

LPM (UNIT-2)
HAY AND SILAGE
[conservation of fodder]

By-

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CONSERVATION OF GREEN FODDER

- To feed animals during scarcity of green fodder we need to conserve the green fodder so that this safely conserved fodder can be fed to the animals.
- Conservation of green fodder is basically done by two methods-
 - ✓ **Sundrying** – called hay making
 - ✓ **Anaerobic fermentation**- called silage making
- The conserved fodder in form of hay or silage can be kept safely for a long period of time if stored properly.

Hay and silage

1.1. Methods Of Making Quality Hay And Silage

Grass is the cheapest source of feed for any livestock enterprise and effective utilization of grass and its management is the key to getting the most of your grassland. Ruminant animals depend on grass as a major source of energy and protein as well as vitamins and minerals. So to take maximum return from the grass there is a way to make quality hay and silage from these.

Silage

- Silage contains 1%-5% of free sugar. This can be fermented anaerobically into a lactic fermentation that will remain stable for years or even decades.
- Ideally grass should be cut, allowed to dry a little to 75% moisture content, and then chopped and taken to the store (silo) and compacted and sheeted with polythene sheet to exclude air.
- Silage has a characteristic and pleasant smell.

HAY

Haylage usually has a moisture content of 55 to 75%.

Hay is grass that is cut, dried and stored by humans to be used at a later date .

i.e hay is sun- dried grass whiles silage is fermented pasture(grass).

Hay making is the process of turning green, perishable forage into a product that can be safely stored and easily transported without danger of spoilage, while keeping nutrient loss to a minimum.

This involves reducing its moisture content by drying the forage in the sun.

- The process of drying the green crop without significant change in aroma, flavour and nutritive quality of forage is called "curing". This involves reducing the moisture content of green forages, so that they can be stored without spoilage or further nutrient loss. Feeding hay to livestock helps reduce the amount of concentrate feeding, and thereby, the cost of feeding. The low moisture content of hay considerably reduces cost.

- Objective of making hay and silage-
- The objective behind making hay and silage is to preserve forage resources for the dry season (hot countries) or for winter (temperate countries) in order to ensure continuous regular feed for livestock, either to sustain growth, fattening or milk production, or to continue production in difficult periods when market prices are highest.

- Suitable crops for making hay-
- Crops with thin stems and more leaves are better suited for haymaking as they dry faster than those with thick, pithy stem and small leaves.
- These may include Oats, Desmodium, Lucerne, Maize, Sorghum, Napier grass, Rhodes grass.

- Leguminous fodder crops (e.g. Cow pea, Lucerne, etc) should be harvested at the flower initiation stage or when crown buds start to grow.
- Grasses and similar fodder crops should be harvested at the pre-flowering stage. At this stage, the crop has maximum nutrients and green matter.
- After flowering and seeding, grasses contain fewer nutrients.
- In order to make the process of curing easier, the fodder should preferably be harvested when air humidity is low

Basic method of making hay

Forage is cut before it is fully mature (long before it has seeded) to maximize its nutritive value. Although cutting hay early will result in lower total volume, the increase in nutritive value will more than compensate for reduced yields.

- Leaves are more nutritious than the stems, and so when cutting forage, it is important that it is cut with as much leaf and as little stem as possible.
- Do not leave cut forage to dry in a moist environment, as this will encourage the growth of moulds. These can be extremely harmful to livestock and to people handling it.
- The cut forage is laid out in the sun in as thin a layer as possible, and raked a few times and turned regularly to hasten drying.
- Chopping forage into small pieces after drying will hasten the drying process.

- The drying process may take between 2 to 3 days.
- Hay should not be over dried as it may start to ferment and also become a fire hazard.
- The dried hay should ideally be stored in form of bales when the moisture content is low, ideally less than 15%. This helps storage and requires less space.
- Leaves are more nutritious than the stems, and so when cutting forage, it is important that it is cut with as much leaf and as little stem as possible.
- However, during drying, the leaf (being more brittle) will tend to shatter.
- Hay should therefore be handled with care, to try and minimize the amount of leaf that is lost in this way.
- Crops with thick and juicy stems can be dried after chaffing to speed up the drying process and to prevent loss of nutrients.

- Field curing is conducted during bright sunny weather but may result in bleaching of the forage and loss of leaves due to shattering. To avoid this, drying can be done in barns by passing hot air through the forage.
- Although artificial drying produces hay of good quality, it is expensive and beyond the reach of small and marginal farmer but can be attempted on a community basis in areas where there is a need, and the necessary facilities.

Storage of hay

- Hay must be stored in a dry environment.
- Hay can be baled and stored under cover or can also be stored by creating hay stacks.
- Stacks may be covered by plastic sheets to keep out rain and prevent from exposure to excessive sun.

THANK YOU