

Final Report from the 2002 NC-140 Peach Rootstock Trial

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For more than 100 years, much research has focused on apple rootstocks, and much progress has occurred in that time. Peach rootstocks, however, have attracted much less attention. The dominant rootstocks are produced from seed and have been used for a number of years. Currently, many new peach rootstocks are becoming available from various parts of the world. These have a variety of enhancements over the current standards, particularly with regard to disease susceptibility. A few, however, all provide dwarfing. The NC-140 Multistate Research Project has studied peach rootstocks for a number of years. Their first trial was

established in 1984, and the next was planted in 1994. Another trial was started in 2001. The results reported here are part of the 2002 NC-140 Peach Rootstock Trial, a planting of Redhaven on eight rootstocks. Our portion of the trial was planted at Clarkdale Fruit Farm (Deerfield, Massachusetts) in the spring of 2002. Rootstocks included in this study are from many locations: Adesto 101 from Spain, Cadaman from France, Pumiselect from Germany, Penta and MRS 2/5 from Italy, and Krymsk-1 and Krymsk-2 from Russia.

The trees have grown reasonably well, but suffered a complete crop loss in 2004 (due to winter cold tem-

Table 1. Trunk cross-sectional area, canopy spread, cumulative suckering, yield, and fruit weight in 2006 of Redhaven trees on several rootstocks in the Massachusetts planting of the 2002 NC-140 Peach Rootstock Trial. The trial was planted at Clarkdale Fruit Farm, Deerfield, Massachusetts.²

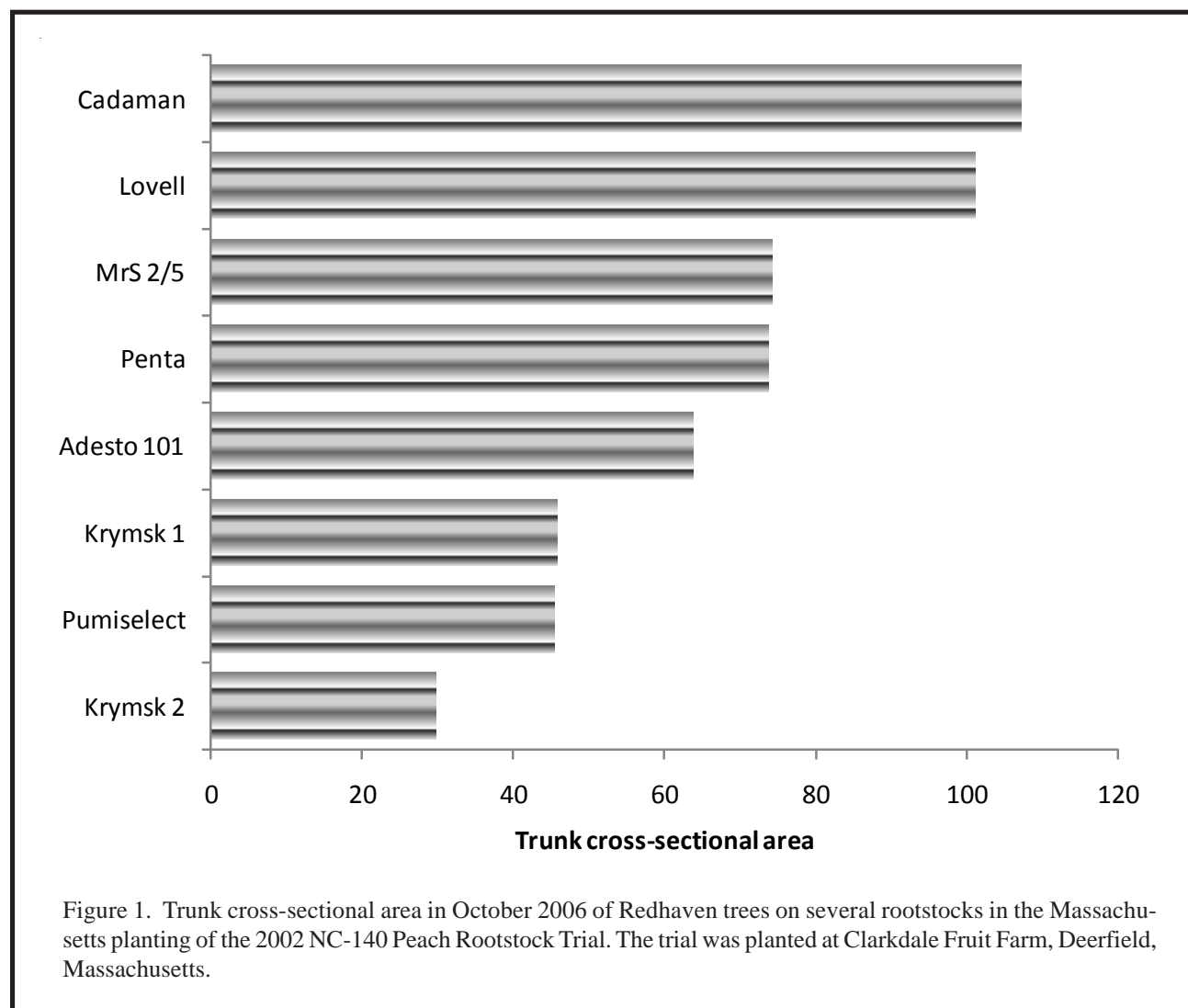
| Rootstock | Trunk cross-sectional area (cm ²) | Canopy spread (m) | Root suckers (no./tree, 2005-06) | Yield per tree (kg) | | Yield efficiency (kg/cm ² TCA) | | Fruit weight (g) | |
|------------|---|-------------------|----------------------------------|---------------------|----------------------|---|----------------------|------------------|-------------------|
| | | | | 2006 | Cumulative (2005-06) | 2006 | Cumulative (2005-06) | 2006 | Average (2005-06) |
| Adesto 101 | 63.8 bc | 3.9 c | 4.0 ab | 8.1 cd | 8.8 bc | 0.15 abc | 0.16 bcd | 139 a | 145 a |
| Cadaman | 107.2 a | 4.9 a | 0.0 c | 24.0 ab | 37.0 a | 0.22 ab | 0.34 ab | 141 a | 155 a |
| Lovell | 101.2 a | 4.7 ab | 0.0 c | 29.4 a | 37.7 a | 0.30 a | 0.39 a | 139 a | 147 a |
| MrS 2/5 | 74.3 b | 4.1 bc | 4.9 a | 17.1 bc | 20.3 b | 0.23 ab | 0.27 abc | 135 a | 145 a |
| Penta | 73.8 bc | 4.2 abc | 1.3 abc | 9.8 cd | 11.2 bc | 0.14 abc | 0.15 bcd | 138 a | 139 a |
| Pumiselect | 45.5 cd | 2.8 d | 0.6 bc | 0.3 d | 1.5 c | 0.01 c | 0.03 d | — | 148 a |
| Krymsk 2 | 29.8 d | 2.8 d | 0.4 c | 3.2 d | 4.4 c | 0.10 bc | 0.13 cd | 131 a | 149 a |
| Krymsk 1 | 45.8 cd | 3.7 c | 0.6 bc | 6.1 cd | 8.8 bc | 0.14 abc | 0.21 abcd | 140 a | 151 a |

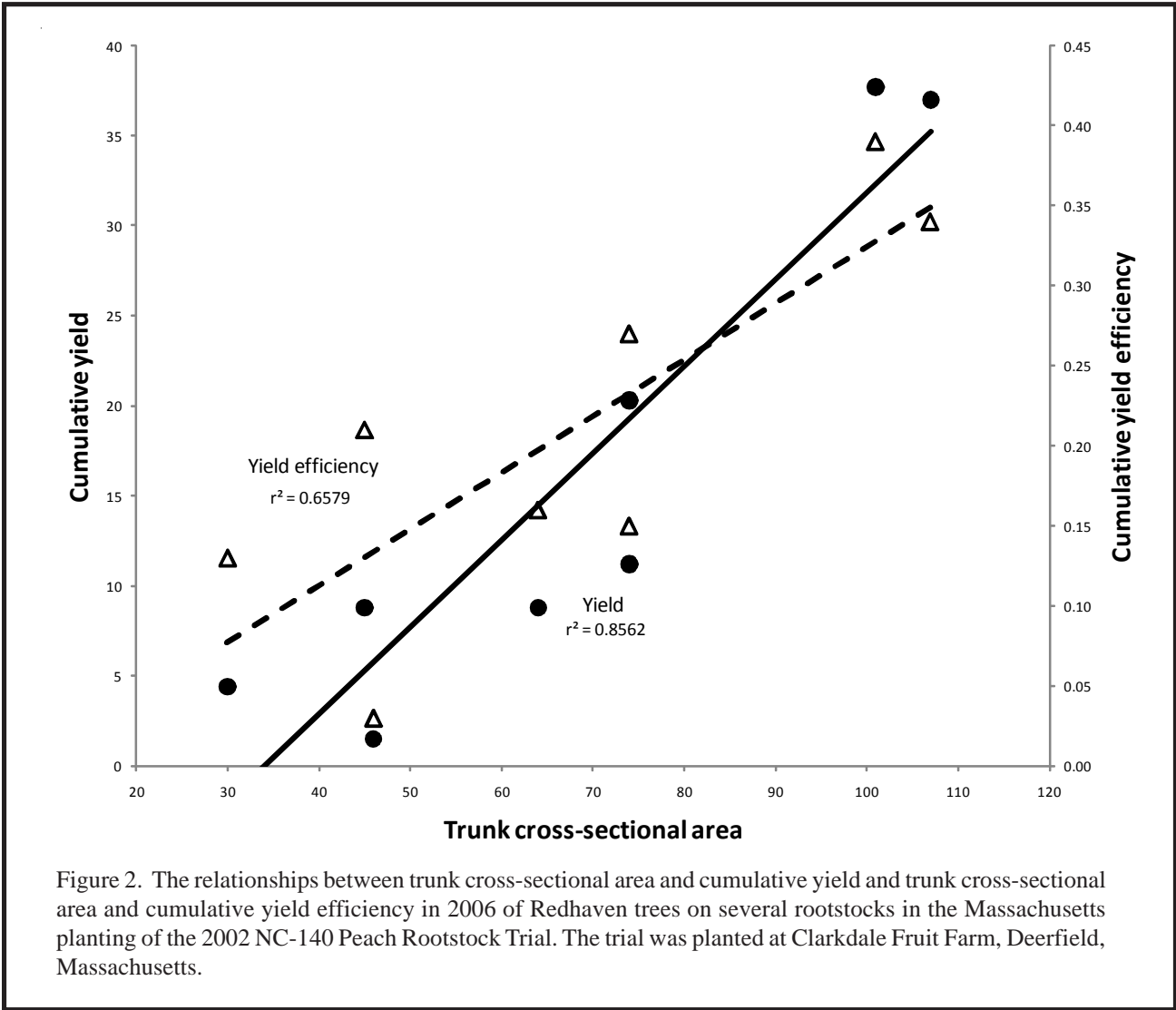
² Means within a column not followed by the same letter are significantly different at odds of 19 to 1.

peratures) and a partial crop loss in 2005 (due to spring frost). Average yield in 2006 was not ideal, but greater than 2005: 12 kg (26 pounds) per tree with average fruit size was 138 g (0.3 pounds). The planting included eight replications in a randomized-complete-block design.

After the 2006 season, the largest trees (based both on trunk cross-sectional area and canopy spread) were on Cadaman and Lovell, and the smallest were on Krymsk 1, Pumiselect, and Krymsk 2 (Table 1, Figure 1). Greatest cumulative root suckering (2002-06) was from MrS 2/5 and Adesto 101 (Table 1). The greatest tree loss (50%) was of trees on Pumiselect. Penta loss was 25%, and MrS 2/5 and Krymsk 1 both lost 12.5%. All appear to be due to low winter temperatures.

Yields per tree in 2006 and cumulatively (2005-06) were greatest from trees on Cadaman and Lovell and least from trees on Pumiselect and Krymsk 2 (Table 1). Likewise, trees on Cadaman and Lovell were the most yield efficient in 2006 and cumulatively (2005-06), and those on Pumiselect and Krymsk 2 were the least efficient. These trees differ significantly from what we normally see with apples: both yield and yield efficiency were positively related to tree size — the larger the tree the greater the yield and efficiency (Figure 2). In the limited experience that we have in Massachusetts, this relationship is somewhat unique. In the 1994 NC-140 Peach Rootstock planting in Belchertown, Massachusetts, there was little effect of rootstock on yield efficiency. Larger trees produced





more fruit than small trees, but both were similarly yield efficient. If maintained longer, the trees in the 2002 trial may have equalized regarding efficiency.

Fruit weight was not affected by rootstock in 2006 or on average (2005-06).

This trial was terminated prematurely, but some of the better rootstocks are scheduled for planting in the 2009 NC-140 Peach Rootstock Trial.

We wish to thank Clarkdale Fruit Farm for their willingness to participate in this trial.

