YIELD COMPARISON FOLLOWING VARIOUS HEDGING
AND HAND PRUNING TECHNIQUES
1997

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Abstract

In this 10 year-old Chandler Orchard where mechanical hedging has been the only method of pruning for the past 6 years no significant yearly or accumulative yield differences are being observed between 5 different hedging programs and the unpruned trees. All treatments are yielding approximately 2.9 tons per acre annually.

A trial was begun in 1992 in a 6 year old Chandler Walnut orchard (26' x 26' spacing) comparing three hedging and two hand pruning techniques. Four years of evaluations were made on economics, yield and fruit quality in this trial.

The treatments were:

1. Annually hedged alternate centers
2. Annually hedged alternate row sides
3. Annually hedged one tree quadrant/year
4. Alternate year hand pruning
5. Annual hand pruning

Accumulative yields after four years of treatments shows no clear trend in a preferred hedging or pruning system, with all treatments producing between 12 and 13 tons/acre total (table 4).

Quality data indicated no significant difference in any quality parameter measured for any treatment. The only difference between treatments was the cost and time savings from the hedged treatments as compared to hand pruned treatments.

Now that these trees are mature this trial was modified, as reported in 1995, to consider 5 hedging treatments and a non pruned treatment. This trial will be continued for four or more years to further evaluate hedging as a viable approach to handling high density, standard design orchards.

The new treatments established in 1995 are:

1. Hedge alternate centers each year (N-S)
2. Hedge alternate centers every other year (N-S)
3. Hedge alternate centers every third year (N-S)
4. Hedge one quadrant each year (N-S; E-W)
5. Hedge one quadrant every other year (N-S; E-W)
6. Untreated

There are four replicates per treatment, each replicate consisting of 26 trees. The experiment is laid out in a randomized block design.

It took approximately four hours to hedge the 18 acres of the trial or 4.5 acres/hr. The contract cost of hedging was $185/hr. or $41.00/acre.

This year the measurement trees on:

    Treatment 1 was hedged N-S
    Treatment 2 was hedged N-S
    Treatment 3 was hedged N-S
    Treatment 4 was cross-hedged E-W
    Treatment 5 was unhedged
    Treatment 6 is untreated

There is no significant difference between treatment yields per acre from this second year of treatments (Table 1). There is also no accumulative yield difference after two years of the various hedging or un-pruned treatments. 1997 quality data is not available at this time. 1996 quality data is shown in Table 2 and shows no significant difference between treatments in any of the quality parameters measured.

The trial will continue with some new treatments being hedged, for the first time, in a East-West direction and others not being hedged at all.
Table 1. 1997 yield and accumulative comparison from various hedging treatments and the non pruned treatment

<table>
<thead>
<tr>
<th>Hedging Trial</th>
<th>Dry yield/acre (Tons)*</th>
<th>1997</th>
<th>Accumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hedged alt. centers each year (N-S hedged)</td>
<td>3.09a</td>
<td>5.82a</td>
<td></td>
</tr>
<tr>
<td>2. Hedged alt. centers every other year (N-S hedged)</td>
<td>2.93a</td>
<td>5.79a</td>
<td></td>
</tr>
<tr>
<td>3. Hedged alt. centers every 3rd year (N-S hedged)</td>
<td>2.98a</td>
<td>5.65a</td>
<td></td>
</tr>
<tr>
<td>4. Hedged alt. quadrants each year (N-S; E-W hedged)</td>
<td>2.98a</td>
<td>5.82a</td>
<td></td>
</tr>
<tr>
<td>5. Hedged alt. quadrants every other year (N-S; E-W hedged)</td>
<td>3.15a</td>
<td>5.83a</td>
<td></td>
</tr>
<tr>
<td>6. Non pruned</td>
<td>2.99a</td>
<td>5.81a</td>
<td></td>
</tr>
</tbody>
</table>

* Means not followed by a common letter are significantly different at the 5% level by LSD

Table 2. 1996 nut quality comparisons from various hedging and pruning treatments.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Percent Large Nuts*</th>
<th>Percent extra Light Kernels*</th>
<th>Percent Edible Kernel*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hedged alt. centers each year (N-S hedged)</td>
<td>83.5a</td>
<td>10.5a</td>
<td>39.5a</td>
</tr>
<tr>
<td>2. Hedged alt. centers every other year (N-S hedged)</td>
<td>81.0a</td>
<td>8.5a</td>
<td>39.2a</td>
</tr>
<tr>
<td>3. Hedged alt. centers every 3rd year (N-S hedged)</td>
<td>77.0a</td>
<td>9.3a</td>
<td>40.0a</td>
</tr>
<tr>
<td>4. Hedged alt. quadrants each year (N-S; E-W hedged)</td>
<td>77.8a</td>
<td>8.8a</td>
<td>41.2a</td>
</tr>
<tr>
<td>5. Hedged alt. quadrants every other year (N-S; E-W hedged)</td>
<td>83.0a</td>
<td>9.5a</td>
<td>38.5a</td>
</tr>
<tr>
<td>6. Non pruned</td>
<td>80.2a</td>
<td>12.8a</td>
<td>44.8a</td>
</tr>
</tbody>
</table>

* Means not followed by a common letter are significantly different at the 5% level by LSD