OKLAHOMA PECAN GROWERS ASSOCIATION

*Volume XLVIII, No. 4* *Michael Smith, Editor* *October, November, December 2007*

## In This Issue



### Problems of the 2007 Growing Season

***Michael Smith, OSU Horticulture and Landscape Architecture Department***

Potato leafhopper damage has been more severe this growing season than normal (Fig. 1). Dr. Phil Mulder explained that potato leafhoppers do not overwinter in Oklahoma. Adults arrive from southern locations on wind currents. The persistent low pressure system that produced abundant spring rainfall, also created a favorable circulation pattern to bring many more leafhoppers into Oklahoma over a longer time period than normal. Hopper damage appears to be more severe on small trees and on the lower parts of large trees. Damage was also more severe on 'Kanza' than on several other cultivars.

Another problem observed was partial or complete defoliation when exposed to mild drought following abundant spring moisture (Fig. 2). If defoliation was sufficient, trees refoliated. This was observed at multiple sites among native pecan trees where one tree would partially or completely defoliate, and surrounding trees were not affected. Similar symptoms were also seen on two 'Caddo' trees while surrounding trees were healthy. Partial defoliation was probably caused by root loss in water saturated soils followed by inadequate water absorption to meet demand when soil moisture was somewhat depleted. Genetic differences among native trees, cultivar rootstocks, and rapidly changing soil condition accounts for the variable responses observed.

Wet conditions combined with warm temperatures promote disease development. Pecan scab (Fig. 3) is far worse this year than in recent times. Crops on some native trees have been lost or reduced by scab, while those with good resistance have little or no scab. Crops on cultivars that are highly susceptible to scab were generally lost, even when fungicides were applied. Cultivars with moderate scab susceptibility have little disease if fungicides were applied in a timely manner. However, frequent rainfall and wet orchard floors were a major obstacle to timely application. Choosing cultivars with a high degree of scab resistance is particularly beneficial during disease prone years. High humidity also promoted development of powdery mildew on the pecan shucks (Fig. 4). Consequences of powdery mildew are generally not as severe as pecan scab, but this disease reduces both nut size and kernel percentage in proportion to the size of the shuck's infected area.

Several calls were received this year concerning bark damage caused by squirrels (Fig. 5). Inner bark is a preferred food of flying squirrels, the most likely suspect causing the damage, but both fox and gray squirrels will cause similar damage when food or water is scarce.

Walnut datana (Fig. 6) populations have been abnormally high in northern Oklahoma, Kansas and Missouri. In southern Oklahoma, density of this pest appeared to be about normal. In the areas where this pest was severe, trees have been partially or totally defoliated. Refoliation occurred on trees that were severely defoliated. Results of defoliation studies by Herman Hinrichs (Oklahoma) and later by Ray Worley (Georgia) suggest that trees defoliated prematurely will have little or no crop the following year, even if trees refoliate. Additionally, experience suggests that these trees will be especially susceptible to fall cold injury if initial temperatures are low. A pigment, phytochrome, in leaves detects shortening days in the fall, triggering trees to become more cold hardy. This environmental signal is not detected if trees are defoliated. In addition, acclimation to cold temperature is an energy intensive process, requiring adequate carbohydrate reserves. Early defoliation depletes these reserves, increasing cold susceptibility.

**Fig. 1. Pecan leaves with damage caused by potato leafhopper.**

**Fig. 2. Tree on the right was defoliated followed by refoliation (lighter colored leaves) while the tree on the left was unaffected.**

**Fig. 3. Pecan scab on fruit shuck.**

**Fig. 4. Powdery mildew on fruit shuck.**

**Fig. 5. Bark damage on young pecan tree caused by squirrel, probably flying squirrel.**

**Fig. 6. Walnut datana in the 3rd or 4th instar (the stage between two successive molts). Walnut datana experience five instars during larval growth.**

## Twig Pruner and Girdler, Identification and Management

***Phil Mulder, OSU Entomology & Plant Pathology Department***

Beginning soon is the time of year when growers, start calling about excessive twig and branch dropping due to twig girdlers and twig pruners. Hence; the purpose of this article, to save some concerns and provide some information about these occasional pests. Note that I spoke of "these pests", because these insects are not the same species and their biology and damage will differ. Management of the problem can sometimes take the same route and this will also be discussed.

Throughout the pecan growing regions of the United States, starting in late summer, growers may notice excessive numbers of twigs and small branches falling from trees. Initially, these may be associated with heavy storms or winds; however, at close inspection the twigs appear to have been neatly severed. If the twig has a smooth outer cut all around the bark with a jagged center area, this is typical of the twig girdler, *Oncideres cingulata*; however, if the cut appears smooth inside the bark, but the bark is raggedly cut then this is damage from the twig pruner, *Elaphidionoides villosus*. In Oklahoma, both can be encountered but the twig girdler is likely more common on pecan or hickory. Damage from the twig pruner is more commonly found on oak but can also appear on pecan.

Twig girdler adults begin to emerge in August and continue through October. Adult girdlers are long-horned wood boring beetles (Family: Cerambycidae) that attack hardwoods. They are about ¾ of an inch long, stout, grayish brown with a lighter colored band across the hard wing covers (elytra). The antennae will typically be as long as the beetle's body. The damage described above is created by the female beetle, who chews a V-shaped groove around a small twig, thereby girdling it. She will then deposit an egg beneath the bark in the section of the twig beyond where the cut was made. This is done because the larva is unable to develop in healthy sapwood. The larva that hatches bores into the dead twig to feed and will overwinter in the fallen twig. The larva can excavate the entire center portion of small twigs, depositing frass and wood shavings throughout the tunnel. Pupation occurs within a cavity inside the twig.

In contrast to girdlers, twig pruner adults emerge during the spring, about the time of budding and initiation of spring growth. Adult pruners are about ½ inch long , slender, grayish-yellow to brown, with long antennae. It will also possess spines on the first few joints of the antennae

and at the tip of the elytra. Pruners will attack a wider variety of trees than girdlers including; oak, hickory, maple, chestnut, pecan, sweetgum, redbud, hackberry and even some fruit trees. Unlike the twig girdler, the damage described above for twig pruners is created primarily by the larval stage. Once the adult female chews a hole in the bark at the leaf axil near a twig tip, she will then lay an egg in that location. The hatching larva will then bore into the twig and feed on the wood as it tunnels down the base of the twig. In late summer, when the larva is about to pupate, it begins to make concentric cuts through the wood outward from the center and generally stops chewing when it reaches the thin bark. The larva will migrate to the severed portion of the branch and overwinter as a pupa in the fallen twig or branch (they can infest braches up to 2 inches in diameter). Both insects produce only one generation per year.

Management strategies for these insects are similar and should involve gathering of fallen branches and twigs in the fall and early spring. In addition, some selective pruning can be done during the fall and winter if infested twigs can be identified. All infested materials and prunings should be burned or taken completely away from the orchard. Chemical treatment is generally not practical, unless damage is readily evident and extensive. Using Sevin insecticide late in the season for weevil control will help in reducing populations of these beetles. Long term reductions in girdler and pruner populations can be experienced by thorough sanitation, pruning and burning of infested materials.

**What Causes Sticktights?**
***Eric T. Stafne, OSU Horticulture & Landscape Architecture Department***

October is a time of highs and lows for the pecan growers. First, there is joy at the upcoming harvest, to see all the hard work throughout the year coming to fruition. Second, after the joy comes the worry that something catastrophic could occur at the last instant to destroy all that hard work (an early freeze comes to mind). Third, there is the frustration that the nuts aren't quite as good as first thought, and lastly comes relief that the season is over and a well-deserved rest for a very short period of time until cranking up for the next season begins. The third point, frustration, is what I want to talk about. Not all of a growers frustrations, because that could fill these pages from now until the end of time, but rather one particular frustration – sticktights.

Sticktights are often caused by one singular word with a multitude of possible factors – stress. Stress can be from a lack of water or too much water. Stress can be caused by insect and disease damage. Stress can be caused by poor nutrition or too much nutrition (adding too much fertilizer). So, stress comes from a variety of factors, but one of the biggest factors is overbearing. Too many nuts on a tree can cause sticktights. The pecans have a small, poorly formed kernel and the shucks adhere to the nut and will not open. They also cannot be dehulled. This condition typically looks like a disease, but is really a result of the tree having physiological problems stemming from stress.

How does one avoid sticktights? Well, there will always be sticktights on some trees regardless of what is done, but proper cultural management can reduce the number and make the pecan trees more productive. The number one objective is to reduce tree stress; therefore, when planting pecans choose an appropriate site with deep, well drained soils. An adequate water supply is crucial for years like 2006 when rainfall was scarce. Also, control insects and diseases throughout the year. Doing this will improve nut quality and quantity, but also lessen the stress on the tree itself which will be reflected in future years as well. Foliar nutrient analysis should be an integral part of determining nutritional needs of the tree. Appropriate applications of nitrogen and other nutrients will keep the trees healthy. It is also important to keep leaves on the tree as long as possible because the leaves drive the crop ripening process. If leaves are lost before the nut hardens, then the crop can no longer be matured. Crop load thinning is also an essential component of good management, especially on cultivars that tend to overbear. If thinning is done diligently when needed (usually early August), then sticktights can be reduced.

In some cases, nothing can be done about sticktights, but proper management can reduce the likelihood of them occurring. Not only are sticktights unsightly, but also unprofitable and they may harbor pests that can come back next year. Reducing tree stress is paramount for a pecan grower to ensure success.

**Late-Season Pecan Weevil Situation – Lessons from the Past**
***Phil Mulder, OSU Entomology & Plant Pathology Department***

Several phone calls and other inquiries have crossed my desk lately asking about pecan weevils in 2007. The overriding question thus far has been, "where are the weevils this year." Relatively light populations across the majority of the state have been the norm. Many growers have reported single digit numbers since they began their yearly

monitoring and trapping. I would suggest that the light population numbers are attributable to several factors. First, the heavy rainfall that preceded the normal emergence period for adult weevils led to early suicidal emergence. This is likely in several locations that had heavy rainfall through mid to late July. In fact, two pecan producers located in central and south central Oklahoma, who began trapping in July notice heavy peaks in late July and have recovered very little since that time. The second possibility is that flooding in many orchards may have adversely affected the weevil population. In some instances this may be possible since flood water sat on orchard floors for weeks. I had mentioned in earlier news releases that weevil mortality from the floods was unlikely but that was before the rains persisted for so long. The final possibility, and the one that concerns me the greatest is the possibility that weevil populations have not peaked. In previous studies conducted throughout Oklahoma using Circle traps, we have consistently seen the peak in emergence to occur about the third week in September.

I am hopeful that the first scenario described above is the explanation for the fate of our weevil population in 2007; however, I caution all growers to please continue to monitor and trap in their areas to be certain we do not miss a late flush of adult beetles. This is exactly what happened to many Oklahoma growers last year. Several growers suspended treatment about the time that the cultivar Pawnee began shuck split and consequently got burned on their other varieties or natives. Pecans will continue to be susceptible to weevil attack up to shuck split. We must continue to learn from those bad experiences in the past, to avoid falling into the same trap for the future.

On another note about insecticide choices; many growers are making a transition for pecan weevil control by using some formulation of pyrethroid insecticide (Warrior, Proaxis, Asana, Mustang-Max, etc.) instead of Sevin. The reasoning behind this change has been economics, with costs for Sevin continuing to rise and pyrethroid costs remaining steady to lower in some cases. While this may be a good choice for some, it could create a potentially greater problem for others. If you do not have a closed cab system, some pyrethroids (the newer ones in particular) could be potentially more toxic than Sevin. The active ingredient in Sevin, known as Carbaryl has an oral and dermal $LD_{50}$ of around 260 and 4000 mg of chemical/Kg of body weight, respectively, while those same numbers for Warrior (lambda-cyhalothrin) are 68 and 664, respectively. Remember, the lower the number, the more potentially toxic the chemistry. Proaxis, which is simply a different isomer (gamma-cyhalothrin), very similar to Warrior, has an oral and dermal $LD_{50}$ of 79 and 632, respectively. This suggests that these newer pyrethroids are potentially more toxic to the applicator than Sevin insecticide.

A final word about switching chemicals too quickly before examining the information at hand is when making your choices, carefully examine university trials and ask others about performance of new materials. While many of the newer pyrethroids are similar, their active ingredients may vary in activity on pecan weevil. In OSU trials, Warrior has proven to be more efficacious than Mustang-Max or Proaxis and grower testimonies have borne this out. Different active ingredients may be the answer to this puzzle between Warrior and Mustang-Max, but why are the two isomers of cyhalothrin different? The answer is on the label. Warrior contains twice as much active ingredient per gallon than proaxis and yet the usage rates for pecan are identical. All of this latter information on chemicals points to the most important aspect of making applications, read the label and know what you're getting for your money.

**Call for Nominations**

The Oklahoma Pecan Growers' Association (OPGA) is soliciting nominations for GROWER OF THE YEAR and the HERMAN HINRICHS PECAN CITATION AWARD. The GROWER OF THE YEAR recognizes an individual or couple for contributions to the pecan industry in one or more areas by demonstrating good orchard management practices, leadership in their community, region or state related to pecans or promotion of the pecan industry. The GROWER OF THE YEAR can only be awarded to an individual/couple once.

The HERMAN HINRICHS PECAN CITATION AWARD recognizes a professional that has made significant contributions to the Oklahoma pecan industry. These individuals are typically county extension personnel, University scientists, Noble Foundation Agriculture Specialists, USDA-ARS scientists or industry personnel. Both in-state and out-of state professionals have been recognized by the OPGA for their contributions.

Occasionally, the OPGA recognizes an individual or company for outstanding contributions to the organization or the industry. The individual or company usually has a long-standing relationship with the organization and has demonstrated a commitment to both the OPGA and the pecan industry.

A list of previous recipients of these awards follows. Please take the time to nominate a worthy and deserving person/couple/company for these awards. Nominations are accepted until February 15, 2008. Send your recom-

mendation to Martin Mount, 10971 N. 115th Road, Beggs, OK 74421-2953, email: mkla@beggstelco.net (PLACE OPGA NOMINATION IN THE SUBJECT LINE), phone: 918-267-4664.

| Year | Herman Hinrichs Pecan Citation Award | Grower of the Year | Special Award |
|---|---|---|---|
| 2007 | Justin McDaniel | Al and Mary Newkirk | |
| 2006 | Dr. William McGlynn | Virginia Merritt Autry | |
| | | & Jean Ann Casey | |
| 2005 | Dr. Dale Maronek | Basil Savage, Jr. | |
| 2004 | Dr. Mike Hall | Mike & Carole Smith | |
| 2003 | Michael Marlow | Basil Savage | Sue Hamilton & Jana Kelley |
| 2002 | Jody House | Joe Ihle | |
| 2001 | | | |
| 2000 | Becky Cheary | Diane Couch | Don Gray |
| | Becky Carroll | | |
| 1999 | Dr. Phil Mulder | Tom Lee | |
| 1998 | Scott Landgraf | Ronnie Darden | |
| 1997 | Dr. Niels Maness | O.B."Boots" Adams | |
| 1996 | Dr. Dean McCraw | Martin Mount | |
| 1995 | Dr. Ray Eikenbary | Robert Knight | Dr. Ray Eikenbary |
| 1994 | Dr. Sharon VonBroembsen | Reese Capron | Basil Savage |
| 1993 | Dr. Michael Smith | Carrel Bryant | Dr. Glenn 'Cat' Taylor |
| 1992 | Doug Maxey | W.C. 'Bill' Ihle | Dr. Stan Coppock (posthumus) |
| | W.C. 'Bill' Ihle | | |
| 1991 | Sue-Gray Melaugh | Dick Hoffman | |
| 1990 | William R. Reid | W. Maxine Haydon | |
| 1989 | Gordon 'Dooly' Barlow | Mr. & Mrs. Don Gray | |
| 1988 | Bill Lucas | Mr. & Mrs. Mike Spradling | W.C. "Bill" Ihle |
| | Jim Gallot | | |
| 1987 | Bob Leadford | Gene Coblentz | Ray Enlow |
| 1986 | Dr. Ray Eikenbary | Bob Berkemeyer | Scott Landgraf |
| | Dr. R.D. Morrison | | |
| 1985 | Gary Schaum | George Fraley | Dr. Glenn 'Cat' Taylor |
| 1984 | Dr. Ray Eikenbary | Dick Galusha | Dr. Michael Smith |
| 1983 | Bill Geer | Leonard Walker | |
| 1982 | Bill Lucas | Bob Peterson | |
| 1981 | Dr. Willis Johnson | Ronald S. Mount | Oakla Mount Spears |
| 1980 | Bob Sanford | | |
| 1979 | Basil Meyers | Scott Landgraf | Billie R. Brewer |
| 1978 | Bob Kennedy | Gordon Couch | |
| 1977 | Dr. Glenn 'Cat' Taylor | Katherine Pinkston | Herman A. Hinrichs |
| 1976 | J.D. Lockwood | George H. Hedger | |
| 1975 | Laxton Malcom | Robert Grantham | |
| 1974 | Ray W. Zimmerman | William Aldredge | |
| 1973 | J.D. Blakemore | Paul Haydon | |
| 1972 | Andrew B. Murray | Oscar S. Gray Sr. | |
| | | Hugh J. Thompson | |
| 1971 | | Dr. L.W. Cheek | |
| | | Dave Williams | |
| | | L.E. Hazen | |
| 1970 | John D. Netherton | Clyde A. Bower | |
| | | Charles Y. Pyle | |
| 1969 | Keith McLemore | Mr. & Mrs. Joe Scally | |
| | | Jack Carmen | |
| 1968 | George Seals | Mr. & Mrs. W.L. Spears | |
| | | O.E. Cowley | |
| | | Herman A. Hinrichs | |
| 1967 | Hugh Dewoody | Preston Collins | |
| | | Percy Fly | |
| | | F.A. Wiele | |
| | | John Skinney | |
| | | E.L. Whitehead | |
| 1966 | C.H. Hailey | C.V. Hughes | |
| | | Leslie Newman | |
| 1965 | | Shawnee Brown | |
| | | George Sprayberry | |

## President's Corner

***Robert Schoenecke, OPGA President***

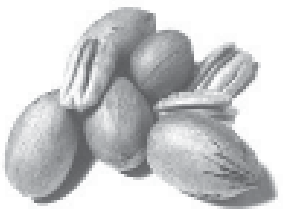
This summer has been as wet as last summer was dry and has presented some major challenges for the pecan industry not only in Oklahoma but in other parts of the country as well. Early in the spring, freeze damage was significant for the northern part of the state and scab has been a factor where normally it is not. Some reports indicate that susceptible varieties have been lost due to scab and others have been severely damaged. However, most reports from the southern part of the state indicate that Oklahoma will have a decent harvest baring any early freeze or wet weather. It seems harvest may be earlier this year, as I have noticed several natives are splitting.

At our board meeting in August, a discussion was held concerning the nomination process for grower of the year and Herman Hinrichs award. We are asking for members to submit names and justification to the board for the final decision. If you know of someone that has worked to benefit the association or has been an inspiration and they have not been a past recipient, please let us know.

I wish you a safe and bountiful harvest.

## Past Newsletters

The Oklahoma Pecan Growers' Association web site, http://www.hortla.okstate.edu/pecan/opga/index.html ,contains all the Newsletters from 2004 to present. Google search capability has been added to make finding information in the Newsletters easier. Newsletters on the web have color pictures.



**Pecan Orchard Establishment**

***Michael Smith, Research Horticulturist and Eric Stafne, Extension Horticulturist***
***OSU Horticulture & Landscape Architecture Department***

- Site
  - Soil descriptions by series name can be viewed at http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi
  - The site should not be subject to frequent or prolonged flooding.
  - Soil should be well-drained to moderately well-drained (typically reddish colored subsoil in Oklahoma). Poorly-drained is not acceptable (typically gray or gray-mottled).
  - Permeability rates from slow to fast are acceptable.
    - Slow permeability rates (clayey soils) necessitate lower water applications; otherwise, water runoff occurs, i.e. about 1 gallon/hour (gph) drip emitters; ¼ to ½ gph microsprinklers. Soils with fast permeability (sandy soils) will need higher water application rates from drip emitters (about 2 gph) to allow the water to spread over a large area of the root zone. Either low or high delivery rates from microsprinklers are acceptable.
  - The water table should be at least 6 feet (preferably 8 ft or more) below the surface at its highest point during the year (typically spring).
  - Determine water availability and quality, either surface or ground.
    - Irrigation water quality can be tested at OSU. Contact your OSU County Extension Educator for assistance.
    - Contact Oklahoma Water Resources for information on ground water availability in your area (http://www.owrb.ok.gov/ ).
    - Contact neighbors to determine ground water availability.
  - Close proximity to forest increases wildlife depredation on young trees (primarily deer) and on nuts (squirrels, birds, raccoons, etc.).
  - Low lying land with little air movement increases and the probability of spring frost damage and disease susceptibility.
- Site preparation
  - Unless required for leveling or other specific requirement the soil should not be tilled.
  - Take soil sample(s) the summer or fall before planting. Two depths, 0-6 inch and 6-12 inch, should be sampled. Sample in at least 10 locations and composite into one sample for each depth. Take a separate soil sample for each soil type in the orchard. Sample analysis should include potassium (K), phosphorus (P), and soil pH. Samples can be analyzed at OSU by contacting your local County Extension Educator.
    - Optimum soil pH is 6.2-6.8. An accept range is equal to or greater than 6.0.
    - Follow recommendations for P and K application.
    - Soils in southern Oklahoma may have an alkaline pH. Native trees at these sites should be inspected for sudden tree death caused by cotton root rot. There is no control for this disease. Cotton root rot is not active on acidic soils that are typical in central and northern Oklahoma.
    - Root knot nematodes can be problematic on sandy soils, particularly where peanuts have been grown for several years. If a problem is suspected collect a sample for analysis at the OSU Plant Disease & Insect Diagnostic Lab, http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2362/L220-pdidl-broc.pdf .
  - Mark tree locations then kill the vegetation in the tree row. This is best accomplished in September when the vegetation is not drought stressed using a mixture of glyphosate, 2,4-D amine and surfactant (follow manufacturer's label directions). Typically, the killed area will be 6 to 10 feet wide. The length can be the same as the width or vegetation in the entire row can be killed. The potential for soil erosion is the primary factor in determining whether vegetation-free squares or rows should be used.
    - 40 ft x 40 ft is the recommended spacing unless hedging is planned.
    - 35 ft x 35 ft is recommended for hedging.
      - Some cultivars respond poorly to hedging.
      - Trees cannot be maintained indefinitely by hedging.
    - Either spacing requires thinning when trees crowd.
      - The 40 ft x 40 ft spacing (27 trees/acre) will be thinned to 14 trees/acre, and then 7 trees/acre.
      - The 35 ft x 35 ft spacing (36 trees/acre) will be thinned to 18 trees/acre, and then 9 trees/acre.
- Planting
  - Trees should be ordered about one year in advance to ensure availability of desired cultivars.
    - Current cultivar recommendations are available at http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1027/HLA-6201web.pdf .
      - Appropriate cultivar selection is extremely important for success.
      - Cultivars should be paired with the site, i.e. earlier ripening cultivars with greater cold hardiness are required in northern Oklahoma.
      - Pecans require cross-pollination. Pollinators should be within three rows of the cultivar to be pollinated, i.e. blocks of one cultivar six rows or less wide with pollinators on either side.

- Two early pollen shedding (protandrous, type I) and two late pollen shedding (protogynous, type II) cultivars are recommended to ensure adequate pollination.
- Rootstock selection affects cold hardiness and growth rates, particularly during the first 7-years after planting.
  - Peruque and Giles are cold hardy rootstocks for central and northern Oklahoma and are suitable for southern Oklahoma.
  - Apache is suitable for southern Oklahoma and may be appropriate for northern Oklahoma when combined with a cold hardy scion cultivar.
  - Apache produces trees with a faster growth rate than Peruque or Giles.
- Grafted trees are more expensive, but may begin production faster.
- Seedling rootstocks are less expensive but require grafting, a process that is time-consuming and delays production.
  - Seedling trunks typically have greater cold hardiness than cultivars, i.e. grafted high.
  - Seedling trunks are less susceptible to damage by trunk shakers.

- Tree roots must not be allowed to desiccate or freeze between being dug at the nursery and planted in the orchard.
- Bareroot trees must be planted while dormant (January through early March are common planting dates in Oklahoma).
  - Bareroot trees can be transported to the field for planting in a barrel of water with their roots covered to avoid desiccation.
  - Holes should be pre-dug the day before planting.
    - A 6 inch diameter hole is adequate. A larger diameter hole may be used, but it is less desirable especially if the soil is high in clay content.
    - Dig holes about 18 inches deep.
  - Cut roots to fit the hole depth (about 18 inches long).
    - Trim off side roots to fit the hole without bending or wrapping.
    - Plant the tree at the same depth or shallower than it was in the nursery.
    - Back fill the hole with soil. Do not compact the soil, just make sure it is settled with your foot.
    - Water the trees shortly after planting. If possible water the trees a second time the same day as planting.
  - Remove $^{1}/_{3}$ to ½ of the top (if trees are alive but budbreak is delayed relative to the other planted trees, recutting the top sometimes forces budbreak).
- Survival of container trees is typically best when planted in October, but acceptable results are obtained from dormant season plantings.
  - If roots spiral in the container bottom, cut the root where the spiral begins. Otherwise, do not disturb the root system.
  - Plant trees in a hole just large enough to accommodate the root ball.
  - Remove the tree from the pot and plant such that the top of the pot media is barely covered with soil.
  - Water trees shortly after planting. If possible repeat the watering the same day as planting.
  - Tops of container grown trees do not need to be pruned.
- Trunks of new trees should be protected from sunscald (southwest trunk injury during winter) and herbicide.
  - Trunk contact with glyphosate (Roundup® or other trade names) will kill young trees.
  - Avoid herbicide application when drift onto the foliage is likely.
  - Several companies sell plastic trunk guards that are effective.
  - Aluminum foil wrapped around the trunk has provided protection from sun and herbicide.
  - Sunscald can be reduced by painting trunks with white latex paint diluted with equal parts of water. This does not affect glyphosate susceptibility.
  - Consult Current Report *Weed Control in Pecans, Peaches and Apples* (http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-1017/CR-6242web.pdf ) for current herbicide recommendations.
- The primary arthropod pests of young pecan trees are foliage feeders.
  - Apply a broad spectrum insecticide such as Lorsban® when shoot growth is about ½ inch long. Inspect trees for problems and apply an insecticide as needed.
  - Typical pests include pecan nut casebearer, hickory shoot curculio and phylloxera (budbreak), leaf hoppers (budbreak through July), thrips (budbreak through July), apple twig borer (May and June), fall webworm and walnut datana (June and August)

- Irrigation
  - Supplemental irrigation is recommended for cultivar plantings in all areas of Oklahoma. Research has demonstrated that supplemental irrigation increases production, reduces alternate bearing and improves nut quality.

- The following is an approximation of the supplemental water requirement for non-bearing pecan trees in Oklahoma. A directed water application is required using drip irrigation or microsprinklers with a wetted area approximating the area occupied by roots. A vegetation free area surrounding the tree of at least 36 $ft^2$ is assumed. The estimate is based on 25 inches of rainfall from May through September and 40 inches annual rainfall and uses pan evaporation estimates from the Mesonet system for a 5-year period. Rainfall varies among locations and years, so this is only a general approximation for Oklahoma. Droughts increase the supplemental water requirements.

| | **Supplemental water requirement (gallons/tree)** | | |
|---|---|---|---|
| **Month** | **1-year-old** | **3-year-old** | **5-year-old** |
| May | 30 | 90 | 200 |
| June | 45 | 150 | 400 |
| July | 120 | 375 | 900 |
| Aug | 120 | 375 | 900 |
| Sept[z] | 60 | 170 | 400 |
| **Total** | **375** | **1160** | **2800** |

[z] Supplemental irrigation is discontinued on non-bearing trees in mid-September to avoid Autumn cold injury.

- The following is an approximation of the supplemental water requirement for bearing pecan trees in Oklahoma. Maximum acceptable stocking rate is 60% canopy cover regardless of tree density, which yields about 3.5 surface acres of bearing surface. When pecan canopies exceed 60% coverage trees should be thinned to reduce canopy cover to 50% or less. Trees spaced 40 ft x 40 ft typically reach 60% canopy cover, requiring tree thinning, during years 18 – 25 (growth rates depend on soil type and management). Estimates are based on the same environmental conditions as stated above.

| | **Supplemental water requirement (inches/acre)** | | |
|---|---|---|---|
| **Month** | **20% canopy cover** | **40% canopy cover** | **60% canopy cover** |
| May | 1.1 | 2.1 | 3.2 |
| June | 1.8 | 3.6 | 5.4 |
| July | 2.7 | 5.5 | 8.3 |
| Aug | 2.3 | 4.6 | 6.9 |
| Sept[z] | 0.9 | 1.2 | 2.8 |
| **Total** | **8.8** | **17.0** | **26.6** |

[z] Irrigation of bearing trees is discontinued the first of October.

- The two most common types of irrigation for pecans in Oklahoma are drip and microsprinkler.
  - Drip
    - Most efficient water application method.
    - Can be buried (must control gophers).
    - Surface drip lines are frequently damaged by wildlife.
    - Need to cover about 50% of the root zone with water.
    - Can apply nitrogen through the irrigation system.
    - Requires excellent filtration.
    - Requires treatment for microorganisms to avoid stoppage if water source is surface.
    - Can be automated.
  - Microsprinkler
    - Less efficient water application than drip, but acceptable.
    - Can be used for spring frost protection.
    - All PVC systems receive little wildlife damage (avoid polyethylene feeder lines for microsprinklers since wildlife damage to lines can be severe).
    - Can cover most of the root zone.
    - Requires more pressure and higher delivery rates than drip.
    - Requires good filtration, but not as good as drip.
    - Few problems with stoppage.
    - Can be automated.

# Membership Application

We invite you to become a member of the Oklahoma Pecan Growers' Association. Membership includes the *OPGA Newsletter*, *Pecan South* and *Pecan Grower*. Make your checks payable to OPGA and mail to:

**Oklahoma Pecan Growers' Association**
**Janice Landgraf, Treasurer**
**RR 1 Box 148**
**Madill, OK 73446**
**okpecan@trinex.net (580) 795-7644**

Name _____

Street Address _____

City, State, Zip _____

Phone (_____) _____ email: _____

❑ Renew ❑ New Member

Grower Member ..... $50.00
Industry Member ..... $125.00
Extension/Research/Student ..... $40.00



Return Service Requested


**Oklahoma Pecan Growers' Association**
c/o Horticulture & Landscape Architecture
Oklahoma State University
360 Agricultural Hall
Stillwater, OK 74078-6027