AASRP GUIDELINES

MALE BREEDING SOUNDNESS EXAMS (BSE)

A breeding soundness exam is defined as an evaluation of the potential ability of a male to impregnate a given number of females within a defined breeding period. It gives a rating for just one point in time. (i.e., the time of examination). Some of the reasons to perform a BSE are that large proportion of rams are unsatisfactory breeding quality, to identify male with inferior potential fertility and to eliminate those males to improve economic returns to a flock. A BSE will evaluate male potential reproductive performance via a physical exam with emphasis on reproductive tract followed by an assessment of semen quality. One area we do not usual test for but rely on the owner for information on is an assessment of libido and social behavior. Another reason is to be able to identify what we referred to as superior males who are able to settle more females than the average male.

Physical Exam:

Unlike a routine physical exam, we are not concerned with temperature, respiration and pulse. Rather, we want to ensure that the male is physically fit to breed. We check feet, eyes and body condition score. If they are lame, they will not ambulate to find females to breed. If they can't see the females that will also cause an issue with finding the females and finally, if they are too thin or too obese then breeding is going to be low on their list of priorities. It should also be noted that the males often lose a body condition score during the breeding season so they should be at least a 3.5-4.0 at the start of the season.

Body Condition Score (BCS):

Due to the wool and hair, it is important that the animals are handled when performing a BCS. Body condition is assessed by palpation of the spine in the lumber region just after the last rib. Feel for the transverse and spinous processes and assess the amount of fat and muscle overlying the spine and ribs.

Score 1 - The spinous and transverse processes are prominent and sharp. The fingers can be pushed easily below the transverse bone and each process can be felt. The epaxial is thin with no fat cover.

Score 2 - The spinous processes are prominent but smooth, individual processes being felt only as corrugations. The transverse processes are smooth and rounded, but it is still possible to press fingers underneath. The epaxial muscle is a moderate depth but with little fat cover.

Score 3 - The spinous processes are smooth and rounded; the bone is only felt with pressure. The transverse processes are also smooth and well-covered, hard pressure is required with the fingers to find the ends. The epaxial muscle is full and with moderate fat cover.

Score 4 - The spinous processes are only detectable as a line. The ends of the transverse processes cannot be felt. The epaxial muscles are full and rounded and have a thick covering of fat.

Score 5 - The spinous and transverse processes cannot be detected even with pressure; there is a dimple in the fat layers where the processes should be. The epaxial muscles are very full and covered with very thick fat.

BCS should be conducted at least three times a year.

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Reproduction exam:

Scrotal circumference and testis palpation should be performed with symmetry in mind. The left should feel like the right and right like the left. Palpate for lumps, bumps or any other abnormalities should be noted. Scrotal circumference correlates with reproductive efficiency and is 35% heritable. The prepuce should also be palpated but since it is difficult to exteriorize the penis can be evaluated during collection. Scrotal circumference is based on age and can vary with season.

Semen collection:

Spermatogenesis requires 49 days plus 10-14 days in epididymis, so sperm collected today began development 59-63 days ago. Collection via electro-ejaculation is similar to how we collect bulls. First, we evaluate the rectum of fecal material and then using a 60cc catheter tip place 60 cc of water-soluble lube into the rectum. It is also imperativeto lube the probe as to not cause any damage to the rectum. Once inserted stimulate the male on the lowest setting for 6-8 seconds. Repeat increasing the settings until ejaculation occurs. The ejaculate can be collected in a Styrofoam cup. Restraint may be necessary, and vocalization may occur, but it has been shown that electro-ejaculation is stressful but not painful to lube the probe as to not cause any damage to the rectum. Once inserted stimulate the male on the lowest setting for 6-8 seconds. Repeat increasing the settings until ejaculation occurs. The ejaculate can be collected in a Styrofoam cup. Restraint may be necessary, and vocalization may occur, but it has been shown that electro-ejaculation is stressful but not painful.

Reproduction evaluation:

Concentration, motility, and morphology are all evaluated and assessed. When checking motility dilute the semen with warm saline. Place one drop on warm slide, apply coverslip and examine under 20X. It is important that all equipment is warmed to 37.5°C so that motility is no effective to cold shock. The motility assessed should be progressive motility and should be classified accordingly. Morphology is assessed by staining the slide with warm eosin-nigrosin stain so the morphology of induvial cells can be seen at 100X under oil immersion. One hundred induvial cells are counted and labeled normal, primary defects (head), and secondary defects (tail). It is also necessary to identify any cells other than sperm.

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Classification:

Once all of the breeding soundness exam parameters have been evaluated a classification can be made based on the following:

	Questionable	Satisfactory	Exceptional
Scrotal Cir (8-14 months)	<30	30 – 36	>36
Scrotal Cir (>14 months)	<32	32 – 40	>40
Motility (% Normal)	10 – 30	30 – 70	70 – 100
Motility (% Normal	30 – 50	50 – 80	>80

Any unsatisfactory rating = unsatisfactory

Any questionable rating = questionable

Exceptional in all categories = exceptional
All others = satisfactor

Interpretation of Classification:

Unsatisfactory = Cull or treat/retest

Questionable = May breed a limited number of ewes or treat/retest

Satisfactory = Will be able to breed at least 50 ewes in 60d

Exceptional = Will be able to breed at least 100 ewes in 60d

All breeding soundness examination parameters were developed in rams, when dealing with goats we extrapolate from the data developed from sheep. Brucella ovis serology should be considered part of a routine BSE.

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COMMON CAUSES OF MALE INFERTILITY:

There can be many causes of infertility or reduced fertility in rams: e.g. poor semen quality, poor libido, physical defects, disease, poor nutrition, injury, heat stress, body condition, and age.

Brucella ovis:

A contagious venereal disease of mature rams is a major cause of reduced fertility in multi-sire breeding systems. Transmitted by homosexual activity or via ewe will lead to epididymitis. Enters blood via mucous membranes, causes bacteremia then infects the reproductive tract. It localizes in the epididymis which enlarges and fibroses. This will lead to obstruction and degeneration of the testicular tissue and ultimately infertility. Diagnosis via semen culture or serology. Treatment response is poor and culling the affected males is recommended. The female is not permanently infected but serves as a mechanical vector for disease spread.

Ulcerative posthitis:

Also known as “pizzle rot”. A high protein diet great than 16% increasing the urea in the urine which causes the urine to be alkaline. The alkaline urine cause bacteria urease breaks down the urea to release excess ammonium. Increased ammonium causes irritation and ulceration allows for Corynebacterium renale a normal inhabitant of the prepuce to cause an infection. The scars and strictures from the infection can block the preputial opening and lead to infertility.

Cryptorchidism:

Failure of one or both testes to descend into the scrotum. Cryptorchids are undesirable breeding animals. If both testicles are affected, the ram is infertile. If only one testicle is affected, the ram may be fertile, but he will pass the trait onto his offspring.

Heat Stress:

High body temperatures produced in rams by high summer temperatures is a cause of poor quality semen. High temperatures can also affect mating with reduced sexual activity. Conception rate is also reduced which may affect the number of offspring born.