

What Does it Take to Get in the BSE Business?

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Veterinarians have a greater opportunity than any other resource to help producers with herd reproductive performance. Practitioners can influence the reproductive efficiency of beef herds by expanding their services beyond traditional vaccinations, pregnancy checks, and the occasional diagnostics in a herd crisis. Most herd problems are multifactorial in nature and many are primarily caused by management practices and revealed through reproductive inefficiencies. Practitioners have the resources to increase the reproductive efficiency of a herd by being familiar with the causes of reproductive failure and how to prevent them. One important step in reducing the incidence of reproductive related problems in 50% of the breeding herd, the herd sire (s), is to recommend the utilization of only those bulls that have passed a breeding soundness evaluation prior to entry into the herd.

In a Nebraska study using breeding soundness evaluated bulls, the first-service conception rates for bulls classified as satisfactory, classification deferred, or unsatisfactory were 60, 48 and 30%, respectively. Bulls which were untested had a 51% conception rate, 9% less than the satisfactory scoring bulls.

The Breeding Soundness Evaluation (BSE) emerged almost 40 years ago to become an effective and important economic tool for predicting potential fertility of bulls prior to use in the breeding herd or a sale. It is a vital tool in the improvement of herd fertility and a fundamental part of an infertility investigation. Bulls should be evaluated annually, at least 60 days prior to the breeding season. This time frame prior to the breeding season would enable a producer to secure an additional bull, should the animal prove to be unsatisfactory for optimal breeding performance. The criteria used for the evaluation of bulls for breeding soundness are set forth by the Society for Theriogenology. Although changes have been made in the past 3 years in relation to scoring bulls for breeding soundness, three critical components essentially remain the same. These include, 1) general physical components, 2) reproductive evaluation, and 3) collection and evaluation of semen. Additional tests may include libido and serving capacity, as well as tests for trichomoniasis and vibriosis, or other special tests deemed necessary by the veterinarian.

Although libido and serving capacity will probably influence bull fertility, practical field tests for evaluating these factors have not been well developed.

Most practicing veterinarians will have a general knowledge base in the procedures for implementing the breeding soundness evaluation. For those veterinarians not familiar with the technique or are looking for additional educational materials for conducting the BSE, I would suggest contacting the Society for Theriogenology in Hastings, Nebraska. The Society has a vast amount of resource materials available to the veterinarian. The latest of these would include the 1995 Bovine Symposium in San Antonio, Texas, sponsored by the Society for Theriogenology and the American College of Theriogenologists. The proceedings of this symposium have detailed summaries on conducting the BSE, evaluating both fresh and frozen semen, and information concerning the copyrighted BSE forms available from the Society for Theriogenology. The 1995 Bovine Symposium Proceedings also contains several "Fact Sheets" on the subject as well. I would also strongly suggest that you become a member of the Society to receive the latest materials and advances on breeding soundness evaluations in the bull. Another important resource is the chapter by Dr. Randy Ott, "Breeding Soundness Examination of the Bull", in *Current Therapy in Theriogenology*, edited by Dr. David Morrow. In the 1993 Proceedings of the American Association of Bovine Practitioners, Dr. Peter Chenoweth presents an outstanding paper on the "New Guidelines for the Evaluation of Bulls for Breeding Soundness". Other resources may include future meetings of the Society for Theriogenology or the AABP seminars prior to the regular yearly meeting. Continuing education opportunities are often presented by veterinary colleges in your area.

A general knowledge of the physical parameters and characteristics of the herd bull are necessary in order to effectively communicate with and motivate beef producers. Armed with this knowledge, we can suggest the use of bulls with larger scrotal circumference, more structurally sound, frame size to meet the producers needs, and possibly cross-breeding programs to enhance the operation's profit margin. It is also important that we understand what this beef producer wants from his/

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her operation so we can assist in obtaining those goals. This knowledge base only comes with practice and experience in the delivery of services to your beef producers and the industry.

Equipment needs will vary between practitioners. However, basic needs to begin the initiation of this service would include an electroejaculator, a microscope (phase contrast) with a stage warmer, a slide warmer, and water bath. These are probably the "big ticket" items necessary to conduct the BSE. The electroejaculators available on today's market are varied. The standard manual driven pulsation machines have recently been replaced with the computerized "set-up" pulsations of the newer machines. Several manufacturers have equipment available, however, Lane Manufacturing, ICE, and Ideal are among the largest distributors in the United States of electroejaculators. These will cost between \$500.00 and \$1500.00, although the higher price brings many more conveniences when doing a large number of bulls.

The microscope is the instrument of greatest importance, in order to thoroughly evaluate individual spermatozoa for motility, but more importantly for assessment of morphology. The light microscope of previous days has been replaced with the phase contrast scope for optimal viewing of spermatozoa. The phase contrast scope is crucial in determining morphological characteristics of the individual sperm cells that can only be critically evaluated with this state of the art equipment. Since the spermatozoa are sensitive to temperature changes, all surfaces in contact with the spermatozoa should be maintained at 37°C. This would include the collection vessel for the ejaculate at bull side, the saline used for dilution and subsequent viewing of individual cells for motility, and the stage of the microscope where the motility evaluation will occur. This will require a stage warmer and water bath for keeping the semen sample and saline at the appropriate temperature. These are especially important in preventing cold shock when conducting on-site evaluations in cooler environments. The cost of a good phase contrast scope is approximately \$2000.00, however, many practitioners have acquired used scopes for half this amount. Slide warmers and waterbaths together will cost \$400.00.

Another critical instrument in conducting a breeding soundness evaluation is the scrotal tape. Most practitioners prefer the metal tapes because of the rigidity afforded when doing scrotal measurements single-handed. The testicles are forced ventrally in the scrotum with the one hand and the tape is applied around the largest diameter of the scrotal contents with the other hand. An additional scrotal tape on the mar-

ket that is receiving mixed reviews is the Coulter tape. This device has a predetermined tension once the tape is placed around the scrotal contents to insure the same amount of pressure is delivered to account for scrotal wall thickness at each individual measurement.

The measurement of scrotal circumference is an essential aspect of the breeding soundness evaluation. Scrotal circumference has been shown to be an indicator of puberty in young bulls, a potential predictor of fertility, as indicated by increasing motility and morphology when scrotal circumference increases, correlated with weight of the testicle and an estimate of daily sperm-production, and associated with decreased days to puberty in heifers. As earlier reported, scrotal circumference has also been shown to be positively correlated with pregnancy rates. These measurements have been shown to be highly repeatable when taken by the same individual or among different individuals.

Farm or clinic handling chutes and facilities are very important in order to do a competent job of the examination and insure the safety of the examiner and the bull. The working chute should have a removal lower side panel to visualize the erect and extended penis and for the collection of the semen sample.

Additional items that are typically available in most veterinary clinics are palpation sleeves, lube, microscope slides, coverslips, oil emersion, pipettes, and other essential materials needed for the BSE. If a practitioner is planning to evaluate frozen semen, additional equipment may be required. These items are listed in Dr. Al Barth's "Fact Sheet" available in the 1995 Theriogenology Bovine Symposium Proceedings.

The above references contain information for the actual examination of the bull, procedures for conducting the ejaculation process, and the critical evaluation of the semen. Again, I would encourage you to attend regional, state or national meetings on breeding soundness evaluation. **Even though you may be offering BSE's as a service to your clients, important information is constantly being reported in journals and publications concerning updates on this important breeding management tool.**

References

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