The Redomestication of Corn

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CURRENT RESEARCH

Understanding the evolution of corn to improve agriculture

Imagine yourself 10,000 years ago before the Agricultural Revolution when there were no crop plants and only wild plants to eat. At this time, ancient hunter-gatherers began the process of domesticating wild plants to create our modern crops. To do this, they applied selective breeding. Each harvest season they kept seed from the best plants to produce the next crop the following year. Over many generations, they transformed wild species into our current domesticated crops.

Modern scientists did not get to observe the steps in the domestication process so we don't fully understand the steps involved in the transformation of wild plants into crops. But what if we could redo the domestication of a crop? Start with its ancestor and apply selective breeding to convert it into a crop. If this happens, we can directly observe how genes and the genome are altered by domestication and better understand this important process. Dr. Matthew Hufford, Assistant Professor in the Department of Ecology, Evolution, and Organismal Biology at Iowa State University, and Dr. John Doebley, Professor in the Department of Genetics at University of Wisconsin-Madison are interested in developing a new corn through a process of "redomestication." They will begin with teosinte, a wild grass only recently discovered as maize's ancestor.

While many have studied the domestication process by comparing crops to their wild relatives, no one has yet attempted to redomesticate a crop. Previous investigations of historical domestication rely on only a rough idea of what pre-domestication populations may have looked like, so this new approach will provide much greater clarity and control. Dr. Hufford and Dr. Doebley will...

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AFFILIATION

Iowa State University

EDUCATION

- Ph.D. in Ecology, 2010,University of California-Davis

AWARDS

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RESEARCH AREAS

Environment, Agriculture, Ecology, Evolution

FUNDING REQUEST

Your funding will help support Dr. Doebley and Dr. Hufford's five-year corn re-domestication project. They need $10K to $20K/year for field costs, $20K for skim sequencing costs, $50K/year for personnel costs, and up to $200K for a full genome analysis. Your contribution will support the process of re-domesticating crops, which are crucial to our daily lives, leading to new and improved future crops. Support the improvement of our crops; fund Dr. Hufford and Dr. Doebley.