

## Artisanal Silage making through ‘service provider enterprises’ in Kenya

### A business case

Feed preservation is an important element to overcome the seasonality of availability of high quality feed which still has a serious effect on the health status and the productivity of livestock. Depending on the forages they can be either preserved as hay or as silage. While only some forages qualify for haying, silage can be made of grass as well as sorghum or maize. Maize is by far the most common crop for silage making.

Silage making is not very complicated but the necessary works have to be done properly and also some materials and technical equipment are required. Not every farmer has the knowledge, the equipment and the time to ensile his grass or maize by himself.

SNV's Kenya Market led Dairy Program (KMDP) has established ‘Service Provider Enterprises’ (SPE) to offer this service to dairy farmers. The SEPs consist of a group of youths (in average 7 persons) and are attached to dairy cooperatives. They are trained (1 week training) and equipped by KMDP. More than 20 SPE have been formed and operate in Meru county and beyond.

#### The services offered consist in:

- Preparation of the silage bunker and placement of a polyethylene sheet.
- Chopping the raw material.
- Bringing the material into the bunker in layers.
- Adding a molasses-water mixture and compacting each layer before the next layer is added.
- Once the silage pit / bunker is filled, the bunker is closed to prevent air contact of the silage material, which has to undergo a process of anaerobic fermentation.
- Covering the silage material and cover it with a layer of soil for permanent pressure and to keep the air out to guarantee a proper fermentation

The capacity of a 7-person group: up to 700 tons/month at a cost of 1 KES/kg

The average income of the group members: 40,000 KES/month

#### Needed investments:

Investments	Costs (KES)
Forage chopper (price range for self propelled machines)	30,000 (light duty) – 170,000 (heavy duty)
Forage chopper (tractor driven)	600,000 – 2,000,000
Shovels, forks, wheel barrows (x6)	48,000
Pairs of wellingtons (x7)	14,000
Other small material	10,000
Ev. Training cost, if not coming from a dev. partner	

The SPE approach is mainly applied in the dairy hubs around Meru and Eldoret, but has got the potential for job creation also in other rural areas in Kenya, especially in areas or periods of wet weather, which do not offer the best conditions for hay making.

## Need for the silage (making service)

Feed availability depends on the season, while at rainy season there is enough feed in most areas, it looks much different while dry season. Based on rainfall patterns and the variable fodder availabilities, farmers should be prepared to bridge different length of fodder scarcity periods. In the Western Highlands of Kenya, this period is about 2.5 months. Based on the estimation and knowing that a cow needs about 30 kg of silage per day to keep up a high productivity, it is easy to calculate the amount of silage, which a farmer should produce and store.

### Estimated that the farmer feeds exclusively on silage:

Silage need / day / cow	Silage need / 30 days / cow	Silage need / 75 days / cow
30 kg	900 kg	2250 kg
Silage need / day / 5 cows	Silage need / 30 days / 5 cows	Silage need / 75 days / 5 cows
150 kg	4500 KG	11250 kg

The awareness of farmers to preserve feed to bridge scarcity periods is rising and a growing number is also using silage. At least that applies for the more advanced dairy areas like Meru and Eldoret, while this is still at the very beginning in Western Kenya. This development is opening opportunities for service providers for silage making and might be a possibility for rural youth to start their own business.

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