

Seeds, knowledge and diversity in the

Farmers in the Yoro and Otoro regions of Honduras have organised themselves into agricultural research teams to improve the diversity and resilience of their farms. Supported by local and international organisations, these farmers have diversified their plant genetic resources and developed hardier varieties that grow well on their soils. Their success in producing improved varieties of maize and beans, and running local seed and gene banks has earned them national and international recognition.

Faris Ahmed

Honduras was the original “banana republic”. This ecologically diverse country located in Central America experienced more than a century of industrial agriculture. Beginning in the late 1800s, transnational fruit companies acquired control of much of the country’s arable land, producing pineapples, bananas and other fruits for export. Even today, the country’s flattest land is reserved for plantation agriculture. Commercial farms supply fruits to transnational corporations for export. These farms practise intensive monoculture with significant use of chemical inputs such as fertilizers and pesticides. Farming in Honduras has now largely become dependent on “improved” seeds from companies, undermining the resilience that small-scale farmers had built up through local knowledge and biodiversity. Large companies now control the market, largely unregulated by the government.

The other Honduras

The less accessible mountainous regions of Honduras, forsaken by plantations, transnationals and governments alike, are where many of the country’s rural poor live and cultivate their crops. These farmers would like to be recognised not as banana republicans but rather as heading up a different approach. For the sake of their own survival, these small-scale farmers are building on their time-tested knowledge of traditional crops to maintain resilient food and seed supply systems in their communities.

Resilience is a term often used to refer to farms being stable in the long term. FIPAH (*Fundación para Investigaciones Participativas con Agricultores de Honduras* – Foundation for Participatory Research with Honduran Farmers) is a non-governmental organisation supporting these small scale farmers’ efforts. According to them, farms are resilient when they meet three conditions:

1. high biological diversity, which on the one hand reduces risks on farms, while offering options for adapting to changes;
2. looking to local knowledge and innovation, as well as other approaches when solving agricultural problems; and
3. mutual reliance and trust within strong social networks in the community.

Farmer research teams

With these aims in mind, FIPAH supports these communities through local agricultural research teams known as CIALs (*Comités de Investigación Agrícola Local* - Local Agricultural Research Committees). These research teams involve women, men and youth in all aspects of the work. Operating as farmer co-operatives, they carry out a variety of activities: maintaining community-run seed and gene banks, participatory research and selection, cultivation, and community outreach. The results are impressive: farmers’ access to diverse, locally adapted quality seeds has improved, genetic resources are being preserved and farmer knowledge and experience with these seeds has been enhanced. Establishing youth CIALs is especially encouraged, to give young people the inspiration and knowledge to sustain their farm livelihoods, and to stem the tide of migration to cities. Currently, 60 CIALs and 11 youth CIALs are operating through 850 members in five districts of Honduras. They directly reach about 12 000 people in various communities through seed exchanges and access to grain stocks.

Community seed and gene banks serve as on-site seed collections, or “bank accounts” for biodiversity, income and food. Managed by farmers, they are critical to maintaining the community’s ability to deal with shocks that can lead to sudden losses of seed or food supplies. Also, they are a source of genetic materials for conserving and growing biodiversity. Finally, as seed banks are run by farmers themselves, they ensure that seeds and genetic resources remain in farmers’ hands. CIAL members meet regularly to deal with issues related to seed sharing and selection, as well as maintenance issues such as pest management and storage.

Participatory breeding

Small-scale farmers have been largely ignored by government and agricultural scientists, and so they have had to find solutions to the problems they encounter themselves. Through the CIALs, farmer researchers test crops according to different factors relating to yield, market and local environmental conditions. The farmers experiment with indigenous varieties, adapting them to



Seed banks such as this one in Otoro district are run by farmers themselves, safeguarding their control over local seeds and genetic resources.

hands of small-scale farmers in Honduras



Photo: Faris Ahmed

One of the agricultural experts who develop new maize varieties is Simeona Perez, a farmer from Santa Cruz.

suit their emerging needs. They select not only for productivity, but also for higher nutrition, for better cooking and storage traits, and the plant's ability to adapt to changing growing conditions. In the research teams, women play a leading role in selecting for traits, as they are the keepers of seeds, possessing a more intimate knowledge of plant characteristics and how they might perform in different conditions.

One example of a successful farmer research programme resulted from the need to develop maize varieties that could withstand the annual bouts of heavy rain and wind. Since hurricane Mitch in 1998 (which heralded the start of constant signs of climate change in the region), fields of maize have frequently been flattened by storms, resulting in crop failures. In October 2006, the Santa Cruz CIAL team in the mountainous Yoro region released two varieties of maize they had developed. These were based on a local variety or "landrace" that produces large cobs, but whose height had become a problem in a region increasingly vulnerable to hurricanes. Large cobs are linked genetically to tall stalks, which became taller and taller over time. These varieties are beneficial for animal fodder but run the risk of being knocked over by strong winds.

Through a participatory breeding process, farmers were able to produce two improved varieties, 'Santa Cruz' and 'Capulín Mejorado', that are shorter, with a higher yield and still adapted to high altitude conditions. Farmers collected seeds for the community seed bank to secure a healthy seed supply. The release of this maize coincided with one of the heaviest hurricane seasons on record. Simeona Perez, one of the farmers (see photo), said: "This year, because of the enormous amount of rain, many people had almost nothing to harvest, and will have no decent seed to sow in May. But because of the quality of our seed, combined with conservation practices, we were hardly affected." Farmers and officials across Honduras have applauded their success, and have received 'Capulín Mejorado' seeds for their own communities.

Increased capacity to adapt to change

Farmers in Yoro and Otoro are justifiably proud of their accomplishments which have earned them national and international recognition. Their success has also strengthened their food and livelihood security, based on local genetic and ecological resources. With the increasing occurrence of extreme weather such as hurricanes, farmers continuously have to adapt and be prepared. They are doing this by paying more attention to crop protection, as well as seed storage in the seed banks. This case shows that farmers are able to manage their local genetic resources through their own knowledge and through farmer-scientist collaboration. These farmers enhanced the productivity of local maize (by 20-30%) as well as bean varieties, while making these varieties hardier and more adaptable to climate change. Because of their intimate connection to seeds, FIPAH also supports strengthening the role of women in the research programmes.

The 60 CIALs across Honduras are collaborating to ensure that their successes go well beyond their own communities. Regional and national associations of CIALs are working together to share knowledge, research and seeds, spreading innovation and biodiversity across the country. Community leaders like Luis Alonso Pacheco have shared the experiences of Yoro's farmers with agriculture specialists at international seminars in Ethiopia and Germany. "To us," says Mr Pacheco, "resilience means that we are increasing the adaptive capacity of people and their ecosystems to cope with uncertainty and change."

Faris Ahmed. Director of Canadian Programmes, USC Canada, 56 Sparks Street, Ottawa K1P 5B1 Canada. E-mail: fahmed@usc-canada.org ; <http://www.usc-canada.org>

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