KANSAS STATE UNIVERSITY | Extension

Sheep Nutrition

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Nutrition accounts for approximately 60% of the total production costs in a sheep operation. A thorough evaluation of your nutrition program is essential to optimize feed efficiency and control expenses. Underfeeding or failing to meet nutritional requirements can have a significant economic effect on your operation, including reduced fertility and overall productivity.

General Nutrition Practices

Body Condition Scoring

Body condition scoring is a practical tool used by sheep producers to assess the amount of fat and muscle covering the animal's body, providing a valuable indicator of overall health and management effectiveness. Since wool can obscure visual assessment, producers are advised to place a hand just behind the last rib to palpate the vertebrae just after the loin (See steps to body condition scoring). The body condition scoring system ranges from 0 to 5, based on the prominence of spinal vertebrae and the degree of fat and muscle cover. Maintaining a score of 2 to 3, depending on the stage of production, is ideal for optimal health and performance in sheep.

Figure 1. Body Condition Scoring Chart *(Graphic courtesy of Oregon State University)*

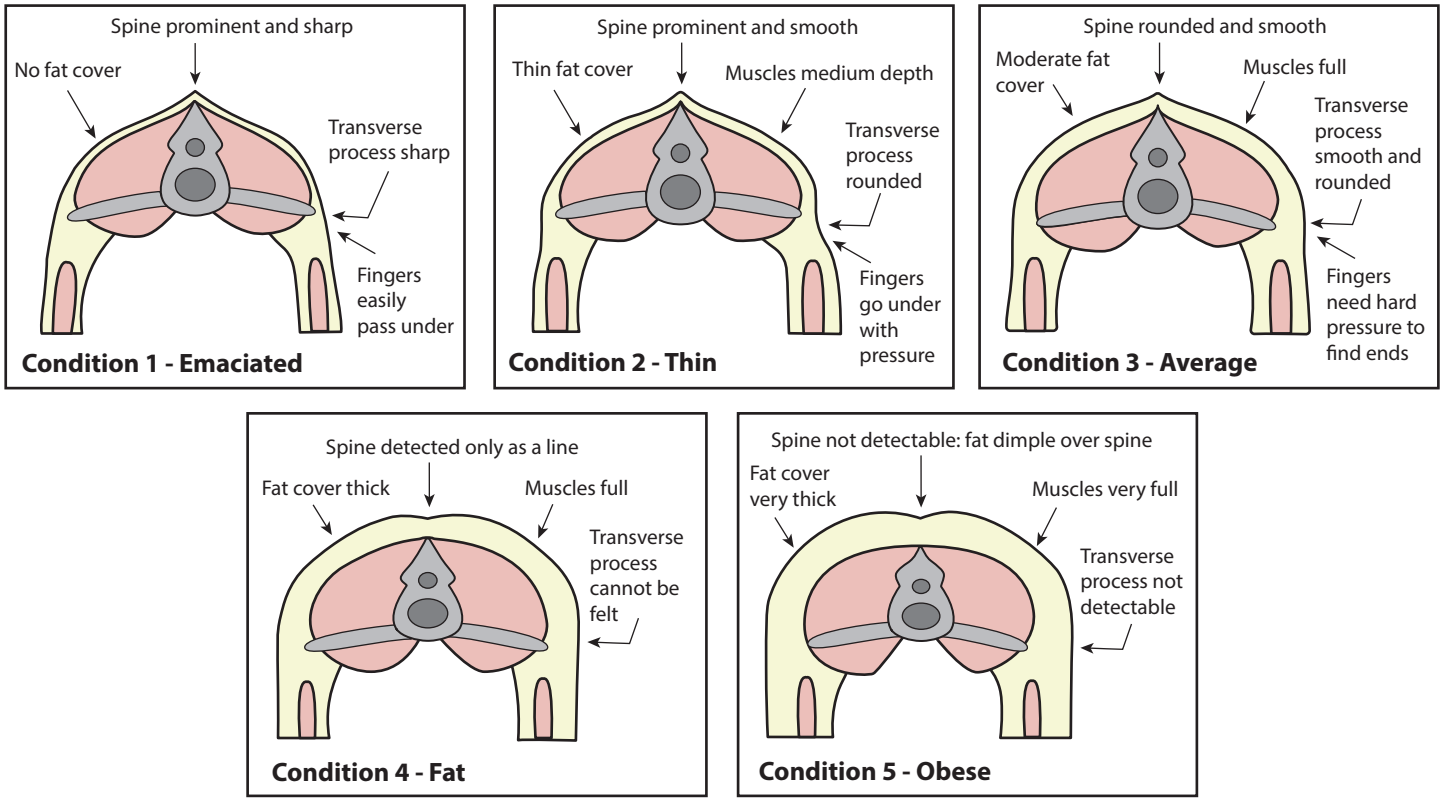
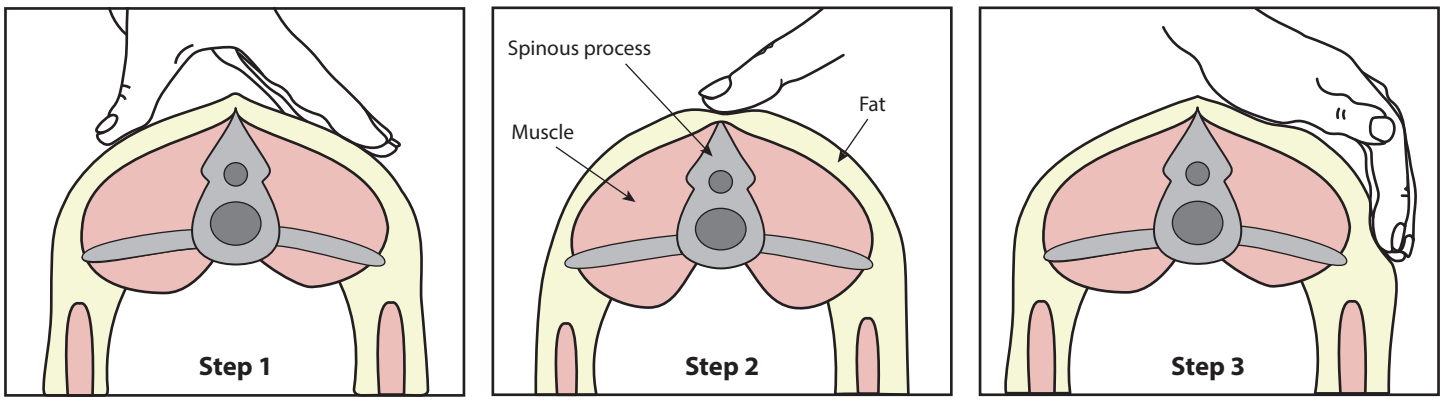


Figure 2. Steps to Body Condition Scoring



Nutrition Basics

Diets are balanced to meet the requirements of small ruminants for protein, carbohydrates, fat, water, vitamins, and minerals. Protein requirements change based on the ewe production stage. Fast-growing lambs require 16% to 18% protein on average. Protein is found in grains and high-quality forages.

Carbohydrates are typically supplied in the diet in the form of forage. Forage positively affects the rumen by adding a scratch factor. The microbes ferment and break down the cell wall, later absorbing the products through the rumen wall.

Fat supplies 2.5 times more energy than carbohydrates. Fat should be fed in small quantities (less than 5% of the diet) and is commonly added to minimize grain dust. Feeding small ruminants does not have to be complicated. Many producers can get by feeding corn and alfalfa in different amounts to meet animals' needs at every production stage.

Water

Water is the most important nutrient for all classes of sheep. Having adequate access to water not only affects animal health but also can greatly affect feed intake, efficiency, reproduction, and performance. Sheep will drink 1 to 2 gallons of water for every 4 pounds of dry matter ingested. Lactating or gestational ewes may even double those amounts.

Mineral

Having a high-quality mineral is also vital, as sheep are more sensitive to mineral deficiencies/toxicities than other livestock species. While most manufactured diets are formulated to supply appropriate minerals, supplemental minerals are crucial. Mineral can be provided to sheep in loose (free choice) or most commonly in solid (block) forms. Be sure to keep minerals in all forms protected from the weather.

Aspects of a quality mineral include:

- Must be species specific. Sheep cannot consume minerals labeled for other species because of the copper (Cu) levels.
- Help support a proper calcium (Ca) to phosphorus (P) ratio of 2:1 to prevent urinary calculi (kidney stones).
- Keep macro minerals such as sulfur, magnesium, and selenium balanced, as they can negatively affect young lamb growth.
- Include trace minerals such as cobalt, copper, iodine, iron, manganese, molybdenum, zinc, and selenium that are typically provided by forage.

Feeding Lambs

Milk Supplementation

Lambs need 10% to 20% of their body weight in colostrum within the first 24 hours.

Table 1. Approximate colostrum needs based on newborn lamb weight

Lamb Weight (lb)	Colostrum needed within the first hour of life (oz)	Colostrum needed within the first 24 hours (oz)*
8	6	13
9	6	15
10	7	16
11	7	18
12	8	20
13	8	22
14	9	24

* The total amount of colostrum needed during the first hour to 24 hours of life should be split up into feedings of **2 to 4 ounces** every **3 to 4 hours**. If a lamb needs to be fed bottles regularly, feed a lamb-specific replacer four to six times a day for the first two weeks, then gradually back down to twice daily. (*https://www.merckvetmanual.com/management-and-nutrition/nutrition-sheep/feeding-practices-in-sheep*). Make sure to read the formula's label on how much and how often to feed lambs for proper growth. Lambs raised on milk replacer can be weaned at four to five weeks if they are taking to supplemental feed well.

Creep Feed

Creep feeding is a strategy in which a small pen is set up with a gate at the front that allows only lambs to enter. A feeder is placed inside so lambs always have access to feed. Creep feeding trains lambs to eat out of a feeder early. This is helpful during weaning and can keep lambs from becoming stressed and going off feed.

Table 2. Aspects of an adequate creep feed for lambs

Item	Description
Crude Protein	Between 18% to 20% crude protein.
Calcium: Phosphorus Ratio	2:1
Medication	Decocquinate, lasalocid (prevention of coccidiosis)
Composition	Can be as simple as 80% cracked corn and 20% soybean meal. Many existing formulations available.
When to use	Introduce at one week of age, continuing to have feed available until post-weaning.

Finishing Lambs

Weaned lambs can be backed off protein from 18% to 16%, then down to 14% at finishing. Replacement females should not be allowed free access to grain after weaning. Extra fat could reduce future milk potential due to deposits in the udder. In addition, lambs on lower-energy diets for a longer period of time finish at heavier weights.

Table 3. Late-maturing lambs gaining 400 g/d

	Weight (lb)	Daily DM (kg)	TDN (kg/d)
4 months	40	1.16	0.77
	60	2.08	1.10
	80	2.19	1.16
8 months	40	1.36	1.08
	60	2.02	1.34
	80	2.19	1.45

Feeding the Breeding Herd

Feeding Rams

Ram nutrition is often overlooked but is key for a sound breeding season. Libido and fertility are directly correlated to nutrition. Rams can lose up to 12% of their body weight when turned out with ewes, which is why a body condition score of 3 before the start of breeding is ideal.

Table 4. Rams

	Weight (lb)	Daily DM (kg)	TDN (kg/d)
Maintenance	100	1.77	0.94
	150	2.40	1.27
	200	2.98	1.58

Feeding Pre-Breeding Ewes

Nutritional flushing has been found to increase the number of lambs born by 10% to 30%.

Nutritional flushing is done by increasing energy by 10% six weeks before breeding. This can be as simple as adding ¼ to ½ pound of corn daily to increase the base of nutrition.

Ewes with a body condition score of 3.5 or higher do not respond to flushing, so flushing is performed only on scores of 2 to 3. Young ewes should be fed separately from mature ewes.

They should be 60% to 70% of their mature weight by breeding, and 80% to 90% by lambing.

Table 5. Mature ewes

	Weight (lb)	Daily DM (kg)	TDN (kg/d)
Maintenance	80	1.30	0.69
	100	1.54	0.82
	120	1.76	0.94
	140	1.98	1.05
Breeding	100	1.69	0.90
	120	1.94	1.03
	140	2.18	1.15

Feeding Ewes in Gestation

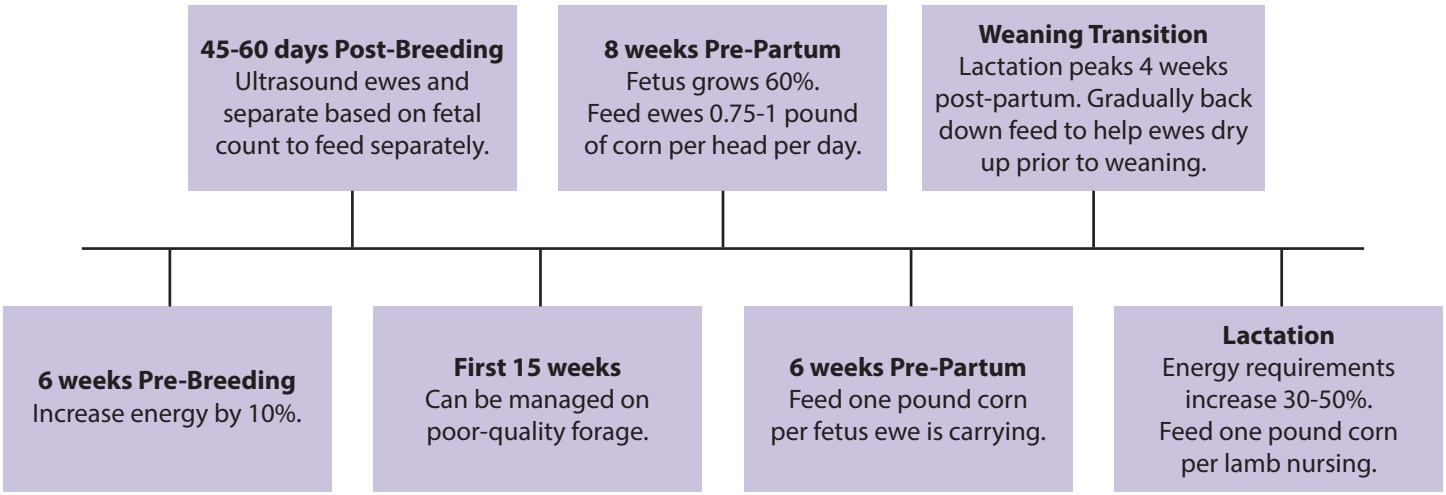
Ewes late in gestation have a smaller capacity in their abdomen to consume large amounts of forage. This is due to the uterus expanding with the growth of the fetus.

Increasing the amount of grain fed in the last six weeks also helps prevent pregnancy toxemia, a condition that is caused by ewes not being able to mobilize their fat efficiently to support lambs.

Table 6. Gestational ewes

	Weight (lb)	Daily DM (kg)	TDN (kg/d)
Early, Twins	100	2.15	1.14
	120	2.44	1.29
	140	2.71	1.44
Late, Twins	100	2.87	1.52
	120	3.24	1.72
	140	3.57	1.89

Figure 3. Feeding the breeding ewe



Feeding Ewes in Lactation

Feeding a medicated feed can decrease the risk of toxoplasmosis.

Ewe lambs should be fed separately from more mature ewes, as pregnant ewes have their own growth requirements in addition to the requirements of the growing fetus.

Table 7. Lactational ewes

	Weight (lb)	Daily DM (kg)	TDN (kg/d)
Early, Twins	100	2.48	1.64
	120	3.47	1.84
	140	3.82	2.03
Mid, Twins	100	2.68	1.42
	120	3.02	1.60
	140	3.33	1.77
Late, Twins	100	2.53	1.34
	120	2.87	1.52
	140	3.19	1.69

Feeding Ewes During Weaning Transition

Lactation peaks about four weeks postpartum.

- Decreasing feed intake four weeks postpartum helps lambs transition to feed and decreases the risk of mastitis.

Feed intake should remain lowered for one week post-weaning to help the ewe dry up.

Table 8. Production stages

Class/Age	Production Stage	Weight (lb)	Daily DM (kg)	TDN (kg/d)
Mature Ewes	Maintenance	80	1.30	0.69
		100	1.54	0.82
		120	1.76	0.94
		140	1.98	1.05
	Breeding	100	1.69	0.90
		120	1.94	1.03
		140	2.18	1.15
Gestational	Early, Twins	100	2.15	1.14
		120	2.44	1.29
		140	2.71	1.44
	Late, Twins	100	2.87	1.52
		120	3.24	1.72
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Lactational	Early, Twins	100	2.48	1.64
		120	3.47	1.84
		140	3.82	2.03
	Mid, Twins	100	2.68	1.42
		120	3.02	1.60
		140	3.33	1.77
	Late, Twins	100	2.53	1.34
		120	2.87	1.52
		140	3.19	1.69
Rams	Maintenance	100	1.77	0.94
		150	2.40	1.27
		200	2.98	1.58
Late Maturing Lambs Gaining 400g/d	4 months	40	1.16	0.77
		60	2.08	1.10
		80	2.19	1.16
	8 months	40	1.36	1.08
		60	2.02	1.34
		80	2.19	1.45

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