

# THE RESTORATION OF THE AMERICAN CHESTNUT IS A REMARKABLE ACHIEVEMENT OF TRADITIONAL PLANT BREEDING. WHY GENETICALLY MODIFY THIS TREE?

## THE RESTORATION OF THE AMERICAN CHESTNUT

The American Chestnut faced devastation from a fungus (blight), introduced in 1904.

After thirty years of traditional plant breeding, scientists have successfully developed a blight-resistant American Chestnut, with the first potentially blight-resistant chestnuts harvested in 2005.

## WHY ARE TREES BEING GENETICALLY ENGINEERED?

Trees are being genetically engineered (GE) for a range of purposes aimed to accelerate large-scale, industrial monoculture tree plantations and increase profits for biotechnology companies as well as paper, biofuel, lumber, and energy industries.

## ARBORGEN

ArborGen, the largest U.S. corporate proponent of GE trees, may grow by 2,000% into a half billion dollar company by 2017 if wide-scale commercial use is approved. ArborGen is hoping to follow Monsanto's blueprint for commercializing genetically engineered crops.

## NO GE AMERICAN CHESTNUT NEEDED

Biotechnology interests are promoting the development of a genetically engineered (GE) American Chestnut, resistant to blight, in order to introduce this risky technology to the public in tandem with this beloved tree. These interests are using the GE American Chestnut to create public support for GE trees writ large, and to build political momentum for a regulatory pathway for approving GE trees.

## GE TREES PRESENT INCREDIBLE RISKS

Genetically engineered trees are very much an extension of GE crop technology, with potential to result in similar problems like transgenic contamination, pesticide-resistant weeds and insects, and increased chemical use. However, trees have special attributes that make genetic engineering especially risky, such as their long life span, their ability to reproduce over long distances, and their ecosystem complexity.



**GE TREES WILL FACILITATE THE GROWTH OF INDUSTRIAL TREE MONOCULTURES, WHICH ARE COMMONLY ASSOCIATED WITH INCREASED CHEMICAL USE, DEFORESTATION AND LAND CLEARING, AND LOSS OF BIODIVERSITY. GREATER PROFIT PER ACRE IN PURPOSE-GROWN TREES DRIVES THE CONVERSION OF OLD-GROWTH FORESTS AND OTHER LANDS INTO PLANTATIONS.**

**CLIMATE CHANGE**

Compared to native old-growth forests, tree plantations are not as effective at sequestering carbon. In some instances, old growth forests store up to three times more carbon than a tree plantation.

**ENERGY AND BIOFUEL MANDATES**

Energy and biofuel mandates have spurred an increase in “land grabs” in developing countries, wherein a nation purchases or leases foreign land in order to grow biofuel crops. This often displaces people that have occupied the land for generations. Trees engineered for enhanced biofuel traits encourage this harmful trend.



**SIMPLY PUT, PLANTATIONS ARE NOT FORESTS.**

**INCREASED CHEMICAL USE**

GE tree plantations will require intensive management, including pesticides, fertilizers, and other practices that contribute to soil degradation, water pollution and depletion, and greenhouse gas emissions. Tree plantations also negatively alter soil structure and degrade productive forest, farmland, and other ecosystems that are converted into plantations.

**INTENSIVE WATER USE**

The U.S. Forest Service has expressed concerns that eucalyptus plantations established in the southern U.S. would use twice the water of the native trees and vegetation they would replace. GE eucalyptus is being engineered with freeze-tolerance, increasing its potential planting range.

**TRANSGENIC CONTAMINATION**

Altered genes in engineered trees may contaminate non-genetically engineered trees and in some cases already have. Because of their special biological characteristics, GE trees pose an even greater risk of transgenic contamination than do crops, with potential to cause serious environmental consequences in forests.

**BIOFUELS**

Trees genetically engineered for more convenient processing into biofuels may make them structurally weaker, leading to increased susceptibility to weather, pests, and disease. If allowed to spread to native forests, the integrity of our forest trees could be compromised. Emerging science demonstrates that burning trees and/or wood pellets produces high rates of greenhouse gas emissions and other pollutants.

**SIMPLY PUT, GE TREES AND TREE PLANTATIONS ARE NO SUBSTITUTE FOR THE MYRIAD COMPLEX FUNCTIONS OF A FOREST AND WILL LIKELY CONTRIBUTE TO DEFORESTATION, CLIMATE CRISES, POLLUTION, LOSS OF BIODIVERSITY, AND TRANSGENIC CONTAMINATION. A TRUE FOREST IS A WONDERFUL, MAGNIFICENT WILD OF THE KNOWN AND UNKNOWN AND CANNOT BE REPLACED.**

