

Breeding High Quality Disease Resistant Tart Cherry Varieties and Rootstocks

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Objective: The goal of the MSU tart cherry breeding program is to improve the profitability of the tart cherry industry by developing scion and rootstock varieties that will help growers effectively address production and market-based fruit quality challenges. Specifically, this project will (1) identify individuals among MSU's tart cherry seedlings and imported varieties which demonstrate potential as commercial varieties in Michigan by evaluating selections for bloom and maturity dates, fruit quality, cherry leaf spot (CLS) resistance, and performance of grafted trees at test sites, and (2) breed *Armillaria* resistant cherry rootstock using *P. maackii* as the resistance donor species.

Fig. 1. Illustration of the resistance to CLS derived from the wild cherry species *Prunus canescens* (left) versus the CLS susceptible cultivar Montmorency. The susceptible Montmorency exhibits the characteristic fungal mycelial growth, the leaf yellows and falls off. In contrast, the resistant selection responds to the infection by killing the CLS invaded cells and thereby preventing disease development. This type of CLS resistance would mean that the grower would not have to put on any pesticide to control CLS.

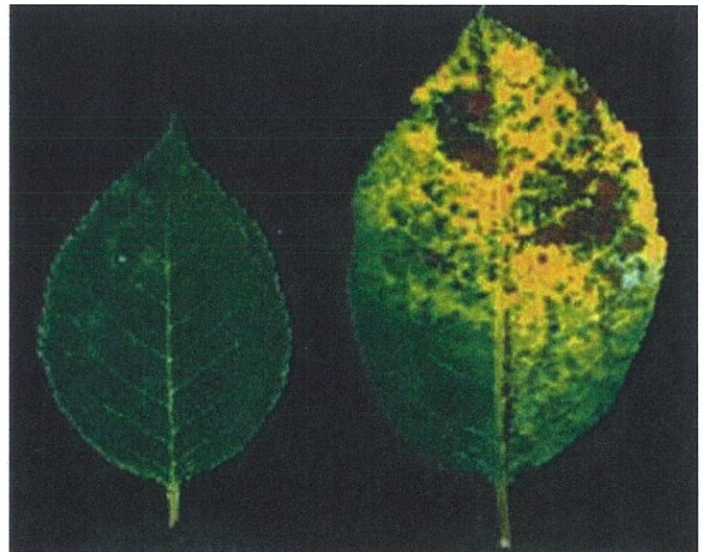


Fig. 2. *Prunus maackii* is reported to be resistant to *Armillaria* root rot. (A) Twelve of these rootstocks are growing well in an *Armillaria* infested site. They were planted in the fall of 2013. (B) *P. maackii* may be able to be used as a rootstock for Montmorency directly. *P. maackii* rootstocks were budded with Montmorency scion and planted at the MSU's Clarksville Research Center in fall of 2013. This scion/rootstock combination is growing well. If these results continue, it may be possible to plant cherries on *Armillaria* infested sites using available *P. maackii* rootstocks.

