Results from the First Year of Fruiting in the 2009 NC-140 Peach Rootstock Trial in Massachusetts

Wesley R. Autio, Jon M. Clements, and James S. Krupa
University of Massachusetts

In 2009, NC-140 established a peach rootstock trial at 14 locations in the U.S. and two locations in Mexico. It included Redhaven on 17 different rootstocks. One of these locations was the UMass Cold Spring Orchard Research & Education Center in Belchertown. Not all locations had all rootstocks; the Massachusetts planting has 15 rootstocks [see Fruit Notes volume 75, number 3 (summer, 2010) or Horticultural News, volume 90, number 3 (summer, 2010) for details regarding the rootstocks in this trial]. All trees are spaced 13' x 16.5' and trained as open centers. The planting includes eight replications of each rootstock.

In October 2011, tree size was assessed with trunk circumference (measured below the lowest scaffold branch), and these data were used to calculate trunk cross-sectional area. Root suckers were counted each year. Trees yielded significantly in the third growing season (2011), and all fruit from each tree were counted and weighed. These data were used to calculate

Table 1. Trunk size, root suckering, yield, yield efficiency, and fruit size in 2011 of Redhaven peach trees in the 2009 NC-140 Peach Rootstock Trial.[z]

Rootstock	Trunk cross-sectional area (cm^2)	Root suckers (no./tree, 2009-11)	Yield per tree (kg)	Yield efficiency (kg/cm^2)	Fruit weight (g)
Atlas	75.3 ab	0.0 b	20.7 ab	0.28 cde	161 c
Brights Hybrid 5	66.6 abc	0.0 b	17.8 b	0.27 cde	159 c
Controller 5	17.7 f	0.0 b	4.0 c	0.23 e	172 abc
Guardian	83.0 a	0.0 b	21.1 ab	0.26 cde	176 abc
HBOK 10	60.0 bc	0.0 b	24.7 ab	0.43 bcd	180 abc
HBOK 32	60.3 bc	0.0 b	23.0 ab	0.39 bcde	171 abc
KV010-123	57.4 cd	0.0 b	24.7 ab	0.44 bc	178 abc
KV010-127	66.4 abc	0.0 b	23.8 ab	0.36 cde	169 bc
Krymsk 1	36.5 e	0.0 b	20.0 ab	0.55 ab	192 ab
Krymsk 86	64.7 bc	0.0 b	19.0 b	0.31 cde	163 c
Lovell	74.1 abc	0.0 b	21.1 ab	0.30 cde	174 abc
Mirobac	56.9 cd	0.5 b	20.6 ab	0.36 cde	176 abc
Prunus americana	42.3 de	3.0 a	29.7 a	0.72 a	200 a
Penta	69.2 abc	0.0 b	16.0 b	0.25 de	160 c
Viking	66.4 abc	0.0 b	24.2 ab	0.38 bcde	166 c

[z] Means within columns followed by a common letter are not significantly different at odds of 19 to 1 (Tukey's HSD, $P = 0.05$).

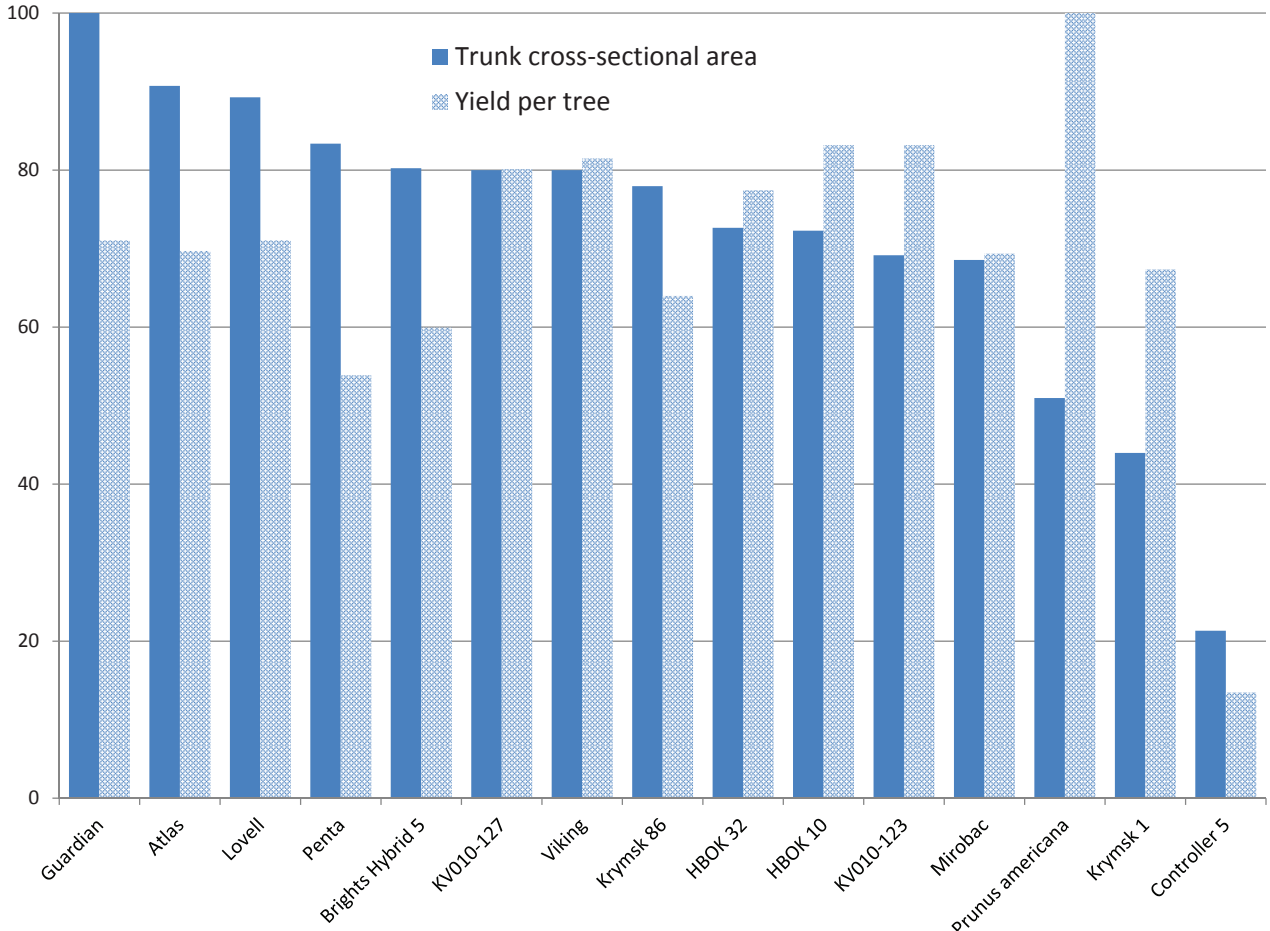

Figure 1. Trunk cross-sectional area and yield per tree in 2011 in the 2009 NC-140 Peach Rootstock Trial in Massachusetts. Trunk cross-sectional area are presented relative (%) to the largest average trees (on Guardian), and yield per tree are also relative (%) to the highest average yielding trees (on *Prunus americana*).

average fruit size for each tree.

After three growing seasons, the largest Redhaven peach tree were on Guardian rootstock, and the smallest were on Controller 5 (Table 1, Figure 1). A few of the trees appear to be dwarf to semidwarf in size, specifically those on Controller 5, Krymsk 1, Prunus americana, Mirobac, KV010-123, HBOK 10, and HBOK 32.

Root suckering has been very light on these trees, with the most suckering from Prunus americana with only three suckers total (Table 1).

Yield per tree varied from a low from trees on Controller 5 to a high from trees on Prunus americana (Table 1, Figure 1). Yield efficiency, likewise, was greatest for trees on Prunus americana and lowest for trees on Controller 5 (Table 1).

Fruit size was largest from trees on Prunus americana and smallest from trees on Brights Hybrid 5, Penta, Atlas, and Viking (Table 1).

Obviously, several additional years of data will be required to evaluate these rootstocks, but to date, Prunus americana looks very promising. Figure 1 displays tree size from largest to smallest and includes the associated yield per tree. Trees on Prunus americana clearly are dwarfed (only about 50% of the size of those on Guardian) but they also yielded the most in 2011. Often a dwarfed tree has greater yield efficiency than a larger tree, but it usually does not have greater actual yield per tree. As an added bonus, trees on Prunus americana had the largest fruit in the trial.

Please stay tuned; we will continue to report results from this trial in future years.

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