December 2000

Olive Notes

Mark Your Calendar to Attend California Olive Day

The 2001 California Olive Day will again be held in conjunction with the California League of Food Processors' convention in Sacramento, 6 February. The venue not only allows growers to attend Olive Day but also to attend the convention where numerous olive displays and "tastings" will be available. The agenda and arrangements for transportation will be published in the January issue of "Olive Notes."

Olive Knot Control

Olive knot is a bacterial disease caused by *Pseudomonas savastanoi.* The organism, spread through the tree in rainwater (degree of infection can be associated with amount of rainfall), can only enter the tree through wounds, commonly leaf scars, frost cracks, pruning wounds, etc. Once leaves fall, the scar remains susceptible to infection for 7-10 days. Thus, trees at most risk are those with numerous entry points during periods when a high probability of rain exists.

Initial infection develops a small cavity as the immediate cells collapse. Then, once tree growth begins in spring, a proliferation of tissue develops at the periphery of this cavity resulting in the "knot" or gall associated with the disease. The knots reduce production by causing defoliation and killing fruitwood. Infections have also been noted to be associated with reduced fruit size and oil content. Off flavors in fruit have been associated with olive knot infected trees. Of the commercially grown varieties, "Manzanillo" is the most susceptible.

Olive knot control involves pruning in summer to remove inoculum (knots in the trees) and tree protection with copper containing bactericides prior to and during the rainy season (copper is the only material registered for control of olive knot). It needs to be emphasized, the strategy is one of "protection" not of eradication. Coppers protect openings in the plant from being infected; they do not eradicate existing knots. Here are answers to frequently asked questions that will hopefully improve efficacy of your copper protectant program:

1. At what tree age should treatment begin?

The olive knot bacterium exists throughout the olive growing districts of California. Because infection does not discriminate by tree age, a judicious strategy is to begin annual protection the first fall following planting. Note young trees are especially susceptible to freeze injury. Freeze injury results in numerous bark cracks for the infection by the olive knot bacterium; so, copper is especially advisable for young trees to minimize buildup of inoculum for future infections (see below for follow-up treatments).

2. What time of year should copper treatments be initiated?

The olive knot bacterium is spread from existing knots to openings in the tree by rainfall. It is important to have an application of copper on the tree prior to winter rains. Note copper applied prior to winter rain

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is also the most effective treatment for peacock spot control.

3. Are multiple treatments recommended for olive knot control?

Yes! Recent experiments conclude that "the single fall application of copper is inadequate to completely control olive knot; at least two, one in fall and one in early spring, are needed for protection." So, plan on another application in late March or early April in infected orchards.

4. Does copper need to be applied every year?

Absolutely! Copper can only protect your trees from infection. Degree of protection depends largely upon level of inoculum present during infection periods. So, the best strategy is to keep inoculum levels low. Annual copper treatments are very important to minimize inoculum levels so that when conditions are optimal for infection (e.g., following a freeze) an epidemic does not occur. It is important to note that in experiments where high olive knot inoculum levels existed, minimal olive knot protection with copper occurred.

5. Should I also spray after a damaging freeze?

Yes! If temperatures fall into the low 20's, bark damage (splits) can be expected. These are ideal sites for olive knot infection and should be protected with copper. Once olive knot gets started in freeze injuries, inoculum levels get so high it becomes very difficult to control.

6. What copper is the best?

Experiments conducted in the northern olive growing district with Kocide, Nordox, Bordeaux and Tribasic copper sulfate did not detect differences in efficacy between these materials for olive knot control. The important thing is to use a labeled copper and time it correctly (see below), and not worry much about which one. Note similar results were measured for peacock spot control between Nordox, Bordeaux, and Kocide. Experiments were not conducted with Tribasic copper for peacock spot control.

7. What about additives to the copper?

No! Additives (surfactants, etc.) have not improved efficacy of copper for olive knot control.

8. Is summer pruning of infected branches still recommended?

Pruning out inoculum after the rainy season makes sense. However, it will be most effective when only small amounts of infection exist - this will essentially remove inoculum from the orchard. In heavily infected groves, fine pruning to remove inoculum is not feasible. Here, a possible strategy would be heavier limb pruning on all or part of the trees with the idea of generating new, healthy shoot growth for subsequent cropping. Of course, substantial attention to protectant copper sprays is needed with this approach to prevent infection of the new growth.

Should I Be Pruning Now?

Although it seems like fall should be the best time to prune olives, it's the worst. Think about these before you prune:

- **Freeze sensitivity:** The olive tree's canopy, that you developed over the previous summer, provides substantial protection to shoots and small branches from freezing temperatures. Pruning to thin out the canopy now largely eliminates that protection; pruned olive trees in past freezes have been much more severely damaged than those unpruned. Freeze damaged trees often become heavily infected with olive knot that is extremely difficult to control.

- **Managing Crop Size:** Pruning is an excellent tool for managing crop size (especially important if crop thinning won't be considered). So, it's best to wait until spring when the size of the developing bloom can be assessed, then adjust severity of pruning to avoid overcropping. Remember, pruning is not a substitute for thinning; pruning does eliminate some crop and stimulates new shoots for cropping the following season to stabilize crops. Its effect on improving fruit size, however, is minimal because it does not improve the leaf:fruit ratio - both leaves and fruit are removed with pruning.

- **Olive Knot:** Pruning prior to or during the rainy period opens up wounds for infection by the olive knot bacterium. Rains move the bacteria around in the tree and if wounds are available, infection occurs.

Olive Fly Meetings

Watch for olive fly meetings coming up. Two olive fly information meetings jointly sponsored by the California Department of Food and Agriculture, University of California, and the California Olive Committee (COC) will be scheduled for 24 January in the southern district and 25 January in the north. Watch for a COC announcement with location and agenda for these meetings the first part of January.

Fall Weed Control

Residual, preemergence herbicides need to be applied to olives in October and November before winter weeds germinate. If applied late, following weed germination and growth, a contact herbicide needs to be included as a "knock-down." The 2000 Herbicide Label Status for Olives is located below.

2000 Herbicide Label Status for Olive

Preemergence		Postemergence	
Devrinol	R	Gramoxone	R
Karmex	R	Fusilade	NB
Simazine	R	Poast	NB
Surflan	R		

R = registered; NB = registered in nonbearing orchards and vineyards only.

NOTE, THIS IS INTENDED AS A GENERAL GUIDE ONLY! BEFORE USE OF ANY HERBICIDE CONSULT THE LABEL CAREFULLY. LABELS CHANGE FREQUENTLY AND OFTEN CONTAIN SPECIAL RESTRICTIONS REGARDING SPECIFIC USE OF A COMPANY'S PRODUCT.

Sibbett to Retire 1 February 2001

Yep, after 35+ years with U.C. Cooperative Extension in Tulare Co. (beginning in 1965 when our office was in the basement of the downtown post office) it's time to concentrate on those activities I enjoy most - including finishing up several projects and continuing to work privately in agriculture, particularly nut crops and olives.

Its been a "good run" - fun too. I've truly enjoyed the growers I've worked with, especially those that have cooperated in our local research projects that have produced the advancements improving nut crop production and quality (and hopefully profit too) statewide. The best research cooperators in the state reside in Tulare Co. - the rest of the state benefits from their commitment to improve nut crop production and quality. It has also been gratifying to see our local industry implement profitable cultural changes brought about via the educational efforts U.C. Cooperative Extension in Tulare Co. has developed over the years. We still don't know all of the answers, but certainly we have found and implemented a few during my tenure here.