SELECTIVE PRUNING OF CLOSE-PLANTED SERR WALNUTS LEADING TO EVENTUAL THINNING

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ABSTRACT

This trial evaluated three pruning methods with the goal of thinning one-half the stand of a Serr orchard planted 30' x 30' square in 1970. In the winter of 1978 a pruning trial was initiated to compare standard pruning, whisk brooming, and no pruning.

After five years of differential pruning, we have measured no significant differences in the yields from the three treatments. There was a noticeable increase in the amount of dead wood in the lower portion of the unpruned trees. We were unable to continue the unpruned treatment long enough to measure a decrease in production. The orchard has now been totally converted to a whisk broom treatment, and the project is completed.

OBJECTIVES

The objective of this trial is to evaluate three pruning methods with the eventual goal of thinning one-half the stand of a Serr orchard planted 30' x 30' square.

PROCEDURES AND RESULTS

This Serr orchard on hybrid rootstock was planted in 1970 on deep, fertile soil. In the winter of 1978 a pruning trial was initiated to compare standard pruning, whisk brooming, and no pruning. By 1978, the trees were beginning to grow together and shade the lower fruit wood.

The standard treatment had 6 to 8 limbs under 2-1/2 inches in diameter and 2 to 3 limbs over 2-1/2 inches in diameter removed from each tree. These were removed from throughout the tree to keep the centers open and to prevent interference between limbs.

The whisk broom treatment had diagonal rows marked designating temporary trees. Large limbs were removed on the temporary trees to allow the permanent trees to fill in the tree spaces.

The 1979 yield was so poor in this orchard that no measurements could be made.

In the past five winters, the standard pruned trees consistently were pruned equally within each treatment and an attempt was made to keep the centers open for sunlight penetration. Cuts were made to prevent crowding between trees. The whisk broom treatment in each year was maintained as a size reduction attempt for temporary trees, with very little pruning done to the permanent trees.

The unpruned treatments were not consistently maintained as unpruned trees. In 1978-79 these trees were very lightly pruned in the lower portion of the trees where hanging limbs were interferring. In the '79-'80 winter they received a normal pruning. In '80-'81 they received no pruning. In '81-'82 and '82-'83 this treatment was whisk broomed. Therefore, this lack of consistency in the pruning should be considered when comparing yield results.
Harvests weights were taken in 1980 through 1983. The following table summarizes the yields for this experiment:

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Standard Pruning</td>
<td>0</td>
<td>3532</td>
<td>4997</td>
<td>3750</td>
<td>4447</td>
</tr>
<tr>
<td>Whisk Broom Pruning</td>
<td>0</td>
<td>3413</td>
<td>4541</td>
<td>3594</td>
<td>4122</td>
</tr>
<tr>
<td>No Pruning</td>
<td>0</td>
<td>3566*</td>
<td>4627</td>
<td>3342*</td>
<td>--</td>
</tr>
</tbody>
</table>

The standard pruning has yielded slightly more than the whisk broom treatment in each year of measurement. However, there is no statistical difference between the treatments. Even though the yields did not show any advantage in whisk brooming, the grower's opinion was that the trees would be in trouble if left at the 30' x 30' spacing. The grower is whisk brooming the entire orchard. We are slowly achieving a smaller temporary tree and a larger permanent tree, but the pruning should be more severe to accelerate this process. Even though the yield has been no poorer on the unpruned trees, there is a definite buildup in dead wood in the lower portion of the trees.

CONCLUSIONS

After five years of differential pruning, we have measured no significant differences in the production from the three treatments. There was a noticeable increase in the amount of dead wood in the lower portion of the unpruned trees. This grower was convinced that the increase in dead wood would lead to a decrease in production. We were unable to continue the unpruned treatment long enough to measure a decrease in production if, in fact, this will occur. The project has been completed.

*a. Measurements based upon three reps from each treatment. The "No Pruning" treatment is no longer included in the experiment.

*b. The "No Pruning" treatment was accidentally standard pruned in 1979-80 winter.

*c. The "No Pruning" treatment was converted to whisk broom in 1982-83 winter.