

Performance of Trees in the Massachusetts Planting of the 1994 NC-140 Peach Rootstock Trial over Seven Growing Seasons

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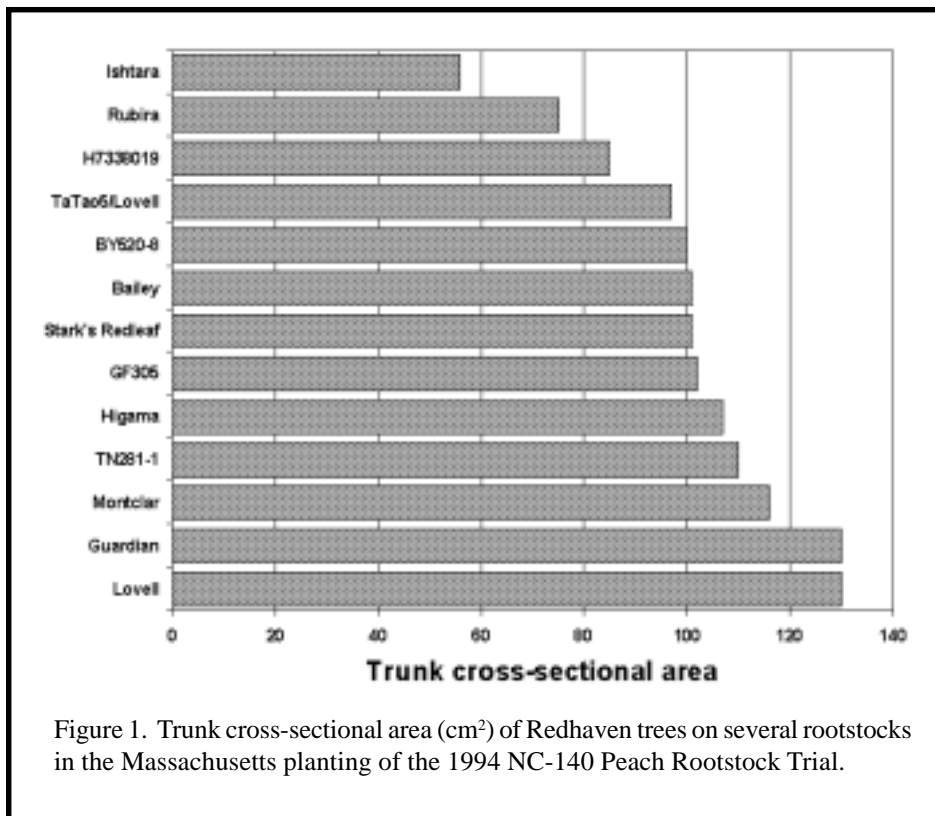
Peaches are an increasingly important crop for farmstand sales in southern New England. Generally, returns are very good, but labor inputs are high, particularly for pruning and hand thinning. Some work is underway to address both of these issues. Duane Greene and Jim Krupa are working on thinning chemicals to reduce the amount of hand thinning required, and Jon Clements is beginning to study alternative training schemes that may reduce pruning costs. Although not likely to affect thinning needs, rootstocks may be another means of reducing pruning costs.

Only recently have researchers begun to evaluate rootstock material for peaches. Since the mid 1980's, the NC-140 Technical Committee has completed one trial, planted a second, and is planning a third. The second trial includes a number of rootstocks in about 20 locations and was established in 1994. Little interest exists in dwarfing rootstocks in much of the Country, but some of the material in this trial provide size control. The primary objective of the Massachusetts planting is to evaluate these rootstocks for dwarfing potential.

Table 1. Trunk cross-sectional area, yield, yield efficiency, and fruit weight in 2000 of Redhaven peach trees planted in Massachusetts as part of the 1994 NC-140 Peach Rootstock Trial.^z

Rootstock	Trunk cross-sectional area (cm ²)	Yield per tree (kg)		Yield efficiency (kg/cm ² TCA)		Fruit weight (g)	
		2000	Cumulative (1996-2000)	2000	Cumulative (1996-2000)	2000	Average (1996-2000)
Lovell	130 a	34 a	176 ab	0.27 a	1.42 b	248 a	208 a
Bailey	101 ab	34 a	156 abc	0.36 a	1.63 ab	295 a	216 a
TN281-1	110 ab	38 a	177 a	0.35 a	1.63 ab	278 a	207 a
Stark's Redleaf	101 ab	35 a	174 ab	0.35 a	1.75 ab	311 a	221 a
GF305	102 ab	30 a	160 ab	0.29 a	1.60 ab	258 a	204 a
Higama	107 ab	31 a	161 ab	0.29 a	1.50 ab	248 a	191 a
Montclar	116 a	33 a	147 abc	0.29 a	1.30 b	251 a	195 a
Rubira	75 bc	24 a	135 abc	0.31 a	1.81 ab	263 a	205 a
Ishtara	56 c	23 a	110 c	0.42 a	2.00 a	230 a	192 a
H7338019	85 bc	31 a	146 abc	0.35 a	1.69 ab	270 a	206 a
BY520-8	100 ab	35 a	144 abc	0.36 a	1.45 ab	264 a	200 a
Guardian	130 a	34 a	169 ab	0.27 a	1.35 b	237 a	191 a
TaTao5/Lovell	97 ab	27 a	123 bc	0.27 a	1.26 b	218 a	192 a

^z Means not followed by the same letter are significantly different at odds of 19 to 1.



As noted in the previous article, trunk cross-sectional area is a universally used method to compare tree size of different treatments. It relates directly to the size of the canopy, and therefore allows a rough comparison of relative planting density. Most of the 13 rootstocks in this trial produce a tree that could be considered standard sized (Table 1, Figure). Trees on Guardian and those on Lovell were the largest in this category, but not significantly larger than those on TaTao5/Lovell, By520-8, Bailey, Stark's Redleaf, GF305, Higama, TN281-1, or Montclar. Trees on Ishtara, Rubira, and H7338019 were significantly smaller than those on Lovell or Guardian, and trees on Ishtara were significantly smaller than all other except those on Rubira or H7338019. The size of trees on Ishtara is strikingly smaller

than that of the others, and these trees required significantly less time to prune.

Yield per tree (Table 1) was directly related to tree size, but the ultimate assessment would be yield per acre. Because resources and time are not available to conduct accurate assessments of real yield potential per acre, it is customary to use yield efficiency to relate yield to tree size. The relative differences in yield efficiency among rootstocks may reflect differences in potential yield per acre. Cumulative yield efficiency (1996-2000) did not vary greatly in this trial (Table 1). Trees on Ishtara, however were significantly more yield efficient than those on Lovell, Guardian, Montclar, or TaTao5/Lovell.

Fruit size can be affected by rootstock; however, rootstock did not affect fruit size in this trial in 2000 or on average from 1996-2000 (Table 1).

This study will conclude after three more seasons, but we can make some conclusions at this point. Particularly, few differences exist among trees on the bulk of the rootstocks involved in this trial. One rootstock, Ishtara, however, attracts interest. It produces a small tree with reduced pruning requirements, and it is productive. Further, when the planting was attacked by peach tree borers a few years ago, Ishtara was resistant. It is interesting to note that Ishtara is the result of a peach x plum cross. All in all, this rootstock is worthy of further trial and possibly limited commercial test planting.

