

Podcast: Edible cotton—how genetic engineering turns toxic seeds into nutritious food



Keerti Rathore

Cotton production is a global industry. Grown by approximately 80 countries, the crop is primarily harvested for fiber to make a variety of consumer products. However, the cotton seed itself, of which we produce 47 million metric tons annually, is a potential food resource for nutrient-deficient people all around the world, as it contains high amounts of oil and high-quality protein. Unfortunately, cotton seed can't be consumed by most mammals because it contains a toxic chemical called gossypol, a [terpenoid](#) the plant produces as a natural insecticide.

Scientists have been working for decades to produce low- or no-gossypol cotton, but depriving the crop of this organic chemical made it vulnerable to pest attack. As a result, no edible cotton variety has ever been commercialized. But a team led by geneticist Keerti Rathore at Texas A&M University appears to have finally solved the gossypol dilemma. Using a gene-silencing technology called RNA interference, the researchers bred genetically engineered plants that produce the natural insecticide but yield non-toxic seeds.

The plants have been [approved for production](#) by the USDA and the FDA, and the technology may now be used to produce new cotton lines that generate massive amounts of high-protein seed for human food and animal feed. This innovation stands to benefit farmers, the environment and, most importantly, hungry people struggling to lift themselves out of poverty.

<https://geneticliteracyproject.org/wp-content/uploads/2019/10/209-rathore.mp3>

Keerti Rathore is a professor in the Department of Soil and Crop Sciences at Texas A&M University. He specializes in the genetic improvement cotton, tomato, rice and sorghum. Visit [his website](#).

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