Canadian Agri-Science Cluster for Horticulture 2

Progress Report December 2014

Activity 4, Apple 3

Performance of Honeycrisp on New Size-Controlling Rootstocks

Lead Researcher

John A. Cline, PhD, University of Guelph

Collaborator

John Zandstra, University of Guelph, Ridgetown Campus

Activity Objectives

- Measure the precocity and performance of new size-controlling rootstocks and to compare these against the industry standards M.9 and M.26
- Determine rootstock effects on calcium disorders, whole tree physiology, and fruit storage potential (Zandstra)
- Assess the productivity of more vigorous rootstocks M.106 and M.7 against M.26 – with a close examination of graft union compatibility (Cline)

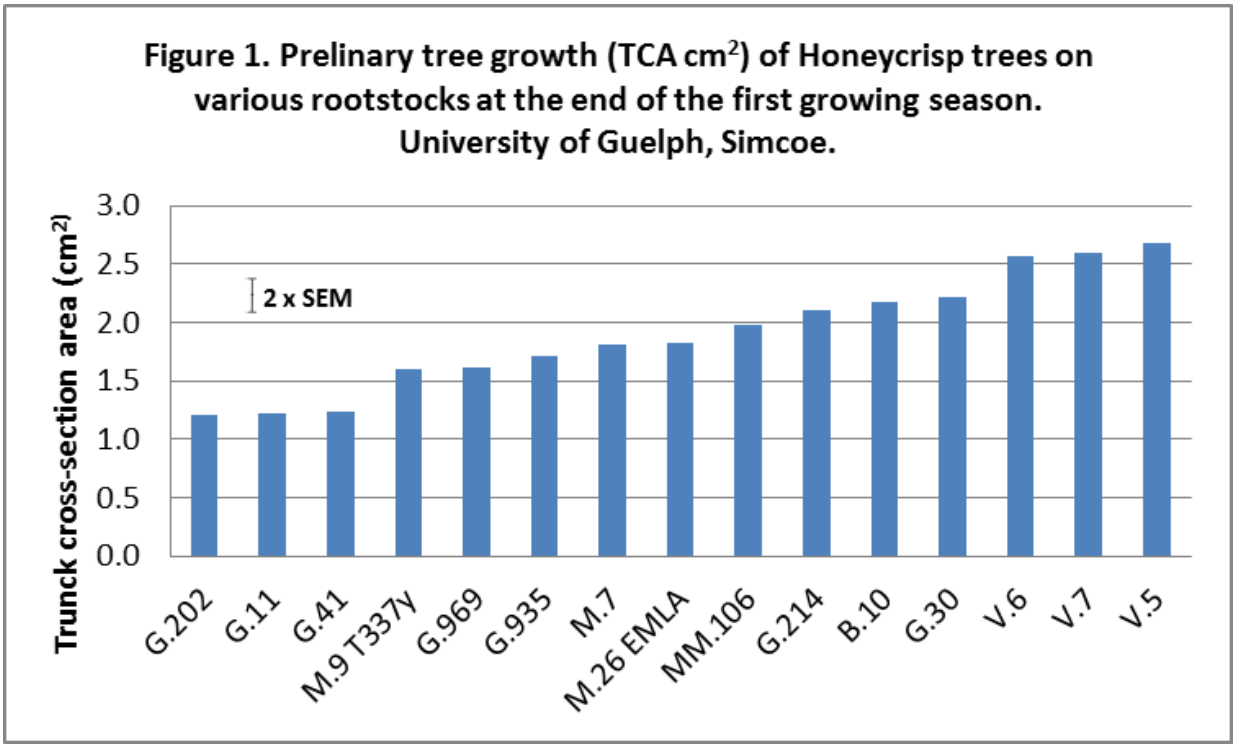
Research Progress to Date

Ten trees each of Honeycrisp on 17 different rootstock (B.10, G.11, G.202, G.214, G.30, G.41, G.5890, G.935, G.969, M.26 EMLA, M.7, MM.106, M.9 T337, V.5, V.6, V.7) were planted at the University of Guelph, Simcoe Horticultural Experiment Station and the Cedar Springs Research Station, Blenheim, ON. Tree were planted using a 'tall spindle' systems at a 1.2 x 3.6 m spacing (2342 trees/ha). Trees are planted using a randomized block design with single trees serving as experimental units. Pollinizer trees are placed uniformly through each planting. Data protocols have been established for 2014 and 2015. In 2014, the following data were recorded: 1) initial trunk diameter measured at planting 30cm above graft union; 2) number of side branches >10 cm at planting; 3) trunk circumference in the fall of 2014; 4) height of the graft union above soil; 5) tree status at the end of the 2014 growing season. In 2015, trees will be fruited and similar data as 2014 in addition to yield data will be recorded.

Early Outcomes or Challenges

Trees established well at each site. Initial tree size varied by rootstock; some trees were better feathered and had more extensive root systems than others. Tree data have been collected and analyzed at the Simcoe location. At planting, there were significantly more branches on V.5, V.6, and V.7 as well as G.214. This may be more a function of nursery propagation technique than rootstock directly. At the end of the 2014 growing season, V.5, V.6 and V.7 had the most growth while G.202, G.11, and G.41 and the least, based on trunk cross-sectional area. At this time, these data must be considered

preliminary as the ranking in tree vigor while likely change during tree establishment.



Key Message(s)

A number of new size-controlling rootstocks are being trialed at two locations in Southern Ontario. Rootstock effects on fruit size, productivity, calcium disorders and storage potential will be assessed as the trees begin to fruit in 2015 and 2016.