



OKLAHOMA PECAN GROWERS ASSOCIATION

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Oklahoma Pecan Growers' Association is published 4 times per year and is a benefit of being an association member. Contact the Oklahoma Pecan Growers' Association c/o Horticulture & Landscape Architecture, Oklahoma State University, 358 Agriculture Hall, Stillwater, OK 74078-6027 for further information.

President's Corner

Charles Rohla

I hope everyone is having great success getting ready for harvest. The pecan crop is looking good across most of the state, although some areas are reporting scab problems. Several growers have commented that they are seeing scab on trees that normally do not have these problems. The Noble Foundation has lost the entire crop on our Texas 60 variety that we have typically not had to spray. This year scab hit this variety extremely early and completely destroyed the entire crop. However, our other varieties that are more susceptible to scab and received timely fungicide applications are fairly clean this year. This course of events clearly shows the benefit of Damon Smith's research on scab and the importance of a proper spray schedule.

As of the September board meeting, we had 266 members which are up from a year ago. However, according to the USDA there are 3,589 farms producing pecans in Oklahoma which equals a membership of less than 8% of these producers. I would like for you to encourage others to become members of the association. Membership makes a huge difference and provides a strong voice for the association. The OPGA booth will be set up at the Meeker Pecan Festival October 15th & 16th and at the Farm Bureau Convention at the Cox Center in Oklahoma City in November.

With social networking becoming so popular and to help increase interest in Oklahoma pecans the board has decided to start a Facebook page. We encourage you to join and let others know about the page which can be found on Facebook under Oklahoma Pecan Growers' Association. If you have questions, photos or observations that may be useful for others, please feel free to post these or contact me and we can get it posted for you.

If anyone has any suggestions or comments please contact me at (580) 490-1253.

Supplemental Foliar Nickel and Copper Applications Do Not Reduce Kernel Necrosis in Pecan Trees Receiving Excess Nitrogen

Pradeep Wagle, Michael W. Smith, Bruce W. Wood, and Charles T. Rohla

Pecan fruit developed necrotic tissue at the basal end of the kernels in an orchard receiving large amounts of nitrogen from nitrate contaminated irrigation water (Fig. 1). It was hypothesized that increasing canopy nickel (Ni) and copper (Cu) could mitigate negative effects of excess N and reduce the incidence of kernel necrosis. Nickel, Cu, and Ni + Cu were tank mixed with zinc

and applied as a canopy application at the parachute stage of leaf development followed by two additional applications at two week intervals. One study was conducted for two years, and a second study was conducted for one year using the same treatments. Foliar nutrient applications increased the leaf concentration of the applied nutrients. The amount of kernel necrosis was unaffected by treatment, and no consistent positive results could be attributed to the canopy treatments.



Fig. 1. 'Pawnee' kernel with kernel necrosis.

Pecan Management Short Course at OSU *Eric T. Stafne* *OSU Horticulture & Landscape Architecture*

One of the most frequent questions I get from pecan producers is, "How is the short course going this year?" I guess one reason they ask is because they know I teach it and it is an easy conversation starter. But, I suspect the more important reason is because they have a vested interest in it. Each one who asks probably attended the course (at least once) and knows what a valuable resource it is for pecan producers throughout the state.



Fig. 1 Students learning the four-flap graft.

The pecan management course at Oklahoma State University just completed its 14th year. Initially it began as a one or two day course held in conjunction with the Oklahoma Horticulture Industries Show (now called the Oklahoma-Arkansas Horticulture Industries Show), but was expanded to being taught over a 8 month period starting in 1997. The current course has 28 student contact hours over eight class periods. Classes meet one time per month

on a Tuesday afternoon from 1pm to 5pm (all months except June, when we hope students will attend the OPGA annual conference). Classes held early in the year are better attended than those during the summer, especially the month of August, likely due to competition with other activities. We have numerous guest speakers from OSU and the Noble Foundation, but also from industry, including Bill Ihle, Jim Smith, and Dick Hoffman.



Fig 2. Jim Smith counseling a student on the proper way to size up the scion and rootstock.

Since I took over the course in 2006, the average has been about 25 persons attending the course per year. The last number of attendees has been a little light the last couple of years probably because of the poor crops. Attendance appears to increase following "on" pecan harvest years and fall following "off" years. Price obtained for pecans may be a factor, but its impact is not immediately evident.

Teaching the short course is one of the more rewarding aspects of my job at OSU. Getting to discuss problems and successes with pecan producers is of great benefit to me and I hope to them as well. I have made many field visits to past and current student's orchards. If you know of anyone who is interested in attending next year's course, please have them contact me in November or December and I can get them registered.



Fig. 3 Students test their abilities to assess the crop load at Dick Hoffman's orchard.

Response of Young Bearing Pecan Trees to Spring Foliar Nickel Applications

Pradeep Wagle, Michael W. Smith, Bruce W. Wood, and Charles T. Rohla

The lower critical leaf concentration for nickel (Ni) has not been fully determined for commercial pecan orchards. In a two-year study conducted near St. Jo, Texas, foliar Ni was applied to orchard trees in early spring beginning at the parachute stage of leaf development and followed by two additional applications at two week intervals. Yield, yield efficiency (ratio of yield to trunk area), trunk growth, leaf area, specific leaf weight, nut weight, nut quality, and kernel percentage were unaffected by treatment. Leaf Ni was increased, but leaf zinc and manganese concentrations were reduced by foliar Ni application. The lack of a detectable response to Ni treatment indicates that a July leaflet Ni concentration in the control ($2.87 \mu\text{g}\cdot\text{g}^{-1}$) met this pecan orchard's Ni requirement, establishing a lower critical threshold for leaf Ni than proposed elsewhere.

Shaker Pad Lubricant

Michael Smith

OSU Horticulture & Landscape Architecture

Pecan fruit thinning has become a common management tool for high-yielding cultivars. This management practice was developed in Oklahoma, and is now commonly used throughout the U.S. pecan belt, Mexico, and other countries where pecans are grown. Managing crop loads allows production of well-filled, high-quality nuts during "on" years and increases production during the "off" year. Combined with management of light interception by tree



Fig. 1. Pecan at one-half kernel expansion.

thinning or hedging, a balanced nutrition program, water management to avoid excesses or droughts, and a properly implemented integrated pest management program much of the irregular bearing tendency of pecans can be eliminated.

Guidelines for pecan fruit thinning are to begin when the kernel is about one-half expanded (Fig. 1), and

thinning should be completed by the time the nut reaches the gel stage. In this region early maturing cultivars reach half kernel expansion by late July, and late maturing cultivars are at half kernel expansion in late August. The optimum crop load to produce top-quality nuts followed by a good return bloom varies among cultivars. Generally, cultivars with large fruit should have about 50%

to 60% of their shoots bearing fruit. Cultivars with small fruit can support 60% to 70% of their shoots with fruit. Research suggests that cluster size is not an important factor in determining either nut quality or return bloom. Total crop load appears to be the most important factor. Crop loads on young trees can be deceptive because the lower portion of the tree may be heavily loaded, while the vigorous upper part of the tree has few fruit. Research and experience indicates that the distribution of nuts in the tree is not as important as the total load, so young trees can carry a heavy load on the bottom of the tree without detrimental effects if the top has few nuts.

Fruit thinning is quite stressful on the operator. Don't take off enough and the quality and return bloom is poor. Take off too many and profits are reduced. Get tired, or a limb obstructs your view and the shaker may not be clamped properly resulting in bark damage. Fail to keep the pads properly lubricated and the bark may be damaged. When I initially developed fruit thinning, grease was used to lubricate between the sling and flap. Next I began to use silicon in an aerosol can. Both of these were reasonably effective, although the grease was quite messy and shortened the life of the shaker pads. Bill Ihle, Pecan and Agricultural Equipment, Bristow, gave me a new product to try – Sunrise Shaker Pad Lubricant (Fig. 2). This product was extremely effective in lubricating the pad, and preventing tree damage while thinning. It also appeared to increase the pliability of the rubber. I reapplied the lubricant between the sling and flap about every 25 trees. About 800 trees were thinned and only one tree was damaged. Damage was caused by operator error, since the shaker was not level when thinning was initiated resulting in bark damage. The lubricant was mixed with water following



Fig. 2. Sunrise Shaker Pad Lubricant.

the directions on the package, and applied with a hand-held sprayer. This product appears to be an improvement over both grease and silicon aerosols.

Another use for the lubricant is during harvest, especially if harvest begins before trees are dormant. Lubricating between the sling and flap will reduce the chance for tree damage and extend the life of the pad.

Pecan Phenology

Michael Smith

OSU Horticulture & Landscape Architecture

In central Oklahoma, pecan budbreak is typically the first or second week in April (Fig. 1). Pecans are heterodichogamous (some cultivars or natives shed pollen before and others after their females are receptive) with pollination during mid- to late-May, depending on cultivar. Catkin (male flower) differentiation for next year's crop can be detected about 3 weeks after budbreak. Following pollination fruit growth is slow, and then becomes rapid about the first of July. During fruit enlargement the endosperm is non-cellular, i.e. water stage. In mid- to late-August (most cultivars) the endosperm becomes cellular (gel stage) and the pericarp (shell) begins lignification (shell hardening), ending fruit enlargement. Early August is also when pistillate flower induction (physiological changes from vegetative to reproductive state) occurs

for next year's crop; however, differentiation (microscopically observable development) is delayed until bud swell. Deposition of cotyledonary materials (dough stage) immediately follows the gel stage. Fruit ripen (shuck split) in central Oklahoma between early September and early November, depending on cultivar. There are cultivars that produce earlier and later ripening fruit, but they are not grown in Oklahoma. Central Oklahoma's last average spring freeze is 1 Apr. (50:50 chance for a freeze on or after that date) and the first killing (28 °F) fall freeze is 15 Nov.

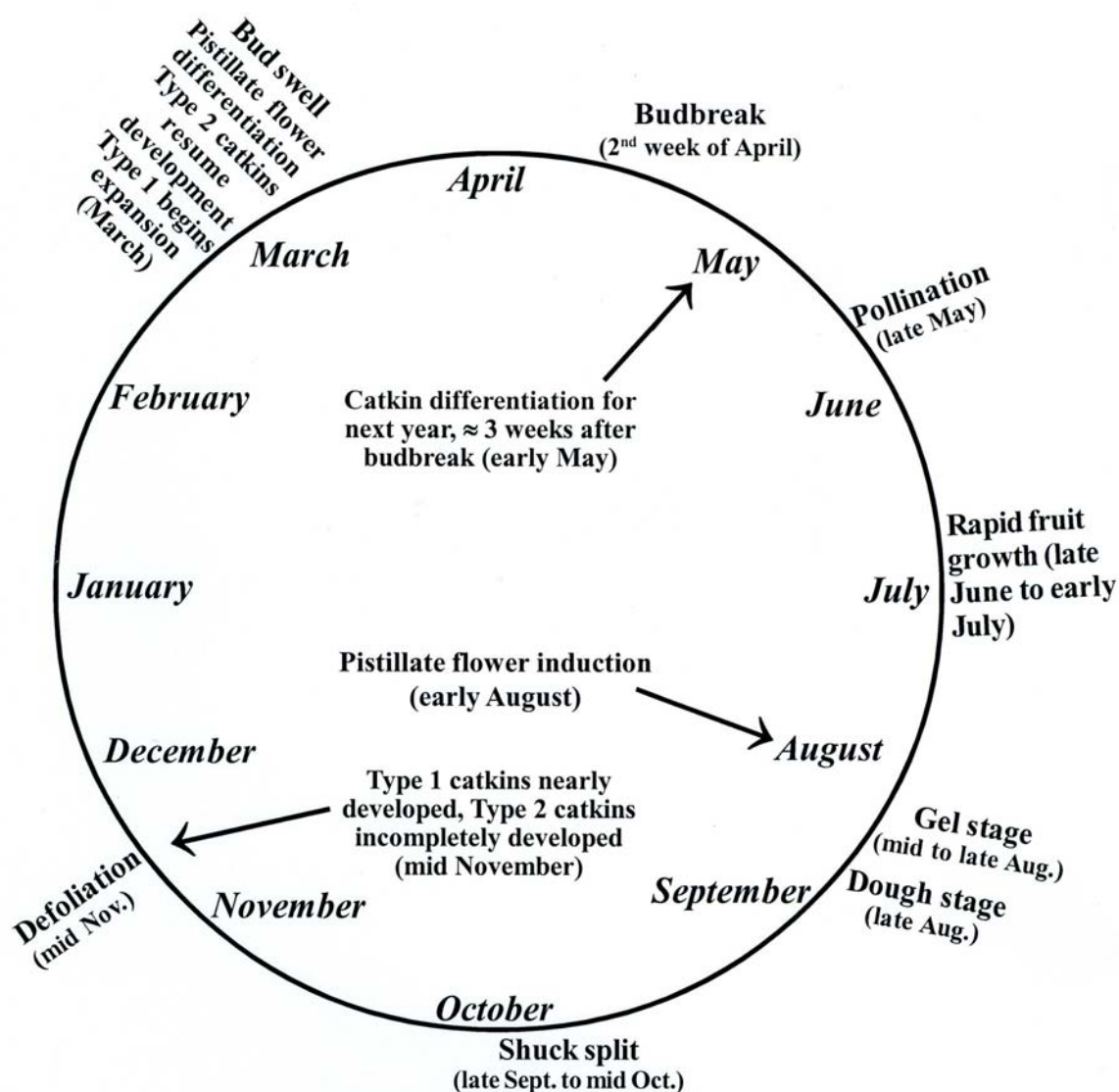


Fig. 1. Annual cycle of pecan phenology and reproductive development. Simultaneous events for the current season crop (outside circle) and next year's crop (inside circle) are identified. The timeline is representative of central Oklahoma. Trees with type 1 catkin development are protandrous (pollen shed before female flower receptivity) and those with type 2 are protogynous (pollen shed after female flower receptivity).

Classified ads may be placed in the Newsletter for free by OPGA members. Send your ad to Mike Smith at mike.smith@okstate.edu and it will appear in the next newsletter and subsequent Newsletters until notification to remove the advertisement.

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Oklahoma Pecan Growers' Association

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Return Service Requested

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
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