

Breeding Season Preparations for Sheep Flocks

A successful lambing season first starts with preparations for the breeding season.



There are a few key management aspects that are critical as part of the breeding season preparations. These include evaluating body condition, flushing the ewes, conducting a ram breeding soundness exam, and considering aspects that promote embryonic survival.

Evaluating Body Condition

Body condition scoring allows producers to evaluate both nutrition and genetics within a flock. Proper body condition will help to ensure a successful breeding season followed by a successful lambing season. Sheep are scored on a 5-point body condition scale, with 1 being very thin and 5 being very fat. Evaluations should take place throughout the year as body condition scores change. Good times to evaluate body condition are prior to the start of the breeding season, about four to six weeks prior to lambing and after weaning.

Body condition is evaluated by handling sheep in the loin area. In particular, the amount of fat is checked across the spinal column along the back of the sheep and at the transverse process, which is a vertical bone located below the loin muscle. Producers can also assess the fullness of the muscling in the loin and leg muscles as well as consider how prominent the hip bones and ribs are by sight and feel. The ideal body condition score during most times of the year would be a 3. At this score, the spine should not be visible down the top of the sheep, the transverse processes should be well covered with muscling and the loin and leg muscles should be full and not

appear atrophied. In addition, the hip bones should be well covered with muscle and fat and the ribs should not be seen but can be felt with some pressure.

Sheep with a body condition score of 1 will have a spine and ribs that are visible. The transverse processes will also be visible and easily felt. These emaciated sheep will show atrophy of the loin and leg muscles. A good goal for increasing body condition of thin ewes would be to increase body weight by 10% over a 100-day period through supplemental energy and protein.



Very thin ewes with a body condition score of 1 have hip bones and ribs that can be easily seen. Photo by Melanie Barkley

Sheep with a body condition score of 3 will not have a visible spine or ribs, but the spine and ribs can be felt with slight pressure. The transverse processes should also not be seen but can be felt with slight pressure. The loin and leg muscles of a sheep with a body condition score of 3 will be well filled out. These sheep would be considered in ideal body condition for the breeding season.





Ewes in ideal condition have full leg and loin muscles as well as fat covering over their ribs. Photo by Melanie Barkley

Sheep with a body condition score of 5 will have a spine and ribs that are completely covered with fat that can only be felt with pressure. The transverse processes are also completely covered with muscle and fat and can only be felt with pressure. The loin and leg muscles on sheep with a body condition score of 5 will be full and covered with fat. These sheep often exhibit fat patches over the dock. These overly fat sheep should be avoided. Rams with a body condition score of 5 may have issues with libido during the breeding season, while ewes will have an increased likelihood of problems during late pregnancy and when lambing.



Sheep with a body condition score of 5 are considered obese. Their body is well covered with fat and often exhibits fat patches around the dock. Photo by Melanie Barkley

Body condition scoring prior to the breeding season allows producers to make culling decisions as well as assess the flock's nutritional program. Monitoring body condition throughout the year and prior to the breeding season allows producers to make any needed adjustments to nutrition. Maintaining sheep in ideal body condition can improve flock performance during the breeding season and at lambing time.

Flushing

Once a producer completes body condition scoring, he or she can then make decisions regarding nutritional adjustments for flushing the flock. Flushing is the practice of increasing the plane of nutrition prior to the breeding season in order to encourage ewes to produce twins. This is generally done by increasing the energy in the ewe ration and should start approximately one month prior to introducing the ram to the ewes.

With increased dietary energy, the ewe will begin to increase body condition. This will then signal the ewe's body that she will be capable of supporting more than one lamb. In turn, this will increase her ovulation rate, which should result in a higher lambing percentage, or more lambs born per ewe.

Energy can be increased in the ration by adding grain at a rate of one-half to one pound per ewe per day or by moving the entire flock to a lush pasture. Many producers feed corn as the grain source, while others prefer a mixed grain formulation. The total amount of grain fed should be adjusted based on the body condition of the ewes.



Many producers flush sheep on high quality pasture, while others may prefer to feed grain to increase energy in the ration. Photo by Meghan Barkley

The additional energy in the ration should be fed throughout the breeding season and continue until a few weeks after the ram is removed. This will allow for implantation of the embryos in the uterus. For these reasons, flushing has the greatest impact early in the breeding season. Ewes with body condition scores of 2 to 3 often respond best to flushing.

While emphasis is placed on ewes for flushing, rams will also benefit from the additional energy in the ration because it helps them lose less weight during the breeding season. Plus, the added energy helps the rams maintain their vigor for

breeding.

Ram Breeding Soundness Exams

Prior to breeding, evaluate breeding soundness of all rams to prepare for the breeding season. A good quality ram should have adequate size and muscling, be vigorous and active, and have a strong and masculine appearance. He should be structurally correct, should stand with all four feet squarely underneath him, be up on his pasterns, and be able to move freely. Sheep that produce wool should also have a high quality and uniform fleece.

New rams should be purchased at least one month prior to the breeding season. This will allow time for the ram to adjust to the new location and allow a producer ample time to quarantine the ram from the rest of the flock to ensure he is not carrying any contagious diseases.

Prior to the start of the breeding season, a physical examination of the ram should be conducted for breeding soundness. Allow enough time for the ram to heal from any injuries or be replaced if he is found unsound. The examination should include palpation of the testicles and epididymis, and visual appraisal of feet, legs, eyes and teeth. In addition, be sure to check the body condition of the ram. Rams that are in poor body condition will often have poor semen quality and rams that are too fat often lack the libido to breed ewes.

Testicles of the ram should be firm and be adequate in size, and be free of any lumps or abscesses, which could indicate an injury or disease. The tail of the epididymis is located at the bottom end of the testicle. It should be slightly rounded and free from any hard knots. This is important because the tail of the epididymis is where most of the sperm is stored.

Ram lambs that are 8 to 14 months old should have a scrotal circumference of 30 to 36 cm, while mature rams should have a scrotal circumference of 32 to 40 cm. The size of the testicles relates to the ability of the ram to produce sperm. This in turn will allow the ram to breed a large number of ewes. Larger scrotal circumference directly correlates with greater semen volume and sperm viability. Larger scrotal circumference also correlates to siring ewe lambs that reach puberty earlier than ewe lambs produced by rams with a smaller scrotal circumference.

Trim feet and conduct a visual appraisal of the feet and legs to look for lameness and evidence of foot rot or foot scald. Signs that a ram has these issues would include a red inflammation between the toes, or this could present as a white color with a moist appearance. Foot rot will appear as though the foot is rotting. Foot rot will have a foul odor associated with the problem.

Check the ram's eyes to ensure that they appear normal. The membranes around the eye should be bright pink to red in color. If they are gray or white in appearance, the ram is likely anemic and needs dewormed. FAMACHA scoring should be used to assess the need to deworm.

Shear rams prior to breeding season and then check for body condition. The ram should have some extra condition or fat reserves, but not be overly fat. Rams should have a body condition score of 3 to 3.5. Thin rams may have less stamina throughout the breeding season, while fat rams may have less libido. As the breeding season progresses, a ram can lose as much as 10% of his body weight. Overly fat rams may be lazy and not want to breed. In addition rams that are too hot from having long wool may not want to breed. These rams are also more susceptible to heat stress, which can decrease semen quality. On the other hand, thin rams can be expected to have less energy for breeding and may have a lower semen quality.

Elevated body temperature that results from illness or from heat stress both affect semen quality very quickly. Sperm production takes approximately six weeks to complete and so rams affected by elevated body temperatures may have reduced ability to successfully breed ewes for that length of time.

If there are questions regarding the breeding soundness of a ram, his ability to breed ewes can be checked either through a semen evaluation or by using a method that allows the ram to mark the ewes as he breeds them. A veterinarian, or a breeding service, should be able to conduct a semen evaluation test. Evaluations will involve collecting semen and then viewing under a microscope to look for numbers of live and motile sperm cells, plus numbers of abnormal sperm cells.



A marking harness can be used to identify ewes bred by the ram. Change the color every 17 days to identify ewes that are bred multiple times. A large number of ewes remarked can indicate infertility issues with a ram. Photo by Melanie Barkley

Even though a ram succeeds in getting ewes pregnant, it is important to follow good management practices to ensure that the ewes remain pregnant until the lambs are ready to be born.

Aspects to Promote Embryonic Survival

In addition to body condition scores, body weight management of young ewes is important. Yearlings should weigh at least 80% of their mature weight by the start of the breeding season and ewe lambs should weigh 65 to 70% of their mature weight. In order for ewe lambs to reach this desired weight, most will require a grain supplement. In general, sheep gain approximately a quarter to a third of a pound per day on pasture. This rate of gain results in ewe lambs weighing less than recommended for breeding. Therefore, producers should calculate weight gain required and adjust rations to accommodate a faster rate of gain if they plan to breed ewe lambs.

Maintaining body condition scores, or improving body condition of thin ewes, during the first 90 days of pregnancy helps promote embryo survival. The embryo implants itself in the uterus about 3 weeks after fertilization and placental development occurs shortly after that. The placenta connects the developing fetus (lamb) to its dam and provides nourishment for the fetus to grow plus eliminates waste products. Good nutrition allows the placenta to develop to full size during this period, thus providing optimal amounts of nutrients to the fetus. Poor placental development can impact lamb birth weights and can ultimately impact the future reproductive potential of a lamb. Lamb birthweight is one of the greatest predictors of lamb survival: smaller lambs are less likely to survive birth as compared to lambs with average birth weights. Approximately 70% of lamb mortalities that occur prior to weaning occur during the first 48 hours after birth.



Sheep in good body condition that are flushed on high quality pasture have a high likelihood of producing twins. Photo by Melanie Barkley

Rations should provide adequate energy, protein, vitamins and minerals. Typically, good quality pasture and a good quality mineral mix provide sufficient nutrients to support the pregnancy. However, pay close attention to pasture mixtures during the first 45 days of gestation. Legumes, and red clover in particular, produce phytoestrogens. These estrogenic compounds can impact reproduction by reducing ovulation and conception rates. Fertility generally returns to normal within four to six weeks after removing the sheep from

pastures containing high levels of phytoestrogens.

As breeding season continues, be sure to assess body condition scores of ewes and rams. Make sure they receive adequate nutrition to support a body condition score of 3 or provide additional nutrients in the ration to improve body condition scores. The ultimate goal is for ewes to consume a ration that will promote ovulation rates to conceive twins, support embryo survival and result in a healthy set of twins. All of these steps taken prior to the breeding season can lead to a more successful lambing season.

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Penn State College of Agricultural Sciences research and extension programs are funded in part by Pennsylvania counties, the Commonwealth of Pennsylvania, and the U.S. Department of Agriculture.

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Code: ART-6572