

AFRICAN AGRICULTURAL TECHNOLOGY FOUNDATION

Outsmarting a
Cereal Killer:
Controlling Striga in
Maize



‘Striga’, also known as ‘Witchweed’, is a parasitic plant that seriously constrains the productivity of staples such as maize and millet in Sub-Saharan Africa. Causing considerable crop losses, it compromises income and food security for more than 100 million Africans. Until recently, any herbicide that killed Striga also destroyed the host crop. However, with support from DFID, the African Agricultural Technology Foundation (AATF) has enabled research, development, distribution and use of maize varieties that can survive a herbicide (Imazapyr) that kills Striga even before it emerges above the soil surface. Imazapyr resistant (IR) maize seeds are now produced and marketed by commercial seed companies in Kenya, Tanzania and Uganda, where they have boosted yields by up to 300 percent and have improved incomes by an average of US\$ 400 per person per hectare.

Introduction

Resource-poor smallholder farmers in Sub-Saharan Africa are forced to contend with weeds, diseases and adverse weather conditions that typically lead to poor harvests. One weed in particular has long been a problem for such farmers: Striga. Producing pretty purple flowers, Striga sucks maize and other cereals dry from the roots. The weed survives by siphoning off water and nutrients from crops for its own growth, thereby causing serious damage to its host. By reducing yields,

Striga causes an estimated US \$1 Billion a year in damage on some 40 million hectares cultivated by smallholders. This reduces

farmers’ incomes and has implications for food security in the affected regions.

The Striga problem has baffled researchers for decades as, until recently, the use of herbicide to kill Striga would also result in the loss of the crop. With support from DFID, AATF with partners BASF and the International Maize and Wheat Improvement Center stepped in with an innovative dual approach:

1. Develop maize varieties that can survive a herbicide (Imazapyr) that kills Striga;
2. Create a seed coating containing Imazapyr that can be used to treat maize seeds

Thus, the herbicide is absorbed first by the growing maize seedling, then by the Striga weed

that attaches to its roots. Imazapyr kills the Striga plant thereby enabling the Imazapyr resistant (IR) maize to thrive.

Research into Action

AATF has been working with five seed companies in Kenya, Tanzania and Uganda to broaden the retail availability of IR-maize. AATF has also been working with the seed companies to ensure that high quality seed stewardship is maintained through seed production, treatment and handling. Efforts have also been directed towards the creation of wider market awareness and demand through demonstrations, marketing and promotion activities.

Impact

Numerous IR maize varieties have been tested and approved for farmer use. Known by the trade name 'StrigAway', they are now produced and marketed by commercial seed companies in Kenya (since 2006) and Tanzania and Uganda (since 2014). **'StrigAway' IR maize seeds have boosted yields by up to 300 percent, and have improved incomes by an average of US\$ 400 per person per hectare.**



For Monica Akinyi in Western Kenya, the StrigAway seeds brought prosperity and a brighter future. Where previously her half acre of maize yielded only 40 kg, it is now producing up to 900 kg. She has since been able to buy livestock, build a permanent house, send all of her children to school, sow a commercial crop of tomatoes and buy a posho mill so she can grind her own maize and that of her neighbours.

Wider Environment

Since the initial success of the StrigAway seeds, efforts have been concentrated on scaling up IR seed production. In September 2014, AATF

provided seed treaters to Freshco Seeds in Kenya and Tanseed International Ltd in Tanzania. These will reduce the time taken to coat the seed and will also increase the effectiveness of the herbicide. Greater quantities of quality seed are now available to smallholder farmers in the three countries.

DFID support to the African Agricultural Technology Foundation (AATF) was intended to improve food security and increase the household incomes of millions of poor smallholder farmers in Sub-Saharan Africa by improving their access to crops that are weed, drought and disease resistant. Funding also aimed to allow AATF to create new partnerships between public and private sector organisations in order to connect those who own new technologies and products, and those that need them.

Next Steps

AATF has brought together a myriad of partners to make IR maize a reality. Support from DFID has enabled AATF to bring an innovative product from the research shelf into farmer's hands in Tanzania, Uganda and Kenya. Efforts are now being intensified in the three countries to expand the use of StrigAway IR maize seeds so that more farmers may also benefit from the IR varieties. IR maize seeds could also be made available to other companies in the region with interest in commercialising the technologies and also outscaled to southern Africa.

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Visit <http://striga.aatf-africa.org/> for more information.