

# UC CITRUS ENTOMOLOGY PROGRAM

## CITRUS IPM NEWSLETTER

May 2008  
Issue 2



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

## New Format Announced

The Citrus Entomology Newsletter's original format had been used since 1994, when it was sent to all 20 of our subscribers by fax and hard copy. At that time, color printers were expensive and slow, and the budget for postage was limited. Now that our subscribership (almost) entirely receives this newsletter via Internet, we have decided to update the look to something more, well, modern.

You can still access the archive of previous issues at our website, under "Newsletters"

<http://citrusent.uckac.edu/Newsletters.htm>.

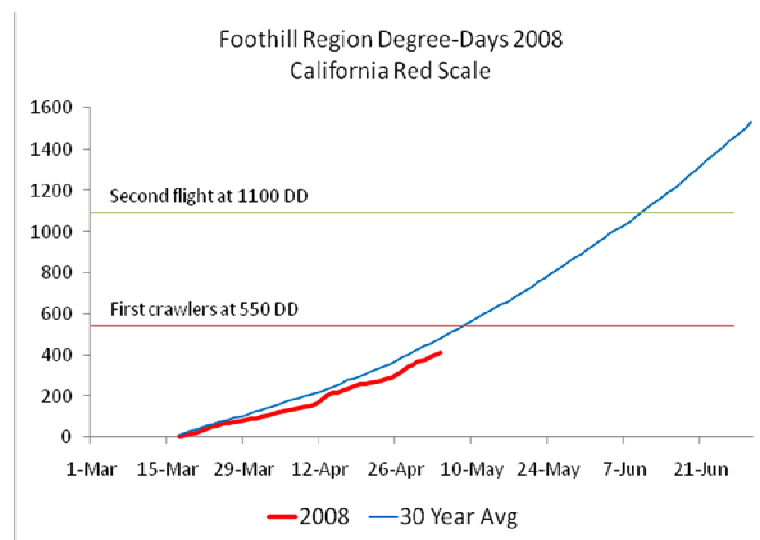
And, as always, we welcome your input and suggestions. Our subscribers now number more than 600 citrus growers, pest management consultants, farm managers and industry specialists. We are always pleased to welcome new subscribers; to have your address added to our mailing list please send an email to [gregm@uckac.edu](mailto:gregm@uckac.edu).

## California Red Scale – First Crawlers Approaching

In our previous newsletter, the first generation of CRS crawlers was predicted to begin the last week of April, but mild temperatures throughout the Central Valley have pushed the prediction back to the week of May 12 for Kern and Tulare counties. Currently, degree-day accumulations are progressing at 5 to 10 units per day, where in an average year we would expect 15 to 20 units per day at this time. California Red Scale requires 550 degree-days between mating and the release of crawlers (see page 2).

Double-sided cellophane tape is an effective way to monitor for crawler activity. The tape is wrapped in a single layer around a small branch inside the canopy of the tree, preferably near to an adult scale. Crawlers trapped on the tape appear as small, round, gold-colored insects that are easily distinguished from mites and thrips with a hand lens.

Once crawler activity is confirmed, insecticide treatments for heavily infested blocks of citrus can begin. Recommendations for first-generation treatments of California Red Scale can be found in the UC publication "IPM for Citrus", on-line at <http://www.ipm.ucdavis.edu/PMG/r107301111.html>, or at the Citrus Entomology website <http://citrusent.uckac.edu>.



## Predicted California Red Scale Development

Red Scale Lower Developmental Threshold: 53°F

Current DD (as of May 5) - Kern: 325 DD, Tulare: 415 DD, Fresno: 370 DD

	1st male flight (observed)	1st gen. crawlers (predicted)	2nd male flight	2nd gen. crawlers	3rd male flight	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							
Tulare	March 17	May 12							
Fresno	March 24	May 19							

## Cottony Cushion Scale

Vedalia beetles have done a nice job in most orchards of cleaning up the cottony cushion scale in the last few weeks. If you still have significant cottony cushion scale populations, we would like to know about them because we have a new sampling method that we need to test in commercial citrus orchards. If the vedalia beetles have not controlled the population by June, then you should consider a treatment during that month. It is best to treat for cottony cushion scale in June because our research has shown that the population at that time of the year consists mostly of first instar scales and this stage is the easiest to kill with insecticides. See the UCIPM citrus guidelines for more information on control methods:

<http://www.ipm.ucdavis.edu/PMG/r107301611.html>.



*Vedalia beetle laying eggs on and feeding on cottony cushion scale*

### Exotic Pest Status

#### Diaprepes Root weevil:

Threat: Feeds on the root system of many plants including citrus trees, making the plant susceptible to root diseases and/or weakening and directly killing the plant

CA Range: Los Angeles, Orange, San Diego Counties.

Action: CDFA is treating infestations and monitoring populations

Link to more information: <http://citrusent.uckac.edu/Diaprepeshomepage.htm>

#### Asian Citrus Psyllid

Threat: Very efficient vector of the bacterial citrus greening disease (Huanglongbing) that is one of the most devastating diseases of citrus. The fruit is small, bitter, and inedible and the tree must be destroyed.

Psyllid Range near CA: Florida, Texas, Hawaii and Mexico.

Huanglongbing Disease Range near CA: Florida

Action: CDFA and the Citrus Research Board formed an HLB Task Force that has developed an action plan to deal with the psyllid or the disease when they arrive in California.

Link to more information: [http://citrusent.uckac.edu/asian\\_citrus\\_psyllidMain.htm](http://citrusent.uckac.edu/asian_citrus_psyllidMain.htm)

## Citrus Peelminer – Second Flight

The development of citrus peelminer has been delayed somewhat this season, just as California red scale has been. We have captured enough peelminer moths in traps to be confident of the first flight, but trap catches continue to be only a small fraction of the first flight that we observed in 2005. At the rate that degree-days are accumulating for citrus peelminer, we are now projecting the second flight to begin sometime during the first week of June for Tulare and Kern counties.

We are currently surveying citrus, willows, oleander and walnuts throughout Tulare County for signs of larval activity, but peelminer damage to pummelo and grapefruit is not expected to begin until after the third flight of moths, when fruit reaches a minimum diameter of 50 mm.

Usually it is the fourth or fifth flight (1740 and 2420 from March 24) that attacks susceptible navel varieties (Fukumoto, TI, Atwood, Barnfield) when they reach 70 mm in diameter.

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.

As peelminer information accumulates, we will be posting it to our website:

<http://citrusent.uckac.edu/PeelminerDD.htm>



*Citrus peelminer mines on an oleander stem*

### Predicted Citrus Peelminer Development

	1st male flight (observed)	2nd male flight (predicted)	3rd male flight	4th male flight	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 and susceptible oranges	Pummelo grapefruit and susceptible oranges	Oranges	Oranges	Oranges
Tulare	March 24	June 2						

## Citrus Thrips and Katydid

Petal fall has just been declared in many districts. You should be sampling 100 fruit per orchard twice a week to determine if the orchard needs an insecticide treatment. Beware that it is easy to confuse citrus thrips and flower thrips nymphs, especially the 1<sup>st</sup> instars.

See this print out to get a visual of the difference.

<http://citrusent.uckac.edu/thripsonesheetID.pdf>

When the blossoms fall off, the flower thrips nymphs don't have wings and can't fly away. So for about a week after petal fall there will be many flower thrips nymphs roaming around on the fruit. Then they will mature into adults and fly away. Flower thrips do not cause damage to citrus fruit, so you don't want to base your decision to treat on the wrong thrips species.

See the UCIPM guidelines for details of thresholds and treatments for citrus thrips.

<http://www.ipm.ucdavis.edu/PMG/r107301711.html>

**Katydid**s are a serious problem because citrus growers have shifted to using soft pesticides such as Esteem<sup>®</sup> for California red scale and Success<sup>®</sup> for citrus thrips instead of organophosphate insecticides. Katydid s are very sensitive to organophosphate insecticides. In stone fruits, Success<sup>®</sup> works very well for controlling katydids. However, in citrus, katydid emergence continues for a much longer period of time and Success<sup>®</sup> treatments for citrus thrips are not necessarily timed for small katydid instars or the residues don't last long enough to control the nymphs that emerge later in the season. In the last 4–5 years, growers have routinely tank-mixed low rates of organophosphates (Lorsban<sup>®</sup>, Dibrom<sup>®</sup>, Cygon<sup>®</sup>) or pyrethroids

(Danitol<sup>®</sup>, Baythroid<sup>®</sup>, Renounce<sup>®</sup>) with Success<sup>®</sup> thrips treatments to control katydid, or treated with a full rate of pyrethroid for both pests. A newly registered insecticide that has a lot of promise for katydid control is **Micromite<sup>®</sup>** (diflubenzuron). It is an insect growth regulator that prevents the nymphs from molting properly. It won't kill the katydids until they molt and so it takes about 7–10 days to take full effect. Therefore the best use of this chemical is prior to petal fall when there is no fruit available for them to damage. Another newly registered insecticide targeting citrus thrips that should also be effective against katydids is **Delegate<sup>®</sup>**. Delegate<sup>®</sup> is in the same chemical class as Success<sup>®</sup> so you would not want to treat an orchard with both of these insecticides or you would select for resistance in citrus thrips very quickly. Delegate<sup>®</sup> is purported to have more persistence than Success<sup>®</sup>. If it does, then that may eliminate the need for OP and pyrethroid tank mixes for katydids that are currently being done and that would be a much healthier situation for natural enemies.

**International MRLs:** It takes several years after an insecticide is registered in the United States to establish maximum residue levels (MRLs) for the entire international community. Foreign countries can reject citrus shipments if they determine that a pesticide has been used that they have not established an MRL for or if the residues exceed that country's MRL. If you decide to use a newly registered insecticide such as Delegate<sup>®</sup> on bearing citrus, you should avoid exporting the fruit to a county that does not have an established MRL in order to eliminate the risk of rejection.

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](mailto:gregm@uckac.edu) or call Greg Montez at (559)646-6597

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