

Silage: It's Preparation under Field Conditions

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Introduction:

Green fodders are stored as hay or silage while they are in abundance to supply the demand for high-quality fodder during the lean season. Silage is a term used to describe a green substance created by carefully regulating the anaerobic fermentation of green fodder crops while maintaining their moisture content. Silage is the green, succulent roughage that has been mostly retained in its original state, with the least amount of degeneration and loss of the various nutritious components of the fodders. Ensilage refers to the method of preserving green fodder. A silage should have the moisture content of 65% and a good silage colour should be yellowish or brownish-green. A dark brown colour indicates excessive heating.

Best crops used for silage making:

1. Type of crop used

- They should be rich in soluble sugars/ carbohydrates e.g., maize, bajra, sorghum
- Molasses @ 3-3.5% should be added to cultivated and natural grasses if they are used for ensilage.
- If legumes and cereal fodders are used in combination, they should be added in the ratio of 1:3 respectively, and unwilted leguminous leafy fodders and dry forage in the ratio of 4:1.

2. Time of harvesting

The ideal time to harvest crops is between the blooming and milk stages. Silage is typically made from crops with thick stems, while hay is usually made from crops with thin stems.

Preparation of silage:



An airtight structure called a silo is used to store and preserve high moisture feed in the form of silage. In India, pit silos are more typical. The pits range in size from 2.4 to 3.0 metres deep. The space needed for 400 kg of feed is one cubic metre.

Conditions of a silo:

1. In order to prevent water from entering the silo pit, the walls must be impermeable. Cement or brick and mortar can be used to construct walls.
2. Silo needs to be deep enough. It shouldn't be too brief. The local water table determines the depth.
3. The silo needs to be situated on an elevated surface.
4. The number of animals to be fed and the length of the feeding session should be taken into consideration when determining the silo's size.

Silage preparation:

1. When the crop contains between 30 and 35% dry matter, choose it to be ensiled. Allow the crop to dry for 3–4 hours if the dry matter content is less than 30% so that it reaches 30–35%. When the ears start to appear, the crops are often harvested and ensiled.
2. Choose the days of the week when it is sunny and not raining.
3. Silo can be filled with long fodder as well as with chopped fodder. It is always better to chop the fodder first since packing is better. Thus, loss of nutrients is minimized with chaffed fodder. Further, filling and removal of silage is easier.
4. After chaffing and ensuring that dry matter is around 35% the silo is filled with fodder.
5. The fodder should be evenly distributed throughout the pit. Trampling should be done properly either with men or tractor or bullocks depending upon the size of the pit. At the top of the silo the fodder should be packed 3-4 feet above the ground level.
6. To seal the material and keep out air and water, it should be coated with long paddy straw or low-quality grasses on all sides, followed by a layer of moist mud and manure. The straw/grass layer (over the green fodder) may be 4-5 inches thick.
7. After covering, the silage would be available in two months. To increase the flavour and nitrogen content of grains and grasses, 0.5% salt and 1% urea are applied. Molasses is added to grass silages at a rate of 3-3.5% to raise the sugar content and,

consequently, the silage's quality. A higher level of molasses (5%) may be given to a crop that is more developed.

Types of fermentation during silage preparation:

- ✚ **Lactic acid fermentation-** Occurs when fodder is rich in soluble sugar or carbohydrate and the quality of silage is of good and high quality.
- ✚ **Butyric acid fermentation:** Occurs when fodder is rich in protein content and the silage is of bad odour and not good.

Classification of silage:

S. No	Items	Very good	Good	Fair
1	Ph	3.5-4.2	4.2-4.5	4.8 or above
2	Ammonical N ₂ in total N ₂	Less than 10%	10-15%	20% or above
3	Butyric acid	Nil	Trace	Some amount

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