

Adoption and impact of forage conservation technologies: A current research project in Honduras and Nicaragua

C. Reiber^{1,2*}, R. Schultze-Kraft^{1a}, V. Hoffmann^{1b}, M. Peters², P. Lenters², A. Schmidt², H. Cruz², C. Burgos³, M. Mena⁴

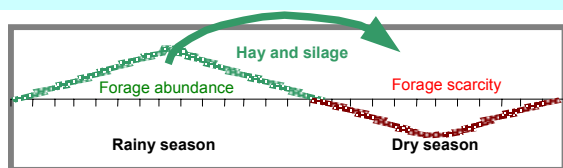
¹Universität Hohenheim, ²Institut 380, ³Institut 430, 70599 Stuttgart;

²CIAT (Centro Internacional de Agricultura Tropical), Cali, Kolumbien; ³DICTA Honduras; ⁴INTA Nicaragua

*corresponding author: c.reiber@cgiar.org

Introduction

Feed shortage during the 5-6 months of dry season in extended areas of Central America severely limits livestock production. Forage abundance in the rainy season can be transferred to the period of forage scarcity by hay and silage preparation.

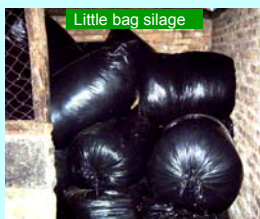


However, adoption of forage conservation by small-scale farmers so far has been low. Reasons include un-adapted technologies that require high investments (e.g. machinery and/or large bunker silos) and lack of knowledge about modern, adequate low cost alternatives such as heap silo, earth silo and little bag silage (LBS).

Un-adapted technology



Alternatives



Current results

Innovation processes in forage conservation

Increasing use of alternative adapted silage technologies like heap, earth and bag silo.

Participatory evaluations

reveal LBS to be an attractive technology because of low costs, easy handling, low labor requirement, reduced risk of losses due to rapid filling and silo size, adaptability of bag size and marketing possibilities.

Farmers' criteria for selection of plastic bags:

Market availability, cost, resistance and size.

Adaptation of LBS technology to local conditions:



Manual adaptation: Plastic tube is cut to appropriate size and sealed using a hot machete



Evaluation of different silage bags



Use of barrels, garbage cans or (used) particularly thick animal feed concentrate bags in order to ease filling and compaction, and reduce risk of perforation of plastic bags

Novel technology development with farmers

Improved forage grasses (*Brachiaria brizantha* cv. Toledo and *B. hybrid* cv. Mulato) and legumes (*Vigna unguiculata*, *Lablab purpureus* and *Cratylia argentea*) as well as their conservation mainly in the form of LBS are promoted during farmer trainings and field days. Adoption and impact of these technologies will be evaluated and scaled out. It is hypothesized that LBS technology is appropriate for resource poor farmers.

Expected outcomes

- Effect of hay and silage supplementation on milk production measured.
- Viability and breakeven point of different conserved forages evaluated.
- Prerequisites for and factors influencing adoption and diffusion of forage conservation technology assessed.
- Potential and constraints of LBS technology evaluated.

Conclusions

- LBS technology is adaptable to local conditions and is a feasible option to conserve forage for the dry season.
- The advantages of LBS technology compared to other silo types favour adoption by small scale farmers.
- LBS technology of high quality forage can facilitate sale of hay and silage as a commercial product to medium and large scale farmers and thus contribute to additional smallholder income.