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Community seed reserves restore maize diversity

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The Huehuetenango region of the Cuchumatanes highlands in western Guatemala is an important centre of maize diversity. Although farmers there have developed a wealth of open-pollinated local varieties, changing environmental and socioeconomic conditions are beginning to have a negative impact on their ability to maintain local genetic resources on farm. Over the last ten years, climate variation and a series of natural disasters have considerably affected maize-based production systems. Increasing fragmentation of land holdings has weakened traditional forms of seed exchange and knowledge sharing. Declining productivity has started to affect families' food security; current production levels are only able to meet home consumption needs for half the year. This has led to a tendency among farmers to devalue and abandon their local varieties and to buy seeds of commercial varieties and hybrids on the market. However, these seeds are expensive. They often do not perform well in the low-input, harsh growing conditions of the area and may not suit the cultural preferences of traditional communities.

Convinced that the maintenance and continued evolution of locally adapted genetic resources through collective, community-based innovation are key elements in achieving resilience of local communities and agro-ecosystems, Asocuch, a Guatemalan association of agricultural cooperatives, took action to halt the loss of agricultural biodiversity. Asocuch joined forces with government agencies, Fundación para la Innovación Tecnológica, Agropecuaria y Forestal and the Instituto de Ciencia y Tecnología Agrícola, to implement a Guatemalan component of the Collaborative Programme on Participatory Plant Breeding in Mesoamerica.

Starting in the Quilenco community, maize landraces conserved by farmers were collected and characterized to form a base collection representative of the on-farm diversity available in the area. This initial collection was used to develop a participatory breeding process in which farmers were trained in selection techniques that gradually improved the performance of local varieties based on farmers' preferences. In parallel, community efforts focused on conserving the initial collection in a rudimentary 'seed reserve'. Over the years, the collection has grown with the inclusion of the gradually improved materials from the breeding programme. The Quilenco seed reserve now holds

657 maize accessions and another seven community seed reserves have been established in other communities in the area. Up to 1,000 farmers have been trained in mass selection and seed conservation, and significant increases in local landrace yields have been achieved (a detailed report about two of the seed reserves, Sololá and Quilínco, is available in Spanish, Fuentes López, 2013) (Plate 8).

These efforts have not only contributed to strengthening the seed and food security of more than 5,000 people in the region, but they have also enabled the conservation of locally adapted maize varieties. Recently, community members have begun selecting best-performing adapted landraces and started larger-scale multiplication efforts to produce packets of seed for sale. They plan to expand their operations and find markets farther away.

However, challenges remain in terms of dissemination and wider adoption of these seeds. Currently, no policy mechanisms allow registration or certification of improved landrace varieties produced by farmers and agricultural cooperatives; thus, their achievements are limited to the informal sector and wider commercial distribution is not possible. Benefit-sharing and intellectual property issues surrounding this type of community-based innovation in terms of access and availability are not clear either.

Asocuch is currently participating in technical and policy discussions around the drafting of a national seed law and advocating the inclusion of a seed category and related regulations appropriate for registering, sharing and commercializing the improved landraces produced by the farmers of the Cuchumatanes.

Reference

Fuentes López, M. R. (2013) 'Tema 4: vincular los agricultores al TIRFAA/SML: el potencial y los desafíos de fortalecer el acceso a los RFAA a través de bancos de genes/semillas basados en la comunidad. SUB TEMA: Estudios de caso de reservas comunitarias de semillas en Guatemala,' Bioversity International, Rome, Italy