



Bull Management

# Factors That Affect Breeding Ability in Bulls

by Heather Smith Thomas

Biosecurity

Bull Vaccination

Breeding Ability

Maternal Sire

There are many factors that play a role in fertility and breeding ability in bulls, including semen quality, soundness, desire to breed cows, etc. Most producers make sure that every bull passes a breeding soundness examination (sometimes referred to as a BSE) before putting him out with cows.

Dee Whittier, DVM and Virginia Tech large animal clinical sciences professor, says it's good to start with the bull breeding soundness exam that is outlined by the Society of Theriogenology.

"This is based on good research and is a place to start when assessing a bull. It basically looks at five things," Whittier explains.

**Physical soundness** — feet and legs, eyes, etc.;

**Reproductive tract soundness;**

**Scrotal circumference** — meets the minimum requirement;

**Minimum percentage of sperm cells that are normal;** and

**Acceptable motility.**

"This is where we start, and we recommend that every bull, every year, has a breeding soundness exam," he adds.

## Breeding soundness exam

This examination can detect almost all the problems that might interfere with a bull's fertility or ability to breed cows. "A thorough examination can find the young bulls that have congenital abnormalities or other problems with the reproductive tract. An injury or infection would also be discovered at that time," Whittier says.

Things can happen from one year to the next, and even if a bull



passed his test last year, he may have had an injury or an infection or some other problem that could interfere with his ability to breed and settle cows this year.

"The Western College of Veterinary Medicine in Saskatchewan did a study and put together all their data on bull breeding soundness exams.

They found that basically the same percentage of bulls failed at each age, across the years. Some people feel they only need to test the young bulls or the older bulls and think the middle-aged bulls won't have problems. But just as high a percentage of those bulls fail every year," Whittier says.

"Beyond the things we check on the breeding soundness exam, there are a few other issues we need to look at to make sure the bulls can get the job done. We tell producers that the procedure is an examination of this bull on this particular day, and even though he might pass that test just fine, he may not be fine a month down the road. Bulls may get sick, or become injured or lame. The breeding season is a stressful time."

## Other factors to consider

There are some things that are not assessed with the breeding soundness exam that can affect a bull's breeding ability. The exam does not assess libido (sex drive), for instance. This is just as important as fertility. Even if the bull is fertile and sound, if he doesn't actually breed the cows, he won't sire any calves.

Libido is not easy to measure in a test setting. "This puts the responsibility onto the producer, to monitor the breeding groups and make sure each bull is doing the job," Whittier says.

The young, inexperienced bull needs to be closely watched, but a libido problem can happen with an older bull, as well. An older, overweight bull may become lazy or arthritic and may lose interest in breeding.

Weight and body condition are important factors in whether a bull will be a good breeder. He needs to be in proper fitness condition to be athletic and have the endurance to cover a lot of territory and breed a lot of cows.

"For a long time, I told producers that they needed to have the bulls in abundant flesh because they would lose weight





during the breeding season, and needed some reserve. Then I saw a really interesting study that was done in Canada, in some large community breeding pastures,” Whittier says.

The research was done by Glenn Coulter, who earlier had measured the fat in the bulls’ scrotums (and found that fat bulls are less fertile because the fat insulates the testicles and keeps them too warm for optimum sperm production and also hinders the bulls’ ability to raise and lower the testicles to keep them at a proper temperature).

“In this particular study on the community pastures, however, all they did was check backfat, using ultrasound. Then they turned out 30 to 50 bulls in each pasture. They blood typed the bulls and the cows and the calves, so they could tell which bulls sired which calves,” he explains.

In this way they could tell how many calves each bull had sired.

“If you’d have asked me what was going to happen, I would have said

that it would be a curve. I would have predicted that the really thin bulls wouldn’t breed very many cows and the really fat bulls wouldn’t breed very many, and that you’d want the bulls to be in the middle. It turned out that none of those bulls were too thin to breed cows. The ones that had zero backfat went out and bred the most cows. Now we realize there is a lot more danger in making a bull too fat than in having him too thin,” Whittier says.

A fat bull is not as athletically fit and is more likely to hurt himself, just like an overweight, out-of-shape human who tries to exercise. “The fat bull is not very athletic, and more apt to be lazy. When we talk about body condition scores, I think body score 5 (with 1 being emaciated and 9 being obese) is fine for a bull; he doesn’t need to be any fatter than that. A BCS (body condition score) 5 bull isn’t particularly pretty (he’s in his ‘working clothes’) but he is going to settle more cows than the fat bull. It is crucial that these bulls not be overly fat,” says Whittier.

A yearling bull that is still growing may run himself ragged during his first breeding season and lose too much weight for his own health, however. Therefore, it’s important to give a yearling bull fewer cows or a shorter turnout time, bringing him back in and giving him a rest before he becomes too far down in body condition. It is always important to monitor and manage bulls. Having young bulls too fat when they go out to breed cows is not the healthiest for them or conducive to having them able to breed an optimum number of cows.

### Don’t just turn ‘em out

There’s no substitute for monitoring the bulls and making sure they are breeding cows. Then you’ll know if a bull gets hurt or goes lame, and he can be brought in, and another bull can be put in his place.

You also need to know if certain bulls are keeping the others from breeding the cows. Social dominance can be a big factor regarding what happens in a breeding pasture. One or two bulls may be doing all the breeding and keeping the more timid bulls away from the cows.

“If a bull becomes injured, it’s an emergency to get him out of the pasture. One of the things that can happen is that an injured dominant bull will continue to intimidate other bulls even if he himself is not able to breed the cows. He may have a sore foot, or some other problem like a breeding injury (penile or prepuce injury) and he is not breeding any cows, but is still keeping the other bulls from breeding. The day you realize

he’s not breeding cows, he needs to come home, so the bulls that are left can do the work,” explains Whittier.

There are also a few bulls that would rather fight than breed cows. There are all sorts of social factors that can skew things in a breeding pasture. In a small pasture with only a few bulls, it often pays to try to make sure that the bulls you turn out

together are compatible and not simply spending all their time fighting.

One old-time rancher recommended using one bull or three, rather than two, especially if the two are evenly matched and

**“It is very important to continually assess these interactions and adjust things if necessary — move bulls, rest bulls or whatever is needed to make sure the cows get bred.”**

— Dee Whittier

### Fertility factors

Several things can interfere with fertility, including cold weather and high temperature. Scrotal frostbite, which can often occur in northern climates with cold weather and wind if bulls don’t have adequate windbreaks, can result in scar tissue that makes it impossible for the bull to raise and lower his testicles, rendering him infertile.

This condition may be temporary and not a serious problem, if the damage heals before the next breeding season, or permanent, if the damage is extensive. “The bull may be out for the next breeding season, or may be out for his lifetime, depending on the damage,” says Dee Whittier, DVM and Virginia Tech large animal clinical sciences professor.

Optimum sperm production and sperm health depends on the testicles being a few degrees cooler than body temperature. For this reason, the bull must be able to lower his testicles in hot weather and to draw them up closer to the body for warmth in winter.

Hot weather can be detrimental to fertility, as can a high fever if the bull is sick or suffers from an infection like foot rot. The sperm that were forming at the time he had a fever will be abnormal, and he will have an infertile period about 60 days following the fever. **HW**



always trying to determine who’s boss or always keeping each other from breeding. With three bulls, one might be able to slip in and breed the cow while the other two are fighting.

If you have just one bull in a breeding pasture, you need to make sure he is doing his job. Sometimes a bull will become injured or lazy and won’t get all his cows bred. Sometimes a little competition will spur a

complacent bull to become a more aggressive breeder.

There’s no substitute for knowing your bulls and closely monitoring them to see what’s actually happening in the pasture. “It is very important to continually assess these interactions and adjust things if necessary — move bulls, rest bulls or whatever is needed to make sure the cows get bred,” Whittier says. **HW**

