ABSTRACT

TITLE:	Comparing Heirloom Plants to GMOs: The Future of Drought Tolerant Agriculture in the American Southwest
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ABSTRACT: In comparing the viability of drought tolerant genetically modified crops to drought tolerant heirloom crops, this paper considers plant yield under the stress of drought, and also considers the nutritional benefits, ecological effects, and the possible negative health effects of these food sources. Climate change will seriously affect the Southwest, and farmers are becoming interested in crops that will be able to deal with this stress. Agricultural companies are also trying to adapt to these conditions by creating drought tolerant GMO plants. Monsanto, an agricultural giant, is testing one of these GMO varieties (a corn named "˜Droughtgard') for the first time this coming summer. Many heirloom varieties of crops are alternatives to these GMO plants because of their drought tolerant qualities. The heirloom varieties that are especially drought tolerant have been cultivated for centuries in places such as the Sonora desert. One Sonoran example, Tohono O'odham flour corn, has been grown by the O'odham tribe on no more water than the occasional flash flood. Droughtgard corn, on the other hand, has not proved its worth under drought conditions, and according to Monsanto, Droughtgard "isn't a product that we're expecting to grow in the desert." GMO plant varieties have not undergone extensive testing for their healthfulness, but the testing that has been done shows uncertainty in how good these products are for humans. There is evidence from testing on mice and rats that GMO products could cause malfunction of the liver and kidneys, as well as create an increase in allergens. The environmental effects of these products are also a concern for many scientists, who foresee possible ecological impacts from these products if they contaminate wild lands. GMOs are also designed to do better in conventional systems of agriculture, which produces less nutritious food with more risk of being contaminated with nitrates and chemical residues. Heirloom plants, however, are some of the most nutritious varieties, and do especially well in organic systems of agriculture. Heirloom plants have stood the test of time, and provide much more nutritious food than GMOs while doing just as well, if not better in many cases, under the stress of drought.