

# Revitalizing “Wichita” Pecan Productivity Through Corrective Pruning - First Year Results

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## **Abstract**

*A pruning study was established in stressed pecan trees to identify effective means of returning unproductive trees to full productivity. The study was comprised of two pruning systems and one untreated check. The number of nuts harvested from pruned trees was lower than that harvested from the unpruned trees, but the quality of the nuts from the pruned trees was improved when compared with the unpruned trees.*

## **Introduction**

Reduced yields in low altitude pecan orchards are a common problem in Arizona. Yields over 2,000 pounds per acre are common through out the pecan belt of North America while yields in low altitude orchards in Arizona often average 1,700 pounds per acre. These reduced yields can negatively impact the economic viability of orchards.

Reduced yields are often traced to environmental or nutritional stresses endured by the tree. Stressed trees will often show shortened internodes; small, sparse leaves, reduction in male and female flowers; as well as poor fruit retention and nut quality. In an attempt to identify ways to rejuvenate stressed trees, an orchard pruning trial was established in 1997.

## **Methods**

Eighteen “Wichita” trees were selected in a block from a section of an orchard showing severe stress symptoms near Casa Grande, Arizona. Six trees were left unpruned as a check. The remaining twelve trees were either severely headed back or moderately headed back. All treatments were applied in a completely random design. Nut quality data were collected at harvest in December of 1997. Yield data and nut quality data will be collected during the 1998 and 1999 harvests. Nut samples were collected from trees dropping fruit during harvest. Those samples were evaluated for nut quality parameters. Results were tabulated and are recorded in Table 1.

## **Results and Discussion**

Only four moderately pruned and one severely pruned tree produced nuts during the first year after pruning. At the same time, all six unpruned trees did produce nuts but the average nut size and the percent kernel of those nuts were lower when compared with the nuts from the treated trees. Table 1 lists the number of trees dropping at nuts at harvest, the average nut size and the average percent kernel from each treatment.

The average nut size from the severely pruned tree was 6.41 grams compared with 6.26 grams from the moderately pruned trees and 5.83 from the unpruned trees. The percent kernel from the severely pruned tree was 60% while the moderately pruned and unpruned trees produced percent kernel of 56 and 55% respectively.

**Table 1. Nut quality in "Wichita" pecans from trees dropping nuts at harvest from pruned trees near Casa Grande, Arizona, 1997.**

	<b># of Trees Dropping Nuts</b>	<b>Average Nuts Size (g)</b>	<b>Average % kernel</b>
Severely Pruned	1	6.41	60
Moderately Pruned	4	6.26	56
Check	6	5.83	55

Based upon first year data, it appears that pruning can break the cycle of low quality nuts that growers often experience from severely stressed trees. While moderate to heavy yield reductions can be expected during the first growing season from pruned trees, some immediate benefits from increase in nut quality may be realized. If the number of nuts harvested during the second and third years rebounds to at least pre-pruning levels while nut quality remains high, growers may find that moderate pruning may be a viable management tool in returning stressed trees to productivity. Further study of this experiment is warranted.