

Biology of the Tree: Inoculation and Resistance

Once the trees reach a proper size for the technique (usually 1.5" diameter at breast height), the trees are inoculated with the blight fungus. Two different strains of the fungus, one relatively weak and one very strong -- one of the strongest known -- are inserted into small wounds created in the tree. The trees are then rated for resistance after five months and again after 11 months. Those trees that have little to no resistance are removed from the planting. Only those that have the highest degree of resistance of those planted will be bred into subsequent generations. This continues for a minimum of six generations. With excellent care, TACF is able to complete a generation in six years or less.

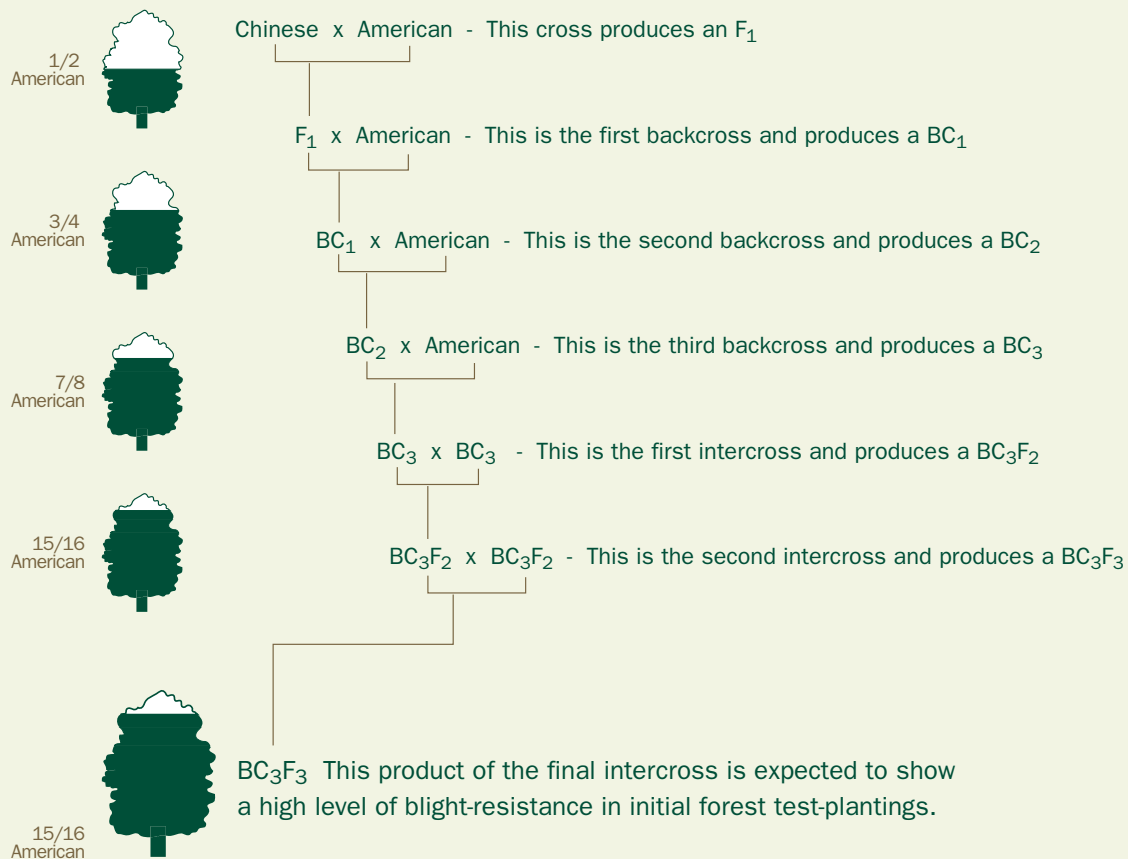
Testing Ourselves

By consulting with a diverse network of colleagues, TACF increases the strength of its scientific focus and methodologies as part of its overall mission and enhances its ability to partner with high-profile organizations throughout the country. In 1999, and again in 2006, TACF contracted with nationally and internationally-recognized scientists for an independent audit of its science program. In each of these years, TACF's national breeding program received high marks indicating an excellence in scientific procedures.

Figure 1.

THE AMERICAN CHESTNUT FOUNDATION BACKCROSS BREEDING PROGRAM

With each cross, additional American chestnut characteristics are regained. Only at the final cross, however, does blight resistance approach that of the Chinese parent



Note: In each step, the Backcross is selected for resistance through the process of inoculation and for American characteristics by visual observation.