

# An Update on the 1994 NC-140 Peach Rootstock Trial

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According to the 1991 *New England Fruit Tree Inventory*, conducted by the New England Agricultural Statistics Service, peaches comprise only 7% (380 acres) of the tree-fruit acreage in Massachusetts; however, most of these fruit are sold directly to the consumer and are profitable. Further, acreage is expected to increase at a rate of 2-3% per year for the near future. Therefore, peaches are an important part of the Massachusetts tree-fruit industry.

Peaches have a number of horticultural problems: they are subject to early decline; they can bloom too early and therefore be frosted, they often express too much vegetative

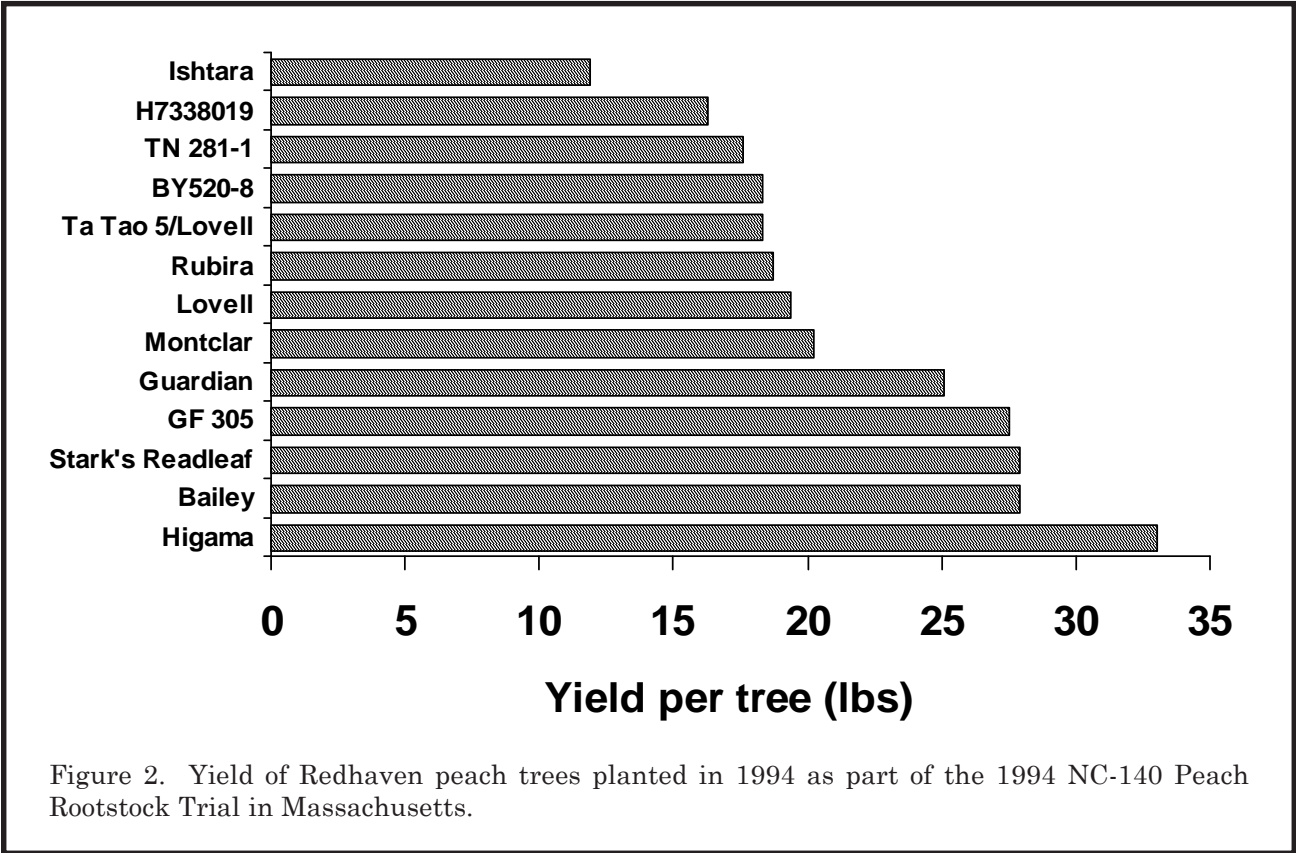
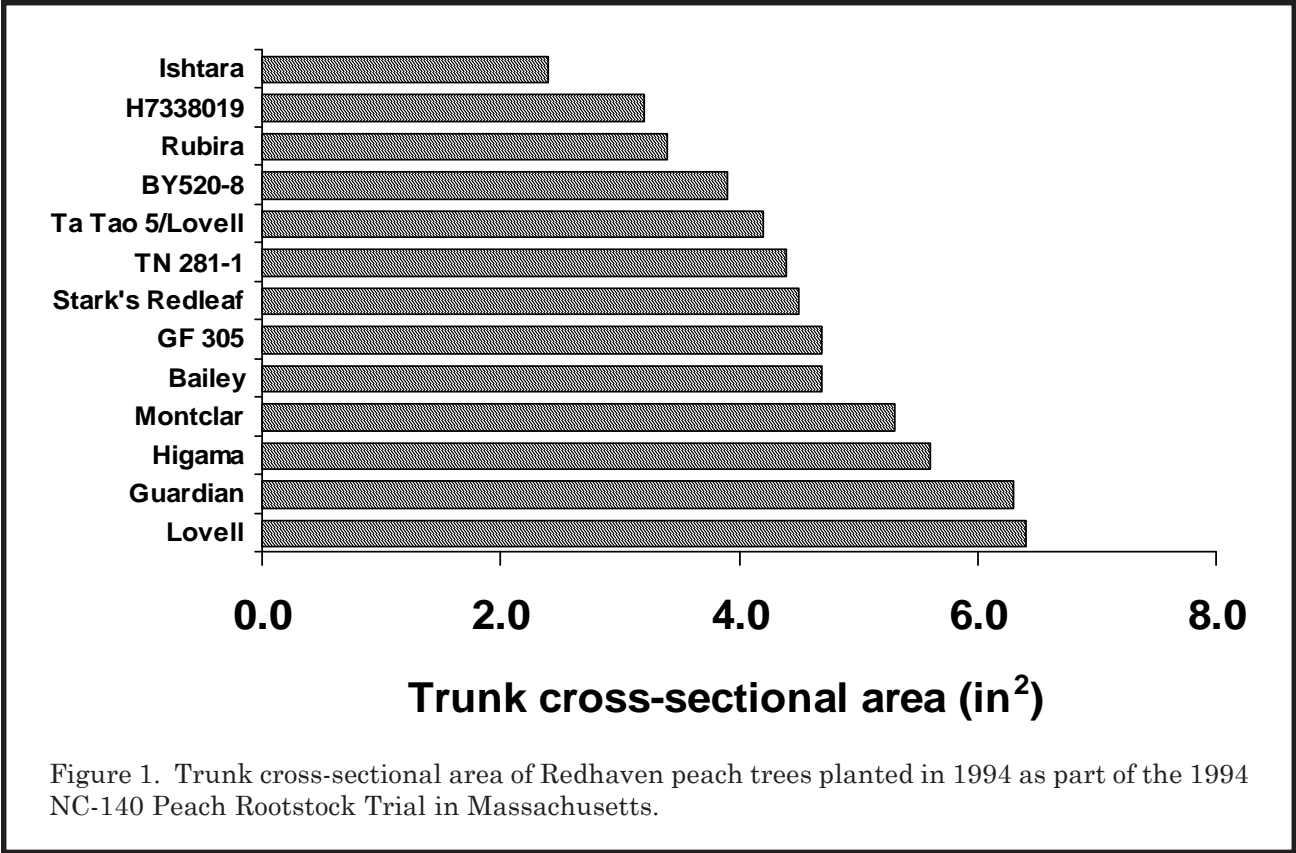
vigor, and the flower buds or whole tree can be killed by winter cold. Rootstock can impact any or all of these problems.

To begin to study the potential for using rootstock to overcome some limitations of peach growing, Massachusetts participated in an NC-140 trial studying the effects of 12 rootstocks and one interstem combination on the performance of Redhaven peach. The Massachusetts planting was established in 1994 at the University of Massachusetts Horticultural Research Center in Belchertown and included eight replications. Rootstocks included were as follows with descriptions

Table 1. Trunk cross-sectional area, yield per tree, yield efficiency, and fruit size in 1996 of Redhaven peach trees planted in 1994 as part of the 1994 NC-140 Peach Rootstock Trial in Massachusetts.<sup>z</sup>

Rootstock	Trunk cross-sectional area (in <sup>2</sup> )	Yield per tree (lbs)	Yield efficiency (lbs/in <sup>2</sup> TCA)	Fruit weight (oz)
Lovell	6.4 a	19.4 bc	3.1 a	6.9 a
Bailey	4.7 bc	27.9 ab	6.2 a	7.6 a
TN 281-1	4.4 bc	17.6 bc	4.0 a	7.2 a
Stark's Redleaf	4.5 bc	27.9 ab	6.0 a	7.8 a
GF 305	4.7 bc	27.5 ab	6.0 a	7.1 a
Higama	5.6 ab	33.0 a	6.0 a	6.8 a
Montclar	5.3 ab	20.2 bc	4.0 a	6.4 a
Rubira	3.4 cd	18.7 bc	5.7 a	6.8 a
Ishtara	2.4 d	11.9 c	4.8 a	6.7 a
H7338019	3.2 cd	16.3 bc	5.1 a	6.4 a
BY520-8	3.9 c	18.3 bc	4.8 a	6.9 a
Guardian	6.3 a	25.1 ab	4.0 a	5.9 a
Ta Tao 5/Lovell	4.2 bc	18.3 bc	4.4 a	6.8 a

<sup>z</sup> Means within columns not followed by the same letter are significantly different at odds of 19 to 1.



provided by Greg Reighard (Clemson University), the coordinator of the NC-140 trial:

Lovell	Chance seedling of peach from California named in 1882, propagated by seed;
Bailey	Selection of peach from Iowa named in 1890, propagated by seed;
TN 281-1	Selection in Tennessee of "wild" peach, propagated by seed;
Stark Redleaf	Selection by Stark Bro's from a Tennessee Natural-type rootstock, propagated by seed;
GF 305	Selection in 1940 in France from Montreuil peach, propagated by seed;
Higama	Selection in France of peach from Japan, propagated by seed;
Montclar	Selection in France of peach, propagated by seed;
Rubira	Selection in France of peach, propagated by seed;
Ishtara	Selection in France of a plum-peach hybrid, propagated by cutting;
H7338019	Selection in Ontario of peach, propagated by seed;
BY520-8	Selection in Georgia of peach, propagated by seed;

Guardian

Selection in Georgia of peach, propagated by seed;

Ta Tao 5

Selection in China of peach, propagated by grafting, used in the study as an interstem with Lovell as the rootstock.

After three growing seasons, significant differences existed in trunk cross-sectional area (Table 1, Figure 1). Of the trees with pure peach rootstocks, H7338019 resulted in a tree only half the size of those on Lovell, the largest. Rubira also produced a small tree, and Montclar, Higama, and Guardian also produced large trees. Ishtara, the plum-peach hybrid, resulted in the smallest trees, ones that on average were only 38% of the size of trees on Lovell. Yield varied similarly (Table 1, Figure 2), with trees on Higama, Bailey, Stark's Redleaf, GF 305, and Guardian producing the most, and trees on Ishtara producing the least. Because, in general, the largest trees produced the most fruit, yield efficiency (the expression of yield per unit tree size) did not vary significantly among rootstocks (Table 1). Likewise fruit size did not vary significantly among rootstocks (Table 1).

Although several more years will be required to evaluate these rootstock adequately, it is interesting to observe the significant differences that have developed in this first fruiting season.

