Distinguishing Bacterial Canker from Phytophthora Root and Crown Rot

I have observed a number of orchards showing blossom bacterial blast symptoms this year in San Joaquin County (see figure 1). Bacterial canker and blossom blast are both caused by the plant pathogenic bacterium *Pseudomonas syringae* pv. *syringae*, which may live on the surface of infected and healthy plants. *Pseudomonas syringae* lives most of the time as an ‘omnipresent epiphyte’, living happily on the surface of plants and waiting for the right conditions (cold wet weather and weakened plants) that allow it to enter the plant, multiply, and trigger a disease (bacterial blast or canker). Relatively little is known about blossom bacterial blast, but we do know that cold wet weather during bloom can be an important predisposing factor that can worsen the disease. This picture of ‘blasted’ flowers is of trees growing in sandy soils in an orchard near Manteca. On February 27th the CIMIS station in Manteca (CIMIS 070) recorded a low temperature of 27.2°F. This occurred close to full bloom and may have predisposed blooms to infection. Bacterial blast is usually more severe in the lower canopy of the tree and in the lower part of an orchard because of lower temperatures. Blast is usually more severe on earlier blooming varieties, likely because they tend to be in bloom when temperatures are cooler. Bacterial blast has been significantly reduced in trials where trees were protected against frost by running water or wind machines. Harley English, a UC Davis professor from 1947 to 1978, conducted a series of experiments on bacterial blossom blast. Blossoming shoots of almond that were cut from the tree and subjected to 24.8°F (−4°C) for two hours were significantly more susceptible to blast than shoots that were not subjected to the two-hour frost treatment. In another experiment, leafing out shoots were cut and sprayed with ‘ice-nucleating’ *Pseudomonas syringae* (able to catalyze the formation of ice) before being subjected to freezing temperatures. Other shoots were also inoculated but not chilled. Bacterial damage to leaf clusters was significantly greater in shoots that had been inoculated and chilled, confirming the interaction between ice-nucleating bacteria and freezing temperatures.

We may also see bacterial canker symptoms later this spring as well as Phytophthora root and crown rot, as a result of all the recent rain we have had. I thought I would review their distinguishing characteristics. Symptoms of Phytophthora root rot and bacterial canker are often quite distinctive from each other making visual diagnosis possible. The roots of *Phytophthora*-infected trees just below the soil line are often brown and decayed, and as you work your way up the tree, cutting into the vascular system, you usually find healthy tissue in the scaffolds and branches. Usually you find a distinct margin between rotten and healthy vascular tissue as you follow the advance of Phytophthora. The roots of bacterial canker-affected trees are usually healthy and these trees are often suckering because root systems are still alive. Trees with bacterial canker usually have shoots and scaffold death and gumming. Often only one branch or scaffold is infected. If you cut into affected wood you will almost always have a sweet sour smell, and as you work your way down the tree, cutting into vascular tissue, you eventually find green healthy tissue as you approach the roots. The sour sap phase of bacterial canker may not show gum and cankers, but the inner bark can be brown, fermented, and sour smelling. Red colored flecks and pockets of bacterial invasion in

(Continued on page 2)
referred to as the crop water requirement, or orchard water requirement. In Dr. David Goldhamer’s irrigation scheduling chapter in our UC Almond Production Manual (ANR publication #3364) ET\textsubscript{c} from May 1\textsuperscript{st} to 15\textsuperscript{th} is 2.1 total inches (47.3 gallons/tree/day) and ET\textsubscript{c} from May 16\textsuperscript{th} to 31\textsuperscript{st} is 2.5 total inches (51.2 gallons/tree/day) while seasonal cumulative ET\textsubscript{c} from March 16\textsuperscript{th} to May 31\textsuperscript{st} is 9.4 total inches. The amount of water stored in the soil depends on rainfall intensity, duration, and soil water holding capacity, but generally it is between 50% and 70% of total winter rainfall. Thus, this year you probably do not need to apply all the water recommended for May.

We just published a 2011 cost study “Sample Costs to Establish an Orchard and Produce Almonds, San Joaquin Valley North, Micro Sprinkler Irrigation.” It is available from our office or online at: http://coststudies.ucdavis.edu.

Good luck!

Brent Holtz, Pomology Advisor and County Director

Managing Mistletoe

Leafy mistletoe is a common sight in landscape trees in the San Joaquin Valley. There are two species of mistletoe in our area, Phoradendron villosum, which affects oaks, and P. macrophyllum, which affects a variety of trees including ornamental pear, maple, ash, walnut, and alder. Although a mature healthy tree may tolerate a few mistletoe plants, heavy infection of trees increases water stress and may cause dieback of branches or weakening of the entire tree to the point of becoming susceptible to other diseases or death.

Broadleaf mistletoe, as it is sometimes called, is a parasitic plant that produces its own food through photosynthesis but requires a host plant from which it extracts water and minerals. It does this by sending root-like structures called haustoria through the bark into the tree’s fluid-conducting tissues. Once inside, these structures can extend quite a distance from the point of infection. As long as the tree is well-watered and the infestation is light, the tree survives. However trees can’t regulate the extra water being transpired by the mistletoe, and if a tree is drought stressed then branches may die outward from the point of infection. Numerous mistletoe plants on a stressed tree can be a cause of tree mortality.
Mature female mistletoe plants produce nutritious, white berries that are a favorite of robins, bluebirds, thrushes, and waxwings, among others. Birds have been known to defend mistletoe plants to prevent other birds from eating the berries. Mistletoe infections occur when birds eat the berries from nearby fruiting mistletoe plants and deposit them unharmed from their digestive tract onto a tree branch. The seeds have a sticky coating that allows them to adhere to the branch while they send out the haustoria to find a thin place in the bark from which to launch their attack. Birds prefer to perch in large trees, so most mistletoe infections occur in larger, older trees. Since birds can spend quite a long time in one tree feeding on the berries, one infection begets another!

Managing Infections

The first step to management is prevention by planting trees resistant to mistletoe if you are in an area with a high level of infection. Among these are Bradford flowering pear, Chinese pistache, crape myrtle, eucalyptus, ginkgo, golden rain tree, liquidambar, and sycamore. Avoid particularly susceptible species such as Modesto ash and Aristocrat pear. When planting into a new area, it is important to prune out any infections in surrounding trees, and whole neighborhoods may need to cooperate to gain control.

Mechanical control refers to cutting out infections, and the best control is achieved when these are removed before the plants are mature enough to produce seed. Maturity typically requires two or three years. When new infections are quickly removed, control is much more satisfactory.

If branches are not too large, and proper thinning cuts can be made, the best control is achieved by removing the entire infected branch at least 6 inches below the point of infection, or further if the mistletoe plant is several years old. When branches are too large, or their removal would harm the structure or looks of the tree, the mistletoe can be cut off flush with the branch. However, the leaves will regrow within a year and the plant will need to be removed again before it sets seed, usually within 2 to 3 years. Some success with preventing regrowth has been seen with branch wrapping. This is accomplished by first removing the mistletoe flush with the branch, and then loosely wrapping black polyethylene (garbage bags or weed barrier) for one foot in each direction from the point of infection and tying or taping the ends. The exclusion of light eventually kills the haustoria beneath, usually within two years. Combined with control of mistletoe in surrounding trees, this practice can help to significantly reduce occurrences of infestation.

If wrapping is not feasible and branch removal is undesirable, at the very least mistletoe infections should be cut from trees before they become damaging. In the case of severely infested and weakened trees, it may be preferable to remove them and replant with resistant species. Careful practices and diligence are required to gain control of this parasite and preserve our beautiful trees.

Karrie Reid, Environmental Horticulture Advisor

Yellow Book Goes On-Line

The big book fondly referred to as the Yellow Book is now available on-line. The Cow-Calf Management Guide organized and updated by the Cooperative Extension Systems in Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming is now being housed by Colorado State University Animal Science Department (http://www.csu.edu). The full English version and what is currently translated into Spanish can still be purchased through the University of Idaho (http://www.uidaho.edu/cals/avs/content/cowcalf). If you have never seen the Yellow Book, here is a small sampling of some of the topics you can find.

The book is organized by major topics such as nutrition, health, reproduction, pasture management, and marketing to name a few. You can browse through the contents of each section on-line and click on any of the links where you would like more information. You will see on each sheet the authors and you will notice that often authors are from more than one state, providing a larger perspective for issues such as marketing. Most of the health and reproduction papers are written by the Vet Schools’ Specialists, just the person you want your herd health advice to come from.

So, why would you need to check out the Yellow Book? Maybe you want to design a new set of corrals and you want Temple Grandin’s advice on the best design. Instead of trying to call her and have her consult with you, you could go to the Yellow Book and read her paper Cattle Psychology During Handling and Corral Design. Here you can find three different corral designs and tips for easy handling in the corrals from Temple Grandin herself. Or maybe you have a child starting a 4-H project and you want to have them read about some different management practices such as dehorning or castration to better understand why we do these management practices.
Perhaps this year you had a lot of abortions and you are trying to figure out what could have caused them. There is a paper simply titled Abortion of Cattle that details all of the possible causes of abortions, from poisonous plants to infectious diseases with information on how to handle a fetus for a necropsy to pinpoint the exact cause. (In California we have the opportunity to take them to the Diagnostic Lab in Davis for very little cost.) There is also a very handy table in the back that provides an overview of each infectious disease, which tissues are needed for a necropsy, when we typically see an abortion from each disease, and also the control steps to prevent an abortion. Our own genomics specialist, Allison Van Eenennaam, has a paper on using DNA to help select your cattle. This could be a new method that you want to check out and read more information to see if it would be a good fit for your operation compared to using EPD’s.

As you can see there is a wide variety of information available for you to take advantage of. Take a few minutes and glance at the different topics available, bookmark the website so you can find it easily the next time you have a question on any number of topics related to managing your cow-calf operation. The Yellow Book is a handy tool to have, and even better now that it is on-line.

Theresa Becchetti, Livestock & Natural Resource Advisor
Livestock & Natural Resources

**Crop Digest—Grapes**

Rainfall, Cool Temperatures & Wind
Irrigation
Powdery Mildew
Vertebrate Pests
Ongoing “New” Pests

The 2011 season started off with a second year of above-average rainfall. After three previously dry winters, last year was helpful, but didn’t quite fill depleted soil profiles. This spring, the 2011 situation provides vineyards with a fully wetted soil profile. As of May 1 the north county is at 23.6 inches of rainfall, compared to 18.9 inches of total rainfall last year. The south county is ending the 2011 rainfall season the same as last year at 14.1 total inches, just slightly ahead of the long-term average.

Much of the rain came early during October through December, with a dry spell mid-winter and a large amount in late February and through March, just before and during budbreak. Most rain events were significant and effective. Effective rainfall needs to be greater than 0.025 inches for one event and greater than the previous week’s ET, which is usually very low during winter time. Because of the very dry April and low relative humidity, early season problems of Phomopsis cane and leaf spot or Botrytis shoot blight have been non-existent.

So far the 2011 season has been as windy as last year; frequent occurrences of wind with gusts above 20 mph.

There have been some damaged shoots, but not as much as might be expected. Daytime temperatures have been warmer than in 2010, so that growing degree days (GDD) are well ahead of last year, but about average compared to the long term.

There was frost this year, as nighttime lows have often been very cold. The worst damage both locally and in the Central Coast occurred on April 8th. Damage was not as severe as in 2008 nor as widespread. Damage in many cases was limited to shoot tips and leaves, but in some locations crop loss did occur. This year the most damage seemed to occur between Davis and DeVries Rd north of Highway 12, towards I-5 and into the Delta. Some locations north of the Mokelumne between Lower Sacramento Rd and Highway 99 also experienced damage. In addition, Manteca seemed to suffer frost damage. The most severe damage seemed to have occur in the Delta and even more so all along the Central Coast from Monterey to Santa Maria. Another possible frost event seemed to affect the northeast and eastern part of the District on April 26th and even possibly on April 29th, when some weather stations recorded near freezing temperatures.

The good rainfall totals will help delay the need for significant irrigation and more so than last year as deep soil moisture is better this year. But watch the soil moisture either with soil moisture probes or a quick check by auger or even shovel in sandy sites, traditionally dry areas of your vineyard(s), and especially if cover crops are present. Vine growth should respond well to moderate growing conditions as they did in the wet years of 2005 and 2006. It’s a little early to estimate (guess), but crop loads may be good, although not huge.

Unless cover crop is present vines have only been using about 0.15 inches of water (or very “seat-of-the-pants”), about 3 hours of worth of irrigation time) per week. During that same period orchards have been using about 0.75 inches of water. That will double soon and increase further as the weather warms. That considered, it’s good to stay ahead of using deep soil moisture, which is good to have available for late summer and early fall.

Powdery mildew pressure has been light until the last week. Disease development shouldn’t be severe at this point, but you may need to be on an aggressive schedule of protection if it remains mild from here on out.

When it comes to powdery mildew, keeping costs down and avoiding resistance development probably requires a program that includes sulfur at some point in the season. Wettable sulfur after budbreak can also be a very effective choice for doubling up on an early start to powdery mildew control. With sulfur cost escalating, some of the newer materials are more cost competitive, although ground coverage is still much slower than with dusting sulfur. Whatever the material of choice ends up being, a good powdery mildew program includes: some sulfur,

(Continued on page 5)
rotation of materials between years, and **complete coverage** - each important.

So far it seems gophers and voles may have run their recent cycle of two bad years. They are active at this time and probably need some attention, even with the benefit of owls, hawks, and snakes (or cats). Owl boxes and raptor perches help, but control is needed before they reproduce and litters begin to disperse. See the UCIPM guidelines for some ideas:

- **Voles**  [http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7439.html](http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7439.html)
- **Gophers** [http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7433.html](http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7433.html)

Continue to be on lookout for some not so new problems. Vine mealybug (VMB) continues to spread. There are options for control, and Movento (spirotetramat) is now again registered as a possible choice among several materials. VMB is now becoming active enough to begin looking. Vigilance is needed, so look in areas of bird roosting and watch for high traffic spots of ants that lead into vines.

Light brown apple moth (LBAM) is spreading in the Manteca and Tracy areas. It is controllable as is the more traditional pest of omnivorous leaf roller (OLR). LBAM does unfortunately require quarantine and more paperwork.

Trapping is ongoing for European grapevine moth (EGVM) *Lobesia botrana* in the quarantine area for a large portion of the Lodi District; no finds have occurred and that is good news. Populations in other quarantine areas have declined or stabilized, such as Napa, Sonoma, Yolo, Mendocino, and Fresno Counties. It was first identified in Napa last September. It appears to be controllable, but is much more devastating than OLR or LBAM, as its larva feed directly in flower clusters and developing fruit all year. And egg laying by the female is much more dispersed, so it will spread faster, within and between vineyards. See the UCIPM site at:  [http://www.ipm.ucdavis.edu/EXOTIC/eurograpevinemoth.html](http://www.ipm.ucdavis.edu/EXOTIC/eurograpevinemoth.html)

If you have any questions give me a call (for those of you still with the old office number, my new number is 953-6119) or check with Walt Chavoor at the Lodi Winegrape Commission office. By the way, welcome to Walt as the new Viticulture Research Lodi Rules Coordinator for LWC. Stop by and introduce yourself or give him a call, if you have ongoing questions about either program.

There are big challenges for the 2011 season, but wine sales are up; consumers are looking for value and Lodi remains a good place to grow quality grapes for quality wine in a competitive market.

Paul Verdegaal, Farm Advisor

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### Lodi Rainfall 2005-2011

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<th>Feb</th>
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Update on Tomato Spotted Wilt Virus

The incidence of tomato spotted wilt virus (TSWV) seems to vary somewhat from year to year and more so from one area to another. Nonetheless, there do seem to be some fairly reliable “hot spots” in San Joaquin County; areas where the virus seems to rear its head in tomatoes or peppers year after year. Why is that? Where is the virus spending its winters when tomatoes and peppers are not present? CTRI has been funding a team of UC researchers studying the epidemics in processing tomatoes to determine which risk factors affect infection levels and how the disease might be managed. During the season, regular updates from the UC group are available online (http://www.tomatonet.org/TSWV) or contact CTRI (chuck@tomatonet.org) to request being added to a list to receive an electronic mail when updates are available. The updates include thrips counts from monitored fields, observations of disease severity from particular areas, as well as research updates. Many thanks to Tom Turini, Michelle Le Strange, Gene Miyao, Scott Stoddard, Bob Gilbertson, and Ozgur Batuman for the work they’ve done on this rather challenging disease.

Symptoms of tomato spotted wilt can be easily confused with those caused by other diseases, including tomato necrotic spot virus, alfalfa mosaic virus, and foliar symptoms of Fusarium foot rot (see photos below). In general, these other diseases are not as common as TSWV, although each may occur at higher incidences in certain locations. If you need confirmation of TSWV, I can visit the field or bring a leaf sample to me and I have a quick +/- test which is fairly accurate.

TSWV may be vectored by several species of thrips. In California processing tomatoes the major vector seems to be the western flower thrips. Larval thrips acquire the virus while feeding on infected plants (weeds or crops) and then may move to healthy plants and transmit the virus for the remainder of their lives. Fortunately, the virus is not carried in thrips eggs, so each generation must acquire the virus anew. Unfortunately, thrips have a very high reproductive potential, making them challenging to control. Materials showing efficacy against thrips in multiple Fresno County trials conducted by Tom Turini include Dimethoate, Lannate (methomyl), Radiant (spinetoram), Beleaf (flonicamid) combined with Mustang (zeta-cypermethrin), Beleaf alone, and Surround (kaolin clay). Unfortunately, none of these materials provided long-lasting control, but they have reduced thrips populations temporarily in trial fields. Thrips are considered high risk for developing resistance to insecticides so it is particularly important to rotate products in different classes. The materials mentioned above are all in different groups with the exception of Lannate and Dimethoate (group 1a and 1b respectively). Soil applications of neonicotinoid insecticides (e.g. Platinum/thiamethoxam) have not been proven to be effective against western flower thrips in repeated trials in Fresno.

In addition to a relatively large list of crop hosts (in the Central Valley tomatoes, peppers, lettuce and radicchio are crop hosts), there are also a large number of weed species which can potentially serve as hosts of the virus. However, in order to be an epidemiologically important reservoir of the virus, a weed must not only be a good host for the virus but must also support the thrips vector. Thus far, testing of weeds in problem areas has not identified a clear-cut culprit. Among sampled weeds testing positive have been sowthistle, prickly lettuce, malva, groundsel and fennel. However, most of the time the percentage of weeds testing positive is quite low; although in one instance a weedy fallow field populated by sowthistle and prickly lettuce of which 6% exhibited TSWV symptoms.

Genetic resistance to the virus (conferred by the Sw5 gene) is available in commercial processing and fresh market tomato varieties. However even among varieties lacking this gene, there are apparent differences in susceptibility to the disease. The percentage of plants expressing TSWV symptoms have been recorded by Tom Turini and Michelle Le Strange in eight variety trials conducted near Five Points in Fresno County at the UC West Side Research & Extension Center from 2007 to 2010. The resistant varieties tested, including AB 8058, H 5608, N 6394 and N 6385, consistently had no or very low TSWV incidence. Other varieties, including NUN 672, H 2601, AB 3, H 8504, HM 6898 and H 8004, consistently had the highest incidence. See the table below for varieties with intermediate response to the virus. While variety selections for this year are obviously already made, this might be information to keep in mind for future plantings in areas of high disease pressure. Of course, other important factors affecting risk including planting date, surrounding crops and weeds, thrips populations, and site history. Good luck this season, may the thrips be few!

Brenna Aegerter, Farm Advisor

Tomato spotted wilt virus symptoms in tomato. May cause bronzing or necrosis.
Calendar of Events

**Tree & Vine IPM Update Breakfast Meetings**
1st & 3rd Wednesdays, March-June, 7-8 a.m.
Meetings are open to growers or PCAs of tree and vine crops in the area.
Location: Olde Mill Café, 600 9th St., Modesto
Contact: Roger Duncan or Kathy Anderson (209) 525-6800

**Heartland Festival**
May 28, 2011, 10 am-11 pm, May 29 until noon.
Double T Acres, 22368 W. 2nd Ave., Stevinson, CA
Admission $5.00 per person; 7 & under and over 70 get in free.
A weekend of camping, entertainment, children’s activities, metal forging, horse driving, gardening, composting, arts & crafts, and new this year—4 On Farm Water workshops hosted by EcoFarm. Workshops included with cost of admission
1. Pump Efficiency & Flow Meters: Sustainable practices that improve your bottom line.
2. Keep it Local: Your stake in the Integrated Regional Watershed Management Plan
3. Incorporate Hedgerows and receive subsidized support
4. Farmer Roundtable
Workshop info contact: Kirsten Roehler (831) 763-2111 or visit www.eco-farm.org
For festival info contact: Carol Azevedo 209-634-0187 tonyandcarol@thedoublet.com

Note: These photos may be viewed in color in the online version of our newsletter (http://ucanr.org/sites/CE_San_Joaquin/news_986/Field_Notes_Newsletter/)

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<td>AB 8058 paste</td>
<td>SUN 6368 peel, solids</td>
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<td>NDM 5578 multi use</td>
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Relative susceptibility of varieties to spotted wilt and the processed use of the variety. Categorization is based on side-by-side comparison of varieties within multiple field trials conducted near Five Points, CA by Tom Turini and Michelle Le Strange.
What Do New Changes in Aluminum Phosphide Labels Mean for Burrowing Mammal Control?

The California ground squirrel (Spermophilus beecheyi) and pocket gopher (Thomomys sp.) are widely considered to be the two most damaging wildlife pests in California agriculture. Numerous techniques are available for controlling ground squirrels and gophers including trapping, anticoagulant baits, acute toxicant baits, and burrow fumigants. Trapping can be an effective method to remove small to medium size populations of gophers and ground squirrels but often becomes too time consuming for large acreage. Both anticoagulant (e.g., diphenacsole and chlorphacinone) and acute toxicant baits (e.g., zinc phosphide) can be quite effective at controlling ground squirrels when used appropriately. These rodenticides are less consistent but can still be effective when baiting for pocket gophers. Baiting is typically considered the cheapest and least time-consuming method for controlling both gophers and ground squirrels. However, there are potential concerns for non-target poisonings when using rodenticides which can limit their applicability in some situations.

Burrow fumigants, such as gas cartridges and aluminum phosphide, do not typically pose as great of a concern for non-target exposure as baits, and usually involve shorter application times than trapping. Aluminum phosphide is particularly effective at controlling gophers and ground squirrels. Recent studies on ground squirrels and gophers indicated excellent control for both species (reduction in ground squirrel population = 97–100%; reduction in gopher population = 100%). Aluminum phosphide is a restricted use material; specific guidelines must be adhered to when using this material. Additionally, fumigation is generally only effective when soil is moist. Therefore, fumigation is restricted to late winter and spring or following irrigation. Nonetheless, aluminum phosphide fumigation is a very valuable part of an IPM program for controlling gophers and ground squirrels; its continued availability to growers is needed to maximize control efforts in many situations.

Unfortunately, recent changes in aluminum phosphide labels have been implemented due to the gross misuse of this product that led to the death two young girls in Utah. These changes include the following:

3. Products must not be applied in a burrow system that is within 100 feet of a building that is or may be occupied by people or domestic animals. This buffer zone for treatment around non-residential buildings that could be occupied by people or animals has been increased from 15 to 100 feet.

4. When this product is used in athletic fields or parks, the applicator must post a sign at entrances to the treatment site containing the signal word DANGER/PELIGRO, skull and crossbones, the words: DO NOT ENTER/NO ENTRE, FIELD NOT FOR USE, the name and EPA registration number of the fumigant, and a 24-hour emergency response number. Signs may be removed 2 days after the final treatment.

5. When this product is used out of doors in a site frequented by people, other than an athletic field or park (such as agricultural fields), the applicator shall post a sign at the application site containing the signal word DANGER/PELIGRO, skull and crossbones, the name and EPA registration number of the fumigant, and a 24-hour emergency response number. Signs may be removed 2 days after the final treatment.

Because of these changes, I have developed a questionnaire designed to develop accurate facts on various methods, including fumigation with aluminum phosphide, for controlling burrowing mammals in California. The information will be provided to registrants, the U.S. EPA, and others to help develop use policies, labels, etc. My primary objectives are to:

1. Identify the level of use of aluminum phosphide for various burrowing mammals in agricultural areas prior to the new aluminum phosphide label restrictions.

2. Identify how new aluminum phosphide label restrictions will alter use of a variety of control methods.

3. Identify the potential impact of the new aluminum phosphide label restrictions on burrowing mammal populations.

4. See if there is support to further increase safety for residents and other public bystanders by requiring a new Certified Applicator Category for use of aluminum phosphide fumigants for burrowing pest control IF such a category would ease restrictions set forth in the most recent aluminum phosphide labels.

The data collected should provide a much clearer picture of use patterns and importance of several methods, including aluminum phosphide, for controlling agricultural populations of burrowing pests in California. The survey can be accessed at the following web address: http://ucanr.org/sites/AluminumPhosphideSurvey/

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Two surveys are found at this website; one is for agricultural users, the other is for rodent control professionals who control burrowing mammals in urban/residential areas. Be sure you complete the appropriate survey. Once completed, the survey can either be: 1) saved and e-mailed to me, or 2) mailed to me via USPS. My e-mail address, mailing address, and phone number are provided at the end of this article. If you do not have internet access, give me a call or send a letter and I will mail a copy of the survey to you.

I must emphasize the importance of your participation in this survey if you use aluminum phosphide for burrowing mammal control. Data needs to be collected and subsequent results provided to the pertinent regulatory agencies to show the importance of aluminum phosphide for burrowing mammal control. Otherwise, there is a real possibility that we may completely lose aluminum phosphide for burrowing mammal control.

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California ground squirrel (Spermophilus beecheyi)

Adult pocket gopher (Thomomys sp.)

Characteristic crescent-shaped mound and plugged burrow opening of a pocket gopher (Thomomys sp.).
Notes from the Field

May 2011

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