



SheepSense

an applied research brief

Ram Breeding Soundness Exams: A Producer's Guide

Why Breeding Soundness Exams Matter

A single ram with reduced or total infertility can quietly undo an entire breeding season, showing up at lambing time, when it's too late to fix. Breeding soundness exams (BSE) will help identify less productive rams, allow for a more uniform lamb crop by narrowing the lambing window, and maximize ram breeding potential to reduce the number of rams needed in an operation.

Under field breeding conditions, rams can lose up to 12% of their body weight and 25% of their testicular volume. Additionally, it is common that 10 to 15 percent of rams entering a breeding season will struggle to pass their breeding soundness exam. A BSE will catch these problems before the breeding season starts, rather than discovering them the following spring when the lamb crop comes up short. Additionally, by confirming which rams are genuinely fit for work, producers can make selection decisions with confidence and avoid unnecessary culling of good rams based on guesswork.

Infertility and reproductive issues aren't always obvious and can stem from a variety of external and internal factors. Some of these include lameness, poor conformation, over or under body conditioning, heat or cold stress, diseases/infections, and impaired semen quality. Regardless of flock size, an unsound ram can result in a lambing season with far fewer lambs than expected, ultimately leading to a serious financial setback.

12%

*Body weight rams can
lose during the breeding
season*

25%

*Testicular volume lost
during the breeding
season*

10-15%

*Of rams entering a
season may fail a BSE*



When to Perform a BSE

It is recommended to conduct a BSE between 4-8 weeks before the start of the breeding season. This window gives producers enough time to find a replacement if a ram fails their BSE and it allows for recovery from temporary conditions, such as mild illness or borderline body condition score to resolve in time for a recheck before breeding season. Another factor to consider is that heat-related infertility can persist for six to eight weeks after a temperature spike. Therefore, producers in hot climates or those breeding out of season should build in extra time and consider the ram's recent health and environmental history.

BSEs aren't only a once-a-year, pre-fall-breeding event. They're also recommended for:

- **Out-of-season or accelerated lambing programs**, where producers are trying to settle ewes for a spring or off-season lamb crop and need extra confidence in ram fertility going into an atypical breeding window
- **Newly purchased or newly introduced rams**, before they're turned in with the flock
- **Rams that will be worked hard**, covering large numbers of females or being used in a multi-sire situation where an underperforming ram could otherwise go unnoticed

Be aware that some sales may require mature rams to meet a minimum scrotal circumference, so be sure to check the rules and measure your rams.

How a BSE is Performed

A BSE is typically conducted by a veterinarian and follows a consistent sequence: history and records review, general physical examination, examination of the reproductive tract, and semen collection and evaluation.

1. Flock and Individual History

Before hands-on evaluation begins, it's important to review the ram's health history and the flock's recent breeding records such as prior fertility performance, any known illnesses, vaccination status, and general management. This context can help explain a low BSE score later.

2. General Physical Examination

The ram is examined for overall soundness, not just reproductive function. A healthy ram should be alert, moving freely without lameness, and free of open wounds, abscesses, or injuries. The exam also screens for other conditions that can affect breeding performance and overall health, such as pinkeye, foot rot, sore mouth, respiratory illness, and internal or external parasites. Additionally, body condition score (BCS) is assessed by hand, feeling along the ribs and lumbar spine, on a 1-to-5 scale. 3-4 is optimal while 1 is considered underconditioned and 5 is over conditioned. A ram scoring outside the 3-4 range typically needs a feeding adjustment and time to correct before he's fully ready for breeding season.

Acceptable Scrotal Circumference

	Rams 6 to 14 months	Rams > 14 months
Unsatisfactory	< 26 cm	<29 cm
Questionable	27 to 29 cm	30-32cm
Satisfactory	30 to 36 cm	33-40cm
Exceptional	> 36 cm	> 40 cm

3. Reproductive Tract Examination

Physical inspection via palpation of the penis, prepuce (sheath), testicles, and epididymis, and measuring of scrotal circumference is the first step in ensuring fertility. Greater scrotal circumference (as measured in centimeters) is correlated with increased semen viability, the number of ewes the ram can breed in a breeding cycle, and earlier maturing female offspring.

Upon palpation, the testicles should feel firm and consistent in texture (if there has been no recent exposure to ewes), with no lumps, hard or soft spots, swelling, or lesions. Both testes should be similar in size, with no evidence of atrophy. Any major abnormality of the external genitalia, or any irregularity in the testicles or epididymis, is enough to render a ram unsatisfactory.

Epididymitis, or inflammation of the epididymis, is a common genital pathology found in rams, especially in range flocks. It is frequently linked to *Brucella ovis* infection and most often seen in older rams. Blood or semen can be tested for *B. ovis* to confirm it as the cause of epididymitis. If positive, the ram will likely need to be culled to prevent further transmission throughout the flock.

4. Semen Collection and Evaluation

Semen is typically collected by electroejaculation, using a probe designed for rams. Once collected, the sample is evaluated for motility, or percent of actively moving sperm, and morphology, which is the percent of sperm that are structurally normal. For motility, above 30% is considered satisfactory and greater than 70% is considered exceptional. For morphology, at least 70% of the sperm should be normal.

Additionally, white blood cell counts in the semen sample should be checked; elevated white cell counts are a red flag and are often correlated with *B. ovis* infection.

5. Classification and Outcome

At the end of the exam, each ram is generally sorted into one of four categories:

- **Exceptional:** Falls into exceptional category for all BSE Parameters.
- **Satisfactory:** Meets all the minimum requirements for all BSE parameters.
- **Questionable:** Has one parameter that is rated as questionable, may improve with time (if not infection related) and would be a re-check candidate,
- **Unsatisfactory:** Fails to meet minimum standard in one trait or has disqualifying physical abnormality, would be a candidate for culling.

This rating system gives producers a clear, actionable outcome rather than a vague pass/fail. For example, a ram who is "questionable" today because of a slightly low body condition score is a very different management problem than one who is structurally unsound or carrying an infection.

Practical Takeaways

- **Schedule early** - Booking a BSE 30+ days ahead of breeding gives room to source a backup ram or allow a questionable ram time to improve.
- **Don't skip the basics** - Body condition is one the simplest factors to control and one of the most common reasons rams fail.
- **Watch the outside temperatures** - Heat stress from summer weather, cold stress from winter conditions or illness can knock out fertility for six to eight weeks.
- **Pair the BSE with a *B. ovís* test** - Many states require it for change of ownership, and it fits naturally into the same veterinary visit.
- **Be cautious of "one ram, one flock"** - A single ram failing quietly is the single highest-risk scenario a BSE is designed to prevent.
- **Use a veterinarian** - BSEs involve clinical palpation, electro-ejaculation, and microscopic semen evaluation, all of which are best performed by, or under the guidance of, an experienced veterinarian.

Breeding Soundness Exam

Flock &
Individual
History

Physical
Exam

Reproductive
Tract
Evaluation

Semen
Collection

Body
Condition
Score

Overall
Health &
Lameness
Evaluation

Palpation

Scrotal
Circumference

Blood
Testing

Concentration
& Motility

Morphology
& Viability

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Sources:

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