



Information for Small Farms

Sabbatical Leave

To all my valued cooperators, small farmers and industry people who have cooperated and worked with me recently, I need to announce that I will not be able to work with you for the next 6 months.

I have been granted sabbatical leave from April 1st until September 28th of this year and will be working in Ecuador, South America. I am going to learn how a successful market driven agricultural development project functions.

This is the third year for a large scale project that supports limited resource farmers in the Andes Mountains developing market linkages for sale of high quality avocados and broccoli. Hundreds of small scale producers have been organized and positioned to ship produce on a regular basis north on the Pan American Highway to supermarkets in Columbia. As a coordinator of the production and post harvest management aspects of this project, I will gain invaluable experience in how small scale producers can enter and maintain their presence in high volume markets with the introduction of new, desirable specialty products. I will also gain considerable experience and command of the Spanish language while participating in this project and living in northern Ecuador.

I appreciate your understanding and tolerance of my absence and hope to be a better farm advisor for you when I return to California at the end of September. If you have any problems or questions you can call the main office number of 209-468-2085 and the receptionist will direct your call to the best person who can assist you in my absence.

Glyphosate in Strawberries

A quick message for those of you using glyphosate products in berries. As you probably know, Monsanto never put strawberries on the label for in-season use, it was only permitted for 30 days pre-planting. Now we have Bucaneer, a label that permits the use of glyphosate herbicide in season, if the operator uses a hooded or wiper

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type of equipment in row middles after crop establishment. Of course you must have the proper label in your possession and be following all the other terms on the label to be doing the spraying correctly. This use of a hooded sprayer will possibly save you from a fine if the Ag Commissioner does a field inspection, and can help keep drift from contacting your strawberries. Unfortunately I have not found the hoods available locally, and had to order them from the internet, direct from Solo. After seeing one, you could probably make an effective hood yourself.

The following pictures are the hoods I ordered from Solo, the small one costing about \$6 and the large one about \$13. If you look on the web, search for the term "drift guard"

Benny Fouche
Farm Advisor



large hood



small hood

Coping with the aftermath of wet weather in vegetable crops

As I write this in mid-April it looks like there may be an end in sight to the endless rains! By the time you receive this, vegetable growers will likely be busy prepping fields and planting, too busy to read this-so I will try to keep it brief!

Older tomato transplants? Research has shown that tomato transplant age is not critical, and that they can overcome a lot of adverse conditions prior to planting. However, with older transplants plant height may be a problem and some moderate top pruning may be necessary, and you may need to bury plants deeper than normal. As always, keep an eye out for diseases. In 2005, we saw problems with bacterial speck and UC Plant Pathologist Mike Davis' survey of bacterial speck isolates showed that most were able to cause disease on the current resistant varieties, indicating a new race of the pathogen.

Transplanting into wet soils? If you can, avoid it. The value of planting tomatoes a week earlier may be lost if transplanting into overly wet soils results in compaction of the rooting zone. A good root system is essential for good vine growth and fruit production. Therefore, use the lightest possible implements for transplanting into wet fields and remember that minimal work is needed ahead of the planter; merely a fluted coulter mounted ahead of the transplant shoe to loosen the soil is adequate.

Got grass? In asparagus, we are seeing serious reductions in yield this spring. Will production pick up when the temperatures warm? We hope. But don't forget that the crowns may be stressed by this season's conditions and therefore we may not be able to harvest for as long as we'd like.

Many growers are struggling not only with getting into fields to harvest asparagus, but are also battling diseases, especially *Phytophthora* crown and spear rot (aka "slime"). When field conditions allow, cultivate the furrow bottoms with a rolling cultivator and/or use chisels or duck-foot shanks in the furrow bottoms. This will open up the beds to increase air to the crowns, thereby reducing damage from *Phytophthora*.

Brenna Aegerter
Farm Advisor

UPCOMING EVENTS

Alfalfa & Forages/Small Grains Field Day - May 9
UC Davis Agronomy Field Headquarters

New Oat Varieties field meeting May 15th 10am,
Robinson Farms, Stockton. Call 209-468-2085 for directions to field site.

Tree and Vine IPM Update Breakfasts
1st and 3rd Wednesdays of each month, March through June. The Peach Tree Restaurant, Ceres. Regular meeting for open discussion and questions from fruit and nut growers. Info: Roger Duncan at 209-525-6800

MOVING MULCH AROUND

Recent warnings in the media have told people not to use cypress mulch coming from the hurricane devastated areas of the Gulf Coast in landscaping because it is contaminated with the Formosan termite. Are these warnings valid? Using vegetative matter from other areas of the county or world in landscaping can always be problematic. There are risks of the product carrying foreign pests and diseases whose populations have the potential to explode when brought into an area free of their natural predators. In October the Louisiana Dept. of Agriculture and Forestry imposed quarantine on 12 parishes, preventing the sale of architectural components that are not heat-treated or fumigated. But items such as logs, firewood piles and damaged building materials are not covered by the quarantine.

As far as the cypress mulch goes, it is best if it has been composted, but even when using the raw bark mulch it is unlikely that pests will be a problem. Additionally, there is concern about wood products coming from Michigan being infested with the emerald ash borer, an exotic beetle from Asia. If you do use landscape products from other than local sources, be sure that they have either been heat-treated or composted to kill off any pests. But perhaps it is in our best interest if we diligently look for local producers for our landscaping materials.

paraphrase of article by Jeff Rugg of Copley News Service

Crops Digest- Almonds & Grapes

Spring has sprung a leak. The negative effects so far range from a nuisance to some potentially significant yield reduction, along with increased costs in any case. What the future holds for the season is hard to determine at this point. It's a little like baseball; there can be some interesting events early on, but how the season ends up is anybody's guess.

Rainfall to date is almost the same as last year, being only slightly ahead at 23.1 inches for the north county and 15.4 inches for the south county, south of Stockton. Those totals compare to 21.9 inches in 2005 for the north and (surprisingly) 17.1 inches for the south. The big differences are: last year March was very dry, temperatures were warm and winter weed cover was dramatically more expansive compared to weed growth this year. The immediate threat of flooding for some locations has been real, but the general concern continues to be that the wet cold weather increases costs of production with some real threat of crop loss, depending on the commodity.

Almonds

For the almond growers an early bloom was drawn out to one of the longest in memory. The initial weather was good for earlier blooming varieties such as Nonpareil and Sonora, but they still suffered some frost damage. Since then the weather has been more like the Pacific Northwest for the bloom of later varieties such as Butte and Padre. So far anthracnose has been in check, while shot hole has been a little more obvious.

Continued protection may be needed in both cases as long as the rain keeps up. Be on the lookout for leaf lesions that might be sporulating Shot Hole. For Anthracnose the damage symptoms can be more dramatic with yellowing of leaves, immediate leaf loss, dieback of smaller shoots and a characteristic rust or orange colored gumming on any tissue. Fortunately there are many new materials becoming available that have broad spectrum control. Talk to your PCA and/or check out the UC IPM Pest Management Guidelines at www.ipm.ucdavis.edu.

The Nonpareil crop looks better than last year, but not huge. Many of the other varieties look okay at this point, but the cold wet weather has many people concerned about what the effect will be on the "June Drop". A lot of the varieties have a wide range of nut development. Along with the poor growing conditions, both could make for a big drop of nuts before it is all over.

If the nut drop is high in a particular block, reducing the normal nitrogen application and putting some of that savings towards potassium might be a good idea, especially if potassium hasn't been part of a normal

program in the last few years. While leaf tissue analysis is not infallible, a good representative sample from each area of an orchard or block is good for detecting problems in productivity or tree growth over time.

As the season progresses keep an eye out for the lower limb dieback problem that has been popping up the last couple of years. There may be several factors involved, one of them being disease, but there is still no definitive answer as to what is going on. In the last year some hints have come to light as to the disease possibilities. The symptoms—smaller twigs and branches that quit growing and dieback a short distance with no obvious cankers or disease and seem limited to the lower third of the tree canopy—have been a puzzle, to say the least. There seems to be some indication that two fungal species, *Phomopsis* and/or *Botryosphaeria*, are often, but not always detected. Roger Duncan, Brent Holtz, and Dr. Themis Michailides are investigating the problem. If you have symptoms show up or intensify from last year give me a call, as I hope to get involved and have the experts look into some of the local incidents.

Food for Thought: "A man wrapped up in himself makes a very small bundle."

Benjamin Franklin

Grapes

For grapes there has been less of an immediate problem, as cold temperatures have put budbreak behind by about two weeks for most varieties. Chardonnay and Grenache were only slightly behind normal, but shoot development has slowed to a crawl, setting up good conditions for powdery mildew, *Phomopsis*, and *Botrytis* shoot blight to become concerns. As in 1995 and 1998, downy mildew may make a return on sensitive varieties such as Barbera and Chenin blanc.

Most of the major varieties are not highly susceptible to *Phomopsis*, with the exceptions of Grenache and maybe Syrah. Wettable sulfur can be very effective, although there are several new materials and captan is still available. Wettable sulfur after budbreak can be a very effective and inexpensive choice for doubling up on an early start to powdery mildew control. Whatever the material of choice ends up being, a good powdery mildew program includes: some sulfur, rotation of materials between years, and complete coverage. Each component is important. Sulfur does not control downy mildew.

Last year I expected downy mildew problems, but it was dry enough at budbreak, with enough drying in between storms until the end of

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the rainy period, that it wasn't a concern. Downy mildew first made an appearance in the area during 1995 and reappeared in 1998. Although now established in California, downy mildew needs very wet and mild conditions to become a problem. Most of the *vinifera* varieties are fairly susceptible, but Barbera and Grenache seem to be especially so. Be on the lookout for downy white spots that turn brown and necrotic on the underside of leaves, with corresponding light yellow green patches on the top of the leaf. There are effective materials, but check with your PCA or the UC IPM guidelines.

Botrytis shoot blight can be a problem if conditions stay cool and wet as in 1995 and 1998. Scattered shoots that wilt and die anywhere from just below the growing tip to more than halfway down, with some fuzzy gray mold at that point, or scattered clusters that wither in part or entirely, is most likely early *Botrytis*. Usually the number of affected shoots is very minimal and only becomes a real problem in years like 1995 and 1998. Syrah and Viognier seem to be very susceptible and clusters on Symphony have shown severe problems. Botrytis sprays can be

helpful, but probably are not very cost effective, unless one of the other spring diseases is also in need of control.

Soil water availability is obviously high this year, maybe even more so than last year, as the heavy rains have been late. That may provide the potential for big canopy development, as last year, but whether that translates to a bigger than normal crop is hard to predict.

The probability is for a normal or below normal crop, but that depends on growing conditions. Although the 2005 crop was huge and late, the large canopies, mild conditions and long mild fall allowed most vines to recover well before leaf fall. In any case the vines usually don't read the literature about what they should do.

Irrigation shouldn't be a big concern for a while. The hope is that although "spring" can be delayed, it can't be denied (unless summer gets here first).

Paul Verdegaal
Farm Advisor

Winter conditions relentless for field crops

The impacts from the extended wet conditions continue to plague crops with increasing disease severity, endless weed growth and prevention of summer plantings. Although weather conditions finely appear to be headed in the right direction, crop impacts will be felt until fall harvest is complete. Some crops will never fully recover and others will need to be nursed back to health. Federal disaster relief was applied for cherries and asparagus which are expected to suffer greater than 30% loss. Other crops likely to reach 30% losses by season's end are processing tomatoes, rice and alfalfa.

A survey of problems the winter has bestowed on us so far:

- Stripe Rust epidemic on wheat varieties that we believed were resistant to the problem. Some fields hit hardest will lose 50% yield.
- A new promising garbanzo industry is plagued with root rot, white mold and *Ascochyta* blight problems all within three months. The outlook still remains hopeful for a good bean set to occur.

- Our first alfalfa cutting was essentially lost to rain delays and the hay quality is barely acceptable to justify baling cost. Older fields are severely weakened and will not survive the hot months ahead.
- Rice plantings should be well under way but many fields have yet to see a disc. Delayed plantings will probably cause lower yields.
- Corn plantings are off by a month with soil conditions wet and too cold for normal germination.

Overall, statewide losses will be sizable at best. However, favorable weather from now to fall will avert disaster for many but not for all. When the wheels of agriculture stop turning the entire economy suffers as noted by many businesses in the area who have been impacted.

Mick Canevari
Farm Advisor

Do Cover Crops Compete with Vines for Water?

Cover crops are a non-economic crop grown in vineyard middles. Cover crops can be planted as annuals or perennials; even a good stand of weeds can serve many of the purposes of a cover crop. The most common planted covers in this area are winter annuals established each season and disked in near bud break. Some annuals, if mowed and allowed to seed, will self re-seed the following year. Perennials are generally mowed short at bud break and allowed to grow until water becomes limiting, at which time they slow or stop growth.

Competition for Water

Before Bud Break. Competition for water between the vine and cover crop begins with emergence of the cover. If rainfall results in less than a full profile by bud break, water used by the cover is subtracted out of the total root zone storage capacity. Under these conditions, there will be less available soil moisture at bud break than would otherwise have been stored for vine use from winter rains.

After Bud Break. Competition for water after bud break is straight forward and can be significant since the cover crop is at full expansion and the vine has little canopy. However, the amount of rainfall during this time period will influence the amount of competition.

A good way to visualize the effects of different years' climate and rainfall is illustrated in Figure 1 (Lodi rainfall 1997/8 and 1998/9). Rainfall in 1997/8 was about double the normal amount, and 7.2 inches fell after bud break. Under these conditions, cover crops offered little competition to vines. In 1998/9, on the other hand, Lodi received roughly average rainfall and only 1.1 inches after bud break - certainly an opportunity for cover crops to compete with vines for soil moisture.

Another way to compare cover crop water use in relation to climate is to subtract the cover crop water use from the rainfall and plot the cumulative difference over time. To do this, we use the evapotranspiration reference value (ET_o) and rainfall from the Lodi CIMIS weather station. A cumulative positive number would indicate rainfall in excess of cover crop water use. For 1997/8, this difference was nearly 20 inches. This moisture would be available for storage, runoff or deep percolation. In 1998/9 and 1999/2000, on the other hand, only about 6.5 inches would have been available using this same simple comparison.

Figure 2 illustrates looking at this same relationship from bud break to July only. This comparison indicates a cover crop water competition of about 1.6

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Figure 1. Daily Rainfall for Lodi, 1997/8 and 1998/9.

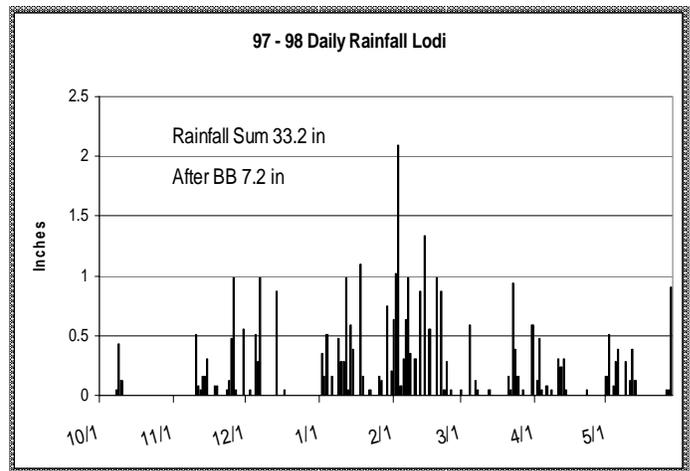
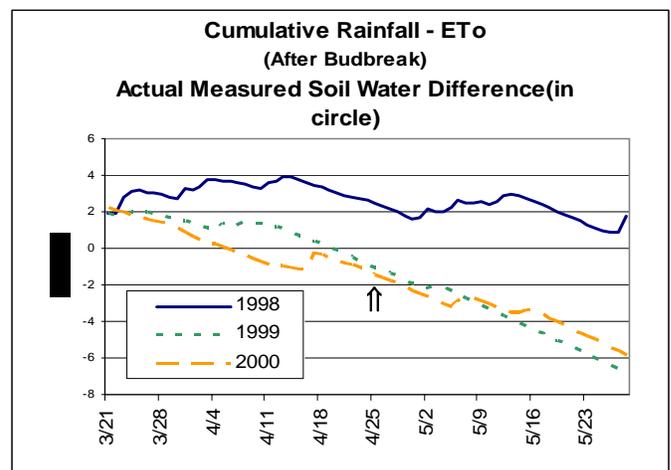


Figure 2. Cumulative difference between Rainfall and ET_o from bud break through early June, 1998-2000, Lodi.



inches of water in 1998/9 and 1999/2000 by late April. No competition between the cover crop and the vines occurred in 1997/8 due to the higher amounts and frequency of rainfall.

So What Difference Does a Cover Crop Make in Vine Response?

We conducted an irrigation and cover crop trial in Lodi during these climatically different years of 1997 through 2000. The cover crop was annual ryegrass in a mature Merlot vineyard on Freedom rootstock. The soil was a sandy loam with a root zone depth of 8 feet. Soil samples were collected in cover crop areas and in the comparative treatment with no cover crop in late April of 1999 and 2000. The difference in root zone water content averaged 2.2 inches in 1999 and 2.5 in 2000. This amount of water equaled 19% of the total stored water in the root zone. This data supports the notion that a simple rainfall minus ETo calculation reliably predicts the level of competition between vines and a cover crop.

Mid-day leaf water potential measured on July 2, 1999 indicated one-half bar less stress in the non-cover treatment; -13.3 bars vs. -13.8 for the cover crop treatment.

The competition for water and other potential competition for nitrogen resulted in measurable changes in vine performance. Shoot length, canopy size at maximum canopy (as measured by the percentage land surface shaded at noon (LSS)), pruning weights, and spur diameter were negatively impacted by the cover.

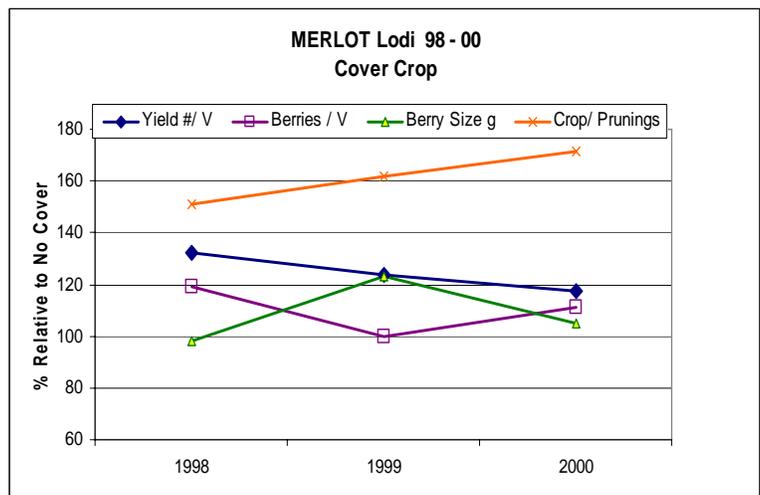
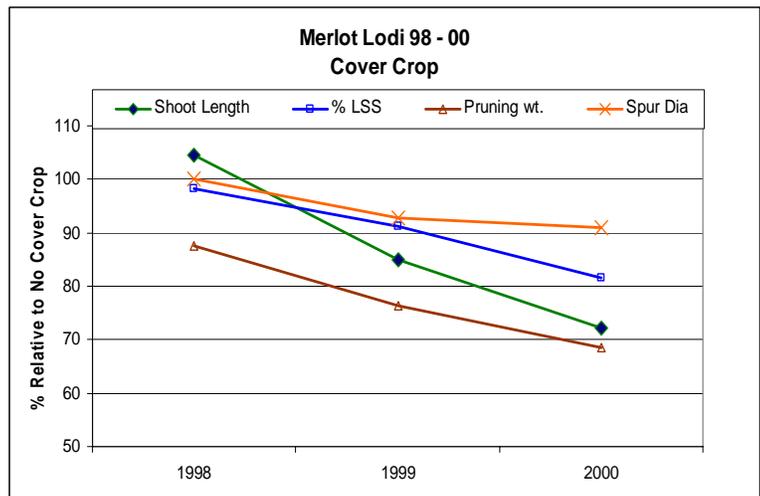
Fruit yield was not significantly different between the no-cover and cover treatments in any year but there was a trend over time toward lower yields with a cover crop, as illustrated by the downward slope of the yield line. Interestingly, berry size and fruit load varied opposite each other. The crop to pruning ratio indicates a significant increase (that is, cane weight decrease) over time due to the cover crop. This was a result of the smaller canopy where cover crops were grown.

Conclusions

Cover crops can be used to help de-vigorate vineyards depending on the growing conditions of a given year. In relatively normal years, cover crops can work to hold vigor in check. It seems to take a few years to begin to notice the effect. The effect is partly competition for water but may also be related to vine nitrogen nutrient level, as the petiole nitrate-nitrogen was lower in the cover crop treatment compared to the no-cover treatment. Care should be taken to monitor the effects of cover crops over time so as not to excessively de-vigorate the vineyard. Management practices such as early disking or chemical control can also be used to manage some of the negative effects of cover crop use on vine vigor. In low rainfall years, eliminating the cover crop early can save more water for subsequent use by vines.

Terry Prichard
Water Management Specialist, UC Davis

Paul Verdegaal
Farm Advisor



Using XanthoCast to Assess Walnut Blight Risk

The XanthoCast blight model was developed by UC Plant Pathologist Jim Adaskaveg and other researchers. The model is based on walnut leafing and flowering, temperature, and leaf wetness. Wet conditions (from rainfall or dew) and temperatures between 54 and 65°F favor disease, and blight development can be predicted based on assessments of these weather variables. For the most accurate forecasting, wetness and temperature data should be obtained with instrumentation in the orchard being protected. Local or regional weather station data can be used, but the forecasts will be less accurate. Use data from a station as close to your orchard as possible.

A 4-year trial was conducted in a Vina orchard near Farmington to compare XanthoCast to a standard 7-10 day "calendar" program and an unsprayed spray control. Using XanthoCast allowed a savings of one spray each year without sacrificing blight control in comparison to the standard 7-10 day interval. In 2005, the untreated control resulted in 53% blighted nuts while the other two treatments averaged 4.5% blighted nuts.

How XanthoCast works

XanthoCast accumulates and subtracts "index points" for favorable conditions and non-favorable conditions. When accumulated points reach a critical value, treatment is needed. Once treated with copper or copper-Manex, the orchard is considered protected for 7 to 10 days. Once this protected period has elapsed, the index starts accumulating again until the selected critical value (usually 6 to 7) is reached again. Another spray is applied and the process is repeated.

Xanthocast calculates a *daily index* (typically ranging from 0 to 3) based on the temperature and wetness for the preceding 24-hour period. The *cumulative index* is a 7-day "rolling total" of daily indexes. A new daily index is added and the oldest (8 days prior) is removed to calculate a new cumulative index each day.

Timing the first seasonal blight spray

The timing of your first blight spray should be based upon bud development and weather. Based on many years of blight research and experience, the optimal timing for the first seasonal blight spray is at the beginning of pistillate flower emergence. (This is the recommended timing for the first seasonal copper or copper+Manex blight sprays, not "budbreak" sprays tested in recent years that include a silicon-based surfactant.). If pistillate flower emergence is prolonged due to cool weather (as is the case this year), an additional spray may be needed to

protect the pistillate flowers in later-emerging shoots.

Making treatment decisions with XanthoCast.

Once the first spray(s) have been made, treated tissues are considered protected for 7 days. Use Xanthocast to calculate a daily index beginning on the eighth day after the first treatment. Seven days later, you will have accumulated your first 7-day cumulative index. For each succeeding day, add that day's index to the 7-day total and subtract day 1 from the total.

Monitor the cumulative index closely. Values of 6-7 are considered treatment thresholds. Of course, an eye on the forecast can trigger an application at a lower cumulative index, since a rain storm event could result in a prolonged period of higher daily index values. However, an exception would be a 7-day value of 5 where the days are: 1, 1, 1, 0, 1, 1, 0, 0. If a light rain is possible within the next two days, the daily index might result in a 1, 1. The resultant cumulative index would be 1, 0, 1, 1, 0, 0, 1, 1 or still a cumulative index of 5.

Each blight spray application "resets" the XanthoCast index to 0. Re-start accumulating daily indexes on the eighth day after treatment. For season-long protection, use the model to make treatment decisions until at least June 1.

Using the XanthoCast model is not for every grower and condition. If it rains on 7-day intervals, it is likely the model/forecast will indicate an application just as often as the typical 7-10 day schedule. Large growers or those with just enough spray equipment to "get around" may find using XanthoCast doesn't give enough advance notice to get all the acres sprayed. However, the model can still be used successfully to delay or skip an otherwise planned "calendar-based" application.

Where to get the XanthoCast Index Values?

The Northern Sacramento Valley Walnut Blight Forecast is a service provided by the Ag Telemetry Network and Fox Weather News through <http://irrigate.net/>. Western Farm Services provides XanthoCast indexes derived from a number of Central Valley locations. Contact your local Western Farm Service representative for more information on access to regional data.

Terry Prichard,
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Notes from the Field

May 2006

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