

# Crop Load Management

Excessive fruiting in pecan results in economic losses due to reduced quality in the “on” year and subsequently, a light return crop. Another effect may be tree limb breakage from excess weight. Several cultivars suffer from this type of over-production, including Cape Fear and Stuart.

Problems with over production are related to a decrease in the number of leaves per fruit, especially in heavy crop years. On average, it takes 8-10 functional leaves to adequately fill one nut. Large fruited cultivars may require even more leaves per nut. Much of the stress on the leaves to fill nuts can be relieved by fruit thinning of prolific cultivars. Fruit thinning may decrease total yield per tree for the current year, but this can be offset by an increase in marketable yield. The benefits of nut thinning include increased nut quality in terms of higher kernel percentage and kernel grade, as well as more stable yield and cash flow for the grower from year to year.

The process of kernel deposition requires a large amount of available carbohydrates. Each nut may compete with other nuts for carbohydrates produced by surrounding leaves or held in supporting branches. Nut thinning prior to this competition provides each remaining nut with a greater supply of carbohydrates from which to draw. In addition, the tree should still have enough carbohydrate reserves to support a flower crop the following season.

After fertilization, the ovule (the tissue that becomes the kernel) begins to expand and lengthen from the tip of the nut toward the stem. As the ovule expands, the space is filled with fluid until the ovule extends to the stem end of the nut. The shell begins to harden from the tip shortly after the nut reaches full size. After expansion is complete, kernel deposition begins.

In order to maximize return bloom, fruit thinning should be completed within two weeks from the time the ovule is one half expanded. If thinned too early, nuts will be too difficult to shake from the tree. A straight, lengthwise cut through the center of the nut will expose the expanding ovule in order to help determine when the ovule has reached 50% expansion. For much of the Georgia pecan belt, this will be in early to mid July. Fruit thinning after this time and throughout the water stage may improve nut quality for the current year, but will not substantially improve the return crop.

Nut thinning can be accomplished with a conventional tree shaker equipped with donut pads. These pads are essential in the prevention of trunk injury. A coating of silicon gel or grease between the rubber flap and donut pad serves as an additional precaution. This will allow movement between the flap and pad, preventing movement of the bark during shaking. Under conditions of heavy rainfall, the cambium layer under the bark may slip more easily, resulting in a greater risk of tree injury. In order to minimize trunk damage, delay nut thinning for a few days following a rain. If rainfall has been plentiful and trees

are flushing new growth, only a small number of trees should be shaken, and observed for 36 hours for signs of bark splitting.

The quantity of nuts to remove varies depending upon nut size, cultivar, nut set, insect damage, and disease incidence. Judging crop load is instrumental in making a determination about whether or not a crop needs thinning. This is a practice that takes experience. Trees with almost 100% of the shoots fruiting and a cluster size greater than three are overloaded, and will definitely benefit from thinning. Optimum crop load varies with cultivar and may range from 50-70% fruiting shoots. More often than not, the major mistake growers make with nut thinning is that not enough nuts are removed.

When shaking begins, growers should not be alarmed by the number of nuts that fall. Trees should be shaken 2 to 3 seconds at a time, evaluated, and shaken again if needed. This process should be repeated 2 to 3 times when necessary until thinning is completed. The distribution of nuts removed throughout the tree may be enhanced by shaking from both north/south and east/west orientations. It is advisable to have one person on the ground watching what is happening as the trees are shaken. This person can communicate to the shaker operator when to stop and when to shake harder.

Proper management of crop load requires the grower to be familiar with the orchard. Not all cultivars or trees within a cultivar will require nut thinning in a given year. Thinning the pecan nut load in heavy crop years can be beneficial to nut quality and, for some varieties, to improving return bloom. Nut thinning is a sound management tool when used correctly. Growers should test nut thinning in a portion of their orchard and personally evaluate the results before using nut thinning as a regular practice.