

BRINGING BACK THE AMERICAN CHESTNUT: ADVANCES IN GENETIC MODIFICATION, NAVIGATING FEDERAL REGULATION

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The American chestnut, once a major component of Eastern forests, was decimated by an invasive fungal pathogen introduced over a century ago. Researchers at SUNY-ESF have developed the 'Darling' transgenic American chestnut by incorporating into its genome an oxalate oxidase (OxO) gene from wheat. OxO is a common defense gene found in many plant species. American chestnut trees expressing the OxO enzyme have enhanced tolerance to chestnut blight, similar to or greater than that of Chinese chestnut controls. Several ecological and risk-assessment studies have been completed without finding significant differences between the transgenic and non-transgenic trees. The American Chestnut Research and Restoration Project at SUNY-ESF, in collaboration with the American Chestnut Foundation, are undertaking the lengthy process of applying for federal non-regulated status. This would allow the unrestricted planting and breeding of these trees with the long-term goal of restoring this iconic species to its native habitat throughout Eastern forests.