

# FEEDING MANAGEMENT SHEEP AND LAMBS

By

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Feeding management deals with the provision of feed and forage that meet the nutrient requirements of the animals based on their stage of growth and physiological needs as well as the way in which they are fed. These two practices determine the success of an operation. The same is true when pastures are a primary source of nutrients. In this case, the producer's skill in grazing management may be more important to overall productivity than the quality of the pasture itself. This fact sheet encompasses a variety of management topics, with the ultimate goal of applying the principles of nutrition to the efficient and profitable production of lamb.

## **Condition Scoring Ewes**

Every producer will have developed some method of assessing the nutritional status and amount of fat carried by individuals in the flock. Excess fat on the back of a ewe constitutes an unproductive expense. Fat is expensive to put on and expensive to maintain. On the other hand, some amount of fat is essential as insulation and as an energy store for times of energy demand beyond that which can be supplied in the feed.

The degree of fat cover is an indication of animal's condition. However, it is difficult to visually assess the condition of a ewe by looking at it. Condition scoring has been widely accepted as a simple manual method of estimating nutritional status. Condition scoring is achieved in much the same way as lambs are appraised for their readiness for market. In a thin animal, the bones of the spine protrude quite prominently. When excess fat is present it is difficult to feel these bones at all. Somewhere between these extremes is a point at which point some fat has been stored to meet the heavy energy demands of (for example) lactation but it is not present in a gross excess which is costly to maintain.

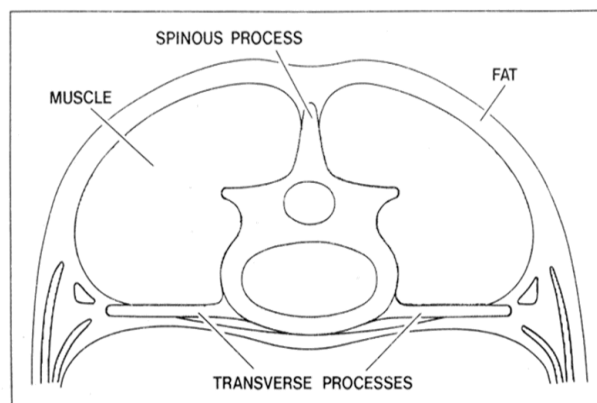


Figure 1. The spinous and transverse processes of the vertebrae in the loin area.

The vertebrae of the spine in the loin area (behind the last rib) have two projections which can be felt (fig. 1). The spinous processes of adjoining vertebrae form the bumpy topline of the back. The transverse processes

are the horizontal bones coming out from either side of the backbone. It is the ease with which these processes can be felt that forms the basis for condition scoring.

In practice, condition scoring should be performed as follows (fig. 2):

- (1) Assess the prominence of the spinous processes by running the fingertips down the backbone.
- (2) Assess the prominence of the transverse processes by pushing the fingers down alongside the backbone.
- (3) Assess the amount of muscular and fatty tissue below the transverse processes by passing the fingers under the ends of these bones.
- (4) Assess the fullness of the eye muscle in the angle above and between the spinous and transverse processes.
- (5) Refer to figure 3, give each animal a score and record it so that comparisons can be made between animals and between scoring done at different times.



Figure 2. Manually assess the amount of muscular and fatty tissue around the transverse processes.

Condition scoring is a subjective and relative measure of a ewe's nutritional status, and will require some practice. What one producer calls a score of 3.5 will be another producer's 3. In addition, ewes should be scored within breed and type. If you are accustomed to score woolen sheep, then you may need some practice to score hair breeds of sheep. One condition score for woolen sheep should be roughly equivalent to 10 kg (22 lb.) or 15% of an animal's normal mature live weight. While learning the technique, it is useful to check apparent changes in condition by weighing.

### **The Uses of Condition Scoring**

The advantages of condition scoring include the following:

- (1) the skill is easily learned and requires no equipment;
- (3) it can be used to assess the nutrient status of pregnant animals, where live weight is difficult to interpret because of growth of the products of conception.

Condition scoring is used to assess the overall nutritional status of the flock allowing the producer to make management decisions about his feeding program. It can be a particular advantage to the large flock where high-and low-scoring ewes can be separated and fed at different levels.

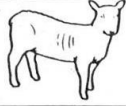
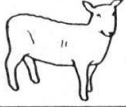
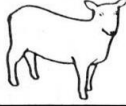
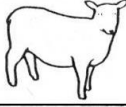
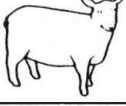
Score		Description	
1		Spine sharp, back muscle shallow,	Lean
2		Spine sharp, back muscle full, no fat	
3		Spine can be felt, back muscle full, some fat cover	Good Condition
4		Spine barley felt, muscle very full, thick fat cover	Fat
5		Spine impossible to feel, very thick fat cover, fat deposits over tail and rump	

Figure 3. Assign a condition score to each animal.

For example, if ewes are scored three weeks before breeding, those scoring below 3 can be flushed while those scoring above 3 can be fed to achieve a more modest increase in weight.

Condition scoring also allows the producer to identify individual animals in the flock which may be subject to chronic health problems. More often than not, the three to five year old ewe that scores significantly lower than the rest of the flock is a victim of Johne's disease, caseous lymphadenitis or chronic pneumonia.

### Allocating Feed Resources

For efficient production some periods of the ewe's reproductive cycle demand higher nutrient intake than others. At the same time, it is often the case that a producer has more than single types of forage available. For example, one hayfield which is due for renovation yielded almost straight grass hay which tested at 9.5% CP. The field which was renovated two years ago yielded a crop of hay having a significant content of clover. As a result, it tested at 14% CP. Now, faced with the decision of which hay to feed to the ewes at what time, it should be obvious that the better quality hay should be fed when nutrient demand is high. It would make little sense to feed the better quality hay in early pregnancy, leaving the poor hay for late pregnancy and lactation when protein supplement would be required to bolster its lower feeding value.

Productive ewes are generally in relatively poor condition at weaning (condition score 1.5-2.5) but the target for breeding is 3.5. It is often better practice to allow the ewes to gain weight immediately after weaning when pasture is abundant, then maintain them later as pasture quality declines. Maximum ovulations occur at a condition score of 3.5, whether or not the ewe is gaining weight or simply maintaining it at the time of breeding.

### Feed Wasting

Feeding on the ground is associated with extreme waste as well as fecal contamination leading to health problems. It can only be recommended when feed is placed on a clean area, there is little risk of contamination. Figure 4 depicts a typical example of excess feed wastage. Although it is practically impossible to absolutely eliminate wastage of unchopped hay, some producers waste up to 30% of their total resource. Several factors influence waste:



Figure 4. Feed wasted is profit lost.

- (1) *Physical Form*: Since long hay is largely wasted when animals pull feed out of the feed bunk, chopping will solve this problem. Chopping also reduces the tendency for animals to select leaves in preference to stems. However, chopping requires a significant investment in equipment.
- (2) *Feed Bunk Design*: The perfect, waste-free feed bunk for long hay has yet to be designed, although some are better than others. In particular those which allow the animals unlimited access to the feed with no impediment to pulling feed out are the most wasteful (fig. 5). Designs which reduce access by using closely spaced slats and prevent backing straight out by using diagonal or tombstone entries have been the most successful in preventing wastage (fig 6).
- (3) *Amount of Feed Offered*: Although *ad lib* feeding is recommended for growing lambs, it is usually not necessary in feeding ewes. For example, in early pregnancy, ewes may consume up to 2.5 kg (5.5 lb.) of hay offered *ad lib*, while their requirements demand an intake of only 1.5 kg (3.3 lbs. – 9% CP ; 55% TDN).

The situation depicted in figure 4 is often a result of overfeeding rather than a particularly poor feeder design. When ewes are offered more than they require, they tend to become increasingly selective. Animals tend to eat the leaves in preference to the stems. When there is abundant feed offered, they will leave the stems behind resulting in significant waste. The solution is to feed an amount sufficient to satisfy the flock's requirements based upon knowledge of feed quality. This will serve to minimize selectivity and wastage except when the feed is very unpalatable or fibrous as is often the case with very mature, poor quality forages.

Finally, it should be realized that when feed intake is restricted (not fed *ad lib*) you will need to provide enough feed bunk space for all animals to eat at once (about 18" per head for ewes; 12" for lambs). In contrast, self-feeders require a provision of only 6" per head for ewes (3" for lambs). Nevertheless, the investment in increased feeder space is often abundantly returned in saved feed.

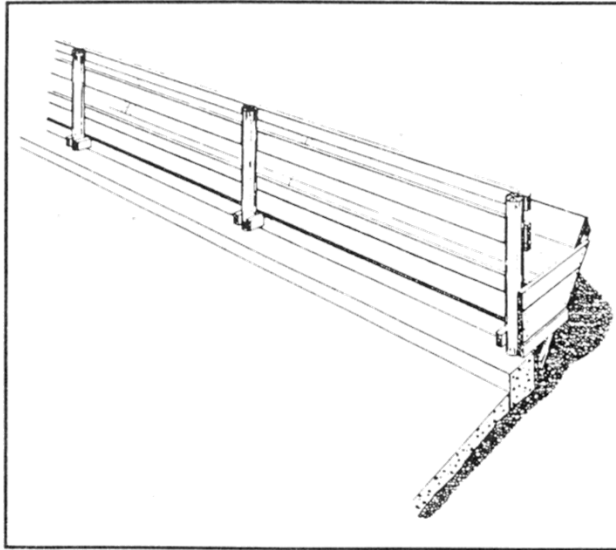


Figure 5. Hay feeders which allow liberal access to feed often promote waste

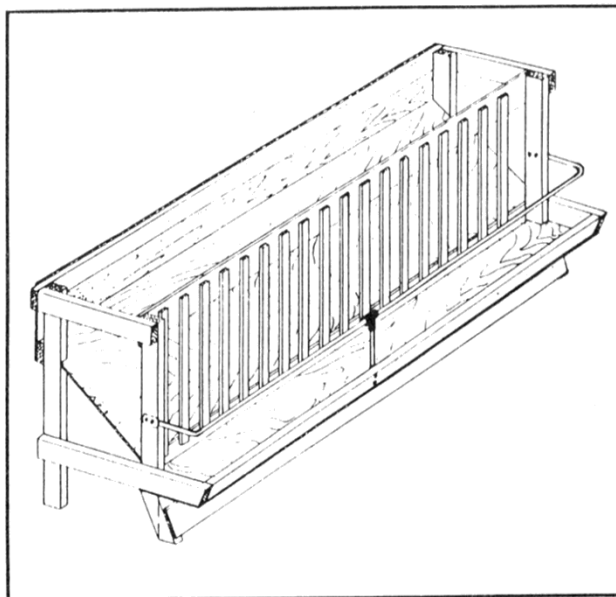


Figure 6. Feeders which restrict access to feed help to reduce waste.

### **Ration Changes**

Digestion of feed in the ruminant is dependent upon a diverse population of bacteria and protozoa in the rumen and reticulum. This population adapts to each specific ration and adaptation requires time while some microbial species expand in number and others decline. Bacteria which break down cellulose are not well adapted to starch digestion. Some microbes produce mainly acetic acid from carbohydrates, others mainly propionic.

When rations are changed, time should be allowed for microbial adaptation. This is particularly true when grain is added to a forage ration. For example, when grain is introduced to ewes before lambing, it should be done in quarter kg (half lb.) increments over the course of a week or more. This results in better feed utilization and

prevents digestive disturbances. The latter is often seen when animals accidentally gain access to grain storage. Sudden consumption of large quantities of grain results in the production of high levels of lactic acid in the rumen, lowering the pH and destabilizing the entire fermentation process. Lactic acid enters the bloodstream causing acidosis and bloating may ensue. Recovery may be a prolonged process.

The use of urea in sheep rations also demands a period of adaptation. The proliferation of urease – producing bacteria is a relatively slow process, and unless this is recognized, productivity will suffer because of the inability of the microbial population in the rumen to use urea for protein synthesis.

## Mineral Feeding

Some forages and hay are deficient in one or several essential mineral elements. For example forages in Florida are generally deficient copper, cobalt and selenium. In particular, it is assumed without question that cobalt and iodine are universally in short supply, while selenium, copper (both absolutely and relative to molybdenum) and zinc deficiencies often limit animal productivity.

There are three methods of providing mineral supplementation:

- (1) Incorporation in the ration. For example, lambs on full feed may have their mineral requirements added to a complete pelleted formulation. Alternatively, minerals may be incorporated into a supplement pellet designed for use with whole grain. When ewes are being fed grain, minerals may be added as a top dressing. These are ideal methods of assuring adequate intake, but are seldom used because of the expense of having complete rations formulated and the additional labor involved in mixing or top dressing on the farm.
- (2) Provision of mineral with salt free-choice in structure (fig.7) protected for the sun and rain. This is probably the most common method of providing mineral supplementation. However, it is often unsuccessful for one of several reasons:



Figure 7. A portable mineral feeder which is easy to keep clean.

- a. The mineral mix is unpalatable for reasons which are poorly understood; palatability and consumption of a mineral mix can vary from farm to farm.
  - b. Mineral is often allowed to become fouled by manure because it is poorly placed.
  - c. The mixture becomes wet, causing it to form into a hard mass and promoting oxidation reactions within the mix, decreasing its feeding value.
- (3) Provision of mineral in a mixture with salt. This usually solves the palatability and consumption problem because stock will always consume salt. However, fouling and moisture can still produce problems.

In Florida, a complete mineral mix (including salt) has been made available which is designed to overcome the common deficiencies experienced in this area. Where such a custom mix is unavailable, the following recommendations have proven practical:

- (1) Construct a mineral feeder such as that illustrated in figure 7 which will:
  - a. be portable so that it can be moved from barn to pasture
  - b. be easy to keep clean
  - c. be covered to keep the mineral mix dry.
- (2) Purchase a mineral mix, preferably one designed specifically for sheep. **READ THE LABEL.**
- (3) Provide fresh, clean water and locate the mineral feeder close by. Poor quality or insufficient water is definite discouragement to a good appetite.

### **Administering Vitamins**

The only vitamins normally required by sheep are A, D, and E. Green, leafy forages provide adequate quantities when sheep have access to pasture through the year. Forages which have been weathered, heated or stored for prolonged periods are generally deficient. Since all three of these "fat-soluble" vitamins are stored in body tissues, supplementation is required only periodically, the most common method being intra-muscular injection. Vitamin E may also be administered in combination with selenium either:

- (1) to ewes, two to three weeks before lambing begins, or;
- (2) to lambs, at birth, in an attempt to eliminate the occurrence of white muscle disease in the lambs.

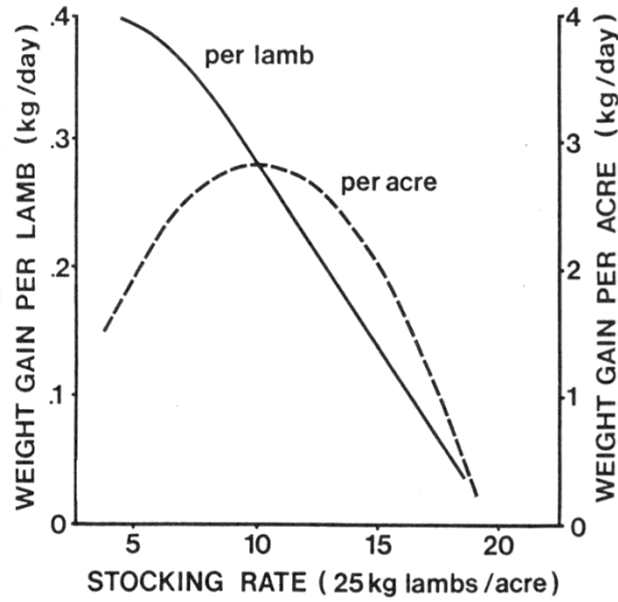
Vitamins are also present in most mineral mixes but these should not be considered reliable sources. In the presence of minerals and moisture, the vitamins are rapidly oxidized. Since mineral mixes rapidly take up moisture there can be little assurance that sufficient vitamins are obtained.

### **Gazing Management**

In many operations, grazed forage makes up a significant proportion of total feed intake. The efficiency with which pastures are utilized for animal production is a function of both the pasture itself and the management of the grazing animals. Figure 8 suggests relationships between stocking rates and both animal production per acre and productivity per animal. The main goal of grazing management is to increase the carrying capacity of the pasture (stocking rate) to the point where animal production per acre is maximized without significantly reducing productivity per animal.

#### Reference:

Masons, B.D., Bactawar, B. (2010). Nutrition Guide for B.C. Sheep Producers. Revision of the Ministry of Agriculture and Lands, 2004.



There are many factors which influence pasture productivity and grazing management decisions including: climate, soil fertility, forage species, nutrient requirements of livestock, predator control and many others. It is beyond the scope of this publication to discuss these in detail.