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Increasing *Mucuna*'s Potential as a Food and Feed Crop: An Effort to Deliver BNF to Farmers

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Abstract

Although *Mucuna* fallow is generally the short fallow system type that performs best agronomically, its level of adoption is relatively low because it occupies the land without a direct economic output. This was recognized by researchers and donors who initiated a project to focus on *Mucuna* as a food and feed crop. The project made progress in the areas of ruminant feeding, processing to reduce anti-nutritional factors, non-ruminant feeding, human health, and germplasm. Recently, the project participants and other collaborators met in a concluding workshop to share their progress and highlights are summarized in this document. The major achievement is the demonstration that *Mucuna* seeds and pods can be fed to small ruminants with minimal processing and with positive effects on animal growth. This has been shown in Mexico and should be tested in several African countries. The major lesson learned is that delivery of the benefits of BNF to farmers may require expertise outside the fields of agronomy and soil science. In our case we especially benefited from the input of researchers in animal science, food science, toxicology, and analytical chemistry. Soil scientists and agronomists had to promote the funding of the work of these new colleagues and now should promote the extension of the results. After farmers start to adopt the *Mucuna* system for its multiple benefits, soil scientists and agronomists should work on fine-tuning the system to maximize the benefits to the soil.

Introduction

Studies have indicated that soil degradation has reached dangerous levels in many parts of the world, including Africa (Sanchez *et al.*, 1997). Green manure/cover crops have been researched and promoted for soil fertility maintenance/improvement (through e.g., protection from erosion, recycling of subsoil nutrients, and N-fixation) and weed suppression. *Mucuna pruriens* is the most researched herbaceous cover crop (Buckles, 1995) because it has good biomass production in diverse environments, consistent positive impacts on main crop yield, and effective weed suppression (Carsky *et al.*, 2001).

In most cases where it has been tested *Mucuna* fallow has generated high hopes and,

over the course of the 1990s, it attained the status of a "miracle technology". Therefore it was taken on-farm in a diversity of efforts and approaches in Africa, Latin America, and Asia. Typically, the collaborating farmers were impressed with vegetative growth and seed production but in subsequent years there was little adoption (Fig. 1). Studies indicated that low adoption was caused by the fact that *Mucuna* was occupying the land without a direct economic output. Its value as food and feed was not evident, and since it did not have other uses, there was no market for it. Disillusionment quickly followed so that by the mid-to-late 1990s many had concluded that *Mucuna* has insurmountable problems. Some researchers began to focus