

## Farmers' Voices Are Heard Here

**In one of the largest sets of farmer-participatory trials ever established in southern Africa, farmers have found a powerful forum to communicate about the kind of maize seed they need.**

In rural communities across Zimbabwe, a new kind of research trial engages smallholder farmers in decisions that will help them obtain the kinds of maize cultivars they want to grow. Comments by Stan Tapererwa, District Agricultural Extension Officer of Zimbabwe's national extension service (AGRITEX), reflect the widespread excitement and interest that the approach, known as "mother-baby" trials, has generated. "Extension officers feel highly honored to be involved with these trials and they are taking it as a part of their core business unlike in the past, when they were just on-lookers and only got involved when new varieties had been released."

## Developing and Testing Drought-Tolerant Maize

Through the Southern Africa Drought and Low Soil Fertility (SADLF) Project, supported by the Swiss Agency for Development and Cooperation (SDC) and more recently the Rockefeller Foundation, CIMMYT researchers Marianne Bänziger and Julien de Meyer and their colleagues in southern Africa have been developing maize that produces more grain under severe drought and low soil fertility. The breeding methodology itself is farmer-centered (for news on breeding methods, see "[Reducing Plants' Thirst](#)").

"We take the two most common and challenging nemeses of subsistence agriculture in the region (drought and low nitrogen conditions) and replicate them in a controlled way on our breeding stations," says Bänziger. Selecting in this way, they have developed two open-pollinated varieties, ZM421 and ZM521, that yield 30-50% more than current maize varieties under drought and low soil fertility. Experimental hybrids under development show even more dramatic gains.

## Following Through with a Farmer Focus

Bänziger and de Meyer had the maize seed. What they then needed was a reliable way to test the performance and acceptance of their stress-tolerant maize under resource-poor farmers' conditions and to ensure that seed became available. They hit upon a novel and cost-effective model devised by Sieglinde Snapp, of the International Crops Research Institute for the Semi-Arid Tropics ([ICRISAT](#)), for on-farm testing of practices to improve soil fertility. As adapted by the CIMMYT-Zimbabwe team, the model involves complementary sets of experiments grown by researchers and farmers within farm communities.

For each researcher-designed "mother" trial, there are 612 "baby" trials within walking or bicycling distance. The mother trial contains promising maize cultivars for testing under both optimal and farmer-representative conditions. It is located near the center of the community and managed by a local counterpart a teacher of agriculture, an extension officer, or a member of an NGO. Baby trials typically comprise four of the cultivars in the mother trial and are sown and managed exclusively by farmers. "This method allows 50 to 200 or more farmers in a country to assess a subset of the most promising new maize varieties," explains de Meyer. "Farmers and researchers use results from both types of trial to assess a variety's suitability for different environments and its acceptability to farmers."

The mother-baby model is a decentralized approach to on-farm research that greatly improves the timeliness of sowing, trial supervision, and contact with farmers. The local partner provides established links to the community and intrinsic knowledge of farmers' concerns. Farmers who grow baby trials are usually selected by the community and receive seed free of charge in color-coded bags. Stones painted with the same colors come with the seed. Farmers place these stones in the field as they start sowing, making it easy for everyone to keep track of specific trial entries. "This system has been the key to timely and decentralized planting of baby trials by virtually hundreds of smallholders," says de Meyer. Trial results are distributed to all partners and farmers involved, as well as through the extension system and the press.

## Widespread Participation

In 2000, 37 mother trials and more than 280 baby trials were planted all over Zimbabwe. Collaborating partners in the trials included NGOs, such as CARE International, the Southern African Unit for Local Resource Development, and the International Technology Development Group; community development associations, such as the Horseshoe Farmer Association in northern Zimbabwe, which links commercial farmers with smallholders to improve agriculture; AGRITEX; secondary schools; and national research stations. The demand for trials by collaborating research and extension staff and particularly NGOs was so great that researchers ran out of seed. By all indications, other countries in southern Africa will establish similar testing systems in 2000-2001.



## Ingredients of Success

Bänziger identifies several key elements in the mother-baby model that make it particularly useful for testing and disseminating stress-tolerant maize. "Farmers and their entire communities observe commercial and experimental varieties and hybrids in their own fields and in the mother trials, and tell researchers, extension, seed companies, and others what they think," she explains. The participation of secondary schools has been particularly valuable for conducting the mother trial. Students plant and care for the trial, compare results under different levels of fertilizer and under conditions that prevail in most farmers' fields, and involve their parents and the wider community in what they are learning. According to one teacher, the empowering effect has been noticeable: "We have experienced as a school and as a community that we can have an active involvement in research and development. This is how it should be happening."

In addition, farmers can now make informed choices about purchasing commercial varieties and hybrids. "We have seen smallholder farmers asking for seed of the best released cultivar of last year's trials. Because half of the trial entries are experimental and the other half are recent releases, this means adoption occurs while research is conducted and decisions are made on future releases," says Tapererwa. A farmer from Mushawasha in Masvingo District reinforces this by saying, "In a shop you cannot buy small quantities of maize seed from several varieties, just to try them out. Growing baby trials with several farmers in our own community makes it possible to see how varieties perform under our conditions."

Finally, NGOs are keen to link community-based seed production schemes to a mother-baby testing scheme. "We benefit from results of cutting-edge research, knowledge on new varieties, and very practically the seed of relevant varieties already packed as a trial," says Mr. V. Zvarevashe of Care International. "Also, our field officers receive training in field experimentation."

### **The Message: Loud and Clear**

Because interest in the trials is so high, Bänziger, de Meyer, and their partners are exploring ways of making these trials available more widely in southern Africa. Representatives from national agricultural research programs, extension, and NGOs from neighboring countries have been visiting and discussing the trials during a travelling workshop. The feedback of the group was clear: "The concept of mother-baby trials is logical, desirable, and exciting. Its great advantage is that farmers start adoption while new technologies are verified. This greatly reduces the lag-phase between research and impact, adoption rates will likely increase, and smallholder farmers and extension are bound into a natural flow of new research products. The approach guarantees a high return to investment due to cost-sharing and synergy among partners."

#### **For more information:**

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