University of California
Agriculture and Natural Resources
Cooperative Extension Glenn County

Olive News

May 2015

In this issue:

Submitted by:

Dani Lightle,

UCCE Advisor

Sacramento Valley Olive Field Day

Tuesday, June 9, 2015

9:30 a.m. to 12:30 p.m.

Location: Erick Nielsen Enterprises, 4453 County Rd O, Orland

Agenda

9:30 a.m.	Welcome
9:35	Laws and Regulations Update *Doug Compton, Assistant Ag. Commissioner, Tehama Co.*
10:05	Managing Glyphosate Resistant Weeds *Brad Hanson, Cooperative Extension Weed Specialist, UC Davis*
10:35	Break
10:50	Olive Knot - Research Update on New Control Options *Jim Adaskaveg, Plant Pathologist, UC Riverside*
11:20	Olive Fly - What's the Hold-up on New Materials? *Dani Lightle, UCCE Farm Advisor, Glenn, Butte & Tehama Cos.*
11:50	Lunch

Sponsored by: Musco Family Olives
Bell-Carter Olives

If you would like lunch, **please RSVP** to the Glenn County Cooperative Extension Office at 865-1107.

2 hours of CE credits have been applied for (0.5 hours Laws, 1.5 hours Other)

Olive Quick Decline in Italy is associated with unique strain of *Xylella fastidiosa*

Elizabeth Fichtner, UCCE Tulare County
Dani Lightle, UCCE Glenn, Tehama, and Butte Counties
Rodrigo Krugner, USDA ARS, San Joaquin Valley Agricultural Sciences Center, Parlier

Olive quick decline syndrome (OQDS) is a destructive new disease currently affecting approximately 20,000 acres of olive in southern Italy—an area approximately the size of table olive production in California. Symptoms of OQDS include extensive branch and twig dieback, yellow and brown lesions on leaf tips and margins, vascular discoloration, and subsequent tree mortality (Figure 1). Similar symptoms have been observed in olives in California, but disease incidence appears to be low when compared to Italy. The causal agent(s) of the disease is still unknown. A number of organisms, including fungi and a bacterium, have been isolated from sick trees in Italy and California. The bacterium *Xylella fastidiosa* has been found to infect olive trees in both locations. To date, only strains belonging to *X. fastidiosa* subspecies *multiplex* have been isolated from olives in California. These California strains have limited association with the disease and experimental infections did not cause disease in olive varieties commonly cultivated in California. In Italy, recent publications indicate that strains of the bacterium isolated from the outbreak area are closely related to *X. fastidiosa* subspecies *pauca*, a subspecies group not known to occur in the United States. The OQDS outbreak in Italy marks the first report of the bacterium in the European Union. Research is underway in Italy to evaluate the role of the bacterium in OQDS.

Figure 1. Symptoms of olive quick decline syndrome in Italy include canopy dieback (A), leaf scorch (B), and branch dieback (C). Photos: R. Krugner, USDA-ARS.

What are the *pauca*, *fastidiosa*, and *multiplex* subspecies?

Strains of the *pauca* subspecies are known to cause citrus variegated chlorosis, a serious disease of citrus reported in Brazil and Argentina. In California, *X. fastidiosa* subspecies *fastidiosa* causes Pierce's Disease on grapevine as well as scorch on almond, whereas *X. fastidiosa* subspecies *multiplex* infects almond but not grapevine. Strains of *fastidiosa* and *multiplex* subspecies do not affect citrus in the United States. Knowledge of the subspecies present in different cropping systems is important because the relative risk to other crops in the landscape depends on the host range of the *X. fastidiosa* subspecies present.

What are the implications of OQDS for California olives?

Olives can be a host for *X. fastidiosa* strains belonging to three subspecies groups: *pauca* in Italy and *multiplex* and *fastidiosa* in California. In addition, species of fungi associated with OQDS are not currently known to occur in California. Therefore, olive growers and landscape managers should report new incidences of extensive dieback or scorch on olives to farm advisors to facilitate early detection of potential pathogen introductions. International movement of plants and plant materials assures a constant flux of organisms across borders, necessitating constant awareness of global trends in pathogen and vector establishment.

Select References

Cariddi, C., Saponari, M. D. Boscia, M.D., De Stradis, A., Loconsole, G., Nigro,F., Porcelli, F., Potere, O., Martelli, G.P. 2014. Isolation of a *Xylella fastidiosa* strain infecting olive and oleander in Apulia, Italy. Journal of Plant Pathology 96:1-5.

Elbeaino, T., Valentini, F., Abou Kubaa, R., Moubarak, P., Yaseen, T. Digiaro, M. 2014. Multilocus sequence typing of *Xylella fastidiosa* isolated from olive affected by "olive quick decline syndrome" in Italy. Phytopathologica Mediterranea. 53:533-542.

Janse, J.D., and Obradovic, A. 2010. *Xylella fastidiosa*: Its biology, diagnosis, control and risks. Journal of Plant Pathology 92: S1.35-S1.48.

Krugner, R., Sisterson, M.S., Chen, J., Stenger, D.C., Johnson, M.W. 2014. Evaluation of olive as a host of *Xylella fastidiosa* and associated sharpshooter vectors. Plant Disease. 98*:* 1186-1193.

What Values Should Olive Growers Use for Estimating Crop N Removal at Harvest?

Elizabeth J. Fichtner, Farm Advisor, UCCE Tulare County

With the implementation of the Irrigated Lands Regulatory Program, olive growers have expressed interest in gaining a more comprehensive understanding of the amount of nitrogen (N) removed by the crop at harvest. There are two components to estimating the quantity of N removed at harvest: 1) the size of the crop, and 2) the amount of N incorporated in the fruit.

Distribution of nitrogen in the olive tree. Leaves are the largest N sink of the olive tree. Approximately 44% of the tree's above ground N is incorporated in the foliage. The twigs, secondary branches, main branches, and trunk account for approximately 33% of the N stored in the aboveground portion of the tree. Last, the fruit account for around 23% of the above ground N, with close to 19% incorporated in the flesh. These estimates are based on research published in Scientia Horticulturae (Rodrigues, et al.) (Figure 1). The published data was gathered from a dry-farmed *Olea europaea* cv. Cobrancosa orchard in north-eastern Portugal.

Interestingly, the estimated N-removal rates in fruit from the test-orchard in Portugal are similar to values estimated by Rosecrance and Krueger for three oil olive cultivars in California. An estimate of N removal from the dryland crop in Portugal is 8.23 lbs N/ton fruit; similar estimates for irrigated Arbosana, Arbequina, and Koroniki in California are 6.30, 6.81, and 7.45 lbs N/ ton fruit, respectively. The main consideration when

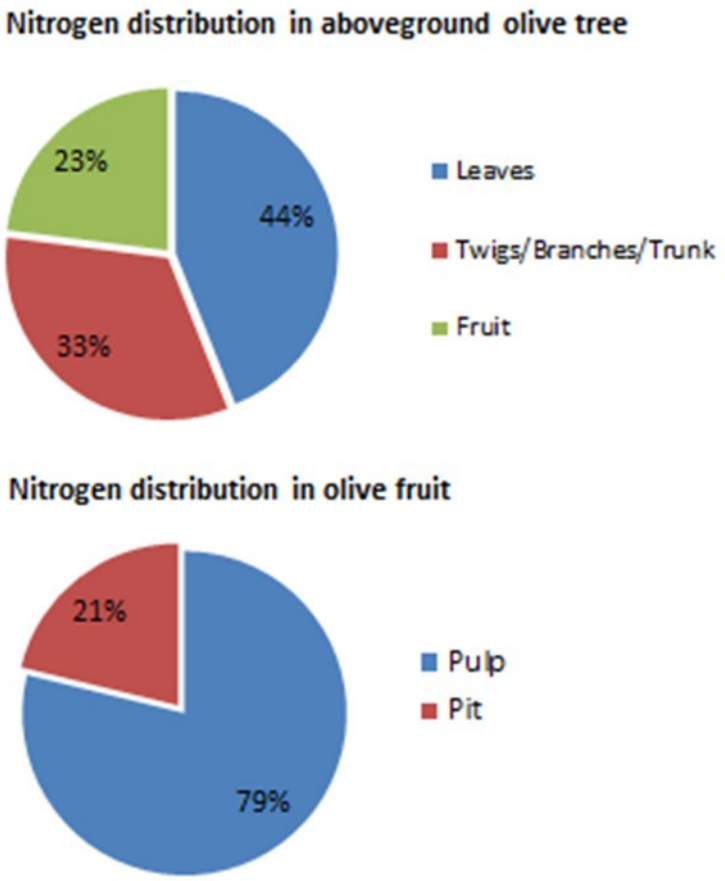

Figure 1. Pie charts illustrate estimates of distribution of nitrogen in the aboveground portion of the olive tree and the fruit. Data were gathered from Rodrigues, et al., based on studies conducted in a rainfed orchard of *Olea europaea* cv. Cobrancosa in northeast Portugal.

comparing crop N removal between the dryland and irrigated systems is the anticipated yield. For example, the test-orchard in Portugal had an anticipated average annual yield of 1.11 tons/ acre; both table and olive oil growers in the central valley anticipate an annual average yield of 5 tons/acre. Although anticipated N removal per ton of fruit may be similar in irrigated vs. dryland systems, the N-use efficiency (NUE) will likely vary considerably between systems. In dryland systems, NUE is estimated at 50-75%; however, the N is applied near the conclusion of the winter/spring rainy season, ensuring less N loss due to leaching. I've heard grower reports of N use ranging from 50 lbs/ acre to 90 lbs/acre in California olive orchards. If we assume a crop removal rate of 35 lbs N/ acre (5 ton/acre x 7 lbs N/ton), then NUE's may range from around 39%-70% in irrigated, California olive systems.

Timing of fruit demand for nitrogen. Fruit is only an important N sink during the initial phase of growth. As fruit size increases, the N concentration decreases (Fernández-Escobar et al., 2011). In fact, the pulp is a higher sink for all nutrients than the pit (Rodrigues, et al).

Summary. Estimated N removal by the crop at harvest will likely range from 6.3-8.2 lbs N/ ton. To estimate the total N removed per acre, simply multiply the total tons/acre by a reasonable estimate of lbs N/ton (ie. 7.2 lbs N/ton). Alternately, oil growers in CA may prefer using the online 'Olive Calculator' tool produced by Richard Rosecrance, Professor, CSU Chico and Bill Krueger, Emeritus Farm Advisor, Glenn and Tehama Counties. The 'Olive Calculator' website can be accessed at the following URL: http://www.csuchico.edu/~rrosecrance/Model/OliveCalculator/OliveCalculator.html .

The 'Olive Calculator' website additionally addresses the total suite of nutrients lost from the orchard at harvest and allows growers to access estimates from each of three cultivars: Arbosana, Koroniki, and Arbequina.

Select References:

Fernández-Escobar, R., Garcia-Novelo, J.M., Restrepo-Díaz, H., 2011. Mobilization of nitrogen in the olive bearing shoots and after foliar application of urea. Scientia Horticulturae 127:452–454.

Irrigated Lands Regulatory Program: http://www.swrcb.ca.gov/water_issues/programs/agriculture/

Olive Calculator: http://www.csuchico.edu/~rrosecrance/Model/OliveCalculator/OliveCalculator.html

Rodrigues, M.A., Isabel Q. Ferreira, I.Q., Claro, A.M., Arrobas, M. 2012. Fertilizer recommendations for olive based upon nutrients removed in crop and pruning. Scientia Horticulturae 142:205-211.

UC Davis Olive Center: Sensory Evaluation of Olive Oil Certificate Courses

The UC Davis Olive Center at the Robert Mondavi Institute in Davis, CA will be offering two courses designed for the professional olive oil buyer, importer, category manager, producer, or anyone interested in gaining expertise in evaluating olive oil. Sensory, culinary, chemistry and policy experts will guide attendees through a unique tasting and educational odyssey. Those who attend both courses will have had the Master experience—having tasted over 100 olive oils from around the world!

Sensory Evaluation of Olive Oil I: June 15-16, 2015
Sensory Evaluation of Olive Oil II: June 17-19, 2015

Where: Silverado Vineyards Sensory Theater, Robert Mondavi Institute for Wine and Food Science, 392 Old Davis Rd., Davis, CA 95616-8571.

Course Descriptions

Sensory Evaluation of Olive Oil I: Designed for the beginning or experienced taster. Attendees receive a booklet with presentations, and a flash drive with presentations and supplemental materials. Attendees will have the opportunity to evaluate more than 40 oils, review positive attributes and common defects, learn the science of tasting from a sensory scientist, understand strengths and weaknesses of standards, and taste the influence of harvest and processing variables on sensory quality. The course will also offer state-of-the art uses for olive oil in the kitchen.

Sensory Evaluation of Olive Oil II: (Prerequisite- attendance of Sensory Evaluation of Olive Oil I or similar). Attendees receive the *Olive Oil Defects Wheel*, a booklet with presentations, and a flash drive with presentations and supplemental materials. Participants will evaluate more than 60 oils and receive the training of an olive oil sensory panel member, with the opportunity to obtain instant feedback on one's comparison with other tasters (bring your laptop or tablet). Attendees will receive advanced discussion of sensory principles and experience world tours of olive oil from Spain, Italy, Greece, and the New World. An exercise in olive oil blending and a cooking demonstration with advanced olive oil food pairings will be included. Those attending both courses will receive a Master Certificate.

Registration

For more information and registration, visit the UC Davis Olive Center website:
http://olivecenter.ucdavis.edu/

Sacramento Valley Olive Field Day

June 9, 2015

9:30 a.m. to 12:30 p.m.

Location: Erick Nielsen Enterprises, 4453 County Rd O, Orland

Agenda included inside!

Nonprofit Organization
U. S. Postage Paid
Orland, CA 95963
Permit No. 63

Glenn County
Cooperative Extension
P. O. Box 697
Orland, CA 95963