

COOPERATIVE EXTENSION

UNIVERSITY OF CALIFORNIA



TREE AND VINE NOTES



APRIL 2005

WELCOME TO DAN RIVERS

By Maxwell Norton

The Merced Cooperative Extension office welcomes Daniel Rivers to our team as a Staff Research Associate. Daniel is a UC Davis graduate and farms walnuts. He will be doing research on tree crops and grapes here in Merced County. Daniel has a strong background in plant-water relationships and irrigation. Feel free to drop in and say hello to him if you are at the Ag Center. If I am not in and you need assistance, don't hesitate to ask for Daniel and he will help you to the best of his ability.

TEMPERATURE, THINNING AND FRUIT SIZE IN PEACHES

By Janine Hasey, UC Cooperative Extension, Sutter/Yuba Counties

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).

WALNUT BLIGHT UPDATE

By Janine Hasey, UC Cooperative Extension, Sutter/Yuba Counties

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.

XANTHOCAST 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.agvise.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.

Spring Showers Bring Phomopsis

By George Leavitt UCCE

March and April showers may bring May flowers, but for growers of Thompson seedless, Flame Seedless, Redglobe or Grenache variety grape; those spring rains also bring on the disease known as Phomopsis Cane and Leaf Spot. Unfortunately, cultural or biological control of this disease is marginal and some type of chemical control is usually necessary. Many may question the use of various chemicals for disease control on the basis of food safety; however, the application of chemicals at this stage of growth avoids all contact with the fruit. This is because the flower of the grape, which becomes the fruit, is covered with a cap or calyptra. At bloom, the calyptra is shed onto the ground hence avoiding all chemical contact with the fruit.

The spread of this disease (formerly called Dead-arm) is associated with rain during bud break and subsequent early shoot growth. Spores are released in large quantities from previous infection sites on diseased canes, spurs and bark at bud break and splashed by rain onto the young growing shoots. Once growth has reached 15-18 inches the canopy forms an umbrella and helps prevent the splashing effect, hence decreasing the need for chemical applications. The amount of disease depends on the frequency, timing and amount of rain. Hence the disease is seasonal in its occurrence. Fortunately for growers but unfortunately for the researchers, there have not been heavy rains shortly after budbreak for several years.

We have been looking at old and new chemistries the past five years to find a chemical that provides effective control of this disease. The chemicals fall into three major categories: Dormant, Foliar contact protectants and Foliar systemic protectants. Only one material, lime sulfur, has been effective in controlling this disease when applied to dormant (prior to budbreak) vines. The other registered materials act as foliar protectants and need to be applied to the foliage after bud break (during the highest potential infection period) but before the rain occurs. Various copper/sulfur materials (alone or in combination), ziram, captan, mancozeb or maneb are all foliar contact protectants and need to be applied before spring rains and then re-applied after significant rainfall or significant shoot growth for continued protection in the event of another rain event. The strobilurins (Abound[®], Sorvan[®], Flint[®] and Pristine[®]) are classified as foliar systemics and have the advantage of not washing off in wet weather. They are also more expensive.

As of this writing (7 Mar 05), the weather forecast calls for clearing weather for at least the next 10 days and warmer temperatures for the central San Joaquin Valley of California. This will speed budbreak and shoot growth. Growers should protect grapevine foliage if rain is forecast after this period. It is best to look at the head of the vine to judge for budbreak rather than the tips of the canes. It is important to protect the renewal shoots for next year's production.

In using these materials it would probably be better to use the less expensive foliar contact protectants in the early stages of growth saving the more expensive foliar systemic materials for use when shoots are at least 4-6 inches. Systemics would also be better if a series of storms are predicted making it difficult to re-enter the vineyard between storms to re-apply materials.

If you wish to discuss the control of this disease or have any questions, please call me at the University of California Cooperative Extension Office at 675-7879 x 206.



Crop Activities Report is Available Free Via E-Mail

The Agricultural Statistics Service publishes a weekly report on crop activities around the state. You can subscribe to the e-mail version for free by going to www.nass.usda.gov/sub-form.htm

You can look at the current report at: www.nass.usda.gov/ca/rlsetoc.htm

To view the Merced County crop activities report go to www.co.merced.ca.us/ag

And select Weekly Crop Reports – they do not yet have an e-mail subscription service.

New Free Publications Recently Posted to the Online Catalog

8122 Nutrient Management Goals and Management Practices for Nursery and Floriculture

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=8122>

8152 Vine Mealybug: What You Should Know

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=8152>

Recently Updated Pest Management Guidelines

3471 Walnut

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3471>

3430 Alfalfa

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3430>

3431 Almond

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3431>

3464 Prune

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3464>

3470 Tomato

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3470>

3444 Cotton

<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=3444>

Olive Production Manual - 2nd Edition

First released in 1994, this manual quickly became a bestseller as the definitive guide to olive production in California. Now completely revised and updated, this 180-page manual is fully illustrated with 40 tables, 19 line drawings, 36 charts, and 100 color and black and white photos. The most notable additions include a new chapter on deficit irrigation, a greatly expanded chapter on olive oil production, and coverage of four new pests, including the olive fly.

Includes production techniques for commercial growers worldwide - from orchard planning and maintenance to harvesting and postharvest processing.

The second edition contains new and expanded information on pollination, pruning for shaker and vertical rotating comb harvest, mechanical pruning, deficit irrigation, mechanical harvesting methods including trunk-shaking and canopy contact harvesters, postharvest handling and processing methods, and olive oil production. Also includes information on new pests including olive fly, oleander scale, olive mite, and black vine weevil.

#3353 \$35.00 180 pp.

**UNIVERSITY OF CALIFORNIA PRESENTS ITS 2005
VARIETY DISPLAY AND RESEARCH UPDATE SEMINARS
Kearney Agricultural Center
9240 S. Riverbend Avenue, Parlier**

Off 99, take the Manning exit and go east. KAC is on the right just after Parlier.

Mark your calendars for these dates:

Friday, June 3

Friday, July 1

Friday, August 12

8:00 – 9:00 a.m. Variety display by stone fruit nurseries, breeders and USDA

9:00 – 10:00 a.m. Research Update Topics:

- ?? Nutrient deficiencies
- Dwarfing & semi-dwarfing rootstocks
- ?? Keeping trees short
- ?? IPM updates
- ?? Irrigation management and water stress

For more information:

Tulare County - Kevin Day (559) 685-3309, Ext. 211,

Fresno County - Harry Andris (559) 456-7557,

Madera County - Brent Holtz (559) 675-7879, Ext. 209,

Kings County - Bob Beede (559) 582-3211, Ext. 2737

KAC - Scott Johnson (559) 646-6547

**28th ANNUAL NICKELS DAY
Wednesday 11 May 2005**

Nickels Soils Lab, Marine Avenue Orchard, Arbuckle
cecolusa.ucdavis.edu

8:30 Registration, Coffee & Danish

- ?? 9:00 Field Presentation
- ?? **Honey Bee Problems in Almonds**, Eric Mussen, UC Apiculturist, UC Davis
- ?? **Achieving Optimum Boron Nutrition in Almonds**, Franz Niederholzer, UCCE
- ?? **Slip Plow Use in Orchards** Allan Fulton, UCCE, Red Bluff
- ?? **Phosphonates for Root Rot Control & Injector Demo**, Greg Browne, USDA
- ?? **Nutrient Sampling in Tree Crops**, Scott Johnson, UC Extension Pomologist
- ?? **New Projects at Nickels**, John Edstrom, UC Farm Advisor, Colusa County
- ?? **Late Season Navel Orangeworm Management**, Joe Connell, UC Farm Advisor, Butte
- ?? **Dust Reduction Efforts in Orchards**, Randal Southard, Soil Scientist, UC Davis, & Ken Giles, Ag Engineering, UC Davis.

12:00 Noon Lunch by reservation (530) 458-0570 to benefit Pierce Youth Foundation

Luncheon Speaker Doug Youngdahl CEO Blue Diamond Growers

Program organized by John Edstrom, Farm Advisor, UC Cooperative Extension
Office (530) 458-0570

