Farmers collaborate to improve knowledge on major food crops

Answering survey questions ranging from how they use inputs and conserve their seeds to how each member of the family contributes to production, Cuban farmers have participated in a Treaty Benefit-sharing Fund Project that is analyzing the current contribution of beans and maize to food security and family health – and also looking at ways to improve that contribution. Maize and beans are two crops of vital importance for the sustainability of traditional production systems in Cuba's mountain zones and in the daily diet of the Cuban population.

The project is working in two areas of Cuba, Guantamano and Pinar del Río, to identify the diversity that exists in the maize and bean population of the regions, measuring its nutritional value and specifically looking at ways to improve seed conservation. It also is providing training on the sustainable use and management of maize and beans in order to conserve the genetic integrity of traditional varieties.

Fundamental Research Institute on Tropical Agriculture of Cuba (INIFAT) has organized the project to focus on evolutionary processes in traditional farming systems. The work is being done in rural communities, in order to have a fuller picture of the ecosystems and the nutritional value of the local varieties.

Farmers who were chosen to participate in the project were recognized as leaders in conserving wide varieties of diversity, showed an interest in collaboration, and had lived in the area for at least 15 years. In total, the project chose 36 families, 18 in each of the project's two regions, and conducted on-farm visits and in-depth interviews with the men, women and children of each family. Farmers were invited to discuss their perceptions of the maize and bean varieties they knew, including providing recipes that called for local crops. The recipes will eventually be combined with advice about using local crops to improve nutrition and food security into a book that will be disseminated well beyond the project area.

Traditional seed storage methods have modern basis

In studying traditional storage methods, the project has found that the traditional knowledge and customs followed for countless generations is quite similar to the modern scientific recommendations that call for keeping seeds in low humidity. With the traditional method, farmers dry their seeds in the sun, and control pests by rubbing the interior of storage containers with the leaf of a local plant before adding the seeds. They also add ash to the container which absorbs humidity. The project built upon these traditional methods, recommending that the farmers improve the viability of their stored seeds by using glass containers, filling them as full as possible and sealing them to avoid penetration of oxygen which helps control germination and pests.

In just one year...

Project objective I: Learn about the genetic diversity of maize and bean crops present in the communities covered by the study, focusing on their agromorphological and molecular features. The project has:

- identified 5 different crop varieties of maize in the western region (Guantánamo) and 13 in the eastern region (Pinar del Río) of Cuba,
- identified cultivars of beans and maize used by farmers and recorded farmers' descriptions and perceptions of them, as well as traditional conservation methods and consumption preferences,
- made agromorphological classifications of all cultivars identified by farmers,
- taken DNA from 55 samples of maize for future characterization.

Project objective II: Define variety selection criteria and conservation methods used by farmers for maize and bean crops in both areas.
The project has:

- recorded farmers' traditional selection and conservation methods,
- undertaken surveys to establish farmers' criteria for selection of material.

Project objective III: Identify constraints on the quality of maize and bean seed conserved by farmers under traditional systems. The project has:

- identified constraints to quality seed conservation such as humidity, lack of adequate storage containers and lack of disease control,
- identified pests that interfere with conservation of seeds.

Project objective IV: Establish nutritional value of traditional maize and bean varieties used by farmers and the various forms in which they are consumed. The project has:

- classified protein, fibre, vitamin and carbohydrate content of traditional cultivars,
- compiled forms of human consumption of traditional cultivars.

Project objective V: Train farmers regarding the advantage and disadvantages of conservation methods they use, stressing use of those most sustainable for their communities, and regarding issues of nutrition and food security. The project has:

- trained farmers on the advantage and disadvantages of methods they use for conservation and ways they can be improved,
- raised farmers' understanding of how conservation methods affect their food nutritional security.

Still to come...

- Further characterization of the DNA taken from 60 varieties of beans.
- Characterization of the collected material of beans and maize to identify their nutritional value.
- More surveys with farmers to complete the information regarding traditional uses of beans and maize varieties on farm and their traditional consumption and importance in their daily diet.
- Development of training material on the existing varieties of beans and maize that include traditional recipes, highlight their importance in the daily diet and family food security, document successful practices in seeds conservation, and explain the importance of traditional local gene banks to ensure their conservation.

FOR MORE INFORMATION CONTACT:
International Treaty on Plant Genetic Resources for Food and Agriculture
Food and Agriculture Organization of the United Nations
Viale delle Terme di Caracalla • 00153 Rome • Italy
Tel: +39 0657053554 • Fax: +39 0657053057 - E-mail: pgrfa-treaty@fao.org

www.planttreaty.org