JUNE-BUDDED CHANDLERS ON PARADOX AND NORTHERN CALIFORNIA BLACK WALNUT ROOTSTOCKS COMPARED TO GRAFTED CHANDLERS ON PARADOX ROOTSTOCK - 1999

Bill Olson and Nadeem Shawareb

ABSTRACT

Tree size, evaluated as trunk cross sectional area, was not significantly different between the three treatments. Yield differences between all three treatments, however, were significant. June-budded Chandler on Paradox yielded the highest, grafted Chandler on Paradox had the next highest yield, followed by June-budded Chandler on N.C. black.

PROCEDURES

One year old June-budded Chandler trees on Paradox and N.C. black walnut rootstock and two year old grafted Chandler trees on paradox rootstock were planted in 1996. They were planted in long rows and split into blocks. Each block being approximately 9 trees in length. There are six replicates of the three treatments. The trees are being trained by using the "low-scaffold" pruning system. Yield and trunk cross sectional area (TCSA) data is being collected and analyzed by ANOVA and the trial is treated as a randomized block. TCSA data is calculated after measuring the trunk circumference 20 cm above the bud or graft union.

RESULTS

All three treatments were significantly different from each other in terms of yield (expressed as pounds of hulled, dried nuts per tree). June-budded Chandlers on paradox rootstock had the largest yield at 24.8 pounds per tree (1190 lbs/a). Grafted Chandlers on paradox rootstock had the next largest yield at 19.3 pounds per tree (955 lbs/a). June-budded Chandlers on N.C. black rootstock had the lowest yield at 13.5 pounds per tree (648 lbs/a), (Table 1).

Numerically, June-budded Chandlers on paradox rootstock had the largest TCSA (185.95 cm2), grafted Chandlers on paradox rootstock had the next largest TCSA (178.53 cm2), and June-budded Chandlers on N.C. black rootstock had the smallest TCSA (164.79). None of these treatments, however, were significantly different from each other, (Table 1).

<table>
<thead>
<tr>
<th>Variety or Selection</th>
<th>Mean Yield (lbs/tree)</th>
<th>Mean Yield (lbs/acre)</th>
<th>TCSA (cm²) 20 cm above graft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grafted on Paradox</td>
<td>19.9 b</td>
<td>955 b</td>
<td>179 a</td>
</tr>
<tr>
<td>June-Budded on Paradox</td>
<td>24.8 a</td>
<td>1190 a</td>
<td>186 a</td>
</tr>
<tr>
<td>June-Budded on NC Black</td>
<td>13.5 c</td>
<td>648 c</td>
<td>164 a</td>
</tr>
</tbody>
</table>

Treatment means not followed by a common letter are significantly different at the 5 % level according to Duncan's Multiple Range Test for Mean Separation.
DISCUSSION

Tree size, evaluated as trunk cross sectional area, was not significantly different between the three treatments. Yield differences between all three treatments, however, were significant. June-budded Chandler on Paradox yielded the highest, grafted Chandler on Paradox had the next highest yield, followed by June-budded Chandler on N.C. black. Due to the young age of these trees, only preliminary conclusions can be drawn at this time. Yield and tree size will need to be evaluated for a number of years more.