Sacramento Valley Prune News

October, 2008

A Regional Newsletter of the UC Cooperative Extension Prune Advisors

Upcoming Meetings

Date	Program	Location
Nov 6	Grower Meeting Sutter County Ag Commissioner 822-7503	Yuba City
Nov 18	Sutter/Yuba Pruning Field Meeting 822-7515	Yuba City
Nov 19	2008 Prune Crop Review 822-7515	Yuba City
Nov 20	Grower Meeting Sutter Co. Ag Commissioner 822-7503	Yuba City
Dec 4	Grower Meeting Sutter Co. Ag Commissioner 822-7503	Yuba City
Dec 11	Grower Meeting Sutter Co. Ag Commissioner 822-7503	Yuba City

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PRUNE ORCHARD MANAGEMENT PRACTICES TO CONSIDER IN THE FALL AND DORMANT SEASONS

- **Dormant Spray Options:** Monitor spurs in each orchard in late fall or early winter to learn if a dormant/delayed dormant spray is needed for scale control. Call me (Franz at 822-7515) or look on the web at www.ipm.ucdavis.edu and click on "agriculture and floriculture" and then "prunes" to get to details of how to take and evaluate a dormant spur sample.

- **Prune Aphid:** What is your prune aphid management strategy? (see article in this newsletter)

- **Orchard Fertility:** Plan fall fertilizer program. Fall is the best time for soil applied potassium fertilizer in flood or solid-set irrigated blocks. It's too late for cost effective use of soil applied nitrogen fertilizer. Once leaf drop has started, soil nutrient uptake – especially nitrogen -- decreases rapidly. Dormant trees absorb almost no nitrogen.

- **Pruning:** Pruning is one of the most important and expensive activities in prune orchard management. Eliminating pruning can be a recipe for lots of small prunes, unless the orchard is carefully thinned. No pruning + thinning can be a very effective program for now. (See notice of pruning field day in this newsletter).

- **Manage Rodents:** gophers and especially voles can damage an orchard if not managed in the fall. Weedy cover gives voles the perfect "home" from which to feed on bark and possibly girdle trees.

- **Clean up orchards:**
  - Cut out *Cytospora* cankers and remove infected wood from the area of the orchard.
  - Clean up "barked" trees damaged by shaker. Trunk/limb damage from harvester can result in *Ceratocystis* canker infection and possible tree death.
  - Mark dying or weak trees for removal. Backhoe out old trees, making sure to get as much of the roots out of the hole as possible.

- **Call Franz with Questions:** If you have questions about information in this newsletter, please call Franz at 218-2359. I can talk on the phone or make an appointment to visit your orchard.

REDUCING BLOW OVER RISK IN PRUNE

RICHARD P. BUCHNER, UC FARM ADVISOR, TEHAMA COUNTY

Trees blown over by high winds can be a serious problem for prune growers in the Sacramento Valley. Young trees (3-4 years old) are especially vulnerable because root systems are not fully developed to anchor the tree against the wind load on the rapidly expanding tree canopy. Mature trees are less vulnerable but can go over if structural wood is damaged by disease or soils are excessively saturated when high wind occurs.

History is probably the best indicator if a particular orchard is at risk. Several factors contribute to wind damage. Rootstock has a large influence depending upon how well a rootstock provides anchorage. Myrobalan seedling, M40 and peach are thought to provide better anchorage compared to Myro 29C or M2624. Therefore, orchards planted on Myro 29C or M2624 would be at a greater risk of wind throw.

Wind direction and velocity also have a large influence on damage. In the Sacramento Valley prevailing winds are usually north/south. Experience suggests that north/south plantings ventilate better than east/west plantings and are less likely to experience wind damage. Orchards with excessive soil moisture or soil water saturation are more likely to lose trees to wind throw compared to orchards on dry firm soil. Depending on the timing of high winds, avoiding excessive fall irrigation can reduce blow over potential. Finally, trees with large canopies are more likely to blow over compared to small stature trees. Large tree canopies act like "sails" and catch more wind. Pruning to thin the upper canopy will help wind blow through the tree while topping alone will still leave considerable wind resistance.

One option for young orchards is to stake trees to support them through the critical 3-4 year period. Planting depth, tree heading height, length of pruning and berm height can all make a difference in developing an orchard that will remain standing in high winds. For mature orchards with high wind throw potential, the primary strategy is to decrease wind resistance. Trees with leaves provide more wind resistance compared to pruned trees or those without leaves. Prune as early as possible to reduce the canopy and its wind resistance. Zinc sulfate foliar sprays for improving zinc nutrition will also gradually reduce the leafy canopy as treated leaves defoliate. This defoliation may take several weeks if trees are treated early. Experience suggests that zinc nutrition sprays are less likely to result in leaf removal when orchard soils are moisture depleted.

MANIPULATING PRUNE BLOOM TO MANAGE RISK OF HEAT AT BLOOM

FRANZ NIEDERHOLZER, UC FARM ADVISOR, SUTTER/YUBA COUNTIES

It all starts with bloom and fruit set. If you can't set a crop, all the rest of the season doesn't really matter to the current year bottom line. Sutter/Yuba prune growers lost crops in three of the last five years. Experience and research point to high temperatures during bloom resulting in poor cropping in 2004, 2005, and 2007. Maximum temperatures during bloom reached the low to mid 80^{o} F's. The potential for dangerously high March temperatures may be increasing. What can prune growers due to manage risk of crop loss from high temperatures at bloom?

Stretching the bloom window is one way to manage crop loss risk from warm bloom weather. Warm weather patterns in March can come and go in less than a week. A few days difference in bloom timing may make the difference between a good crop and disaster. For example, the difference between setting a 100% or <25% of a crop was about 3 days earlier bloom (see table at the bottom of the next page).

Spraying horticultural oil before bloom can advance or delay bloom timing. The key to success with this practice is proper spray timing.

Spraying a heavy rate of oil (4 gallons/acre) early in the dormant spray season will advance bloom from a few days to a week or two, depending on the year. When should oil be applied to advance bloom? The traditional timing is sometime between the last week of December and the middle of January. This doesn't exactly hold for all years, but it is a good place to start. Oil burn can be a problem on prunes spraying high rates of oil. In my experience, when weather is cool and the soil and trees are moist there is less chance of burning trees with oil. When the weather warms up, trees begin to "wake up" and are more sensitive to damage from high oil rates. Dry trees are very sensitive to oil burn so spraying **after** fog or rain will help mitigate this problem. I have seen oil burn in prune trees sprayed a day or two after a dry north wind – even though the soil had plenty of moisture.

High rates of oil applied right before bloom (usually early March) will usually delay bloom a few days. Growers waiting until just before bloom to apply a dormant spray must be very careful to avoid harming bees.

Advancing or delaying flowering can help growers manage warm weather during bloom. However, nothing is guaranteed. Accurate weather prediction is impossible. Will heat come early? Will it come late? On top of that, bloom timing is impossible to predict. Will it peak on March 21? March 10? March 28? If a grower treats all blocks with early oil, they risk pushing the bloom into a frost or heat. There are no easy answers. Some growers will try to spread the risk by treating different blocks with oil at different times. This practice will spread the weather risk and make fungicide spraying less of a race against time. Others will pay the insurance bill and treat all orchards similarly. The choice is yours.

Table 1. The relationship between first bloom timing, % crop set, and daily maximum temperatures (^{o}F) during bloom for prune trees sprayed with 4 gallons of oil per acre on January 17 compared to unsprayed trees in Sutter County, 2005. A 20% crop set in this orchard was equal to a 2.5-3.0 ton/acre crop. A 3% crop set was equal to less than a half ton per acre.

Treatment	First Bloom	Final Crop Set (%)	Maximum Daily Temperature During Bloom
4 gall/acre oil sprayed Jan 17	March 2	20	61^{o}F--85^{o}F
No oil	March 5	3	74^{o}F--85^{o}F

MAINTAINING ADEQUATE POTASSIUM NUTRITION

BY JOE CONNELL, UC FARM ADVISOR, BUTTE COUNTY

Maintaining adequate potassium (K) nutrition is especially critical for prune trees. Before K deficiency was understood and we were able to correct it, "prune dieback" limited the areas where prunes could be successfully grown. We now know that fall is an excellent time to address K deficiency through soil applications of potassium sulfate.

Potassium deficiency in prunes is a problem in some areas of the Sacramento Valley more than others. K deficient prune trees show symptoms in spring if the deficiency is severe but by early to mid summer even milder deficiencies will begin to produce symptoms particularly on heavily cropped trees. By midsummer, leaves will become pale and develop a marginal scorch which can progress to the entire leaf especially if we experience a heat wave or if the trees are carrying a heavy crop. Fruits will sunburn and shoots die back as the deficiency progresses. Leaf samples collected in July are useful for confirming low K levels.

As you know, fertilizer prices have gone through the roof this year and any form of potassium is expensive. Potassium ions (K+) have a one plus charge and are readily adsorbed to the negatively charged clay particles in the soil becoming unavailable to the tree. Massive doses of 2000 lbs potassium sulfate per acre applied in bands overcame the soils ability to fix K in the enriched zone and would correct a deficiency for about 4 years. Rather than waiting to apply an expensive mass dose, UC research later demonstrated that annual Fall "maintenance" applications of potassium sulfate at 500 lbs/acre banded annually in the same location 4-5 feet out from the tree trunk on both sides of the tree row would maintain K levels before a deficiency became apparent. Injecting K through in-season drip irrigation was also very effective because the amount of K per wetted area was very high and potassium would penetrate well enough to be picked up by the tree. Drip irrigation is a very efficient potassium delivery system. Injecting through micro-irrigation can also be effective as long as the wetted area is focused and tightly confined.

Avoid any type of application that spreads potassium out over a large soil area. UC research showed that four years of broadcast applications only moved K 6 inches down into the soil while banded treatments penetrated 2 feet. Banded treatments have worked well under non-tillage but if you cultivate, the band should be shanked in to get the material closer to the root zone. Soil applications of potassium sulfate can be safely applied in November once leaf drop begins.

If you have been diligent about maintaining your K levels with banded applications, and since K fertilizers are currently so expensive, this might be a year to free up more of the potassium that's already in the enriched banded zone by applying a gypsum (Calcium sulfate) band overtop of the previous potassium bands. The calcium ions (Ca ++) in the gypsum have a plus two charge and will displace the potassium ions on the clay particles freeing up more potassium to remain in the soil solution while moving it deeper into the root zone. Gypsum banded at a rate of 1000 to 4000 pounds per acre in the same location as previous potassium bands will improve K availability. Be prepared for 2009, trees or orchards with light crops due to frost damage would be expected to crop heavily in 2009 making adequate K nutrition critical in those situations.

PREBLOOM APHID MANAGEMENT

FRANZ NIEDERHOLZER, UC FARM ADVISOR, SUTTER/YUBA COUNTIES AND CAROLYN PICKEL, UC IPM AREA ADVISOR, SACRAMENTO VALLEY

Prune aphids (mealy plum and leaf curl) are the key insect pest in prune production. High populations of these aphids can reduce tree vigor and fruit sugar content. Low fruit sugar = higher fruit dry away = less money for growers. Honeydew from feeding aphids dropped on fruit can cause fruit cracking.

There are two basic strategies for aphid control. The first strategy is to spray before bloom – carefully, every row -- to guarantee you won't have a problem in the spring. The second strategy is to wait and watch and be prepared to spray if aphids show up. Because we do not have an effective aphid monitoring program, it is not possible to monitor and effectively predict if you will have spring aphids.

The prebloom program involves investing in a spray before you know for sure that aphids will be a problem. Usually, orchards with a history of aphids will have spring aphid populations. The good news is that a prebloom spray, if properly applied, is very cost effective. If you wait until the spring to see if you DO have a problem, you may not have to spray at all. On the other hand, if you do need to spray, control can be more difficult to achieve and more costly. In-season pesticide application can harm beneficial mites/insects and potentially result in increased spider mites populations. Certain markets may not buy pesticide treated fruit. Check with your handler if you suspect an issue. The University of California has developed a prune aphid monitoring program for use after bloom to help track aphid populations and know if spraying is necessary. It is available on line at: http://www.ipm.ucdavis.edu/PMG/r606900211.html or in the IPFP Guidelines Binder available from your county Farm Advisors' office (University of California Cooperative Extension).

So, should a grower use Strategy 1 or Strategy 2? We think the answer depends on the aphid history of each block. Do you have a consistent problem with aphids? Do you want no concerns with aphids in season? If the answer is "YES" to either of these questions, then a prebloom spray to control aphids should be considered. If you have never seen aphids in the orchard, you might be OK to wait and watch and spray if aphids are found and their numbers begin to build. Pay attention and monitor aphid populations, aphid numbers increase rapidly as weather warms in the spring. Leaf curl aphids will quickly curl leaves making these aphids more difficult to control with contact materials.

New pesticide registrations and UC research has resulted in many different options for aphid control. The following table lists research proven materials and timings for prune aphid control. In mature orchards, aphids usually move to summer hosts after new shoot growth ends in late May or early June.

Effective timings and materials for prune aphid control, 2008-2009.

Read and follow the pesticide label before and during spraying.

Month	Life Stage of Aphid in Mature Orchards	Effective Pesticides for Prune Aphid Control.
October	Adults by mid-month	Asana, Actara (research shows sprays are effective after Oct. 15)
November	Adults, eggs	Asana, Warrior, Baythroid
December	Eggs	Diazinon[1], Imidan, Lorsban[1], Supracide[1], Asana[1], Warrior[1], Baythroid[1]
January	Eggs	See December materials
February	Eggs, hatching young	Diazinon[1], Imidan, Lorsban[1], Supracide[1], Asana[1], Warrior[1], Baythroid[1], Actara[1], Assail[1].
March	Hatching young	NR* Oil 2x during bloom
April	Young and adults	Actara, Assail, Provado, diazinion, Asana, Warrior, or NR* oil
May	Young and adults	Actara, Assail, Provado, diazinion, Asana, Warrior, or NR* oil
June	Usually Few to None	See April/May materials
July	Usually Few to None	See April/May materials
August	Usually Few to None	Harvest! Wait until late October/November
September	Usually Few to None	Wait until late October/November

*NR = Narrow range oil (Superior 440 Spray Oil, etc, IAP All Purpose 440 Spray Oil., etc.)

[1]These materials can harm fish and other aquatic life if applied before runoff occurs following winter rains.

●●● BARN SPACE NEEDED FOR ORCHARD SPRAYER ●●●

I'm looking for a barn to store a full sized airblast tower sprayer for at least a year. The tower can't be lowered below 13', so I need a shop or barn with a tall entrance. If anybody has space that I could use to store this sprayer, I would really appreciate it. Please give me a call at (530) 218-2359.

●●● FIELD MEETING TO REVIEW PRUNING/TOPPING OPTIONS IN PRUNES ●●●

On Tuesday, November 18, a field meeting is planned to review pruning and topping options in prunes. The meeting will be held in Live Oak at Everest Tumber's orchard. There will be demonstrations of flat topping, roof topping, and V-topping, as well as pneumatic and gas powered prunes. Bill Krueger, UCCE Farm Advisor in Glenn County and Erick Nielsen, prune grower and owner of Erick Nielsen Enterprises (ENE) based in Orland, California will be guest speakers. The program will start at 9:30, with sign-ins and coffee at 9:00AM.

Directions to Tumber Orchard: Turn west off of Hwy 99 at the stoplight in Live Oak. Take the first possible right (north). This is N St, even though a left turn would be California St. Take N straight north following the rail road tracks for just under a mile to the meeting site. Look for yellow UC meeting signs for the exact location.

●●● 2008 PRUNE CROP REVIEW MEETING PLANNED ●●●

Freeze in April, spotty crop set, dry spring, early harvest – it all happened in 2008. What can be learned from 2008? There will be a meeting on Wednesday, November 19, hosted by Franz Niederholzer, UCCE Farm Advisor in Sutter/Yuba Counties, to review the 2008 Prune Crop in Sutter/Yuba region and see what can be learned from the past year. There will be short presentations by Franz, followed by discussions of grower experiences.

The meeting will be held at **the UCCE offices at 142A Garden Hwy in Yuba City.** The meeting will start at **10 AM and end at noon**. Credit hours have been requested from CA DPR. Sign-in and coffee available beginning at 9:30.

●●● FARMING PRUNES ON THE SKINNY IN 2009 ●●●

At least the last five years have not been easy for Sutter/Yuba prune growers. Light crops due to heat or frost have been the norm, not the exception. With current good prices for large fruit, prune growing still has potential for a good return to growers in the future. How can you bridge from the bad years to better economics? Here are some ideas to reduce costs for 2009.

Key points:

- Forget a year-in, year-out "prune program". Wait until you know what you have before spending money and/or time.
- Be flexible. This helps spread the risk and lower overall costs.
- Protect your investment. Don't abandon key practices such are fertilization and pest management. Spray and fertilize on the "Chevy" program, not the Cadillac or "forget it" plan.

Specific ideas:

- Do you need to prune? Pruning every year is a good idea, but it is expensive. Without knowing your crop for the next year, paying for pruning is an expensive investment that you can only hope pays off. Skipping pruning for a year is OK, but you have to count fruit and thin in May if a big crop is set. If you skip pruning and don't thin, you could grow a huge crop of worthless fruit while breaking up the trees. If fruit set is light in 2009, the unpruned trees should have more fruit than pruned trees. Don't want to leave all your orchard(s) unpruned? Why not prune some part and leave the rest for next year?

- Wait on fertilizer. Potassium and nitrogen fertilizer prices are way up. However, these nutrients are needed to feed a crop. If you wait until you know what the crop looks like (in mid-April) then you will know how much fertilizer to use. If you have a good crop, you still have time to apply fertilizer. Potassium sprays in spring and summer (at least 4x) can replace ground applied potash fertilizer, so tree health will not suffer. Fertilizer is expensive, but adequate nutrient levels protect trees from diseases such as *cytospora* and bacterial canker. Don't skimp, but only use it when you know you need it.
- Do a dormant spur sample. This practice will tell you if you need to spray for scale. [Only 20% of prune orchards in Sutter/Yuba had enough scale to spray in a recent UC survey.] Please call me, Franz, at 218-2359 if you have questions about dormant spur sampling. If the dormant spur sample shows no scale, and aphids have been a problem, consider a "lite" dormant spray for aphids between November 1 and March 1.
- Cheap prebloom aphid spray. Prune aphids are the key insect pest in prune. A low ("lite") rate of pyrethroid (Asana, Warrior, Baythroid, etc.) will control aphids all next year if applied between November 1 and March 1.
- Manage risk at bloom. Adding a high rate of oil (4-5 gallons/acre) to a low pyrethroid rate/acre spray in early January should advance bloom and help manage risk of bad weather (hot or cold) at bloom. Spray half the orchard with a low rate of pyrethroid in November and the other half with oil + low rate of pyrethroid in early January to spread bloom dates across the orchard. Don't spray with high rates of oil if trees and/or soil are dry.
- Don't forget weed management. High weeds also make a great home for meadow mice (voles). These pests can kill trees by girdling the tree at the ground level. In blocks that aren't disced regularly, use herbicides to keep weeds down in the tree rows. Wait until close to bloom to decide whether to mow or disc in the tractor aisles. High weeds make a colder orchard at bloom. If cold nights are forecast at harvest, then mowing weeds is a good idea. If warm temperatures are forecast, leave grass long.

WATCH FOR CURRENT YEAR *CYTOSPORA* INFECTIONS IN YOUNG TREES

This time of year, dead leaves hanging on damaged shoots can show you where *cytospora* infections occurred this year. These symptoms can be hidden in the general ragged look of prune blocks after harvest and the rush of the next harvest. I have seen several blocks with damage similar to the photo. *Cytospora* cankers run more in drought stressed trees, and will be a nasty surprise next spring unless cut out now. It will be harder so see the cankers once all the leaves are off the trees in another month or so. There is no fungicide to protect or control prune trees from *cytospora*. The only "fix" is to cut it out cankers.

***Cytospora* damage in young prune trees, fall 2008.**

2009 NAP Sales Deadline: December 15, 2008

The deadline to buy into for the 2009 Farm Service Agencies NAP (non-insured crop disaster assistance program) is December 15, 2008. Please call the USDA Farm Service Agencies in Yuba City at 671-0850 for more information.