

Summary of 2009 NC-140 Peach Rootstock Trial Results through 2015

1. Accomplishments Related to Objective 1:

Objective 1. To evaluate the influence of rootstocks on temperate-zone fruit tree characteristics grown under varying environments using sustainable management systems.

A. 2009 Peach Rootstock Trial with an initial 16 locations coordinated by Greg Reighard, Clemson University

Seven-year data were assembled and analyzed with a first draft manuscript of the first 5 years to be submitted to cooperators before January 1 for comment. Data from 14 to 18 *Prunus* rootstocks budded with 'Redhaven' peach planted at 16 locations in North America in 2009 is summarized as follows. Seven-year performance from 13 remaining locations in 12 states showed that significant differences among rootstocks and sites were found for survival, root suckers, growth, bloom date, fruit maturity date, fruit size, cumulative yield, and yield efficiency. Survival was highest for peach seedling rootstocks at all locations. In contrast, survival of non-peach species and hybrid rootstocks was poor to fair in Missouri (winter cold, wet feet conditions) and Alabama, Georgia, North Carolina, and South Carolina due to bacterial canker. 'Krymsk®1', 'Krymsk®86', 'Penta', 'Controller 5' and 'Mirobac' (aka 'Replantpac') were the most susceptible to tree death from bacterial canker in the four southeastern states. Overall, 'Imperial California' had the lowest survival followed by 'Fortuna' and 'Krymsk®1'. Rootstock suckering was excessive on *Prunus americana* seedlings with lesser suckering noted on 'Krymsk®1' and 'Penta'. Largest trees were three *Prunus* x almond hybrids ('Viking', 'Atlas', 'Brights Hybrid #5') and 'Guardian®'. Fruit size varied with location and crop load (i.e., some rootstocks had few fruit). KV010127 produced the largest fruit and 'Controller 5' and 'Mirobac' the smallest fruit across all sites. Cumulative yields were generally highest with the peach rootstocks with 'Guardian®' leading the way. Lowest yields were from plum hybrids and plum species. Cumulative yield efficiency was higher on the non-peach rootstocks including many of the plum hybrids or species. However, many of these rootstocks produced trees much smaller than the peach and almond hybrid cultivars. The clonal *P. persica* rootstocks HBOK 10 ('Controller 8') and HBOK 32 ('Controller 7') appeared to be the most promising of the size-controlling rootstocks tested. These data suggest there was no demonstrated advantage to increase yield/ha by using clonal interspecific *Prunus* hybrids for peach production under current cultural practices. However, on higher pH soils in Colorado and Utah, peach seedlings were not the superior rootstocks for production so continuing evaluation is warranted.