

Conservation of Fodder

Availability of nutritious fodder throughout the year is very essential for profitable dairy farming. But it varies from season to season. Therefore, every dairy farm must preserve the surplus fodder in the form of silage or hay. The surplus forages of the two glut seasons i.e. rainy season (August-September) and winter season (February-mid March) could easily be carried over to the succeeding lean periods of fodder supply. During the lean periods of May and mid July and November -December the hay or silage can supplement the dry fodder and limited quantity of green fodder available to overcome the scarcity of fodder.

With judicious selection of crops, their rotations and the conservation of seasonal surplus either as silage or hay, it is not only possible but also practical to maintain all the year round supply of quality roughages for milch and drought animals. The practice of fodder conservation is inseparable from a good herd management programme. Fodder conserved in a season of plenty is an insurance against under feeding and economic losses during scarcity period.

Silage

Silage is the preserved green fodder in succulent form under air tight conditions. Ensiling is a process which involves the conservation of green fodder crops, grasses and the storage over long period. Good quality silage is yellowish-green in colour with a pleasant vinegar smell.

The technique is more or less similar to that commonly employed in the preparation of pickles. Pickling of fruits and vegetables is a universal practice in most indian homes, rural and urban alike. Therefore, it is not difficult for the farmers to grasp the technique of silage making and use it successfully. The process fits ideally irrespective of the size of the farm and the extent of mechanization employed.

Crops suitable for silage

There is a wide range of crops suitable to this purpose. Excellent silage may be made from crops like Jowar, Maize, Bajra Oats and Barely. Among the perennial grasses large amounts of surplus fodder is available for silage making from the luxuriant growth of Hybrid Napier grass, Guinea grass, Para grass, Sudan grass and Rhode grass. Legumes like berseem, lucerne and cowpea are not suitable for silage making. However when mixed with non-legume crops in the right proportion, the mixture yields well balanced silage. Silage can be made successfully by mixing of paddy straw and berseem, paddy straw and water-hyacinth and berseem and oats.

Stage of harvesting the crop:

The fodder crop should be harvested at a stage when nutrient content is at peak stage and it has produced enough through dry matter. The crop must have sufficient sugars to permit the quick production of preservative acids of which lactic acid is the most important one. The crop should be neither immature nor over mature. Flowering to milk stage is

recommended for making silage from maize, Jowar and oats crops. In case of bajra and teosinte boot stage is best harvested at blooming stage but Hybrid napier and Guinea grass should be harvested at 1.25 meter height stage. Good quality silage can be made when the dry matter of crop is 30-35 per cent. Take a handful of chaffed fodder in between the hands and press. If hands do not moist, the fodder has the desired dry matter.

Silage Making

Silage is made by compressing the chaffed green fodder in tight pits called silos. There are many types of silos such as pit silo, tower silo, trench silo but under village conditions the ordinary pit silo is recommended.

Pit Silo

Dig a circular or rectangular pit of desirable dimension on a site located at the higher elevation and near the animal shed. It may be located in an area with a lower water table to avoid rise of water into the silo during the rainy season through capillary action. The size of the pit depends on the fodder available for ensiling as well as the silage requirement of the cattle. It may be roughly calculated on the basis that one cubic meter of the silo can have 650 to 700kg settled silage. A silo pit measuring 3.0 meter length, 2.5 meter width and 2.0 meter depth a convenient size for making silage for feeding five dairy animals at the rate of 20 kg silage per head per day for three months. Such pit can be prepared by a farmer without much expense. A circular pit is better than rectangular one, because the chaffed fodder has comparatively less surface contact and while filling air can be expelled easily. Before filling, plaster the sides with mud and line with long stalks of dried fodder to prevent fodder coming into direct contact with earth. Alternatively line these with polythene sheet or brick line and plaster. The bottom should not be plastered.

Filling the pits

Chaff the fodder into small pieces (2.5 to 4.0 cm) with a chaff cutter before ensiling for better compaction. If the fodder is found withered due to a bright sun, sprinkle a little water during the course of filling the pit. In case the silage is to be prepared from leguminous fodders like barseem, lucerne or cowpea or immature grass rich in protein, the addition of carbohydrates is essential. Such types of crops, before ensiling, should be wilted to the moisture content of 65 to 70 per cent or a dry matter content of 30 to 35 per cent. Wilting before ensiling will bring the desired dry matter and will reduce the water content which will consequently increase the sugar content in the forages and help in effective fermentation. It also helps to lower the seepage and leaching losses. Molasses, at the rate of 40 to 50 kg per ton of ensiled material should be added in the case of legume fodder crops. Other alternate additives recommended are ground maize, ground barley 80 to 100 kg per ton of chaffed fodder. These additives provide favourable conditions for the bacteria to produce lactic acid.

To check the growth of undesirable organisms and to increase the growth of lactic acid producing bacteria, certain preservatives may be added while making silage. The preservatives like common salt (18-20 kg) ton sodium meta-bisulphite (5 kg) dilute acetic acid (10 litres) or phosphoric acid at the rate of 6 kg per tonne of chaffed forage may be added.

The green fodder should be chaffed carefully and spread over the entire area. The material should be well trodden, during filling, in order to compress the mass, so that maximum quantity of air is excluded. Whole material should not be filled at one time. As the pit is being filled, the chaffed fodder should be spread in uniform thin layers over the entire area and thoroughly compacted by trampling with foot. When the filling is just approaching the ground level, heavy animals like bulls or buffaloes or even tractor may be used to trample over it and further layers of fodder should be spread more evenly. In this way the compressed material in the pit should stand at least 2.5 to 3.0 feet above the ground level in a dome shape to facilitate draining out of rainy water. It is essential to complete the filling of the silo in the shortest possible time; otherwise the quality of silage is adversely affected.

Sealing the pit

After the completion of filling, the silo needs to be sealed. Provision must be made to protect it from rain water seepage. The silo should be covered from the top up to ground level by polythene sheet and on which a layer of 10 cm moist earth should be spread. Alternatively spread a 10-15 cm layer of dry fodders and cover it with and a layer of earth, and plastered with cow dung and earth mixture to make it air tight and water proof.

After care of the pit

After few days the earth covering shows cracks caused by sinking down of the green material due to fermentation. With the sinking down of the material, some portion may buldge out; such portion should be chaffed off to allow the whole mass to go down properly. The cracks should be covered with some waste fodder or weed grass and plastered over with a mixture of mud and cow dung, so that an air tight condition is maintained. If water accumulates around the pit, it should be drained off. Once the pit is closed it should be kept air tight till it is opened for taking out the silage. Silage should be ready for feeding in about 45 days. When opened the pit should be used up as quickly as possible to avoid wastage and drying up. It is advisable to remove one third or fourth of the surface area of the pit by cutting straight to the bottom with a silage knife.

