Molecular Breeding Scheme for Drought-Resistant Cotton (Yissum)

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Improving drought resistance in most popular commercial species

Categories	Agriculture, Plant Genetics
Development Stage	Proof of biological concept: initial development of genetic material
Patent Status	Proprietary cotton varieties will be developed

Highlights

- Cotton is the world's leading fiber crop and also an important oilseed.
- Whether irrigated or not, cotton is often exposed to drought, which adversely affects both yield and lint quality.
- Cotton consists of two predominant cultivated closely related species, Gossypium hirsutum (Upland cotton) and G. barbadense (Pima cotton), that have retained different genes or alleles for various traits which provide an opportunity to restore desirable alleles "left behind" during domestication.

Our Innovation

Selected quantitative trait loci (QTLs) that confer drought resistance were exchanged between the two species through marker assisted selection (MAS). The resulting near isogenic lines (NILs) were shown to enhance drought responses in field trials.

Key Features

- This program aims to dissect and further understand the physiological effects of QTL regions that have been shown to be useful for improving drought resistance, and to develop novel commercial varieties of cotton with better adaptation to drought prone conditions.

Development Milestones

- Seeking partners for funding further research and breeding program towards the commercialization of the resulting varieties.

The Opportunity

- Cotton cultivars specifically adapted to drought condition may enhance yield under water-limited conditions and reduce the negative effects of extreme drought events.

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