



COOPERATIVE EXTENSION

UNIVERSITY OF CALIFORNIA



TREE AND VINE NOTES



SEPTEMBER 2009



Inspecting the Orchard During the Post-Harvest Period for Damage

David Doll, UCCE Merced County

Shaking has almost been completed throughout many almond orchards. Through this process, a lot of stress has been placed on orchard trees. Trees may have also been damaged throughout the duration of the growing season or during the harvesting process. After harvest is completed, it is helpful to walk the orchard and observe for problematic areas.

Things to look for include: Shaker or other mechanical damage that may lead to infection by *Ceratocystis*, mite damage or webbing in trees, areas containing a large amount of stick-tights, excessive leaf defoliation due to either mite infestation or lack of water, gumming of the trunks or scaffolds, areas affected by Hull-rot, and/or areas of poor nut pick-up.

To find out how to prevent these problems, look for patterns. Does the damage appear in any specific locations, such as at the end of irrigation runs, near irrigation valves, areas of different soil textures, or near orchard borders? Were shaker damaged trees shook at the beginning or end of the day? Is only one variety affected?

Identifying these patterns will provide valuable clues about what went wrong and allow corrective practices for the coming year.

Check out the Almond Doctor:

A website discussing almond production with weekly updates can be found at <http://www.thealmonddoctor.com/>. Topics have included field diagnosis of problems, production practices, integrated pest management, and news updates regarding almond production.

Post Harvest Care of Almonds

David Doll, Farm Advisor, Merced County

We are mid way through almond harvest. As we finish up shaking our earlies and nonpareils, we need to keep in mind the list of orchard tasks to help maintain crop production for the next year. For almonds, flower bud differentiation takes place during the month of September. This means that next year's bloom and subsequent crop is being formed in the middle of this year's harvest.

During this time period, there are three important cultural practices that need to be considered by almond growers. They include irrigation, nitrogen fertilization and pruning.

1. Post-harvest irrigation is very important to keep the leaves active and functioning until normal leaf drop, which typically takes place in mid November. By preventing premature defoliation, we let the tree transition its nutrients from the leaves back to the fruiting spurs. The nutrients that are known to migrate from the leaves to the spurs at the onset of leaf fall are nitrogen, potassium and phosphorous. These nutrients play major roles in bloom development and fruit set.

If the orchard does prematurely defoliate due to lack of water, irrigate to encourage re-growth. This may reduce yields in the following year, but yield loss will not be as significant as not watering at all. If watering does not occur, not only will fruit bud differentiation be poor, the orchard will suffer from premature flower drop in late winter. The best advice is to avoid this situation all together by properly managing your water during the harvest period.

2. After irrigation, nitrogen fertilization is the most important cultural practice in an almond orchard. For most of our orchards, split nitrogen applications provide the most efficient use of nitrogen. A post-harvest nitrogen application can be of 20 to 40 units per application - dependent upon tree age- totaling no more than 10 to 20 percent of the total nitrogen applied to the orchard.

3. Pruning should occur after the harvest is completed. During this time it is easy to distinguish between old, diseased, dead and new wood. Remember to remove diseased branches 6-12 inches beyond the last sign of diseased tissue (i.e. canker). If possible, avoid pruning during the rain or if rain is within the 3-5 day forecast. Pruning cuts take at least 7 days to heal and can provide entrance for fungal pathogens.

The overall value of pruning itself has been questioned by recent UC research. Data has indicated that heavy pruning reduces the following crops yield and costs money to perform. When making the decision to prune, think of the real reasons you want to prune. Often times some of the ugliest orchards yield the highest. Please feel free to contact me if you have questions regarding pruning.

Spotted Wing Drosophila (SWD)

Maxwell Norton, UC Cooperative Extension

As harvest winds down there are no new major developments with this new pest of smooth-skinned fruits & berries. Some of my UC colleagues have been doing some excellent work on possible control methods. We will be able to report on this work this winter some time. We will also have a better assessment of how extensive the host list is and how much damage has been caused. If you go to our web site cemerced.ucdavis.edu there are links to more information about the SWD.

On-line Courses in Viticulture and Enology

UC Davis offers some of their well-known courses on viticulture and wine making on-line. Go to <http://extension.ucdavis.edu> and select On-Line Learning

On the left hand menu way at the bottom is viticulture and enology:

http://extension.ucdavis.edu/unit/online_learning/course/listing/?unit=OL&prgList=VIT&coursearea=Viticulture+and+Enology

Budget Cuts at Cooperative Extension

Due to recent budget cuts, we have had to lay-off one of our three county secretaries. The UC employees, such as Farm Advisors will be required to take off un-paid furlough days, similar to what other state employees must take. We may be reducing the hours we are open but that has not been determined yet so give us a call before you drive a long distance to any of the Cooperative Extension offices. Thanks again for your continuing support of Cooperative Extension. Your positive comments about us to policy-makers really helps.

Web Site for Free Publications Launched

<https://ucanr.org/freepubs>

We have a new Web site to quickly find the hundreds of free, online publications written by UC ANR. Known as the "Free Pubs Site" it provides easy access to our growing collection of short, peer-reviewed publications.

An assessment of multiple approaches for controlling gophers in vineyards.

Roger A. Baldwin, UC Wildlife Pest Management Advisor, Kearney Agricultural Center

Pocket gophers cause extensive damage to many crops throughout California. Many tools are available for controlling gophers including trapping, fumigation with aluminum phosphide, poison baits, and the use of a gas explosive device. Trapping gophers has been a common method for controlling gophers for many years. However, a new trap called the Gophinator (Trapline Products, Menlo Park, CA) is now available that may increase efficiency of trapping. Additionally, combining aluminum phosphide fumigation with trapping may increase effectiveness, as gophers will occasionally spring traps without getting captured. In these situations, gophers often become trap shy and are much more difficult to capture. Treating these tunnel systems with aluminum phosphide shortly after trapping could remove these individuals from the population thereby increasing gopher control in vineyards. Poison baiting with strychnine, zinc phosphide, and anticoagulant baits (e.g., chlorophacinone and diphacinone) has often been used to control gophers. Efficacy of these treatments has varied widely, although strychnine baits reportedly are most effective. Gas explosive devices have been used to control a number of burrowing animals, although no scientific studies on gophers have been reported. These devices combust a mixture of propane and oxygen within tunnel systems, thereby killing gophers through concussive force while also destroying the burrow system. All of these methods are currently allowable techniques for controlling gophers in California, although the efficacy and efficiency of these approaches, particularly in comparison to one another, remain unclear.

To better address these issues, I established a replicated trial at Laguna Ranch, Sebastopol, CA, from 6 April – 8 May, 2009, to estimate the efficacy and efficiency of these approaches. Three study blocks were established ranging from 21–31 acres in size. Plots of all three treatment types (trapping + aluminum phosphide, baiting with strychnine, gas explosive device [Rodenator®]) and a control were established within each block. Based on absolute indices (number of sites with any gopher sign after treatment/number of sites with any gopher sign before treatment), Rodenator® control ranged from 0–55%, baiting control ranged from 30–56%, and trapping + fumigation ranged from 74–90%. Relative index values (number of gopher mounds and feeder holes after treatment/number of gopher mounds and feeder holes before treatment) mirrored absolute indices, with substantial reductions in gopher sign for all trapping + fumigation plots (range = 91–96%); only 2 of 3 baiting (range = 22–81%) and Rodenator® (range = 0–86%) plots indicated substantially reduced gopher sign. Index values did not differ for control plots for either absolute or relative indices. Therefore, observed differences within and across treatments did not appear to be an artifact of natural variation in gopher populations over the sampling period.

The time required to apply each treatment was relatively similar between baiting, trapping, and Rodenator® treatments (90–106 seconds); fumigation treatments were substantially longer (260 seconds). Total costs for each treatment were \$7,568, \$6,338, and \$4,532 for baiting, Rodenator®, and trapping + fumigation, respectively.

To be effective, control measures need to result in a minimum of a 70% reduction in plots with gopher activity; values of 80–90% are preferable. Trapping + fumigation met this minimum criterion in all three plots, and met the more rigorous criterion in 2 of 3 plots. Even the one plot that fell short of an 80% reduction in plots with gopher activity yielded a 92% reduction in overall gopher activity. In addition to being more efficacious, trapping + fumigation was also more cost effective. Therefore, trapping + fumigation appears to be an effective method for controlling gophers. Baiting and Rodenator® treatments did somewhat reduce gopher activity in most plots, but these levels of control fell well below the minimum threshold for effectiveness (70%). As such, growers may realize short-term benefits from control, but will have to apply equal effort for control the following year. More effective control measures (80–90%) should reduce the cost of control in subsequent years.

Although absolute values were lower than desired for baiting and Rodenator® treatments, relative index values indicated a substantial reduction in gopher activity for 2 of 3 plots for both baiting and Rodenator® treatments. Therefore, an additional round of treatments could have resulted in greater absolute control values, although additional treatments would add additional costs to control efforts. This is of note, as baiting, and in particular, Rodenator®, treatments have the potential for slowing reinvasion rates due to the destruction of gopher burrow systems by the Rodenator®, and due to residual bait remaining in vacated gopher tunnel systems. However, given that these treatment types were already more costly than trapping + fumigation, a relatively high reduction in reinvasion rates would be required to offset these costs. These reinvasion rates are starting to be assessed. Initial results have hinted that Rodenator® treatments may in fact be reducing gopher populations several months post-treatment, although several more sampling periods will be required to determine if this is in fact the case. Presently, trapping + fumigation appears to be the most effective and efficient method for gopher control.

Tree and Vine Notes Newsletter Renewal
If you want to continue receiving this newsletter we need to hear from you.

If you choose to receive the newsletter by e-mail you will be able click on the links and see color pictures!

Name: _____

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____ No thanks – please remove my name: _____

What crops do you grow, or advise on? _____

I am a: farmer, PCA, Consultant, Manager, Foreman, Other professional, student (circle one)

Please share with us what newspapers you receive:

- Merced Sun Star
- Modesto Bee
- Fresno Bee
- Merced County Times
- Gustine Standard
- Los Banos Enterprise
- Atwater Times
- Dos Palos
- Winton Times
- Hilmar Times
- Livingston Chronicle

Others: _____

Almond Pest Management Comprehensive Course

Wednesday, November 4
8:00 am – 5:00 pm
UC Kearney Research
& Extension Center
Parlier, CA



Thursday, November 5
8:00 am – 5:00 pm
UCCE San Joaquin County
Office
Stockton, CA

This full day of presentations and demonstrations will provide the latest information for the cost effective control of insect, mites, and diseases.

Featuring experts in almond production and pest management:

UC Cooperative Extension

Art Craigmill	Franz Niederholzer
Brent Holtz	Joe Connell
Carolyn DeBuse	Kent Daane
David Doll	Paul Verdegaal
David Haviland	Roger Baldwin
Elizabeth Fichtner	Roger Duncan

UC IPM

Carolyn Pickel
Walt Bentley

USDA/ARS

Bas Kuenen
Joel Siegel

Almond Board

Bob Curtis

Presentations and demonstrations:

- Winter monitoring – in the field and under the microscope
- Timing of new insecticides
- Plant diseases at bloom
- Squirrel control in almond orchards
- Mite monitoring and control
- Ant monitoring and control
- Emerging pest control technologies
- Identifying the culprits of nut damage
- Pesticides, toxicology and water quality
- Insects and mites providing biological control
- Predicting Navel Orangeworm damage
- Using degree days for NOW management
- New NOW monitoring tools

\$45 Fee includes lunch and a course binder full of information and extras

For more information contact Mark Cady at (530) 756-8518, ext 20, or mark@caff.org.

6.5 hours of CE credits have been applied for

Funding for this meeting provided by the California Department of Pesticide Regulation, and the USDA Agricultural Research Service with support from University of California, Cooperative Extension

To register send \$45 registration fee to
PMA Pest Management Course
c/o CAFF
P.O. Box 363
Davis, CA 95617

This registration is for the meeting in

- Parlier – November 4
 Stockton - November 5

Name: _____

Address: _____

Phone: _____

Email: _____