Selection of Forages for the Tropics (SoFT) — a database and selection tool for identifying forages adapted to local conditions in the tropics and subtropics

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Introduction

Rising populations and incomes in developing countries are likely to double demand for livestock products by 2020 (Delgado *et al*. 1999). This strong demand has potential to improve profitability for farmers but will require improved animal feeding in both semi-intensive crop-livestock and more extensive livestock systems. Forages usually are the most cost-effective option to supply feed demands, particularly for ruminant-, but also for pig- and poultry-production. It is critical to select the most suitable forages for the local system and conditions. Small- and even larger-scale farmers depend heavily on advice from extension and development agencies, and from seed companies, but this advice often is limited by inexperience and the difficulty in accessing reliable information. Expert information on an extensive range of tropical forages is now readily available through the SoFT database.

Database development and structure

Forage research over the last 50 years has identified many useful tropical grasses and legumes. Information on their adaptation and use has resided in peer-reviewed literature, research reports with limited distribution and, often most importantly, in the memories of forage agronomists with decades of experience. The SoFT database has accessed these information sources to define the adaptation and use of >200 forages, and has integrated this knowledge into a user-friendly database. The database has 4 main features: (i) information in fact sheets on the adaptation, uses and management of forage species, cultivars and elite accessions; (ii) a selection tool built on LUCID™ that enables easy identification of 'best-bets' based on 19 criteria (Table 1); (iii) a bibliography of >6000 references and abstracts on forage diversity, management and use; and (iv) a collection of photographs and images of species to help in their identification and use. The database selection tool is an expert system based on the experiences of >50 forage specialists who have worked for many years in tropical and subtropical regions of Africa, tropical USA, central and South America, south and south-east Asia and Australia.

Conclusions

The SoFT project has summarised information on tropical forage adaptation and use from available literature and experiential sources. The SoFT database on CD and the Internet will allow researchers and advisors to select those forages most suitable for local conditions. It is also a valuable teaching tool for colleges and universities. CIAT (International Centre for Tropical Agriculture) will undertake updates of SoFT.

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Reference

DELGADO, C., ROSEGRANT, M., STEINFELD, H., EHUI, S. and COURBOIS, C. (1999) Livestock to 2020: The Next Food Revolution. *Food, Agriculture and the Environment Discussion Paper No.* **28**. *International Food Policy Research Institute, Washington, D.C.*

Table 1. Selection criteria available in the SoFT database to select the most suitable forages for environments and uses.

Climate/farming system attributes	Soil environment attributes	Plant attributes
Latitude × altitude	Soil pH	Plant family (legume or grass)
Rainfall (average annual)	Level of available soil Al/Mn	Life cycle
Length of dry season	Level of soil salinity	Growth form
Inundation	Soil drainage	Stem habit
Intended forage use	Soil texture	Cool season growth
Grazing pressure	Soil fertility	Frost tolerance (foliage damage)
Shade environment		