



UNIVERSITY OF CALIFORNIA
COOPERATIVE EXTENSION - SUTTER & YUBA COUNTIES
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ORCHARD NOTES

MARCH 2001

**INTERNET TREE CROPS DISEASE RISK TRAINING SESSION
UCCE OFFICE, 142 GARDEN HIGHWAY, YUBA CITY
FRIDAY, MARCH 30, 2001
9:30 A.M. - 11:30 A.M.**

Participants will learn how to access disease risk information on the internet and how to interpret the information once it is accessed during this two hour demonstration training. Emphasis will be placed on decision criteria in commercial agricultural operations for walnuts, stone fruits, apples and pears such as forecasting disease risk of walnut blight and fire blight. This session will demonstrate the presentation on forecasting walnut blight that Jim Adaskaveg gave at the Sutter/Yuba/Colusa Walnut Meeting in February. Vegetables, rice and grape applications may also be addressed. This is a tool to help you understand your weather conditions and make informed decisions for disease treatments in the Sacramento Valley. We will also discuss developing degree day maps for timing insect treatments in our area. This will be an excellent introduction to the internet for those of you not already using it, as well as cover useful tips for those who are already using it extensively. No prior knowledge of computers is necessary. This will be a demonstration session, not hands on, so it will not be necessary to bring a computer.

SPEAKERS WILL INCLUDE:

CARLA THOMAS OF FIELDWISE, INC.,
JIM ADASKAVEG, PLANT PATHOLOGIST FROM UC RIVERSIDE,
CAROLYN PICKEL, UCIPM ADVISOR, SACRAMENTO VALLEY
AND JANINE HASEY, FARM ADVISOR, SUTTER AND YUBA COUNTIES.

THE MEETING IS SPONSORED BY UC COOPERATIVE EXTENSION IN SUTTER AND YUBA COUNTIES, UCIPM, AND FIELDWISE, INC.

PEST TRACKER

The pest tracker is up and running as in the past and degree days and other forecasts will be updated weekly on Wednesday in the late afternoon. It is posted on the entry bulletin board in our office. I also send the updates out as an Excel file through email and encourage you to receive them in this form. It is faster and I'm able to include observations and other pertinent notes. Send your

email address to jkhasey@ucdavis.edu. Oriental fruit moth, peach twig borer, codling moth, and San Jose scale will be tracked from the beginning of the flight in Yuba City and in District 10. Oblique banded leaf roller and cling peach rust updates will also be included. The rust forecasts are based on the presence of inoculum and rain to predict whether a spray is needed. Even though there was no rust in 2000, we will continue to look for rust in 2001. We

are also working with FieldWise, Inc. to develop degree day maps that will be available on the internet later in the season.

The pest tracker is intended as a guide only. Each grower should have traps in their orchards and consider past history, trap catches, and pest control advisor input when determining treatments.

FINAL CHILL HOURS

The chill hours accumulated at or below 45⁰F from October 30 to February 28 at my office in Yuba City were 1237. This is a good chill year compared to the 1999-2000 season which was 804. We shouldn't see the problems of straggled bloom this year which caused so many problems last year in tree crops such as walnuts and apples. To browse chilling data from the automated CIMIS station in Nicolaus go to <http://fruitsandnuts.ucdavis.edu> and click on pomology weather services.

POWDERY MILDEW - CLING PEACH

Last year many growers and pest control advisors got caught off guard when powdery mildew symptoms started to show in late May and June. The disease developed on leaves, fruit and twigs. Powdery mildew, unlike many other diseases, is most severe with less rainfall and with high relative humidity. Wetness is only needed for spore germination. Last season, a new discovery was made on peach. Cleistothecia, survival structures of the fungus causing powdery mildew, were found late in the season on peach for the first time. This is significant because it means powdery mildew of peach could become a more serious disease in the future and that a pre-bloom sulfur application could be added to the post-bloom spray program for disease management. Growers who had powdery mildew problems last year in susceptible varieties can apply post-bloom sprays starting at two weeks after petal fall, the second when the floral tube on the developing fruit falls off, and the third before pit-hardening. Timing is critical. There are a number of fungicides that are registered against powdery mildew that should be effective. These include sulfur compounds, Rally, Break, Benlate and Abound. Other materials registered on peach such as Elite and Topsin should also be effective. Rotate

between classes of fungicides to minimize the risk of resistance developing to any one class of these fungicides.

ORIENTAL FRUIT MOTH AND PEACH TWIG BORER

Most growers think that using alternative insect management practices such as pheromone mating disruption always cost more than a standard spray program. This is not always the case. Complete mating disruption programs using both Oriental fruit moth (OFM) and peach twig borer (PTB) dispensers do typically cost about \$116.00/acre more than a standard program. However, if you integrate mating disruption for early season control followed by a summer spray, the cost can actually be less than spraying especially if a miticide is used. In the peach Pest Management Alliance demonstration plot, the most economical treatment in Ross was one OFM pheromone mating disruption application followed by one pyrethroid spray in June. The total cost for the entire insect management program including dormant spray was \$103.00/acre. The extra late Hesse block that had three pyrethroid sprays in season and one miticide cost \$171.00/acre. There are other approaches to making mating disruption more economical. Sprayable OFM pheromone is sometimes used at biofix and followed with dispensers a month later. Another approach is to use OFM pheromone the whole season and spray for PTB if needed with Success, Bt or a pyrethroid. With only pyrethroids left for standard sprays, this integrated approach with pheromones also minimizes the chance for tolerance developing from multiple sprays. There was evidence of possible OFM tolerance to pyrethroid sprays in some orchards last year. The benefits to using mating disruption include lowering the pest population, reducing pesticides, worker safety and minimizing tolerance or resistance to pyrethroids.

The flight pattern of Oriental fruit moth appears to be more erratic this season. Typically we set a biofix within a couple of days in orchards all over our area but that is not happening this year. The orchards where we calculate degree days for reporting on the pest tracker biofixed on February 26 in Yuba City and Feb 28 in District 10 in Yuba

County. Generally no insecticide is applied to the first generation because of erratic emergence and egg-laying caused by variable weather.

If using mating disruption to control peach twig borer (PTB), pheromone dispensers should be placed in orchards when the first moth is caught which could be late April or even in May. (See table of historical biofix). If planning to spray, it should be applied between 400 DD to 500 DD after biofix.

WALNUT BLIGHT

This year Manex® will again be available and also penetrating materials such as Breakthru can be used at ½ gal/A. In our walnut Pest Management Alliance plots, we are continuing to evaluate the efficacy of the penetrating material (eradicant) with copper and Manex at budbreak and at budbreak followed with regular sprays. We will also compare spray timing based on standard 7 -10 day intervals to those based on the Xanthocast model (see demonstration meeting on March 30). Come to the meeting and learn how to use this new tool to help you in forecasting weather and the potential for disease risk.

CODLING MOTH

When setting the biofix for codling moth, a sustained moth catch is needed and sunset temperatures of 62°F for codling moth to mate successfully. Sunset temperatures can be accessed on the internet at <http://www.ipm.ucdavis.edu>.

APPLYING THE FIRST FLIGHT SPRAY

Moth emergence to beginning of egg hatch takes about 200 degree days. Apply organophosphate or pyrethroid sprays when most of the larvae have hatched. This corresponds to a spray timing of 300 DD from biofix or at d - ½ inch nut size, whichever is later, on early leafing varieties like Ashley and Serr. The insect growth regulators (IRGs) Confirm or Dimilin have different spray timings than conventional pesticides. Confirm is sprayed around 200 DD which is the beginning of egg hatch. Coverage is essential for IGRs to be effective.

In some years there is a second peak of the first flight which we call the 1B peak. Codling moth damaged nuts from the 1A flight will drop to the

ground but infested nuts from the 1B flight will not all drop but will be blows at harvest. These damaged nuts can make a good home for navel orangeworm to build up in over the season. If a 1B peak is seen, then plan to spray again especially if a short residual material was used for the 1A peak. The spray timing for this second peak often occurs around 600-700 DD. With varieties like Chandler or Hartley, this 1B peak is also of concern. Here, if there is enough foliage expansion, you may want to consider an IGR like Confirm if the codling moth population is low and the trees are smaller (below 30'). It is very important that best management practices be used when applying all insecticides and irrigation water is managed to avoid runoff.

The Isomate C+ mating disruption treatments successfully controlled codling moth in the statewide walnut Pest Management Alliance (PMA) plots in 2000. In the Yuba County PMA plot only, we also used the new longer lasting Checkmate CM which was also successful controlling codling moth. Both dispensers were applied one time at first biofix and gave season long control. In this years codling moth treatments, we will also be adding a sprayable pheromone as part of the mating disruption treatments.

NITROGEN MANAGEMENT

You can save money by only applying the nitrogen that is needed by the tree. Develop a sound nitrogen program by first making an estimate of the orchard's nitrogen removal rate and nitrogen needs. Then estimate nitrogen supplied by other sources such as irrigation water, cover crops and soil organic material. From this, an approximate fertilization rate is developed. Then fine-tune the rates annually using leaf tissue analysis (July), yield records and general vigor of the trees. The efficiency of nitrogen applications is influenced by fertilizer materials, timing and placement, irrigation application efficiency and fertigation techniques.

NITROGEN APPLICATION TIMING:

Walnuts

For greater efficiency, split nitrogen (N) fertilizer applications between the spring and the end of summer or early September while the roots are still active. The springtime N application will be used by the tree during the growing season and the N applied late summer goes into storage and is used during the following bloom. On sandy soils, consider splitting nitrogen into three or more applications.

Peaches

During the spring growth flush period, usually early April, apply between 30-70% of the total annual amount of nitrogen depending on the variety. Apply higher rates to late-season varieties. Apply the second application in late summer, usually August to September. Early season varieties should have higher rates at this timing. Evaluate tree vigor during the growing season by looking at the upper shoot growth, three feet is usually sufficient. The common 5-7 feet of shoot growth is excessive and causes hangers to dieback from shading.

PUBLICATIONS AVAILABLE

SCHEDULING IRRIGATIONS: WHEN AND HOW M

UCH, PUBLICATION #3396 provides up-to-date information on irrigation scheduling - when to irrigate and how much water to apply. It gives step-by-step procedures for developing irrigation scheduling for different irrigation methods. The cost is \$25.00 + tax and can be purchased through ANR. Ordering information can be obtained from our office.

COST OF PRESSURIZED IRRIGATION SYSTEMS FOR TREE CROPS, PUBLICATION #21585. This handy 22 paged reference guide presents capital cost and annualized cost estimates for four of the most common pressurized systems: solid-set sprinklers, minisprinklers, microsprinklers and drip. Included are design details of each system and explanations of how to adapt the cost estimates to your orchard. The cost is \$7.00 + tax and is available at our office.

USEFUL WEB SITES

At my recent walnut meeting, there were two web sites that were mentioned.

Access information on the walnut replant problem and replanting without methyl bromide at <http://www.uckac.edu/nematode>

Access the walnut blight forecasting system (Xanthocast) at www.fieldwise.com

KEEP SHARKA VIRUS OUT OF OUR ORCHARDS

The following article was written by Maxwell Norton, Farm Advisor, Merced County

Sharka virus, which causes plum pox disease in all types of stone fruit and many other Prunus species (look up Prunus in the Sunset Western Garden Book) is the most damaging of all stone fruit viruses. The virus causes green fruit to drop prematurely and any remaining fruit is rendered worthless even for processing. It is transported into an area in infected bud wood, trees, rootstock or seeds. The virus is then spread rapidly to the rest of the orchard by aphids. The only cure for sharka virus is the old "B&B" (bulldozer and burn pile). We can keep the virus out of our orchards and here is what you can do:

- Do not bring in stone fruit trees (including almonds) from outside of California!
- Do not bring in bud wood or seed from outside of California!
- All bud wood and seed should be virus tested - even if it is from California!
- Deal with only reputable nurseries!
- If you are propagating trees - make sure all your bud wood sources are tested for viruses. Virus-free sources can be obtained through the Foundation Plant Material Services at UC Davis. Phone 530/752-3590. E-mail: fpms@ucdavis.edu
- If you see a suspicious tree - call the Agricultural Commissioner immediately so it can be identified for you. Infected trees should be removed immediately to prevent spread to the rest of your orchard.

A few web sites on sharka virus:

Cooperative Extension website:
<http://www.uckac.edu/plantpath/>

Pennsylvania Department of Agriculture
http://sites.state.pa.us/PA_Exec/Agriculture/plum_pox/index.html

American Phytopathological Society
<http://www.scisoc.org/feature/PlumPox/Top.html>

West Virginia University
http://www.caf.wvu.edu/kearneysville/disease_descriptions/ppvresources.html

(A POSTER SHOWING FRUIT SYMPTOMS OF SHARKA IS DISPLAYED ON THE ENTRY BULLETIN BOARD OF OUR OFFICE)

JANINE HASEY
 U.C. FARM ADVISOR

HISTORICAL BIOFIX AND RUST DATA				
YEAR	OFM	PTB	CM	RUST
2001	2/26 (S) 2/28 (Y)			
2000	2/23 (S) 2/23 (Y)	5/3 (S) 4/24 (Y)	4/2 (S) 3/22 (Y)	NONE
1999	2/24 (S) 2/24 (Y)	5/3 (S) 5/17 (Y)	4/15 (S) 4/12 (Y)	4/21 Spores (found twig cankers)
1998	3/9 (S)	4/27 (S)	4/19 (S) 4/18 (Y)	4/6 spores found (twig canker) 5/4 spores on leaves
1997	3/7 (S)	4/14 (S)	3/21 (S) 3/19 (Y)	
1996	3/7 (S)	4/25 (S) 4/25 (Y)	3/18 (S) 3/16 (Y)	4/11 spores found 5/9 spores on leaves
1995	3/2 (S) 3/4 (Y)	5/2 (S) 5/5 (Y)	4/1 (S) 4/1 (Y)	
1994	2/28 (S)	4/11 (S)	4/4 (S) 3/26 (Y)	

**COOPERATIVE EXTENSION
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