

USDA APHIS
Engineered Forest and Fruit Trees: Public Meeting
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Several important North American forest trees have been assaulted by exotic diseases over the past century. A few examples include the white pine blister rust, the beech scale complex, the butternut canker, dogwood anthracnose, and the Dutch elm disease. The best known of these introduced diseases, and the most devastating to date, is the American chestnut blight. With our growing trade with countries around the world, new diseases are also destined for our future. Recently, sudden oak death, a potentially devastating disease has begun to raise great concern. At SUNY-ESF, my lab and our collaborators are committed to fighting these diseases using the tools of biotechnology.

We choose American chestnut as the model species for tree restoration because of its importance to the eastern forest's ecosystem, because of its important place in American history, and because of its potential economic value as a woody crop. Our goal is to develop blight resistance American chestnut trees to be placed in a restoration program and then apply what we learned from this research to other threatened tree species.

Since our goal is primarily restoration, our concerns are a bit different than those working with agricultural crops. The regulations for tree species being developed by APHIS will have a great impact on our success or failure at restoration. To ensure success, the regulations must be science based, relying on testable hypotheses, and they must be timely, meaning that the duration of testing must be reasonable. There are three specific items I would like to address.

1. Sterility must not be a requirement.

Thought there are several species of economically important trees that can be easily propagated vegetatively, American chestnut (*Castanea dentata*) is not one. The released tree must be able to flower and produce nuts in order to propagate this species.

2. The approval for release cannot be tied to a clonal line.

A true restoration program will try to reclaim as much of the surviving genetic diversity as possible. To do this, the approved tree must be allowed to outcross to surviving trees to preserve their alleles. We do not want to widely plant a monoculture of resistant American chestnuts because this would only set up the species for the next disastrous disease or insect outbreak

3. The testing period should not be the entire life cycle of the transgenic tree.

American chestnut trees can live for centuries, but testing does not have to go on that long. I believe that environmental impacts of the transgenes can be reasonably assessed in just a few growing seasons.

Any one of these three requirements would prevent any restoration program using transgenic trees. I look forward to discussing these and other concerns further. Thank you for granting me this time to present my views.