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Issue 4

UC Citrus Entomology Program
Citrus IPM Newsletter

UC Kearney Agricultural Research Center
http://citrusent.uckac.edu

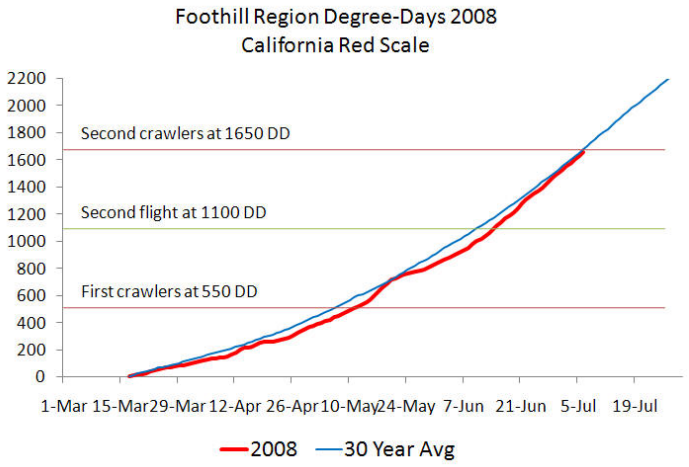
California Red Scale – Second Generation Crawler Activity

With daytime temperatures over 100, development of California red scale will accelerate over the next few weeks. This type of heat gives an advantage to scale as the *Aphytis* parasites can't keep up when it is hot. The second flight of male scales had smaller numbers than expected in our traps. **2nd generation crawler activity** started this week in Kern County and the warmer parts of Tulare County. Crawler activity in the remainder of the valley will start up next week. To monitor crawler activity, use sticky tapes or look for scale white caps on the surface of fruit.

Organophosphate insecticides (Lorsban and Supracide), carbamate insecticides (Sevin) and oils work best when applied to crawlers and whitecaps. Beware of heavy concentrations of spray oil in the summer heat, as phytotoxicity may occur. Insect growth regulators (Applaud and Esteem) work best when applied just prior to molting from the white cap stage to the 2nd instar stage. Movento is systemic and takes some time to work its way into the tree. It is best applied just prior to the 2nd generation of crawler activity.

Recommended treatments for California Red Scale can be found in the UCIPM Citrus Guidelines http://www.ipm.ucdavis.edu/PMG/r107301111.html, and degree day units at the Citrus Entomology website http://citrusent.uckac.edu/ddchart.htm

California Red Scale crawlers



Predicted California Red Scale Development

California Red Scale Lower Developmental Threshold: 53°F
Current DD accumulated from the biofix - Kern: 1710 DD, Tulare: 1660 DD, Fresno: 1600 DD

	1st male flight (observed)	1st gen. crawlers (observed)	2nd male flight (observed)	2nd gen. crawlers (observed)	3rd male flight (predicted)	3rd gen. crawlers	4th male flight	4th gen. crawlers	5th male flight
Estimated Degree Days	Biofix	550 DD	1100 DD	1650 DD	2200 DD	2750 DD	3300 DD	3850 DD	4400 DD
Kern	March 17	May 12	June 9	July 7	August 4				
Tulare	March 17	May 12	June 16	July 7	August 4				
Fresno	March 24	May 19	June 16	July 14	August 11				

Citrus Peelminer – Fourth Flight Nearing

Treatments should have already started for citrus peelminer in pummelo and grapefruit varieties as mining was observed during the first week of July, about a week after the third flight was predicted. The susceptible orange varieties (TI, Atwood, Fukomoto) will not be attacked until the fourth or fifth flight. Susceptible varieties of oranges that are next to cotton and beans are at high risk when those crops dry down for harvest later in the season. The fourth flight is predicted to occur in Tulare County the week of July 21. See our website for updates:
http://citrusent.uckac.edu/PeelminerDDcurrent.htm

Citrus peelminer mines on a pummelo fruit

Once the infestation starts, it is best to treat once a month for two to three months with a mixture of Micromite for the eggs and a broad spectrum pyrethroid or OP for the adults and larvae. These treatments usually only reduce the percentage of mining by about 50%, because it is very difficult to achieve good coverage of the rapidly growing inside fruit that they like to deposit their eggs on. Since pesticides are only partially effective, we don't recommend treatment unless you orchard has a chronic problem with peelminer. Control recommendations can be found in the UC IPM guidelines:
http://www.ipm.ucdavis.edu/PMG/r107303111.html

For more information on peelminer and to learn to recognize live and dead larvae, see our new ANR publication 8321: Citrus leafminer and citrus peelminer http://anrcatalog.ucdavis.edu/pdf/8321.pdf .

Dr. Luck's Entomology laboratory at UC Riverside is rearing a parasitic wasp called ***Cirrospilus***. They are shipping the parasites to the San Joaquin Valley and we are releasing this parasite where we find mining in oleanders, walnuts and citrus. We hope to establish this parasite in the San Joaquin Valley to help with biological control of peelminer and leafminer.

Predicted Citrus Peelminer Development

	1st male flight (observed)	2nd male flight (observed)	3rd male flight (observed)	4th male flight (predicted)	5th male flight	6th male flight	7th male flight	8th male flight
Estimated Degree Days	biofix	580 DD	1160 DD	1740 DD	2420 DD	3000 DD	3580 DD	4160 DD
Host Plant	Willow/ oleanders Stems	Walnut Stems	Pummelo grapefruit	Pummelo grapefruit susceptible oranges	Pummelo grapefruit susceptible oranges	Oranges	Oranges	Oranges
Tulare	March 24	May 26	June 23	July 21				

Exotic Pest Update:

Asian Citrus Psyllid Meeting in San Diego

To: all citrus growers, packers, and interested parties:
From: Ted Batkin, President of the Citrus Research Board

As many of you may already know, the Asian Citrus Psyllid has established populations in Tijuana, Mexico at over 19 sites. One of the sites is within 4 blocks of the US border. Therefore the California citrus industry is now at risk from this very invasive pest that is the vector or carrier of HLB, commonly known as Citrus Greening. This is the disease that is causing a rapid demise of the Florida citrus industry and has been recently found in Louisiana. HLB has the potential of causing very widespread damage to the industry. Currently there is no known cure for the disease and full tree mortality is the final result of infection. At this point, there have not been any "confirmed" reporting of ACP or HLB in California but we know through history in Asia, South America, and Florida that the threat is real and needs to be dealt with immediately.

You are invited to an informational meeting and discussion on this critical issue:

Date: Thursday, July 17th

Location: Al Bahr Shrine
5440 Kearny Mesa Road
San Diego, CA

Time: 10:00 A.M.

Agenda:

Background Information on Asian Citrus Psyllid and Citrus Greening
Perspective from the Industry and Public
Government Activities for Detection and Exclusion
Regulatory Impact for Growers and Nurseries
Action Program Activities

Speakers will be from USDA, CDFA, San Diego County Ag Commissioner, University of California, and Industry

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Yellow sticky cards: We have boxes of yellow sticky cards at Lindcove Research and Extension Center that are free for the taking to use for monitoring for Asian citrus psyllid (contact Anita Hunt 559-592-2408 ext 13). However, keep in mind that psyllids are more attracted to new flush than yellow sticky cards. So we suggest that in addition to yellow sticky cards, you periodically prune a few branches of a sentinel citrus tree in each orchard region to stimulate flush growth to monitor for psyllids.

For more information on the pest and disease visit the new website:
www.CaliforniaCitrusThreat.com

Two-spotted Spider Mites

Two-spotted spider mites have been more active than usual this season in citrus, cotton and almonds in the San Joaquin Valley. Normally, treatments for two-spotted spider mites in citrus are unnecessary. However, when populations have built to the point that trees are stressed, management tactics need to be considered. There are many natural enemies (predatory mites, six-spotted thrips, and predatory *Stethorus* beetles). To monitor for two-spotted mites, look for mites and webbing. Two-spotted mites are easily distinguished from red mites by their pale coloring and the webbing that they live in. When fruit is present, they web between the fruit, when it is absent, they infest leaves starting with the undersides.

Treatments for two-spotted mites include narrow-range oil, Agri-Mek® and some of the older miticides such as Kelthane®, Vendex® and Omite®. See the UC IPM guidelines for use http://www.ipm.ucdavis.edu/PMG/r107400211.html In the past few years a number of new miticides have been registered for citrus and are effective against mites, including Nexter®, Kanemite® (on oranges, grapefruit, and lemons), Fujimite®, Envidor® and Onager®. Thus, there are plenty of choices to avoid selecting mites for resistance. These miticides have not been added to the IPM guidelines yet, but the labels can provide you with recommended uses.

Two-spotted mite with egg

Webbing of spider mites between fruit in March 2008

The Citrus IPM Newsletter is published by the University of California Citrus Entomology Laboratory at the Kearney Agricultural Research Center.

For information or to subscribe or unsubscribe please send an email to gregm@uckac.edu or call Greg Montez at (559)646-6597

Dr. Beth Grafton-Cardwell, IPM Specialist and Research Entomologist
University of California Kearney Agricultural Research Center
bethgc@uckac.edu