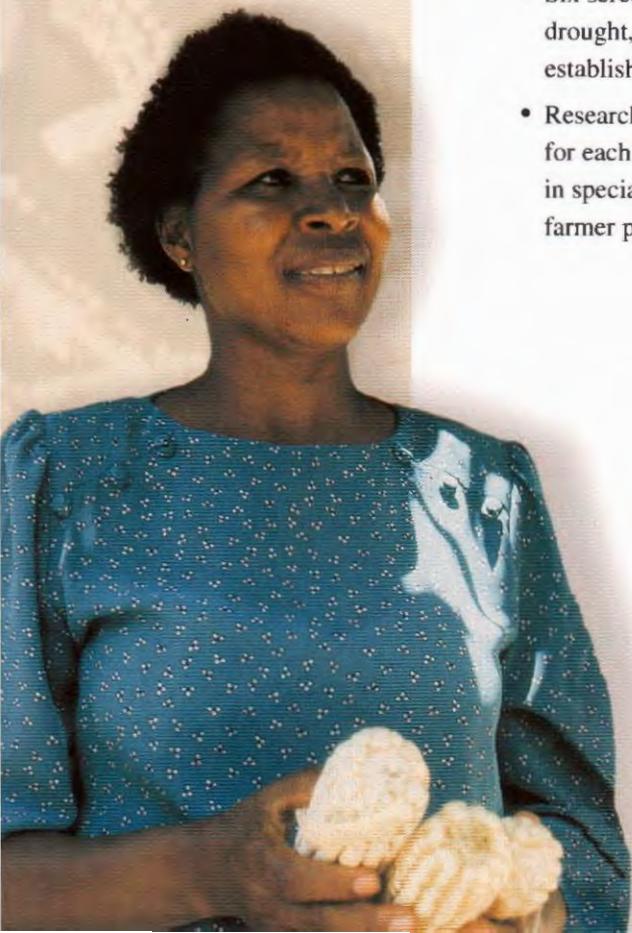


Africa Maize Stress Project

Developing and Disseminating Stress Tolerant Maize for Sustainable Food Security in West, Central, and East Africa

Focus

West, Central, and East Africa, where maize provides as much as 30% of the calories in diets. Poor soil fertility is endemic, and drought reduces maize yields an average 15% each year—equivalent to at least US\$200 million in foregone grain. The parasitic weed *Striga* causes annual cereal grain losses of US\$7 billion and affects 300 million lives. Insect pests and diseases invade crop stands that survive all else. With little or no cash income, farmers and their families subsist on hard-won harvests—a single crop failure means hunger.



The Project

As of November 1997, CIMMYT and IITA are working with researchers in the region to develop and deliver high-yielding maize—along with related crop management practices—that withstands the crop's major foes and suits the needs of resource-poor farmers, thereby improving their food security and profits.

Progress and Products

The achievements and products in this partial listing derive from joint efforts of Project breeders, agronomists, and socioeconomists in hundreds of experiments.

Capacity building...

- Six screening sites—two each for drought, low fertility, and *Striga*—were established.
- Researchers have formed working groups for each target stress and received training in specialized breeding methods and farmer participatory research approaches.

- Nearly 40 small grants research and extension projects were conducted, with funding and oversight from the Project.
- Linkages between formerly isolated researchers and programs have vastly improved. *Seed and knowledge are being shared region-wide.*

Maize for drought, low fertility, insect or *Striga*-infested conditions...

- 54 maize lines identified as tolerant to drought and low fertility, of some 2,000 tested; more than 50 varieties that can escape drought by maturing early (now being tested region-wide under drought and low fertility conditions); 5 drought tolerant, open-pollinated varieties and 5 hybrids.
- 9 *Striga*-tolerant hybrids and 10 inbred lines were identified in tests in Kenya, where the parasitic weed is

MORE ON BACK ↪



INTERNATIONAL MAIZE AND WHEAT
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Our Partners

- West and Central Africa Collaborative Maize Network (WECAMAN)
- Association for Agricultural Research in East and Central Africa (ASARECA)
- National agricultural research systems of: Benin, Burkina Faso, Burundi, Cameroon, Congo, Côte d'Ivoire, Ethiopia, Ghana, Guinea, Kenya, Madagascar, Mali, Nigeria, Rwanda, Senegal, Somalia, Sudan, Tanzania, Tchad, Togo, and Uganda.

Work is conducted with the generous support of UNDP Seed, UNDP-Africa Bureau; IFAD-Africa Bureau, and Sida (Sweden).

particularly widespread and aggressive. (One variety tested showed combined tolerance to drought, low fertility, and *Striga*.)

- 5 *Striga*-tolerant varieties have shown promise in trials in West and Central Africa. Several hundred kilograms of *Striga*-resistant maize seed has been distributed for multiplication and on-farm testing.
- 4 maize genotypes that resist the 2 most prevalent stem borers and 2 key crop diseases in East Africa. In West and Central Africa, breeders are drawing on borer-resistance from maize outside the region to improve this trait in locally adapted maize.

Crop management practices...¹

- Use of green manures and residue management can increase maize yields 34% in slightly depleted soils and 400% in severely depleted soils in western Kenyan highlands, where no chemical fertilizer is applied.

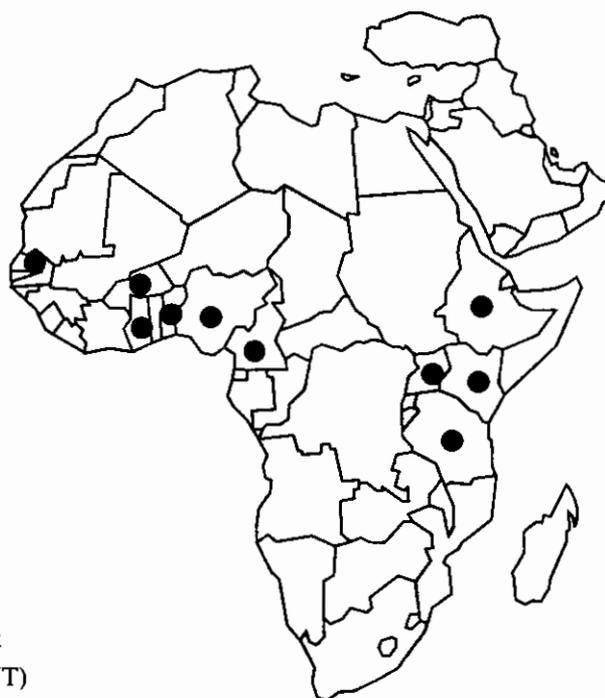
- Tied ridging and use of farmyard manure gave high yields in drought prone areas of East Africa.
- A stand-alone CD. *The Africa Maize Research Atlas*, provides digital data on climate, soils, elevation, land use, population, and a range of maize-related information for sub-Saharan Africa, allowing users with no previous GIS experience to characterize regions of interest and gauge the potential of promising germplasm or agronomic practices.

The Future

Future efforts will focus on selected, elite maize cultivars for widespread use by farmers, as well as improving the performance and stress tolerance of existing cultivars. Capacity-building will continue, collaboration will increase.

¹ These were developed as part of the project "Moving Toward Food Security in Eastern Africa by Increasing Sustainable Maize and Wheat Production." and made available to the Africa Maize Stress Project.

Africa maize stress testing sites are operating in Benin, Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya, Nigeria, Senegal, Tanzania, and Uganda.



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