries, but is important to detect abnormalities not conducive to mating efficiency. Such things as musculoskeletal abnormalities, lameness, overgrown hooves, sole abscesses, hoof cracks, cancer eye and teeth problems are all examples of defects that may prevent a bull from maximizing reproductive performance over the duration of the breeding season. Although not as quantified as in the cow herd, body condition is important for reproductive function in the bull.

The scrotum and scrotal contents are then identified. Uniform placement, freedom of movement, lack of surrounding fluid accumulation and normal anatomical relationships of the testes; head, body and tail of the epididymides; and vas deferens are defined. A scrotal circumference measurement is taken by placing the testicles evenly and firmly into the bottom of the scrotum, obliterating the skin folds; securing the testicles by placing the palm of the hand over the front of the neck of the scrotum with the thumb and fingers definitely on the sides of the scrotal neck; placing the scrotal tape up over the scrotum and tightening at the greatest circumference with sufficient pressure to cause slight indentation of the skin; and taking the reading at the nearest one-half centimeter.

After palpation of the sheath area, the bull is then ready for collection of semen. Most frequently an electro-ejaculator is used to stimulate erection and ejaculation. This process does not harm the bull when used judiciously. Care is taken to protect the semen from being exposed to water, temperatures less than 100 F. and direct sunlight, which are all highly spermicidal.

The sample of semen is then evaluated under the microscope for motility and morphology.

Interpretation

Any evaluation of an animal to predict reproductive capability must possess two criteria:

1) The parameters used must be correlated with fertility in natural service.

2) The parameter must be repeatable by and between technicians performing the evaluation. Based upon these criteria, the Society for Theriogenology (Hastings, Neb.) has developed guidelines for BSE's in bulls. The system incorporates scrotal circumference (40 percent), spermatozoa1 morphology (40 percent) and spermatozoal motility (20 percent). Scrotal circumference measurements are classified primarily according to age.

The bulls are qualitatively summarized as satisfactory potential breeders, questionable potential breeders and unsatisfactory potential breeders. Questionable and unsatisfactory categories do not imply that the bulls are sterile. These bulls do not have the potential to impregnate a large number of females in a short period of time.

The BSE is not a quantitative examination. All bulls classified as such have the potential to perform similarly within each group. Bull-to-female ratio, length of breeding season. environment, mating ability, serving capacity and social interactions all can influence fertility in natural service.

It may be advisable to observe, if possible, bulls for the first two or three natural mating situations following turn-out to have confidence in their mating ability. The BSE also does not examine the bull for the presence or absence of venereal disease.

Particular attention should be paid to scrotal circumference measurements. In general, bulls with large testicles produce better quality semen, sire sons with larger testicles, and produce heifers that reach puberty sooner than heifers from bulls with smaller testicles. No one single parameter best evaluates a bull for reproductive performance in natural service; however, the importance of scrotal circumference cannot be denied.

SCROTAL CIRCUMFERENCE MEASUREMENTS AND AGE

Age	Very Good	Good	Fair
12-14 mos.	>34 cm	30-34 cm	<30 cm
15-20 mos.	>36 cm	31-36 cm	<31 cm
21-30 mos	>38 cm	32-38 cm	<32 cm
over 31 mos	>39 cm	34-39 cm	<34 cm

This month's Vet Call column was contributed by David Morris, DVM, and Robert Mortimer, DVM, Colorado State University, Ft. Collins.