Energy Dept. funds epigenetic project on sorghum response to drought

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UC Berkeley is leading a $12.3 million project funded by the U.S. Department of Energy to examine the role of epigenetics in allowing plants to survive in drought conditions, an increasing concern for agriculture as the effects of climate change are felt in California and globally.

UC Berkeley researchers will partner with scientists at UC Agriculture and Natural Resources, the Energy Department's Joint Genome Institute and that agency's Pacific Northwest National Laboratory on the five-year project, called Epigenetic Control of Drought Response in Sorghum, or EPICON.

The grant comes in the midst of a historic drought in California. Over three years of field testing, researchers will dissect mechanisms by which sorghum, a close relative of corn, is able to survive water deprivation.

"Historically, the genetic manipulation of crops, which has been critical to increasing agricultural productivity, has concentrated on altering the plant's genetic sequence," said Peggy Lemaux, of UC Berkeley's Department of Plant and Microbial Biology, who is heading the project. "However, recent studies have shown that environmental stresses – i.e. drought – can lead to epigenetic changes in a plant's genetic information. Because epigenetic changes occur without altering the underlying DNA sequence, they allow plants to respond to a changing environment more quickly."

EPICON efforts will generate a variety of large datasets, which will be shared via an open, online platform that will include methods and results.

The researchers expect that the project will allow better predictions of how sorghum and other cereal crops are affected by future climate scenarios, and will lead to approaches to improve growth and production of sorghum and other crops under water-limiting conditions.

Read full, original post: Berkeley to lead $12.3M study of crop drought tolerance