



SUTTER/YUBA COUNTIES COOPERATIVE EXTENSION
UNIVERSITY OF CALIFORNIA
142A GARDEN HIGHWAY, YUBA CITY CA 95991
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Pomology Notes

May/June 2005 Newsletter

Meetings:

June 23..... Sutter/Yuba Almond Field Meeting.....Yuba City
(Please note the change in date on the Almond Field Meeting!)

ORCHARD PRACTICES TO CONSIDER IN MAY/JUNE

Almonds:

- Watch for summer disease symptoms. Spring rains may have triggered disease outbreaks. Potential problems include anthracnose, rust, alternaria, and scab.
- Monitor orchard water status, irrigate as needed.
- Monitor navel orange worm (NOW), peach twig borer (PTB), oriental fruit moth (OFM), and San Jose scale (SJS) traps
- Check young plantings for early symptoms of signs of non-infectious bud failure (AKA 'crazy top'). Carmel is the variety to watch most closely, but don't ignore Nonpareil.
- Monitor ant populations and consult previous years reject reports to determine need to treat this pest. Ant baits should be applied 4-7 weeks before predicted harvest.
- Evaluate cropload and plan the fertilizer program for the remainder of the season based on that cropload, early season program, and last year's leaf analysis. See the N-budget on the internet for help with nitrogen fertilizer plan at: http://fruitsandnuts.ucdavis.edu/almond/html/almond_n_model.html
- Keep an eye out for almond leaf scorch. This disease was positively identified in Sutter County last summer. A free pamphlet on almond leaf scorch (UC ANR publication No. 8106), written by Dr. Beth Teviotdale, UC Extension Specialist in plant pathology and Joe Connell, UC Farm Advisor in Butte County, is available from the UC Cooperative Extension office in Yuba City at 142A Garden Hwy or on-line at: <http://anrcatalog.ucdavis.edu/pdf/8106.pdf>.

Prunes:

- **Watch for rust and brown rot.** Spring rains could mean a bad year for both diseases. See articles in this newsletter on prune rust and brown rot control.
- Monitor orchard water status, irrigate as needed. Don't allow water stress early (through June) in the season. This could cause fruit end cracks later in the summer if water is then applied to stressed trees.
- Apply fertilizer as needed to maintain good orchard health and prepare orchard to start developing next year's crop. Cropload is the single most important factor determining orchard nitrogen and potassium needs.
- Check fruit to predict when side-cracking may occur. See Article below

LIGHT CROP = BIGGER FRUIT = MORE SIDE-CRACKS?

Prune fruit side cracks occur when internal and external fruit moisture cause fruit to swell and the skin to stretch past the breaking point. As opposed to end cracks, side cracking happens during a certain period of the year when certain orchard conditions occur at the same time:

Timing: Side cracking occurs when fruit expand rapidly during the final stage of their growth – usually in the first two weeks of July. This timing can vary from year to year, but can be known for any year by a simple measurement. The side-cracking period begins when the cheek to cheek diameter of the fruit becomes larger than the suture diameter.

Fruit size: Large fruit usually have a higher potential for side splits. Our cool spring and light crop set in some blocks may mean there is a greater chance of side-splitting this year.

Fruit exposure: Skin of fruit exposed to the sun is less elastic, and so these fruit split more often than shaded fruit.

Environmental Conditions: Cool weather during the time of rapid fruit growth means less water stress, more dew, more water in the fruit, and greater risk of fruit split.

Irrigation: Orchards have higher tree and air moisture levels after irrigation, especially flood irrigated blocks. To reduce excessive internal fruit pressures that this moisture can produce, some growers schedule their irrigations to maintain adequate orchard moisture while not irrigating during the beginning of the high risk period for side-splitting of fruit – usually around July 4. This may help reduce, but not eliminate side cracking. The overall regional weather pattern affect whether or not side-splitting occurs. Side-cracking usually varies more from year to year than farm to farm, showing how big a role regional weather (and fruit size) plays in this problem

Please call Franz for a farm visit to discuss side cracking (822-7515).

ANT COLONY MONITORING IN ALMONDS

Now is the time to scout for ants in almond orchards. Ants can cause significant damage to harvested nuts, especially in drip or micro-sprinkler irrigated almond blocks when the nuts remain on the orchard floor for an extended period (more than a few days). Detailed how-to instructions and background information on ant monitoring, including scouting forms, are available from the UCCE office in Yuba City (142A Garden Hwy) or on-line at: <http://ipm.ucdavis.edu/PMG/C003/m003fcants.html>.

Ant baits are generally preferred over ground sprays, because the poison doesn't just kill foraging worker ants, but is carried back to the nest to weaken or kill the colony. Ant baits are relatively inexpensive, but must be used carefully for best results. Here are some important points to follow for best ant control using baited materials:

- Bait should be applied to every row of the orchard or part of the orchard treated.
- Follow label instructions for bait use timing – usually 4-7 weeks before harvest.
- Applying bait to wet ground or just before irrigation will reduce control. The bait will absorb water and not perform as well. In general, don't apply bait within 24 hours of the end of irrigation or 48 hours before the start of irrigation. Check the label or talk with your PCA regarding details of coordinating irrigation and ant bait application.
- Don't use bait left over from last year, or bags opened more than 1-2 weeks. The soybean oil used as an attractant can become rancid and reduce bait efficacy.

MONITOR FOR PRUNE RUST STARTING IN MAY

Development of next year's crop starts this summer. Growers should protect their orchard from damage this year to get the best possible production next year.

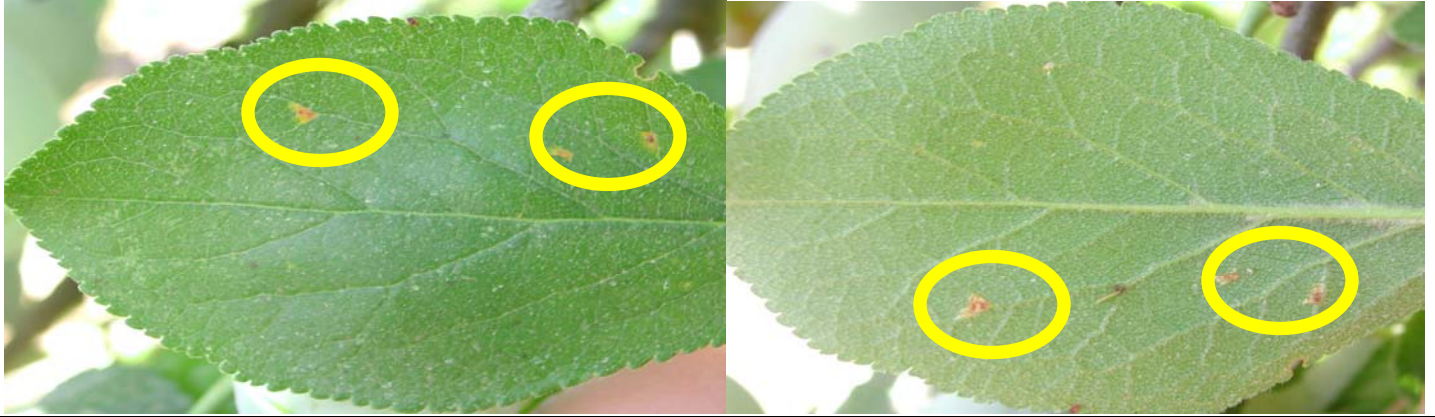
Prune rust is a disease that can defoliate prune trees prior to harvest, causing reduced fruit sugar concentration and increasing fruit dry away. Limb and scaffold sun burn can also be a consequence of early defoliation due to prune rust, and provide entry points for *Cytospora* fungus to infect bark of limbs and scaffolds. This disease can kill major scaffolds wood, thus reducing future production. Finally, early defoliation due to rust can produce excessive trash in the fruit bins at harvest that slows down harvest and costs growers money. Prune rust is a disease that should not be taken lightly. Fortunately, rust is easy to scout for and inexpensive to treat when found.

Growers and their employees should be able to recognize rust symptoms (see photos below). The symptoms are yellow spots on the top of the leaf and "rusty" looking spore pads on the leaf bottoms. Early in the season, very few spots are visible on infected leaves, and careful, focused monitoring is needed. Here are the UC recommendations for scab control.

- Starting May 1, scan for prune rust on leaves of 40 trees per block. Repeat weekly. Focus on trees with vigorous growth, such as young trees, replants, etc.
- When the first leaf with ANY rust on it is found, treat the orchard to control the rust. Most growers use wettable sulfur for rust control, although Abound® is also registered (and effective) for rust control in prunes. Sulfur will control rust for 2 weeks.
- Continue scouting weekly or every-other week after spraying for rust control. If the number of trees with rust symptoms goes up, it may be necessary to treat again.
- If no rust or no increase in number of trees in the orchard with rust symptoms is found by July 15, stop scouting for rust.

Much of this spring was relatively cool and moist compared to last year. This could be a year where monitoring carefully for prune rust is really important. Call me, Franz (822-7515), if you'd like to schedule an appointment to have me show your employees how to spot prune rust symptoms, or just take a refresher "course" yourself.

Early rust symptoms (just three "spots") on the top and bottom of the same prune leaf.

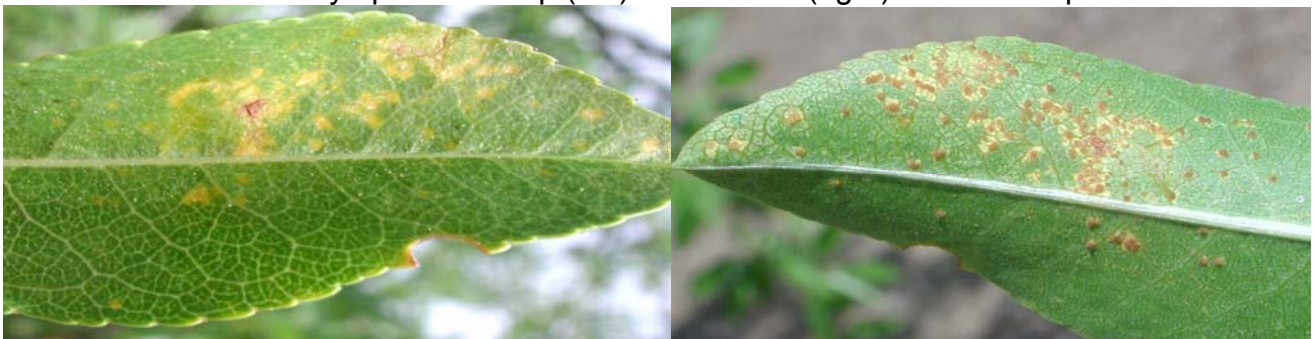


ALMOND RUST

Almond rust, a disease of almond leaves, is caused by the same fungus that causes prune rust. High humidity in the orchard favors disease development, as do spring or summer rains. **This year, with significant spring rainfall, may be a year when increased levels of rust infection are found in Sutter/Yuba almond orchards.** Growers and their employees should be able to recognize the symptoms of this disease. A picture of the top and bottom of an infected leaf appears below.

Defoliation can result from uncontrolled infections, weakening trees and potentially reducing yield the next year. The disease overwinters in infected leaves, so defoliating rust-infected blocks with a zinc sulfate foliar fertilizer spray in the late fall is part of an integrated approach to rust management in almond.

Almond rust symptoms on top (left) and bottom (right) of almond spur leaf.



Further information on in-season diseases of almond (anthracnose, scab, etc.) are available on-line at: <http://www.ipm.ucdavis.edu/PMG/selectnewpest.almonds.html>

BROWN ROT IN PRUNES -- 2005

Will 2005 be remembered as a “bad” brown rot year? The interaction of weather, prune orchard condition, and disease pressure between now and harvest will ultimately determine if it is or isn’t. This is the situation so far, as I see it, that Mother Nature has handed prune growers this year.

- There was an extended period of wet weather during the late bloom. This weather produced blossom brown rot infections in some blocks that were not adequately protected with bloom sprays. Blossom brown rot strikes produce fungal spores that act as “seeds” for further fruit infections, especially on:
 - ⇒ Injured fruit (split fruit, hail damaged fruit, insect damaged fruit)
 - ⇒ Fruit in trees with very high nitrogen status
 - ⇒ Clustered fruit
- Wet spring weather, such as we had this year, can produce latent (hardly visible, non-spreading) or green fruit rot (visible and spreading) infections in late spring. These infections can spread rapidly under the wrong weather conditions (rain, high humidity, and moderate temperatures) in the weeks before harvest as fruit mature. I’ve seen green fruit rot in some orchards this year.

MANAGING FRUIT BROWN ROT IN PRUNES

What can growers do this summer to protect their prune crop from fruit brown rot at harvest? While weather is a major (and unmanageable) factor in determining if fruit brown rot is a major problem at harvest this year, here are some things growers can do to get the best production from a block while avoiding damaging losses.

- ⇒ **Avoid, where possible, orchard conditions that promote fruit brown rot infections.** These include:
- High nitrogen (N) levels. Avoid excess N fertilization.
 - Clustered fruit. In heavy crop years, thinning can help reduce clustering of fruit and brown rot risk.
 - Fruit damage (split fruit, hail damage, and/or insect damage). Proper irrigation management and insect management is needed (See IPFP binder, available at UCCE office in Yuba City, for details on both topics.)
 - Late harvest. Growers must balance the risk of the spread of brown rot infection in each block with the economic benefit (lower dry away) of harvesting at lower fruit pressures.
 - High disease pressure. High inoculum levels in an orchard increase disease risk, but, by summer time, there is no way of economically reducing spore counts in a block. [This should be done by mummy removal during the winter and properly timed fungicides at bloom.]. Even with a good bloom spray program, fruit rot infections can occur at harvest when rain or high humidity occur as fruit mature in the weeks before harvest.
- ⇒ **Evaluate the economics of your operation.** Determine what blocks are worth protecting with expensive fungicides. Where is the best crop? Do you want to spend the money to protect all blocks? [Note: If fruit brown rot levels are high in an orchard at harvest, have a plan to remove mummies between harvest and bloom the following year to reduce spore levels in the block at bloom the next year. If the answer(s) to these questions are “yes” then...

⇒ **Where needed, chemical controls can be applied at the proper timing.** Chemical fruit brown rot control is expensive and not always successful under the best of conditions. Registered fungicides can only protect uninjured fruit from brown rot infection. They must be applied before infection occurs, and can not protect injured fruit. Dr. Beth Teviotdale, recently retired UC Extension specialist in plant pathology, suggests growers approach chemical control of ripe fruit rot in this way:

If chemical control is needed and two sprays before harvest are affordable:

Spray twice: 1) sometime between early June through mid July* and 2) two to three weeks before harvest.

If chemical control is needed and only one spray before harvest is affordable:

Spray once: 2-3 weeks before expected harvest.

*Research data give no clear picture of best spray timing during this 5-6 week period.

GOOD SPRAY COVERAGE IS ESSENTIAL FOR THE BEST POSSIBLE RESULTS WITH AVAILABLE FUNGICIDES DURING THE SUMMER WHEN TREE CANOPIES ARE MOST DENSE. PROPER NOZZLE ARRANGEMENT AND SLOW (2 MPH) TRACTOR SPEEDS CAN MAKE THE DIFFERENCE BETWEEN THE BEST POSSIBLE DISEASE CONTROL AND A WASTE OF TIME AND MONEY. PLEASE CALL ME (FRANZ) IF YOU WOULD LIKE TO SCHEDULE A FARM VISIT TO DISCUSS SPRAYER CALIBRATION AND NOZZLE ARRANGEMENT.

FRANZ NIEDERHOLZER
U.C. FARM ADVISOR

2005 UCCE SUMMER ALMOND FIELD MEETING
SUTTER/YUBA COUNTIES
Delforge Orchard, 4373 Broadway
Thursday, June 23, 2005



- 8:30 Registration and Refreshments
- 8:45 Introductions
- 9:00 Basics of setting an almond crop
Dr. Tom Gradziel, UC Davis Plant Science Department
- 9:30 Cleaning up shaker damage.
Franz Niederholzer, UCCE Sutter/Yuba Counties
- 9:45 Who needs a pest management zone?
Donna Seaver, UC Fruit and Nut Center, UC Davis
- 10:00 Euro-style orchard sprayer demonstration and calibration discussion
Franz Niederholzer, UCCE Sutter/Yuba Counties
George Kilbride, Hardi-US, Inc.
Terry Zerkovich, Holt of California
- 10:30 Rootstock selection in almond orchard planning
John Edstrom, UCCE Colusa County
- 11:00 Meeting ends

Location of orchard:

Take Hwy 99 to Eager Road exit (just north of Yuba City)
Go west on Eager Road, continuing around the 90° turn that turns to the south.

Turn right on Nuestro Road (first right after 90° turn)

Take Nuestro Road to Broadway (less than a mile)

Turn right on Broadway

Turn right at 4373 Broadway (look for yellow meeting signs)