EVIDENCE OF SUCCESS

DROUGHT-TOLERANT MAIZE BOOSTS FOOD SECURITY IN 13 AFRICAN COUNTRIES

ABOUT BIG FACTS

Big Facts is a resource of the most up-to-date and robust facts relevant to the nexus of climate change, agriculture and food security. It is intended to provide a credible and reliable platform for fact checking amid the range of claims that appear in reports, advocacy materials and other sources. Full sources are supplied for all facts and figures and all content has gone through a process of peer review.

Big Facts is also an open-access resource. We encourage everyone to download, use and share the facts and graphic images. We believe that by sharing knowledge we can aid the type of interdisciplinary understanding and collaboration necessary for meeting the challenges posed to agriculture and food security in the face of climate change.

The Big Facts project is led by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). CCAFS is a strategic partnership of CGIAR and Future Earth, led by the International Center for Tropical Agriculture (CIAT). CCAFS brings together the world's best researchers in agricultural science, development research, climate science and Earth System science, to identify and address the most important interactions, synergies and tradeoffs between climate change, agriculture and food security.

We are well aware that this field is progressing rapidly, and that science is always open for re-evaluation. We welcome your suggestions for improvements, updates and corrections at ccafs@cgiar.org.

Acknowledgments

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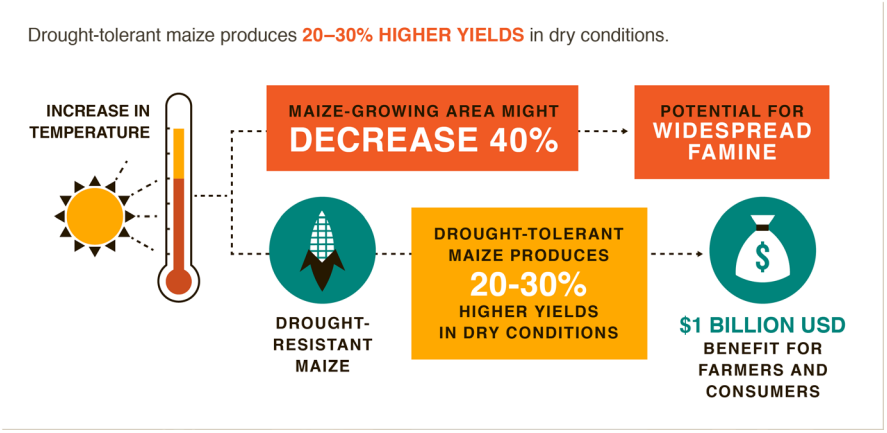
MORE THAN 2 MILLION SMALLHOLDER FARMERS IN SUB-SAHARAN AFRICA ARE NOW GROWING DROUGHT-TOLERANT MAIZE VARIETIES THAT BUILD RESILIENCE AND INCREASE YIELDS AND PRODUCTIVITY.

Maize is a staple food for more than 300 million people in Africa, but by the 2030s drought and rising temperatures could render 40% of the continent's maize-growing area unsuitable for current varieties. Maize production in southern Africa, for example, may fall by 30% or more. New drought- and heat-tolerant varieties will have to be developed quickly and be growing in farmers' fields in the next few years if we are to avoid widespread famine in Africa.

Since 2006, more than 100 new drought-tolerant maize varieties and hybrids have been developed and released across 13 countries by the Drought Tolerant Maize for Africa (DTMA) initiative. Each of these varieties is adapted to local requirements, including cooking and milling properties and pest and disease resistance. In on-farm trials, the new varieties have yielded up to 35% more grain than those grown previously by farmers; the best hybrid out-yielded even the most popular commercial variety by 26%. More than 2 million smallholder farmers in sub-Saharan Africa are now growing these new varieties and hybrids, some of them in countries not directly involved in the DTMA—a sure sign the initiative is on the right track. Farmers are reporting yields 20–30% above what they would have gotten with their traditional varieties, even under moderate drought conditions. If farmers continue to adopt the technology, the project has the potential to reap nearly USD 1 billion in benefits to farmers and consumers.

Key to the success of this initiative is the way it has brought together a wide range of partners, including publicly funded research organizations, public and private seed producers, varietal certification agencies and farmer groups. This has helped avoid the bottlenecks so common in efforts to get improved crop varieties into the hands of farmers. Farmers themselves guide the breeding efforts, making sure the varieties developed meet their requirements. Certification agencies have been engaged in the process from the beginning, so the new varieties can move efficiently through the certification process. Seed companies are geared up and ready to produce seed as soon as it is ready for release. Engaging the private sector has helped to ensure that farmers have access to both inputs and markets for their produce.



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Timeline

DTMA has introduced more than 100 new varieties across 13 countries since 2006.

Partners and funding sources

DTMA is funded by the Bill & Melinda Gates Foundation, the Howard G. Buffett Foundation, the US Agency for International Development (USAID) and the UK Department for International Development (DFID). Coordinated by the International Maize and Wheat Improvement Center (CIMMYT) and the International Institute of Tropical Agriculture (IITA), the initiative has brought together a wide range of partners including publicly funded research organizations, public and private seed producers, varietal certification agencies and farmer groups.

Key lessons and impacts

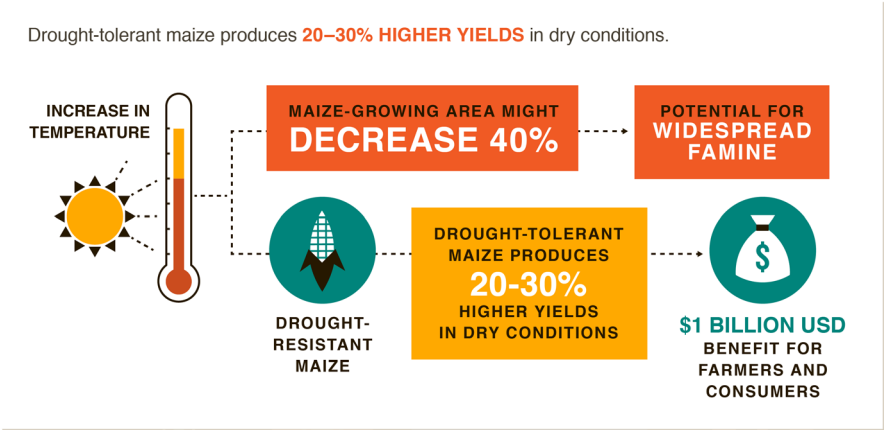
- CIMMYT and IITA's diverse group of partners from both the public and private sectors helped avoid the bottlenecks that often slow efforts to get improved crop varieties to farmers.
- More than 2 million smallholder farmers in sub-Saharan Africa are now growing these new maize varieties and hybrids.
- Farmers are reporting yields 20–30% above their traditional varieties, despite dry conditions.

What makes it climate-smart?

FOOD AND INCOME: Drought-tolerant maize varieties are increasing yields even under moderate drought conditions, thus raising income for farmers.

ADAPTATION: The new varieties will enable farmers to cope with more frequent droughts projected as a result of climate change.

MITIGATION: Farmers could potentially reduce greenhouse gas emissions by combining the use of drought-tolerant maize with practices such as no-till agriculture.



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