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Newsletter of Olive Oil production and Evaluation

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Foliar Diseases on Olive Trees

By Paul Vossen

When the weather is wet, wet, wet,
That means leaf spot, leaf drop,
And poor fruit set.

That's the chorus to my new Country-Western song; now I just need a tune and the rest of the lyrics. Kidding aside, this is a warning, because I saw a lot of defoliated and half-defoliated trees in 2005.

Last year was a wet year, especially in the spring with numerous rainy periods right up to bloom. That was reflected in the number of orchards with significant Peacock Spot or Cercospora Leaf Spot causing defoliation and fruit set problems. Those diseases also carry over on fallen leaves and existing infections in the trees, starting off the new rainy season with lots of inoculum. It is critical to put on a protective spray as soon as possible after harvest and to strongly consider applying a second spray if we continue to have wet weather.

Fixed copper fungicide is still the only thing proven to work. The copper mineral prevents infection of the leaf by the germinating fungus spores when there is a protective coating on the whole leaf. The different brands and types (copper hydroxide, copper oxychloride, tribasic copper sulfate, and copper oxide) have been shown in various trials to work about the same. The most important factors are getting it on at the right time, mixing the correct concentration, and getting good coverage.

Covering all the leaves on both sides requires a high pressure sprayer in good working order. Following the directions on the label, a legal requirement, is important for control longevity. The ideal time for the first application would be before any major fall rains. This is a problem for oil producers because the fruit is usually still on the tree, so the compromise has been to apply it immediately after harvest.

High rainfall can cause severe peacock spot

The question arises, however, as to the need for additional late winter or early spring sprays to supplement disease suppression into April and May. There is no simple answer; no research that I have found anywhere indicates that a second spray either is or is not necessary. We do know, however, that fixed copper fungicides wear off over time, and that the more it rains, the less effective they are.

These are the points I use to determine if a second spray in late winter or early spring is warranted:

- Your trees had a high incidence of disease last year with significant defoliation
- Your orchard gets a lot of winter rainfall (> 30 inches/year)
- Your trees received significant rainfall before being sprayed in the fall or winter

So Many Weeds, So Little Time...

Weed control around young olive trees is absolutely critical. Orchards with inadequate weed control can take 2-3 times longer to reach full production compared to orchards with no weed competition. In an example comparing the influence of various types of orchard floor management treatments under trees, there was a 25-61% decrease in tree shoot growth and 25-45% decrease in trunk diameter when weeds were allowed to grow within 3' (1 m) of the trunks. Translating the growth rates of this experiment over to real olive orchards, means that it may take 16 to 32 years to get full sized trees instead of the normal 8 to 10 years.

Weeds not only remove water and nutrients from the same area as the foraging tree roots, but the physical competition between weed roots and tree roots also slows tree growth. Even when extra water and fertilizers are applied to the ground under the trees to offset what the weeds use, the trees don't grow as well. Good weed control is also one of the key factors in reducing alternate bearing in olives by eliminating as much competition for shoot growth as possible in the "on" years.

For non-organic growers, conventional herbicides have very specific known abilities to control certain weeds on certain soil types when used at labeled rates. Both pre-emergence and contact herbicides are more effective against certain weeds than others. See the University of California *(cont. on p.2)*

In this issue

Weeds growing through a wood chip mulch

European Olive Oil Prices on the Rise

Rain at flowering time and a summer drought resulted in a substantial drop in production for European olive oil. In Spain, the harvest was down 40%; in Italy, it was down about 50-60%. Drought in parts of Greece has also drastically reduced production there.

According to Darrell Corti of Corti Brothers market in Sacramento, the scarcity of fruit will force price increases all along the production system, affecting refined as well as virgin olive oil products. The price of rectified and pomace oil have gone up in price to over 2 euros/kilo. The Italian National Federation of Oil Traders (Federolio) predicts a 40% increase in all oil products from Italy.

(Source: Corti Bros. newsletter, fall 2005)

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University of California
Cooperative Extension
133 Aviation Blvd, Suite 109
Santa Rosa, CA 95403
707-565-2621
www.cesonoma.ucdavis.edu
Paul Vossen, Farm Advisor
Alexandra Kicenik Devarenne, Staff
Research Assoc. (Editing & Layout)

(Weeds, cont. from p.1) Integrated Pest Management (IPM) Guidelines section on weed control for more detailed information: *http://www.ipm.ucdavis.edu/PMG/selectnewpest.olives.html*. See side bar for specifics on some of the organic herbicides.

Mowing is not weed control

If the ground cover is green, it is still alive, stealing moisture and competing with olive tree roots. Just because it is shorter after being cut by a mower or chewed off by a grazing animal does not equate with removal of competition. New growth in olive trees can begin as early as January, and certainly by February and March, so for young trees, it is best to never have any weeds within 3′ of the tree trunks - ever. Calling it a cover crop does not make it any less of a weed, if it is competing with the olive trees.

Mulch comparison trial

Organic and fabric mulches were compared in a trial at the Santa Rosa Junior College super-high-density olive orchard over the last two years. The fabric mulch we used was Lumite weed cloth. It is a synthetic black fabric that allows water to pass through, but not light, and weeds will not grow through it. It is guaranteed for 5 years and some experimental orchards have gotten 10 years of useful life out of it. We applied it in a 3′ wide strip on each side of the tree row and pinned it down with 6″ wire hoop stakes. The cost of weed cloth for this orchard (rows spaced 12′ apart) was $1,480/acre, including wire staples and installation labor. This material controlled the weeds very well, but required some attention to weed removal immediately adjacent to the tree trunks.

The organic mulch was recycled yard waste. We applied it twice (once each year) with a side discharge mulch spreader 3-4″ deep in a 4′ wide band on top of the mowed weeds. The cost was $4,235/acre based on a material cost of $12/yd, plus delivery, and application with a rented spreader for $150/day. The cost alone is prohibitive for using organic mulch for weed control especially if it needs to be applied every year. It also didn't work that well; existing annual weeds grew through the mulch in several places.

—Paul Vossen

Organically Acceptable Herbicides: In recent years, several organic, contact-type herbicide products have appeared on the market. These include the clove oil products (Matran II produced by EcoSmart), and acetic acid/citric acid products, AllDown (produced by Summerset). These products will damage any green vegetation contacted including the leaves and young stems of olive trees, though they are safe if they are applied directly to woody stems and trunks. Because these herbicides only kill contacted tissue, good coverage is essential. Thus, adding an organically acceptable surfactant is recommended. Because these materials lack residual activity, repeat applications will be needed to control new flushes of weeds. The efficacy of all these materials is much less than synthetic herbicides. Food grade acetic acid (vinegar) is organically acceptable and when used as a soil supplement, controls small annual weeds. The higher the concentration of acetic acid, the better it works, although food grade typically is 8% acetic acid or less (pickling acetic acid is closer to 15%). Repeat treatments are often necessary as there is no residual activity. Generally, vegetation is sprayed to wet, which may require high volumes if weed density is high. Another organic herbicide that has appeared on the market in the last few years is corn gluten meal, which is sold under many trade names. It is expensive and has failed to provide even minimal weed control in the vast majority of California trials. Organic herbicides are expensive at this

When Life Gives You Olives, Make Olive Oil

By Alexandra Devarenne

Like many other California institutions, UC Davis has landscape olive trees. Lots of olive trees. Like two thousand olive trees. And these trees produce olives. *Lots* of olives. The yearly cost of maintaining these trees, primarily spraying them to prevent fruit set and then cleaning up and disposing of the fruit that sets anyway, is about $60,000. And that cost does not include the costs, both tangible and intangible, that result from people slipping on fallen olives on the bike path.

Sal Genito, Director of Buildings and Grounds for the UC Davis campus, has been responsible for the care of the olive trees for the past twelve years. A second generation Italian-American, Sal was the right man in the right place to come up with an innovative solution to this ongoing olive issue. Got olives? Make olive oil!

The eureka moment came in late November of 2004 while Sal was visiting the scene of one of the bike path wipe outs caused by the combination of rain and squashed olives. As he stood on the athletic field on Russell Blvd, he was struck by the smell of... olive oil. "When life gives you lemons..." he thought, and the UC Davis olive oil project was born.

With back-up from the Associate Vice Chancellor for Facilities, Operations and Maintenance, Maurice Hollman, Sal forged on with an experimental pressing in December of 2004 and another run in January of 2005.

They produced about 100 gallons, of four different types: Ascolano, Mission, Koroneiki, and the Wolfskill blend. Their first release was rewarded with two gold medals at the Yolo County Fair. The oil had its public debut at Picnic Day 2005, a UC Davis event that draws thousands of visitors to campus. People lined up in great numbers to taste the oils, which were enthusiastically received.

The campus olive trees are mostly Mission, Ascolano and Manzanillo, with a healthy smattering of other varieties. The oldest trees, a couple of Missions that once stood next to the Jerome Davis ranch house, date back to 1855. Dan Flynn, the Olive Program Manager at UCD, estimates that the majority of the trees are at least 70 years old.

The Pomology Department's Wolfskill Experimental Orchard is home to another collection of olive trees, some dating back to 1860. The Wolfskill trees are about 75% Mission and 25% a mix of Late Blanquette, Rubra, Meski, Zarazi, Barouni, Meslale, Gigante di Cerignola, Leccino, Lucca, Criolla, Sevillano and Manzanillo.

The UC Grounds crew harvests using a tractor mounted Verdegiglio shaker that they purchased used from an olive grower. On the occasions when the shaker was in the shop, the crew used the time-honored "whack-em-with-a-rake" approach to get the olives down onto tarps. There is great attention paid to harvest timing and swift processing; Flynn figures they made fifteen trips to Butte View Olive Company for pressing in the 2005-06 season. In this second year of the project they produced about 400 gallons.

Harvester mounted on a tractor shakes olives onto tarps

The care exercised by Genito and company in the production of their oil definitely shows. In an informal tasting, five of the six oils tasted were graded good or excellent by all the tasters. The sixth, a Koroneiki, was deemed a bit too green, but still ranked above average and without defects. The Wolfskill blend this year is a silky blend of fairly

ripe Mission and the Heinz 57 mix of other varieties from the experimental orchard. The result is a wonderful mild oil, ripe but with much more complexity and depth in the fruit than one usually finds in later harvest oils.

This year, the plan is to market a second blend, called Gunrock after the UC Davis mustang mascot (in case you're not up on your UC Davis history, Gun Rock was a real horse, related to Man O' War, who was brought to the Davis farm in the 1920's, as breeding stock for the cavalry). Paul Vossen will create a blend chosen from the various single oils the campus trees have produced. The remainder of the oil will be sold as single varietals.

Genito is emphatic that they not compete with other California producers, so the Davis oil will be sold only through UCD venues such as the bookstore, Picnic Day and the alumni website. Sal sees the olive oil as an opportunity to support and advance the California olive oil industry as well as to create something Aggies can be proud of (send as gifts, bring to tailgate parties... lots of possibilities). Proceeds from the oil will be reinvested in olive oil research and education.

The UC Davis Olive Project is an inspiring story of garbage to gold. The project will not only save the university the $60,000 in olive management, but will net in the vicinity of $25,000 this year. And that is not factoring in the risk avoidance from slippery olive accidents. It is a brilliant example of sustainability in action; they are simultaneously reducing the waste stream, generating revenue, and producing a healthful, delicious food. Well done, all!

Upcoming Educational Events

Sensory Evaluation of Olive Oil–Mar. 10 & 11, 2006 at UC Davis
For info or to register: www.extension.ucdavis.edu or call 800-752-0881

Olive Grower's Meeting–April 4, 2006 in Hollister
For information, call Bill Coates, Farm Advisor, 831-637-5346

Olive Pruning Demonstration, Sonoma Valley–April 29, 2006
For info and reservations, call Vivian at 707-565-2303. Space is limited.

Olive Fly Control Update

GF-120 Gets New Section 18

Applying bait spray in a commercial orchard

Bait spray available to homeowners

For the first time, GF-120 will be available to non-commercial olive growers. Under a new Section 18 emergency exemption, homeowners will be allowed to purchase the product for use on backyard trees from which fruit will be harvested for their own use. The previous Sec. 18, which expired on Dec. 5, 2005, limited the use of GF-120 on olives to commercial growers.

In order to use GF-120, a homeowner will have to hold a Private Applicator's Certificate (PAC), obtain a permit from their county Agricultural Commissioner's office, submit Notices of Intent and report their use of the product.

The PAC is free, but requires that you take a test on pesticide safety. There is a study guide, *Pesticide Safety: A Reference Manual for Private Applicators* (pub. #3383), available for $7 from most Cooperative Extension offices or directly from ANR Publications (800-994-8849 or http://anrcatalog.ucdavis.edu). Call the Agricultural Commissioner's office for more information, clarification or to make an appointment.

Plan now for control

This is an excellent time to review your control options. The handout "Olive Fruit Fly" http:/ cesonoma.ucdavis.edu/hortic/pdf/olive_fruit_fly_info.pdf on this website will give you an overview of the various methods available. There will be a new set of official UC guidelines available around March; those will be posted here as well. Just in case you haven't checked it out recently, the "UC Pest Management Guidelines for Olives" deserves a bookmark on your web browser. Go to http://www.ipm.ucdavis.edu/PMG/selectnewpest.olives.html for a wealth of information on pest identification, monitoring and treatment.

Monitoring for the olive fly in the late winter and early spring can give you an idea of the level of activity. This can help you time a prophylactic bait spray or just give you a notion of what to expect. You might want to get those traps ready soon: forewarned is forearmed.

–Alexandra Devarenne

Olive Oil Production Seminars at the Yolo County Fair

UCCE Farm Advisor Paul Vossen will present seminars on producing olive oil in California at the Yolo County Fair. Yolo County began its olive oil competition and education program in 2005, offering classes in olive oil appreciation before and after the olive oil judging at the fair. This year the judging will take place in March, but the fair educational programs will still be offered during the run of the fair, August 16-20. For information call (530) 662-5393 or www.yolocountyfair.net.