



WALNUT NEWS



STANISLAUS COUNTY

Fall, 2005

Harvest

Both the kernel and hull need to mature before walnut harvest can begin. Kernels are mature when the packing tissue around the kernels turns brown. At this point the kernels are lightest in color and of the greatest value. The hulls are mature when they crack and separate from the nut; this occurs up to three weeks after kernel maturity in our area. Harvesting as soon as the nuts are hullable yields lighter colored kernels and higher return. Warm, dry weather conditions delay hull split. An economic approach is to shake when 80% of the nuts can be removed and 95% of those hulled. The other 20% can be harvested about two weeks later. This practice is not practical for smaller acreage growers who should harvest and pick up nuts at the earliest possible time. Delaying harvest after hull split also increases the potential for navel orangeworm (NOW) infestation and mold. Studies have shown that NOW damage can increase as much as 1% per day after hull split.

In all cases, it is critical to pick up nuts as soon as possible after shaking. Kernels darken rapidly and the potential for ant damage increases the longer nuts remain on the ground. Windrowed nuts on the ground in full sunlight for two to four hours at 90° F - 100° F will have substantially darker kernels. Do not shake more than a few rows in front of the pick up machine. Delays ranging from equipment breakdown to backups at the huller slow harvest. Stop shaking if harvest is delayed because walnuts on the tree retain quality. Discrepancies between the grower and processor regarding trailer weights and delivered tonnage are an occasional problem. Have trailers weighed at an independent station to prevent any misunderstandings.

Harvest Sample

Accurate knowledge of the amount and kind of damage at harvest provides a valuable foundation for planning next season's pest management strategies. Processor grade reports often underestimate actual field damage since many spoiled nuts blow out during harvest and processing. In addition, processors can only report total "worm" infestation, as it is hard to tell codling moth from NOW larvae after drying. In some cases, processors do not give growers quality reports on all their loads. In others, loads from a number of growers are mixed and an average quality reported. Consider a preharvest walnut sample to get a realistic picture of the problems in the orchard and trends among years.

Collect representative samples from windrows or nuts coming off the elevator. Crack out 100 walnuts from each lot and note any damage. Freeze or place the samples in a large plastic trashcan with dry ice to limit NOW development if samples are not cracked right away. Identify whether larvae are codling moth or NOW. They are similar in appearance, but NOW have a small, dark crescent just behind the head. A magnifying lens will help with identification. NOW are also "dirty" feeders and leave a lot of frass and webbing in the nut.

University of California, U.S. Department of Agriculture and Stanislaus County Board of Supervisors Cooperating

3800 Cornucopia Way, Suite A, Modesto, CA 95358

(209) 525-6800

The University of California prohibits discrimination or harassment of any person on the basis of race, color, national origin, religion, sex, gender identity, pregnancy (including childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or status as a covered veteran (covered veterans are special disabled veterans, recently separated veterans, Vietnam era veterans, or any other veterans who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized) in any of its programs or activities. University policy is intended to be consistent with the provisions of applicable State and Federal laws. Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action/Staff Personnel Services Director, University of California, Agriculture and Natural Resources, 300 Lakeside Drive, 6th Floor, Oakland, CA 94612-3550, (510) 987-0096.

Postharvest Irrigation

Orchards are generally water stressed during harvest and should be irrigated once the crop is in. Trees that are dry going into the dormant season are more prone to low temperature winter injury. Postharvest irrigation also supplies good soil moisture conditions for drilling in cover crops. Avoid postharvest irrigation in defoliated orchards as this will encourage regrowth. Limit water to young, vigorously growing walnut trees in mid-to-late September to harden them off and avoid damage due to late fall freezes. Then irrigate in early November to minimize winter injury.

Nitrogen

Do not apply nitrogen this time of the year because there is little tree uptake and it is easily lost due to volatilization, denitrification, and leaching. Fertilizers such as potassium can be soil applied effectively in the fall. Various soil amendments such as lime and gypsum are commonly applied in the fall. Apply and incorporate pre-emergent herbicides before winter weeds germinate, usually in October.

Cover Crops

Winter annual cover crops add organic matter, improve water penetration, reduce erosion, provide for better winter orchard access, suppress weeds and help alleviate compaction. Winter annual cover crops offer advantages in increased organic matter, improved water penetration and reduced erosion. They also allow for better winter orchard access, suppress weeds and help alleviate compaction. Plant a winter cover crop in October when temperatures are favorable for seed germination and initial growth and there is usually enough residual moisture following the postharvest irrigation for good germination. More detailed information on cover crops can be found in *Cover Crops for California Agriculture* (ANR Publication 21471).

Rip / Chisel

A compacted "plow pan" layer often forms about 8 to 12 inches below the surface in both mowed and tilled orchards. This is a common problem throughout the county and it is not confined to any one soil type. Growers are often unaware of its presence and impact, which includes limiting root growth, water penetration and air movement within the soil profile. Test for a plow pan by pushing a rod into the soil or using a soil auger. Break up the layer by ripping or chiseling after harvest when the soil is still dry. Don't worry about injuring roots; root pruning actually stimulates root growth in much the same way that heading cuts promote new shoot development.

Replants

Replanting missing trees is a much more common practice than it ought to be. It is very difficult to successfully replant new trees in established orchards. Factors limiting success include nematodes, root and light competition, inadequate irrigation frequency, and a general replant problem. Often new trees replace those killed by blackline and may become infected before they mature. Successful replants grow large enough to fill in the missing canopy area while bearing enough nuts to more than recover tree, planting, cultural harvesting, and labor costs. If you have been routinely replanting missing trees, take the time to observe the

orchard and ask yourself the following questions. How many trees have been replanted over the years? Have the replants grown well? Will they fill in the space left by the old trees? What has the replant program cost? Have the yields from replants justified the expenses? Is replanting a sustainable practice? Stop and think about your long-term orchard plan before replanting. It may be more profitable in the long run to replace entire sections of the orchard instead of individual trees. In contrast to mature orchards, replants often do well in young orchards.

Pruning

Mature walnuts can be pruned before leaf fall while it is easy to see dead and diseased wood. In addition, shredders can take care of the brush before winter rains limit orchard access. Hedging machines can be quite effective for side hedging in both hedgerow and conventional plantings and should also be used for topping young hedgerow trees to stimulate top growth where additional height is needed.

Branch Wilt

Check walnut orchards now for branch wilt infected limbs characterized by dry, brown adhering leaves that are easily seen in contrast to the surrounding healthy green canopy. In most cases, sunburn damage provides the injury needed for the fungus to enter the tree. The outer bark peels away from the wound in thin, papery strips that reveal sooty black spores underneath. Prune out infected limbs and burn as soon as possible to prevent further spread of the disease. Although branch wilt is typically limited to sunburned limbs, the fungus can also enter the trunk through cracks caused by deep bark canker and 2, 4-D injury. I have seen a number of orchards where the fungus entered the trunk and killed the trees. In a few cases, a significant number of trees were lost before the cause was identified.

Early Fall Coloration

As trees head into dormancy, a few may show their golden yellow fall coloration earlier than the rest. This indicates that the tree is under some sort of stress. Possibilities include severe shaker damage, crown gall, blackline, *Phytophthora* crown and root rot, and *Armillaria* oak root fungus infections. Water-stressed trees will show early yellowing and leaf loss beginning in the lower canopy. Water-stress related yellowing can be seen throughout an orchard or confined to areas with water penetration problems. If no obvious reason for early yellowing is found, mark affected trees and watch for delayed leafing, poor growth, off-color, and dieback next spring. The fall is also a good time to mark zinc deficient trees or areas for treatment next spring.

Mark Your Calendars

On November 3rd there will be a Shredder Demonstration Meeting. More information will follow in the next issue.

Best Regards,

Kathy Kelley Anderson

Kathy Kelley Anderson, Farm Advisor