

Managing Drought in Louisiana Horticulture Crops



Pecans

Lack of rain coupled with extreme heat during a growing season will negatively affect a pecan crop and may even have lingering negative effects going into the next production cycle.

Nut sizing

Pecan nut sizing, which is the determination of the potential kernel size, occurs from about May 1-Aug. 15. Nut filling happens after this from about Aug. 15-Oct. 15. These two separate stages of kernel development can lead to a situation where the tree can start out well during nut sizing but fail to follow through on nut filling. This happens more often when there is consistent rain through period of nut sizing and then a drought during nut filling. The resulting kernel quality tends to be poor with many wafer and withered pecans being produced.

You can expect to see more of these in years with drought or heat stress or when overproduction without thinning occurs.



Water: How much?

How much water do your trees need to stay healthy? That greatly depends on local conditions and the growth state of your trees. Trees in sandy soils will often need more consistent rains or irrigation since those soil types don't retain water very well. Pecan trees in clay soils can get by with less water in the short term, but long-term the soil can become nearly hydrophobic if it dries too much. If you see large cracks in your soil from the clay shrinking as it dries out, your orchard is going to need a significant amount of water to recover. This does not even consider extreme heat stress where plants need much more water just to stay alive. During those periods you may be watering nearly nonstop just to maintain tree health.

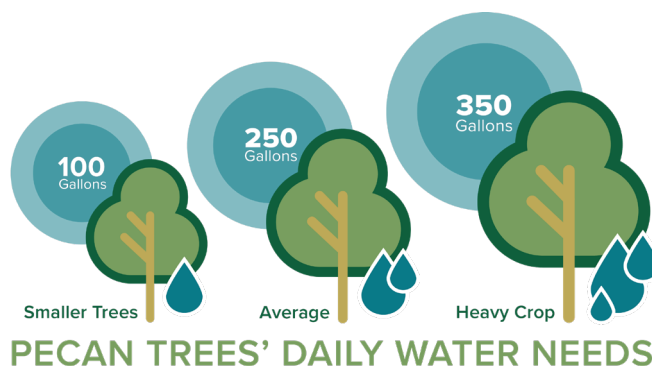
Trees that are not productive, either due to just getting established or having an off year, can survive with less water. The standard recommendation is that they get at least 100 gallons of water per day. This is going to vary based on how mature the trees are, with newly planted ones usually needing much less than that amount. Don't give up on your trees when they are in the off cycle of their production

pattern. They will be building up carbohydrate reserves during this time that will be used for next year's production. Trees that have a heavy crop load can potentially need up to 350 gallons of water per day. Most trees will need less than that with the average recommendation being about 250 gallons per day to successfully carry a crop to completion.

Water: How often

How often should you be irrigating if you can? Ideally, try to water the trees every day as long as the soil is not overly saturated. The general rule is that if you have gotten one inch of rain you can wait three days before watering again. For a low-input setting, the bare minimum recommendation is at least once every two weeks. You will start to see damage at three weeks without rain or irrigation.

Not all low-input growers or homeowners have the ability to irrigate. Be on the lookout for long-term drought damage beyond poor kernel quality in years with low rainfall and extreme heat stress. One of the first signs is a yellowing across much of the foliage. This will eventually transition to browning as the trees continue to be stressed. Progression of this pattern can be unusual with it starting at the inner part to the canopy and progressing outward. This is the tree's attempt to keep the younger growing points alive by shedding older leaves first. If it gets severe enough to be a complete or major defoliation, you may lose the entire tree.



Stress and damage

Other factors can combine with drought stress and kill a pecan tree. Trees with other stressors, such as wind damage, limb breakage and poor location, tend to suffer the most from drought damage. There are also situations where defoliation from webworms or walnut caterpillars affects trees at the same time as severe drought stress.

The combination of those stressors makes long-term tree decline and death much more likely.

Drought damage under severe conditions has occurred in the south and can lead to death in normally healthy trees. With that in mind, have an irrigation plan for any future pecan plantings.



1.
Mild drought
damage in upper
canopy



2.
Mild drought with
compounding
stress factors



3.
Drought
defoliation



4.
Drought with
compounding
stress factors

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