

Rejuvenation of Mature Pecan Trees By Pruning

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Abstract

Neglected mature 'Wichita' pecan trees were rejuvenated using various pruning techniques in 1997. Trees were pruned using proven horticultural techniques which included dehorning (cutting main scaffolds to within 2 feet of trunk) and cutting main scaffolds by 50%. To date the treatments have resulted in an increase in yield when compared to trees that received no pruning. In 1999 the grower has developed an orchard management program conducive to maximum production.

Introduction

It is not an uncommon situation for pecan orchards in the Southwestern United States to receive less than desirable care with Arizona being no exception. Generally this is associated with poor irrigation management or improper zinc spray techniques or application timing. In most situations production declines below economic thresholds resulting in abandonment or sale of orchards. Fortunately the pecan tree is resilient and will maintain itself for several years without water beyond rainfall. However pecan trees can be rejuvenated with pruning techniques so the grower can reach an economic level of production with improved management practices leading to sustained economic production. The 'Wichita' cultivar is an excellent candidate for rejuvenation with its characteristic of early production or precocity.

Procedures

During the dormant period prior to the 1997 growing season neglected 15 year old Wichita pecan trees were subjected to two pruning treatments for tree rejuvenation purposes. Five trees in a complete random design were pruned to two methods consisting of 1) dehorning and 2) Major scaffold reduction by one half. In addition five trees were left unpruned for comparison purposes. Yield and nut quality parameters including % splits (pregerm) were measured as response factors.

Results and Discussion

The pruning treatments had little effect on measured parameters in 1997 which was expected to some degree even though the ½ scaffolding treatment was expected to return a somewhat larger yield (Table 1). Also, nut quality parameters were what would be expected in that dehorning resulted in a larger and better filled nut (60%) when compared to the control and ½ scaffolding treatment. Larger percent kernel generally relates to a lower percentage of nut splits and was the case in 1997 for this trial. In 1998 yield was greatest for the ½ scaffolding treatment when compared to other treatments. The dehorned treatment had nuts containing the largest percent kernel and the highest number of splits. However it must be pointed out that the percentage number of splits is extremely low compared to previous years where splitting is generally at a rate of 40-60%. The relatively low number of splits in this trial is directly attributed to cooler than normal weather during the period of nut maturity.

Table 1. The effect of two pruning treatments on yield, nut quality and nut splitting for the Wichita cultivar grown in Pinal County in 1997 and 1998.

Treatment	yield (lbs)	% kernel	% splits
<u>1997</u>			
Control	0.26	55.00	6
½ scaffold	0.22	56.00	6.5
Dehorn	0.18	60.00	2
<u>1998</u>			
Control	15.01	54.95	1.2
½ scaffold	26.60	55.92	1.9
Dehorn	19.08	56.48	2.0
