

## **Breeding Soundness Examination of the Ram and Buck**

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Veterinarians are well positioned to become valued participants in sheep flock and goat health programs through introduction of certain practices that have high potential to provide direct economic benefit to the producer. Opportune times for veterinary intervention include evaluation of the breeding flock in the fall prior to breeding, late fall / early winter pregnancy diagnosis, and lambing / kidding during the spring. To optimize the size of the following spring's lamb or kid crop, the primary goal of the pre-breeding health program should be optimization of fertility through nutritional management and disease control measures, as well as documentation of male fertility through breeding soundness examination.

Breeding soundness examination (BSE) of male sheep and goats is a clinical evaluation of the potential for a male to impregnate a certain number of healthy females (50 females is a common standard) during a defined breeding season – typically in the fall in North America. Importantly, BSE also provides criteria for culling of males that are found to be unsatisfactory candidates for the breeding flock. Because it can so strongly influence the lamb and kid crop, an annual BSE of the male program is a powerful tool for veterinarians to improve the economic performance of the flock and herd. Accurate producer education regarding ram fertility is essential if the veterinarian is to establish an effective control program for this disease.

Previous studies conducted at Colorado State University by Dr. Cleon Kimberling and colleagues have shown that the use of rams that were proven satisfactory on BSE was associated with an increase in the proportion of ewes pregnant at the end of the breeding season and in the size of the lamb crop.<sup>1-3</sup> Use of rams proven satisfactory by BSE can also result in more lambs being born early in the lambing season, which can indirectly result in heavier lamb weights at weaning.<sup>1</sup> Serologic testing of rams for infection with *Brucella ovis*, a bacterial organism that can cause reduced fertility and a smaller lamb crop, is also considered a vital component of the BSE in sheep. Infection of rams with *B. ovis* can be completely inapparent on physical examination. The organism is capable of spread among rams in the flock through venereal transmission, eventually resulting in significant reduction in fertility in the entire ram pool. Goats are not affected by *B. ovis*. Drs. Kimberling and Schweitzer showed that use of rams proven satisfactory by BSE and free from *B. ovis* infection resulted in an economic return of \$11.97 *per ewe* (1989 US dollars). This economic return only included the calculated advantage of a larger lamb crop (excluding other advantages such as increased lamb weaning weights and reduced ram cull costs); therefore, the economic benefit of using BSE-proven rams is likely much higher. Sub-fertile and infertile males reduce the productivity of the herd by limiting access of other, fertile males to females in estrus; as a result, the female does not become pregnant and returns to estrus. During a finite breeding season, such events increase the probability that the female will not be pregnant at the end of the season. Alternatively, the

female may become pregnant, but only with one embryo rather than 2 or more – in other words, a sub-fertile male tends to sire fewer twins and triplets than a more fertile male would.

Breeding soundness examination consists of a flock and individual medical history, physical examination, semen collection, and semen examination by microscopy. Rams and bucks that have appropriate testicular development, normal physical parameters (including conformation, gait, and vision), and normal semen parameters are considered “satisfactory potential breeders” upon completion of the BSE. Males that do not meet established criteria for satisfactory potential breeder status are considered unsatisfactory potential breeders and should be considered for removal from the breeding population. However, your veterinarian may decide to *defer* classification of a male if he or she believes that time or medical treatment can improve the reproductive potential of the male in question. Based on analysis of records of BSEs in rams conducted over an 8-year period at CSU, rams are classified as unsatisfactory or deferred in approximately 30% of BSEs. Fertility problems, therefore, are fairly common in rams.

Producers interested in increasing their lamb and kid flocks are encouraged to contact their veterinarian to schedule pre-breeding BSE of their sires.

## **References**

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