

# Quality breeding soundness examination of bulls

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## Abstract

While the attributes of a breeding soundness examination (BSE) are well documented, there is inconsistency among practitioners in the extent, detail, precision, and quality of how this service is provided. There is a constant demand for veterinarians to provide a complete BSE, and producers recognize and appreciate when such an exam is done. By using the electronic breeding soundness exam (eBSE), standardizing examination methods and collecting large amounts of data on the bulls that are tested, the participating veterinarian will realize the advantage of academic and statistical support, professional satisfaction, and an enhanced economic benefit to both the practice and its clients.

**Key words:** bulls, breeding, BSE, eBSE, fertility

## Résumé

Bien que les attributs d'un test d'évaluation de la fécondité soient bien connus, les praticiens ne s'entendent pas au niveau du détail, de la précision, de l'ampleur et de la qualité de ce service. On demande constamment aux vétérinaires de faire des tests complets de fécondité et les producteurs savent reconnaître et apprécier ces tests. En utilisant un test de fécondité électronique, en standardisant les méthodes d'examen et en recueillant une grande quantité de données sur les taureaux qui sont testés, les vétérinaires participants vont réaliser les avantages du soutien universitaire et statistique, avoir une satisfaction professionnelle et accroître les bénéfices pour leurs pratiques et leurs clients.

## Introduction

I have been asked to present the Computer Generated Breeding Soundness Examination (eBSE) developed by the Society For Theriogenology, and explain how its use could improve the effectiveness and acceptance of the breeding soundness exams done on bulls, make these exams and their documentation more efficient, compile a database of sufficient size so that trends and interpretations would illuminate problems and benefits of fertility of bulls, and provide a marketing tool for those veterinarians that work in the cow-calf portion of the cattle industry.

The Computer Generated Breeding Soundness Examination Form (the eBSE) is the document that

results from examination of the bull, and the correlation it portrays upon the potential fertility of the animal is dependent upon the quality of the exam that was performed.

In this discussion I hope to cover the following items: 1) my background information; 2) how I perform BSEs under different circumstances; 3) explain some of the properties of the eBSE form, and demonstrate the method of its usage; 4) the problems encountered performing BSEs; 5) how and why the BSE and the eBSE can be used as a marketing tool; and 6) what I wish for in the future among those veterinarians interested in bull fertility.

## My Background

I am a solo practitioner in northeast Oklahoma, and I work exclusively on cattle. In my part of the country there is both native and tame pastureland, and in my county specifically there are 3 times as many bovines as there are humans. I perform approximately 1000 BSEs each year, and these examinations are the largest source of income in my practice.

I graduated from the College of Veterinary Medicine at Oklahoma State University in 1971. I spent 2 years in the United States Army Veterinary Corps after graduation, and earned Diplomate status in the American College of Theriogenology in 1986. I have practiced either alone or with partners since I moved to Vinita, Oklahoma 41 years ago.

In our area there are 2 distinct calving periods—1 starting in March and 1 starting in September, and both periods last 6 months. My work as a bovine veterinarian is cyclical, and about 80% of my work occurs within 5 months during the year. I know many veterinarians are familiar with this revenue cycle, and for me it is both a blessing and a curse. While I would like to say I rest or pursue hobbies during my slower time, the impact is that I must be efficient during the spring and the fall.

## How I Perform BSEs under Different Circumstances

Over half of the BSEs I perform are done at my veterinary clinic. The bulls arrive at the clinic in groups of 1 to 10, and we work through the process of the BSE—scrotal measurement, palpation of the testes, rectal palpation, electrical stimulation and ejaculation, examination of sperm motility and morphology, and

production of the eBSE—1 bull at a time. We will complete all aspects of the exam and make note of any other problems that may interfere with breeding before we start on the next bull. Our clinic can average between 4 and 6 bulls per hour under these circumstances, and it requires 2 technicians and myself to get this done.

The remaining 40% of bulls we examine are done at the ranch, and these bulls fall into 1 of 2 categories.

The first category includes bulls that will be turned into the breeding herd immediately—most often on the day we perform the exam. Usually we will perform all aspects of the exam as explained above, except we only assess motility, stain the semen from the bull, but wait until we've collected all of the bulls before we read the stains. Again, with 2 technicians we can work between 10 and 12 bulls per hour, and then read the stains in the ranch office or kitchen after we've examined all of the bulls.

The second category of bulls we examine on the ranch are those bulls that will be in a production sale. These bulls are examined and collected just as the other bulls we collected on the ranch, except we take the stains back to the clinic to be read. On average these will be younger bulls, and there are usually several repeat examinations needed. We average, once again, about 10 to 12 bulls per hour, and then we do the stain evaluation back at the clinic.

### **Explanation of the Properties of the eBSE Form and Demonstration of the Method of its usage**

Following are the properties of the eBSE and its relation to the paper form:

- The guidelines and standards previously set by the Society for Theriogenology are maintained in the new form.
- The eBSE is not only easy to use, but requires less time to complete than filling out the paper form by hand. Through the use of a digital signature, a repeatable method in memory to provide information on the veterinary clinic on each form, an efficient method of quickly finding owner information that can be placed instantly into the proper fields, and several drop down menus that provide appropriate information with the click of a mouse has produced a product that can be completed very quickly. Those familiar with the program can easily complete the form in 30 seconds or less.
- The eBSE is capable of producing an abbreviated form which lists the classification of a bull without revealing specific defects or motility, as well as the conventional form that lists all specifics. Some veterinarians have encountered confusion when a bull buyer, unfamiliar with

sperm defects, displays concern over any sperm defects, regardless if those numbers are within the limits of a satisfactory classification. When a particular bull's specific data is uploaded into the centralized database, however, the specifics remain intact even if the form did not display them.

- The eBSE is attractive, professional, and difficult to reproduce by copying. The paper form of the BSE has a picture of Nandi, which is not conducive to use in the computer form. Because of the affection for Nandi among influential members in the SFT, there was a great deal of time and discussion spent on the substitution of a silhouette of a generic bull into the logo.
- Colors were used to highlight 2 different items, the SFT logo and the classification of the bull. It was felt that the color in the logo (SFT Green-Pantone 363 green) is good marketing for the SFT, and the red, yellow, and green in the classification (signifying in order unsatisfactory, deferred, and satisfactory) lent not only an immediate and familiar assessment of the exam, but further provided gravity for the reason the bull was tested in the first place. It is not uncommon for veterinary practitioners to fabricate their own BSE form by copying the current paper form, and performing modifications such as removing the SFT logo and inserting the veterinarian's name and clinic. This not only is a violation of copyright, but deprives the SFT of revenue for which it is justifiably entitled.
- The eBSE encourages careful and complete examination of the bulls. One feature of the new form is its inclusion of a drop down menu of 14 common sperm defects, as well as an illustration of a normal sperm. It is believed this offers a great marketing tool for veterinarians, in that he or she can, by mean of several illustrations, convey to the client what was discovered while examining the morphology stain. While it is not a requirement for completion of the form that the illustrations be included, this will be 1 method that will enforce the perception of the differences between those veterinarians who do a complete evaluation from those who pronounce a bull satisfactory from a cursory examination and a quick look at motility. Further, it is believed that the illustrations not only provide a guide for those new to the BSE business to observe defects that are commonly seen, but it also provides a means—limited though it may be—to look for persistence in specific defects in subsequent examinations.
- Records for each bull examined will stay within

the program under the owner's account. Revisions can be made to any part of the CG-BSE form up until the record is marked as complete, and at that time the token for that form is spent and changes can no longer be made. The form (either the long or the short form) can be printed on the completed form, however, as many times as needed or desired.

- Finally, within this program is the ability to accumulate a large amount of information into a centralized location. Once again, a tab exists that takes one through the process of uploading data, and we believe it is as simple, intuitive, and safe as uploading other information (accounting, brucellosis procedures, etc.) that we already perform. If an individual practitioner can compare his/her culling percentage to other practitioners, his/her evaluation of their own methods may cause him/her to change for the better. Comparing number of abnormal sperm or scrotal circumferences between breeds, ages, and locations of bulls would be of great interest, but only if numbers of bulls are large enough to have confidence that the trends seen are valid.

### Problems Encountered while Performing BSEs

While I would like to say that I maintain hard and fast rules in all of my testing, about all I can say is there are no hard and fast rules. I do the best that I can in all situations, but since I cannot control all situations I hesitate to hold myself on such a high and false pedestal that I could not admit that I occasionally cut corners. The problems I have come in 2 categories: those problems in the inherent difficulties associated with performing the BSE, and those problems that result from sources outside of the testing itself.

First, the difficulties I have in performing the test are the same that anyone else has. Restraint is always a problem, although at our clinic where we perform most of the testing, restraint problems are minimal. I say usually but there is the occasional bull that is too large to go down our alleyway to get to the hydraulic chute, and we will test that bull behind a gate enclosure where the bull must be compliant. In some situations I am reluctant to measure the scrotal circumference or perform a rectal exam if the bull is upset or reluctant to comply. Usually these are older herd bulls with a history of good fertility, so we do what we can and collect and evaluate the semen to the best of our ability. It is amazing how accurately I can estimate an inadequately restrained bull's testicular size.

Restraint on most bulls at the clinic is not a problem in our hydraulic chute. These types of chutes are commonplace in our practice, and becoming more and

more common. To those of you without a hydraulic chute and hesitate to buy one because of the expense, it has been my experience that once you buy one the only regret you will have is that you did not buy one sooner.

Once the bull is retrained I still have problems with 3 things: having the bull slump down in the chute during electro-ejaculation, failure to visualize the penis, and failure to collect semen of any quality. We've recently done about 500 bulls, and the incidence of bulls going down in the chute is about 3%. We've recently purchased a new ejaculator, and while this still occasionally happens it is not as frequent as it once was.

Failure to visualize the penis occurs less than 1% of the time, and we make every effort to extend the penis and make a note if we cannot. Under some circumstances we will perform a pudendal block to assure ourselves there is not a mechanical or anatomical reason for failure to extend. Finally, we fail to collect at least some representative sample of semen in about 2% of the bulls. It seems like it happens more often than that, and I'm sure if we have a population of yearling or just past-yearling bulls a higher percentage may prevail, but I think the reason it seems to be more of a problem is because of the magnitude of frustration such a result causes. I bring these issues up because they are common to all of us, and we should not blame these problems on our own insufficiency.

The problems I have with BSEs are often the result not of my difficulties, but of pressures or influences outside of my particular testing procedures. An obvious example is what I charge for conducting a complete BSE. I really don't have many price-shoppers anymore, and my fee philosophy will emerge a bit later in this discussion. I do remember, however, the incredulity expressed by those producers who expected my charges would be less than half as large, although the time to perform the exams was 3 or 4 times as long, and the expected unsatisfactory percentage would be a tenth of what I predicted. I need to be clear...the people with whom I was being compared make more dollars per hour than I do testing bulls. I have no problem trying to be more efficient in my testing, and I certainly don't feel that I am overcharging.

Another problem I have are those people who do not do a complete examination, and don't meet the standards set by the Society for Theriogenology. Classifying a bull as unsatisfactory does not necessarily result in a bull that cannot achieve pregnancies, and conversely classifying a bull as satisfactory is no guarantee that the bull will attain 100% conception. Circumstances change, and a discussion between veterinarians trying to do the best job possible is usually fruitful and satisfying.

Discussing results with a veterinarian (or some other person evaluating the fertility of the bull) who has not measured the scrotal size, has not done a rectal

exam, has ignored the feet and failed to do a morphology examination of the semen, is a guarantee of frustration on both ends.

I have noticed that when I have a problem with a bull that someone else has examined and the document presented is a complete and bona fide form provided by the SFT, then the discussion starts much more pleasantly.

### **How I use the BSE and the eBSE as a Marketing Tool in Practice?**

I need to divide the use of the BSE into 2 different systems. The first would be those producers who will be using bulls to achieve pregnancy in their own herd, and the second would be those producers who market bulls for sale to other herd owners. Obviously some producers may be involved in both systems.

In the first instance, those producers who will use bulls for their own herd, the dynamics of assurance that the bull will achieve as many pregnancies as possible is of extreme importance. With the price of bulls and the disparity in value between a pregnant cow and one that is not, the producer wants an adequate number of bulls to produce a satisfactory outcome and not 1 more. Even if his philosophy has been to populate the herd with more bulls than necessary, he has either experienced a breeding failure under those circumstances, or has heard or imagined one.

For the cost of 2 to 3 dollars for each cow the bull is exposed to, the producer can have a complete breeding soundness examination on his bull and provide at least some assurance that he has done everything to assure a successful breeding season.

There is a problem, however, with those of us in the service industry. In the BSE providing service, the bull that has just undergone a breeding soundness exam should look very much the same as he did before the exam. Unlike buying a pickup where one drives in with a dented vehicle with bare places on the hood where horses have gnawed, one drives out with a shiny new truck that smells good and costs \$50,000. Because of this difference, those that purchase services look for hints and indications that the service will be of high quality.

So while the producer wants to spend no more time than necessary to have his bulls examined, it becomes obvious that the person who can perform 30 exams in an hour may not be as exact and precise as the one only doing 8. If in both cases the veterinarian is acting with efficiency, the one taking longer is probably more precise and detailed than the one who is not.

Further evidence of the quality of service rendered is the documentation resulting from the exam. The pronouncement that the bull in question is satisfactory or not may not always be sufficient to satisfy the producer,

but the presentation of an easily-read, professional-looking and consistent document that details the extent of the examination can do nothing but enhance the experience and solidify the satisfaction that the very best has been done to assure the potential fertility of the bull has been explored to the fullest.

Further, we place the eBSE document or documents in a bright yellow folder with our clinic's name and the logo for the Society for Theriogenology prominently placed. We have been surprised and pleased that many clients, upon bringing their bulls in for a pre-breeding examination, often bring the previous eBSE's in the yellow folder we had given them.

In the second system, where the veterinarian performs the examinations on bulls destined for sale, there is an inherent conflict between the performance of a complete exam and one that is less demanding yet still declares the animal as a satisfactory breeder. The less demanding exam is probably less expensive and passes more bulls than the more complete test so the producer can market more bulls as having passed a semen test. The economic and ethical problems in this scenario are not easily solved, and must be confronted by each veterinarian.

### **What I Wish for in the Future Among Those Veterinarians Interested in Bull Fertility?**

One of the frustrating experiences I encounter is the inconsistency among veterinarians and others when performing the BSE on a bull. We examine a bull at our clinic that was passed elsewhere, and discover a persistent frenulum, or someone else examines a bull we have classified as satisfactory and the examiner will not pass the bull because "all the sperm were dead" during the examination.

This is not a statement that my methods are to be copied and others are not. I still worry when I cannot collect semen from a bull or get the bull to extend during ejaculation. I fret when I examine bulls of known previous fertility that I think should pass my exam, and I find a higher number of problems than I expected. Then again, I worry when I easily pass a bull after the animal has been with a herd that had a low pregnancy rate.

I would find comfort if I knew others that were doing a similar exam as mine were experiencing similar difficulties, similar failure rates, and similar results with similar conditions.

So my wish for the future would be 3-fold:

- I would hope more people would embrace the eBSE, and upload the results into the database. This would, in my opinion, strengthen the quality of the Breeding Soundness Exams, instill confidence in those performing those exams, and produce a universal and recognizable document

that informs the producer that the examination he purchases is as detailed, accurate, and reliable as possible.

- I would hope that on an annual basis the results of that database would be collected, analyzed, and published by knowledgeable and respected colleagues to be shared with those participating in the eBSE program.
- I would hope that there would emerge from this a higher standard for the examination of breeding soundness in bulls, and that the producers availing themselves of this service not only benefit from it but have some way of verifying these higher standards have been met. The process

of certification to this end is not impossible, but it is certainly time-consuming, difficult, and controversial.

### **Conclusions**

With the price of breeding stock at its current level the value of pregnancies is quite high, but the advantage of having breeding herds adequately stocked with bulls of satisfactory breeding potential exists regardless of the market. This gives veterinarians the opportunity to have a consistent, appreciated, and marketable skill to make our cattle producers more profitable.