

EXPERIENCES OF A MULTI-DISCIPLINARY RESEARCH TEAM WITH ENHANCING THE USE OF CROP GENETIC DIVERSITY OF FARMERS IN SELECTED AREAS IN CUBA

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One of the consequences of the economic crisis that Cuba is experiencing has been the rapid deterioration of the conventional, centralized seed production improvement and distribution system. In addition, the formal agricultural research and development sector has considerably been curtailed by budget cuts, comparable or more severe than in those countries where structural adjustment has had a strong impact. At the same time and as a reaction to the crisis, agricultural production has moved away from an exported-oriented, mono-culture based and high input dependent to a more diversified, low input based and local market-oriented system.

The effects of these changes on farmers' access, use and management of crop genetic diversity have not been known until researchers started systematically studying the use of bean, maize and rice varieties. Findings to date indicate that the genetic resource base is under serious pressure as a result of the interactions of agro-ecological and socio-economical conditions. However, farmers are interested to counter-balance these negative forces through alternative practices.

“Participatory Plant Breeding for Strengthening Agro Biodiversity in Cuba” is a multi-institutional and multidisciplinary project that investigates how to contribute to these alternative practices and rebuild agro-biodiversity in the country. Making use of the space opened up by the economic crisis, the Project aims to develop participative seed production, improvement and distribution practices. The Project operates in two sites, the rural community of La Palma and the rural surroundings of Havana, and uses a variety of research tools including surveys, seed fairs and field days, and participatory variety selection.

In La Palma, an agro-ecologically variable area (variations in soil texture and humidity, inclination, and fertility) farmers used relatively high levels of crop genetic diversity. Changes were apparent, due to different agro-ecological and socio-economical factors. The survey showed that farmers had substituted local rainfed rice varieties for improved varieties when pumps were introduced in the '60-70. Now that fuel and pump spare parts

are not available any longer, improved varieties are increasingly of no use. Farmers have started to speak about the “old” varieties that were well suited to the low fertility rainfed hillside fields. However, these varieties have largely disappeared and farmers are not in the position to easily search and find these seeds. Concerning beans, farmers pointed out an increase in disease infection during the last ten years. As for maize, they noted that varieties have been quite stable in terms of diseases and pest resistance.

In the area around Havana, the agro-ecological conditions are relatively uniform. Here, most farmers, organized in cooperatives, depend on the formal seed sector. With the sector in troubles, farmers are struggling. After a maize diversity fair carried out by the project, most participating farmers expressed a strong interest to improve the management of varieties on-farm. The project started to work with them and after three selection cycles: a) one cooperative became self-sufficient in seed maize (1.8 ton) on the basis of a bulk population selected by cooperative farmers. However, they have no incentive to increase their seed production since there is no local seed market. b) A second cooperative is sowing maize hybrid and bulk maize populations at the same time. c) A third cooperative also produced bulk seeds, but unfortunately they lost it because they lack proper storage conditions. d) A private farmer from the same region recognized as a hybrid seed grower, is losing self-selected bulk seeds because he is not allowed to sow his maize seed bulk on-farm during the hybrid seed production season.

In workshops held by the project farmers expressed their wish to become seed growers for the formal sector. The formal sector gives incentives to seed growers in the form of input supply and preferential prices. The question now is how farmers will respond: will they produce seeds for enhancing crop diversity or to obtain inputs from the formal sector? or both?

In order to learn more about farmers’ preferences, the project team regularly organizes field days. These field days are organized in such a way that farmers, both men and women, are interviewed about their preferences - information that is crucial to plant breeders in identifying parental materials and selection criteria. Results show that participating female farmers have preferences for yield, esthetical beans characteristics as color, shape and brightness, as well as culinary grain properties. Participating male farmers have preferences for yield, diseases resistance and pod size. Seeds selected by farmers as “most liked,” were given to them a few weeks after the field day. The Project team is now studying (possible) seed exchange and diffusion among farmers. Findings will complement the sociograms made as part of the surveys.

The Project team functions as a resource-body for other researchers who are interested in similar approaches. The team is also involved in genetic analysis through collaboration with biotechnology scientists at National Research Institute of Agricultural Sciences. Later on, the team aims to embark on participatory work in the urban agricultural sector in which support to the use of crop genetic diversity seems similarly relevant.

The research group recognises as its challenge for the coming time the development of a reflection process that will contribute to learning of scientists and in the creation of an enabling institutional environment research group in the near future.