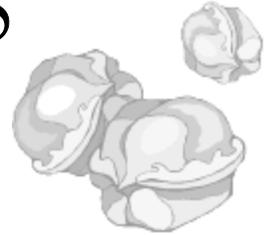




ORCHARD NOTES

Sutter/Yuba Counties Cooperative Extension
UNIVERSITY of CALIFORNIA
142A Garden Highway, Yuba City CA 95991
Tel: (530) 822-7515 ~ Fax (530) 673-5368
<http://www.cesutter.ucdavis.edu>



March 2005

PEST TRACKER

The pest tracker is up and running as of March 22, 2005 and will continue from April through the summer with weekly updates. Oriental fruit moth, peach twig borer, codling moth, San Jose scale, and obliquebanded leafroller will be tracked from the beginning of the flight in Yuba City. 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. This year I am using a biophenometer in a Yuba City orchard on George Washington Blvd to calculate degree-days (DD) for the pests except for codling moth in Wheatland where the Nicolaus CIMIS station will be used. In Wheatland, we will be using the combo lure which combines codling moth pheromone and the DA lure (catches both male and female moths). 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. For walnut blight, see the article on the Xanthocast Model.

The pest tracker can be accessed or subscribed to online as can this newsletter at our website <http://cesutter.ucdavis.edu>. Click on "Pomology", and then click on "Pest Tracker". You may also receive it directly from my email as an Excel attachment. Just send your email address and request to jkhasey@ucdavis.edu. For those who do not have access to the Internet, the pest tracker print-out will be posted weekly on neon yellow paper on the bulletin board in the office lobby.

FINAL CHILLING HOURS

YEAR	OCT 31-FEB 28 *(YUBA CITY) FINAL	NOV 1- FEB 28 (NICOLAUS CIMIS) FINAL	OCT 31-JAN 3 *(YUBA CITY)	OCT 31-JAN 3 (NICOLAUS CIMIS)
2004-2005	994	985	466	524
2003-2004	886	863	436	460
2002-2003	779	920	388	492

*Chilling hours recorded at our office in Yuba City on Garden Highway. Chilling hours below 45° F model. Included is a comparison of final chilling units to those accumulated in November and December, often considered as critical months for chilling.

TEMPERATURE, THINNING AND FRUIT SIZE IN PEACHES

Note: I wrote the following article from a research summary paper and slide set written by Dr. Ted DeJong based on his long term research on modeling peach tree growth and productivity at UC Davis.

In Spring 2004, record warm temperatures during peach bloom provided an excellent test and application of physiological and developmental concepts governing peach fruit and development. Fruit growth potential follows a genetically determined relative growth rate (compound interest rate) pattern that has clear implications for understanding fruit size responses to fruit thinning and optimizing timing and extent of fruit thinning operations. A second and related phenomenon for peaches is that fruit development rate is linked to exposure to heat during the first 30 days after bloom. The accumulation of heat units (growing degree hours) during 30 days after bloom is sufficient to predict harvest date for most years. Last year, the amount of heat accumulation from bloom time to 30 days after bloom ranged from between 20 to 100 percent greater than in the previous five years (depending on the year compared). When those data were used to estimate the effect of this early heat on harvest date, the models predicted harvest dates 10 to 14 days earlier than average. Clearly, the early harvest in 2004 was primarily related to high temperatures within that 30 day time period.

In addition to early harvest, many growers had problems with small fruit in 2004. How did this heat also alter fruit size? The extremely warm March (within 30 days after bloom) caused an unusually rapid rate of young fruit development (maturation) and lead to an unusually high carbohydrate demand by the fruit. Since photosynthesis (supplies carbohydrate) is dependent on light and not daytime temperature, it is highly unlikely there was a corresponding increase in photosynthesis to match the increased demand from the fruit. Therefore fruit size was less for a given stage of fruit maturity and this carried on throughout the season. Fruit growth

potential was likely lost early in the season and could not be recovered from heavy fruit thinning later in the season.

SO HOW CAN A GROWER AVOID THIS PROBLEM IN THE FUTURE?

- Keep records of bloom dates.
- 30 days after bloom--Visit the UC Davis Fruit and Nut Research and Information Center Website <http://fruitsandnuts.ucdavis.edu> and go to the Harvest Prediction page under weather services. This years full bloom date is March 3rd; in 2004 it was March 9th.
- Compare the current year's heat accumulation with previous years

WHAT IF IT IS A RELATIVELY WARM SPRING?

- Schedule fruit thinning earlier than normal
- Thin the most heavily set and earliest maturing cultivars first.
- Move across your orchards as fast as possible (maybe first doing a rough thinning and then touching up later)
- Note: Experience has shown that thinning in April rather than May can increase fruit size and yield even in normal years. Thinning within 50 days of bloom (by April 22 this year) can increase both fruit size and crop yields while having more fruit than thinning at 80 days after bloom (May 22 for this year).

HISTORICAL AND CURRENT BIOFIX AND PEACH RUST DATA

YEAR	OFM	PTB	CM	PEACH RUST
2005	3/7 (S)	?	?	?
2004	2/29 (S)	4/12 (S)	3/20 (Y-M) 4/6 (Y-F)	4/15 - TWIG CANKER
2003	3/5 (S)	5/10 (S)	3/30 (Y)	5/6 - TWIG CANKER
2002	2/22 (S) 2/26 (Y)	5/7 (S)	3/27 (Y)	5/3 - TWIG CANKER
2001	2/26 (S) 2/28 (Y)	4/24 (S)	3/19 (S) 3/21 (Y)	5/4 - TWIG CANKER
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 CANKERS)
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 County, Y=Yuba County

M = male moth, F = female moth

WALNUT BLIGHT UPDATE

In 2004, the UC walnut blight research team worked to provide the best timing for the first spray treatment in the spring based on physiological development of the tree. The tests were conducted in a Vina orchard where the researchers created "rain" using overhead sprinklers. The three timings were catkin expansion, terminal bud break, and first pistillate bud appearance (our usual recommendation) compared to an untreated check. Each development stage was only treated once with a Kocide and Manex spray plus the wetting agent Breakthru.

The untreated check had the most severe blight while the terminal bud break treatment had significantly less walnut blight than all other

treatments. The terminal bud break timing gave 75 percent blight control compared to 32 and 25 percent control for the catkin expansion stage and first pistillate bud appearance timing respectively. This trial's results suggest that the most economic time to begin walnut blight treatments is at terminal bud break. The first spray would be applied when about 30-40 percent of the buds have reached this development stage. This new information should apply to all walnut varieties. As of March 23, 2005, the earlier leafing varieties are well beyond this stage but not those that are later leafing. I have posted a picture of terminal bud break in our office for reference.

XANTHOCAS MODEL FOR WALNUT BLIGHT

The Xanthocast walnut blight forecasting model is a tool to help growers manage this disease. Developed by Plant Pathologist Jim Adaskaveg and

other UC researchers, the model is based on walnut phenology (leafing and flowering), temperature, and leaf wetness. The most conducive environments for

disease during early fruit development are wetness events (rainfall and dew) between 54 and 65°F. Walnut blight can be forecasted based on a risk assessment of favorable wetness and temperature conditions. The Xanthocast index for walnut blight is a 7-day cumulative index based on temperature and leaf wetness. The model is again available for free in 2005 at the Ag-Vise website (<http://www.ag-vise.com>). The model works by establishing index points for favorable conditions and decreases with non-favorable conditions. If the closest weather station to a specific orchard forecasts a disease event by reaching a critical value, then a copper-Manex spray is recommended. The crop is protected

for 7 days. The index is then recalculated for that orchard after this period until the selected critical value (usually 6) is reached again. Another spray is applied and the process is repeated. Additionally, Fox Weather provides a 5-day forecast at the website that takes the guess-work out of predicting future conducive weather events for disease development allowing time to spray. The Xantho-Calculator, another web feature, allows you to track indices, bloom and spray dates of individual orchards for the entire season. Using this feature, a grower can track several different blocks during the blight season.

IRRIGATION

IRRIGATION SCHEDULING – You can get step-by-step procedures for developing irrigation schedules for different irrigation methods by using the publication [Scheduling Irrigations: When and How Much Water to Apply](#). Order forms are available from our office as well as the local crop coefficients that are needed to develop a schedule. Please call if you would like assistance in developing a schedule for your orchard.

WALNUT RESEARCH REPORTS

The Walnut Marketing Board provided the 2004 Walnut Research Reports on a CD at our annual Walnut Day last February. If you did not get one, they are available for free from our office.

UPCOMING FIELD MEETING

Dates and details will be in next issue of "Orchard Notes"

GROWING AND MANAGING A COVER CROP

EARLY MAY, 2005 IN THE MORNING.

WINEGRAPE PEST INFORMATION

The Pierce's Disease /Glassy-winged Sharpshooter board has provided a short video and informational kit to help winegrape growers understand the importance of COMBATTING THE threat of these pests. They are available for checkout from our office.

JANINE HASEY, UC FARM ADVISOR