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ORCHARD NOTES

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PREDICTING GRAY MOLD IN KIWIFRUIT

Remember the losses from gray mold (*Botrytis cinerea*) during the 1995-96 season? Although the 1996-97 season had much lower repack losses, we do not know what the 1997-98 season will bring. Using a predictive technique for this problem can eliminate some guesswork of whether a block is prone to gray mold. Developed a few years ago by UC plant pathologist Themis Michailides, this technique allows growers to predict gray mold in stored kiwifruit. Growers can then decide whether to apply a preharvest fungicide and how long to hold fruit in cold storage. The technique only predicts gray mold after three to five months in cold storage, not premature softening of fruit. Whether your losses from gray mold in the past have been large or small, this monitoring method makes sense - it is simple, inexpensive and quick.

Guidelines for Correct Sampling

Four months after fruit set (usually early September):

- 1) Sample 20 fruits per 5-acre field or 60 fruits from larger vineyards.
- 2) Sample only from pair rows of female vines by walking zigzag;

(fruit from vines next to males in the row with male vines usually show more gray mold than fruit from vines in rows of only female vines).

- 3) Avoid weak or stressed vines or vines with sunburned fruit.
- 4) Sample from vines that represent the average condition of vines in the field.
- 5) Avoid collecting fans or fruit with snail damage; (fruit having their sepals removed or showing snail slime on the surface).
- 6) Collect fruit with stems attached and place them in a flat pantapax. If sepals break, collect them from the cell of the pantapax.
- 7) If possible, use separate flats for collecting each 20-fruit sample.

Submit these samples to a lab where they plate sepals and stem ends out and they record the *Botrytis cinerea*. The test takes about nine days. Call me if you need a list of labs that do this analysis.

What will the results tell me?

From the research, preharvest sprays were **not needed** when the predicted gray mold was **below 6%** regardless if the storage time was three or five months. Preharvest sprays with Ronilan were only **needed** when expected gray mold was **6% or above**. Spraying Ronilan one week before harvest significantly reduced gray mold after five months storage where gray mold was above 6%. If after the test, your results show that **6% or higher** gray mold is expected, we recommend: **1) one preharvest spray** if fruit is to be stored for three months, and **2) two preharvest sprays** if fruit is to be stored **five months or longer**.

What are the benefits?

By using this forecasting method, growers can decide whether to put on preharvest fungicide sprays; shippers can decide which fruit to sell first and which fruit to hold for longer storage.

WALNUT HARVEST

Walnut harvest is upon us. The packing tissue turned brown fairly early on many of the earlier leafing varieties. With the August rain, dew and cooler weather, the hulls are also splitting early. Be

prepared for an early and rapid harvest this season. As you approach your harvest, keep in mind how the nut matures and the factors affecting its quality.

When is optimum maturity?

When the packing tissue (the material surrounding the kernel halves) turns brown, the nut is at optimum maturity and at peak value. HIGHER QUALITY and reduced navel orangeworm and mold are payoffs for harvesting as close to packing tissue browning as possible. Check a few nuts occasionally on your various varieties to determine when the packing tissue is completely brown.

When do I begin harvest?

Before walnut harvest can begin, both the walnut kernel and the hull must be mature. Warm weather will advance kernel maturity but delay hull maturity (splitting). As we are seeing this year, rains or moist weather will advance hullsplit. An economic approach is to shake when 80% of the nuts can be removed and 95% of those nuts can be hulled. The other 20% can be harvested about two weeks after the first harvest.

When does navel orangeworm cause damage?

The main time navel orangeworm infests the nut is when hulls split just before harvest. The female moth lays eggs close to or in the split hull where the eggs hatch and the worm infests the nuts. The longer the walnuts remain on the trees with open hulls, the greater the chance for infestation. A prompt harvest is best for controlling navel orangeworm.

What about walnut mold?

There are many common fungi found in the air, soil and decaying vegetation that cause walnut mold. Mold fungi invade the inner surface of the hull at hullsplit and grow through the nut suture into the packing tissue and then invade the kernel. Once the hulls start to split, the chance for mold damage increases rapidly. Molds can also invade nuts with hulls that have been damaged by sunburn, insects or drought in mid-summer. Mold growth is favored by high temperatures and high humidity. To minimize mold and increase overall nut quality, hull and dry nuts as soon as possible after shaking. Most quality loss occurs in the first nine hours after shaking, particularly if air temperatures are high or nuts are in direct sunlight. Avoid leaving walnuts on damp ground which increases their susceptibility to mold damage.

What about those nuts on the ground now?

These nuts are sunburnt, blighted, wormy or oilless. You can either destroy these nuts before your harvest begins or let the airleg take them out at the huller. There are some oilless nuts this year which fell in late August. Check the kernel for a very white meat with a dark pellicle (skin on the kernel). Oil accumulation occurs in July and August but with oilless nuts, that process is not working. Oilless nuts are associated with heavy cropping, drought or stress effects and often come from fruiting spurs in shaded areas of the tree. There are often not enough leaves on these spurs to mature the 2-3 nuts on them. We see it more in Ashley but Serr, Vina and other varieties can have this problem.

What about using ethephon?

Depending on your objectives, the growth regulator ethephon can be used either to **advance harvest** or for **"one shake" harvest**. If used to advance hullsplit and removal by 7-10 days, apply ethephon when packing tissue just completes browning. A second shake is usually necessary. For a "one shake" harvest, apply ethephon about 10 days before the normal harvest date. This is an economic approach in lower yielding orchards to eliminate the need for a second shake. Ethephon can be especially beneficial if we have hot, dry conditions during hullsplit that slows harvest down. Never use ethephon on stressed trees and thorough coverage is extremely critical.

WALNUT PEST UPDATES

Walnut Husk Fly - A late spray is warranted if trap catches increase to large numbers, eggs are present in trapped females and harvest is more than three weeks away and your spray residue has run out from an earlier spray.

Codling Moth - Codling moth was very erratic between orchards this year. The third flight of codling moth occurred earlier than usual (July 10) in the orchard I'm monitoring. As of August 28, 1,094 degree-days had accumulated. Now at harvest the focus is to avoid navel orangeworm.

Navel Orangeworm - As mentioned above, a prompt harvest is the best control for navel orangeworm. Insecticidal sprays do not give complete control but may offer some benefit where you know that harvest will be delayed.

Spider Mites - A spray is seldom needed if mites do not build up in walnuts until the end of August. Even so, keep a lookout for

mites since they can cause tremendous defoliation if their numbers get too high.

PEACH PEST UPDATES

Cling Peach Rust - We noticed some rust this season, mainly on Andross and occasionally on late and extra late varieties during harvest.

OFM and PTB Mating Disruption Trials - Harvests are finished and worm control using pheromone dispensers worked well overall. You will hear about our findings and economic analysis at our winter peach meeting.

Leafroller Damage - We noticed a large amount of leafroller damage in both mating disruption and sprayed blocks this season. We think it is second generation oblique banded leafroller that did the damage. We plan to look at this problem next year.

FALL PREPLANT PREPARATIONS

Early fall is the time to schedule preplant preparations if you are planning to replant an orchard or plant a new one. Start by treating perennial weeds such as Johnsongrass, bermudagrass and field bindweed with glyphosate while they are vigorously growing and in the flowering stage. Land leveling, ripping, backhoeing and settling the soil needs to be done early enough so there is still time to fumigate in the early fall. Every year I get calls in late winter/early spring from growers asking if it is too late to fumigate before they plant. The proper soil temperature and moisture are critical for effective fumigation; those conditions are found in the fall, not during or after the rainy season. Warm, moderately dry and well-worked soil is essential. Fall fumigation assures adequately warm soil temperature as well as a long aeration period.

We recommend fumigation where nematodes or oak root fungus are present or where walnut trees will be planted to replace an existing walnut orchard. Most mature walnut orchards have lesion nematode in our area, and these along with old walnut roots in the soil contribute to the walnut replant problem. Nematode samples are easy to take and will help you determine the presence and populations in your orchard. We have a list of laboratories that do nematode analyses. Both methyl bromide and Telone are available for fumigating fruit and nut crops. Check with your local Agricultural Commissioner for a permit.

Fumigation can be expensive, but if well done, will contribute to a productive and profitable orchard. **Remember**, for most of our tree crops, **preplant fumigation** is the **only** or **best** opportunity to control nematodes or oak root fungus.

NEW OR UPDATED PUBLICATIONS

California Wildlife and Pesticides: A Guide to Using Pesticides in and Near Fish and Wildlife Habitat. 1997. Calif. Dept. of Fish & Game/ Calif. Dept. of Pesticide Regulation. This brochure discusses fish and wildlife toxicology, acute toxicities of pesticides, and methods for reducing pesticide impacts. Copies are available from our office and the Agricultural Commissioner's Office.

Updated Pest Management Guidelines:

Citrus, Grape, Olive, Walnut, Turfgrass

The walnut guidelines have updated sections on codling moth and walnut husk fly. Guidelines vary in size. The cost is 10 cents per page.

WORKSHOPS/SHORT COURSES

Prune Production Short Course - The prune production short course will be offered October 27-30, 1997 at UC Davis. Brochures are available in our office.

NEW WEB SITE

For those of you cling peach growers who surf the net, the **California Canning Peach Association** web site should be of interest:

<http://fruitsandnuts.ucdavis.edu/ccpa.html>

This is a collaborative effort with the **UC Fruit and Nut Research and Information Center** (FNRIC) at UC Davis. The site lists processors, import and export information, field observations, contact information, etc. You can reach the FNRIC at :

<http://fruitsandnuts.ucdavis.edu>

Other Useful Web Sites:

UC IPM on the World Wide Web - <http://www.ipm.ucdavis.edu>
Through this site all of the UC IPM Pest Management Guidelines and Pest Notes can be accessed, complete with color photos and diagrams.

Sustainable Agriculture Research and Education Program -
<http://www.sarep.ucdavis.edu>
Through this site you can access information on cover crops.

FLOOD VICTIMS NOTE:

1997 TREE ASSISTANCE PROGRAM

Purpose

The 1997 Tree Assistance Program (TAP), administered by the Farm Service Agency (FSA), provides cost-share payments to orchard and vineyard growers who incurred losses due to damaging weather, including losses caused by freeze, excessive rainfall, floods, drought, tornado, and earthquake in Fiscal Year 1997 (October 1, 1996 through September 30, 1997). Payments are authorized only for eligible owners who actually replant or rehabilitate orchard trees and vineyards.

Application Period

TAP applications for losses suffered in Fiscal Year 1997 must be filled at the grower's county Farm Service Agency office during the sign-up period to be held August 18 through September 12, 1997.

TAP Objectives

TAP is designed to reimburse up to 100 percent of the replanting or rehabilitation costs for orchardists who experienced orchard tree and vineyard losses in FY 1997.

Eligible Plants

Under authority provided by Public Law 105-18, 1997, Tree Assistance Program payments shall be made for fiscal Year 1997 losses of orchard trees and vineyards planted to produce annual crops that were lost due to natural disasters, including but not limited to flood, drought, hail, excessive moisture, freeze, tornado, hurricane, earthquake, and excessive wind as determined by the FSA.

Limitations

Eligible owners may not receive more than \$25,000 per person.

Eligible Owners

To qualify, orchard tree and vineyard owners must:

1. Own not more than 500 acres of the type of orchard tree or vineyard for which benefits are requested.
2. Earn less than \$2.5 million gross annual revenue in the tax year preceding the year in which the losses occurred.
3. Suffer 20% or greater loss, adjusted for normal mortality.
4. Be in compliance with highly erodible land and wetland conservations provisions.

Payments for Individual Stands

Payments will be provided for the replacement or rehabilitation of all qualifying losses to orchard trees or vineyards within the individual payment limitations. Payments will provide an amount not to exceed 100 percent of the cost to replant or rehabilitate the orchard trees or vineyards.

Prior Approval Policy

Payments will be authorized to reimburse the cost of eligible replanting and rehabilitation measures that are implemented either before or after the owner applies for payment.

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