



AFRICAN AGRICULTURAL TECHNOLOGY FOUNDATION
FONDATION AFRICAINE POUR LES TECHNOLOGIES AGRICOLES

Water Efficient Maize for Africa (WEMA)

Project Collaboration and Intellectual Property Issues

In January 2008, the African Agricultural Technology Foundation (AATF), the International Maize and Wheat Improvement Centre (CIMMYT) and the Monsanto Company (Monsanto) signed a collaboration agreement to work together, under a philanthropic mandate, to develop and deliver drought tolerant maize adapted to local conditions for use by smallholder farmers in South Africa and by any farmer in the rest of sub-Saharan Africa at a cost that is reasonably within their means.

The collaboration will combine the benefits of Monsanto's molecular breeding, genomics and biotechnology platforms, CIMMYT's breeding program and adapted maize varieties, and AATF's expertise in product stewardship, regulatory affairs management and technology delivery. The collaboration will apply the two R&D engines of breeding and biotechnology, progressing in parallel and ultimately combined to maximize the level of drought tolerance achieved.

Breeding: CIMMYT and Monsanto will each select drought tolerant maize varieties to be used to develop improved varieties through this project. CIMMYT will select maize varieties adapted to African conditions from its established and successful conventional drought tolerance breeding program. Monsanto will select drought tolerant maize varieties from its proprietary germplasm pools around the world to be crossed with African germplasm, which is expected to introduce novel sources of drought tolerance to African germplasm as well as increase the diversity of the project's overall germplasm collection. Conventional and marker-assisted breeding techniques will be used to increase the drought tolerance achieved in these lines.

Monsanto will use its high throughput marker aided breeding platform developed over the last fifteen years to analyze the CIMMYT germplasm for quantitative trait loci (QTLs) associated with drought tolerance as well as certain other traits of relevance to the project, such as disease resistance. All project-relevant QTLs and supporting marker information for QTLs identified in the CIMMYT germplasm will be provided to CIMMYT for world-wide use. CIMMYT will be able to publish those QTLs and use them in its development of improved germplasm for the production of white corn, both hybrids and open-pollinated varieties (OPVs) globally. In addition, Monsanto will license certain program-relevant QTLs that are identified in the Monsanto germplasm to CIMMYT royalty-free for use in its non-profit research programs around the world.

Biotechnology:

In March 2007, BASF and Monsanto announced a long-term joint research and development (R&D) and commercialization collaboration in plant biotechnology that focuses on the development of high yielding crops and crops that are more tolerant to adverse environmental conditions such as drought.

BASF and Monsanto are jointly donating to the WEMA partners up to four commercial track drought tolerance transgenic events from their collaboration.

The drought tolerance event(s) will be introgressed into inbred lines from the WEMA breeding program destined for hybrid seed production and evaluated for performance, in terms of both agronomics and drought tolerance, in the environment of Sub-Saharan Africa.

It is anticipated that the drought tolerance transgenic event will contribute additional levels of drought tolerance under moderate drought conditions beyond the improvements gained through advanced breeding techniques.

Licensing:

The WEMA partners intend to make the products of the project broadly available to African farmers through multiple seed producers. The collaboration agreement incorporates the relevant research and commercial licenses necessary to develop and eventually deliver project outputs to the intended beneficiaries.

In the agreement, CIMMYT and Monsanto respectively grant to AATF a personal, non-transferable, non-exclusive, fully paid-up, royalty-free license to each of the drought-tolerant maize lines to be developed in the project. CIMMYT and Monsanto also give AATF the right to grant sublicenses to seed companies and other such entities that are able to deliver the same to farmers in Africa. The sublicense from AATF to a seed producer will include specific requirements to provide appropriate quality control and stewardship of the product.

The royalty-free license to AATF underscores the charitable nature of the collaboration as the project partners will not receive any payments from seed companies for the drought-tolerant maize lines incorporating their intellectual property (IP) protected subject matter such as genes, promoters, etc. (See the Frequently Asked Questions section for further elaboration of this point). Thus, the project partners expect that pricing by seed companies will not be influenced by the requirement to pay trait royalties, and should be able to price such maize at levels that are reasonably within the means of African farmers.

A seed producer will be able to sublicense inbred lines from AATF to make non-exclusive hybrids or sublicense individual inbred lines from the project to cross with one of its own inbred lines to make producer-specific hybrid seed. All the resulting hybrid products will be required to provide sufficient drought tolerance to meet the product concept defined by the Partners and to meet recognized seed quality standards.

AATF will provide regular updates on the progress of the project for interested stakeholders.

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