

## **Indo-US Consortium to Develop Drought Tolerant Pearl Millet for Asia and Africa**

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### **New hybrids to improve pearl millet yields under drought by deploying GM and non-GM technologies**

An Indo-US consortium from the University of California Davis, Arcadia Biosciences, ICRISAT, and Krishidhan Seeds announced today that they will develop heat and drought tolerant technology solutions in pearl millet. The public-private consortium will bring together expertise and technologies spanning breeding and molecular biology to develop climate resilient elite inbreds and hybrids. Lead by UC Davis, the consortium is funded by a four year grant from the US Agency for International Development (USAID) under the Feed the Future initiative for food security.

Millet remains a staple of millions among the poorest in both India and Africa. At the same time, its growing value in the food and feed industry offers opportunities for income generation. While among the staples most adapted to harsh environments, productivity gains from increased and broad stress tolerance will be significant. The stability of yields in the marginal environments that typify millet production is particularly important for the poor who depend upon this crop.

The team will harness breakthroughs enabled by a deeper understanding of plant responses to stress with modern genetic tools. UC Davis's expertise in the identification of metabolic and genetic pathways for plant stress tolerance will be combined with ICRISAT's expertise in field and drought tolerance trait assessment, and germplasm resources which will enable such breakthroughs. Arcadia Biosciences and Krishidhan Seeds will make technology available and support commercialization through public and private partners. This partnership will pyramid traits that will substantially increase yields over current elite hybrids and non-hybrid varieties grown by small resource poor farmers.

UC Davis will introduce genes and gene combinations that have been shown to play key roles in conferring crops with the ability to grow and yield under the adverse environmental conditions (drought, salinity, high temperatures) that are typical of Africa and Asia, said Eduardo Blumbald. Arcadia Biosciences is pleased to expand its collaborations and commitments to advancing development. ICRISAT will continue refining the genomic interval responsible for key drought tolerance mechanisms and develop ideotypes having adaptation to a range of drought conditions. We are excited to partner in this consortium on the USAID grant which recognises the research potential of each partner in addressing agriculture productivity challenges especially in millets with sustainable solution, said Anup Karwa, Director of Krishidhan Seeds. Our efforts will lead to development of indigenous drought tolerant trait in pearl millet which will benefit Indian growers to tackle changing environmental constraints and usher higher productivity, Krishidhan believes.

#### **About UC Davis:**

For more than 100 years, UC Davis has engaged in teaching, research and public service that transform the world. Located close to California's state capital, UC Davis has more than 32,000 students, more than 2,500 faculty and more than 21,000 staff, an annual research budget of nearly \$750 million, a comprehensive health system and 13 specialized research centers. The university offers interdisciplinary graduate study and more than 100 undergraduate majors in four colleges — Agricultural and Environmental Sciences, Biological Sciences, Engineering, and Letters and Science. It also houses six professional schools — Education, Law, Management, Medicine, Veterinary Medicine and the Betty Irene Moore School of Nursing.

#### **About Krishidhan**

Based in Jalna, India, Krishidhan Seeds is a pioneer & dynamic agricultural biotech company delivering high quality seeds, crop protection and plant nutrition solutions for the Indian seeds market. Over 3 decades old now, the Krishidhan Group of Companies is involved in basic and applied research including plant breeding & bio-technology followed by quality seed production, processing, packing and marketing of high quality seeds of Cotton, Cereals, Millets, Pulses, Oilseeds and Vegetables. It also specialises in crop protection and nutrition business and manufactures proprietary biological micronutrient solutions for agri-input domain. For more information visit [www.KrishidhanSeeds.com](http://www.KrishidhanSeeds.com)

**About ICRISAT**

Headquartered in Hyderabad, India, with regional station in East and Southern Africa, and in West and Central Africa, ICRISAT is one of the fifteen centers of the CGIAR consortium. Founded about 40 years ago, ICRISAT has global mandate for research on five crops that are endemic of the semi-arid tropics (SAT), i.e. sorghum, pearl millet, peanut, chickpea and pigeonpea. ICRISAT's mission is to help the poor of the semi-arid tropics through Science with a Human Face and partnership-based research and to increase agricultural productivity and food security, reduce poverty, and protect the environment in SAT production system. For more information visit [www.icrisat.org](http://www.icrisat.org)

**About Arcadia Biosciences, Inc.**

Based in Davis, Calif., with additional facilities in Seattle, Wash. and Phoenix, Ariz., Arcadia Biosciences is an agricultural technology company focused on the development of agricultural products that improve the environment and enhance human health. For more information visit [www.arcadiabio.com](http://www.arcadiabio.com)

**About USAID**

The U.S. Agency for International Development (USAID) is an independent agency that provides economic, development and humanitarian assistance around the world in support of the foreign policy goals of the United States. As stated in the President's National Security Strategy, USAID's work in development joins diplomacy and defense as one of three key pieces of the nation's foreign policy apparatus. USAID promotes peace and stability by fostering economic growth, protecting human health, providing emergency humanitarian assistance, and enhancing democracy in developing countries. These efforts to improve the lives of millions of people worldwide represent U.S. values and advance U.S. interests for peace and prosperity. For more information visit [www.usaid.gov](http://www.usaid.gov)

**About Feed the Future**

Feed the Future is the United States Government's global hunger and food security initiative. It supports country-driven approaches to address the root causes of hunger and poverty and forge long-term solutions to chronic food insecurity and undernutrition. Drawing upon resources and expertise of agencies across the U.S. Government, this Presidential Initiative is helping countries transform their own agriculture sectors to grow enough food sustainably to feed their people. [www.feedthefuture.gov](http://www.feedthefuture.gov)