



# PLANT DISEASE AND INSECT ADVISORY

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## Managing Insect Problems in Freeze-damaged Fruit Phil Mulder, OSU Extension Entomologist

*Much of this information was excerpted from information provided by Dr. Donn Johnson at University of Arkansas. I have tailored it for Oklahoma growers.*

With a limited amount of fruit production in Oklahoma due to April freezes, growers still need to maintain fruit plant health and protect against indirect pests. That means minimal need for insecticide applications against fruit feeding insects like codling moth (CM), grape berry moth (GBM), Oriental fruit moth (OFM = *see comments below about OFM tunneling in succulent terminal*), green June beetles and stink bugs on grapes and/or peaches

There will be a need to monitor and possibly control (spray insecticide) the following indirect fruit pests:

- San Jose scale (SJS), grape scale (GS) and grape phylloxera (GP) control of crawler by making sprays in May: Specifically, GP crawlers will cause leaf galls on susceptible grape cultivars including: Vidal, Vignoles, Norton/Cynthiana, and Chambourcin. Monitoring: you can determine when and how long SJS, GS and GP yellow crawlers emerge. Wrap double sticky tape as traps around infested limbs or canes by the last week of April. Weekly, check these tapes for crawlers (yellow to amber spots = size of typed period “.”) and replace sticky tape traps. You can also lift up SJS or GS covers or cut open GP leaf galls and use hand lens to see if yellow crawlers are present. Apply protective spray during crawler emergence period.



- Oriental fruit moth may need to be controlled to prevent terminal damage of young peach trees during training. Watch for start of terminal flagging and possibly spray in early-May, mid-June, August and September. All mature peach trees will be producing excessive vegetative growth since nutrients will be diverted to fruit. Although larvae will find no fruit, a few OFM larvae will survive on the few succulent terminals that appear during the hot portion of the summer. Eventually, an abundant number of succulent terminals will appear in late summer allowing OFM to build up high numbers to overwinter and emerge in 2008. This would be a good year to use Mating



disruption starting by mid-May when you place 100 Isomate-M Rosso (Pacific Biocontrol) ropes/acre to disrupt mating of OFM in apples and peaches.

- Greater peachtree borer (trunk drench sprays of Lorsban in May or June)
- Spider mite outbreaks usually occur after an insecticide spray (Pyrethroid or Sevin) or mowing, tilling or herbicide spray of ground cover weeds. Periodically, check 100 leaves from susceptible cultivars for presence of spider mites and spray if greater than 5 mites/leaf or 70% of inspected leaves with mites present.
- Raspberry crown borer (RCB) in brambles: cut off fruited canes at base and check for tunneling (hole in pith) in the cane which indicates attack by RCB. If RCB damage present, drench base of blackberry plants with Capture in late October-early November.
- Rednecked cane borer (RNCB) in blackberries: Check 100 canes for presence of galls (cane swelling) from ground to about 18" up cane. If greater than 5% of canes with galls, then time applications of Pyrellin or Pyganic sprays when RNCB adults appear feeding on primocane leaves in May. It is best to apply these pesticides in the evening after the honey bees have stopped pollinating to minimize bee death.

Oriental fruit moth will lay eggs in April and early May and late August and September (if OFM survive the summer with no soft terminals to feed on). Larvae will tunnel in and kill succulent terminals of peaches causing poor peach tree architecture of young peach trees = protect young trees when you see terminal damage starting.



Spider mites: You could see some spider mites buildup in scale-sprayed trees, 'Delicious' apples (or other mite-susceptible cultivars), and after June weed removal or after herbicide is applied to weed ground cover under peach trees. Be Watching.

Concerning PC, CM and possibly OFM: PC and CM adults or at least their larvae that emerge in March and April will die due to lack of food in orchard and no wild food sources. However, I believe a small portion of the PC, CM and maybe OFM populations will survive because they will not emerge from diapause this spring 2007 but will emerge spring 2008. This is a behavior evolved to deal with the biennial bearing nature of fruit trees.

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## **Life after the freeze – pecan pest management concerns can continue**

**Phil Mulder, OSU Extension Entomologist**

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Anyone that has grown pecan long enough knows the perils of an early spring and/or early winter, and if they didn't, spring 2007 was a cruel reminder or educator. This was especially true for many Oklahoma pecan producers. Pecans have a unique ability to survive periodic stresses that occur throughout the native range including; pollination drop, casebearer drop, physiological

drop and water stage drop. This survival ability can contribute to the longevity of pecan trees in the native environment. The extreme drought conditions throughout Oklahoma from fall 2005 and through 2006 have already contributed to quality concerns for many growers during the 2006 production season. Currently, the polar opposite of drought has brought on flood conditions across the Great Plains. With the addition of more than adequate rainfall and a partial crop for many producers, what approach should be taken in managing damaged or fruitless trees in 2007?

First and most importantly, accurately assess the fruit situation. Are the trees producing about a 30% crop, a 10% crop or about a 50% crop? None of these scenarios is very appealing, but making that assessment can help you decide on management priorities during the current growing season. If early catkins, flowers and all primary buds have died, then this means you will likely have no better than a 50% crop. If shoot growth (tip burn) and secondary buds have died you may be fortunate to have salvaged 10% of the crop. With large seeded, improved cultivars that generally require fruit thinning later in the season, a 50-60% crop may not sound bad; however, from a pest management standpoint what do these various scenarios mean to your control tactics? Undoubtedly, there should be little concern for nut feeding pests if only 10% of the crop has survived. The difficulty comes from several decisions and situations. If 50% of the fruit have survived and all surrounding property has very little production, including alternate food sources for wildlife, can you hope to protect the crop long enough to make a profit? These are all very difficult questions to ask when Mother Nature has already decided to take her share up front.

Ultimately, the concern is for overall tree health and long term production. So, with those thoughts in mind, growers with a limited crop should focus their concerns on maintaining **tree structure, foliage and nutrition**. While fruit production may still be an important focus for growers with much to salvage, it may not be the greatest concern for those adversely affected by April freezes. Hopefully, tree structure was maintained throughout the freeze unless heavy accumulations of ice caused limb breakage. Where limb breakage was a significant problem, growers should clean up the existing orchard and be encouraged to gather and burn as much of this material as possible. The destruction of damaged materials is important in reducing harborage for wood boring insects, twig girdlers, pruners and other insects that can take advantage of such sites.

Maintaining adequate leaf material throughout the season and providing adequate fertility for pecans during fruitless periods can pay big dividends during the next growing season. Significant loss of leaf material, before mid-October in Oklahoma can result in appreciable affects on production for the next year. This means not only applying zinc on a normal schedule, to provide for this years growth, but protecting leaves from defoliation by insects and diseases. It seems difficult to make the decision to protect an unproductive tree, but growers have to be sensitive to their long range plans and the trees' long term health.

While pecan nut casebearer may not be worthy of control efforts on a 10% crop, letting fall webworms, walnut datana or pecan scab have the foliage from June through September can leave you with a partial crop for next year. Early protection of tender leaves from diseases such as pecan scab or powdery mildew can also help retain foliage. Therefore, plowing or harrowing under infected leaf material in an unproductive year, may represent a good partial approach for disease management. Similarly, protecting foliage from a late flush of aphids can prevent premature leaf drop, which can have a profound effect on next year's production. Growers with 30-50% production should not allow pecan weevils to ravage the light crop this year; since their

oviposition activities will only generate greater populations 2-3 years later. Therefore, protecting a partial crop may be a more difficult decision than protecting no crop.

Although it's not much compensation for growers that were devastated by the freeze this year, most of the nation will likely experience a bumper crop, which could be accompanied by a lower price, based on supply and demand. With that in mind, the grower that pays careful attention to his freeze-damaged trees this year may reap the benefits of better price support next year. We can live in hope!

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## **Pecan Scab Problems Raise Concern Early**

**Phil Mulder, OSU Extension Entomologist**



With the advent of heavy rainfall throughout the state and warm temperatures on the horizon, several growers have already begun treating pecans for scab and/or looking for early answers on the pecan scab model site. Before you take everything I am about to offer as gospel, please understand that I am not a plant pathologist. We have recently hired a plant pathologist, but he will not be starting until probably September. In relation to the scab model, as well as the pecan nut casebearer model, they are both up and running this week. The Mesonet folks had some glitches to work out and were delayed in getting both models going, but they are operational now. Please, please, keep in mind that these models are should both serve as tools in helping growers reach decisions and provide them cues for pest management decisions. They cannot and

should not be used to decide on spray dates, treatment choices or specific timing of application. **THESE AGRICULTURAL MODELS SHOULD NOT REPLACE COMMON SENSE!!!**

Some inherent problems associated with the models that we have experienced already this year has been compensating for the early warm temperatures and subsequent freeze in April. In addition, localized and heavy rainfall along with temperature and relative humidity (RH) differences from specific orchards to the Mesonet sites can vary tremendously. Growers should have an appreciation for this in their area and use common sense in making treatment decisions.

Part of the process involved in determining your need for fungicide applications in pecan is to know your choices and your situation. Are you growing natives or improved cultivars? Are you allowing livestock to graze the orchard floor? Are you growing resistant cultivars are those that might be more susceptible to scab problems? The answers to these questions will help you make informed choices on approaches to pest management, chemical choices and scheduling of applications.

In native groves, growers should attempt to open up the area to air and light. Specifically, this means removing heavily scabbing trees and promoting drainage of water and air through the grove. If you keep in mind that scab infection increases whenever temperatures exceed 70°F and

RH is above 90%, this should tell you how much Oklahoma is at risk for considerable pressure by pecan scab. Generally speaking, improved cultivars require more intensive management of scab problems than natives, primarily due to the potential return, particularly for those retailing pecans. With many improved cultivars, in years similar to this year, a pre-pollination treatment about 5 weeks after budbreak may be required. We are a little late for that application right now, especially in the southern counties, however, it is never too late to protect the leaves and small nuts from initial infection, particularly when environmental conditions warrant that choice. The decision to treat pecans for any pest often comes down to making an accurate assessment of crop load and potential profits. Once again, in the southern range of Oklahoma as well as the nation, a tremendously large crop is in the making and currently price forecasts are good. That is not to suggest that the latter will stay that way, particularly once crop estimates become available.

Much of the pecan crop across the state has completed pollination and pecan nut casebearer (PNC) treatment time is quickly approaching. Once again, with this pest and the model available on the Internet, we have noticed some shortcomings this year. We generally suggest hanging pheromone traps when your area reaches 1100 degree days; however, this year in Burneyville, Oklahoma (right on the Red River) we captured our first three moths on the weekend of May 5-6. This is the earliest we have captured PNC in Oklahoma and was well ahead of the advisory time on when to set out traps. In addition, the traps located in that area have continued to sustain capture and we recently captured 67 moths in the 10 traps monitored. This may indicate an early treatment; however, that final decision should be based on scouting for eggs and/or damage.

When PNC treatment does take place, this will represent another critical time for scab treatment for many growers (regardless of whether they have native or improved pecans). If you are using a phenological method of scheduling fungicide applications, this signals a time when pollination is complete and likely when PNC application will take place anyway. Therefore, tank mixes of insecticides and fungicides can be a cost-effective means of controlling both pests simultaneously. Once that initial application of fungicide has been made, plants are considered protected for a 14 day period. Keep in mind that fungicides applied for scab serve to protect the plant from infection and are not like insecticide applications, which are considered rescue treatments when numbers exceed a specified threshold. Subsequent scab treatments (cover sprays), after PNC application timing, can be decided by using the scab model and have shown excellent effectiveness when conditions are similar between the Mesonet site and the actual orchard, particularly in summer months. Scab protection should be done diligently until around August 15 of each year and may require up to 4-5 treatments. The fungicides used for scab control are outlined in CR-6209 and the 2007 OSU Extension Agent's Handbook. Please keep in mind the necessity in rotating chemical classes when using fungicides, as this delays the onset of resistance problems. Each chemical in those resources has a number in parenthesis to the right and this denotes the chemical class. Simply rotate from one number to another and try not to use the same chemical class more than twice in a row.

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