Flock Nutritional Strategies

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Feeding the flock is the largest cash cost associated with sheep production. Beyond the cost side of the balance sheet, nutrition also plays a key role in factors affecting income such as number of lambs born, lamb vigor and survival, milk production and lamb growth. Balancing costs with production benefits is the key to formulating an economical nutritional strategy for your flock.

Managing factors which impact income

The ewe's annual production cycle can be divided into five periods: flushing, early gestation, late gestation, lactation, and maintenance. Of these, late gestation and lactation are the two most critical and costly periods of feeding the ewe. The last 30-45d of gestation and first 45d of lactation generally require supplementation (Table 1) to meet nutritional needs. This is especially true for ewes with twins. Inadequate nutrition during late gestation can cause numerous problems such as:

- A higher percentage of ewes with pregnancy disease
- A decrease in birth weights
- Weaker lambs at birth
- An increase in infant lamb mortality
- Slower gaining lambs
- Lower milk yields during lactation

Underfeeding during lactation will reduce ewe milk production and body condition. The decline in milk production will negatively impact lamb growth and vigor. The ewe's requirements for protein and energy are at their highest during this period and the requirements increase with the number of lambs..

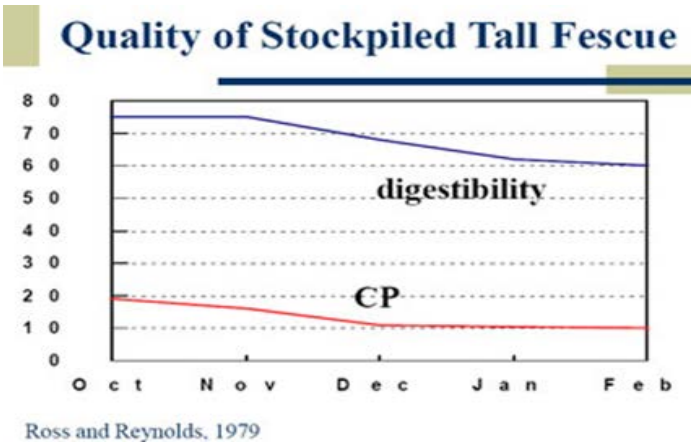
Flushing is a short period of time prior to and the onset of breeding where energy is supplemented to increase ovulation rate. Most research would indicate that this only effective and economical when ewes are in a thin body condition.

The maintenance of ewes is their lowest nutritional requirement for both protein and energy. During maintenance and early gestation are the easiest times to increase the body condition of thin ewes with the use of good quality forages.

Managing factors which impact costs

One key to managing costs is minimizing use of stored forages and grain. This is not to eliminate their use but rather emphasize being efficient and economical in when and how much to feed. A few factors to keep in mind are:

1. Many times it is less expensive to purchase hay than to produce yourself. This is common in small farm flocks but should be considered for larger flocks as well.
2. Not all hay is created equal. Forage testing for nutritive analysis will identify the better quality hay that needs to be fed during the periods of highest nutritive need. The analysis will also allow supplementation decisions to balance specifically what the hay is deficient in (energy, protein or both).
3. Sheep are especially adept at being selective in their hay consumption. To minimize waste, store hay inside and use round bale feeders.



Ross and Reynolds, 1979

The best way to keep hay and feed costs to a minimum is a solid pasture and grazing management strategy. Matching flock nutritional needs to your forage program are critical. That would suggest that the period of greatest nutritional need (lactation) would be best set to coincide with spring grass in late March and April. Forage at this time is highest in digestibility and protein content. A lactating ewe with twins would only need supplemental energy to meet her nutritional requirements. As cool season grasses begin to mature in mid to late May, ewes would be well past their peak nutritional needs which occurs about at three weeks into lactation.

A crucial forage management related item which impacts flock nutrition and forage productivity is the frost seeding of clovers into pasture in February. The addition of clovers to pastures accomplishes two goals. The first being that clovers are generally more digestible and higher in protein than grasses and they are also effective in diluting infected tall fescue. Clovers are legumes which fix nitrogen in the soil. Nitrogen is “fixed” in clovers through a symbiotic relationship with rhizobium bacteria that infect roots. The plant provides energy for the bacteria and bacteria provide the “machinery” necessary to convert atmospheric nitrogen to a form available to plants. Most people picture a ‘conduit’ that transports nitrogen directly from clover to grass. Unfortunately, almost no nitrogen is contributed in this mode. Essentially, nitrogen is supplied to grasses indirectly via the decomposition of the clover root nodules. Nitrogen must then be converted into a form available to plants. This conversion or ‘mineralization’ releases nitrogen slowly- more similar to a time release fertilizer than an application of ammonium s nitrate or urea. Given the high cost of fertilizer, clovers are an economical way to supply nitrogen to your grass pasture. After perennial clovers are well established, nitrogen will be released to grasses at a relatively constant rate as nodules decompose. White clover can fix 50-125 pounds of nitrogen per year and red clover can fix 75-150 pounds depending on stand, soil and growing conditions. At current urea prices this practice can translate to $30-$90 per acre in added nitrogen on an annual basis.

Stockpiling tall fescue pastures in the fall is an economical method to carry forage quantity and quality beyond the growing season into late fall and winter. A portion of pasture is set aside and fertilized with 40-60lb of N in mid to late August. Grass growth is allowed to accumulate for later grazing. The quality of stockpiled forage will persist through much of the winter.

Grazing management is a key component to getting the most from your stockpiling investment. Giving sheep access to large areas of stockpiled forage can result in trampling losses and reduced efficiency of harvesting available dry matter. By rationing or limiting access to stockpiled areas such as with strip grazing forage utilization will be improved and grazing days extended. More time and management expense is substituted for winter feed costs.

Table 1 Forage Quality and Supplementation (176 lb ewe)[1]

Forage Analysis									
CP % of DM	TDN % of DM	Early[2] Gestation		Late[3] Gestation		Early[4] Lactation		Late[5] Lactation	
		Lbs SBM	Lbs Corn	Lbs SBM	Lbs Corn	Lbs SBM	Lbs Corn	Lbs SBM	Lbs Corn
11.2 & over	56 & over	-	-	-	.75	.5	2.5	.3	1.5
9.5 - 11.1	56 & over	-	-	.15	.75	.8	2.5	.45	1.5
	53 - 56	-	-	.15	.85	.8	2.7	.45	1.65
	50 - 53	-	-	.15	1.0	.8	2.9	.45	1.80
8.2 - 9.5	54 - 56	-	-	.25	.8	1.0	2.5	.55	1.5
	51 - 54	-	.2	.25	1.0	1.0	2.75	.55	1.75
	50 & under	-	.4	.25	1.2	1.0	3.0	.55	2.0
7.3 - 8.2	53 – 55	.1	-	.4	.8	1.1	2.5	.6	1.5
	51 – 53	.1	.2	.4	1.0	1.1	2.75	.6	1.75
	50 & under	.1	.4	.4	1.2	1.1	3.0	.6	2.0
Under 7.3	Under 48	.2 - .3	.5 – 1.0	.4 - .5	1 -1.5	1.2 -1.5	2.5 -3.5	.7 - .8	2.0 -3.0

[1] Recommendations are made on basis of 44 % soybean meal and ground shelled corn. Other supplements can be used to deliver the same amount of energy and protein.
[2] Dry ewes in the first 15 weeks
[3] Last 4 weeks of pregnancy (200% lambing rate expected).
[4] First 6-8 weeks of lactation suckling twins
[5] Last 4- 6 weeks suckling twins.