COOPERATIVE EXTENSION UNIVERSITY OF CALIFORNIA

TREE AND VINE NOTES

JULY 2002

GRAPE HARVEST SAFETY PROGRAM
Thursday 17 July 2002
Madera Fairgrounds Women's World

University of California Cooperative Extension, Madera County Farm Bureau, and Employment Development Department are sponsoring the Annual Grape Harvest Safety Program. The program will be presented in both **Spanish** and **English**. Registration begins at 7:00 a.m. and the program will conclude by 12:00 noon. Lunch will be provided. **There is no charge for the program or lunch. Please be sure to RSVP to (559) 675-7879 Ext 201**

AGENDA

Registration
Introduction
First on the Scene - First Aid
Tractor and Gondola Safety
Alcohol and Drugs on the Job
Back Safety
Forklift Safety
Fire Safety/Extinguisher Demonstration

A Certificate of Completion will be given to document safety training of employees for your injury and illness prevention program.

Please RSVP to the University of California Cooperative Extension Office 559-675-7879 Ext. 201, if you will be attending the program and luncheon.

Trees Wilting or Dying in Early Summer

Maxwell Norton, UC Cooperative Extension, Merced County

During June I looked at several trees that had wilted or started dying with the onset of warm or hot weather. When trees do that, the cause is usually due to something that is injuring the root system or plugging up the Xylem which is the part of the vascular system that transports water and minerals from the roots to the leaves.

What injures the roots or crown? Here are the ones to look for:

1. Crown or root rots caused by the Phytophthora fungus. The damage may be obvious with severe damage to the crown area or it may be difficult to find because it is killing many of the feeder roots down deep. Most commonly observed on fine textured soils, it is often caused by micro-jets or micro-sprinklers that being run frequently and are keeping the root system and even the crown too moist. The only solution is changing the water schedule to allow more dry-down time. Sometimes a better system is double hoses with in-line drippers that are laid at least three feet away from the trunk. If the drippers are close enough in-line you create a continuous band of moisture that is to each side of the tree. When flood irrigating, try to avoid continually saturating the berm. I am not a big fan of micro-jets and micro-sprinklers because they are easily blown around by the wind, they increase the humidity in the orchard and they are easily torn up my people and equipment.

2. Gophers can cause significant damage the previous year and the tree will not show symptoms until the following summer when the transpiration load is high. On mature trees the damage is usually on the crown just below the soil surface. Gophers will almost never feed on trees above the surface unless the trunk is thoroughly covered with weeds. On new trees, enough of the entire roots system can be cut off to cause the tree to collapse. The mounds do not need to be next to the tree for gophers to be implicated. The nearest mound can be 1-2 trees away.

3. Voles can get bad enough to chew up the trunk near the soil level. They are rarely a problem where the ground is kept bare near the trunk. They almost always stay in the tall weeds.

4. Rabbits can feed any where on the trunk. They are most devastating on young trees where they will grab the bark and strip it off. They may just gnaw in one area or up and down. How much they feed on trees depends on alternate foods available.

5. Less common is Armillaria root rot (a.k.a. oak root fungus). Although much less common than Phytophthora, Armillaria root and crown rot can be devastating. Above ground, the symptoms can be very similar to the above causes but when you examine the crown and primary roots the appearance is much different. Pictures and detailed descriptions of all the above pests can be found in almond, stone fruit, grape and apple IPM manuals available at any Cooperative Extension office.

What plugs up the xylem tissue? In grapes and almonds it could be due to the bacteria *Xylella* which causes Pierce's disease and almond leaf scorch respectively. Fortunately neither of these diseases are very common in the northern San Joaquin Valley but they have to potential to occur anywhere. In addition to the tree or vine appearing very water stressed there will be some striking leaf symptoms. Pictures of both diseases can be found in the grape and almond IPM manuals.

With young almonds one should consider Verticillium wilt. Most commonly only one or two branches will completely wilt - almost never the whole tree . The symptoms of Verticillium will look different than the general wilting due to root damage.

Almond Leaf Scorch Found in Madera County!

by Brent Holtz, UC Cooperative Extension, Madera County

Almond Leaf Scorch or golden death, has been observed in a few orchards in Chowchilla. The bacterium that is responsible for almond leaf scorch, *Xylella fastidiosa*, also causes Pierce's Disease in grapes and alfalfa dwarf. The bacteria lives in the xylem tissues of the tree and is spread from plant to plant by spittlebugs and sharpshooter leafhoppers that feed in the xylem. The spittlebugs can vector the bacterium from infected weeds and trees to healthy trees. Leaves of infected trees appear normal in spring, but develop symptoms in early to mid-July. Tips and margins of leaves turn yellow, then brown, and a golden yellow band forms between the green and brown leaf areas. Leaves with salt burn will not have a gold band between the brown leaf tip and the green base of the leaf.

Newly infected trees typically have one terminal branch that is affected. But if you examine the trees closely, several developing infections on the same or nearby scaffolds may be apparent. As the disease progresses from year to year, trees have reduced terminal growth, large numbers of dead spurs and small branches, and terminal shoot die back. Within 3-8 years the disease can spread over the entire tree, yields are greatly reduced, and the tree will eventually die.

Annually inspect your orchards in mid-to late July. Prune out all infected limbs in newly infected trees, 2 to 3 feet below symptoms. Do this as soon as infected shoots are detected. Cultivars such as Padre, Carmel, Butte, and Fritz, have shown resistance. Susceptible cultivars include Nonpareil, Ne Plus Ultra, Jordanolo, and Peerless.

Shipping Stone Fruit Variety Showcase

Friday 26 July at 8:00 to 10:00

UC Kearney Agricultural Center on the south side of Manning Ave just east of Parlier
Take 99 south through Fresno. Take Manning Ave east towards Reedley.
Several nurseries and plant breeders will show new varieties that are currently being picked.
You will be able to sample most of the selections.
A short research show and tell in the field station will follow.
No charge – just show up

Fight this Pistachio Pest NOW

by Craig Kallsen, UC Cooperative Extension, Kern County

Navel orangeworm, *Amyelois transitella*, wreaked havoc on the economic returns of many growers in the San Joaquin Valley this season. This pest is particularly insidious in that not only does it directly reduce yield by reducing the number of harvested nuts, but infested nuts that are missed during processing end up in consumer packaging.

During the past season, it was common for growers to find 2% or more of their nuts arriving at the huller infested with navel orangeworm. Levels of 5% or more of infested nuts will probably result in the entire load of nuts being processed as shelling stock or lesser products instead of being packaged as the more valuable in-shell nuts that consumers associate with pistachios.

Early-season infestations in an orchard can be determined based on the use of egg traps baited with mixtures of almond press cake and almond oil. The first generation of moth egg-laying activity usually peaks in late April and early May and the second generation in late June or early July. Generally, however, only the third generation is treated with chemicals. If populations are high early in the season, appropriate insecticides (azinphosmethyl, phosmet, carbaryl, permethrin) are applied approximately 300 to 400 degree-days after third-generation egg laying beings, usually in early August. If third generation egg-traps lose their effectiveness, treating 1300 degree-days after the onset of second generation egg laying will approximate the appropriate time for treating third generation navel orangeworms.

Treatment is Key

Frequently navel orangeworm populations do not reach damaging levels until late in the season. In early to mid-August, if the orchard has not yet been treated, nuts can be collected from the field and examined with a magnifying glass. The greater the number of early split nuts the more likely it will be that navel orangeworm is a problem.

Usually a sample of 100 to 200 randomly collected nuts from the orchard are inspected, and if 3% to 4% of the nuts have eggs, the orchards will be treated with a registered insecticide. In an untreated field, the percent infestation of the nuts can climb by 1% a week. Generally the later in the year that pistachios are harvested, the greater the number of infested nuts. As many growers discovered this past year, chemical control may not be adequate to reduce infestations sufficiently.

Navel orangeworm does not over-winter in the egg, so it is dependent for survival as a larva in unharvested nuts left on the tree or on the ground during the winter in the San Joaquin Valley. The pest has the ability to fly inter-orchard distances, so effective control is dependent on measures conducted on an area-wide basis. Adequate control in pistachio orchards involves both insecticide application and winter sanitation.

In an isolated orchard, the primary source of infestation is from last year's nuts. Most growers are shaking or poling the old unharvested nuts from the tree sometime during the period from November through February. The sooner the old nuts are on the ground and blown off the berm into the middles between tree rows for destruction or burial, the sooner navel orangeworms

will lose overwintering sites. Some data suggest that nuts left on the berm provide a more favorable habitat for survival than those left in the tree, so destruction of the nut is necessary for control.

The harvest results are in and the message is clear. The navel orangeworm is a pest with significant potential to seriously damage the pistachio industry. Beating the navel orangeworm will require vigilance at home, an unusual degree of cooperation among neighbors, and a multifaceted control strategy involving monitoring, targeted insecticide treatment, orchard sanitation, and further research.

WALNUT NOTES

by Kathy Kelley Anderson, UC Cooperative Extension, Stanislaus County

Mites and aphids*:* Watch for mite and/or aphid flare-ups after pesticide applications. Monitor populations weekly. Mites will often colonize bindweed 10 to 14 days before moving into the trees. Monitor for mites in hot spots such as the edge of the orchard, in water stressed areas or look for brown clusters of leaves anywhere in the orchard. Colonies usually begin on the lower branches in the inner canopy. Pick a random sample of infested leaves and check for predators. If predaceous mites, sixspotted thrips or spider mite destroyers are present on at least half of the leaflets, natural enemies should control the population. Walnut aphids are well controlled by a tiny parasitic wasp. If control by the wasp is disrupted, aphid feeding can reduce tree vigor, nut size, yield and quality. Sample five subterminal leaflets from 20 trees. Consider treating if the average number of healthy (nonparasitized) aphids on early, heavy-bearing varieties is over 15 per leaflet. Parasitized aphids are tan and often have a tiny hole where the wasp emerged after developing in the aphid's body.

Irrigation scheduling: As temperatures increase, so does the tree's demand for water. June, July and August are high water use months for walnuts. In the San Joaquin Valley, a clean cultivated, full canopied walnut orchard on a 24-by-24-foot spacing uses 86 to 93 gal/tree/day in June, 111 gal/tree/day in July and about 97 gal/tree/day in August. These figures are for actual tree use and do not take into account water lost to system inefficiencies. Water usage will vary with orchard spacing, canopy development and orchard floor management conditions. Water stress will result in increased tree stress, poor kernel development, and little to no vegetative growth. Always monitor an irrigation to make sure the water is reaching the root zone. Use a shovel or auger to check the moisture several days after an application.

The usual strategy for walnut orchards is to start the next irrigation when 50 percent of the available moisture from the previous irrigation has been depleted. In the hot, interior valleys where walnuts are grown on lighter alluvial soils, this usually means flood/furrow irrigation intervals not to exceed two weeks (10-12 days is probably better). For heavier soils that hold more water, a 50 percent reduction in available water would take longer, resulting in increased irrigation intervals.

Summer pruning: As the crop develops, limbs begin to bend and breakage can occur. Late June is when most breakage occurs, as nuts are full size and full of water. A lot of grief can be

avoided simply by walking through the orchard with a pair of pruning shears, or a pruning pole, to cut parts of loaded limbs to "lighten them up."
Vigorous shoots on young trees often require summer pruning as well to avoid "willowing" over. Walk through young blocks and prune back tips of shoots that are beginning to lie over. Without summer pruning, distorted shoots have to be severely pruned or removed the following winter. Usually excessive dormant pruning encourages even more vigor the following season.

***Phytophthora* crown and root rot:** As temperatures increase, the number of grower calls about crown and root rot also increase. Trees infected by this soil borne fungal disease appear unthrifty with small chlorotic leaves. They often collapse quickly in warm weather. Shovel soil away from the crown of the tree and cut into the bark to check for characteristic dark yellow to dark brown areas (cankers) in the inner bark. Cankers commonly extend down into the root system. There is no treatment for established infections. Prevent future infections by avoiding repeated saturated soil conditions. Direct sprinkler patterns away from the trunks of trees.

Walnut Husk Fly: The adult walnut husk fly (WHF) is about the size of a housefly with a yellow spot just below the area where the wings are attached and a dark triangular band at the tip of the wings. Husk flies have one generation per year. They overwinter as pupae in the soil and emerge as adult flies from late June through September. The female deposits eggs in groups of about 15 below the surface of the husk. Eggs hatch into white maggots within 5 days. Older maggots are yellow. After feeding on the husk for 3 to 5 weeks, mature maggots drop to the ground and burrow several inches into the soil to pupate. Most emerge as adults the following summer but some remain in the soil for 2 years or longer.

The first signs of an infestation are small dark spots, called stings, caused by females depositing eggs in the husk. After hatching, the maggots feed inside the husk turning it soft and black. The outer skin of the husk usually remains intact, but its fleshy parts decay and stain the shell. A husk fly infestation early in the season (late July to mid-August) leads to shriveled and darkened kernels or may induce mold growth. Other pests or environmental stresses may also cause this damage. Late infestations do little damage to the kernels but may stain the shells.

Hang a yellow sticky trap charged with ammonium carbonate in late June or early July to lure adult flies for monitoring populations. Hang traps as high as possible in dense foliage on the north side of trees. Use at least two traps per 10 acres and place the traps in orchard hot spots: large shaded trees, trees growing in damp areas or near black walnut trees, and trees that were damaged by walnut husk fly the previous season. Monitor traps at least twice a week, and preferably three times a week to avoid damage before the first treatment is applied. Because walnut husk fly development is not driven by temperature, each orchard must be monitored separately and treatment timing based on the monitoring results for that orchard.

Treat with an insecticide plus bait. When bait is added, coverage is not critical and alternate row, aerial, and applications with a hand held sprayer could all be effective. Treatments are usually applied within ten days of the first trap catch. Continue to monitor traps weekly after treatment. If the infestation occurred early, a second treatment might be necessary 3 to 4 weeks later if the first treatment spray residue has run out and harvest is more than 3 weeks away. Generally a short residual insecticide plus bait will kill walnut husk fly for 10 days. With the egg

development period added to this time, there is about 3 weeks of protection after an application. Husk flies are not a problem after husk split.