

## **Fall Citrus Meeting**

Thursday, October 3, 2013

9:00 A.M. – 12:00 P.M.

Tulare County Agricultural Building  
4437 South Laspina Street, Tulare

- 9:00**                    **Biological Control of Asian Citrus Psyllid**  
*Dr. Mark Hoddle, University of California Riverside*
- 9:30**                    **Effect of Microsprinkler Location in Citrus**  
*Neil O'Connell, Cooperative Extension Tulare County*
- 10:00**                   **Break**
- 10:30**                   **Concepts in Frost Protection**  
*Dr. Richard Snyder, University of California Davis*
- 11:00**                   **HLB Distribution and Research Approaches**  
*Dr. MaryLou Polek, Citrus Research Board*
- 11:30**                   **Proposed Regional Water Quality Control Board General  
Order Requirements**  
*David DeGroot, 4 Creeks, Inc.*

**Continuing Education Credit Has Been Requested**

### **Gumming/Dieback**

Dieback of immature shoots with associated gumming was observed during the first half of August. Leaf drop was associated with the dieback on affected shoots (fig.1). Reports of this condition in California have been reported for many years. Typically this dieback is observed at the end of a period of hot, dry conditions. In reviewing temperatures this summer and comparing them to the last five years some relevant points emerge. The average maximum daytime temperature for the past five years for the month of May was 82.4, June 90.3, July 97.3. For the same months this year May was 84.7, June was 93.9, and July 99.6. In each month the average maximum daily temperature this year exceeded the five-year average for the corresponding month. Investigations of this condition in the past failed to connect it to the presence of a pathogen.

### **Fuller Rose Beetle**

Because the adult fuller rose beetle is not able to fly it must gain access to the tree canopy by climbing up the skirt or trunk of the tree. Pruning the tree skirts removes one major means of access; however, it does not prevent access by another means. A cultural operation that is critical for the skirting operation to be successful is elimination of weed growth that comes in contact with the canopy. In examining trees in orchards with the trees skirted, it is not uncommon to find trees with weed growth in contact with the canopy (fig.2). Fuller rose beetle adults emerging from the soil will readily use this means to gain access to the tree providing the opportunity for egg laying. At the time that the decision is made to skirt the trees, the decision should also be made to eliminate weed growth in contact with the tree canopies. After the trees are skirted, the trees should be checked periodically to ensure that the skirts are not in contact with the soil due to growth and additional weight of the developing fruit.

### **The Nutritional Program for Your Orchard**

Well-timed tissue analysis provides the current level of the various nutritional elements in the tree and how the tree has responded to previous fertilizer application. Maintaining all nutrients in the recommended optimum range is the goal. Tissue levels should be interpreted in light of the amount of fruit produced as well as the quality and sizes of fruit produced. Reports from the packing house will provide information on field boxes produced as well as size distribution and quality (grade). From this

information, goals can be established for the orchard's fertilizer program. One other factor is essential in establishing these goals. Knowledge of the possible effect on production and fruit quality from increasing the level of various elements in the tree should be part of the management decision. Increasing the level of a nutrient can have impacts on production as well as quality such as rind texture, peel thickness, time to reach 8:1 solids to acid ratio. In general, if all the nutrient levels are in the recommended optimum range, only nitrogen, phosphorous and potassium will have significant effects on quality and size. Records of previously applied fertilizer (what, how much and when) will also be helpful, particularly when reviewed in relation to crop load, fruit size and quality. Maintaining all nutrients in the recommended optimum range is the first goal. Adjustment in nutrient levels based upon type and quantity of fertilizer to be applied can then be made if desired. Establishing goals for the nutritional program is helpful in maintaining focus on critical issues such as yield, fruit size, quality, and market requirements.

The leaf analysis can indicate if nitrogen is in the excess range suggesting a reduction in amount to be applied next year is in order. If all nitrogen is applied to the soil through fertigation, reduction in quantity applied not only has a cost saving potential but a protection of groundwater through reduction of material that might potentially be leached to groundwater.

### **Leaf Sampling and HLB**

While taking a leaf sample for tissue analysis the individual taking the sample can observe many of the tree canopies in the orchard. As the individual collects the sample, they have the opportunity to detect unusual leaf patterns on a tree. The unusual/atypical leaf coloration shown below, a symptom of a tree infected with HLB (citrus greening disease) might be detected during the sampling. (Visit Tulare Cooperative Extension website - Citrus Notes to see color photos below at: <http://cetulare.ucanr.edu> ).

### **HLB Symptoms and Disease Cycle:**

The early symptom of the disease is a blotchy, yellow, asymmetric mottling of the leaves that crosses leaf veins (fig. 3, 4). This leaf symptom is different from nutritional disorders in citrus which are more often vein-delimited and tend to be more symmetric in their pattern. The yellow mottling of the foliage gives rise to the development of yellow shoots on single random branches (nutritional disorders generally show more uniform symptom distribution in trees). Progressive yellowing of greater portions of the canopy follows. Huanglongbing bacteria do not cause foliar wilting such as that observed in trees infected by other citrus pathogens. More advanced symptoms include twig dieback, stunting and decline in the tree's health to the point where the tree bears only a few, small, deformed (lop-sided) fruits that are poorly colored and bitter tasting. Tree mortality usually occurs several months to years after infection.

\*Taken from California Department of Food and Agriculture website.



Fig. 3 HLB symptom



Fig. 4 HLB symptom



Fig. 1 dieback with gumming



Fig. 2 fuller rose beetle access

University of California  
Cooperative Extension  
Tulare County  
4437B S Laspina St  
Tulare, CA 93274-9537

Nonprofit Org  
US Postage Paid  
Visalia, CA 93277  
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# *Citrus Notes*

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Neil O'Connell  
Farm Advisor

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