

# CROP CURRENTS

From: Janet Caprile, Farm Advisor

[jlcaprile@ucdavis.edu](mailto:jlcaprile@ucdavis.edu)

**MAIN OFFICE:**

75 Santa Barbara Rd., 2nd floor  
Pleasant Hill, CA 94523-4215  
(925) 646-6540 Phone  
(925) 646-6708 FAX

**KNIGHTSEN OFFICE:**

Delta Road at 2<sup>nd</sup> Street  
Knightsen, CA  
(925) 427-8532

**Office Hours:**

Mondays 1:30-4:30

## FALL 2006

- **LOCAL MEETINGS:** Pest Management Workshops
- **TREES:** Orchard Replant Considerations
- **TREES:** Fall Zinc and/or Urea Sprays
- **FRUIT & VEGGIES:** GAPs Reduce Microbial Contamination
- **GRAINS:** Stripe Rust Management Plan
- **TOMATOES:** Processing Tomato Variety Trial
- **ANNOUNCEMENTS:** EQIP funding for Conservation Practices
- **RESOURCES:** Publications & Websites
- **CALENDAR:** Classes/Meetings/Events

## Contra Costa County

### PEST MANAGEMENT CONTINUING EDUCATION WORKSHOP

Wednesday, November 15 & repeated on Saturday, November 18

8 am-11:30 am

Delta Farm Center, Delta Ave & 2nd St., Knightsen

#### Surface Water Waiver Update

*John Meek, SJ&D Water Quality Coalition*

#### Practices to Reduce Pesticides in Runoff

*Janet Caprile, UC Cooperative Extension*

#### New Enforcements Guidelines

*Ann McClure, CCC Agriculture Department*

#### Pesticide Application Notification Requirements

*Ann McClure, CCC Agriculture Department*

#### New Canine Detection Program

*Patty Whitlock, CCC Agriculture Department*

#### New Dormant Spray Restrictions

*Gene Mangini, CCC Agriculture Department*

#### Aluminum Phosphide Application & N.O.I. Requirements

*Cathy Roybal, CCC Agriculture Department*

#### Agricultural Burn Requirements (BAAQMD DVD)

*Cathy Roybal, CCC Agriculture Department*

#### Pest Management Research Update: Buckskin, Blackline, Codling Moth

*Janet Caprile, UC Cooperative Extension*

3 hours of Continuing Education credit for Private Applicators, PCA, PCO, QAC, QAL

All growers are invited and welcome to attend

## ORCHARD REPLANT CONSIDERATIONS

The phasing out of Methyl Bromide (MB) has made replanting decisions more complex. Although MB is still technically available it becomes significantly more expensive every year and this has made its use economically difficult for all but the most high value crops.

**The Replant Problem:** When an orchard is removed and the same kind of orchard is replanted in short order, without fumigation, the replanted orchard frequently grows poorly exhibiting stunting and yellowing in an uneven pattern across the field. This can be due to high populations of nematodes or other soil pests or microbes that overwhelm the small root mass of the young trees. But even without an identifiable pest problem, the orchard can grow very poorly in the first year or two and we don't exactly know why – we call this the “*rejection component*” of the replant problem. It is difficult to predict whether the “rejection” will occur in a certain location except by past history. It is common in portions of the San Joaquin Valley and infrequent in the Sacramento Valley. It is more likely to be a problem on walnuts in our area than on stone fruit.

The replant problem is often more severe on sandy soils prone to nematodes than on fine-textured soils but the clay loam soils in our area can also have problems. Fumigation with MB virtually eliminated orchard replant problem due to either nematodes or the “rejection component”. It killed old roots, soil microbes and pests, weed seeds and whatever was responsible for the rejection component.

UC researchers have been seeking alternatives to MB long before the 1992 phase out began. A combination of methods is going to be needed to approach the effectiveness of an MB fumigation before replanting an orchard. Here are the options that Dr. Mike McKenry, UC Cooperative Extension Nematologist, suggests after years of work on this topic:

1. **Sample for nematodes.** When the soil is moist, take a number of soil cores from across the field and down to 36 inches. Combine them thoroughly and send them to a lab for analysis. For more complete sampling guidelines and a list of labs that do nematode analysis, call my office. Root-lesion (*Pratylenchus vulnus*) and ring (*Mesocriconema xenoplax*) nematodes are the most problematic for walnut and stone fruit (almond, apricot, cherry,

peach, plum, nectarine, pluot). Root-knot (*Meloidogyne spp.*) nematodes can also be a problem for Lovell peach rootstocks. Unfortunately, about 85% of the walnut orchards in California have nematode levels that are too high for replanting. Fortunately, only about 35% of stone fruit orchards have nematode levels that are too high for replanting. If your nematode levels are high or you anticipate the rejection component, you'll either need to fumigate OR rotate to a non-host crop for a few years, as described below.

2. **Kill the old tree roots and wait 18 months before replanting.** This procedure reduces the rejection component. It will NOT provide nematode control, although it is a good first step for a nematode control program as it speeds root breakdown so that rippers and fumigation shanks can more easily penetrate. Additionally, it kills the nematodes inside walnut roots but not in the soil and not in stone fruit roots. Dr. McKenry estimates that this procedure plus nutrients at planting time and a rootstock with different parentage can mitigate the “rejection component” by more than 85%. He highly recommends it for any walnut replant site. For stonefruit, if you haven't seen the “rejection component” in your area and don't need to prep the soil for fumigation (ie. you don't have nematodes) you can skip this procedure. This process takes some advance preparation and planning, as follows:

- Complete the final harvest of the old trees
- Irrigate deeply
- Deep rip between the old orchard and any border orchard to avoid the possibility of herbicide damage from grafted roots and/or leave a border of untreated trees.
- Cut trunks exposing the cambium before the end of October
- Immediately paint the cut surface of the trunk with an herbicide to kill the roots of the old trees:
  - **Walnuts:** 50 ml Garlon3A + 50 ml MorAct
  - **Prunus:** 50 ml Roundup + 50 ml MorAct
- Wait at least 60 days before removal of the old tree trunks
- Wait 12 to 18 months before replanting the orchard
  - o During the wait, correct any physical (hard pan, plow pan, compaction, etc) or chemical (salt, pH, nutrient, herbicide residue) problems.
  - o During the wait, fumigate in the fall if you have high nematode counts.

- During the wait, plant an annual, non-nematode host crop.
    - Sudan grass or sorghum x sudan hybrids are good choices to begin to reduce nematode populations while improving soil tilth. These non-irrigated crops will also help to dry the soil if a fall Telone fumigation is necessary.
    - If the soil does not need to be dried for fumigation many of our irrigated annual crops (except beans) may be suitable as they don't host *P. vulnus*; however, they can host ring and root-knot nematodes.
3. **Fumigate** if your soil has high nematode counts. Your choices are Telone or Chloropicrin or a combination of these. All soil preparation (ripping, disking, leveling) needs to be completed when the soil is still moist enough to allow for efficient equipment operation (by June-July) and to avoid the development of large clods in clay loam soils. Very little plant residue should be present on the soil surface.
- **Telone II** is the standard replacement for MB. It is a good root killer and nematicide but compared to MB it doesn't penetrate well throughout the soil profile and is not as good on the fungal and bacterial components. It performs quite well on coarse- textured soils. To get a performance even close to MB you need to pay attention to:

**Soil Moisture:** Dry the lower soil to 12% moisture content. Sands and sandy loam soils can achieve this with a summer of fallow. For finer-textured soils a spring/summer crop of sudan grass or safflower may be needed to remove deep moisture. This can also be accomplished with winter wheat sown the previous fall to utilize winter rainfalls followed by July soil ripping and a summer of drying. Even then it can be difficult to dry clay loam soils down to 12%.

**Soil Preparation:** To improve fumigant delivery, pre-rip the soil on 4 to 5 foot centers and then come back through, even deeper, with the placement of shanks between the previous rip shanks. Re-settle the soil with a disc and ring roller. How deep you need to rip depends on your soil moisture. At 12% moisture ripping to 3 feet is usually adequate. At 12-15% moisture rip to 4 feet. At 15-19% moisture rip to 5 feet.

**Rate:** This again depends on your soil moisture. The highest legal rate is 330 lbs a.i./A (33.7 gallons/A). With 12% moisture, use 330 pounds a.i. per acre, shanked in at least 20 inches deep across the entire field. At moisture contents of 12-19% you need to roughly double that rate to get the same effect. As this would exceed legal label amounts, the only alternative is to use an increased rate applied as a strip treatment to a portion of the field surface. The shank should be fitted with 2-3 narrow wings along its length (a Buessing shank) and this feature is *critical* for proper fumigation of clay loam soils. The best results can be obtained by delivering half the material at a 20 inch depth and the other half at a 28-inch depth, although this type of delivery system is not widely available. After all that, a strip treatment will only provide 1-2 years of protection before the tree growth starts to slow whereas a properly applied broadcast treatment can provide 6 years of protection.

**Surface treatment:** To prevent off-gassing, the surface must either be tarped or contain adequate surface moisture at the time of treatment. Tarping allows the full effect of the fumigation to reach the surface soil. Without a tarp, the surface soil needs to be treated separately with a Vapam application to get a completely clean profile. However, there is no need to spend the extra effort with a surface treatment if one has strip applied the Telone.

**Timing:** Applications are typically done from mid September to November 15 to allow the soil time to dry and cool a bit but also to receive the surface moisture benefits of an early rain. Complete the fumigation before more than 2 inches of rain falls or it will reduce the effectiveness of the fumigation. Trees can be planted the following spring.

**Bottom Line:** You can achieve MB-like results on properly dried and prepared sandy and sandy loam soils with a full field application and a tarp or surface treatment. It is difficult to get as effective a treatment with Telone on finer-textured soils due to higher moisture contents and the need for extensive (and expensive) soil preparation and strip treatments. Combinations with Chloropicrin can increase the efficacy but also the expense.

- **Chloropicrin (CP)** doesn't penetrate roots well but travels further than Telone if the soil profile

has been opened with deep ripping. This could be useful on finer-textured soils that are difficult to dry AND on walnuts where the deep roots have already been killed with herbicides as described in 2 above. Chloropicrin also provides a greater “increased growth response” in the first year after fumigation which is unrelated to nematode control. It is more commonly used in combination with Telone II and soil preparation needs to be the same as for a Telone application. A good optimum treatment rate for soils with less than 12% moisture content is 170lb/*treated acre* stripped down the planting row after a broadcast application of Telone II. In clay loam soils you’ll need to use 250 to 350lb/*treated acre* in conjunction with a standard Telone II treatment. The most effective (and expensive) approach for soils containing 15 to 19% moisture would be CP at the 28-inch depth and Telone II applied at 20 inch depth. Do not apply CP after Nov 15.

- **Telone C35** is a combination of Telone and Chloropicrin. Soil preparation is basically the same as for Telone II above. The highest label rate of 50 gallons/ac contains 342lb/ac Telone and 194 lb/ac Chloropicrin. Base any strip application rate on the total lbs/acre of Telone in the product. For example, for a soil moisture of 12-15%, use 75gal of C35/*treated acre* (which contains 513 lbs of Telone applied over ¾ of the orchard floor).
- **Metam sodium** (Vapam, Sectagon) or **metam potassium** (K-pam) are not true fumigants and must be pushed into the soil with water. This can only be accomplished in coarse textured orchard soils and will NOT work in clay loam soils. Neither of these products should be used in this deep drench fashion prior to planting a stone fruit orchard because those trees will not grow well even a year after treatment.

Metam sodium or potassium can be useful as a surface treatment in conjunction with an untarped Telone application. The best method for application is at a rate of 110lb/ac (25gal/ac) applied in front of a rotavator that incorporates the surface 5 inches of soil. It can also be applied as a drench at 250 ppm in 2 acre-inches of water (25 gallons/acre in 54,000 gallons of water) prior to or following the Telone II or C35 treatment. It is OK to plant either stone fruits or walnuts within a few months of using these lower, surface treatment rates of metam sodium.

4. **Prepare the soil** thoroughly to correct any physical problems (hard pans, plow pans, compacted soil, poor water penetration, etc.) or chemical problems (salt, pH, herbicide residues, phosphorus or potassium additions, etc) and level the soil. Keep in mind that 28-inch deep shanks on a fumigation rig are going to be destroyed if the soil isn’t pre-ripped to 4-feet deep or if there is a lot of old wood/roots in the field. The herbicide treatment applied to cut trunks (described in 2 above) results in roots that are more easily sliced through during ripping and fumigation operations.

5. **Rotate** to a different crop or a different rootstock. This, the herbicide treatment and a year of wait should take care of the “rejection” component.” If you have nematodes, select a crop that does not host the type you have. Three years of alfalfa can reduce *P. vulnus* (lesion) nematode problems. Tomatoes, sweet corn, cucurbits and many other annual crops (except beans) do not host *P. vulnus*. If ring nematodes are your problem, a year or two of sudan or a sorghum x sudan hybrid can reduce this pest. Where both ring and *P. vulnus* are problematic the alfalfa planting should be followed with a year (minimum) or two (better) of sudan grass. If root-knot nematodes are the problem, a resistant rootstock may be the best choice as a lot of crops host this pest – choose Nemaguard, Nemared, any cherry, any plum or a black walnut rootstock.

6. **Fertilize.** All trees benefit from a small amount of macro & micro nutrients at planting. Dr. McKenry has found that 1/6 pound of Peters 20-20-20 plus 8.3 ml of Super Micro mixed into 2 gallons of water and applied to each tree at planting can double first year tree size. Other starter fertilizers may work just as well. If trees have not been fumigated, you may achieve an additional growth response with foliar micronutrient sprays and frequent, small N applications.

With this writing, I have tried to provide an overview of a complex topic that I have been getting a lot of questions about. More detailed and crop specific information can be found on Dr. McKenry’s website: <http://www.uckac.edu/nematode>.

## FALL ZINC AND/OR UREA SPRAYS

Zinc, urea or a combination of these materials are used in tree crops in the Fall to improve nutrition, reduce diseases or accelerate leaf drop.

**Nutrition:** Fall is an excellent time to correct zinc problems which are one of the most common nutrient deficiencies found in tree crops. It is particularly common in our area on cherries and apples. The standard recommendation is to apply 5-10 pounds of zinc sulphate (36% zinc) per 100 gallons of water in October before leaf drop. These sprays will burn leaves (without injuring the plant) and give correction in almonds, apples, apricots, cherries, and pears. Use the low rate on peaches to avoid injury.

**Leaf Drop:** A rate of 20 pounds/100 gallons/acre has been used to accelerate leaf drop in stonefruit if applied at the onset of natural leaf fall. Farm Advisor Franz Niederholzer has found that this is more rapid and consistent after the first rain than in hot, dry falls.

In cherries, adding 20 pounds of fertilizer grade urea to the 20 pounds of basic zinc sulfate (36% zinc) in 100 gallons/acre applied in late October has been found to accelerate leaf drop even further. UC Cooperative Extension researchers Kitren Weis, Joe Grant and Steve Southwick also found that this treatment can *advance and compress bloom* the following spring, apparently substituting for some chill accumulation. Dr. Weis suggests that the appropriate timing should be between 1-3 chill portions. Chill portions can be found by clicking the Weather Services button on the UC Fruit & Nut Research and Information Center Website: <http://fruitsandnuts.ucdavis.edu>.

**Disease Control:** In apples and pears, a fall foliar spray of urea (pears) or urea and zinc (apples) hastens leaf fall and reduces the level of overwintering scab spores. This improves control of spring scab sprays (but does not substitute for them) and gives an added nutritional benefit. In apples use 20 pounds/acre of zinc sulfate combined with 50-150 pounds/acre of fertilizer grade urea applied at early leaf fall. In pears, use low-biuret urea without zinc to avoid damaging dormant buds and apply at least 50 pounds/A at the onset of leaf fall using 25 gallons of water for every 10 pounds of urea.

In stone fruit, Roger Duncan, Farm Advisor in Stanislaus County, has found that an October spray of 100 pounds of low-biuret urea per acre can reduce bacterial canker in orchards prone to the disease.

## GOOD AGRICULTURAL PRACTICES REDUCE MICROBIAL CONTAMINATION

The recent incidents of foodborne illness from contaminated spinach have reminded us how important our production practices are — both for the health of our customers as well as the health of our agricultural industries. Salad crops are particularly vulnerable to microbial contamination as they are eaten raw and have an edible portion that comes in contact with the ground or irrigation water. However, ANY crop that can be eaten raw can cause foodborne illness, if contaminated. This includes MANY of the tree fruits (apples, apricots, cherries, peaches, nectarine, persimmons, plums, etc.) and vegetable crops (green beans, sweet corn, sweet onions, green garlic, tomatoes, fresh herbs, cucumbers, melons, summer squash, peppers, etc.) that we grow in Brentwood.

Contamination can come from soil, water, manure, equipment, workers, or animals. It can occur either in the field or in the packing shed. This might be a good time to review your production practices for possible points of contamination and correct them before next season. Keep in mind that once produce has been contaminated, removing or killing the pathogens is very difficult. The best approach is to prevent the contamination in the first place. Below, I have included a brief overview of points to consider:

### Manure and Animal management

- Hot compost or age manure before field application
- Incorporate manures/composts prior to planting
- Maximize the time between application and harvest
- Don't top dress with fresh manure or manure "teas"
- Exclude domestic animals (dogs, livestock, poultry) from fields during the growing and harvesting season
- Minimize wild animals in fields
  - Have an active control program for rodents (squirrels, voles, etc.)
  - Bare buffers around fields can discourage rodents, reptiles and amphibians from entering fields
  - Eliminate cull piles, food residues and other attractants for wild animals

### Water used for crop production

- Check irrigation water for fecal coliform contamination
- Be aware of water that passes close to livestock or sewage treatment areas.

- Foliar applications made within 2 weeks of harvest should be from potable water.

**Worker health and hygiene:** Hepatitis A outbreaks have been linked to infected workers. Any workers who touch fresh produce can contaminate it. This includes pickers, sorters, graders, packers.

- Train workers about microbial risks and proper procedures
  - Wash hands before handling produce
  - Wash hands after using the restrooms
- Supply soap, clean water, single use towels *and enforce their use.*
- Provide clean restrooms and *enforce their use.*
- Be careful when moving or servicing toilets to prevent leakage
- Provide bandages to handlers with cuts or lesions.
- Gloves should be kept clean if they touch produce.
- Re-assign sick employees to non-food contact jobs.

#### **Field & Harvest Sanitation**

- Harvest bins, equipment, implements and surfaces that touch fresh produce should be cleaned and sanitized daily.
- Remove excess soil in the field
- Minimize crop bruising and damage

**Packing and Post Harvest:** *Water that contacts fresh produce after harvest is widely recognized as the most essential pathogen control point.*

- Use potable water for cooling, washing, dipping, grading, etc.
- Use potable water for making ice
- Chlorinate wash water and monitor levels and pH
- Pay special attention to water quality in dump tanks and re-circulated water
- Cool produce quickly to minimize potential pathogen growth
- Clean and sanitize staging, loading & food contact surfaces regularly
- Keep birds and rodents out of packing and storage areas

You can find more detailed information at:

**UC Good Agricultural Practices website:**  
<http://ucgaps.ucdavis.edu>

- “Self Audit for Growers and Handlers”
- “Chlorination in Fresh Fruits and Vegetables”
- “Key Points of Control and Management of Microbial Food Safety: Information for Growers, Packers, and Handlers of Fresh-Consumed Horticultural Products”

**UC Small Farm Center:** <http://www.sfc.ucdavis.edu>  
(Click Program Areas, then Food Safety)

- “Food Safety Begins on the Farm”

#### **US FDA’s Overview of Good Agricultural Practices:**

- “Guide to Minimize Microbial Food Safety Hazards for fresh Fruits and Vegetables”  
<http://www.foodsafety.gov/~dms/prodguid.htm>

**USDA Audit verification Program** provides independent, 3<sup>rd</sup> party audits for a fee. Those passing annual audit receive a certificate and a website posting accessible to customers and participants.

- <http://ams.usda.gov/fv/fpbgapghp.htm>

If there is enough interest, I would be happy to put together a local workshop on this topic. Give me a call (925-646-6129) if you have an interest.

## **EQIP FUNDING AVAILABLE TO IMPROVE FARMING PRACTICES**

Farmers and ranchers interested in soil and water conservation may apply now for funding through the Environmental Quality Incentives Program (EQIP). This is a voluntary cost share and technical assistance program offered by the USDA Natural Resources Conservation Service (NRCS) to help promote agricultural production and environmental quality as compatible goals.

Eligible applicants may apply for financial assistance to help with a variety of projects addressing water conservation, soil conservation, pest management and wildlife habitat improvement. Common projects include (but are not limited to): irrigation systems that conserve water, runoff reduction practices, water quality improvement, air quality improvement, noxious weed management, reduction of chemical pesticides, soil erosion, or cover crops. Eligible practices can be cost shared from 50-100%.

**The deadline for applications is December 1, 2006.** Contact Lisa Hokholt or Joe Takai, at the USDA NRCS Concord Service Center at (925) 672-4577 ext. 100 for more information and assistance with the application process.

# STRIPE RUST MANAGEMENT PLAN

Wheat growers have been experiencing serious yield losses from stripe rust disease over the last few years. Dr. Lee Jackson (UC Cooperative Extension Agronomy Specialist) along with several UC Cooperative Extension Agronomy Farm Advisors and the California Wheat Commission have put together the following management plan as part of an ongoing effort to minimize yield losses from this disease.

- 1. Plant varieties suitable for your growing region and intended market.** Avoid using susceptible varieties or be prepared to apply a fungicide if you plant a susceptible variety. Refer to the small grains website for variety information.  
[\(http://agric.ucdavis.edu/crops/cereals/cereal.htm\)](http://agric.ucdavis.edu/crops/cereals/cereal.htm)
- 2. Diversify your plantings.** Plant more than one variety in case new races of the stripe rust pathogen infects the crop in your region.
- 3. Monitor your crop carefully during the growing season in order to detect the first infections early enough to plan for effective fungicide application(s).**
  - Initial infections in the Central Valley can occur as early as January or as late as April.
  - A trigger-point for fungicide application for effective disease control of susceptible varieties under conducive weather conditions is when 10% of plants show symptoms of infection or when 'hot spots' of disease are detected in the field.
- 4. Pay attention to reports of stripe rust in other areas of California and surrounding areas.** Infection in other areas is an early-warning for your area since spores of the stripe rust pathogen are wind-borne and can be disseminated over long distances (hundreds of miles) to cause infection. The California Wheat Commission's Weekly Bulletin is a good source of this type of information.
- 5. Monitor weather conditions.** Cool, wet conditions (50-60 degrees F with intermittent rain, fog, or dew) are most favorable for infection, spore production, and spore dispersal. Keep in mind, however, that races of the stripe rust pathogen now present in California can cause disease at higher temperatures and drier conditions than in the past.

## 6. Apply an effective fungicide (follow label directions) if necessary to minimize yield loss.

- Application timing is critical since available effective fungicides have residual activity of no longer than about 3 weeks.
  - If the initial application is made too early, (before infection is detected) the protective activity of the fungicide will be gone before disease appears. Losses then will occur if disease subsequently develops.
  - If the initial application is made too late (after disease is well established and severe), the fungicide will not prevent loss (the damage has already been done).
- Protection of the flag-leaf from infection and protection of the plant during the grain-fill period is the goal.
- Under continuing severe disease pressure, more than one application may be necessary to adequately protect susceptible varieties.
- Label restrictions for timing of application vary by fungicide class (triazoles and triazole/strobilurin combinations vs. strobilurins). The following are examples of permissible fungicide application timings:

Material	Apply before	Crop limits
Tilt (Syngenta)	Feekes 10.5	(wheat only)
Stratego (Bayer)	Feekes 8	
Quilt (Syngenta)	Feekes 10.5	(wheat only)
Headline (BASF)	Feekes 10.5	
Quadris (Syngenta)	Feekes 10.5	

## PROCESSING TOMATO VARIETY TRIAL

Every year I plant an early season processing tomato variety trial in conjunction with a series of identical trials coordinated by UC Farm Advisors throughout the state. This year's trial was planted on March 27<sup>th</sup> in cooperation with Anthony Massoni of Simoni and Massoni Farms. It was located to the north of Hwy 4 just west of the Byron Hwy on a Brentwood clay loam soil. Harvest was on August 18<sup>th</sup> and the trial averaged a quite respectable 55 tons per acre. The quality samples were collected on August 4<sup>th</sup> so the color, sugar and pH at harvest were probably a little better than that recorded below. The highest yielding variety SUN 6366 also had top color, sugar and acid ratings. BOS 66508, H-5003, and U 250 were our top yielding varieties last season. See the table for complete results.

2006 PROCESSING TOMATO VARIETY TRIAL RESULTS								
Variety	Company	Tons/A		Color		Soluble Solids		pH
SUN 6366	Nunhems	60.31	e	25.8	e	5.48	f	4.25 bc
BOS 66508	Orsetti	58.67	de	22.0	abc	4.90	abc	4.27 bc
HMX 5883	Harris-Moran	57.86	de	25.5	e	5.08	cd	4.34 de
H 5003	Heinz	57.68	de	20.8	a	5.45	f	4.30 cd
<b>APT 410</b>	Seminis	56.68	de	22.3	bcd	5.08	cd	4.27 bc
BOS 66509	Orsetti	56.39	cde	22.0	abc	5.03	bcd	4.29 bc
PX 438	Seminis	54.59	bcd	21.5	abc	5.20	ef	4.39 f
BOS 7026	Orsetti	54.49	bcd	22.0	abc	4.73	a	4.27 bc
<b>HYPEEL 45</b>	Seminis	51.95	abc	23.5	d	5.48	f	4.20 a
<b>H 9280</b>	Heinz	51.61	ab	22.5	bcd	4.78	ab	4.27 bc
U 250	Lipton/Unilever	50.27	ab	23.0	cd	5.10	cd	4.34 de
U 462	Lipton/Unilever	47.72	ab	21.8	abc	5.20	ef	4.36 ef
		Mean = 54.85		22.7		5.12		4.29
Means followed by the same letter are not statistically different from each other at the 95% confidence level using Fisher's LSD. Varieties in bold are industry standards included for comparison								

## NEW PUBLICATIONS:

The following publications are available from the UC ANR Online catalog at <http://anrcatalog.ucdavis.edu> or by calling 1-800-994-8849. Reference copies are available in my office if you would like to review the publication before you order.

### Cover Crops for Walnut Orchards

*Publication 21627, \$10* (FREE from my office until supplies run out)

Cover crops can provide many benefits in orchards and have seen increasing use in recent years. This new handbook outlines a step by step process for success including orchard factors to consider when choosing a cover crop, suggested cover crops, how and when to plant and how to manage the cover. 19 pp

### Guide to Efficient Nitrogen Fertilizer Use in Walnut Orchards

*Publication 21623, \$10* (FREE from my office until supplies run out)

This publication gives the most in depth information available on nitrogen (N) fertilization of walnut orchards. It discusses variables that make N management a unique challenge for each orchard and

provides tools for efficient and economic orchard management. 19 pp.

### Fertigation with Microirrigation

*Publication 21620, \$25*

This guide discusses how to use your microirrigation system to apply both water and fertilizers in precise amounts and locations through a field. You'll learn about nitrogen, phosphorus and potassium distribution around drip lines and how and why to inject gypsum. This publication also addresses the environmental effects of chemical applications, and focuses on N management to reduce groundwater pollution. 49 pp.

### Seasonal Guide to Environmentally Responsible Pest Management Practices in Peaches and Nectarines

*Publication Number 21625, \$7*

This publication summarizes 3 years of study to develop feasible pest management strategies to reduce surface water contamination with pesticides, to provide a safer working environment for growers and farm workers, and to reduce the use of volatile organic compounds.

## UC WEBSITES:

### UC Fruit and Nut Research & Information Center

<http://www.fruitsandnuts.ucdavis.edu>

Selected features include:

- Crop & production
- Chill unit accumulation
- Stonefruit harvest prediction model

### UC Vegetable Research & Information Center

<http://www.vric.ucdavis.edu>

Selected features include:

- Crop & production information
- Good Agricultural Practices & Food Safety

### UC Agronomy Research and Information Center

<http://agric.ucdavis.edu/>

Selected features include:

- alfalfa, grains, specialty crop information

### UC Davis Alfalfa Production Website:

<http://alfalfa.ucdavis.edu>

Selected Features include:

- Variety performance
- Production information
- Alfalfa Symposium Info & Proceedings

### UC IPM Program

<http://www.ipm.ucdavis.edu>

Selected features include:

- Pest Management Guidelines
- Weather data & chill unit accumulation
- Degree day models & interactive tools
- Pest photo gallery

### UC Weed Research & Information Center:

<http://www.wric.ucdavis.edu>

Selected features include:

- Weed ID & photo gallery
- Herbicide efficacy guidelines
- Poisonous plant information

### UC Post harvest Technology:

<http://postharvest.ucdavis.edu>

Selected features include:

- Produce Facts (post harvest handling guidelines for over 100 individual commodities)
- Post harvest resources directory

### UC Cost of Production Studies

<http://coststudies.ucdavis.edu>

### UC Sustainable Agriculture Research & Education Program:

<http://sarep.ucdavis.edu>

### UC Small Farm Center

<http://www.sfc.ucdavis.edu>

Selected features include:

- Agritourism
- Specialty crops
- Direct marketing

## CALENDAR

### OCTOBER

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**16-18**

#### HAZARD ANALYSIS AND CRITICAL CONTROL POINT (HACCP): A Basic Concept for Food Protection

Davis

Monday, 8:30 am – 5:00 pm; Tuesday 8:00 am – 5:00

pm, Wednesday 8:00 am – 3:00 pm

\$695 includes lunches and course materials

Sponsor: UC Davis Extension

Contact: (530) 757-8899 or

[aginfo@unexmail.ucdavis.edu](mailto:aginfo@unexmail.ucdavis.edu)

**19-20**

#### HAZARD ANALYSIS AND CRITICAL CONTROL POINT (HACCP): Verification and Validation – An Advanced Workshop

Davis

Thursday 8:30 am – 5:00 pm, Friday 8:00 am – 3:30 pm

\$575 includes lunches and course materials

Sponsor: UC Davis Extension

Contact: (530) 757-8899 or

[aginfo@unexmail.ucdavis.edu](mailto:aginfo@unexmail.ucdavis.edu)

**19**

#### CT 2006 STRIP-TILL AND NO-TILL WORKSHOPS

UC West Side Research & Extension Center

Oakland & Lassen Avenues, Five Points, CA

9:00 am – 1:00 pm

Lunch included

Sponsor: UCCE & WSREC

Contact: Jeff Mitchell (559) 303-9689 (cell) or

[mitchell@uckac.edu](mailto:mitchell@uckac.edu)

**21**

#### ESTABLISHING THE SMALL VINEYARD

UC Davis

9:00 am – 4:00 pm

\$150 includes lunch and course materials

Sponsor: UC Davis Extension

Contact: (800) 752-0881; from Davis or Woodland:

757-8777, [www.extension.ucdavis.edu](http://www.extension.ucdavis.edu)

## NOVEMBER

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2

### TAXATION AND ACCOUNTING FOR THE SMALL VINEYARD

Davis

9:00 am – 4:00 pm

\$190 includes lunch and course materials

Sponsor: UC Davis Extension

Contact: (800) 752-0881; [www.extension.ucdavis.edu](http://www.extension.ucdavis.edu)

2-3

### SUSTAINABLE AG EXPO

The 2006 Sustainable Ag expo will feature trade exhibits and an all-day educational workshop designed to help growers of various commodities and specialty crops learn how to implement sustainable practices.

Exhibitors at the Expo will show the latest equipment and materials being used on sustainable farms and will be featured at the Exhibitors' Showcase on Thursday evening. The Exhibitors' Showcase will include wine and hors'doeuvres for all who attend.

Seminar Speakers will present recent research findings on reduced risk practices, water quality protection, current laws & regulations on drift management and agricultural labor issues, and more. The 2006 Sustainable Ag Expo agenda is available on line and continuing education credit for DPR, CCA, and RWQCB has been applied for.

Monterey County Fairgrounds

Thursday 2:00-8:00 pm; Friday 8:00 am – 4:00 pm

\$200 - \$250

Sponsors: Central Coast Vineyard Team

Contact: (805) 369-CCVT;

<http://www.vineyardteam.org/Expo.php>

5

### SENSORY ASSESSMENT OF OLIVE OIL

4444 East Avenue, Livermore

10:30 am – 4:30 pm

\$45 (COOC members), \$65 (non-members)

Sponsors: COOC & Tri Valley Conservancy

Contact: 1-888-718-9830; [oliveoil@cooc.com](mailto:oliveoil@cooc.com)

14

### NAPA VALLEY VITICULTURAL FAIR

Napa Valley Expo Fairgrounds, 575 Third St., Napa

8:00 am – 4:00 pm

\$10.00

Sponsors: Napa Valley Grape growers, UCCE and other local institutions

Contact: (707) 227-9997; [www.napavalleyvitfair.com](http://www.napavalleyvitfair.com)

14 & 15

### SPECIALTY TABLE OLIVE PROCESSING SHORT COURSE

Sponsors: UC Davis Extension

Contact: (800) 752-0881

[www.extension.ucdavis.edu/agriculture](http://www.extension.ucdavis.edu/agriculture)

15 & 18

### CCC PEST MANAGEMENT CONTINUING EDUCATION WORKSHOPS

Diablo Valley Farm Center, Delta Rd. at 2<sup>nd</sup> St., Knightsen

8:00 -11:30 AM both days (Wednesday & Saturday)

Free

Sponsors: CCC Department of Agriculture

Contact: (925) 427-8610

18

### SMALL WIND ENERGY SYSTEMS

Sponsors: UC Davis Extension

Contact: (800) 752-0881

[www.extension.ucdavis.edu/engineering](http://www.extension.ucdavis.edu/engineering)

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### CURRENT ISSUES IN VINEYARD HEALTH

Davis

9:00 am – 4:00 pm

\$190 includes course material and lunch

Sponsor: UC Davis Extension

Contact: (800) 752-0881; [www.extension.ucdavis.edu](http://www.extension.ucdavis.edu)

## DECEMBER

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12 & 13

### ALFALFA SYMPOSIUM

Sparks, NV

8:00 am – 5:00 pm

\$120.00; after Nov 20 \$160.00

Sponsors: Cooperative Extension (Western States)

Contact: Shannon Mueller (559) 456-7285

# CROP CURRENTS

Janet Caprile  
Farm Advisor  
[jlcaprile@ucdavis.edu](mailto:jlcaprile@ucdavis.edu)

## FALL 2006

- **LOCAL MEETINGS:** Pest Management Workshops
- **TREES:** Orchard Replant Considerations
- **TREES:** Fall Zinc and/or Urea Sprays
- **FRUITS & VEGGIES:** GAPs Reduce Microbial Contamination
- **GRAINS:** Stripe Rust Management Plan
- **TOMATOES:** Processing Tomato Variety Trial
- **ANNOUNCEMENTS:** EQIP funding for Conservation Practices
- **RESOURCES:** Publications & Websites
- **CALENDAR:** Classes/Meetings/Events

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TIME SENSITIVE MATERIAL

NON-PROFIT  
ORGANIZATION  
US POSTAGE PAID  
PERMIT #134  
CONCORD, CA

75 SANTA BARBARA RD, 2ND FLOOR  
UCCE - CONTRA COSTA COUNTY  
PLEASANT HILL, CA 94523-4215