New Farm Advisor

My name is Michelle Leinfelder-Miles, and I am the new Delta Crops Resource Management Farm Advisor. Not only am I new to the team, but this is a new position serving San Joaquin, Sacramento, Yolo, Solano, and Contra Costa counties. While I will be covering a lot of ground, my home office will be at the San Joaquin County Robert J. Cabral Ag Center in Stockton, and I look forward to meeting and working with many of you in the near future.

In fact, I am returning to San Joaquin County after being away for several years, and I’m glad to be back! I grew up in Collegeville, just east of Stockton, where my family has been farming for six generations. I left the farm to attend UC Davis for my bachelor’s degree, but I returned home for the summers and even spent a couple of them interning for the farm advisors here in San Joaquin County. Through those internships, I came to appreciate Cooperative Extension’s mission of linking the University to the public, conducting practical research, and communicating new knowledge to growers.

After finishing my bachelor’s degree, I decided to try something very different, and I went to Cornell University for graduate school. At Cornell, my research focused on soil management in apple orchards. In one project, I studied alternatives to methyl bromide fumigation in replant sites. Our primary finding was that different rootstocks had different tolerances to the replant problem. On first glance, replant tolerance simply appeared to be linked to tree vigor, with more vigorous rootstocks showing greater tolerance. A more in-depth look, however, showed that different microbes lived around the roots of different rootstocks, and replant tolerance could also be linked to microbial communities. In a separate project, I looked at how orchard floor and soil management affected soil health and carbon sequestration. In that study, we found that soils covered with mulch or cover crops had greater levels of nutrient availability, beneficial nematode and microbe populations, water availability, and carbon sequestration, among other beneficial traits, than soils devoid of a cover.

While my research and outreach experience is primarily in orchard cropping systems, what I have learned over the years about soils is translatable to other cropping systems, and those are the skills I hope to use with your help and cooperation. What are your thoughts on Delta crops resource management? Give me a call, and let’s chat about how to develop some projects together.

I can be reached at 209-953-6100.

Michelle Leinfelder-Miles
Delta Crops Resource Management Farm Advisor

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Western Flower Thrips Suspected as Cause of Cherry Damage

Over the past few seasons, a new kind of fruit damage has been observed in some cherry orchards. As fruit begins to reach full size and approach harvest, small (around 1 mm diameter) circular or slightly oval-shaped scars or “dimples” become apparent on the fruit surface. The marks are “dry” and superficial — only the fruit epidermis is affected and there is no penetration or wound- ing of the underlying fruit flesh. In some cases, the marks or dimples are more numerous near the blossom end than the stem end of affected fruits. When magnified (with a high-powered hand lens or dissecting microscope) the marks appear as a thin layer of dead epidermal cells, usually with a small hole near the center, with a small, smooth and very shallow cavity or depression underneath.

The leading theory is that this damage is caused by punctures from the ovipositor of western flower thrips (WFT) during early stages of fruit development. This theory is based on the type and size of damage, prevalence of thrips during the period of early fruit development, and based on experience from other crops like grapes and nectarines that can also be ‘stung’ by WFT. Damage to cherries is similar to what is observed in these other crops, except that there is more variation in dimpling. This, however, can be explained by the timing of the puncture: stings prior to rapid fruit expansion are more likely to have pronounced dimples than fruit that has already expanded before being attacked.

WFT over-winter primarily as adults and, as weather warms in early spring, they move to alfalfa or grain fields, weeds, and other ground vegetation to reproduce. As weedy hosts start to dry up, WFT migrate to alternate hosts, including cherries, and are particularly attracted to flowers. Depending on the weather, thrips migrations can coincide with cherry bloom or early stages of fruit development. The theory is that female thrips - that are initially attracted to cherry flowers - probe small fruit with their ovipositors to determine if they are a suitable location to lay an egg. It is possible that the abundance of late winter rainfall we have experienced in recent years — and the above-normal growth of winter annual vegetation it has promoted — may explain recent observations that this type of damage is becoming more prevalent.

Thrips infestations are difficult to predict because their migrations vary so much from year to year based on rainfall and the time that weeds dry up. In addition, little is known about the relative attractiveness and susceptibility of fruit in different stages of development. Some varieties may be more prone to damage than others, but this has not been well studied or documented. The migratory nature of WFT also makes spray timing difficult because a spray applied one day may have little effect on adult thrips arriving in the orchard a few days later. Further complicating treatment decisions is the fact that sprays applied during bloom or post-bloom period pose a serious risk to bees present in orchard during this time period. Many Insecticides known to be effective against thrips are also toxic to honeybees.

Until these damage symptoms can be shown conclusively to be caused by WFT, and thrips biology control are better understood in cherries, the following measures may help reduce the risk of damage and use of unnecessary insecticide treatments for thrips:

♦ If you think you may have to spray for thrips this season, work with your PCA to develop a treatment plan. Well in advance of bloom and moving bees into the orchard, discuss your plan with your beekeeper and make appropriate plans to protect bees in the event treatment is needed.

♦ Use yellow (usually sold as whitefly traps) or blue thrips “sticky card” traps to monitor WFT activity as bloom approaches and through (at least) the first few weeks of fruit development. For orchards located near fields of other known thrips hosts or open non-cultivated areas, placing some traps at the edge of the orchard may provide an indication of incoming migrations. There are no known treatment thresholds for WFT in cherries, but traps should provide some indication of thrips presence, movement and populations.

♦ The main insecticides used for thrips control in other crops are spinosyns and pyrethroids. These insecticide groups include some of the same products relied upon heavily for control of spotted wing drosophila and other cherry pests. As such, their use for early season thrips control needs to be weighed carefully in the context of resistance management and label restrictions on the number of sprays or amount of product applied per season.

Joe Grant
Farm Advisor, San Joaquin County

David Haviland
Entomology Farm Advisor, Kern County
Water Diversion Measurement Workshop

Sponsored by San Joaquin County Resource Conservation District and UC Cooperative Extension

Wednesday, February 29, 2012
Roberts-Union Farm Center, 4925 West Howard Rd., Roberts Island, Stockton
Farm Center: 8:30 – 12:00  Site visit: 12:00 - 12:30

For more information, contact Terry Prichard at tprichard@ucdavis.edu

This workshop seeks to increase awareness of the State’s modification of the California Water Code to measure water and report water diversions and to discuss available technologies that can be used for compliance.

“Water Diversion” means taking water by gravity or pumping from a surface stream or subterranean stream flowing through a known and definite channel, or other body of surface water, into a canal, pipeline, or other conduit, and includes impoundment of water in a reservoir.

In 2009, the California Water Code was modified to require diverters of water who file statements to measure their monthly water diversions beginning in January 2012. The measurements of the diversion shall be made using best available technologies and best professional practices and be locally cost effective.

AGENDA

- Why Measure? Current reporting requirements in relation to water right classes.
  John Herrick, Counsel and Manager South Delta Water Agency

- Irrigation diversion amount vs. crop water use.
  Terry Prichard, UC Davis Water Management Specialist Emeritus

- Flow measurement device selection that are appropriate for conditions.
  Larry Schwankl, UC Davis Irrigation Specialist

- Diversion Types and Typical Meter Installations.
  Neal Colwell, P.E., Kjeldsen, Sinnock & Neudeck, Inc.

- Irrigation diversion amount vs. crop water use.
  Terry Prichard, UC Davis Water Management Specialist Emeritus

- Flow measurement device selection that are appropriate for conditions.
  Larry Schwankl, UC Davis Irrigation Specialist

- Diversion Record Keeping and Reporting.
  Neal Colwell, P.E., Kjeldsen, Sinnock & Neudeck, Inc.

- Site visit to view meter installations.

DRIP IRRIGATION OF TOMATOES

Friday, March 9, 2012, 9:00 a.m. to 12:00 p.m.
Robert J. Cabral Agricultural Center, 2101 E. Earhart Ave, Stockton CA 95206

Sponsored by San Joaquin County Resource Conservation District and UC Cooperative Extension

This class is intended for commercial growers who are new to using drip irrigation for tomatoes, or those who will begin using drip this season. Although some of the information will be specific to processing tomatoes, the majority of the content will be applicable to both fresh market and processing production systems.

The goal is to give participants some practical information on using and maintaining a drip irrigation system. Topics to be covered include irrigation strategies, fertigation, system maintenance and irrigation scheduling using a computer demonstration of how to use data from CIMIS to determine irrigation needs. We also hope to provide a forum for answering your questions!

This meeting is free and open to the public. For more information, contact Brenna Aegerter at (209) 953-6114.

Tomato irrigation strategies that can be implemented with drip irrigation:  Tim Hartz, UC Davis Plant Sciences Dept.

Drip Irrigation Scheduling Using Crop Water Use Estimates: Brenna Aegerter, UCCE San Joaquin County

Irrigation Scheduling Using Soil Moisture-monitoring Devices: Terry Prichard, UC Davis Water Management Specialist, Emeritus

Drip Irrigation System Use and Maintenance: Larry Schwankl, UC Davis Irrigation Specialist, UC Kearney Ag Center

Crop Growth Based Irrigation scheduling using MS Excel
Winter Irrigation of Almond Trees

In many of the orchards I have visited this winter, soils were extremely dry when I dug below the top foot of soil. Hopefully, we get an appreciable amount of rain before our trees start blooming. We started out with a good rain in October, but have not had much rainfall since. Ironically, we have waited all winter for rain, now watch it rain during our bloom period when blossoms are susceptible to a number of fungal diseases.

Most of our soils are very dry, if you have not irrigated yet, you should probably do so. Ideally, the entire root zone should be well supplied with moisture when root growth and bud swell begin. Usually we have enough rainfall to wet our soils down to at least 4 feet. We certainly had plenty of rainfall last year. This year we have not had enough moisture to wet the entire root zone and what resident vegetation that is present has transpired most of that water, so the rainfall has not contributed to current soil moisture storage. Obviously, we’re running considerably behind. Many orchards have already been irrigated in preparation for the coming bloom period.

Early-season irrigation trials conducted in Butte County by Clem Meith decades ago indicated that early-irrigated trees produced nuts that were longer, wider, and heavier than those from trees not irrigated early. Yield and shoot growth were also improved on the early-irrigated trees. It is optimum to start the growing season with the soil profile filled with available water. This is especially critical for almonds where growth begins early and maximum set is desired. In most of our almond orchards, this means moisture down to a depth of about 4 feet. Normally I’m reluctant to recommend irrigating in the winter, because if you winter irrigate and then a big storm comes in and dumps several inches of water, you could easily saturate the root zone and set the trees up for potential root rot problems. But with so little rainfall so far this season, I don’t think you have to worry about saturating your soils. I feel you should irrigate your almond orchard if you have not already done so. Once trees begin actively using water in late spring and summer it’s often difficult to keep pace with a tree’s water needs. If a soil reservoir of stored moisture isn’t there, your trees may suffer when it comes to the long, dry harvest period. It’s much easier to keep up with water demand than it is to catch up when you’re behind.

Brent Holtz, Pomology Farm Advisor and UCCE San Joaquin County Director

Crops Digest—Grapes

After three years of drought (2007-09) and two wet years (2010-11) this year is shaping up to be another very dry year. There were two decent rains that somewhat recharged the soil profile, unfortunately they occurred as the 2011 harvest was wrapping up. Those were followed by one rain in November and a shower in December, which provided much of the fall rainfall total (about 45% of average). January did not add much more and a good number of vineyards received winter irrigation.

The total rainfall total for the months of October, November and December ended up at 3 inches for the north county and 1.7 inches for the south county. Not since 1976-77 has it been this dry, especially as December was the third driest on record. Dry conditions look to continue and irrigation is probably a good investment right now. Grapes are a low-demand crop for water and nitrogen, compared to most other fruits and nuts, but extremely dry conditions can affect the strength and uniformity of bud push in addition to negatively affecting the final development phases of this year’s fruit buds.

With that in mind, even if you put on a good solid irrigation of 24 to 36 hours or more last month, it would not hurt to put another 24 hours or so, depending on your emitter spacing, size of the emitters, soil type and variety/rootstock. Although this won’t recharge deep soil profiles, we still have a ways to go before the “rainy” season ends and things can turn around very fast. So it’s easy enough to apply some more water at or after bud break, if the drought continues.

Checking out the irrigation system is neither a bad idea nor a waste of time. Checking out the soil profile with an auger or even just a little digging with a shovel may help confirm how well the winter rains and irrigation may have managed your soil profile. Overall it seems there is decent moisture in the top two or three feet in most vineyards, but that is about it.

Even though January was close to average in total rainfall, seasonal totals are falling behind again. As of the first week in February the north county is at 6.1 inches (44% of historical average to date) and the south county is just at 3.2 total inches (approximately 37%). Last year at this time there was a total of 13.5 inches of rain in the Lodi area.

The curious weather pattern this winter (besides extreme dryness) is that most daytime maximum temperatures have been slightly above average, while most night time minimums have been well below average; giving the area a summer-like days with winter-like nights.

Chilling hours have been above-average and for a second year in a row, fog has been a more common occurrence as in the "Good Old" days when the sun often dis-

(Continued on page 5)
appeared for three to four weeks at a time. Chilling hours (hours below 45 F) has totaled 1044 hours at this point compared to the long term average of 778 hours (Fruit and Nut Center, UC Davis). ET of winter cover and weeds has been low. Most mornings have seen light to substantial frost, which is a little worrisome for the coming spring. But I better not say any more at this point.

During the last five years there were some scattered frost events in 2011, 2009 and 2008. Just to review last year’s reminder of comparison for soil conditions and cold, to hopefully renew the good luck:

* Firm bare ground, that is wet: +2° F
* Firm bare ground, that is dry: ---
* Freshly disked soil: 0° to 2° colder
* High cover crop (24 to 30 inches): 0° to 4° (possibly 6 to 8° colder)
* Low cover crop (less than 24 inches): 4° to 10° colder
* Mowed cover crop: 0° to 2° F

<table>
<thead>
<tr>
<th></th>
<th>Rainfall San Joaquin County - Lodi</th>
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<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>2005</td>
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<tr>
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</tr>
<tr>
<td>2012</td>
<td>6.1</td>
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<td>Avg</td>
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</table>

* 1.7 inches on October 23 & 24

As spring and budbreak approach, it appears the European grapevine moth (EGVM) will be determined to be eradicated in San Joaquin County, as there were no other finds last year. Scott Hudson and his staff have done a lot of work and have been helped by all growers to speed the delisting of EGVM. That’s the good news.

The bad news is that light brown apple moth (LBAM), continues to spread and is scattered around the county. It’s still under a quarantine protocol. The other good news is, it’s easy to control. It is a Lepidoptera pest very similar to the OLR and it seems to be susceptible to the same biological control of our native beneficial insect predators and parasites. If you are within a mile of a commercial nursery you probably are in a quarantine zone. If you haven’t been contacted by the Ag Commissioner’s office, you should check.

Paul S. Verdegaal, Viticulture and Pomology Farm Advisor

2012 Spotted Wing Drosophila Recommendations for Sweet Cherry

Updated suggestions for monitoring and controlling Spotted Wing Drosophila in sweet cherries were recently released. A summary of those guidelines follows. More detailed information can be found at:
http://www.ipm.ucdavis.edu/exotic/index.html

Joe Grant, Farm Advisor

Monitoring: The traps consist of a 1 qt. plastic container with 1/8-in square hardware screen top. The traps should be baited with about 4 oz of apple cider vinegar (ACV). Do not use apple cider flavored distilled vinegar. Add about 1 tsp. of colorless and unscented dish soap (Palmolive brand “Pure+Clear” concentrated liquid dish soap) per gal of ACV to reduce surface tension. Attach a pheromone wing trap top (or other cover) to prevent rain and irrigation water from getting into the trap. Replace the ACV weekly (remove spent bait from the orchard – do not dump the spent bait on the ground in the orchard). Place the trap about 3 - 5 ft. off the orchard floor in the shade part of the tree canopy. Traps placed in direct sun will capture less SWD.

Monitor traps weekly beginning when fruit of the earliest variety in the orchard starts to change color from light green to straw. Continue monitoring until harvest is completed for the latest variety in the orchard. Count and record the number of male and female SWD flies in each trap. Male SWD have spots on the tip of the wings and females have very large ovipositors with two uniform rows of large spines (see photos). A hand lens or microscope is needed to distinguish female SWD from non-pest Drosophila species and other small insects attracted to traps. Do not rely solely on males to evaluate SWD populations since relative abundance of males and females can vary among orchards and the time of year. If any SWD are found in the traps, then take control action immediately (see insecticide control below).

Fruit Susceptibility: There are differences among cherry varieties and stages of maturity in relation to SWD oviposition and development. In choice studies, Early
Burlat was more susceptible than Black Tartarian, which was more susceptible than Bing. In no choice studies, SWD was able to oviposit in green Bing and Early Burlat fruit but few or no larvae were produced. The preferred ovipositional color was dark red for Bing fruit and red for Black Tartarian and Early Burlat. SWD was able to oviposit and develop in straw/pink colored fruit in all three varieties.

**Cultural Control:** If insecticide treatments are not an option and if fruit from pollinizer varieties matures earlier than the main variety, then pick and remove pollinizer fruit before the main variety fruit is pink in color. This will prevent the SWD from emerging from the pollinizer fruit during the main variety harvest.

**Chemical Control:** When planning an insecticide control program, check with your packer/shipper to ensure your plans take into account the maximum residue level (MRL) requirements of countries to which your fruit may be shipped.

Experimental studies and field experience conducted to date suggest that early season treatment, when fruit is green in color, has little or no impact on SWD fruit damage at harvest. Insecticide treatments should be initiated when the earliest-maturing fruit in the orchard turn from yellow to light pink. Fruit remain susceptible through harvest and repeat applications are required at 7 to 14 day intervals until harvest with one of the materials listed below. The interval between applications will depend on the material selected. Studies conducted during the 2011 season suggest that 2 or 3 applications are required to control the pest. Organophosphate, pyrethroid and spinosyn insecticides provide effective control for one to two weeks. Research indicates that the organophosphate insecticides (Diazinon and Malathion) have good adult knockdown potential, followed by the pyrethroid insecticides Warrior (Lambda-Cy) and Baythroid, then spinosyn insecticides (Delegate). Surprisingly, Sevin also provided good knockdown control in 2011 trials. The pyrethroid insecticides provided the best control after one week, followed by the organophosphate insecticides and then spinosyn insecticides. Sevin provided about the same degree of control as the spinosyn insecticides. Also, the pyrethroid insecticides Warrior or Lambda-Cy and Baythroid) provided control at 14 days. Observe all pre-harvest intervals (PHI) and re-entry intervals (REI) periods and rotate between materials of different chemical classes between applications to slow the development.

**Bob VanSteenwyk**  
UC Extension Entomologist

<table>
<thead>
<tr>
<th>Trade Name</th>
<th>Common Name</th>
<th>Chemical Class&lt;sup&gt;a&lt;/sup&gt;</th>
<th>PHI</th>
<th>REI</th>
<th>Rating&lt;sup&gt;c&lt;/sup&gt;</th>
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<tr>
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<td>CAR</td>
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<sup>a</sup> The chemical classes are: SPIN is spinosyn, BO = botanical, CAR is carbamate, OP is organophosphates, PYR is pyrethroids, NEONIC is neonicotinoids.

<sup>b</sup> DAT = Days after treatment

<sup>c</sup> The rating scale is relative with 1 = excellent control, 2 = good control, 3 = adequate control, 4 = poor control and 5 = no control.
Drought on Rangelands

We started off with some great germinating rains this fall, and have then proceeded to have a lovely drought on our hands. By now I’m pretty sure everyone is hoping for more storms to replenish our supply and probably feeding pretty expensive hay, maybe even debating if you should reduce numbers or not. Below is an article one of my colleagues wrote during the last drought that I thought I would share. The website mentioned from National Cattlemen’s Beef Association has more detail than we can provide here, including charts with different examples and differences between the codes. Discussions have started about if a disaster should be declared already in our area, but until the end of the forage production year, it is too early to tell if we are in a full drought or not. If we start getting some regular storms, especially through March, we can end up with a “normal” forage production year, just with a very painful winter. A declaration of drought may help ease taxes if you choose to reduce numbers even if programs from Farm Services Agency are not triggered.

Theresa Becchetti
Livestock and Natural Resource Advisor, Stanislaus and San Joaquin Counties

Drought Sales of Livestock: Managing the Taxes

Drought conditions and a lack of feed in many parts of the state this year have raised many questions about various management options available to reduce the impact on your operation. Weaning calves early, purchasing feed, leasing additional pasture, or reducing herd numbers are some of the options available to you. It is important to consider the fact that selling animals can trigger capital gains taxes.

There are two provisions in the tax code that address the ability of livestock owners who exercise this drought management decision to avoid additional tax liability. Code Section 451(e): Allows ranchers whose principal business is agriculture and who use a cash accounting method to postpone reporting the taxable gain on sales of any livestock above the yearly average sales for one year. To qualify the producer’s county must have received a federal disaster declaration. Sales related to the drought under this section can qualify even if they occur prior to the declaration.

Code Section 1033(e): Allows ranchers whose principal business is agriculture and who use any accounting method to postpone, and altogether avoid, paying taxes on the gain from the sale of breeding animals above the yearly average sales if they are replaced within a specified time frame. The time frame varies depending on whether or not your county was declared a federal drought disaster.

In federally declared drought counties, the replacement period ends at the conclusion of the first taxable year after the first drought-free year for that county. The “first drought-free year” is determined based upon the U.S. Drought Monitor at http://www.drought.unl.edu/dm/monitor.html. IRS will publish a list each September of the counties for which a drought exists. In counties not declared federal disaster area the replacement period ends two years after the close of the tax year in which the involuntary sales occurred.

The information in this article is a guide to help you examine the management options available to you. To ensure that you qualify for tax relief under either of these code sections it is advisable to speak with a tax professional.

References:

Glenn Nader - UC Farm Advisor and Matt Byrne – former Calif. Cattlemen’s Assoc., Executive Vice President

Rosetta Stone: Spanish Immersion Tool

This is the second of several reviews and articles on learning Spanish—or another language. Without a doubt, language immersion is probably the most effective way to learn another language: such as extended travel to a Spanish-speaking country. This is not always the most practical solution. There are a number of other options, such as taking night classes, using your smartphone apps, listening to Spanish radio or television, or a computer software program. Using multiple approaches tends to reinforce what we have learned. In this article, I will discuss Rosetta Stone®. Over the last few years I have spent quite a few hours on the Rosetta Stone® language immersion course (in my case, trying to learn a little Hebrew). There are some things in life that require self-discipline. Learning a language is one of them. Rosetta Stone® gives us many tools to make language learning fun and productive. I had the previous version of Rosetta Stone® which consisted of a computer software program and MP3 audio files. I want to thank Rosetta Stone® for providing the newer version for me to use in this review. Rosetta Stone® has added an app, a place to play games and meet others who are learning, and even a virtual classroom.

Rosetta Stone® is truly an immersion program. We only hear and see the target language we are trying to learn. For instance, if we are learning Spanish, we will see a

(Continued on page 8)
photo representing the target word or expression, accompanied by the pronunciation of the same in Spanish. Little by little our vocabulary is added to. We may see a woman and hear mujer, and then we see a woman drinking, la mujer bebe.

Whenever possible, it is better to have a photo representative rather than a written or verbal description in our own language. The idea is to associate the word in Spanish directly with that item, rather than have to take multiple steps. Instead of seeing a horse and translating that into our minds, “ah, a horse, horse means caballo” we think caballo right away.

Rosetta Stone® teaches the target language with native pronunciation, and provides plenty of vocabulary to form a base from which to expand to other areas of interest. In one of the screens, for instance, we may see four photos: a boy drinking, a boy eating, a girl drinking, and a girl eating. Even though we may not have previously been taught the full expression, we can figure out what it will be by the time we get to that screen. Before we know it, our mind begins to make grammar rules and think in the new target language.

For the most part, Rosetta Stone® does a very good job of building from one word, or short expressions, to longer expressions. So you know la mujer, then la mujer bebe, and finally, la mujer bebe leche (the woman, the woman drinks, and the woman drinks milk). It is very nice to learn how words work in context, rather than as a vocabulary list. In this way we will learn to follow proper grammar rules almost effortlessly.

Rosetta Stone® will also test our knowledge and review earlier lessons as we move on through the course. This process helps to keep the vocabulary active in our minds. And of course, we can review any particular lesson as many times as we wish. After I had completely conquered a lesson, I found it very useful to completely turn off the sound on the computer so that I was not just repeating the lesson, but testing myself. I used this in two different ways. One was to assess my reading skills and another to see if I had really internalized the expressions.

Rosetta Stone® also provides the lessons in mp3 audio files. At first I was surprised that these were completely in the target language. At one time I had used Language 30 audio, which would provide the word in the known language, and repeated twice, after a pause, in the target language. Over time, I have come to find great value in the Rosetta Stone® immersion approach and the importance of listening to these audio files. As we listen to the audio files during commute, exercise or at other times, our brain will pick up certain words and expressions. It does not matter at all if we know what a particular word means. As we come across that word or expression during our regular computer practice sessions, we will learn these faster. Also, these audio files are an excellent review of materials learned.

The newest version of Rosetta Stone® with the various TOTALe™ components provides a powerhouse of learning opportunities. The traditional software helps learners pick up vocabulary and grammar naturally, the way we picked up our native tongue. The various TOTALe™ components provide lots of motivation as we make our way through the difficult process of learning a new language. I was impressed by the people who work for Rosetta Stone®, from the people giving the introductory talk that explains the various learning options, to the invaluable asset that Rosetta Stone® provides through their effective and positive teaching style and committed instructors. Learning a new language has never been easier, but it still takes effort and commitment.

Note: The full-length version of this article is online at http://www.cnr.berkeley.edu/aglabor/7/article/articles.htm

Gregorio Billikopf
Labor Management Farm Advisor, Stanislaus, Merced and San Joaquin Counties. (gebilikopf@ucdavis.edu)

Assessment of Multiple Approaches for Controlling Gophers in Orchards

Pocket Gopher Control Options

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 has often been used to control gophers. Efficacy of baiting has varied widely, although strychnine has traditionally been most effective. Gas explosive devices may also be effective. These devices combust a mixture of propane and oxygen within tunnel systems, thereby killing gophers through concussive force while also destroying the burrow system.

Testing Efficacy

All of these methods are currently allowable techniques for controlling gophers in California, although the efficacy and efficiency of these approaches, particularly in com-

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of these methods would likely increase with further applications. However, these added treatments would increase the cost of control.

The size of gopher populations should be assessed before and after treatment to determine the effectiveness of treatment applications. An easy method to index gopher populations is to establish 20 to 25 30x30 ft. plots evenly throughout your treatment area. A few days before treating the field, flatten all old mounds within each plot (using your boot or a rake is a good way to flatten mounds). Three days later, check all survey plots for new mounds. Divide the number of plots with fresh mounds by the total number of plots and multiply by 100. This provides an estimate of the percent of your field with gopher activity.

Repeat this process 2–5 days after applying control treatments (i.e., baiting, trapping, fumigation, etc.). This will give you the percent of your field occupied by gophers before and after treatment and will let you estimate how effective your control measures were. Ideally, you should work to reduce gopher populations by >80–90% to observe substantial reductions in gopher populations the following year. Once treatment applications are finished, continue to monitor fields periodically for reinvading gophers. Pay particular attention to the perimeter of fields, as these are the areas that gophers will first reinvade.

Controlling gophers along the perimeter of fields will keep gopher populations from building back up throughout your fields.

Roger A. Baldwin, Wildlife Pest Management Advisor, Kearney Ag Center

Eat Your Fruits and Veggies and Don’t Fear the “Dirty” Rhetoric!

Should you be worried about pesticide residues on specific fruits and vegetables? The Environmental Working Group (EWG), a U.S.-based environmental advocacy group, believes you should be, and has released the latest version of its annual “Dirty Dozen” list, representing the 12 fruit and vegetable commodities alleged to contain the greatest relative levels of pesticides. Are such rankings validated by a careful examination of scientific evidence? Absolutely not. Should you continue to try to eat more fruits and vegetables? Absolutely!

Since its release in June 2011, the list has drawn widespread media attention and consumers have been bombarded with headlines such as “An apple a day…means you’re eating plenty of the most contaminated fruit;” “Don’t like pesticides? Better avoid these fruits and veggies;” and “Beware of pesticides in fruits and vegetables.”

According to the EWG, consumers should purchase organic forms of the commodities on the “Dirty Dozen” list or consume fruits and vegetables on their “Clean Fifteen” list, which they have found to contain the lowest relative pesticide levels. However, the benefits of eating fruits and vegetables, regardless of how they were produced,
far outweigh the risk. Eating the organic forms of the fruits and vegetables on either the Dirty Dozen or the Clean Fifteen lists is fine, if that is your preference, but read on to understand why eating the conventional forms is a safe choice too.

To put things in perspective, let’s take a step back in time. The 16th Century Swiss physician Paracelsus developed the first principle of toxicology with his assertion that “the dose makes the poison.” To paraphrase Paracelsus, it is the amount of exposure to a chemical that determines the potential for harm, and not simply its presence or absence. The EWG rankings do not consider actual consumer exposure, but rather reflect a relative ranking of six “contamination indicators.” These indicators are heavily skewed to indict commodities where findings of the presence of residues of multiple pesticides were more common. Such findings, however, are not appropriate to justify the recommendation to avoid conventional or consume only the organic form of specific types of produce. Such a recommendation can come only after exploring the risk of actual exposure to the pesticide residue poses to human health. After all, organic farming uses pesticides, too.

While the EWG did not estimate consumer exposure to pesticides on its “Dirty Dozen” list for reasons that will be apparent below, this work has been done. Just prior to the release of EWG’s Dirty Dozen list, a paper authored by Dr. Carl Winter, Director, FoodSafe Program and Extension Food Toxicologist at the University of California, Davis was published in the Journal of Toxicology. This paper examined the same U.S. Department of Agriculture (USDA) pesticide residue data used by EWG to develop its rankings and developed consumer exposure estimates for each of the ten most frequently detected pesticide residues on each of the twelve fruit and vegetable commodities. The paper also evaluated the methodology EWG used to determine its rankings.

Our findings are: 1) Exposures to the most commonly detected pesticides on the twelve commodities in the 2010 EWG report pose negligible risks to consumers; 2) Substitution of organic forms of the twelve commodities for conventional forms does not result in any appreciable reduction of consumer risk; and 3) The methodology used by the environmental advocacy group to rank commodities with respect to pesticide risks lacks scientific credibility. With advancements in analytical methods, one can now find low levels of almost anything, but these sensitive findings do not relate to public health effects.

How did the authors come to the above conclusions? Exposure to the most frequently detected pesticides on the twelve fruit and vegetable commodities comprising the 2010 “Dirty Dozen” was extremely low and represented only a tiny fraction of exposure levels considered to be of health significance. Three-quarters of the pesticide/commodity combinations showed consumer exposure estimates more than one million times lower than doses given to laboratory animals continuously over their entire lifetimes that do not show adverse effects.

In 2011, apples topped the “Dirty Dozen” list, moving up from the number four position in 2010. However, our analysis finds that exposure to the ten most frequently detected pesticides on apples is well below levels of toxicological concern, with relative exposures between 20,000 and 28 million times lower than levels that do not harm laboratory animals. For three commodities on the “Dirty Dozen” list – blueberries, cherries, and kale – the highest relative exposure to a pesticide was at levels more than 30 million times lower than those that cause no effects in laboratory animals. Based upon such findings, it is difficult to justify warnings for consumers to avoid conventionally produced forms of such foods.

While the EWG’s methodology and interpretation of residue findings has been called into question, its recommendation that consumers eat their fruits and veggies, and their statement that “the health benefits of a diet rich in fruits and vegetables outweigh the risks of pesticide exposure” is undoubtedly worth repeating. Our work demonstrates that consumers have nothing to fear or to feel guilty about if they choose to purchase conventional forms of commodities on the “Dirty Dozen” list and further demonstrates that the existing regulatory approach for pesticides, including a safety review and establishment of appropriate pesticide application practices, adequately protects the public. So sit back and enjoy your apples, celery, strawberries, peaches, spinach, nectarines, grapes, bell peppers, potatoes, blueberries, lettuce, and kale! They’re good for your health, and eating those foods would make Paracelsus proud.

Dr. Carl Winter, Director, FoodSafe Program and Extension Food Toxicologist at the University of California, Davis

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Calendar of Events

UC Soil Fertility Short Course
February 22, 2012 - UC Davis
8 a.m. to 4:30 p.m. at the Buehler Alumni and Visitors Center.

Topics include: getting the maximum value from soil testing, interpretation of laboratory soil test results, comparing fertilizer sources, developing crop nutrient management plans, fertilizer management and environmental protection. Although the focus will be on nutrient management in annual cropping systems, much of the material presented will be relevant to perennial crops as well. The program is intended for growers, CCAs, PCAs, government agency personnel, and others involved in fertility management planning. Registration, which includes lunch, refreshments and study materials, is $75 for students and UC personnel. For others, registration is $150. More information is available on the VRIC website (http://vric.ucdavis.edu).

Crystal Meth Epidemic Update
February 25, 2012, 9am to noon
Robert Cabral Ag Center, Stockton

This is an ideal presentation for law enforcement, medical personnel and the agricultural community. Presenter Bob Pennal is retired from the Bureau of Narcotics Enforcement Methamphetamine Lab Task Force. Learn how:
- How Crystal Meth affects the Medical/Law Enforcement/Agricultural Communities
- Portable Labs that cook on the go
- Crystal Meth is distributed throughout California and the U.S.
- The dangers that Crystal Meth addicts pose to your community
- Labs are able to be covert and undetected

Make reservations by calling: Theresa Becchetti 209-525-6800; email: tabecchetti@ucdavis.edu

Water Diversion Measurement Workshop
February 29, 2012 - Roberts-Union Farm Center
See page 3 for more information.

Tomato Drip Irrigation
March 9, 2012 - Robert Cabral Ag Center, Stockton
See page 3 for more information.

60th Annual Oakdale Livestock Forum
March 13, 2012, 9:30 am –3:30 pm
Oakdale Community Center, 110 S. Second St., Oakdale
This meeting is sponsored by the UCCE, the California Beef Catttle Improvement Assoc. and the Calaveras, Tuolumne and San Joaquin/Stanislaus Cattlemen’s Association.

Agenda:
9:30 am Registration
10 am Animal Health Updates, Dr. John Maas
10:45 Nitrogen Fertilization to Reduce Invasive Forages, John Davy

11:15 What are herd bulls accomplishing in multiple sire breeding pastures?, Dr. Allison Van Eenennaam
12:00 pm Beef Lunch
12:45 pm Rangeland Water Quality Updates, Dr. Ken Tate
1:30 Integrated Weed Management, Theresa Becchetti
2:00 Break
2:45 Bare ground as an indicator of rangeland health, Julie Finzel
3:00 Rewarding Farmers and Ranchers for Stewardship, Kelli McCune
3:15 Cost share possibilities for rangelands and irrigated pastures, Diana Waller

Farm Foreman Clinic (Spanish)
March 13-16, 2012 - Modesto

Topics that will be covered include employee discipline (including how to deal with the most difficult subordinate behaviors), interpersonal negotiation skills, and the importance of praise in day-to-day communications. Those who attend will participate in numerous role-plays, and receive individualized attention and evaluation. The 4-day seminar will take place in Modesto, California, and costs $128 per participant. For more information contact Marie Harter, 209-525-6800, mlharter@ucdavis.edu.

Fruit Ripening and Retail Handing Workshop
March 27–28, 2012 - UC Davis

The 18th annual Fruit Ripening and Retail Handling Workshop, sponsored by the UC Davis Postharvest Technology Center, will be held March 27–28 at the UC Davis Conference Center. The two-day workshop is organized by Carlos Crisosto, a Cooperative Extension specialist in the Department of Plant Sciences. The workshop is intended for shippers, fruit handlers (wholesale and retail), quality control personnel, and produce managers who are involved in handling and ripening fruits and fruit-vegetables. Lectures, group discussions, and hands-on demonstrations form the workshop. Topics include how to increase profits by developing ripening protocols, evaluating arrival condition, proper retail handling strategies to protect fruits and fruit-vegetables, and delivering ready-to-eat quality produce to the consumer. Registration is $750, which includes two days of lectures and labs, instructional materials, small group discussion, lunches, coffee breaks, and an evening networking reception. For more information, visit http://postharvest.ucdavis.edu/Education/fruitripening/.
Notes from the Field

February 2012

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The University of California working in cooperation with San Joaquin County and the USDA.