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Olive Notes

SPRING RAINFALL NECESSITATES A WATCH FOR OLIVE KNOT

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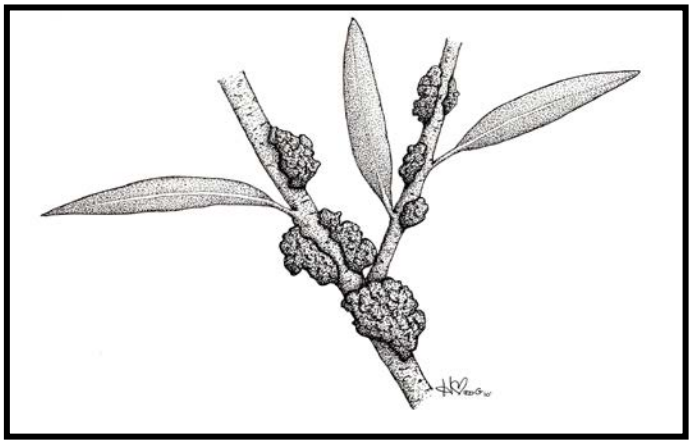
After several drought years with few spring rainfall events, the more "typical" spring rains observed in 2010 may serve as a reminder to protect plants from olive knot. Olive knot is caused by *Pseudomonas savastonoi* (formerly called *Pseudomonas syringae pv. savastonoi*), a bacterium that persists on tree surfaces (ie. epiphytically). Olive knot may girdle and kill infected twigs and branches, and severe infestations may affect yield and quality of fruit.

Disease Cycle

Though the bacterium may be present throughout an orchard, it can only incite disease after passively entering the host through wounds or leaf scars. Disease transmission is linked to rain events which stimulate growth of the bacterial population and facilitates movement of the pathogen to points of plant entry. Spring rains are particularly conducive to disease development partly because a large percentage of leaves abscise between May and June, leaving leaf scars susceptible to pathogen entry. Leaf scars are most susceptible to infection within two days after a rain event, but may remain susceptible for seven days after a rain event.



Once the olive knot bacterium infects the plant, it produces plant growth hormones IAA and cytokinins) which stimulate tissue proliferation resulting in a gall or "knot" (Fig. 2). Recent studies demonstrate that the bacterium can be transported within the plant through xylem vessels, resulting in "secondary" knots along the stem. This new information underscores the importance of preventing initial infections by managing populations of the pathogen on the plant's exterior. Once the bacterium is in the plant, surface sprays will not ameliorate disease. Sprays are preventative and not curative!

Management

Presently there are two tools used for managing olive knot: sanitation and copper sprays. Removal of galled tissue from trees will reduce the population of the olive knot bacterium in the orchard. When pruning infected tissue from trees, surface sterilize pruning tools to prevent pathogen transmission. Remember that the bacterium requires an opening in the plant for entry and pruning wounds provide points of entry for the pathogen. Pruning during the dry season (July-August) will reduce the likelihood of promoting new infections.

While disease incidence is positively correlated with spring rainfall events and heightened pathogen populations, prophylactic copper sprays should be applied both post-harvest and in the spring (March-May). A minimum of two copper sprays per season are required for disease management, but orchards with historically high disease pressure may require a third application. Additionally, recent studies have suggested that younger trees (1 year old) are more susceptible than older trees (3 year old); consequently, protection of new plantings is advisable, particularly during El Nino-style weather patterns. For more information on olive knot and other diseases and pests, visit UC IPM Online: www.ipm.ucdavis.edu.

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SSJV Olive Day: Thursday, April 29, 2010

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