Tropical and Subtropical Agroecosystems

INCREASING *MUCUNA*'S POTENTIAL AS A FOOD AND FEED CROP

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PREFACE

Mucuna has been promoted to smallholder tropical farmers in Africa, Mesoamerica, and South Asia as the most promising of the current green manure/cover crops due to its positive impact on main crop yield and soil properties, and its effective control of weeds. These benefits, although often visible even from the second year of *Mucuna* cultivation, have not encouraged resource-poor smallholder farmers to invest their efforts and land in the crop because they need additional benefits from first year onwards. Such benefits can be realized if *Mucuna* were to find greater uses as a food and/or feed. Its potential as a feed crop has been proven on a large scale in the first half of the 20th century when it was successfully used for feed and soil improvement in large areas of the southern United States and in other, tropical locations. It has also played a role as a minor food crop in numerous Asian and African countries. These experiences provide a useful knowledge base and lend inspiration to those involved in today's efforts.

Developing increased uses for *Mucuna* as a food and feed is, however, a complex undertaking mainly because *Mucuna* beans have a high content of L-Dopa, a compound that has medicinal uses, but, when ingested in sufficient quantities, can cause unpleasant and even dangerous side effects in humans and mono-gastric animals. Another, greater impediment to *Mucuna*'s increased utilization as a food and feed has been limited knowledge of the crop regarding its taxonomy, the potentially toxic compounds it contains and ways to process its beans for safe consumption.

These proceedings are a record of multi-institutional and multi-disciplinary international efforts over the last three years on the subject of *Mucuna* as a feed and food crop. Funding from the Rockefeller Foundation has enabled partners from Africa, several Latin American countries, India, and USA to research on this subject, which has culminated to this workshop.

Raising *Mucuna* to the status of a major food/feed crop needs projects like this: broad, interdisciplinary efforts that consciously learn from the experiences of the past and involve scientists with either long experience with the crop or with expertise that has until now been insufficiently applied. Over these past three years, excellent progress has been made. First, a number of approaches for utilizing *Mucuna*, especially as a ruminant feed have been identified for future development efforts. Second, exciting, detailed research results have been obtained in fields such as plant breeding and processing studies which will help pave way for future applications. We are pleased that these results are being rapidly published online and hope that these proceedings will be useful in furthering the work of *Mucuna* as a food crop as well as feed for livestock.

Finally, progress that is less tangible, but is at least equally important, has been the formation of the "*Mucuna* community" which is ready to take forward development and research efforts on *Mucuna*'s food and feed uses, thereby helping the efforts of the resource management researchers to maintain and improve soil fertility through the use of green manure/cover crops such as *Mucuna*.

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