UNIVERSITY OF CALIFORNIA ~ SUTTER/YUBA COUNTIES
COOPERATIVE EXTENSION
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ORCHARD NOTES

March/April 1999

CLING PEACH RUST FIELD MEETING

Wednesday, April 7, 1999, 10:00 a.m. - 12:00 p.m.
Thiara Ranches, Meteer Road in Live Oak
(Directions Below)

Growers and pest control advisors will learn how to identify peach rust twig cankers which are the primary source of inoculum for this disease. We will discuss rust biology and management strategies for this season. Identifying twig cankers in early April is critical to controlling this disease. Please bring your hand lens if you have one. U.C. Riverside Plant Pathologist, Jim Adaskaveg, Sutter and Yuba Counties Farm Advisor, Janine Hasey, and Butte County Farm Advisor Bill Olson, will be leading the workshop.

This meeting is sponsored by U.C. Cooperative Extension in Sutter, Yuba and Butte Counties.

To get to Thiara Ranches, from Highway 99 in Live Oak, turn east on Pennington Road and go about 3/4 mile to Meteer Road. Turn left (north) and go about 1/8 mile to the meeting site. Signs will be posted. After the meeting, refreshments will be served at the Thiara house on Pennington. In case of rain, the meeting will be held at the ranch house on Pennington. We hope to see you there.

Note: Two hours of PCA and Private Applicator credit has been approved

WALNUT PEST MANAGEMENT ALLIANCE
BIOLOGICALLY INTEGRATED ORCHARD SYSTEMS
U.C. COOPERATIVE EXTENSION

invites you

to a

WALNUT COVER CROP FIELD DAY

April 30, 1999, 9:30 a.m. - 12 noon

North side of Wheatland Rio Oso Road,

Rio Oso

***Look for FIELD DAY signs**

GILBERT ORCHARDS:

- **Janine Hasey, UCCE Yuba and Sutter County Farm Advisor**
  Carolyn Pickel, UCIPM Area Advisor
  Introduction to Walnut Pest Management Alliance

- **Jack Gilbert**
  Pest Management Alliance, Walnut Grower

- **Tim Prather, Regional IPM Advisor, Kearney Ag Center**
  Terry Prichard, UCCE San Joaquin Farm Advisor
  Cover Crops, Runoff and Water Penetration

WHITNEY WARREN RANCH:

- **Fred Thomas, CERUS Consulting**
  Cover Crop Trial Planting and Results

- **Joe Conant, Whitney Warren Ranch**
  Cover Crop Experiences

PEST TRACKER

The pest tracker is posted in the entry area of our office as in the past. Degree-days will be updated weekly on Mondays. Oriental fruit moth, peach twig borer, codling moth, and navel orangeworm will be tracked from the beginning of the flight in Yuba City and in District 10 in Yuba County. Cling Peach Rust and Oblique Banded Leafroller updates will also be included. If you would like to receive the updates via e-mail, send your address to jkhasey@ucdavis.edu.

FINAL CHILLING HOURS

The chilling hours accumulated below 45 degrees at my office was 1221 as of March 1, 1999 and 1269 at the Nicolaus CIMIS station as of February 28, 1999. Last year (1997-98) the season ended in Nicolaus at 771; the previous 1996-97 season was 896.

WALNUT BLIGHT

Blight bacteria survive the winter primarily in dormant buds. Bacteria is spread to unprotected tissue by rain, heavy dew or irrigation. To control blight, apply sprays to the bloom, nutlets and foliage before it rains to prevent the bacterium from being spread by moisture.

This year, Manex received a Section 18 as a tank mix with fixed copper for blight control on March 15. Adding Manex to every copper spray will reduce blight infection. The Section 18 will expire on June 15, 1999.

Other encouraging research is reducing the population of walnut blight bacteria by applying the silicone surfactant Break-thru with a mix of copper and Manex at terminal bud break as reported by Butte County Farm Advisor, Bill Olson, at our annual walnut meeting. The following is excerpted from his newsletter regarding using Break-thru this season:

"Our research results have been very promising with this spray when used with high rates of Break-thru. The rates we were successful will far exceed the registered label rates and can not be recommended. Furthermore, although Break-thru is not a pesticide, its use still must be reported. So far, our research has not been as promising with label rates of Break-thru. You will undoubtedly be disappointed with any additional blight control using label rates of Break-thru. Therfore, we are not recommending that you include Break-thru in your blight control program. Let us continue our research and hopefully we will have something that is effective and legal in a year or two."

The main points to keep in mind with your blight control program are:
•Start your spray program just before the first female flower appears and be prepared to apply sprays through May.
•All new plant tissue must be sprayed before it rains. Plan to treat weekly, but watch the weather forecasts. Spray at least every seven days during wet weather and every ten days during drier weather.
•Full coverage is needed for the most effective blight control.

CODLING MOTH

Monitoring codling moth with pheromone traps is critical to its management. These traps indicate codling moth activity and population size of the male moth flight. From research we know that female moths emerge about the same time as male moths. Pheromone traps should be hung in early March to detect the first moth. The different pheromone lures vary in how often they need to be changed so be aware of the pheromone type and change it according to instructions throughout the season. Change trap bottoms as needed. Growers may benefit from placing traps higher in the tree if they are not getting enough moths to delineate peaks.

Insect development is driven by temperature and the units in which this heat accumulation is reported are degree-days (DD). We start accumulating DD at a specific point in time known as the biofix, which is set at the first sustained moth catch. See Table on last page for historical Biofix. We have not yet set a biofix for codling moth in walnuts as of March 22.

The other factor to consider when setting a biofix is sunset temperature. Codling moth needs sunset temperatures of 62 degrees to mate successfully. Usually a 75 degree maximum temperature is needed for a sunset temperature of 62 degrees. With first trap catches, determine the sunset temperatures before setting a biofix. Local weather can be found and degree days calculated through UCIPM on the world wide web (http://www.ipm.ucdavis.edu). Wind and rain also affect codling moth; they won't fly with winds more than 1½ miles per hour and rainfall of just 1/10 inch in the evening period is enough to wet the leaf surface to prevent egg laying.

Applying the first flight spray
Moth emergence to beginning of egg hatch takes about 200 DD. 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 (IGRs) 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. We call this second peak 1B and the first peak 1A. 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.

NAVEL ORANGEWORM (NOW)

Reduce overwintering NOW populations as soon as possible by shredding or chopping old walnuts (mummy nuts) in walnut orchards. Disking mummy nuts into the soil will reduce NOW but not eliminate it. Also remove and destroy all waste from hullers, bins, hulling and drying equipment and buildings.

NITROGEN MANAGEMENT

Developing a sound nitrogen program involves several steps. First, make 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 assessment, increasing use efficiency, choosing fertilizer materials and determining specific nitrogen fertilizer rates are clearly explained in the video/handbook on nitrogen management in stone fruit available from our office.

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.

Apples

Split nitrogen applications between spring and postharvest. Nitrogen levels should be low but not deficient as harvest nears to improve fruit quality and color (red varieties).

Kiwifruit

Each mature vine needs about one pound of actual nitrogen annually. Apply about two-thirds of the N fertilizer in March at budbreak as a broadcast application. This gets the vine growing vigorously and provides the N needed for fruit set. Apply the remaining one-third of N needed in May for vine maintenance. If using fertigation, apply N April through July.

ORIENTAL FRUIT MOTH AND PEACH TWIG BORER

The first oriental fruit moths (OFM) were caught at our Yuba City peach orchard and in District 10 on February 24, which we set as the biofix. These are the orchards that we calculate degree-days from for reporting on the pest tracker. Some blocks where mating disruption (pheromone confusion) has been used for several years, have no biofix yet because of low populations. Generally no insecticide is applied to the first generation because of erratic emergence and egg-laying caused by variable weather. For growers using OFM mating disruption however, the pheromone dispensers needed to be applied to trees at biofix. This year, I have a research plot evaluating of the registered OFM pheromone products available for mating disruption and some that are experimental. Included in that study are field aging studies to determine how long the pheromone is in high enough concentrations to disrupt mating.

If planning to control OFM with sprays, monitor shoot strikes during the first flight to decide if a spray will be needed during the second flight to reduce OFM population levels. When about 920-1010 degree-days (DD) have accumulated, the second flight should begin. Once started (in May), begin accumulating DD from zero and apply spray treatments 500-600 DD from the beginning of the second flight for the best control.

For peach twig borer (PTB), pheromone indicator traps should be placed in orchards by April 1st to detect first moth emergence. For mating disruption, there are two PTB pheromone dispenser products available, Consep's Checkmate PTB and Hercon's Disrupt PTB that last 90 days. PTB pheromone dispensers should be placed in orchards around April 1st or 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.

CLING PEACH RUST & POWDERY MILDEW

The rust fungus overwinters in perennial twig cankers that allow it to survive. From early April to early May, urediniospores are produced from these cankers that starts the disease cycle. Applying a preventative fungicide spray when spores are first found in these cankers, usually in the first two weeks of April, is very important to controlling this disease. Plan to attend our rust field meeting to get the latest on disease management.

For peach varieties prone to powdery mildew, sulfur applied at late bloom and again at 3-6 weeks post bloom will provide some control. Some of the common brown rot fungicides will also control powdery mildew (see fungicide efficacy table in February Orchard Notes).

HISTORICAL BIOFIX AND RUST DATA

YEAR	OFM	PTB	CM	RUST
1999	2/24 (S) 2/24 (Y)			
1998	3/9 (S)	4/27 (S)	4/19 (S) 4/18 (Y)	4/6 spores found 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)	

S=Sutter
Y=Yuba

MAILING LIST REVISION

In January, you should have received a yellow form to renew this newsletter. Please return it to our office right away if you wish to continue to get "Orchard Notes"

NEW GUIDELINE

The Peach Pest Management Guidelines has been updated and is available from our office at a cost of 10 cents per sheet.

REVISED PUBLICATION

The Walnut Hedgerow Planting System, 2nd edition is now available at our office. Revised and updated, #21467, $2.00 plus tax.

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