



# Pecan Crop Load Management

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## BOTTOM LINE

Tree shaking appears to be a viable crop load management tool in pecans provided the trees are shook early enough and hard enough to remove sufficient crop load. Nut size, quality and return set are all improved if a sufficient number of pecans are removed.

### Summary

- Alternate bearing and/or poor quality pecans continue to plague many commercial growers. Overcropping seems to be the major culprit which causes these problems.
- One way of overcoming this production hazard is to remove some of the crop with a tree shaker. Nuts need to reach full size to have enough volume to be shaken from the tree, hence trees were shook in mid-to-late Jul and/or early Aug.
- Nuts from thinned trees were larger, had better quality and properly thinned trees returned with a decent crop the next year.
- If sufficient nuts are not removed from the tree, one will not realize the full benefits of the thinning operation. It appears that each individual orchard has a distinct crop load which it can carry. Trees must be thinned to this crop carrying capacity.

### Introduction

The consistent production of quality pecans from year to year remains a challenge for many growers. Soil, sunlight, tree spacing, nutrition, irrigation, weed control and pest management are all critical components of a sound management program. However, even when these factors are all perfect, there are still years when certain trees and varieties set too many pecans. In most cases even when our management program has been stepped up a "notch," i.e. additional water and fertilizer, we have not been able to fill these pecans. As a result we have begun to look at tree thinning via tree shaking as a crop load management tool.

### Experimental Approach

Heavily loaded Wichita trees were shook in early Aug 1996 at South Country pecans near Pearsall in Frio County. One to three sec shakes were required to remove sufficient pecans. Thirty to 80 lb were removed from each tree. Some trees were thinned too much but this was not a common occurrence. Samples were collected on 7 and 6 Oct 1996 and 1997 respectively. Samples were analyzed in Dec 1996 and 1997.

Tree thinning was monitored on heavily loaded Wichita and Cheyenne trees at the Glenn Bragg home orchard north of Hondo in Medina County in 1998. Trees were shook in late Jul for 1 to 3 sec. A variable number of pecans were knocked off each tree. The amount ranged from

10 to 20 lb. More nuts could have been taken off when the trees were initially shaken, but the grower was hesitant to do so. Several control unshook trees were left throughout the orchard. Both varieties were harvested on Oct 16, 1997. Samples for yield and quality analysis were collected by Glenn Bragg, Wayne Scholtz, David Ramirez and Stein. Quality analysis was performed by Stein in late Dec.

### Results

The results for the South Country thinning in 1996 are shown in Table 1. Shaking significantly increased the total percent kernel as well as nut size. Yields per tree were less but more importantly the sprouts were drastically reduced by the thinning. Even more significant was the fact that the thinned trees returned with a respectable crop in 1997 (Table 2) whereas the unthinned trees did not set a nut. Quality was excellent.

Trees shaken in 1998, Table 3, had significantly more #1 kernels and significantly less #2 kernels. However, other quality parameters of sprouting percentage, and nut size were unaffected. Limbs continued to break on the shook trees after shaking indicating that insufficient pecans were removed. Hence, trees must not only be shook, but must be shaken hard enough to remove sufficient crop load to improve quality.

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Table 1. The influence of tree thinning via trunk shaking on the yield and quality of Wichita pecans at South Country pecans near Pearsall in 1996.

Treatment	% Kernel				Nuts/lb	Tree yield (lbs/tree)	Sprouts (%)
	(total)	(#1)	(#2)	(inedible)			
Thinned	57.1 a	36.6 a	20.6 a	0.0 a	64.6 a	50.1 a	2.5 a
Unthinned	51.0 b	23.8 a	27.2 a	0.0 a	70.9 a	86.0 b	16.2 b

Table 2. The influence of tree thinning via trunk shaking in 1996 on the return set, yield and quality of Wichita pecans at South Country pecans near Pearsall in 1997.

Treatment	% Kernel				Nuts/lb	Tree yield (lbs/tree)	Sprouts (%)
	(total)	(#1)	(#2)	(inedible)			
Thinned	64.0 b	63.5 b	0.6 a	0 a	52.5 b	28.6 b	0 a
Unthinned	0.0 a	0.0 a	0.0 a	0 a	0.0 a	0.0 a	0 a

Table 3. The influence of nut thinning via trunk shaking on Cheyenne and Wichita nut quality when shaken in mid-Jul 1997 at Bragg pecan farm near Hondo.

Treatment	Yield (lbs/tree)	Sprouts (%)	Nut size (# nuts/lb)	Percent kernel			
				#1	#2	inedible	Total
Thinned	67.6 a	23.8 a	82.3 a	36.3 a	13.8 a	1.0 a	51.0 a
Unthinned	82.3 a	23.3 a	80.6 a	17.2 b	26.8 b	2.2 a	46.3 a

Means followed by different letters are significant at the 0.05 level