SAILAGE PROCEDURE

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INSTRODUCTION

How to improve the nutrition of farmers' milking animals when each family keeps only one dairy cow? During the cold, continental winter, the major fodders available are wheat or maize straw, together with hay and concentrated feeds. As a minimum, it is essential to provide a green fodder supplement to enhance rumen function for bovine animals. Therefore, one should develop winter fodder crops. For smallholder farmers with limited production capacity, finding enough feed in the winter months to maintain good milk production is always a problem. Many are forced to buy hay, concentrates or silage just to keep their animals alive and are unable to benefit due to the higher prices paid for animal feed in the winter months.

What is silage?

Forage which has been grown while still green and nutritious can be conserved through a natural 'pickling' process. Lactic acid is produced when the sugars in the forage plants are fermented by bacteria in a sealed container ('silo') with no air. Forage conserved this way is known as 'ensiled forage' or 'silage' and will keep for up to three years without deteriorating. Silage is very palatable to livestock and can be fed at any time.

Essential fodder crops for silage making

To prepare best quality silage, cereal green fodder like Green fodder maize, Fodder sorghum, Bajara, Hybrid Napier, Sugar cane tops, Oat, Marvel etc are required. Preference for cereal green fodder (monocotyledons) is due to it has more sugar content than protein, as sugar is utilized in fermentation process to make lactic acid by microorganisms. These cereal fodder crops have hard stem, which takes more time for drying in making hay of these crops, so it is better to use these kinds of crops for making silage than hay.

Benefits of silage making

- Silage is storage system of green fodder which keeps all parts of fodder in appropriate condition for feeding than any other system of storage of fodder.
- Silage requires less space for storage as it is pressed in pit/tank than hay making.
- For daily cutting, transporting & chaffing of fodder in traditional way requires more labour &time but in case of silage, fodder cutting, transport, chaffing is done at one time only, so it is less labour & time consuming practice. Land under fodder cultivation is emptied, and immediately it is used for plantation of other crops. So farmers' can take more crops in same land in a year against traditional way where land is reserved for fodder until all crops is harvested.
- Silage is prepared in closed & air tight condition so there is no danger of fire. (In hay making, dry fodder is stocked & exposed for fire like situation)
- Due to lactic acid in silage, it is easily digestible to animals, so energy required for digestion is used for other purposes like milk production.etc.
- Silage is tasty & flavored, so it increases appetite of dairy animals.
- Important thing behind to adopt silage is in scarcity it provide supply of fodder to dairy animals. Situations like drought, high rainfall & scarcity of fodder, farmers may use silage for feeding to dairy animals. (Rain fed area where shortage of green fodder is for March to June & in high rainy area or water logged lands, it is impossible to cultivate or harvest fodder)
- Due to treatment of additive for silage, farmers can supply energy, mineral & vitamins to dairy animals.

Planning for silage making

There are two methods for silage making which are vastly used i.e. Pit method or tank method. These two methods are economically viable for dairy farmers. For planning of silage, following aspects needs to pay attention-How many dairy animals farmers have? How many days farmers have to feed animals with silage? Is sufficient green fodder is available with farmer to prepare required silage? On the above points, decide to plan for silage making, there is example for you- -One dairy farmer has four adult milching dairy animals. He has to plan for silage for four summer months (i.e. March to June), so go through following points- There are four milking dairy animals Farmers have to make silage for four months i.e. 120 days Maximum per day feeing of silage is 20 kg per animal so per day feeding for four animals as 80 kg. So for four months i.e. 120 days for four animal's requirement of silage is 9600 kg. This means 9600kg of chaffed green fodder is require to make silage for four dairy animals for four months. In one cubic foot in pit or tank (1 cubic foot = 1 foot long × 1 foot wide × 1 foot high),contains 16 kg of chaffed green fodder. To decide dimension of pit/tank for 9600 kg chaffed green fodder ,you may divide it with 16 kg, so you may have to make 600 cubic feet of pit/tank as 20 foot long × 6 foot wide × 5 foot high.

Silage fit

Pit/tank method for silage making

Depending upon local situation like ground water level, number of animals & duration of feeding silage to animals, decide shape & size of constructing pit/tank for silage making. For pit method, select location for making pit at higher level on ground so that rain wear may not percolate in to pit. In rectangular pit, corner edges should be making round so that while filling & pressing chaffed fodder, air will not remain inside in the corners of pit or tank. Wall of pit/tank should be air proof to avoid air too come inside in pit /tank through cracks or crevices .To avoid this situation, plaster wall of silo pit or tank with cement or moistened soil. If ground water level is nearer, then go for building tank for silage making than pit method. If plastering cement to the wall of pit/tank is uneconomical, then you may use HDPE plastic paper (200 micron) to cover pit/tank inside out position.

Treatment for Silage

- For making best quality & balanced silage, needs proper treatment of additives like-
- Per ton of chaffed green fodder requires 1 kg Urea, 2 kg jaggary, 1 kg common salt, 1 kg mineral mixture & 1 litre of Whey.
- Prepare separate solution in 15 to 20 liters of water for Urea, Jaggary, Mineral mixture & common salt in separate pots/buckets & then spread it on layer of pressed chaffed green fodder while filling silo pit/tank.

Procedure for filling silo pit/tank

When fodder crop is in cob stage or Tussling stage, harvest it for preparation of silage. Very mature stage is not good for preparing silage as its sugar content is decreased as well as fiber percentage in increased; this kind of fodder is less suitable for silage making.

After harvesting fodder crops, let it dry for 5-6 hours in shed so that moisture content of fodder will decreases from 80% to 65-70%.Care to be taken to avoid silage making in rainy days or crops containing dew drops in winter season because moisture is more in this situation so there may be chances for development of mould in silo pit during storage period. Following steps to be taken while filling silo pit-

- Prior to filling silo pit / tank, clean& dry it.
- Cover with plastic film inside pit/tank in such way that it will cover all sides of pit/tank.
- For making silage, chaffing of fodder is essential component. With the help of chaff cutter machine, make pieces of 1.5c.m. To 2 c.m. length of green maize. Sorghum, sugarcane tops, marwel, Fodder bajara etc. for filling silo pit.
- Prepare separate solution in 15 to 20 liters of water for Urea, Jaggary, Mineral mixture & common salt in separate pots/buckets & then spread it on layer of pressed chaffed green fodder while filling silo pit/tank.
- Start to fill chaffed green fodder in pit or tank.
- After making 4” thick layer of chaffed green fodder, press it with wooden plank(Like Mortar) in such a way that air will not entangled in chaffed fodder. Then sprinkle it with prepared solution of Jaggary, Mineral mixture, Urea, Common salt & whey.
- Follow the same procedure until filling of pit/tank 1 to 1.5 feet above the ground level(In pit).Then covet it from plastic film from all side carefully.
- Covet it with Trash, Wheat straw, Soil & dry hay to protect it from entering rain water in to it. If possible to temporary arrangement of shed above the silo pit/tank.
- It will require 45 to 60 days to make good quality of silage.

Use of silage

After 8-10 weeks, silage is ready as feed for animals. Open pit/tank initially from one side of for use. If it is not in use, then cover it carefully with plastic film so that air will not go inside in silage. Initially fed animals with 5-6 kg silage by adding it with chaffed green fodder to develop taste to animals. Once animal likes sweet-sour taste of silage; it will eat it with good liking.

Quality of Silage

Mould: If silage while filling pit/tank, not well pressed; there will be growth of mould.

Odour: Good quality silage has sweet & sour taste.

Colour: Good quality silage has faint green or brownish Colour. Rotten silage has black Colour.

PH: Good quality silage has pH of 3.5 to 4.2.

Feeding silage to cattle

- Silage should be fed as soon as possible, preferably within a few hours. After feeding, the feed bunks must be cleaned out to prevent any remaining silage, which will spoil, contaminating the next feed out.
- Silage can be provided to animals in number of different recipes based on its composition and the breed and use of the animals. In general silage should be used up to 25 kg per day for 550 kg animal and up to 5 kg for sheep and goats.
- The following recipes are used most commonly to obtain the best results when feeding a 550 kg animal:

  Alfalfa hay 7 kg, followed by Maize silage 17 kg
  Alfalfa hay 2 kg, meadow hay 3 kg, maize silage 15 kg, rye grain 1 kg
  Alfalfa hay 2 kg, meadow hay 3 kg, maize silage 12 kg, oil beat fresh, 15 kg