

GE Trees in the Southeast:

American Chestnut (*Castanea dentata*.)



Produced by Global Justice Ecology Project and the Campaign to STOP Genetically Engineered (GE) Trees

Background

Once a dominant species in eastern forests, American chestnut was virtually wiped-out by a blight introduced when breeders began importing Japanese chestnut in the late 1800s.

Traits

The main focus of GE chestnut research is developing resistance to chestnut blight. This is achieved by inserting a gene found in wheat.

Herbicide resistance and faster pollination are engineered traits that are primarily used for research and breeding purposes. However, these traits could be used by industry for industrial timber and biofuel production applications. Researchers and industry consider chestnuts an ideal candidate for biofuel production, due to the high starch content of the nuts. This, combined with engineered early sexual maturity (seed production), could make chestnut an attractive species for industrial plantations

Key Players

William Powell, a geneticist at **SUNY-ESF** is the primary researcher promoting GE chestnut. Over 1,000 of his GE chestnut seedlings have been planted in test plots thus far. Powell works closely with the **American Chestnut Foundation**, which promotes and supports restoration efforts through 'traditional' backcross breeding (crossing with Chinese chestnut) as well as genetic engineering.

Researchers at **The University of Georgia** have contributed to Powell's efforts as well. **The Forest Health Institute**, which receives funding from **ArborGen** and **Monsanto**, supports GE chestnut research. **Duke Energy** wants to plant GE chestnut on its abandoned mountaintop-removal coal mining sites, as part of government required 'reclamation' efforts.

Risks

Genetic contamination – Efforts to restore blight-resistant chestnut through traditional backcrossing with Chinese chestnut *and* traditional breeding of naturally blight resistant American chestnuts will be threatened by contamination if GE chestnuts are released into the wild. In fact, restoration with GE chestnut requires crossbreeding with non-GE chestnuts to ensure genetic diversity.

Human health and wildlife impacts – The intention of efforts headed by Powell and the American Chestnut Foundation are to release chestnuts into the wild. Nuts from these trees would be consumed by human and wildlife, posing unknown health risks. If GE and non-GE chestnuts are both established in the wild, there would likely be no way for consumers to know whether they were eating GE or non-GE nuts.

For more info: <http://nogetrees.org>

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