



California Red Scale – Beginning of Season

The first-flight biofix (first adults captured) for California red scale historically begins in March, and the early season weather has been warm. Now is the time to place pheromone cards in trees to accurately identify the biofix for male flight. Once the flight has started, degree-days begin to accumulate. Degree-days are a measure of the developmental rate of an insect based on temperature. At temperatures below 53°F, red scale metabolism slows to nearly a stop. This temperature is then called the lower developmental threshold. When the daily average temperature is above 53°F, the number of degree-days for that day may be found by subtracting 53 from the daily average. When the accumulated degree-days reach 550, we expect scale development to be far enough along for first instar scale crawlers to be produced. As the crawler stage is the most susceptible to insecticides, crawler emergence marks the best opportunity to make an application.

Weekly degree-day accumulations for Kern, Tulare and Fresno counties can be found on our website at <http://citrusent.uckac.edu>

Growers and PCAs who are willing to share their red scale field observations are encouraged to contact Greg Montez at 559 646 6500 or gregm@uckac.edu

2009 California Red Scale Degree-Days

	1 st male flight (Predicted)	1 st gen. crawlers	2 nd male flight	2 nd gen. crawlers	3 rd male flight	3 rd gen. crawlers	4 th male flight	4 th gen. crawlers
Estimated Degree Days	biofix	550 DD	1100 DD	1650 DD	2200 DD	2750 DD	3300 DD	3850 DD
Kern	Not observed yet							
Tulare	Not observed yet							
Fresno	Not observed yet							

First Citrus Peelminer Flight Coming Up

We monitor non-citrus sites, such as walnuts, willows and oleander early in the year for flights of male scales using pheromone traps. Citrus peelminer has a lower developmental threshold of 55°F, and completes a generation every 580 degree-days. The first two generations attack the willows, walnuts and other crops. The third flight attacks pummelos and grapefruit. Later in the season (4th or 5th flight) the peelminer attacks the susceptible varieties of oranges (Atwood, Fukumoto, TI, and Barnfield).

Peelminer damage in 2008 was less than previous years, possibly due to hot summer weather or perhaps because natural enemies are finally getting the populations under some level of control.

In orchards with a history of heavy peelminer damage, about 50% control can be achieved by using diflubenzuron (Micromite®) to control eggs with the addition of a pyrethroid or OP for enhanced activity on hatched larvae and adults. Because insecticides are only moderately effective, we do not recommend you treat for this pest unless it has been a chronic problem on a susceptible variety of citrus.

The pheromone lures are only weakly effective and so are used primarily to determine the initial biofix, after which we use degree days to predict later flights. Weekly degree-day accumulations for Tulare County can be found on our website:

http://citrusent.uckac.edu/citrus_peelminer.htm

2009 Citrus Peelminer Flights

	1 st male flight	2 nd male flight	3 rd male flight	4 th male flight	5 th male flight	6 th male flight	7 th male flight	8 th male flight
Estimated Degree Days	Biofix (predicted)	580 DD	1160 DD	1740 DD	2420 DD	3000 DD	3580 DD	4160 DD
Host Plant	Willow/oleander stems	Walnut Stems	Pummelo grapefruit	Pummelo grapefruit susceptible oranges	Pummelo grapefruit susceptible oranges	Oranges	Oranges	Oranges
Tulare	Not observed yet							

See our new publication: Citrus peelminer and citrus leafminer for more information:

<http://citrusent.uckac.edu/8321CitrusLeafminerAndPeelminer.pdf>

Citrus Leafminer has begun to fly

Citrus leafminer moths were collected in pheromone traps at Lindcove Research and Extension Center towards the end of February. This past winter was very mild, allowing citrus leafminer larvae to survive in flush that developed during the winter months. Interestingly, the young flush that appeared during winter and was attacked by leafminer was more sensitive to periods of low temperature and the leaves burned and blackened where the mines were located (see picture). This would likely kill any larvae that were in the mines.

Citrus leaves with citrus leafminer mining were strongly affected by dips in night time temperatures during the winter – mined areas became necrotic



Year Round IPM Program for Citrus

If you are new to citrus sampling in the San Joaquin Valley and need sampling sheets or an idea of what pests and diseases to sample for during the year as citrus develops, please check out the UC IPM web page within the Citrus IPM guidelines called the Year Round IPM Program <http://www.ipm.ucdavis.edu/PMG/C107/m107yi01.html>. For old-timers, this is a great way to demonstrate to your growers or regulatory agencies that you are using IPM tactics.

Asian Citrus Psyllid Update

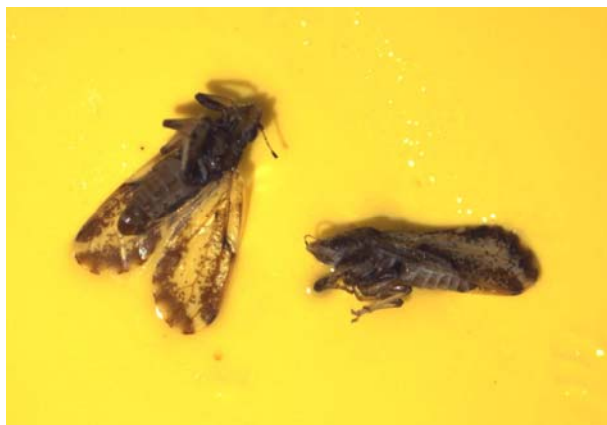
Residential Infestations: Asian citrus psyllid was detected by CDFA in backyard citrus in southern San Diego and Imperial Counties following its discovery in Tijuana Mexico during the summer of 2008. A quarantine zone has been created around those find sites that prohibits movement of citrus and closely related plants that are hosts of ACP outside of the quarantine zone. See this web link for a map of the infestations in California and Mexico and the quarantine zone created around those finds.

http://www.aphis.usda.gov/plant_health/plant_pest_info/citrus_greening/downloads/pdf_files/acp_ca_map.pdf. The host plants at the find sites (primarily residential properties) and all properties within 400 meters of a find site are being treated with insecticides. In residential properties, Tempo (cyfluthrin) is applied to the foliage and Merit (imidacloprid) to the soil in an attempt to eradicate the pest. CDFA has conducted numerous outreach meetings for the public and residents have generally supported the treatment program. To see a CDFA list of ACP host plants, distribution of the current infestations and quarantine zones go to:

<http://pi.cdfa.ca.gov/pqm/manual/pdf/420.pdf>.

Nurseries that ship into the quarantine zone are required to treat with both a systemic and foliar insecticide prior to shipment to retail stores. See <http://phpps.cdfa.ca.gov/PE/InteriorExclusion/acptreatments.pdf> for more details on the citrus nursery approved treatments. The purpose of treating citrus with insecticides at the wholesale nursery level is to prevent psyllid populations from becoming established after the plants arrive at the retail stores. Lack of treatment and heavy infestation of retail plants was a major avenue for ACP and HLB to rapidly spread throughout Florida.

Psyllids have been detected by CDFA using yellow sticky cards, visually examining new citrus flush, and by use of D-VAC (vacuum) machines.



Citrus Fruit shipping: It is critical that growers do not ship citrus fruit from the quarantine zone into uninfested areas of the state without carefully cleaning the fruit. **Psyllids can be transported on leaves and twigs and in bins of fruit.**

Mexico update Applications of insecticides to control psyllid infestations in the border regions in Mexico, especially in Tijuana, were initiated at the end of February. These treatments are critical for the success of the eradication/suppression effort in Imperial and San Diego counties.

Commercial Citrus: ACP was found in a lemon orchard in Imperial County in Feb 2009 and that orchard is being treated with insecticides to prevent spread of the psyllid. Infestations of psyllid in commercial citrus are likely to require 2–5 insecticide treatments per year to prevent damage and spread of the psyllid. There are a number of insecticides that are registered in citrus for psyllid control including: Danitol, Baythroid, Lorsban, Dimethoate, Sevin, Admire, Delegate, Micromite and Movento. As the situation evolves and we see the response of psyllid to these treatments, we will refine our recommendations. I plan to develop guidelines and timeline for treatment to help preserve the citrus IPM program. For current guidelines for commercial citrus: <http://www.ipm.ucdavis.edu/EXOTIC/diaphorinacitri.html>

If you would like to be on an ACP/HLB email list to receive updates from the Citrus Research Board please contact Anne@citrusresearch.org.

Resources (posters, cards, brochures) can be found at the www.uckac.edu/citrusent/ web site or www.californiacitrusthreat.org

EVENT: There will be an all day symposium on Asian Citrus Psyllid at the **Pacific Branch of the Entomological Society of America Meeting** in San Diego on March 31, 2009. See web site for more details: http://groups.ucanr.org/_2009_PBESA/index.cfm

Citricola Scale

Citricola scale can be found on leaves and twigs and are in their 2nd instar brownish form at this moment. During April, they will migrate to the ends of twigs and molt into large, gray, adult female scales. Monitoring for the adult females is important to get an early season warning of where citricola scale will be a problem. Treatments are most effective later in the season when they are in the 1st instar stage infesting leaves on the outside of the tree. See IPM guidelines for more information.

<http://www.ipm.ucdavis.edu/PMG/r107301511.html>



March citricola scale: May be found on leaves or twigs. Small (<math>< \frac{1}{4}</math> inch), flattened and brown speckled.



April citricola scale: Found on twigs. Larger, domed, (>math>> \frac{1}{4}</math> inch) and gray speckled.

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

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