OWN ROOTED CHANDLER VS CHANDLER ON PARADOX

Janine Hasey, Dave Ramos, Jim Yeager

ABSTRACT

In 1995, own rooted ‘Chandler’ had significantly greater trunk circumference, yield and yield efficiency than did ‘Chandler’ on Paradox rootstock. A few of the trees on Paradox rootstock are not growing well although no crown gall has been found.

PROCEDURES

In 1991, a trial comparing micropropagated ‘Chandler’ to nursery grafted ‘Chandler’ on Paradox rootstock was initiated in Sutter County. The treatments are:

1. ‘Chandler’ on own root
2. ‘Chandler’ on Paradox rootstock

There are twenty single tree replicates per treatment in a randomized complete block design spaced at 25' x 25'. All trees were sprayed with Galltrol just prior to planting on April 2, 1991. Four own rooted ‘Chandler’ which were discovered to actually be Paradox during the first season were replaced February 1992. One of the poorly performing trees on Paradox was removed after the 1995 harvest. Only the roots were rotted, there was no crown gall or other problems evident. Evaluations are made on trunk circumference and yield.

RESULTS AND DISCUSSION

The trunk circumference was significantly greater for the ‘Chandler’ on Paradox until 1994. In 1995, the own rooted ‘Chandler’ were larger than those on Paradox when measured at 6 inches above the ground but significantly larger when measured at 24 inches above the ground (Table 1). The 24 inch measurement is more accurate because of the ‘graft effect’ on the Paradox when measured at 6 inches. Figure 1 graphically represents the trunk circumference measured at 6 inches above the ground.

In 1995, the yield was significantly higher in the own rooted ‘Chandler’ as was the yield efficiency. This was the reverse of the 1994 yield data (Table 2 and Figure 2). Regarding nut quality, only the 1994 percent edible kernel and the 1995 percent light kernels were significantly different (Table 3) so the treatments have had little effect on quality.

This trial needs to be continued for several more years. Based on 1995 data, own rooted ‘Chandler’ may have potential where rootstocks are undesirable because of hypersensitivity to cherry leafroll virus.

ACKNOWLEDGEMENTS

We are grateful to Joe Conant of the Whitney Warren Ranch for his assistance and continued cooperation on this project.
Table 1. Trunk Circumference (CM)

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<tbody>
<tr>
<td>OWN ROOTED</td>
<td>5.2 a</td>
<td>8.3 a</td>
<td>18.1a</td>
<td>30.1a</td>
<td>46.1a</td>
<td>38.2a</td>
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<tr>
<td>ON PARADOX</td>
<td>7.2 b</td>
<td>10.6b</td>
<td>23.2b</td>
<td>32.1a</td>
<td>41.0a</td>
<td>27.3b</td>
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Means followed by the same letter in a column are not significantly different (LSD P≤ 0.05)

Table 2. Yield in lbs./Tree and 1995 Yield Efficiency

<table>
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<th>TREATMENT</th>
<th>1994</th>
<th>1995</th>
<th>Yield Efficiency</th>
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<tr>
<td>OWN ROOTED</td>
<td>3.4 a</td>
<td>23.9 a</td>
<td>0.187 a</td>
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<tr>
<td>ON PARADOX</td>
<td>5.4 b</td>
<td>9.3 b</td>
<td>0.127 b</td>
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Means followed by the same letter in a column are not significantly different (LSD P≤ 0.05)

Table 3. 1994 and 1995 Nut Quality Comparisons

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<tbody>
<tr>
<td></td>
<td>%Large Nuts</td>
<td>%Light Kernels</td>
<td>%Edible Kernel</td>
<td>%Large Nuts</td>
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<tr>
<td>OWN ROOTED</td>
<td>90.0 a</td>
<td>46.5 a</td>
<td>48.3 a</td>
<td>87.5 a</td>
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<td>ON PARADOX</td>
<td>89.8 a</td>
<td>49.3 a</td>
<td>51.0 b</td>
<td>80.8 a</td>
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Means followed by the same letter in a column are not significantly different (LSD P≤ 0.05)
Fig. 1 OWN ROOTED CHANDLER VS. CHANDLER ON PARADOX

TRUNK CIRCUMFERENCE (CM)

OWN ROOTED

ON PARADOX

ROOTSTOCK

YEAR

1991

1992

1993

1994

1995

Measured 6" above ground

Fig. 2 OWN ROOTED CHANDLER VS. CHANDLER ON PARADOX

YIELD-LBS/TREE

OWN ROOT

ON PARADOX

ROOTSTOCK

YEAR

1994

1995