

The computer generated bull breeding soundness evaluation form—a marketing tool for theriogenologists or just something pretty to look at?

John L. Myers

Pecan Drive Veterinary Services, Vinita, OK

It was apparent by the second semester of my eighth grade year that Sue Ellen Owens was the smartest student in our class. It was obvious that while our teachers admired her a great deal she earned her high grades fairly through a combination of rapt concentration in class, innate intelligence and attention to detail. One of these details was her consistent placement of our English assignments done at home in an attractive binder that distinguished her papers from everyone else's and surely caught the attention of the teacher, the rest of the class and especially me.

I cannot help thinking of Sue Ellen today as I introduce the Society for Theriogenology computer generated and online Bull Breeding Soundness Evaluation (BSE) form. I am sure that the English homework she produced in the eighth grade would have scored just as high a grade had she turned them in without a binder—just as surely as my work justified its same sub-Sue Ellen result even when I imitated her technique of presenting my themes in an over-the-top folder my father used to present his engineering work—but I wonder when this new form is used are will we be promoting the practice of quality soundness examinations, establishing the standards by which bulls should be measured, encouraging the use of a common, efficient, recognizable and attractive form that will be embraced by a large number of veterinarians and providing a method by which measurements can be learned or enhanced, or are we merely providing to the veterinary consuming public the same uneven and sub-standard work placed in an pretty plastic binder?

Keywords: Breeding soundness evaluation, computerized form, electronic medical record, Society for Theriogenology

Directive to produce the computer generated BSE form

The machinations of committee work as told through reports or minutes surpass in boredom a thoughtful reading of the Internal Revenue Service code. From the perspective of the committee itself, however, embarking on modification of the existing BSE form became an adventure that changed from what we thought was a concept of a fill-in-the-blank spreadsheet exercise to a full-fledged immersion into the bizarre and mysterious world of program writing. Along the way the committee had serious and long discussions on graphic artistry, color combinations, pathology prevalence, confidentiality, keystroke shortcuts, economic impact to the Society for Theriogenology (SFT) and the most efficient process in making our wishes known to the programmer.

Dr. Richard Hopper, then president of the SFT, gave the directive at the winter meeting of the 2011 SFT board in Milwaukee, WI to develop a computer-generated BSE (CG-BSE) form for bulls. Assigned to the committee were Drs. John L. Myers, Herris Maxwell and Will Shultz. Dr. Shultz had commissioned a company to design a program for tracking and identification of frozen canine semen and recommended the same company be retained for development of this initiative. Soon thereafter Drs. Michael Thompson and Brian Keith Whitlock were added to the committee as well as the SFT executive director, Dr. Charles Franz.

Between the January of 2011 SFT board meeting and the subsequent SFT convention in August of the same year the committee worked to develop a temporary model of the CG-BSE form to be displayed for comments and suggestions at both the August SFT meeting and later the next month at the American Association of Bovine Practitioners (AABP) convention. To describe the product on display at the two conventions as a BSE form would be similar to saying since a six-grader can read he's ready for college.

Many useful comments were garnered, especially at the SFT convention. Perhaps the most useful response from the AABP would have been the general feeling of apathy to any sort of BSE form produced by the SFT because individual clinics and veterinarians developed their own forms separate and

distinct from any other entities and not necessarily conforming to standards set by the SFT or any other organization. As an aside, the programmer developing the CG-BSE form was given money for travel and lodging to attend the AABP convention to hear first-hand any comments or suggestions.

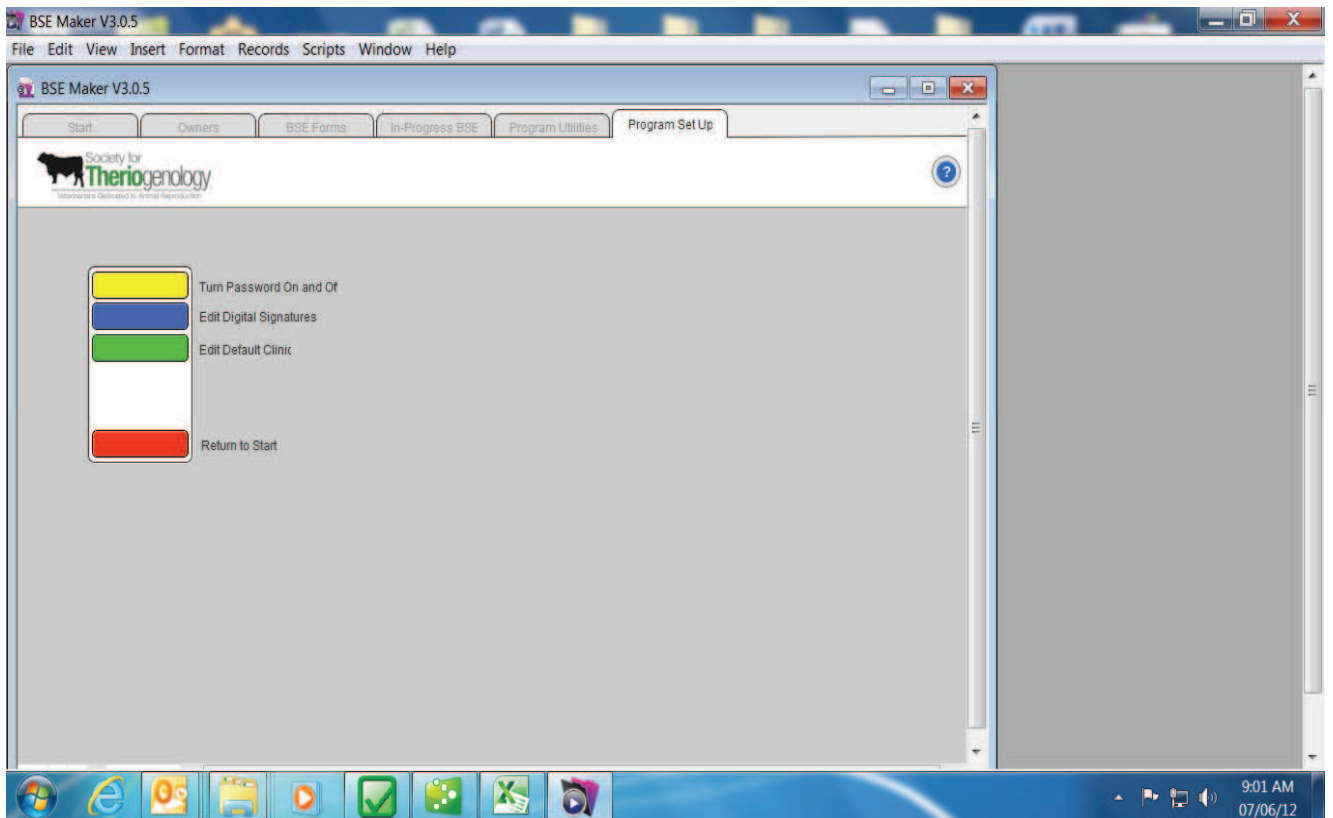
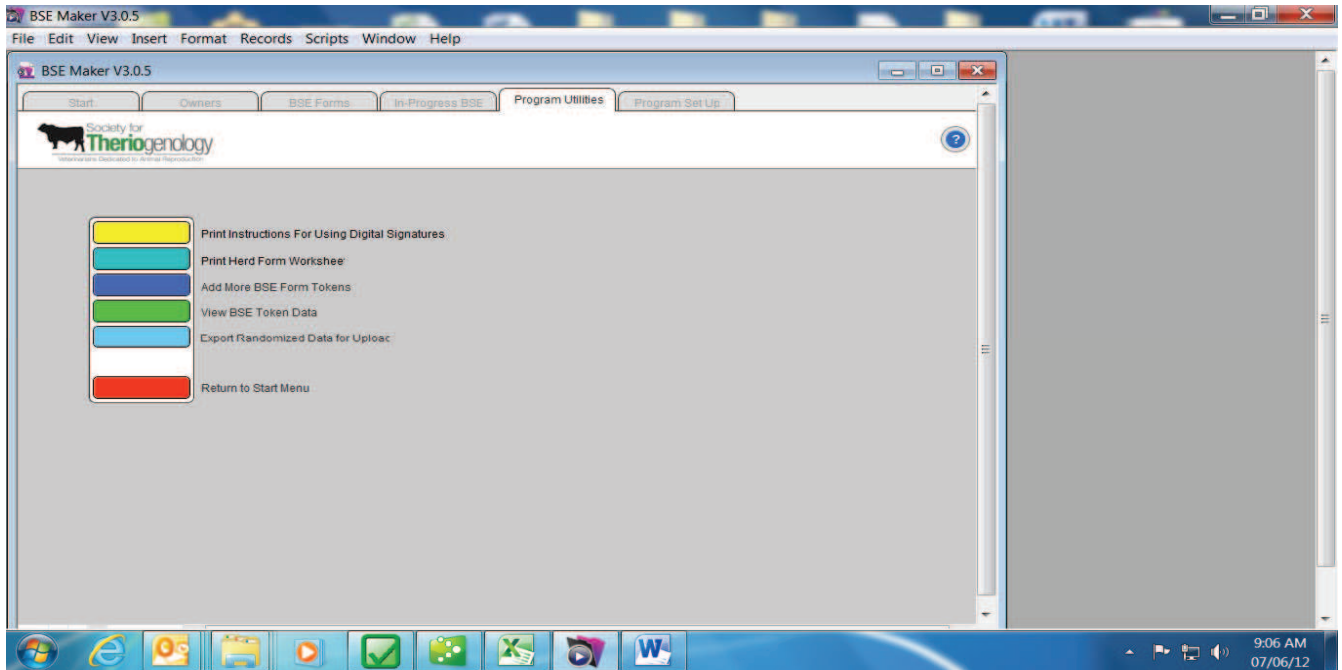
Shortly after the AABP convention progress on the CG-BSE form stopped. Through negotiations between the SFT executive director, Dr. Charles Franz, and the programmer's superior it was decided that either the SFT and the company doing the programming would abandon the project with a full monetary refund, or the company would need a great deal more money to move forward. Through the counsel of Dr. Franz, the committee decided to take the refund, sever ties with the programming company and look elsewhere for help in completing the project. Once again, Dr. Will Shultz had a prospect.

The programmer Dr. Shultz suggested was David Riedle of Riedle Consulting and he is the person responsible for the form as it now presented. The relationship between Dave and those working on this project has been excellent, and while Dave seems to enjoy working with us we have no idea how he would assess our committee about cooperation, quality of direction or understanding of the concepts underlying computer programming. From the committee side of the equation, however, we all believe that if it is possible for a computer by means of a program to do anything at all, Dave Reidle can make it happen.

This brings up the seductive elements of program writing experienced by the committee once we began working on the project. We realized that magical feeling that movie makers must feel when they imagine Mark Ruffalo's muscles enlarging so much as he turns into the Great Hulk that the seams burst on his clothes as he climbs a building and throws a bus at someone evil. Similarly, we now possessed the possibility that we could design a form that could streamline the process of completion, feature accoutrements that visually enhanced the professionalism and attractiveness of the form, provide for accumulation of a large amount of data, encourage careful and complete examinations of the bulls being tested and maintain an efficient method of continuing a revenue stream for the SFT. The committee established priorities that insured the delivery of the features listed above while preventing the allure of making our form turn green and throw busses.

Principles guiding the development of the CG-BSE form

1. The guidelines and standards previously set by the SFT would be maintained in the new form.
2. The CG-BSE form would not only be easy to use, but would require 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 thirty seconds or less.



3. The CG-BSE form would be capable of producing an abbreviated form which lists the classification of the bull without revealing specific defects or motility as well as the conventional

form that would list all specifics. Some members of the committee have witnessed confusion in instances 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 the particular bull's specific data are uploaded into the centralized database, however, the specifics remain intact even if the form did not display them.

4. The CG-BSE form would be 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, the committee spent a great deal of time and discussion on the substitution of a silhouette of a generic bull into the logo. Computers can do many things, but in this case it could not keep Nandi from looking like a smudge.



Bull Breeding Soundness Evaluation

Guidelines Established by Society for Theriogenology
 P.O. Box 3007 - Montgomery, AL 36109
 Phone (334) 395-4666 - Fax (334) 3399 - www.therio.org

JOHN DOE FARMS JOHN DOE 222 NORTH ROAD VINITA, OK 74423 (918) 232-1282	BSE Date: 7/6/2012	BSE Case No: 2187-1
	Bull Name: CHAMP	Breed: LIMOUSIN
	Bull I.D. No: Y11	Brand <input type="checkbox"/> Tattoo <input checked="" type="checkbox"/> Ear Tag <input type="checkbox"/>
	Bull Birth Date: 12/25/2010 Age (Mo.) 18	

PHYSICAL EXAMINATION	
Body Condition Score: Beef - 6	Thin <input type="checkbox"/> Moderate <input type="checkbox"/> Good <input checked="" type="checkbox"/> Obese <input type="checkbox"/>
Pelvic Ht.	Pelvic Width Pelvic Area
Feet/Legs	<input checked="" type="checkbox"/>
Eyes	<input checked="" type="checkbox"/> SPOT IN LEFT EYE
Vesicular Glands	<input checked="" type="checkbox"/>
Ampullae/Prostate	<input checked="" type="checkbox"/>
Inguinal Rings	<input checked="" type="checkbox"/>
Penis/Prepuce	<input checked="" type="checkbox"/>
Testes/Spermatic Cord	<input checked="" type="checkbox"/>
Epididymides	<input checked="" type="checkbox"/>
Scrotum (Shape)	<input checked="" type="checkbox"/>
Other	
SCROTAL CIRCUMFERENCE (CM)	36 , 0

SEMEN EXAMINATION		
Collection Method: EE <input checked="" type="checkbox"/> AV <input type="checkbox"/> Massage <input type="checkbox"/>	Response: Erection <input checked="" type="checkbox"/> Protrusion <input checked="" type="checkbox"/> Ejaculation <input checked="" type="checkbox"/>	
Semen Characteristics	Ejaculate 1	Ejaculate 2
Motility	Gross	60
	Individual (%)	
% Normal Cells	92	
% Primary Abnormalities	5	
% Secondary Abnormalities	3	
WBC, RBC, Other		

CLASSIFICATION
 Interpretation of data resulting from this examination would indicate that on this date, this bull is a:

Satisfactory Potential Breeder

Re-examination recommended on:

This bull has been examined for physical soundness and quality of semen only. Unless otherwise noted, no diagnostic tests were undertaken for libido, mating ability, or infectious disease status of this bull.

Signed: John L. Myers D.V.M.
 Member - Society for Theriogenology



Remarks and interpretation (diagnosis, prognosis, recommendations)

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Pecan Drive Veterinary Services
 P.O. Box 463
 Vinita, OK 74301, OK 74301
 (918) 256-7803

Colors were used to highlight two different items: The SFT logo and the classification of the bull. The committee 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 examination but further provided gravity for the reason the bull was tested in the first place.

Finally, 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 to which it is justifiably entitled. The CG-BSE form makes it difficult to perform those types of sinister behaviors.

5. The CG-BSE form would encourage careful and complete examination of the bulls. One feature of the new form is its inclusion of a drop-down menu of fourteen common sperm defects as well as an illustration of a normal sperm.



The committee believes this offers a great marketing tool for the veterinarian, in that he or she can, by means 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 one method that will enforce to 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, we believe the illustrations not only provide a guide for those new to the BSE business to see 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.

6. The use of the CG-BSE form should make economic sense for both the SFT and the users of the product. The sales of the paper form of the bull BSE form produce an annual income that while not large is nonetheless important, and it is hoped that the new CG-BSE form will gain equal or greater acceptance. There is no plan to discontinue the paper form of the SFT BSE form. Just as paper forms are now sold in booklet fashion by the SFT office, the CG-BSE forms will be purchased by tokens. There will be a tab within the program that, upon opening, will give access to purchase a batch of forms through use of a credit card online transaction. Additionally, there is a mechanism that will alert the user to the number of forms yet unused, and we think that this will not only streamline the access to SFT BSE forms but in fact creates a greener, paperless solution to the BSE.

Currently the committee has considered a price structure for the program download that includes 50 forms. The program purchase is a one-time event which includes support, and subsequently the forms will be sold in the form of tokens at \$0.25 apiece. The current price to purchase one unit of the paper BSE form is \$0.33 but when subtracting the cost to print the form the gross net income to the SFT is greater when the computer generated form is used rather than the paper form.

7. The 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.

While our particular clinic will never be nominated for the Model of Efficiency Award (should there be one) we will examine around 1000 bulls a year and we are perpetually looking into files in pursuit of our findings on a bull we examined previously. Since we retain the yellow copy of the paper form in our files we must thumb through several sheets of paper to find the record of our previous examination. Many times that is successful if we can find the owner's file and if we have filed the paperwork properly. Since instituting the CG-BSE form we have been able to recover needed records of previous examinations relatively effortlessly although we still print a copy of the examination record and place it in the owner's file if we can find it. From a personal viewpoint, retaining the examination records on a computer and unlimited printing of the form have been some of the more surprising and valuable features of this program.

8. Finally, within this program is the ability to accumulate a large amount of information in 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. We do not presume that all of the data will be of high quality, but the committee does imagine the possibility of a large quantity. While I understand the repulsion those scientists among us have to large amounts of questionable information, the committee believes this is an avenue by which the quality of the BSE's of bulls can be elevated. If an individual practitioner can compare his culling percentage to other practitioners, his evaluation of his own methods may cause him to change for the better. Comparing number of abnormal sperm or scrotal circumferences among breeds, ages and locations of bulls would be of great interest, but only in numbers large enough to have confidence that the trends seen are valid. The committee feels that from data collected from this program

already and the anticipated percentage of those who would buy based on practitioners already using the paper form, information from 10,000 to 20,000 bulls a year would not be unreasonable.

Discussion

In March of this year David Riedle rolled out the first version of the CG-BSE form. This form was designed for a computer but not an iPad, and there were four users: Herris Maxwell (Auburn University), Brian Keith Whitlock (University of Tennessee), Mike Thompson (Willow Bend Animal Clinic, Holly Springs, MS) and John L. Myers (Pecan Drive Veterinary Services, Vinita, OK). At the time that we cut off uploading results into the program to accommodate a deadline we failed to meet several times, there were 634 records in the database.

The classification of the 634 bulls is as follows: Satisfactory: 529 (83.4%), Deferred: 48 (7.5%), Unsatisfactory: 57 (8.9%).

Following are the breeds and their Satisfactory Classification rate:

- A. Angus: 477 (75.2%), 82.6% classified as satisfactory
- B. Simmental: 26 (4.1%), 92.3% classified as satisfactory
- C. Hereford: 25 (3.9%), 84% classified as satisfactory
- D. Red Angus: 20 (3.2%), 85% classified as satisfactory
- E. Charolais: 18 (2.8%), 77.8% classified as satisfactory
- F. Brangus: 11 (1.7%), 90.9% classified as satisfactory
- G. Gelbvieh: 9 (1.4%), 100% classified as satisfactory
- H. Limousin: 6 (0.9%), 100% classified as satisfactory
- I. Other Breeds: 40 (6.3%), 80% classified as satisfactory (other breeds: Sim/Ang, Angus Cross, Black, Brahman, Limiflex, Ultrablack, Balancer, Beefmaster, Bucking Bull, Longhorn)

The committee is proud of the great amount of work to get this number of records into a database and we realize that the numbers represented still do not in many cases constitute a large enough volume to draw valid conclusions, although there would certainly be Limousin breeders who would willingly declare that in over 633 bulls, tested the Limousin breed was found to be 100% fertile. The bulls' 83.4% Satisfactory Classification does, however, fit within the wide range of previous reports.¹⁻³ We believe with coordination and cooperation with those competent to analyze data and suggest corrections and improvements we have the possibility of producing an ongoing large amount of data that could result in higher quality and more accurate examinations of bulls for breeding soundness.

There is now a version of the program compatible with the iPad.

Conclusion

There has been a serious amount of work and cooperation to produce the CG-BSE form presented today. While we hope the points made above as to the principles the BSE committee used are valid and convincing as presented, we would like to conclude with the idea that this form could be used as a marketing tool for the following:

1. A private clinic or practitioner
2. A university clinic
3. The importance of Breeding Soundness Examinations
4. The Society for Theriogenology

The origins of the Society began with a few interested and dedicated individuals who were involved with bull fertility. The form as we present it today represents but a blip in the progress and expansion of a field that encompasses more species, procedures and knowledge than the gentlemen in 1954 would have ever imagined. With that history the committee not only feels gratitude but more importantly responsibility.

I began by relating my impressions of an eighth grade girl who turned in her assignments in a pretty plastic binder. Sue Ellen moved away in the ninth grade but I still remember how attractive and intelligent she was. The binders into which she placed her work were no guarantee that what was inside was of high quality, but it became clear that the binder was evidence that she took pride and care with what she produced. The CG-BSE form's usage also does not guarantee high quality work, but it does represent one way to make what is done accessible, attractive and memorable.

We feel that the form represents yet another step in presenting the knowledge and work that has gone before us and it is our hope that with its acceptance we can help in the progress and continued excellence of the SFT.

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