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Fertility Testing Rams Increases Profits

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With the problems that sheep producers face due to epididymitis and infertility in rams it is essential to have a Breeding Soundness Examination (BSE) done on every breeding ram in the flock.

What is a Breeding Soundness Examination?

A BSE should be completed prior to every breeding season and includes:

1. A complete physical examination.
2. A thorough examination of the reproductive tract.
3. A semen evaluation including motility and morphology.

Physical Examination

A physical examination includes a complete observation of all conditions that might interfere with the ram's breeding ability.

Body condition should be examined closely. If a ram is extremely thin, his breeding stamina will be greatly affected. This may cause ewes to recycle several times, lengthening the lambing season. Rams that are overfat tend to lack the vigor and enthusiasm required to breed a large number ewes.

Rams should be checked for structural correctness. Any structural problem that would affect the rams breeding ability should be examined closely.

All other defects and diseases should be examined closely. Those diseases include abscesses, internal and external parasites, pink eye, foot rot, or progressive pneumonia. Physical problems include teeth problems, wool blindness, or any other defects that could hamper breeding ability.

Examination of the Reproductive Tract

The penis, prepuce, or sheath should be checked thoroughly for any sores or scar tissue. Pizzle rot is an infection in the sheath area, which could affect breeding ability.

The testicles and epididymis should also be examined for tone and size. Differences in size and tone of the testicles could indicate fertility problems. Ram epididymitis is the fertility disease that causes the majority of the ram fertility problems in the United States. This disease causes a swelling and hardening of the epididymis.

A scrotal circumference should be taken on every ram. This is one of the most useful measurements to determine a ram's breeding ability. Scrotal circumference is highly correlated to a ram's semen producing ability. Rams with large scrotal circumferences will produce more semen than rams with smaller scrotal measurements. Also, research has shown that rams with large scrotal measurements will have progeny that will reach puberty earlier. Although no definite guidelines have been established for minimum scrotal circumference, recommendations have been made for a minimum of 33 cm in mature rams, and 30 cm for ram lambs during the peak of the breeding season (September – November). It should also be noted that a decrease of 2 to 3 cm has been seen during the off season (March-June). This can be very important for fall lambing programs in Oklahoma.

Semen Evaluation

A complete semen evaluation should be conducted to indicate rams of poor fertility. Semen is normally collected with the use of an electro-ejaculator. This procedure allows the veterinarian to easily collect a ram. The semen is then evaluated under the microscope for motility and morphology. This semen evaluation allows the veterinarian to estimate forward progressive motility. As motility is influenced by a number of factors, rams should not be disqualified on the basis of motility alone. White blood cells in the collection are an indication of infection. The majority of this infection in mature rams stem from *Brucella ovis* infection. *B. ovis* is the cause of epididymitis.

The second half of the semen evaluation is morphology. A veterinarian then checks the collection for sperm abnormalities. Those rams with questionable semen quality will have more than 30 percent abnormal sperm.

Interpretation

A ram with excellent fertility will have a scrotal circumference of 36+ cm (33+ for a ram lamb), forward motility of greater than 50 percent, normal sperm of 90+ percent, and no white blood cells.

The poor or questionable ram will have poor motility, and more than 30 percent abnormal sperm. Any ram that has white blood cells present would be considered of questionable fertility.

The acceptable or satisfactory ram would fall between these two categories.

Epididymitis

Ram epididymitis is the number 1 ram fertility problem seen in the sheep industry today. This disease has caused the culling of up to 40 percent of the commercial rams in many flocks in Colorado, Wyoming, Montana, and many other western states. The *B. ovis* organism causes epididymitis, and is transmitted during sexual activity: 1) homosexually, from ram to ram; 2) through the ewe; with a ram becoming infected by breeding a ewe that had just been bred by an infected ram. The ewe acts only as a mechanical carrier and does not become infected. However, ewes bred by infected rams can result in embryonic deaths, abortions, stillbirths, or weak lambs. Removing epididymitis infected rams is imperative to increase the profitability of sheep operations.

Increased Profitability?

Removing rams that are infertile or have epididymitis can substantially increase NET profits. Several field trials have been completed in Colorado and Wyoming that have shown an increase in profitability of $10 to $12 dollars per ewe with the use of a Breeding Soundness Examination program.

How?

1. Decreasing the ram:ewe ratio.
2. Decreasing the percent of open ewes.
3. Increasing the percent lamb crop.

The ram:ewe ratio has been decreased in many flocks from 1 ram per 30 ewes to 1 ram per 45 to 50 ewes. The percent lamb crop weaned has increased an average of 10 to 15 percent.

Dollars and Cents

One trial completed last year in Wyoming consisted of two large groups of ewes of approximately 2,000 ewes each. The producer selected 73 rams to be bred to 2,040 ewes (group 1). These rams were selected by body condition and testicle palpation. Group 2 consisted of 2,065 ewes bred to rams that had been selected based upon high Breeding Soundness Examination scores and having no evidence of epididymitis.

Results have now been compiled and show that group 1 ewes produced 17 percent fewer lambs at weaning. In this trial, eliminating epididymitis and conducting a Breeding Soundness Examination produced $11.01 more profit per ewe. Other field trials indicate similar results.

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