

Silage making activities of the department of veterinary services Malaysia

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The Department of Veterinary Services (DVS) in Malaysia undertakes silage making as a form of fodder conservation. This activity has been pursued since the sixties. Silage crops involve grasses, maize and forage sorghum varieties. Silos include horizontal ground types, such as wooden and concrete bunkers, earthen trenches and surface stacks. Receptacles such as plastic bags and drums are also used for silage making. Mechanised film wrapping of small round grass bales to produce "silawrapped" grass silage is also carried out.

Horizontal silos have been used for grass, maize and forage sorghum ensilage activities. These horizontal silos consist of mainly above ground wooden bunkers, surface stacks and the below ground earthen trenches. Bunker silos range in size from the small scale 4 m square wooden walled type to large scale permanent twin walled concrete bunkers, each measuring 13 m x 5 m, with walls 1.23 or 1.74 m high. Silage making activities with the larger twin-walled bunkers are highly mechanised. Forage harvesters, both tractor-mounted bin and the tractor-drawn wagon types, as well as tipper lorries are used for the harvesting, transporting and filling of the silage storage. Packing /compaction is achieved by the weight from the wheels of a heavy-duty tractor, driven strategically over the heap. Permanent concrete bunkers are available on several livestock farms for ensilage work.

Earthen trench-type silos, constructed through earth excavation, have dimensions of 20 m x 5 m. Since these trench silos are normally located on selected sloping ground, they usually have a depth of about 3 m at the closed end which decreases to zero at the open end.

The stack system silage has been successfully carried out at the Department's training institute farm between 1983 and 1985. Four hundred tonnes of grass silage from Signal grass (*Brachiaria decumbens*), Kazungula grass (*Setaria sphacelata* cv Kazungula), Guinea grass (*Panicum maximum*) and Napier grass (*Pennisetum purpureum*) have been produced using this method during that period.

Between 1985 to 1986, the production of silage from forage sorghum (e.g. Sugargraze and Jumbo varieties), maize as well as Napier grass in small round concrete tower-type silos have been carried out in the northern part of the country. Dairy farmers in the area, which experiences an annual dry period, have been encouraged to conserve fodder in the form of silage to ensure year-round forage availability. Each small tower silo, of 2 m diameter and 3 m height, is capable of ensiling 10 tonnes of fresh material, which resulted in about 7.5 tonnes of silage. During the two-year programme, 250 tonnes of forage sorghum silage, 66 tonnes of maize silage and 30 tonnes of Napier grass silage have been produced.

Increasingly, the use of local crop residues, such as sweet corn stovers and oilpalm fronds, as forage/roughage feed, is also being undertaken through ensilage. Currently, sweet corn stover silage is being produced using container/receptacle type silos consisting of plastic drums and plastic bags. Since the inception of the corn stover ensilage programme in 1994, an estimated 400 tonnes of sweet corn stover silage have been produced for feeding farmers' cattle. Farmers, involved in integration of cattle with oilpalm, have also been encouraged to ensile chopped oilpalm

fronds in plastic drums to supplement grazing wherever there is problem of insufficiency of understorey forage. Ensilage in plastic drums has become a popular method of making silage in the country, as the drums are convenient for filling, packing, sealing, handling and feeding-out. Silage making involving mechanised "silawrapping" of small round bales has been introduced in 1991. This method of silage production, which involves mainly grasses, has been undertaken on three ruminant farms as well as on reserve grazing land. Annually, about 500 bales of "silawrapped" silage, equivalent to 15 tonnes, are being produced to feed cattle and sheep during the dry season. Up-to-date, a production of about 290 tonnes of "silawrapped" silage has been achieved.

The Department's ensilage work also involved cultivating a crop of maize on a freshly sown signal grass pasture and harvesting the mixture for ensilage. It successfully tested the concept of cultivating maize as a one-off silage crop on newly developed or redeveloped pasture fields, before the latter is permanently used for grazing. The concept aims at maximising the usefulness of land being developed or redeveloped for permanent grazing.