

User Guide for Pulsator V

Section 1	Warranty Information
Section 2	Introduction, Features & Checklist
Section 3	Getting Started & Use of Pulsator V
Section 4	Troubleshooting & Frequently Asked Questions
Section 5	Conducting a Breeding Soundness Evaluation

IMPORTANT!

**Read all of the set-up instructions
BEFORE installing the battery in
your Pulsator V**

Pulsator V Warranty

Lane Manufacturing, Inc takes pride in manufacturing the best equipment for our customers. We all know things happen that are out of our control and yours.

We offer to you, our customer, that we will repair or replace your equipment at no charge, within the guidelines listed below. Please call us with any questions or concerns about warranty issues.

Pulsator V (machine only) - 5-year warranty, with the exception of the battery and rheostat, they have a 1 year warranty.

Bull probe - 1 year warranty, subject to inspection.

Probe cords - no warranty, call with any questions about new cords not working properly.

Battery Charger - 1 year warranty

All other accessories - no warranty, call with any questions.

All warranty repair or replacements are subject to approval by Lane Manufacturing, Inc. Equipment damaged due to be abuse or when instructions provided are not followed, may void the warranty.

Use of any battery charger, other than the one provided, voids all warranty.

Repairs completed by anyone not authorized by Lane Manufacturing, Inc will void the warranty.

90-day Money-Back Guarantee

We're so confident that you'll be pleased with the quality and performance of the Pulsator V, that we stand behind it in every way possible. If you've never worked with us, our 90-day money-back guarantee gives you the peace of mind that comes from knowing that your total satisfaction is our highest priority. Before you return the equipment though, we ask that you call and give us the opportunity to have a conversation about your concerns.

Lane Manufacturing, Inc
8200 East Pacific Place #107
Denver CO 80231
800-777-2603
lanemfg@gmail.com
www.lane-mfg.com



Pulsator V Warranty Card

We must receive the information below within 90 days of purchase to validate the warranty. Please return the card below by mail, fax or email, so that we can keep record of the serial number and owner of the unit. The serial number is on the bottom of the unit. Failure to return this card may void the warranty.

Please feel free to contact us at any time, with any questions about your Pulsator V and/or accessories.

Lane Manufacturing, Inc
8200 East Pacific Place #107
Denver Co 80231
800-777-2603
303-696-1621 FAX
lanemfg@gmail.com

To order accessories or supplies please visit www.lane-mfg.com

Name_____

Address_____

City, State, Zip_____

Email_____

Telephone Number_____FAX_____

Purchased From_____

Serial Number_____Date Purchased_____

Thank you for purchasing the Lane Pulsator V

Lane Manufacturing strives to provide our customers with the best equipment for semen evaluation of cattle and other food stock animals. We listened to our customers suggestions and comments through the years and the Pulsator V is the result. We hope that the Pulsator V will make your job easier!

Features

- *State of the art electronics

- *Improved battery and battery charging technology

- *Smoother signal to the bull

- *Loop button to repeat the last stimulus used

- *Stimuli counter

- *Auto Adjust, enables interaction within the program

- *Multiple, pre-programmed programs designed for specific breeds

Flip to Section 3 for detailed use of these features

The following checked items are included in your Pulsator V kit:

_____ Pulsator V Serial Number _____

_____ Battery Charger - International adapter if applicable

_____ Carrying Case

_____ Bull Probe - 2-Electrode _____

_____ Additional Probe(s) _____

_____ Two Probe Cords

_____ Semen Collection Handle

_____ 100 Disposable Director Cones

_____ 100 Disposable Collection Vials

_____ Scrotal Tape

_____ User Guide

_____ Tools

_____ Additional items _____

If any of these items are missing, please, contact us immediately at

1-800-777-2603 or lanemfg@gmail.com

To re-order supplies visit our website www.lane-mfg.com

Getting started and charging the battery

Before getting started, please check the contents of the package against the checklist and make sure you have everything. If anything is missing, please call or email us right away! 1-800-777-2603 or lanemfg@gmail.com.

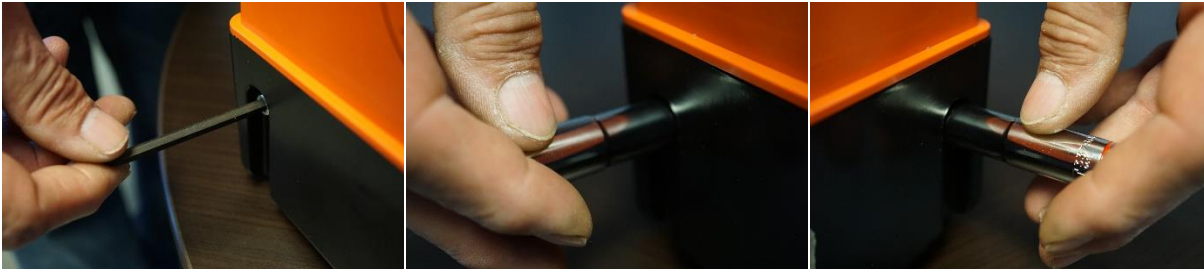
Please, retain the foam and boxes that the battery and Pulsator V are shipped in. This will make for easy, safe shipping of your equipment should you need to return it to us for repair.

All Pulsator V units will be shipped with the battery outside of the machine casing itself. This is being done to follow domestic and international shipping regulations surrounding the transportation of a lithium battery.

When you receive your Pulsator V, the battery will **not** be fully charged. Once you install the battery you will need to initialize the system and charge the battery.

To install the battery:

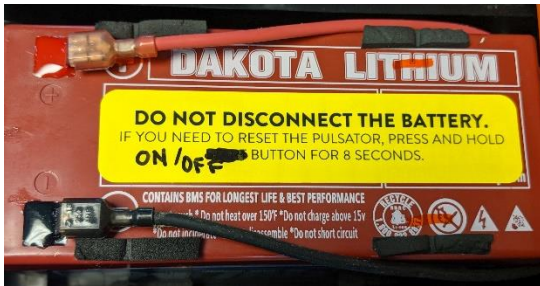
Remove the two bolts in the black bottom of the Pulsator using the tools provided.



Remove the orange or black part of the machine and place the battery in the bottom with the terminals facing up, as pictured below.



Remove the plastic caps from the battery terminals and **clean the metal terminals with the small scotch brite pad** provided, this will remove any corrosion that might have occurred after packaging. Attach the cables to the terminals, **black to black and red to red**. Make sure they are connected tight on the terminal or the battery will not charge.

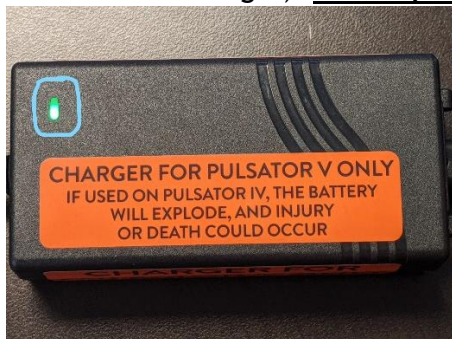


Place orange or black top back on and reinstall the bolts. Be sure to keep the tools handy if you ever need to replace the battery!

To initialize the system and charge the battery:

****VERY IMPORTANT: READ ALL STEPS FIRST****

1. Plug charger in to the wall outlet. A green light on the charger will illuminate (older style chargers will have a blue light). **Do not plug charger in to the Pulsator yet.**



2. Turn Pulsator V on. The On/Off light will flash, then the Pulsator will turn off.
3. Plug charger in to the Pulsator V (see picture below). The connector needs to go in to the machine straight before tightening the ring. The charger pin is long, it needs to be pushed all the way, use the rubber sleeve as a guide. Make sure the rubber sleeve is pushed against the machine to ensure proper connection. Turn the ring until it is finger tight. **If the connector is not secured properly the battery will not charge properly.**



4. Once charger plug is securely fastened to the Pulsator, **turn on the machine**, using the On/Off button. The four Charge indicator lights on the top panel of the Pulsator V will light in succession through all four, in green. The Power Limit "0" light and Mode "Manual" light will also be lit at the top of the top panel.
5. **Once you have seen the 4 green lights light up in succession, turn the machine off**, using the On/Off button and allow the battery to charge. It will take approximately 2 - 3 hours to charge. As the battery is charging, the Charge lights will illuminate, in green. Each of the four lights is representative of approximately 25% of the battery life. Once the battery is fully charged, all four lights will be solid green, you can unplug the charger from the machine and it is ready to use. Once you unplug the charger the Charge lights will turn to red.

Use this process upon initial battery installation and all times the battery needs to be charged.

Operation of Lane Pulsator V

The Lane Pulsator V has three modes of operation: Manual, Program and Learned. This section will explain basic operation of the Pulsator V as well as detailed steps to use each of the three modes.

Turn machine on by pressing the On/Off button. All lights will come on briefly, then go out. After 4 seconds lights will come back on and the machine is ready to use. If this is the first time you have used the Pulsator V, the Mode light will default to Manual. If you have used the machine, it will automatically start in the Mode and Program you used last.

Modes of operation:

Manual - To use the Manual mode turn the machine on and press the Mode button until the light is lit next to Manual. Power Limit light will be on "0" and no Program light will be lit. Knob must be turned counter clockwise so the line is pointing down. Use the +/- buttons and the knob to run the collection process. When you are finished press Reset button to start a new manual collection or to use another mode. You can also turn the Pulsator off at this time and when you turn it back on it will be in Manual mode.

Program - One of the new features of the Pulsator V is multiple programs installed in the machine. Each program is based on a unique rise, hold and rest pattern. The initial power level, rise pattern and rest time increase from Program A through J. The breed name on the programs listed are only generic labels and not intended as the only breed intended for the program. As more data is collected with the Pulsator V the "Open" programs will be filled and your machine can be updated.

To use one of these programs, turn the machine on and press the Mode button until the light is lit next to Program. The Program lights at the top of the machine will be lit for all pre-set programs. The light on the last program used (or "A" if this is the first time you have used the feature) will be flashing. You can move to the desired breed program by pressing the +/- button. The flashing light indicates which program is ready to run. Press Start and the program will run. Once you are familiar with the program, you can use the +/- button to change the Power Limit while the program is in operation. Using the + button will skip the next stimuli and go up. If you press the - button once, the same stimuli will repeat, if you press the - twice the program will go back to the previous stimuli level.

If you wish to take over manually during a program, push the Reset button once. The Manual LED will be lit and the last step you were on in the Program will be lit. You can now take over control with the +/- button and rheostat.

If you do not wish to continue with the program, push the Reset button twice and the machine will return to Manual.

When the collection cycle is finished you can press the Reset button which will take you back to Manual mode to start another programmed collection or use another mode. You can also turn the machine off at this time. When you turn on the machine to use again, it will automatically go to the last used program.

Please note, you CANNOT modify the actual program as it is a Read-Only feature, you can only adjust the power within the program.

Installed Programs

- A. Angus 1
- B. Angus 2
- C. Currently no program
- D. Charolais
- E. Currently no program
- F. Currently no program
- G. Currently no program
- H. Brangus
- I. Beefmaster
- J. Currently no program

Learned - The Learned program is designed for you to record/teach the Pulsator V your own collection process. You can teach and store up to eight programs in the Pulsator V in addition to the pre-loaded processes in Program mode explained in the previous section. To record your program, turn the machine on and press the Mode button until the light is lit next to Learned. Power Limit light will be on "0" and no Program light will be lit. Knob must be turned counter clockwise so the line is pointing down. Press the Record button, Program light "A" will flash. Press Start and light next to Record will flash. You can now run your desired collection process by using the +/- button and the knob. When you are finished with the recording process, press Reset button. Mode light will reset to Manual.

To run your learned program, press Mode button so light is lit next to Learned. Program light "A" will be flashing (or the program slot you recorded). Press Start and your program will run. Once it finishes running the program, the Mode light will go to Program.

You can record/save a program to any of the eight program slots (A through H). To select a slot other than A or to record additional programs, select Learned mode, press the Record button, then press the +/- button to the desired Program (A through H) until the light is flashing, then continue the process. To run a program press Mode button to Learned. Program lights will light next to all program slots you have filled. Press +/- button to select the program you want to run, press Start. Note, a flashing light in the Program line indicates the program that will run.

To delete a program you have recorded, press Mode button to select Learned mode. All program slots that have a learned program will be lit/flashing. Select the program you want to delete by pressing the +/- button. The press Start and Reset at the same time, hold down until the program light goes out.

Turn off the Pulsator V by pressing On/Off button. On light will flash for 4 seconds then machine will turn off. When you turn on the machine to use again, it will automatically go to the mode you last used. To operate in a different mode, press the Mode button until the light is next to the mode you want to use. Note, a flashing light in the Program line indicates the program that will run.

Electrostatic Discharge

Your Pulsator V, like all electronic devices, is susceptible to electrostatic discharge or ESD. ESD can come from many sources including weather conditions or even you. If your machine receives a jolt of ESD the operation will lock up, but lights will stay on. This could be one light, a few lights or all lights. ESD could also cause the machine to not turn on at all.

To reset the Pulsator, press and hold the On/Off button for a count of 8. Then you can turn the machine on and proceed using it.

IMPORTANT

Under no circumstances should you unhook the battery when this happens! If the reset doesn't work, call us - 1-800-777-2603

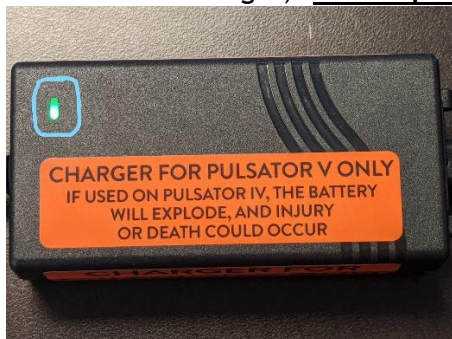
Charging the battery after use

If you are familiar with the charging system on the Pulsator IV, there are important differences to this charging system. You do not keep the machine plugged in to the charger when not in use. **The charger for the Pulsator V, is NOT compatible with the Pulsator IV and vice versa.**

It is not necessary or advisable to put the Pulsator V on charge after every use. We recommend charging the Pulsator V when there is one solid red charge light and one flashing red charge light on the top panel of the machine. When the Charge indicator shows one light, or 25% battery life, you have approximately 150 - 200 collection cycles remaining on the charge. This charger also works as a power supply, when needed and the battery is not fully charged. The battery will charge while you are using it as a power supply.

To charge the Pulsator V repeat the steps used when you first initialized and charged the battery:

1. Plug charger in to the wall outlet. A green light on the charger will illuminate (older style chargers will have a blue light). **Do not plug charger in to the Pulsator yet.**



2. Turn Pulsator V on. The On/Off light will flash, then the Pulsator will turn off.

3. Plug charger in to the Pulsator V (see picture below). The connector needs to go in to the machine straight before tightening the ring. The charger pin is long, it needs to be pushed all the way, use the rubber sleeve as a guide. Make sure the rubber sleeve is pushed against the machine to ensure proper connection. Turn the ring until it is finger tight. **If the connector is not secured properly the battery will not charge properly.**



4. Once charger plug is securely fastened to the Pulsator, **turn on the machine**, using the On/Off button. The four Charge indicator lights on the top panel of the Pulsator V will light in succession through all four, in green. The Power Limit “0” light and Mode “Manual” light will also be lit at the top of the top panel.
5. **Once you have seen the 4 green lights light up in succession, turn the machine off**, using the On/Off button and allow the battery to charge. It will take approximately 2 - 3 hours to charge. As the battery is charging, the Charge lights will illuminate, in green. Each of the four lights is representative of approximately 25% of the battery life. Once the battery is fully charged, all four lights will be solid green, you can unplug the charger from the machine and it is ready to use. Once you unplug the charger the Charge lights will turn to red.

**DO NOT USE ANY BATTERY CHARGER OTHER
THAN THE ONE PROVIDED WITH THE
PULSATOR V!**

Top Panel



- A** On/Off Button - turns Pulsator V on and off.
- B** On light - illuminates when Pulsator V is on
- C** Charge lights - indicates level of charge on battery. Green when charging. Red when in use.
- D** Program lights - illuminate in Program and Learned modes to indicate program being used
- E** Power Limit lights - illuminate in all modes to indicate power level during collection cycle
- F** Mode button - press button to select desired mode of operation
- G** Mode lights - indicate mode being used to operate Pulsator V
- H** Power buttons - use buttons + (up) or - (down) to select desired program in Program and Learned modes. Selected program will illuminate/flash in Program lights (D).
- I** Knob - use knob in Manual and Learned modes to move power up and down within the selected Power limit.
- J** Start button - Press to run a program in Program and Learned modes. Also, used to delete a learned program when pressed together with Reset (M) button.
- K** Record button - used in Learned mode to program your own collection cycle.
- L** Stimuli counter - indicates the number of stimuli sent in a collection cycle. Used in all modes.
- M** Reset button - used at the end of a collection cycle to return to the Manual mode. Also, used to delete a learned program when pressed together with Start (J) button.
- N** Loop button - use Loop button to repeat a stimuli in Program and Learned modes.

Troubleshooting & Frequently Asked Questions

Can I run the machine while it's charging?

Answer: Yes, if the battery is not fully charged, you can plug the charger/power supply in to the Pulsator and the wall outlet. The battery will be charging at the same time you are using the Pulsator.

The Pulsator froze/locked up.

Answer: Press and hold On/Off button for a count of 8. All lights should go out then turn machine back on and resume use.

All the lights on the panel went out but everything seems to be working.

Answer: Like your computer or other home electronics, sometimes your Pulsator V will need a soft "reboot". Press the On/Off button and hold for a count of 8.

Can I use the charger for my Pulsator V on the Pulsator IV?

Answer: NO! The battery and charging system on the Pulsator V is different than the Pulsator IV. Using a Pulsator V charger on your Pulsator IV, will cause the battery to explode and could cause injury or death to the operator.

I need to send my Pulsator V in for repair. What steps do I need to take?

Answer: Please, call us first, we may be able to "fix" the problem over the phone. If we determine we need to have the Pulsator sent in, please follow these steps. 1) you will have to remove the battery, use the same steps you did when installing the battery upon receipt. You will need to cover the silver battery terminals (if you don't have the plastic "caps" you can use duct tape or heat shrink to cover. 2) Pack the battery and the Pulsator in the foam pieces and boxes they were shipped in and send to us at: 8200 E Pacific Pl #107 Denver, CO 80231. If you did not retain the foam and/or boxes, you will need to find bubble wrap or foam to wrap them and box individually. IMPORTANT, the battery must be packed in a box by itself, then can be in a larger box with the Pulsator. 3) Ship via UPS, FedEx or USPS, whatever is most convenient for you. As always, please include a note or a card in the box with ALL your contact information and detailed description of the problem you are experiencing.

Troubleshooting & Frequently Asked Questions, Continued

The panel lights are on, but the machine is locked up.

Answer: This could be caused by ESD/electrostatic discharge. To reset, press and hold the On/Off button for a count of 8. You should be able to turn the machine and resume normal use.
IMPORTANT - Do NOT unhook the battery to try and reset the machine.

Should I unhook the battery to try and “reset” my Pulsator V?

Answer: No, unhooking the battery will NOT reset the Pulsator. If you feel the machine needs a reset or reboot, press and hold the On/Off button for a count of 8. If that does not solve the problem, call us 1-800-777-2603.

Conducting a Breeding Soundness Examination of a Bull

The goal of breeding soundness evaluation of bulls is to determine their suitability for breeding, usually in natural service. Each component of the examination is equally important and each should be carefully evaluated to arrive at the correct diagnosis and/or prognosis for breeding soundness.

The components of that examination are as follows:

1. Evaluation of the bull's history
2. General physical examination
3. Examination of the testes and measurement of scrotal circumference
4. Detailed examination of the genital tract
5. Collection and analysis of representative semen samples

Evaluation of the Bull's History

Every breeding soundness examination should begin with a complete history of the bull. Of particular interests are how long the owner has had possession of the bull, was he purchased or home reared, vaccination and deworming history, any prior or current injury and/or illness and treatment, and the bull's breeding history. Signalment, or the bull's unique identification, should be recorded along with age, breed, and either bodyweight or evaluation of the bull's body condition. A well-organized veterinarian can obtain an adequate history of each bull very quickly.

Conducting a Thorough Physical Examination

Most breeding soundness examinations are conducted on bulls used predominantly for natural service. Therefore, it is extremely important that the bull be physically normal and free from undesirable structural or heritable defects that may limit breeding soundness. The physical examination may be more important than evaluation of the semen sample as bulls that are structurally unsound likely will prove to be inefficient breeders regardless of semen quality. The bull should be observed to walk and move in normal fashion as a lame bull may not be able to breed an appropriate number of cows in a defined breeding season. Likewise, the eyes should be free of tumors, injuries, infections or scarring so that vision is not impaired. Bulls with undesirable physical characteristics or abnormalities should be eliminated without collecting and analyzing semen. ***Careful proper handling and physical examination of the bull also serves a pre-ejaculatory stimuli, making semen collection easier.***

Measuring Scrotal Circumference and Conducting a Thorough Examination of the Scrotum and Testicles

Scrotal Circumference:

Scrotal circumference measurement is a very important part of any Breeding Soundness Examination because testicular mass has strong correlation with total sperm production. Use an inelastic scrotal tape to measure the circumference of the combined testicles at their widest portion while grasping the neck of the scrotum and firmly pushing the testicles ventrally. Apply sufficient pressure to the scrotal tape to slightly indent the scrotal skin and record the measurement in centimeters. In order to meet acceptable sperm production, the Society for Theriogenology recommends the following minimum measurements according to the bull's age:

Minimum Recommended Scrotal Circumference	
Age (in months)	SC (cm)
≤ 15	30
$> 15 \leq 18$	31
$> 18 \leq 21$	32
$> 21 \leq 24$	33
> 24	34

Scrotum and testes:

A methodical approach to palpation of the testicles, pampiniform plexus and epididymis is of utmost importance. The testicles should be similar in size, shape and consistency. Greater than 10% difference in size or shape between the two testicles could be indicative of a number of pathological conditions and warrants further diagnostic workup. It is important to remember that differences in size or shape could be due to an acute (swollen) or chronic (atrophic) injury and that the likelihood of the initially damaged testicle causing deferred pathology to the adjacent testicle is great. An experienced person should be able to discern softening of the testicles by palpation, and could be evidence of testicular degeneration which should be confirmed by semen analysis. The testicles should be freely moveable within the scrotum and in the summer months should remain in a pendulous position as opposed to slight retraction toward the body wall during winter months. The examiner should also palpate the entire testicle, for evidence of abscessation, hematocele, tumors, fibrosis, or other discrepancy in consistency while remaining cognizant of testicular and scrotal temperature. The scrotal skin should be free of injury or lesions that may impede testicular thermoregulation.

The pampiniform plexus and testicular cords should be palpated from the ventral body wall to the edge of the testicle for fluid or nodular or granulomatous enlargements. The epididymis should be palpated in its entirety with the head craniodorsally, the body caudomedially, and the tail ventrally noting changes in size, shape, consistency, and evidence of pain.

Conducting a Detailed Genital Tract Examination

External Genitalia:

Beginning at the external orifice of the prepuce palpate the external sheath caudally to the neck of the scrotum. Palpate the penis through the sheath to determine that it is free of adhesions, abscesses and scar tissue. The entire penis must be examined during each breeding soundness examination. It is not uncommon to find persistent penile frenulums in young bulls. Other lesions such as circumferential hair rings, fibropapillomas, urethral fistulae, preputial adhesions, scar tissue and penile or preputial infections may also be found. *Detailed examination of the external genital structures often explains why a bull may not respond readily to electroejaculation or produce satisfactory semen samples.*

Internal Genitalia and Inguinal Rings:

The last part of the physical examination of every bull during breeding soundness evaluation should be careful examination of the internal genital structures by rectal palpation. The rectal examination serves three purposes:

1. allows evaluation of internal genital structures
2. removes fecal material from the rectum, allowing probe electrodes to contact the rectal mucosa
3. aids in semen collection by pre-stimulation for electroejaculation

In most bulls, the pelvic genital structures can be palpated with the hand inserted into the rectum up to the wrist. After the rectum is cleaned, locate the urethralis muscle along the floor of the pelvis. This structure is easily identified as a longitudinal cylindrical structure 3 to 4 cm in diameter lying on the midline of the floor of the pelvis. In most bulls, this muscle contracts rhythmically in response to rectal palpation. The dorsal transverse ridge of the prostate gland lies just cranial to the urethralis muscle and feels like a firm band up to 1.5 cm wide and serves as a landmark for locating the seminal vesicles (vesicular glands) and the ampullae of the ductus deferens.

The paired vesicular glands (seminal vesicles) should be approximately symmetrical, slightly movable and are located cranio-lateral to the prostate. They are normally lobulated and extreme firmness, adhesions, pain on palpation, or fluid accumulations within the glands are often indicative of current or prior inflammation. Active inflammation or infection of the glands may be reflected in elevated white blood cells in the ejaculate.

The paired ampullae of the ductus deferens lie on the midline between the seminal vesicles. They are each usually no larger than 1.5 cm in diameter and are palpable as thick-walled tubular structures that progress cranioventrally towards the internal inguinal rings.

The internal inguinal rings should be palpated per rectum as excessive size of these structures may lead to inguinal hernia. The rings are palpated just cranial and ventrolateral to the pelvic brim by directing the hand 15 cm ventrally and 5-15 cm laterally. The rings are a slit in the abdominal oblique muscle and if they are larger than 5-8 cm, or admit more than 3 fingers from the palpators hand, the bull may be predisposed to development of inguinal hernia. Only the spermatic cord should enter the internal inguinal ring.

The importance of rectal palpation of the internal genital tract before attempting semen collection cannot be overemphasized. In addition to providing important information about the structures themselves, this procedure evacuates the rectum and provides needed pre-stimulation for the bull which greatly facilitates electroejaculation for semen collection.

Added resources:

Barth AD Evaluation of potential breeding soundness of the bull. In Youngquist RS and Trelfall WR, editors: *Current therapy in large animal theriogenology* 2, St. Louis, 2007, Saunders.

Dyce, KM et al: *Textbook of Veterinary Anatomy*. 2nd ed, WB Saunders, Philadelphia, 1997, pp 718-720.

Prepared for Lane Manufacturing Company by:

**Jason Johnson, DVM, Dwight F. Wolfe, DVM,MS, Diplomate ACT
Department of Clinical Sciences, College of Veterinary Medicine,
Auburn University**

2007