



# Herd This?



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Don't forget to call our office and set up appointments for:

- **Pregnancy checks for fall calving herds**
- **Bull tests for winter calving herds (recommended in the 30 days prior to the bulls going in)**
- **Herd health reviews for winter and fall calving herds**

## Bull Breeding Soundness Exams

It is estimated that 1-5 bulls in a randomly selected population are considered to be subfertile with the potential to be unsatisfactory breeders. This may be due to low libido, poor semen quality or even sexual immaturity with the end result being low pregnancy rates. This can present financially devastating economic losses over time to the individual beef cattle producer. It is estimated that for every 21 days of the breeding season that a cow remains open, a loss of 50 to 60 pounds of weaning weight can be expected with the following year's calf population. Therefore, a subfertile bull can result in potentially thousands of dollars lost due to reduced weaning weights the following year when calves are sold. Something to think about!



When that last calf is hitting the ground this winter, PVH encourages you to consider having your bulls tested with a breeding soundness exam (BSE) for this coming breeding season. The cost to benefit ratio is considerable if one thinks of the potential losses when that 1 in 5 bull is used. Although there are bulls with serious impediments to fertility, many bulls that are less than satisfactory do achieve acceptable pregnancy rates under low breeding pressure and over a prolonged breeding season. However, buying extra bulls to cover all your cows and a prolonged breeding season will cost you more in the long run than having a BSE done on your bull up front.

As we all are familiar with, multiple-sire pasture breeding is very common in the Carolinas. It is important to remember that as many as 80% of cows may be bred by two to three different bulls within the same heat cycle during a breeding season. Therefore, bulls with high fertility often compensate for bulls with poor fertility if you are looking purely at your pregnancy rates. However, if these poor fertility bulls can be identified with a BSE, this becomes a much more cost-effective alternative to keeping them in the herd.

This edition of Herd This? will focus on BSEs. In addition to the freedom from disease, a bull requires three attributes to be fertile: 1) physical soundness, 2) good semen quality, and 3) good libido. We encourage you to continue reading this quarter's newsletter as we will be discussing each of these three aspects of a bull BSE in more detail.



**Proper restraint is very important when testing bulls. However, if you don't have a facility that will accommodate your bull, please ask us as we may be able to offer solutions to this.**

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Pfizer Animal Health has partnered with several organizations to give back a portion of the purchases of qualified Pfizer cattle and equine products made between February 1 and April 30, 2012. Pineview Veterinary Hospital has chosen to have these funds funneled back to our community into the local FFA Chapters to promote the success of our young people through agricultural education. We encourage you to purchase your Pfizer vaccines and dewormers from us before April 30th so that we can give as much as possible to our local FFA Chapters.



## Breeding Soundness Exams: The Physical Exam

BSEs are not meant to be health exams. This means that other than the general appearance, attitude and behavior, rectal examination of reproductive organs and the overall body condition examined by your veterinarian, it is still the producer's responsibility to be aware of the overall health of their bulls as well as all other herd animals they are responsible for. With that said, there are specific things we evaluate during a BSE as discussed below.

In general, the overall body condition of bulls pre-breeding should be at or above ideal (i.e. a BCS of 5-6.5). As we all know, bulls that are active during the breeding season can lose a tremendous amount of weight, making the need for their pre-breeding condition to be at least a 5 or more to ensure their ability to physically get through the entire breeding season healthy. Putting your bulls on a grain supplement prior to breeding season can help increase their overall body condition and help them maintain the energy to get them through the breeding season.

Due to the fact that bulls rely heavily on vision to detect cows in heat, and because the development of squamous cell carcinoma and corneal opacities from



pinkeye infections are common, special emphasis is placed on examination of every bull's eyes. Furthermore, research and evidence suggest that squamous cell carcinoma has a heritable basis and selection against it may be worthwhile to reduce the incidence of this problem in your herd.

A great deal of the physical examination of bulls during a BSE is placed on their feet and leg conformation. Bulls must

travel long distances sometimes in order to detect females in heat and breed them. Also during the mating process the full weight of a bull is placed on his hind legs and feet. Therefore, any unsoundness in this region will drastically interfere with a bull's breeding ability over the entire breeding season. Additionally, there are a



wide range of conformational defects that are heritable and can be passed on through generations affecting the overall longevity of your herd and performance. Some of these include corkscrew claws, interdigital fibromas (corns), post-leggedness, and sickle hocks. The feet and limbs are evaluated in the headgate and the gait of each bull is evaluated as they are entering or leaving the headgate to look for any lameness and to get an overall impression of conformation.

Palpation of the scrotum and its overall shape are an essential part of the physical examination of each bull. The general feel of a bull's scrotum and testes is assessed, making sure no soft or firm spots are felt. Along with the scrotum and testicles, the epididymis is also palpated and all components should move freely within the scrotum. The scrotal neck is evaluated as a bull that has a short scrotal neck or excessive scrotal neck fat will have impaired abilities to thermoregulate his testicles causing abnormal sperm development and possibly testicular degeneration over time.

Following testicular and scrotal palpation, a measurement in centimeters is taken of the scrotal circumference. There has been a tremendous amount of research performed with regards to the correlations of scrotal circumference to daily sperm production, age at onset of puberty in females, as well as age at first breeding, age at first calving, and pregnancy rates. Because age at puberty in females is fa-

vorably associated with subsequent reproduction, selection for bulls with larger scrotal circum-



ferences should improve the reproductive potential of a cow herd over time. There is a minimum scrotal circumference measurement that must be met, regardless of breed, for different ages of bulls in order to pass this portion of the BSE.

The final aspect of the physical examination consists of transrectal palpation of a bull's internal reproductive organs. The accessory sex glands (prostate, bulbourethral glands and vesicular glands) are evaluated for irregularities in size and shape, cysts and firmness. Each organ plays an essential role in providing the components of the seminal fluid that the sperm survives in during transport through the female reproductive tract. In addition to the accessory sex glands, the inguinal rings and the structures that pass through them are also evaluated. The size of the inguinal ring is evaluated because bulls with enlarged rings are predisposed to developing scrotal hernias during breeding.



The bull must be normal in all aspects of this physical exam to move on to the second part of the BSE, the semen examination.

## Breeding Soundness Exams: Semen Evaluation

One of the most important aspects of the BSE is the evaluation of the bull's semen as this is what truly gets the cow pregnant. There are several techniques in practice to collect a semen sample but the most widely used technique is through the use of electroejaculation. This is where a large diameter rectal probe is placed within the rectum and directly above the internal reproductive organs. A low level electrical pulse is used to provide stimulation to these organs, causing extension of the penis for visualization and evaluation as well as ejaculation of a semen sample for further examination under the microscope.



**An electroejaculator, used to collect a semen sample**

The capacity to produce a large volume of sperm in bulls has been highly correlated to the measurement of his scrotal circumference. Therefore, even if a small semen sample is obtained for evaluation, as long as the bull's scrotal circumference meets minimum standard measurements for his age, there is assurance that he is capable of producing good ejaculations with an adequate volume of semen.

It is important to remember that sperm are produced in the testicles over a 60 day period and then held in the epididymis until needed. Evaluation of their motility after leaving their "holding area" is essential to ensuring their successful ability to move throughout the female reproductive tract and achieve egg penetration. Gross sperm motility is quite variable and easily changes during the examination process as sperm are highly sensitive to extreme temperature changes and rapid wind movements. This is why motility is evaluated very first after an adequate sample has been collected. A minimum percentage of 30% progressively motile sperm are needed to be seen in order for a bull to pass with adequate motility. If this is not achieved on the first sample then another can be collected and examined for motility.

Not only is the ability for a bull's sperm cells to move through the female reproductive tract (motility) important, but their actual anatomical appearance (morphology) is essential to their ability to move as well as provide the genetic material needed to fertilize an egg. Following the evaluation of a bull's motility, a new microscope slide is created where a drop of live sperm cells are mixed with a drop of "live-dead stain" which kills the sperm cells, stopping their movement as well as staining the background of the slide so that closer evaluation of individual cells can be achieved. Once the slide has dried, a closer look can be given to 100 individual sperm cells where a grading technique places each cell in one of three categories based on their overall appearance:



**PVH has the ability to test your bulls right from our trucks**

Normal, Primary Defect, and Secondary Defect. A primary defect is a defect that occurred to a sperm cell while undergoing development within the testicles. These include all head defects as well as some specific tail defects. A secondary defect is a defect that occurred to a sperm cell during its "holding-time" within the epididymis.

These include most tail defects and some immaturity defects such as incomplete droplet removal. 70% of the cells evaluated must have a normal anatomical appearance in order to pass their morphology score.



**Stained sperm cells under the microscope (normal)**

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## Breeding Soundness Exams: Libido (What the BSE Does NOT Include)

In spite of extensive research showing the importance of libido and service capacity (the number of matings a bull is willing and able to perform in a testing session) to overall bull fertility, the use of standardized tests to evaluate these two factors have not become part of the routine bull evaluation in North America. Therefore, it is important to remember that this is an aspect of the breeding soundness examination that remains unassessed by veterinarians and it is essential that, following BSEs, producers actively watch herd bulls during the breeding season to assess their libido and service capacity. Watching the overall dynamics of multi-bull pasture breeding situations is important as an older, dominant bull may completely suppress the expression of a younger bull's libido, leaving one to assume that the younger bull's libido is absent since he may never be observed breeding.



*Continued from page 3*

The combination of a bull's physical examination, rectal palpation, and semen evaluation provide insight into the overall breeding potential of that bull. He is then classified into one of three categories: Satisfactory Potential Breeder, Classification Deferred, or Unsatisfactory Potential Breeder. A "satisfactory potential breeder" is a bull that has met all minimum standards for physical examination and semen evaluation. Bulls that fall within the category of "classification deferred" are primarily pubertal bulls with poor semen quality and questionable performance ability but can also be bulls that had an illness 60 days prior and it affected the semen. Not meeting the minimum standards in any of the three areas will result in this classification and a recommendation is made to retest the bull at a later time. An "unsatisfactory potential breeder" is a bull with poor semen quality that does not meet minimum standards for performance and there is evidence to show that time will not improve this situation.

It is important to remember that evaluations should be done on an annual basis with all bulls being used for breeding. This is critical because disease and injury can occur at any time, affecting a bull's ability to breed the following season. If you have any questions or concerns or would like to schedule an evaluation of your herd bulls for the next breeding season please call our office at (910) 655-2442 Monday through Friday from 8am – 5pm.



***So whether you eat or  
drink or whatever you  
do, do it all for the glory  
of God.  
I Corinthians 10:31***

**Pineview Veterinary Hospital is a large animal veterinary practice meeting the needs of horses and food animals in southeastern North Carolina and northeastern South Carolina.**

**Our mission is to provide high quality service to our clients coupled with the most advanced and progressive veterinary care for our patients with an emphasis on preventive and herd health medicine.**

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### **A Thank You Note and Exciting News from Dr. Long**

Happy New Year!!! I trust that everyone had a wonderful and safe Christmas and New Year holiday. I hope that 2012 continues to bring you and your families great joy and happiness.

I cannot believe I have been working now for almost six months, as it has just flown past. I thank you all so much for making my transition into the Pineview Veterinary Hospital family smooth and wonderfully enjoyable. Everyone has helped me feel right at home and I appreciate it so very much.

On behalf of my husband (Dustin) and I, we would also like to thank everyone and inform you that we will be expecting twins this June! We are expecting a boy and a girl and are very excited at this time in our lives.

Eventually, this new chapter will bring a few adjustments to the Pineview Veterinary Hospital daily schedule but rest assured that you and your animals needs will be taken care of as always.

Please let Heidi or myself know if there is ever anything that you need as we are always here to

serve you and your animals. Have a safe 2012 and I look forward to continuing to meet many of you if I have not already!!!

Best Wishes,  
Christine M. Long, DVM

