The place of silage in ruminant production in the humid tropics.

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Introduction

In many developing countries of the humid tropical region of Southeast Asia, ruminant livestock production is mainly carried out by smallholders who are largely dependent on natural forages for their feed resources. Natural forages grow freely along the roads and on idle agricultural land. In Malaysia, as in many humid tropical countries, green forages are plentiful for most of the year. However, at times, e.g. during a drought, livestock farmers will experience a shortage of forages and feeding of ruminant livestock will become a problem. Fodder conservation is promoted with the main objective of ensuring feed availability during periods of feed limitation (Mohd Najib *et al.* 1993).

Justification for feed conservation

For subsistence farmers, with a few animals, harvesting of livestock feed from roadsides and unused agricultural land is becoming less common. The economic boom in the eighties and early nineties has changed the dairy livestock perspective of Southeast Asian farmers. As they become more progressive, the need for feed security in their ventures must be ascertained. Also as they become more affluent, social activities within the community increase.(Hassan Wahab and Devendra 1982).

The farmers lack time for cutting forage, especially during the main crop-planting period and harvesting season, and especially during major festive and religious events. In addition, rainfall in recent years has been less reliable. Production of dry matter can be reduced tremendously during prolonged droughts, whilst excessive rainfall causes flooding that can affect production, harvesting and transportation. As the nations become more developed, the accessibility of animals to roadside pastures becomes limited for reasons of safety to motorists. Nowadays, the super highways are out of bounds to animals.

It is becoming increasingly clear that the rising population has put increased pressure on agricultural land use in this part of the world. There is increasing use of gazetted grazing land for intensive crop production. This has resulted in reduced availability of free feed resources from common grazing lands. Hence, forage conservation is needed during periods of high forage productivity. Silage making of forages, that are plentiful during the wet season, is one of the answers to feed shortages in other parts of the year.

Silage making in the tropics

The silage concept is more relevant to temperate regions that have distinct seasons than to the evergreen tropics. Nevertheless, over time, in Malaysia the objective of silage production has become more relevant to fulfil the forage needs for smallholder dairy farmers. Silage making is less dependent on weather conditions than hay making is.

The reasons for the major interest in silage conservation in the tropics are many. As the countries of the tropics become more developed the aspirations of the farmers also become more sophisticated. No longer are they content with labour intensive and mundane chores like cutting grasses every day for ruminants, irrespective of the climatic conditions. Many of them are looking

for alternatives where cheap animal feed can be obtained, stored and utilised at their convenience. Silage making offers a solution.

In addition, the progressive farmers are keeping more animals and are aware of the need for nutritious forages for their animals. As livestock husbandry becomes more a financial investment than a form of social security, farmers want an assurance of readily available good quality feed for their animals. Silage making offers one option to secure feeds during seasons of high production for conservation and storage and use in periods of relative shortage. The silage can be kept for months or even years. Silage can be used at any time as and when required, especially during periods of drought (Koon 1993).

Silage quality

Maize silage has been the basic fodder for cattle in North America and to a lesser extent in Europe. Maize has a high rate of conversion of radiant energy into plant matter. The high starch content of the grain makes the energy content of maize higher than that of hay or forage sorghum and thus is good material for silage production (Mooi 1991). On the other hand, many available tropical forages and agro-by-products are generally low in nutritive quality. Silage made from these forages is possible, but are not able to sustain high animal productivity because of their low digestible energy content. New methods of silage making may be needed. In Malaysia, the oil palm plantations produce an abundance of pruned fronds every week, which can be exploited as animal feeds. Although the nutritive quality of palm fronds is low, there is a need to develop proper ensiling processes to upgrade the frond silage quality without much nutrient deterioration. A new approach to silage production from tropical forages is an area that needs to be further explored.

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