

Innovation to Adapt to Change



Learning uses for a new crop in Bangladesh

Inside Mexico's Traditional Seed Sharing Networks

Doña María is returning from a day in the maize fields, where she has been hacking *acahual*, a weed good for animal fodder, out of another farmer's field. CIMMYT anthropologist Lone Badstue and agronomist Alejandro Ramírez López are waiting at her gate.

When Doña María sees them, she breaks into a wide smile and motions with her machete for them to enter her little compound. The two researchers help her unload the *acahual*, and Doña María fills them in on her life since they last spoke several months ago. Her health has not been good. She could not afford to plow the little field she usually sharecrops, and the plot of communal land where she managed to plant a bit of maize was ravaged by heavy rain.

Nearing 65, Doña María lives alone. Her husband died several years ago, leaving her little money and no land. Her children have all migrated. She works as a day laborer for other farmers and sells tortillas she makes from maize purchased in the village. Even the animals she raises belong to someone else. If they breed well, she may finally have some of her own.

Badstue points to a stand of maize in the corner of Doña María's yard and asks if she is trying out different maize to plant next year. "No, that's just some maize that my friend Josefina gave me that I'm growing for *elote* [fresh maize]," Doña María says. She then pulls some maize grains out of the pocket of her apron. "These I found as I was gathering *acahual*, and I'm going to plant them for *elote*, too." She rolls the seeds between her fingers like worry beads.

This story illustrates two of the countless ways maize seed travels around this community. Seed exchange is one important reason that the genetic diversity of maize in Oaxaca has remained vibrant for thousands of years. This diversity ensures that we still have options for developing maize varieties that withstand problems such as drought, diseases, and pests.

● Does collective action regulate seed exchange?

Badstue leads the fieldwork for a project that investigates informal modes of seed exchange. Funded by the CGIAR's System-Wide Collective Action and Property Rights Initiative, the project examines the structure and function of traditional farmers' networks and their role in the evolution and conservation of maize genetic diversity. The research is based in the Central Valleys of Oaxaca, Mexico, an area of significant maize diversity.

The researchers hypothesized that farmers would have strong incentives to act collectively to maintain access to many different maize landraces, for example by forming community seed banks. In principle, collective action would allow farmers to build and safeguard a larger base of genetic diversity than they would be able to maintain individually. Because collective action is common for other purposes in Oaxaca cultures, it seemed likely to play a role in farmers' seed supply systems.

The researchers discovered, however, that seed exchange among farmers was far more fluid, complex, and integrated into the cultural fabric of these communities than they had hypothesized. They found

no evidence of collective action for maintaining access to seed of diverse maize landraces. If seed exchange did not follow a pattern of collective action, what pattern did it follow? How did it evolve differently, and why? To answer these questions and assess the implications for maintaining maize diversity, Badstue charted a new course for her research.

● The importance of social relations and networks

"To understand how seed exchange is organized, we have to understand the role of seed in the community and in the farming household," Badstue says. Badstue and her team informally interviewed farmers, set up focus groups, and conducted a study to trace seed transactions. Presently they are conducting in-depth ethnographic studies of 18 households in 2 villages, including Doña María's single-person household.

The results of this research suggest that farmers' custom of routinely selecting and saving seed is central to understanding why no specialized networks or social institutions have developed to ensure access to seed. Saving seed is associated closely with being a good farmer, so it is an activity that is undertaken on an individual basis, rather than as part of a larger social group.

Seed exchanges do occur, however. Most transactions are motivated by farmers' interest in experimenting with an unfamiliar variety. Transactions take place between individuals, and the recipient carefully weighs the tradeoffs involved in



obtaining seed from one person rather than another. The priority is to obtain seed from someone who can be trusted to provide reliable information and seed with desirable characteristics.

In comparison to the current, highly flexible, ad hoc approach, a permanent institution such as a seed club or community seed bank would be relatively costly. A community seed bank might also draw attention to someone's failure to save seed.

"The more we understand about practices for exchanging and managing maize seed, the better equipped the development community is to support the evolution and conservation of this important mechanism for maintaining diversity," Badstue says.

If social change reduces the effectiveness of these seed exchange networks, what could substitute for them? The answer may lie in Badstue's work. Perhaps it will be learned from Doña María, who is very much alone in a community where kinship networks are safety nets in the worst of times and the primary social and economic outlets all the time.



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Farmer Doña María, heading towards an uncertain future in Oaxaca, Mexico. What happens if social change tears apart the seed networks that sustain farming and diversity?

