PRUNING OF CLOSE-PLANTED ASHLEY WALNUTS

Bill Olson, Dave Ramos, Kay Ryugo, Ron Snyder

ABSTRACT

After five years of evaluating pruning as compared to no pruning, no significant difference in yield could be detected, but no pruning did result in lower quality walnuts. In 1983, a low crop year, alternate year pruning was incorporated into the trial and a significant improvement in yield was detected when pruning was skipped in 1983 with no quality loss. In the high crop year of 1984, all treatments produced similar large crops. 1984 quality data awaits analysis.

OBJECTIVES

The objectives of this trial are to evaluate any benefits derived from annual pruning, alternate year pruning or non-pruning a mature, high-yielding Ashley walnut orchard.

PROCEDURES AND RESULTS

In the 1983 crop year a long-term pruning trial on a dense Ashley walnut orchard comparing annual pruning against non-pruning was altered because no yield benefit could be measured from annual pruning. Quality factors such as percent large, percent light meats and percent edible were greater in the pruned treatment, but value improvement was not enough to offset the cost of pruning and brush removal which was estimated at $125 per acre.

In 1983, pruning on alternate years was added to the pruning/no pruning treatments. There are two alternate year treatments; one which is pruned on even crop numbered years and another which is pruned on odd crop numbered years.

In 1983 the annual pruned plots averaged 43 cuts per tree less than 1½ inches in diameter and 2 cuts per tree between 1½ and 2½ inches in diameter. The odd year pruned plots averaged 53 cuts per tree less than 1½ inches in diameter, and 10 cuts per tree between 1½ and 2½ inches in diameter. Although the goal was to prune the trees in a similar fashion, the odd year pruned plots were pruned heavier than the annually pruned plots. The non-pruned and even year pruned plots were left unpruned.

Of the parameters measured in 1983, delivered yield per acre and dollars income per acre were significantly better in the even year pruned treatments (skipped pruning in 1983) as compared to all other treatments in this light crop year. Percent large size nuts was best in the annually pruned and odd year pruned treatments, poorest in the even year pruned treatments (see Table).

In 1984 the annual pruned treatment averaged 20 cuts per tree less than 1½ inches in diameter and 4 cuts per tree between 1½ and 2½ inches in diameter. The even year pruned treatment averaged
35 cuts per tree less than 1½ inches in diameter and 2 cuts per tree between 1½ and 2½ inches in diameter. The non-pruned and odd year pruned treatments were left unpruned.

Even though the yield was greatest in the odd year pruning treatment (skipped in 1984) there was no significant difference in yield in this heavy crop year (see Graph). The percent sound was significantly poorer in the non-pruned treatment. Other data is yet to be analyzed.

Although it is too early to tell for sure, alternate year pruning, implemented in the heavy crop year and skipped in the following light crop year, appears to maintain good production during the heavy crop years and improve production and dollar yield per acre in light crop years without quality loss. Quality loss occurred during the second year of non-pruning and has generally been poorest every year in the non-pruned treatment. Also in the non-pruned treatment the production area has moved to the tree extremities with dead wood being present internally. Much of this dead wood falls from the tree during shaking, hampering the harvest procedure.
## 1983 and 1984 Pruning Trial Data

<table>
<thead>
<tr>
<th>Treatment</th>
<th>% Large Size</th>
<th>Delivered 1983</th>
<th>Delivered 1984</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Pruning</td>
<td>68 A</td>
<td>1.65 B</td>
<td>728 B</td>
</tr>
<tr>
<td>Alternate - Odd Year Pruning</td>
<td>69 A</td>
<td>1.74 B</td>
<td>734 B</td>
</tr>
<tr>
<td>Alternate - Even Year Pruning</td>
<td>62 B</td>
<td>2.13 A</td>
<td>918 A</td>
</tr>
<tr>
<td>No Pruning</td>
<td>57 C</td>
<td>1.80 B</td>
<td>763 B</td>
</tr>
</tbody>
</table>

1/ Values based on 35 cents per pound

2/ Values followed by a common letter are not significantly different from one another at the 5% level of significance according to Duncans Multiple Range Test

---

![Graph showing Delivered Tons/Acre from 1978 to 1984]

\[ P = \text{Annual Pruning} \]
\[ O = \text{Alternate Odd Year Pruning} \]
\[ E = \text{Alternate Even Year Pruning} \]
\[ N = \text{No Pruning} \]