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Feeding Sheep

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Nutrition plays a major role in the overall productivity, health, and well-being of the sheep flock. Because feed costs account for approximately two-thirds of the total cost of production on most Virginia sheep farms, it is important that producers consider nutrition management a top priority. Nutrient requirements of sheep vary with differences in age, body weight, and stage of production. The five major categories of nutrients required by sheep are: 1) water; 2) energy; 3) protein; 4) vitamins; and 5) minerals. During the grazing season, sheep are able to meet their nutrient requirements from pasture and a salt and mineral supplement. Hay is provided to the flock when forages are limited, and grain may be added to the diet at certain stages of production when additional nutrient supplementation is required. Small grain pastures or stockpiled fescue can supply up to one-half of the feed requirements of the ewe flock during the winter. For winter-born lambs, creep diets and diets for early-weaned lambs are formulated from high energy feed grains and protein supplements to promote accelerated growth. During the grazing season, pastures of mixed grass and clover, alfalfa, small grain, and turnip serve as excellent sources of nutrition for growing lambs. A source of clean, fresh water is provided to sheep at all times.

Feeding the Ewe Flock

Ewe body weight does not remain constant throughout the year, but changes with stage of production. Nutrient requirements are lowest for ewes during maintenance, increase gradually from early to late gestation, and are highest during lactation. Decisions affecting feeding management are improved significantly by knowing ewe body weight and condition score at three distinct stages of production: 1) three weeks before breeding; 2) mid-gestation; and 3) weaning. Condition score is a subjective measure of body fat that is most easily determined by handling ewes down their back. It is the best method available to monitor nutritional status and overall well-being of the sheep flock. Condition scores range from 0 to 5, with 0 being extremely thin and 5 being very fat. Condition scores at either end of the scale are undesirable. Ideally, ewes should range from a condition score of 2.5 at weaning to a 3.5 at lambing. When necessary, thin ewes are separated and fed additional energy to increase body condition. Conversely, obese ewes are separated and fed a lower energy diet at a stage of production when body weight loss is acceptable. It should be noted that problems with overfat ewes are far fewer than those associated with ewes that are too thin.

Starting two weeks before breeding and continuing two weeks into the breeding period, ewes should be placed on high-quality pasture or supplemented daily with .75 to 1 pound whole shelled corn or barley. This management practice is called flushing and has been shown to improve lambing percentage by 10 to 20 percent. Flushing works best with mature ewes that are in moderate body condition, and has been shown to be more effective for early- and out-of-season breeding than at the seasonal peak of ovulation during the fall. Most prenatal deaths occur within the first 25 days after breeding and are usually associated with poor nutrition. Therefore, it is important not to make dramatic reductions in nutrient supplies during the breeding season. Pastures with more than 50 percent clover or other legumes should be avoided during breeding because legumes may contain estrogenic compounds that reduce conception rates. From breeding to six weeks before lambing, the ewe flock can be maintained on permanent pastures, small grain pastures, stockpiled fescue, aftermath crop fields, or hay. Fetal growth is minimal, and the total feed requirement of the ewe is not significantly different from a maintenance diet. The developing fetus acquires approximately two-thirds of its weight during the last six weeks of pregnancy. Rumen capacity may be limited with ewes carrying multiple fetuses. Therefore, it is important to supplement ewes with .75 to 1 pound of corn or barley in addition to their normal diet starting six weeks before lambing, to prevent pregnancy toxemia, low birth weights, weak lambs at birth, and low milk production. Producers should be careful not to overfeed grain during late gestation, which could result in lambing difficulty caused by large lambs.

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After lambing, the energy and protein requirements of the ewe increase by 30 and 55 percent, respectively. Failure to supplement ewes accordingly results in excessive body weight loss, low milk production, mismothering, and poor lamb gains. Protein supplementation is especially critical for ewe flocks with a high percentage of multiple births. Unless high quality legume hays are fed, protein supplementation will be necessary as a part of the grain portion of the diet. A general rule of thumb for concentrate feeding of lactating ewes is 1 pound of grain for each lamb nursing the ewe. Ewes should be sorted into feeding groups based on type of rearing (single, twin, etc.) to make sure grain supplements are neither over- or underfed. Table 1 gives the TDN and crude protein requirements of ewes based on body weight and stage of production. By knowing the nutrient requirements of the ewe and the nutrient content of the feed, diets can be properly formulated to meet the nutritional needs of the ewe. Shown in Table 2 are the estimated quantities of hay, corn and soybean meal that would be fed to a 175 pound ewe at different stages of production and with different crude protein values for the hay. To successfully use this table, hay samples should be submitted to a testing lab to determine its crude protein content.

Feeding Lambs

Feeding programs in Virginia for growing and finishing lambs are different for winter- and spring-lambing production systems. Lambs born from November through early February will likely be grown and finished on high concentrate feeds. Lambs born after the middle of February are placed on pasture with their dams where they remain throughout the spring and summer. If necessary, spring-born lambs are weaned and finished to market weight in the fall, using a grain on grass feeding program or placed in a feedlot for an abbreviated period of high concentrate feeding.

Lambs on a winter-lambing program should have access to a high quality creep feed by the time they are seven days old. Creep feeds should contain 18 to 20 percent crude protein and be low in fiber (high in energy). The source of protein in commercially prepared lamb creep pellets should be all natural protein. Because the rumen of young lambs is not fully developed, urea should not be used as a partial source of protein in the diet. A 2:1 calcium to phosphorous ratio is maintained in on-farm feed mixes by adding feed grade limestone at 1 percent of the diet. Calcium to phosphorous ratios of less than 2:1 may lead to urinary calculi (water belly), which most often results in the death of the lamb. If the addition of limestone to the diet fails to control urinary calculi, ammonium chloride should be added at .5 percent of the diet. When constructing a creep area, keep the following points in mind: 1) place the creep in a convenient location close to an area where the ewe flock congregates; 2) have openings on at least two sides of the creep and several openings per side; 3) keep the creep area clean and well bedded; 4) place a light over the creep to help attract the lambs to the feed or arrange the creep in such a way that the sun shines into the area during the day; 5) provide fresh water in the creep area; and 6) construct the creep feeder so that lambs cannot stand and play in it. Allow 2 inches of trough space per lamb.

Winter-born lambs should be weaned and adjusted to a growing diet by the time they are two months of age. A growing diet for lambs weighing 40 to 70 pounds should

Table 1. Changes in the Daily Total Digestible Nutrients (TDN) and Protein Requirements of a Ewe from Maintenance Through Early Lactation.

	Ewe weight							
	130 lb[a]		155 lb[a]		175 lb[a]		200 lb[a]	
	TDN	Protein	TDN	Protein	TDN	Protein	TDN	Protein
Stage of production	lb							
Maintenance	1.30	0.23	1.50	0.25	1.60	0.27	1.70	0.29
Early pregnancy	1.60	0.27	1.70	0.29	1.80	0.31	1.90	0.33
Late pregnancy[b]	2.60	0.45	2.80	0.47	2.90	0.49	3.00	0.51
Early lactation, single	3.30	0.70	3.60	0.73	3.70	0.76	3.80	0.78
Early lactation, twins	3.70	0.89	4.00	0.92	4.30	0.96	4.60	0.99
Early lactation, triplets[c]	3.90	0.99	4.20	1.02	4.60	1.06	5.00	1.10

[a]Based on ewe weight at breeding time.

[b]National Research Council recommendations for ewes expected to have a 180-to 225-percent lamb crop. If 130-to 150-percent lamb crop is expected, then you can reduce total digestible nutrients by 0.4 pound and protein by 0.05 pound.

[c]Estimates made by adding on one-half of the difference between ewes nursing singles and twins to the amount indicated for ewes nursing twins.

Table 2. The Amount of Hay, Shelled Corn (SC), and Soybean Meal (SBM) Required to Meet the Total Digestible Nutrients (TDN) and Crude Protein (CP) Requirements of a 175-lb Ewe When the Hay Contains Different Protein Levels.

		Percent protein in hay*			
		16.5	15.0	12.5	10.0
Stage of production		lb			
Maintenance	Hay	3.25	3.25	3.25	3.25
Early pregnancy	Hay	3.75	3.75	3.75	3.75
Late pregnancy	Hay	4.20	4.20	4.20	4.20
	SC	1.00	1.00	1.00	1.00
	SBM	—	—	—	0.10
Early lactation (single)	Hay	5.00	5.00	5.00	5.00
	SC	1.50	1.50	1.40	1.15
	SBM	—	—	0.10	0.40
Early lactation (twins)	Hay	5.00	5.00	5.00	5.00
	SC	2.25	2.15	1.90	1.50
	SBM	—	0.10	0.40	0.75
Early lactation (triplets)	Hay	3.50	3.50	3.50	3.50
	SC	3.15	2.95	2.70	2.45
	SBM	0.45	0.65	0.90	1.15

Note: Adjusted from dry matter values: Corn - 80 percent TDN and 8.8 percent CP, SBM -80 percent TDN and 44 percent CP, Hay - 50 percent TDN. TDN of hay increases as hay quality increases, but is left constant here for ease of discussion and diet calculations.
*Percentages are figured on an as-fed basis, as are the pounds of feed.

contain approximately 78 percent TDN and 16 percent crude protein. At body weights of 70 pounds and up, the level of crude protein in the diet can be lowered to 14 percent. Feed efficiency values range from 2 pounds of feed per pound of gain for light weight young, growing lambs on up to 3.5 to 4 pounds of feed per pound of gain as winter-born lambs approach their optimum market weight. Feed efficiency values for old-crop (spring born) feeder lambs weighing 75 pounds and up in the fall average 5 to 5.5 pounds of feed per pound of gain when a whole-grain feeding program is used. Whole-grain feeding improves feed efficiency, increases rate of gain, and lowers the feed cost per pound of lamb gain. Whole-grain diets consist of whole (unprocessed) grains, such as shelled corn or barley, mixed with a pelleted protein-mineral supplement. No roughage is contained in the feed or supplemented on the side. Consequently, the diet is high in energy and promotes accelerated lamb gains.

Ground ear corn, silage, and urea should not be fed until lambs are weighing 65 pounds and up. Creep diets should be ground or pelleted. Weaned lamb growing and finishing diets may be ground, pelleted, or consist of a mixture of whole grain and a pelleted supplement.

Ram Feeding

Rams should have a body condition score of 3.5 to 4 before the beginning of the breeding season. Once turned in with the ewes for breeding, rams spend very little time eating. They can lose up to 12 percent of their body weight during a 45-day breeding period. That equates to 30 pounds for a 250 pound ram. Poor nutrition is a major cause of ram mortality. As the sheep industry has moved away from smaller framed, earlier maturing types of sheep to larger framed, later maturing types of sheep, they have increased the rams' mature body weight. In many cases, forage alone is not adequate nutrition for placing rams in proper body condition for the breeding season. At the very least, rams should be evaluated for body condition six weeks before breeding. Thin rams should receive grain supplementation as a means to increase body weight and condition. It takes 50 days and approximately 2.5 pounds of corn per day in addition to a ram's normal diet to move him from a weight of 225 pounds to 250 pounds. Mature rams, not in breeding, can be maintained on pasture or wintered on good quality hay. Six to eight pounds of mixed grass and clover hay is sufficient to meet the daily energy requirements of a 250 pound ram. A free choice source of water, salt, and minerals should be available at all times.

Feeds for Sheep

Pasture - Permanent pasture should be the predominant source of nutrition for the sheep flock. Intensive sheep production systems where the sheep are housed and fed harvested feeds are not as profitable as more extensive production systems where they harvest their own feed. When a sufficient quantity of forage is available, sheep are able to meet their nutrient requirements from forage alone along with a supplemental source of salt and minerals. Clover should be overseeded on permanent pastures in the winter to improve the quantity and quality of forage produced during the grazing season. Sheep prefer to graze leafy, vegetative growth that is 2 to 6 inches tall rather than stemmy, more mature forages. Pasture growth is not distributed evenly throughout the year. Approximately 60 percent of the annual dry matter production of most species of cool season grasses occurs in the spring. When pastures are not stocked heavily enough to utilize the spring flush of growth, sheep graze and regraze certain areas while other areas are left to mature and go to seed. This type of grazing behavior weakens those plants that are grazed more frequently and gives the less desirable plants a competitive advantage. Approximately one-third of spring pasture should be fenced for hay production. After a hay cutting, pasture should be given a three- to four-week recovery period before making it available for grazing the remainder of the year. Rotational grazing programs designed for the movement of sheep every 10 to 14 days are instituted in late June and early July to improve both pasture and lamb production. More intensive rotational grazing systems where higher stocking rates are used help to promote more complete forage utilization, but also require greater input costs in the form of fence and water and may result in higher levels of internal parasitism, increased risk of coccidiosis, and impaired lamb performance.

Hay - Average or poor quality hay should be fed during gestation, leaving the higher quality hay to be fed during lactation. Because protein requirements of the ewe increase dramatically after lambing, less protein supplementation from concentrate feeds is required when higher quality hay is used. Second-cutting, mixed grass-clover hay may be more economical to feed to the ewe flock than alfalfa hay. This is especially true if alfalfa hay must be purchased from off the farm. Alfalfa hay is an excellent feed for sheep and is best used during lactation when ewes require more protein to promote higher levels of milk production. Many producers have fed alfalfa hay to gestating ewes with good results. However, some producers feeding alfalfa hay to gestating ewes have experienced problems with vaginal prolapses, late term abortions, and milk fever. If alfalfa hay is being fed during late gestation, it should be limit fed and be free of must and mold. Because of its high quality and palatability, ewes consume more alfalfa hay than is needed. The bulkiness of the hay in the rumen may place pressure on the reproductive tract, resulting in a vaginal prolapse before lambing. Ewes receiving alfalfa hay during gestation are more prone to milk fever than ewes fed grass hay. Because alfalfa is high in calcium, ewes are able to meet their calcium requirements without mobilizing body stores of calcium. However, after lambing, ewes not accustomed to mobilizing bone calcium may experience milk fever because of their inability to meet the additional calcium requirements associated with lactation. Regardless of the type of hay fed, producers should submit hay samples to a forage testing lab to determine its nutrient content. By knowing the nutrient content of the hay, diets can be more accurately and economically formulated for the sheep flock.

In general, there is less waste and more flexibility when feeding hay harvested as square bales. However, round bales can provide quality feed for sheep when stored and fed properly. To minimize dry matter and nutrient losses, which can approach 40 to 50 percent, round bales should be covered with plastic for outside storage or placed under shelter. Bales should be stored on pallets or tires to prevent ground contact. Feeding round bales without a feeder may result in as much as 30 percent of the hay being wasted, and poses a hazard to the sheep should the bales roll over. A variety of round bale feeders are commercially available. Feeders designed in the shape of a cradle hold the bales up off the ground, are maintenance free, and appear to work best for minimizing waste.

Silage - High quality, finely chopped (1/4 to 1/2 inch) corn, grass, or small grain silage is acceptable feed for sheep. Care must be taken to properly harvest, store, and feed silage. Poorly packed silage may contain harmful molds, which causes listeriosis (circling disease) in sheep. Moldy or frozen silage should be discarded and troughs should be cleaned daily. Corn silage is low in protein and calcium. Studies have shown that the addition of 20 pounds of urea, 10 pounds of ground limestone, 4 pounds of dicalcium phosphate, and 5 pounds of calcium sulfate per ton of silage at the time of ensiling makes a complete feed for the ewe flock by increasing its crude protein and calcium content. Alternatively, extra protein, calcium, phosphorous, and vitamins can be supplied through a grain mix topdressed on the silage at the time of feeding.

Because of its high moisture content, 3 pounds of silage is required to supply the TDN furnished by 1.5 pounds of hay. The bulkiness of silage prevents adequate dry matter intake and its use as the sole source of feed for ewes in late gestation. A typical diet fed to ewes during the last four weeks of pregnancy on an as fed basis

would contain: 6 pounds of corn silage (35 percent dry matter), 2 pounds of hay, 0.5 pound of corn, and 0.25 pound of soybean meal.

Grain - When additional energy and protein are required, corn and soybean meal commonly form the basis of the grain portion of the diet. However, when justified by supply or price, other grains may replace all or part of the corn and soybean meal in a diet. The energy value of other common grains compared to corn and the maximum amounts to use in ewe and lamb diets are given in Table 3. Because of its high fiber content, the replacement value of oats ranges from 50 to 100 percent. The higher replacement rate is used for breeding sheep, while the lower rate is used in creep feeds and finishing diets for lambs. Alternative sources of protein to soybean meal include cottonseed and peanut meal.

Table 3. Value of Grain Substitutes for Corn.

Ingredient	Energy Value of Corn %	Maximum Replacement for Corn (%)
Corn	100	100
Barley	90	100
Oats	80	50-100
Wheat	100	50
Sorghum	90	100

Differences in Value - To determine if other feeds are a better value than corn or soybean meal, comparisons can be made based on the cost per unit of nutrient. If corn is selling for $0.06 per pound and barley is selling for $0.05 per pound, which is the better buy for TDN? Divide $0.06 per pound by 92 percent TDN for corn to get $0.065 per pound of TDN. Divide $0.05 per pound by 85 percent TDN for barley to get $0.059 per pound of TDN. In this example, even though barley has a lower TDN value than corn, it is still a better buy than corn. If alfalfa hay is selling for $120 a ton and soybean meal is selling for $250 a ton, which is the better buy for crude protein? Divide $0.06 per pound by 15 percent crude protein for alfalfa hay to get $0.40 per pound of crude protein. Divide $0.125 per pound by 44 percent crude protein for soybean meal to get $0.284 per pound of crude protein. In this example, even though alfalfa hay is selling for less than half the price of soybean meal, soybean meal is still a better buy than alfalfa hay.

Alternative Feeds - Table 4 provides a list of some of the by-products of grain milling and processing and certain nontraditional feeds that are commonly available in Virginia. They are considered to have more value and less risk when fed to the ewe flock than to lambs. Caution should be used when substituting alternative feeds for corn and soybean meal when they appear to be a better value. Although these feeds may be comparable in terms of nutrient analysis, the animals may not perform similarly. Therefore, it is important to know if there are problems with certain alternative feeds, and to monitor the performance of the sheep flock once changes have been made.

Urea - Urea is not a protein supplement, but a source of nonprotein nitrogen (NPN) for protein synthesis by rumen bacteria. It should be used only in conjunction with high-energy feeds such as corn. Urea, which is 45 percent nitrogen and has a crude protein equivalent of 281 percent, should not supply over one-third of the total nitrogen in a diet. To determine the pounds of nitrogen in a diet, multiply the total pounds of crude protein in the diet by 16 percent. Other general rules for the use of urea are: 1) should not be more than 1 percent of the diet or 3 percent of the concentrate mix; and 2) should not be more than 5 percent of a supplement to be used with low grade roughages.

Minerals - Salt and mineral supplementation is required on a free choice, year-round basis. Failure to supplement salt and minerals results in low fertility, weak lambs at birth, lowered milk production, impaired immunity, and numerous metabolic disorders. A variety of salt and mineral supplements specifically formulated for sheep are commercially available. These supplements range from trace mineralized salt (TMS) fortified with selenium to complete mineral mixes containing all of the macro and micro minerals required by sheep. In general, TMS fortified with selenium is all that is needed during the spring and summer when sheep are grazing high quality pastures containing more than 20 percent clover. Complete mineral mixes are recommended when grazing low quality roughages, starting four weeks before breeding, during breeding, and during late gestation and early lactation. Virginia is a selenium deficient state. Studies have clearly shown that selenium supplementation for pregnant ewes via a mineral mix is superior to selenium injections in late gestation. Mineral supplements formulated for cattle and horses should not be used for sheep because they are high in copper, which is toxic to sheep. Mineral concentration is oftentimes expressed in parts per million (ppm). Equivalent expressions for 1 ppm are 1 milligram per kilogram or .0001 percent.

When high grain diets, certain alternative feeds, or silage are fed to sheep, additional calcium is required

Table 4. Potential Alternative Feeds for Sheep in Virginia.

Ingredient[a]	Average Nutrient Value	Limitations	Remarks
Corn Gluten Feed	80% TDN 24% Crude Protein	No Limitations	Best used as a source of protein to go with corn or barley
Dry Distillers Grains	87% TDN 27% Crude Protein	No Limitations soybean meal	Can be substituted for up to one half of the soybean meal in the diet without losing the benefits of all
Hominy Feed	92% TDN 11% Crude Protein	Limit to 1 lb per day	Feed within one month of purchase
Soybean Hulls	77% TDN 14% Crude Protein	No Limitations	Works well as a supplement to hay
Wheat Midds 18% Crude Protein	82% TDN	Limit to 1 lb per day and feed	Pelleted form is easier to handle
Whole Cottonseed 23% Crude Protein	94% TDN `	Limit to l lb per day be fed to young lambs	Contains Gossypol and should not

[a]With the exception of soy hulls, all of these feeds are low in calcium and high in phosphorous. Therefore, calcium supplementation is necessary when these feeds are used.

in the diet. This can be supplied by adding feed grade limestone to the feed. A general rule is to add limestone at 1 percent of the diet.

Vitamins - Pasture or high-quality hay provides the vi tamins required by most classes of sheep. However, after a drought, or when low-quality hay or silage is fed, a supplement supplying vitamins A, D, and E may be needed. Estimated daily vitamin requirements for ewes during late pregnancy and lactation are: 6,500 international units (IU) Vitamin A, 400 IU Vitamin D, and 40 IU Vitamin E. To assure an adequate supply of vitamins, a vitamin supplement containing 3,000,000 IU Vitamin A, 200,000 IU Vitamin D, and 25,000 IU Vitamin E may be added to each ton of feed for ewes and lambs.

Feed Additives - Antibiotics or ionophores are often added to the diet to improve animal performance. Antibiotics are fed to reduce the incidence of subclinical bacterial infections of the digestive and respiratory tracts. Ionophores are used to control coccidiosis in lambs fed under confinement. The use of antibiotics and ionophores has been shown to improve lamb average daily gain and feed efficiency. To date, the combined use of antibiotics and ionophores in the same feed is not approved. Chlortetracycline (Aureomycin®), an antibiotic, is added at the rate of 20 to 30 grams per ton of feed for lambs to improve lamb performance. Supplementing pregnant ewes with 65 mg of Chlortetracycline daily starting six weeks before lambing and continuing six weeks into lactation has been shown to cause a significant reduction in baby lamb mortality. Lasalocid (Bovatec®), an ionophore, is added at the rate of 30 grams per ton of feed for lambs fed in confinement. The use of lasalocid has been shown to improve lamb gain and feed efficiency by approximately 10 percent.

Water - Sheep must have a free-choice supply of clean, fresh water. If adequate fresh water is available and convenient, a lactating ewe will consume approximately 2 to 3 gallons a day. Frozen water supplies, muddy conditions where sheep have to drink, and long distances to water reduce water intake and have a negative impact on production. Heated water bowls should be used during the winter to encourage adequate consumption of water by lactating ewes and lambs. Water bowls should be checked and cleaned on a daily basis.

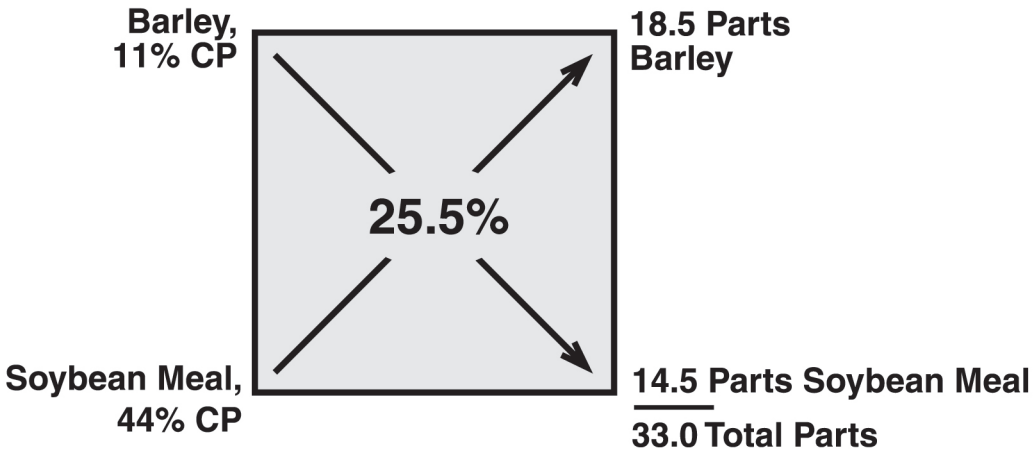
Pearson Square - Protein is often the major limiting nutrient in a sheep diet. The Pearson Square is used to formulate simple diets on the basis of protein.

Problem: Using Table 1, assume a 155 lb ewe needs .92 lb crude protein per day to meet her nutrient requirements in early lactation. Four pounds of mixed grass-clover hay (13% crude protein) will be fed per day along with 2 lb of a mixture of barley and soybean meal. What proportion of barley and soybean meal should be used in the mix?

1. Determine the percentage of crude protein (CP) contributed by the hay.

    a. 4 lb x .88% Dry Matter = 3.52 lb Dry Matter

    b. 3.52 lb Dry Matter x 13% CP = **.46 lb CP**



2. Determine the amount of additional CP needed from the barley and soybean meal mix.

    a. .92 lb CP Required - .46 lb CP from the Hay = **.46 lb additional CP needed**

3. Determine the percentage of crude protein needed in the barley and soybean meal mix.

    a. 2 lb x .90% Dry Matter = 1.8 lb Dry Matter

    b. .46 lb additional CP needed ÷ 1.8 lb Dry Matter = **25.5% CP in the grain mix**

4. Use a Pearson Square to determine the proportion of barley and soybean meal in the mix.

a. Subtract diagonally across the square, the smaller number from the larger number without regard to the sign and record the difference at the right corners.

b. The parts of each feed can be expressed as a percentage of the total.

    18.5 ÷ 33.0 (100) = 56% Barley

    14.5 ÷ 33.0 (100) = 44% Soybean Meal

c. Check the math to make sure that .46 lb CP is coming from the barley and soybean meal mix.

    1.8 lb Dry Matter from Grain Mix x 56% Barley x 11% CP = .11 lb CP

    1.8 lb Dry Matter from Grain Mix x 44% Soybean Meal x 44% CP = .35 lb CP

    .11 lb CP from Barley + .35 lb CP from Soybean Meal = .46 lb CP from the 2 lb Grain Mix

Table 5. Sample Diets for Creep Feeding, Growing Lambs, and Finishing Lambs.

Feed Ingredient	18% Crude Protein* (Percent Ingredient in the Diet)			
Cracked Corn	54	59	54	68
Whole Oats	20	10	-	-
Whole Barley	-	-	20	-
Soybean Meal	25	25	25	26
Feed Grade Limestone	1	1	1	1
Molasses	-	5	-	5
Vitamin Premix	+	+	+	+
Antibiotic or Ionophore	+	+	+	+

*To be fed with free choice source of high quality alfalfa hay.

Feed Ingredient	16% Crude Protein (Percent Ingredient in the Diet)	
Cracked Corn	59	59
Alfalfa Pellets (17% CP)	25	-
Ground Legume Hay (15% CP)	-	23
Soybean Meal	15	17
Feed Grade Limestone	1	1
Vitamin Premix	+	+
Antibiotic or Ionophore	+	+

Feed Ingredient	13% Crude Protein (Percent Ingredient in the Diet)		
Shelled Corn	-	-	85
Cracked Corn	64	-	-
Corn and Cob Meal	-	59	-
Ground Legume Hay (15% CP)	28	26	-
Soybean Meal	7	9	-
Pelleted Supplement (36% CP)*	-	-	15
Feed Grade Limestone	1	1	-
Vitamin Premix	+	+	+
Antibiotic or Ionophore	+	+	+

*Vitamins and minerals are included in the pelleted protein supplement.

Table 6. Feeder Space Requirements - Inches Per Head.

	Hay Rack	Grain Trough	Creep Feeder
Ewes - Limit Fed	18 to 24	16 to 20	-
Ewes - Self Fed	6 to 8	4 to 6	-
Baby Lambs	-	-	2
Feeder Lambs - Limit Fed	-	9 to 12	-
Feeder Lambs - Self Fed	-	1 to 2	-

Additional Recommended Reading

Virginia Cooperative Extension Publication 410-024, *Finishing Lambs With Whole Grain*.
Virginia Cooperative Extension Publication 410-366, *Sheep Grazing Management*.

Acknowledgment

Tables 1 and 2 were adapted from *Management Guidelines for Efficient Sheep Production*. North Central Regional Extension Publication 240.

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