



UNIVERSITY OF CALIFORNIA ≈ COOPERATIVE EXTENSION
SUTTER/YUBA COUNTIES
142A GARDEN HIGHWAY, YUBA CITY CA 95991
TEL: (530) 822-7515 ≈ FAX: (530) 673-5368
<http://cesutter.ucdavis.edu>



ORCHARD NOTES

August / September 2007

In this Issue:

- Walnut Husk Fly
- Managing Irrigation in Walnuts
- Summer Pruning Walnuts
- Managing Walnut Harvest for Quality
- Meeting Announcement – Cover Crops and Filter Strips for Orchards

WALNUT HUSK FLY

Walnut husk fly continues to be a major pest in our area with some orchards having very high populations this season. Once a walnut husk fly stings a nut, the eggs hatch into white maggots within five days and start feeding inside the husk. There they feed for three to five weeks turning the husk soft and black before mature maggots drop to the ground burrowing into the soil to pupate.

As you continue to monitor traps the remainder of the season, a treatment will be needed if harvest is more than three weeks away:

- if there is an increase in trap catches
- if eggs are present in the trapped females
- and the spray residue from the prior treatment has run out

The three week interval is used because it takes a female about two weeks or longer to mate, mature her eggs and start egg laying and a short-residual insecticide plus bait will generally kill walnut husk fly for about ten days. This three week interval is based on killing all the flies when a treatment is made. Every orchard needs to be monitored and adjustments made according to trap catches. Trap monitoring should continue until husk split. After husk split, husk flies are not a problem.

In high population orchards, every row should be sprayed making sure there is good coverage using full rates of insecticide and bait. Where trees are over 35 ft. tall, both a ground and aerial spray may be necessary to control husk fly adequately.

MANAGING IRRIGATION IN WALNUTS

In UC research trials, Chandler walnut on Paradox rootstock with the least water stress averaged over \$1400 per acre per year more due to higher in-shell yield and higher crop value due to lighter kernel color than trees with higher levels of water stress. This is the goal you want to attain in your orchard but how are you going to do it? I'm convinced as I help more and more growers with their irrigation issues that using the tools we have available are critical. Common problems this year include several over irrigated orchards and others stressed for water from poor water penetration due to hardpan or other soil problems.

The three main options to manage irrigation scheduling are *weather based monitoring* using evapotranspiration information, *soil based monitoring* using tools that detect water content or water available for uptake, and *plant based monitoring* using stem water potential (SWP). You can read about each of these monitoring methods at my website <http://cesutter.ucdavis.edu> or get hardcopy of these handouts from my July irrigation meeting at our office. Other useful websites include <http://www.cimis.water.ca.gov> to get current evapotranspiration data and <http://cete.hama.ucdavis.edu> to get weekly soil moisture loss reports.

Several growers, especially those having orchards with soil limitations or seepage, have installed soil moisture monitoring devices this summer. These are very helpful to determine how deep water penetrates after irrigation and seasonal water extraction trends in the root zone. We find these measurements most useful when used in conjunction with plant based monitoring using a pressure chamber to determine what the plant is experiencing. Both methods are critical for timing irrigations, especially where there are any soil problems. These tools allow you to adjust the frequency or intervals between irrigations and the irrigation duration or set times to supply trees with the appropriate amount of water. Using my pressure chamber, I have been assisting those growers who recognize they need these tools to more precisely irrigate their orchards.

Typically in walnut, inner, shaded leaves will turn yellow prematurely and drop in drought stressed trees. Trees that are over irrigated will often show browning on leaf margins on outside limbs. Young walnut trees stressed for water stop growing and can take several weeks for them to respond even after an irrigation. Young walnut trees that are over irrigated also stop growing from rotted roots so it is often hard to determine the cause unless the roots are examined. For young and mature walnut orchards, avoid saturating the soil or irrigating over 24 hours per set time (not exceeding 18 hours per set time is better) to

avoid crown and root rot diseases. Stop irrigating young walnuts in October so they can begin to harden off to better withstand a sudden fall frost.

SUMMER PRUNING YOUNG WALNUTS

For walnut trees planted in 2007, the goal is to attain over ten feet of trunk growth in a conventional orchard and about seven feet of trunk growth in a hedgerow orchard. Walnuts will continue to grow through September so check trees at least every 10 days tying the trunk to stake as needed. Limbs such as double leaders and rootstock suckers should be removed. Small competing side shoots are pinched or pruned back to add leaf surface for increasing trunk caliper growth and feeding the root system. With our recent winds, some growers are concerned with these tall trunks breaking. Do not head back the leader – this will cause the lateral buds to push forming weak branches that have to be removed next winter. These are the buds that will become the primary branches next year so these need to be retained. If really concerned about breakage, just lightly tip the leader 1-4 inches where the tip begins to curl with a sharp knife. This generally will not force these lateral buds to push but will stop tree growth in length while increasing girth growth for about three weeks.

MANAGING WALNUT HARVEST FOR QUALITY

With milder temperatures this summer there is less sunburn and the potential for lighter kernels. There are many factors to keep in mind as you prepare for your walnut harvest this season.

- **Earlier harvest pays.** The most important fact to remember when harvesting walnuts is the earlier the harvest, the lighter the kernel color; the lighter the kernel color, the more money per pound. Kernels are mature when

the packing tissue around the kernel has just turned brown, what we call packing tissue brown stage; kernels are the lightest and at the highest value. Before harvest can begin though, the hulls must split and separate from the shell. Hull split is favored by cooler weather, humidity, or rain. In the valley, our temperatures are usually hot especially at the beginning of the harvest season hastening the kernel maturity but delaying hull split, sometimes up to several weeks. This adversely affects kernel color. Walnut varieties also differ in their ability to produce light colored kernels with Chandler epitomizing the light kernel color. In addition to kernels darkening the longer the time period in the orchard after kernel maturity, kernel color will also darken after processing. The kernels of some varieties such as Howard can become darker relatively quickly after processing whereas Chandler retains its light kernel color for a longer period of time.

- **Optimizing light kernel color:** The trick in our hotter central valley, is getting packing tissue brown to more closely coincide with hull split. Consider using ethephon which contains ethylene to promote early harvest, especially on those varieties whose kernels tend to be dark or darken more quickly after processing. To hasten harvest about 7 to 10 days, ethephon is applied when the packing tissue of all nuts just turns brown. Typically, about 17 days later, nut removal will be about 90 percent. Application of ethephon before packing tissue brown will result in decreased kernel weight. **What is the status of the packing tissue this year?** I sampled nuts from the lower part of Ashley, Serr and Vina trees on August 16 in the Rio Oso area. Forty percent of the Ashley and Serr were at packing tissue brown. Ten percent of the

Ashley and forty percent of the Serr were close to this stage. None of the Vina nuts were at packing tissue brown as expected since it harvests later than Ashley and Serr. This is about an average timing. Start checking later harvested varieties for packing tissue brown before the end of August if you plan to apply ethephon. Ethephon can also be used to promote one shake harvest by applying it after packing tissue brown about ten days prior to normal harvest date. Consider using Ethephon to hasten harvest in orchards that suffered late walnut husk fly or navel orangeworm damaged nuts last year. Thorough spray coverage is essential when using ethephon and it should not be used on stressed trees.

- **What else can you do to keep walnut kernels light?** Once harvest begins, pick up, hull, and dry nuts as quickly as possible. Most quality loss occurs in the first 9 hours after harvest. The hotter the temperatures, the more quickly the loss of kernel color. Do not allow walnuts to become water stressed during the summer or before harvest. Cutting off water too early before harvest can result in hulls shriveling and darker kernel color in severe drought situations.
- **Oilless nuts.** I observed Serr nuts with premature hull split on August 16. These nuts are oilless, have no value, and will drop. The Serr and Vina trees already had oilless nuts on the ground. Visit my website at <http://cesutter.ucdavis.edu> to see photos of oilless nuts compared to normal walnuts.

Janine Hasey
UC Farm Advisor

A Grower Field Meeting:

Cover Crops and Filter Strips for Orchards:
Vegetative technologies to enhance profit and reduce risk

Friday September 7th, 2007
9:00 AM — 12:00 NOON

Location:

G.N.K. Dhanota Ranch
Butte House Road near Howlett Ave., Yuba City
(See map on the next page)

Presentations:

- Cover Crops for Orchards: Principles and Selection—*Fred Thomas Cerus Consulting*
- Cover crop performance and nutrient management — *Janine Hasey, UCCE Farm Advisor Sutter/Yuba Counties*
- Cost comparison of N from cover crops, compost and N fertilizer — *Karen Klonsky, UC Davis Dept. of Ag and Resource Economics*
- Cover crops and filter strips to prevent pesticide pollution in run-off from orchards — *Frank Zalom, UC Davis Dept. of Entomology*

Demonstrations:

- Filter strip planting — *Larry Lloyd, Sutter County RCD*
- Planting and inoculation — *Fred Thomas, Cerus Consulting*

Sponsored by:

- University of California Cooperative Extension
- Community Alliance with Family Farmers
- Sutter County Resource Conservation District
- California Certified Organic Farmers

For more information contact
Mark Cady 530-756-8518 ext. 20
or Janine Hasey 530-822-7515

*This event is made possible by funding provided by the
California State Water Resources Control Board*

Directions to G.N.K. Dhanota Ranch:

- From Highway 20 (Colusa Highway), turn north on N. Township Rd. at Feed Store.
- At 4 way stop, turn west (left) on Butte House Road. Turn south (left) at first prune orchard past a vacant field and right before Howlett Ave. Look for yellow UC signs.
- Follow dirt road to a parking area. See map

