

SLP Seed Grants

Cassava residue as livestock feed in West and southern Africa

Cassava is an important staple crop in sub-Saharan Africa. Since cassava peel or residue represents 10 to 15% by weight of the whole root, there is potential for the by-products of processing to be used to feed a wide variety of livestock, including poultry, fish, pigs and ruminants. Current development activities are helping to promote profitable commercial cassava enterprises by building local capacity and encouraging production of conventional cassava products (e.g. *garri*, cassava chips, starch and ethanol), but they lack clear plans for use or management of the residues. Commercial production of livestock feed from cassava residues could be an option in areas where the industry is growing and it is possible to collect the residues. At the same time, on-farm use of the peel to feed livestock could meet a need in areas with more dispersed production and processing. Using cassava residues to feed livestock can represent a win-win situation for cassava farmers, processors and livestock keepers.

The seed grant helped to fund a workshop, attended by stakeholders interested in evaluating and promoting cassava residues as livestock feed, with an initial focus on Mozambique and Nigeria. Feedback suggested that needs and approaches vary greatly with geographical location, and that a full evaluation of the value of cassava residue is best made in the context of competing feed resources. The workshop was valuable in bringing together stakeholders so that partnerships for future projects could be identified. Following this exercise, the focus of the donor search was shifted to one that would incorporate the issues surrounding the use of cassava and its by-products within the greater context of feed resource use in general.



Women packing dried cassava peel for sale as livestock feed

Feed production from sweet sorghum residues

Sweet sorghum (*Sorghum bicolor*) is well adapted to the semi-arid tropics and is one of the most efficient dryland crops at converting atmospheric CO₂ into sugar. This high-efficiency sweet sorghum has potential as a crop to produce biofuel in the form of ethanol. The partner institutions proposing this work have recently set up a pilot ethanol distillery near Hyderabad in India that can produce 40 000 litres of ethanol daily from the extraction of 800 tonnes of sweet sorghum stems. The sweet sorghum is supplied by small-scale farmers from the area surrounding the distillery. They have been part of the enterprise from the beginning, and have received information and training as well as improved cultivars. The sweet sorghum-based ethanol technique and the approach used in establishing the distillery are being transferred to both the Philippines and Uganda through a collaborative project with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). With an improved choice of cultivars, ethanol extraction and better use of residues for fodder, efficient use can be made of the whole sweet sorghum plant. The seed grant helped sorghum breeders, livestock nutritionists and economists, production linkage institutions (e.g. the ICRISAT Agro-Business Incubator initiative in India) and entrepreneurs (ethanol distillers and the feed industry) to work together to develop a research proposal.

SLP Project Portfolio

Crop–livestock farming in salt-affected environments

Many small-scale farmers in South and Central Asia have to contend with low productivity of their crop–livestock systems due to saline soils. There is also a general lack of information on the productivity potential of important salt-tolerant feed crops and forage legumes, particularly concerning their storage, palatability, digestibility and nutritive value. Study and socio-economic evaluation of the introduction of salt-tolerant species and marketing opportunities would help to develop various farming options and increase the resilience of mixed crop–livestock farming systems.

With a comprehensive approach to the management of soil, water, crops and livestock as well as marketing interventions, this project will focus on target areas in the Indus, Euphrates and Aral Sea basins, where salt-affected soil and saline water resources are a growing issue. The project is expected to generate a set of recommendations for the productive use of such soil and water resources for integrated crop–livestock systems for resource-poor farmers with options for extrapolation to other similar areas elsewhere in the world. The project development workshop was attended by researchers from Pakistan, Syria and Uzbekistan. The full project proposal will be submitted to a potential donor and is expected to result in greater funding for project execution in these countries.



Growing appropriate salt-tolerant forage species increases biomass production and farm-level income

Growing better maize for grain and stover

Feed shortages prevent many of the poorest farmers in East Africa from building better livelihoods. Improved dual-purpose crops that provide higher grain yields as well as better fodder quantity and quality can play an important role in mitigating against feed scarcity without requiring additional land and water. Maize is an important staple crop in East African mixed crop–livestock systems. The project *Improving the value of maize as livestock feed to enhance the livelihoods of maize-livestock farmers in East Africa* targets maize for grain and stover through a multi-dimensional crop improvement approach.

The project was conceived as an inter-centre collaboration between the International Livestock Research Centre (ILRI) and the International Center for the Improvement of Maize and Wheat (CIMMYT). It brings socio-economists together with crop improvement and livestock scientists. The specific objective was to match new maize cultivars to farmers' needs by including stover fodder traits into maize improvement programmes in Ethiopia, Kenya and Tanzania. Farmer's perceptions were obtained through participatory rural appraisals in maize-growing areas selected for contrasting population densities, livestock numbers and alternative feed resources.

The findings from the project will inform the seed industry about the most preferred cultivar types in areas where livestock is important. New cultivars will match farmers' needs better in mixed crop–livestock systems. Impact modelling of household incomes has shown that substantial increases in income are possible through higher milk and stover sales facilitated by new maize cultivars improved for grain as well as stover yield and quality.

Seed Grants are funded with programme-attributed funds. Their purpose is to support researchers and their partners during the crucial initial planning and consultation phases needed to develop larger project proposals. Allocated on a competitive basis, once the proposals are finalized, the consortia are supported to obtain project restricted funding.

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Ref no: SeedGrants2/2010