The Future of Silage Making in the Tropics

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1. Introduction

Over a period of 3 months (September till early December 1999) the participation in this Electronic Conference on silage Making in the Tropics has been good and sustained. There were 355 participants from 68 countries, 148 of whom were from Latin America, but only a limited number of contributions came from there**.** Nine invited main papers were supported by 25 submitted posters and several comments have given a reasonable and sometimes lively discussion. It was an eye-opener to me and probably to many other participants in this conference to what extent silage making in the tropics has been advocated and tried. But a question remains: to what extent is silage production being adopted by small farmers? At this stage we cannot gauge how many small holders are actually practising silage making.

2. Adoption by small farmers

The contents of the papers and the posters show that silage making is generally known by scientists in the tropics, but that actual small holder silage making activity is low, except in Malaysia (Chin and Idris) and China (Li Dajue and Song Guangwei). The reasons for non-adoption of this technology were presented for Pakistan (Hassan Raza), India (Rangnekar) and Thailand (Nakamanee).

The main reasons mentioned were:

- lack of know-how
- lack of finance
- silage making was considered cumbersome and labour intensive
- benefits were not commensurate with effort and time
- animals have a low genetic potential for production and cost and trouble of silage making did not provide adequate returns
- lack of farm planning
- lack of available feedstuffs of good quality

It was also mentioned that farmers might be prepared to buy ready made silage, which indicates willingness to feed it, but lack of time to prepare it.

It is clear that it is necessary to have trained extension staff and in order to involve farmers in any pilot projects of silage making from an early start. Only a participatory approach will lead to adoption of new technology that fits in with their system of farming and availability of funds and labour. If farmers would like to feed silage but cannot adopt the technology it may then be necessary to modify it in close cooperation with the farmers to suit their needs and resources.

3. Materials to ensile

Anything that has feeding value can be ensiled. What actually is ensiled depends on availability and quality, but only good quality material should be ensiled to ensure that costs will be reimbursed. Materials mentioned in this conference include:

- grasses
- legumes (herbaceous and edible material of woody species)
- fodder crops
- crop residues
- oil palm fronds
- tomato pomace
- poultry litter

4. Methods of silage making

For large farms the temperate approach of mechanised methods and the use of large silos is also applied in Australia (Cowan) the Philippines (Montemayor *et al.*) and Cuba (Ojeda). Small farms use plastic bags, containers or small bale wrapping.

5. Additives

Although a large range of additives is available, there is little evidence of its use on small farms in the tropics. If anything, molasses is used on low-sugar containing materials.

6. Conclusions

Silage making is possible and can solve nutritional problems on small as well as larger farms, but as with many innovations to overcome animal production constraints in developing countries, socio-economic problems prevent general adoption. The main

exception is Malaysia, where silage making has become part of a scheme of small scale milk production and collection, providing a regular income to farmers. This may be a lesson in its self: ***Technology of any kind will only be adopted if it can be part of production systems that generate income .***

This conference has been useful because it has brought together and made available the knowledge and shown the constraints concerning silage making in the tropics.

7. Acknowledgements

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8. References

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