

Case Study on Drum Silage

Background

Livestock rearing is considered as an integral component of livelihood along with rain-fed farming especially for small and marginal farmers in two mandals Nallamada and Gudibanda of Anantapur district, India. Anantapur is known for vast areas of dry lands and is known for long prevailing drought conditions where natural pastures rarely provide sufficient year round



fodder of reasonable quality and quantity to match the nutritional demands and support satisfactory livestock production and reproduction.

Lack of good quality roughage and environment constrains are limiting the availability of the fresh fodder to cattle and small ruminants. Due to unavailability of green & dry fodder especially during the summer season,

shepherds along with their flocks migrate to far of places in Karnataka at least to keep them alive from severe drought and dairy farmers have been feeding animals a disproportionate amount of concentrate feed to sustain growth as well as milk production. Feeding of concentrates is required during the lactation period to meet the nutritional requirement of milch animals. Indeed, concentrate feeding increases the milk production, but continuous feeding of these concentrates leads to rumen acidosis and causes severe health and reproductive problems in dairy cattle. This also leads to huge expenses from farmer end.

CSV Project

In response to this crisis and to meet the fodder needs of dairy farmers, APMAS in collaboration with two Farmer Producer Organizations (FPOs) in two mandals have implemented a project **“Climate Smart Village Program”** for three years (2019 - 2023) with its funding partner AEIN, Luxemburg. With one of the major objectives to make year round fodder availability in the area, the project has introduced an innovative practice “Silage making” (preservation of green forages and enriching them with proteins through fermentation) as a solution to address the fodder needs as it was not practiced in this area earlier. With an aim to increase the adoption of silage technology among the small holder farmers and landless farmers, the staff has organized training sessions and demonstrations at village level.

Drum Silage

The aim of silage production is to minimize biological degradation and conserve digestible nutrients. This is a fermentation process where oxygen will be eliminated and silage acidity will increase rapidly so that lactic acid bacteria can grow and stabilize the silage. By the end of the



fermentation, silage will reach a final low pH and bacterial growth will stop. Fast filling, good packing, and tight sealing are necessary for oxygen elimination.

Fresh grasses (leguminous and non leguminous grass) are selected and harvested at flowering to milk stage for silage making. The harvested crop is left on the field until the moisture level is reduced to 60% from the grass. Using a chaff cutter the grass chopped into 0.5 to 1 inch pieces for preservation.



A plastic drum of 200 liters capacity is used for making silage. The chopped pieces are filled into drum in the form of layers. To initiate fermentation process and to preserve the silage for longer time, a solution containing 2 kgs of jaggery, 1 kg salt, 100 grams of urea mixed in 5

liters of water is sprinkled evenly in layers on the forage. To prevent the forage from rotting, the chopped grass is pressed tightly with feet to make air out to protect from fungal attack. This should be done with caution as little air even cause the fungal growth and damage the forage. Add more forage to the drum in layers and repeat the process of spraying the solution until it fills the drum completely. The drum should be covered with a cap from top (air tight) and labeled.

The process of fermentation takes 6 to 8 weeks. The silage can last up to 2 years if the drum is not opened. Once the drum is opened the silage need to be fed to animals within a week before spoilage.

Note: The spoiled silage is not fed to animals, as it leads to other health problems

Advantages of Silage

- Increases nutritive value of fodder
- Lowers harvest loss
- Storable for longer periods and occupies less space
- Increases palatability and digestibility
- Less affected by weather damage
- Affordable and useful in summer when there is no scope for natural grazing
- Increases milk yield in cattle



The CSV team have organized training sessions and invited farmers to participate in the training sessions. A demonstration is also organised at Village Organization (VO) to farmer members. Dr. Gopal Reddy, livestock specialist along with staff have demonstrated procedure of silage making and created awareness on its importance.

After the demo few farmers expressed their interest and started making silage and using it. As a part of the project, plastic drums were provided to the interested farmers along with fodder seed material.

Ms. Uma belongs to Tholetivaripally village in Nallamada mandal. She has 2 cows and 2 calves. Generally, she depends on concentrate feed and natural pastures to feed her cows. Currently she is making silage on her own and feeding them with silage along fodder. This has improved the milk production as well as SNF and fat content. The innovative feeding has increased her income and reduced expenses on transportation of fodder bales from other states.



The purpose of introducing silage is to reduce the dependency on concentrate feed and to reduce the negative health impacts on cattle health and minimise the migration of small ruminants. Feeding cattle with silage helps in increase of milk quantity and quality by 20% and the ultimate goal is to solve the fodder crisis at the village level. The Climate Smart Village reached out to 15 farmers and is encouraging other farmers in the area to prepare and use silage.