
ILRI/Dorine Odongo

Silage making

Silage making is a way to preserve forage for having enough nutritious feed while scarcity periods like dry season. Silage making is a process of fermentation of green material under anaerobic (not exposed to the air) conditions preventing fresh material from rotting and allowing it to keep its nutrient value. Lactic acid is produced when sugars in the forage plants are fermented by bacteria in a sealed container without air. Depending on the material used for silage making, applying a molasses water mixture will accelerate fermentation and increase silage quality. Use about 1 l Molasses per Cubic meter of silage.

In Kenya silage making from maize is popular, but also forages promoted by CIAT and its partners (Please see our forage factsheets hdl.handle.net/10568/93394) can serve for making silage. Forages which are more stemmy and do not qualify for haying, are ideal for that form of preservation (e.g. most of the Brachiaria, Panicum max Mombasa and Tanzania, but also Napier grass, oats, sorghum and sweet potato vines; no matter which forage you use, the quality of the used material influences the quality of the silage). Also under cloudy and wet conditions it is the better preservation technology.

This factsheet will give a short comprehensive introduction in silage making for small and medium scale farmers and not touch the large scale mechanized procedures.

Depending on the quantity of available material silage can be fermented and stored either in silage pits or in bags or drums. As ready to use silage should not be exposed to air, the storage is also determined by the daily need of the farm. The principle steps for the preparation do not differ:

Choose the forage to be used or grown.

Preparation of the silage pit / bunker Choose a dry place to dig the pit on slightly sloping ground. Depth of the pit will increase the more you dig in the slope. This will ease access to the pit and make works easier. If there is no slope available, you can however dig a pit in the ground. Chose the location well to ease transport for filling as well as for bringing the silage to the animals.

The ground and the sides of the pit will then be covered with clean polythene sheets.

Preparation of the silage material. Harvested forage should be chopped within a day to avoid mould or drying out. Depending on the quantity, chopping can be done by hand but better use a forage chopper or pulveriser. Pieces should be no longer than 2-3 cm. Contact of chopped forage with the soil has to be avoided.

Filling of the pit Chopped forage should be spread out into the pit in thin layers of about 10 cm. A molasses water mixture (1:3) will be sprinkled (use a knapsack for even coverage) over the layer. Repeat the process till the filling reaches about 30 cm. Then compact the material to get maximum of air out. The forage can be compacted by feet or by using filled drums. This step is very important! The intensity of compaction is key to the fermentation process, the less air, the better the anaerobic fermentation, the better the silage.

Repeat these steps till the pit is filled and end in a doom shape.

Closing of the pit Cover the pit with a polyethene sheet. The whole pit with its silage material has to be covered to create a hermetically closed interior with no opening to the surrounding. To minimize water intrusion risks, dig a small trench around the sides of the pit. Now the pit will be covered with a layer of soil to have pressure on the material and prevent damage of the polythene sheet from rain,birds or contacts with animals.

It will take about 30-40 days till the fermentation process is finished and your silage will be ready for feeding. The silage can last up to 2 years.

To use the silage, open the pit from one side, take out the needed amount for 1 day and close the pit well immediately. Mature silage exposed to air will start to rot and ruin all your efforts invested in the silage making

If you do not have the capacity for silage making or do not feel comfortable with the process you can also hire the service offered by

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