Silage

DANVEER SINGH YADAV
Assistant Professor
Livestock Production Management
College of Veterinary Science & A. H. (NDVSU) MHOW

- Silage is defined as a material produced by controlled fermentation of crops under anaerobic condition.
- The process of preserving feed in the form of silage is called as ensiling.
- The green fodder harvested at proper stage is stored, packed and compressed in silo and it is then tightly covered to prevent the contact with fresh air.

- The receptacle or structure in which silage is being prepared is called as silo, it is generally air tight/semi-airtight structure.
- In India at most of the farms pit silos are more popular than other types.


HIGH ALTITUDE
TREK TEAM

Silage preparation

1. The crops at the time of ensiling should have about 30-35 % DM and should have sufficient soluble sugars for acid production during fermentation.
2. Crops of high moisture should be ensiled with the addition of preservatives and additives.
3. The crop harvested in bloom stage is the best for silage preparation.

4. If a crop is deficient in soluble carbohydrates (e.g legumes) then a carbohydrate source like molasses can be added.
5. The crop should be properly trampled/ pressed to remove the air out of the silo.
6. Crop should be chopped before ensiling.
7. For good silage, the shorter the chop length, the better is the quality.


DABASIYA

Silo

- It is an airtight structure designed for the storage and preservation of high moisture feed as silage.
- It is a hole/pit in the ground, trench or a tower where green fodder is stored for preparation of silage.
- While preparing a silo some precaution should be taken.

- It should be airtight to prevent growth of moulds, the wall of silo should be smooth, perpendicular and strong so as to allow better compression, height and depth of silo depends on demand of silage, water level in the area, cost of construction and machinery available for filling the silo, the top of the silo thoroughly covered with a water proof material like plastic sheet, concrete slabs etc.
- Normally the height of a cylindrical silo is taken double of its diameter.

Silo Pit

Crops suitable for silage making

- Crops having thick, solid stems and rich in soluble carbohydrate are best for silage preparation e.g. Maize sorghum, bajra.
- Silage can also be prepared from oat,berseem after wilting to 35-40% DM.

Crops suitable for silage making

Stage of crops suitable for ensiling

- Maize-dent stage ; Oat, sorghum, Bajra-milk or dough stage, Berseem, Lucerne-20-25% bloom stage, natural grasses-early flowering stage.

Method of Silage Preparation

1. First step for silage making is preparation of silo pit at desired location and leveling the pit.
2. The crop suitable for silage making is first cut into small pieces of about 2-4 cm length and wilted up to 35% DM.
3. Silage additives like molasses (@ 3 to 5%) can be added to provide soluble carbohydrates for efficient bacterial fermentation.

4. To improve palatability and nitrogen content, salt (0.5) and urea (1%) can be added, respectively.

5. The whole material is thoroughly mixed and then filled tightly in the silo.

Silo should be filled rapidly and should not be left open.

It should be sealed as soon as possible and pressed so that no air pocket is left in the silo otherwise chances of mould formation leads to spoilage.

6. After filling, silo should be covered with polythene sheet followed by that of a layer of soil or mud to make it airtight.

7. Removal of silage can be done after 45 days of ensiling and used for feeding of animals.

Care should be taken in removing the silage from silo.

It should not be allowed to deteriorate after the silo is opened feeding.

Covers should be kept firmly in place as long as possible and the minimum face should be exposed at one time.

Silage Making Steps

Characteristics of good quality silage

- Silage quality is determined mainly by the odour, physical state, PH, Ammonical nitrogen, Volatile acids and lactic acid.
- For desirable fermentation, the forage should be rich in water soluble sugar (more than 5% on dry-matter basis).
- It should have colour : green, yellow or golden brown, Smell: pleasant or vinegar type, Texture: firm, pH: 3.5-4.2, Lactic acid: 5-15%, Butyric acid: No/traces (less than 0.2), Ammonical nitrogen: less than 10% of total N.

Silage begs

Advantages of Silage Making

1. It is palatable, slightly laxative in nature, provide succulent feed during scarcity.
2. Nutrient loss is minimum as compared to other methods of preservation.
3. Less storage area is required as compared to hay.
4. It helps in biological control of pests and insects by preventing them to complete their life cycles due to early harvest of crops.

5. It can be prepared in all seasons.

6. Silage can be prepared from plants which have thick stems and thus are not suitable for hay making and also when the weather does not permit for hay making.

7. The organic acid mainly VFA produced in the silage are similar to those produced in rumen and therefore are utilized in the same manner.

Disadvantages of Silage Making

1. Silo construction is costly.
2. Loss of nutrients may be very high, if silos are not properly prepared.
3. Due to fermentation, there is 5-20% loss of dry matter.
4. If air enter silo, carotene loss is much.

Thanks