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The Nutrition of Sheep

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General Considerations

When considering the nutrition of sheep, it must be kept in mind that they are ruminants. As such, they utilize a high proportion of roughages including pasture, hay, silage, fodder and other forages. They need bulk in the ration and can consume up to 30 percent fiber with good results. They can maintain maximum production on a higher percentage of roughage than any other farm animal obtaining 90 to 95 percent of the nutrients needed in a year from this source.

Pasture may furnish 80 percent of the yearly nutrients. This is especially true if temporary pasture such as rye, wheat or barley can be grazed in the early spring or late fall to extend the grazing season up to 8 or 9 months. This leaves a winter feeding period of from 3 to 4 months. The feed consumed during this wintering period represents the greatest part of the yearly feed costs. Sheep will not readily consume coarse, woody roughages but nearly all of the finer stemmed roughages will be consumed. Sheep prefer to graze the shorter, more tender grasses and do not make good use of forages over 6 inches in height. Most of the grazing is done in early morning or late afternoon.

Concentrates such as cereal grains should be limited to sheep of all ages unless they have been accustomed to them through self-feeders. In older sheep, the over-eating of concentrates will result in founder, diarrhea and even death. Lambs on a full feed of concentrates may suffer from enterotoxemia or food intoxication which is fatal. Vaccination may help to prevent this. Sheep prefer whole grains and there appears to be no advantage in grinding them except for young lambs or for older sheep with poor teeth. Whole grains, containing the germ, are good sources of Vitamin E needed by the growing lamb or by pregnant ewes for the developing fetus.

Sheep may refuse to eat from dirty feed troughs or drink from unclean water tubs. Care should be taken to see that they have clean recepticles for both feed and water. Mature sheep will consume from 1 to 6 quarts of water daily depending upon the succulence of the feed. They need from 1/4 to 3/4 of an ounce of salt per day or approximately one pound per month. This is best supplied by stabilized, iodized granular salt. Where cobalt is needed it may be supplied by adding 1 ounce of cobalt carbonate or cobalt sulfate per 100 pounds of salt; or trace mineralized salt may be used.

Wintering the Ewe Flock

The basis of a good wintering ration for the ewe flock is high quality sun-cured legume hay. A high qualify alfalfa hay will furnish all of the proteins, minerals and vitamins needed by the pregnant or lactating ewe with the exception of carbohydrates needed for energy. It is usually necessary to supplement alfalfa hay with from one-half to one pound of a concentrate, such as shelled corn, during the later part of the gestation period and the first part of the lactation period to supply a source of energy. If a poor quality hay is used, it should be supplemented with sources of protein, minerals and vitamins. The normal consumption of a good quality hay will be from 4 to 5 pounds per day for a 150 pound ewe.

Grass or hay-crop silage as well as haylage will supply essentially the same nutrients as the grasses or legumes from which they are made except they will be low in vitamin D and energy. They must be fed in amounts to equal the dry matter intake from hay. It usually takes from 2 to 3 pounds of these ensiled products to substitute for one pound of hay since the dry matter content is from one-third to one-half that of hay. Like hay, these products require a supplemental source of energy unless they are made with a preservative such as corn.

Corn or sorghum silage can also be substituted for legume hay at the rate of 3 pounds of silage per pound of hay. Unlike grass silage or haylage, these products when fed at this rate, are good sources of energy but are usually lacking in proteins and minerals. They should be supplemented with protein supplement at the rate of one-quarter pound per ewe per day or one pound of the silage can be replaced with one pound of alfalfa hay or alfalfa pellets. Sheep on these roughages should also be supplied with an adequate amount of calcium and phosphorus such as steamed bone meal or di-calcium phosphate.

Critical Periods in the Nutrition of the Ewe Flock

There are three critical periods in the nutrition of the ewe flock. These are (1) at breeding time (2) during the last month of pregancy and (3) during the first month of lactation.

At breeding time It is generally believed that ewes on a rising plane of nutrition at breeding time, will mature more ova and may have less embryonic death losses than ewes maintained on constant or decreasing levels of nutrition. The level of nutrition can be increased by feeding about one-quarter pound of grain per head daily or by moving the flock to a lush, non-legume pasture. Such a practice is referred to as "flushing." It appears to be more effective with thin ewes than with fat ewes.

The Last Month of Pregnancy Pregnant ewes can normally be wintered on a good quality legume hay or other properly balanced roughage up to the last month of pregnancy. The greatest growth of the fetus takes place at this time and the energy requirements increase rapidly. It is usually necessary to add readily available sources of energy to the ration to prevent ketosis or lambing paralysis which is very difficult to treat. This energy can be supplied by the addition of one-half pound of shelled corn to the ration. Some prefer to use molasses or other forms of glucose, but this is not always satisfactory if fed in limited amounts since it promotes the activity of rumen microorganisms which produce large quantities of volatile fatty acids, most of which are ketogenic. This tends to make the ewe more susceptible to ketosis. Ewes that are heavy with lamb, especially those carrying twins, have less capacity for large amounts of roughage and therefore must be supplied with energy through an increase in the concentrate portion of the ration. This partially explains why ewes carrying twins or triplets are more susceptible to ketosis than those carrying one lamb. This extra energy must be supplied to fat ewes as well as thin ewes, but many times the fat ewes are neglected because they appear to be in good shape. Ewes should gain from 20 to 30 pounds during the pregnancy period.

The First Month of Lactation The nutritive requirements of the ewe during lactation are greater than for pregnancy. She must not only maintain her own body, but must supply practically all of the nutrients needed for the growth of the lambs through the milk they consume. Lactating ewes will usually increase their consumption of roughage but the shelled corn should be increased to one pound per hundred pounds of body

weight to supply the energy needs. A lactating ewe eating grass that is 90 percent water and 10 percent dry matter would need to eat about 54 pounds of this grass in order to satisfy her energy needs. Actually she can't eat that much, her capacity being about 15 to 20 pounds daily. Silage or haylage will add succulence to the ration during lactation but it is important to supply plenty of fresh water and iodized salt during this period.

When the lambs are a month old they will begin to consume feed from a creep or from pasture thus reducing the drain on the ewe. About this time, the normal milk production of the ewe diminishes having reached its peak at from 4 to 6 weeks. A heavy milking ewe will lose from 30 to 40 pounds during the lactation period and the growth of her lambs is highly correlated with her milk production. After the lambs are weaned, the dry ewe can exist on pasture until the breeding season begins.

Feeding the Lambs

Early lambs should be creep-fed for best results, but late lambs dropped after the pasture season has begun may not consume enough creep feed to make it worthwhile. Lambs nursing their mothers on pasture should be carefully watched and when they begin to lose their bloom or slow down in their gains, they should be weaned and placed on a supplemental creep ration or sold if they are at market weights of from 85 to 100 pounds.

The basis of a good economical creep ration is high quality, sun-cured alfalfa hay and crimped or cracked corn. The sun-cured hay will supply ample protein, vitamin D, vitamin E, calcium, phosphorus and iron. The corn will supply the needed energy. If the quality of the hay is low, 10 percent of a protein supplement can be added. If there is a high percentage of twins or the ewes are not milking well due to age, mastitis or other factors, then sources of other nutrients should be added. Whole wheat, not to exceed 10 percent of the grain mixture, will supply vitamin E and another 10 percent of alfalfa pellets will supply both protein and vitamin A.

Whole or crimped oats will add bulk to the concentrate mixture to prevent over-eating, but lambs obtaining adequate milk from their mothers can be self-fed with no apparent danger. Purdue research has indicated that a highly fortified creep pellet (as reported in mimeo AH-177) will increase the growth rate of twin suckling lambs. This pellet is available commercially. As the lambs mature and their rumen becomes functional, there is less need for this type of creep ration since the rumen microorganisms will supply many of the nutrients which it contains.

Creep-fed lambs will consume about 3/4 bushels of shelled corn, 1 bushel of oats, 15 pounds of supplement and 50 pounds of legume hay from two weeks of age to market weight. Once a lamb has reached 50 to 60 pounds in weight on a creep it is usually desirable to keep him on the creep until he reaches market weight. If pasture is substituted for the hay, it may be necessary to confine the lambs at night to encourage them to consume enough grain to continue their gains.

Fattening Feeder Lambs

The fattening of feeder lambs, either western or native, usually takes place in the fall or early winter. These lambs are frequently allowed to clean up corn fields after the corn is picked or to graze on other waste roughages before they are placed on a full feed. During this time they should be drenched to rid them of internal parasites and vaccinated against enterotoxemia.

The basis of a good economical fattening ration is again shelled corn and alfalfa

hay. A 60 pound lamb on full feed will consume from 1 1/2 to 2 pounds of each per day. This is a well balanced ration supplying all of the needed nutrients. They should be started on a feed consisting largely of hay and a small amount of corn and brought to a full feed gradually by decreasing the hay and increasing the corn until they are consuming approximately equal amounts of each. If the roughage consists of a poor quality hay, grass silage or corn silage it should be properly balanced with an appropriate supplement. Many lamb feeders prefer to use a completely pelleted feed consisting of approximately 60 percent roughage and 40 percent concentrate. This is more expensive, but permits self feeding the lambs, thus reducing labor costs. Such a pellet has been developed as a result of research at Purdue and is reported in Mimeo AH-232 entitled "A Complete Pellet For Self Feeding Lambs." Most feeder lambs weighting 60 pounds at the start of the full feeding period will gain from 1/3 to 1/2 pound per day and will require about 100 days to reach market weight.

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