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University of California Cooperative Extension • Tulare County

# Citrus Notes



Volume 4, Issue 3

September 2007

## Fall Citrus Meeting

Thursday, October 18

9:00 to 11:00 A.M.

Tulare County Agricultural Building  
4437 South Laspina Street, Tulare

- 9:00 A.M.**      **Frost Protection Concepts**  
*Dr. Richard Snyder, University of California, Davis*
- 9:30**            **Progress Report on Varietal Fruit Quality**  
*Dr. Tracy Kahn, University of California, Riverside*
- 10:00**          **Influence of Grove and Packinghouse Handling on Postharvest  
Fruit Diseases and Disorders**  
*Dr. Joseph Smilanik, ARS, Parlier*
- 10:30**          **Plants and Air Quality**  
*Dr. John Karlik, UC Cooperative Extension, Kern County*

*One hour of continuing education has been requested*

## **Satsuma Decline**

Decline in some first year Satsuma mandarin trees was observed during early August, with some trees totally collapsing. Affected trees exhibited wilt, dieback, with some collapsing within a few days. Examination of the trees showed a superficial discoloration of bark tissue which in some instances completely encircled the trunk. An examination of the affected trees revealed discoloration into the woody tissue. Instances of collapse of young Satsuma trees have been observed in various county locations in the past. Generally, affected trees are in their first year; however, in some cases additional trees in an orchard have collapsed in the second year. Symptoms have been similar in all cases, with discoloration of tissue on the trunk under the tree wrap. Upon removal of the wrap, the location of the affected tissue varied from tree to tree, in some cases located near the bud union, in others between the bud union and the top of the wrap. Generally, symptoms have been observed following high summer temperatures. It appears that with dark wraps under high daytime temperatures, critical temperatures are reached in some areas under the wrap resulting in tissue damage. Depending upon the location and severity of the damage, wilt and dieback may occur, or in the more severe cases, total collapse of the tree may result. Removal of the wraps and replacement with white cardboard wraps has proved helpful. These replacement wraps may not offer as much frost protection, so the original wrap should be replaced before the arrival of cold weather.

## **Some Considerations in Use of Gib:**

Oranges go through three stages in their development: Stage I or the period of cell division includes the period of flowering and formation of various tissues in the small fruit; Stage II is the period of rapid cell and fruit enlargement; Stage III is the period of maturation during which there is a reduced rate of enlargement and changes in composition, where there is a change in constituents, more a change in absolute amount than type of constituent such as sugars and acids. As young fruit mature, changes occur in peel color. In the case of navel orange, there is a loss in

chlorophyll and an increase in carotenoid pigment, resulting in the typical rind color of mature fruit. This shift in pigments which normally begins in early fall is triggered in large part by a change in weather, primarily temperature. During this change in pigment from the beginning (color break of the rind) to full color, there is a rapid aging of the rind and loss in peel strength. Immature peel has more resistance to mechanical forces encountered during harvest, packing and transport to market as well as longer shelf life in the market. Gibberellin applied to citrus (GA3), a growth regulator, retards aging of the peel, color change (loss in chlorophyll) and loss in rind strength. For maximum effect in delaying these changes, application of the growth regulator should be made shortly before color break. From color break in the peel to full color, there is rapid aging of the rind. Accompanying aging of the peel are the familiar conditions of puff and crease, which vary in intensity year to year and orchard to orchard. Performance of the product will be affected by time of application in relation to peel color, amount of product used per acre, completeness of the spray coverage of the peel and the history of puff and crease in the orchard. Gib does not translocate from the site of application; therefore, good coverage of all portions of the peel is critical. Internal maturity of the fruit is not positively correlated with rind maturity, as the navel industry has often experienced, having a crop with color acceptable for harvest but not meeting sugar/acid requirements for harvest.

## **Weed Management Considerations**

Effective weed management with herbicides is dependent upon a number of critical factors including choice of material, timing of spray, effective coverage, growth stage of weed, and orchard and weather conditions. Selection of an effective preemergence herbicide for fall applications should be related to what weed species may emerge. In a presentation on weed management, Dr. Anil Shrethra described the seed bank which exists in the orchard. This bank consists of newly introduced species (1-5% of total seed), seed of species not well adapted to orchard conditions (10-20% of total) and a few, well adapted, dominant species (70-90% of total seed). The number of seeds produced by a mature plant is impressive and varies from one species to another,

but two examples of common weeds would be barnyard grass (300,000 per plant) and prickly lettuce (28,000). In a weed management program where a significant number of plants escape and are able to form seeds, the potential for maintaining or increasing the seed bank is real. This suggests that keeping a record of any species escaping the current herbicide program, and some record of the density and distribution in the orchard of these species is helpful in evaluating the effectiveness of the program. If escapes are a problem, then a review of the basics listed above is in order. Control around the borders of the block is necessary to minimize seed production as well, and keep in mind that some species have airborne seeds (such as fleabane) which may arrive from adjacent locations. The same weed management approach is helpful in the spring herbicide program as well. Preventing seed production can reduce seed number in the seed bank at a rate of 12% a year in a no-till situation. Particularly difficult to control species such as Horseweed (Mare's Tail) and Fleabane present special problems. A few of the recommendations of Kurt Hembree, farm advisor in Fresno County, regarding these two species are included here. Typically, these two weeds are considered summer annuals with emergence in February; however, some emergence has been occurring in October, and therefore late winter herbicide applications will miss these weeds. A split herbicide application is necessary in this situation, fall and spring.

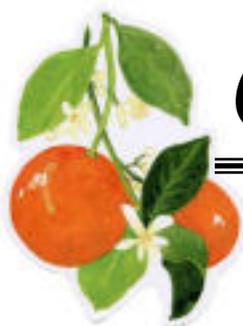
Applications of postemergence herbicides have not been as effective in some cases in controlling these species. A combination of preemergence and postemergence applications is necessary. Effective materials may be regulated under ground water protection regulations; check with the agricultural commissioner's office. Sensitivity of these species to postemergence materials decreases with age of the plants. Good coverage is critical when spraying. Timing of the treatment is important. Treat when fewer than 21 leaves are present and prior to bolting, and use higher label rates. Consider tank mixes of effective, registered postemergence materials. When using glyphosate, at least 2# active ingredient per acre is recommended. Check the glyphosate label, as the amount of active ingredient can vary among products. Monitor routinely for weed species present and weed escapes following treatment.

### **Cost of Production**

An updated cost of production for oranges has just been completed. This publication includes the cost of orchard establishment and cost of producing oranges in the southern San Joaquin Valley under low volume irrigation. Although costs will vary from one farm to the next, the study is intended to give a picture of operations and estimates of associated costs. The publication can be accessed online at the Tulare County Cooperative Extension website at <http://cetulare.ucdavis.edu>. For a printed copy please contact our office at (559) 685-3303.

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***Thursday, October 18, 2007***

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Farm Advisor