

# **Influence of Nut Cluster Position on the Incidence of Viviparity for the Pecan Cultivars “Western Schley” and “Wichita”**

*Richard Gibson and Michael Kilby  
The University of Arizona*

## **Abstract**

*Viviparity, a significant quality-reducing condition found in pecans grown in warm, temperate climates, was evaluated by location of the pecan nut within the cluster in two varieties, “Wichita” and “Western Schley”. Percentage viviparity was not affected by position.*

## **Introduction**

Viviparity or pre-germination, the germination of the nut on the tree prior to the nut falling from the tree, is a significant nut quality reducing condition affecting the pecan nut industry in the lower elevations below 3000 feet in southern Arizona. In an attempt to determine if the position of the nut within the cluster affects the incidence of viviparity, a field study was conducted in December of 1997.

## **Materials and Methods**

The field evaluations of mature ‘Western Schley’ and ‘Wichita’ pecan nuts occurred in late December, 1997 in groves of Farmers Investment Company (FICO) near Maricopa, Arizona. Ten trees within a block were selected at random. Twenty clusters per tree were randomly selected in the lower fruiting zone and each nut as specific locations within the cluster were evaluated for viviparity by direct observation. Results were tabulated by site and are shown in Table 1.

## **Results and Discussion**

The total number of nuts evaluated in this study were 865 ‘Wichita’ and 688 ‘Western Schley’. When each nut was individually evaluated, the overall incidence of viviparity in the sampled clusters was 42% for the ‘Wichita’ and 29% for the ‘Western Schley’.

Fruiting site apparently did not influence the incidence of viviparity. When the percentage of germination was evaluated by fruiting site, the range varied by only a few percentage points between the base nut, the nut on there tip of the cluster and fruiting sites 2 through 4 in both the Wichita and the Western Schley varieties. In both varieties, the 5<sup>th</sup> and 6<sup>th</sup> fruiting sites produced varying percentages significantly greater or lower than the overall average in part because of the relatively low number of nuts sampled from those sites.

**In this trial, the incidence of viviparity in 'Wichita' was greater by 13% than 'Western Schley'. Further investigation may indicate a heightened susceptibility of 'Wichita' to viviparity over the 'Western Schley' variety.**

**Since viviparity essentially render the nut unsalable, incidence of nut germination is a direct loss to the grower. The season average price of pecans during the 1997-98 growing season was \$0.95 per pound. At an average yield of 1700 pounds in Pinal County, the per acre financial loss to the grower, based upon this study, was \$678 in the Wichita and \$468 in the Western Schley.**

**Grower losses due to viviparity during 1997 as exemplified in this study underscore the need to further investigate the factors affecting viviparity and fuel the need to continue the search for effective management options.**

**Table 1. Incidence of viviparity in “Wichita” and “Western Schley” pecan clusters by nut position within the cluster.**

Nut position within cluster*	Western Schley	Wichita
	% of Viviparity	
1	29 (200)	39 (200) <sup>x</sup>
2	29 (189)	44 (198)
3	28 (80)	44 (165)
4	29 (17)	40 (80)
5	0 (1)	58 (19)
6	29	67 (3)
Ave.	29	42

\* = 1 = base of cluster, 6 = tip of cluster

x = nos. in parenthesis are total nuts evaluated for the position.