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## Especially for Sub-Saharan Africa: Mother and Baby Maize Variety Trials

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If you are doing agricultural development work in Africa, you will want to read about—and perhaps become involved in—an exciting program that includes agriculturalists and farmers in maize variety trials. CIMMYT (the International Center for the Improvement of Maize and Wheat, based in Mexico) is working with collaborators in southern Africa to test and introduce improved, open-pollinated (i.e. not hybrid) varieties of maize. The varieties were developed through SADLF, the Southern African Drought and Low Soil Fertility Project, which is working to provide smallholder farmers with stress-tolerant maize varieties. Of particular importance are varieties that are tolerant of drought and poor soils.

For example, a few years ago, several new open-pollinated varieties of maize were evaluated. Some of these open-pollinated varieties (ZM421, ZM521 and ZM621) were selected by farmers for their superiority during these trials and have been released in several Southern Africa Development Community (SADC) countries (Angola, Malawi, RSA, Tanzania and Zimbabwe). Varieties ZM421 and ZM521 yielded 30-50% more than other current varieties under conditions of drought and poor soil fertility. Some hybrid varieties that show even bigger gains have also been developed. The people involved in the trials decide which varieties will be tested, once they have received information about the respective merits of open-pollinated and hybrid varieties. Often a combination of hybrids and open-pollinated varieties is chosen.

Testing of new varieties is done in communities through what have been referred to as Mother and Baby Trials. Here is how they work. A Mother Trial is managed by a researcher but seeds are planted by partners (e.g. people working in the area of agricultural development, such as a missionary, Peace Corps worker, or NGO agriculturalist). In the trial, between ten and sixteen cultivars are evaluated under two different levels of fertilizer; an optimal level (according to the extension services in the area) and a suboptimal level. The Mother Trial includes three replicates of each cultivar and permits evaluation of the cultivars under controlled conditions.

Baby Trials are grown by at least six farmers in the same community, with each farmer growing four cultivars. Farmers are selected by the community. They receive seed (free of charge) in color-coded bags. Stones painted the same colors are used to mark rows and distinguish between varieties. The field layout of the trials is simple. For example, here is how the farmers' involvement was described to us: "Farmers are asked to grow the Baby Trial using their usual management practices,

and are requested to treat the four cultivars uniformly. Plot size in the Baby Trial is determined by the amount of seed: 650 seeds per cultivar. Farmers are asked to plant the seed using a plot length of about 15 meters, but choosing their own planting distance between hills and rows.”

At the individual country level, the National Maize Program coordinates local partnership in the trials, while CIMMYT provides the regional technical backstopping.

Currently, Mother and Baby Trials are being done in nine SADC countries, involving up to 83 partner organizations (research institutions, agricultural extension systems, NGOs, schools, farmer associations, etc.). 153 communities and over 1000 farmers are involved.

The Mother and Baby Trial system has many positive features that have made it very successful. Scientists and researchers work together with extensionists and development agents, and both parties recognize their responsibilities in the trials and the benefits that they will receive. The trials are very cost-effective, because they are managed by local people. In addition, varieties are tested in a number of different environments (under the very conditions in which they will likely be grown), and they are managed by many different farmers. This means the average performance of a variety can be better assessed. Farmers can compare varieties based on seeing and working with them through a whole growing season. Consequently, improved varieties are adopted more quickly by farmers than they often are otherwise. In some cases, adoption of new varieties occurs as research is being conducted, and this can help direct future research. Both researchers and farmers are gratified that seed becomes available much more quickly after a new variety is released.

We found a contact for the Mother and Baby Trials, and asked if it would be helpful for us to write about the trials in EDN, In case some of you in our network want to become involved. Mick Mwala, Regional Coordinator of the trials in the Southern Africa Development Community Region, responded: “The proposal you are making is very much welcome. As you will see, the trial scheme depends on active partnership to be efficient and effective. To this end the interest and possible involvement of some of your members is definitely welcome.”

If you are working in sub-Saharan Africa and would like to find out more about these trials visit the CIMMYT website: <http://www.cimmyt.org>