

Sheep Feeding – Advanced Practices

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Introduction

Feed is the single largest cost associated with raising of small ruminants which is about 55 to 60 per cent of total production costs and pastures are the cheapest feed sources for both sheep and goat production. Natural pastures should not be fed when they are mature and highly fibrous with low nutritive value due to low crude protein content, high in lignocellulose and reduced in vitamins and minerals. So now-a-days research work on non-conventional feed resources to improve productive and reproductive performance of small ruminants is going on.

Common feeds and fodders for sheep

- Tree leaves - Mango, Babul, Pipal, Gular and Mulbery
- Grasses - Doob, Marvel grass, Rhodes grass, Para, Guinea, Napier Legume
- Fodders - Berseem, Lucerne, Cowpea, Cluster bean, Senji, Shaftal
- Legume pastures - *Stylosanthus hamata*, *S. scabra*, Siratro
- Dry feeds - Dry pods of Babul, Bilayati babul

Feeding Management

Improved feeding management is necessary to reduce the cost as well as to increase the production efficiency. Some of the ways that are advocated in feeding includes precision feeding, feeders, water, feed storage facilities, feeding of non-conventional feed resources, feed processing, addition of feed additives etc. These improvements are done by considering the location and geography of the place, availability of feed resources, infrastructure and other facilities available.

Precision feeding

Providing the animal with the feed that precisely meet its nutritional requirements for optimum productive efficiency to produce better quality animal products and to contribute cleaner environment and thereby ensure profitability. It is the tool for effective utilization of available feed resources with the aim of maximizing the animal's response to nutrients for economic production.

Ways to achieve precision feeding

- Improved feed processing technique
- Strategic supplementation of critical nutrients
- Precise ration formulation
- Implementing phase feeding
- Use of feed additives
- Systematic manipulation of metabolism.

Feed additive supplementation

Feed additives help to achieve precision nutrition in the following ways:

1. It enhance feed intake – flavouring agents
2. Helps in digestion of feeds – grit, enzymes
3. Helps in absorption nutrients- chelating agents
4. Alter metabolism- hormones , probiotics
5. Enhance growth and production of animals.
6. Reduce methane production, saves energy, reduce environmental pollution— bromo chloromethane (halogenated methane analogue), organic acids (Hydrogen sink).

Feeders

Feeders are the necessity for almost all livestock enterprises. Feeding on the ground results in considerable feed wastage and contributes to the spread of disease, especially internal parasites and abortion. If sheep are able to stand in their feed or feeders, they may defecate

and/or urinate in the feed so feeders need to be raised off the ground and constructed in such a way to keep sheep and lambs out (as much as possible). Properly constructed feeders also help to minimize feed wastage. The only thing worse than buying expensive feed is watching animals wastes it. There are various designs for grain feeders. Hanging feeders are easily cleanable and movable, V-shaped feeders are easier to clean than feeders with square bottoms. Rubber or metal pans are useful for hand feeding small numbers of animals. Feeders that can be hung on the side of the fence, then removed after the sheep/lambs have finished eating, are especially effective. Some producers have constructed fence line feeders from PVC pipe. Hay or bale age can be fed in bunks or racks or along a fence line. V-shaped racks with vertical or diagonal slats work best, there should be enough feeder space for all sheep and/or lambs to eat at once. Ewes require approximately 16 linear inches of feeder space. Lambs require 12 inches of feeder space. Less feeder space is needed if animals are self-fed rations: 8 to 12 inches for ewes and 2 to 4 inches for lambs.

Creep feeders for lambs

Sheep producers with low-quality forage or limited grazing for their flock should look at creep feeding young lambs seriously so that each lamb will get optimum nutrients. Creep feeding is important to achieve improved weight gain.

Mineral feeders

Minerals can be incorporated into the ration or offered free choice, preferably in a loose form. Sheep consume less minerals when they are in a block farm. Commercial mineral feeders are available from farm supply stores and sheep equipment manufacturers. Mineral feeders can be made from tires, PVC pipe, and plastic garbage cans. If fed outside, a lid is needed to keep minerals dry. Mineral deficiency can occur, so supplementation is necessary and some the mineral and vitamin deficiency are explained below.

Mineral and vitamin deficiencies

Cobalt deficiency – Cobalt has an important biological role as a constituent of vitamin B12 which is manufactured by micro-organisms in the first stomach (rumen). Cobalt deficiency

(pine) occurs where there are low soil cobalt concentrations which may be further complicated by PGE which causes diarrhoea thereby interfering with the absorption of vitamin B12. In severe cases of cobalt deficiency (referred to as ovine white liver syndrome) lambs present with nervous signs including depression, head pressing, and aimless wandering. Cobalt deficiency is much less common in adults but is reported to cause reduced fertility and poor mothering ability but these signs may be more related to generalise low body condition scores. Oral cobalt supplementation is very cheap indeed and, where appropriate, can be added to certain anthelmintic drenches. Monthly dosing lambs from around three months-old with cobalt drenches should supply sufficient cobalt to growing lambs in most situations. Cobalt containing boluses, which lodge in the reticulum (second stomach), provide a continuous supply of cobalt but are expensive in those lambs which require supplementation for only two to three months. Soluble glass boluses containing cobalt, selenium and copper are an expensive means of supplying cobalt and are only indicated in situations where all deficiency conditions are considered to exert a negative influence on health.

Selenium and vitamin E deficiency –

Selenium and vitamin E are essential in sheep diets, and work together to prevent and repair cell damage in the body. Deficiencies of either or both selenium and vitamin E can cause weaner illthrift, reduced wool production, reduced ewe fertility, reduced immune response and white muscle disease. Selenium deficiency is more common in high rainfall areas while vitamin E deficiency occurs when sheep are on dry feed for long periods. Both trace elements can be provided as a supplement.

Copper deficiency -

Copper is an essential trace element for animals needed for body, bone and wool growth, pigmentation, healthy nerve fibres and white blood cell function. Rapid pasture growth after good winter rains reduces the concentration of copper in pasture. Seasonal variation in the availability of copper from pastures makes sheep and cattle most at risk of a deficiency during late winter and spring. There are two main causes of copper deficiency in sheep and cattle: low copper levels in plants due to a lack of copper fertiliser in naturally copper-deficient soils; and an

induced deficiency caused by ingestion of excessive levels of molybdenum and sulphur in pasture or feed supplements. Symptoms of copper deficiency includes swayback or enzootic ataxia of lambs (Lambs with this condition cannot coordinate their legs. They may be severely affected at birth and may be unable to stand; some may be born dead), loss of pigmentation in black-woolled sheep, increased incidence in fractures of the long bones and rib bones in lambs, loss of crimp, secondary crimping and steeliness of wool.

Waterers

Water can be free flowing or provided in buckets, troughs, tubs, stock tanks or automatic waterers. Clean, fresh water is a daily necessity for sheep and lambs. Sheep will consume water depending upon their physiological state, the content of water in their feed and environmental conditions. Requirements increase greatly during late gestation and lactation. Water intake is positively correlated to feed intake. It goes without saying that water sources should be kept clean and free from hay, straw, and faecal matter. Smaller troughs are easier to drain and clean. Water will be more readily consumed during cold weather if the water is ice-free and during hot, humid weather if the water source is in the shade. Automatic waterers can be used to avoid water wastage and to keep the area clean.

Feed Storage facility

All feedstuffs – hay, grain, salt, and minerals – need to be kept dry and protected from dogs, cats, rodents, and other pests. Many livestock deaths have resulted when livestock gain free choice access to grain or similar feedstuffs. Ample feed storage can result in considerable cost savings if feed ingredients can be purchased and stored in bulk on the farm. Hay bales should be stored in hay lofts, storage sheds, or covered with tarps if stored outside.

Utilisation of Non-Conventional Feed resources

Non-conventional feed resources are particularly useful during lean period and scarce condition but care should be given while feeding, as most of them contain nutrient-nutritional factors. Level of inclusion should be decided before feeding.

- **Cactus** - High in soluble carbohydrates, calcium, potassium and vitamin A, but low in crude fiber and crude protein, Under harsh environments condition it is also regarded as the “Camel of plant world”/“Living fodder bank”/“Natures fodder bank”. It contains moisture 90%, DM - 10%, CP - 5.6% and TDN - 65%.
- **Mulberry leaf** - Their leftover are generally fed by small ruminant. It contains dry matter 60%, crude protein - 11% and TDN - 48%. Diet supplementation with mulberry leaves reported to increased body weight in growing lambs, kids and increased milk production in lactating goat.

Conclusion

As feed is the single largest cost component in raising of small ruminants, feeding management is of prior importance, precision nutrition can not only reduce feed cost but also can improve production and reduce incidence of nutritional deficiencies. Processing techniques and addition of feed additives can improve the feed intake as well as feed conversion efficiency. Improved feeders and waterers is important in feeding management and non-conventional feed resources can be good choice in feed scarce condition and reduce the feed cost.