

Citrus Cutworm

Source of Information: Lindcove Research and Extension Center

Biofix: January 7, 2002 for the Orosi and Orange Cove areas

Lower developmental threshold: 45.6°F

Begin Sampling for Cutworm Larvae: 250 DD

Expect to find 1st and 2nd instar larvae: 350-400 DD

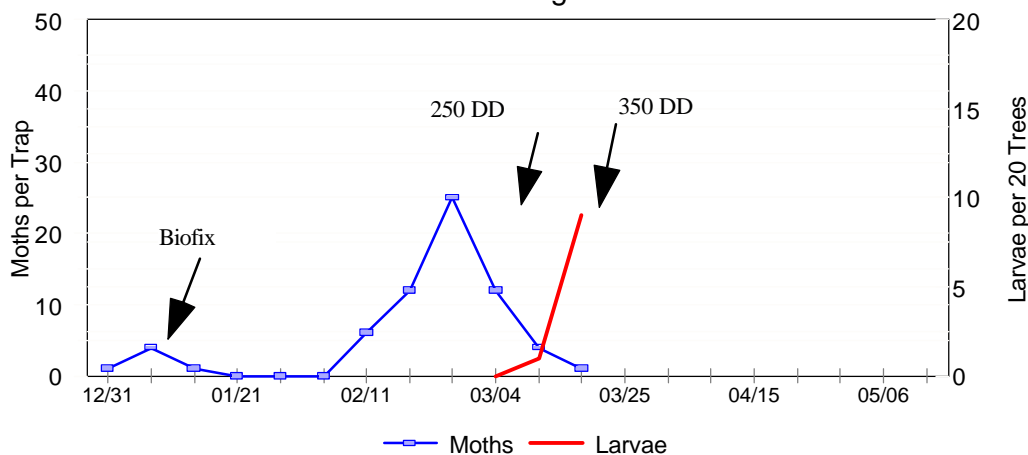
Apply microbials (Bt products): 400-550 DD

Current Accumulated Degree Day Units: 360 DD

Garrett Lehman (UCCE Tulare Co.) is monitoring for citrus cutworm moths and larvae in 10 Orosi and Orange Cove orchards through funding received by the Department of Pesticide Regulation Pest Management Alliance Grant. Citrus cutworm moth activity peaked during March. One orchard has recorded up to 70 moths per week. The earliest that we have ever seen larvae emerge is at 250 DD and so that is when we suggest that you begin sampling for larvae. In the Orosi and Orange Cove area we have accumulated 360 DD and pest control advisors are using a visual, beat sheet, or net shake survey for larvae now. On the average, most of the larval populations appear at 350-400 DD. At that time you will see a mixture of 1st and 2nd instar larvae. Degree day estimates predict that the 350-400 DD point will be reached during the weeks of March 18 through April 1. We will keep you informed of the degree-day units as they accumulate the Internet at <http://www.uckac.edu/citrusent/>.

Treatment threshold before petal fall: The treatment threshold is 15 worms (per 25 net shakes, per 1 hour search, or per 20 trees sampled with a beating sheet) before petal fall and 3-5 worms after petal fall. The threshold is lower after petal fall because the larvae prefer to feed on the fruit. The microbial insecticides work well before petal fall if the cutworm are smaller instars. Microbial pesticides are most effective when applied approximately 400 degree days after moths begin flying, when the population consists primarily of 1st and 2nd instar larvae. See your Citrus IPM manual or guidelines for details of how to sample. Insecticide treatment recommendations can be found in the citrus guidelines that you can purchase from your UC Cooperative Extension Office, or as Publication 3339 from UC DANR Communication Services (800-994-8849), or on the World Wide Web (<http://www.ipm.ucdavis.edu>).

Citrus Cutworm 2002
Orosi Region



California Red Scale

	1st male flight	1st gen. crawler s	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
Biofix, Current DD, or dates of scale activity									
Kern	March 18	30 DD							
Foothills	March 18	23 DD							
S. Tulare	None yet	0							
N. Tulare	None yet	0							
Fresno	None yet	0							
Madera	None yet	0							

Pheromone traps to monitor the first male flight of California red scale should be already be in the orchards for all regions. Pheromone traps at Lindcove Field Station (foothills) and Kern County began to pick up the first male scale of the season last week. Thus the biofix for CRS in these regions will be set as March 18. At 550 degree days, the crawlers will begin to emerge.

New Insecticide Registered for California red scale

(This is a summary, please see the product label for more details)

Applaud 70W (buprofezin) - insect growth regulator, chitin synthesis inhibitor

Pests Controlled: California red scale

Dosage: 2.14-2.86 lb (1.5-2 lb AI) per acre.

Method of Application: Apply by ground application using 750-2000 gallons of water per acre. Do not apply more than 2 applications per season. Allow at least 60 days between applications.

Timing of application: Apply just after peak crawler emergence occurs. More effective at the beginning of the season when the population is fairly uniform.

REI: 24 hours

PHI: 60 days (Nichino is completing studies designed to reduce this interval)

Comments: Applaud is somewhat less effective against California red scale than Esteem, however, it is somewhat more effective against other scale pests and so is helpful in situations where multiple scale species are present (red scale, citricola scale, cottony cushion scale). It is toxic to vedalia beetles, however, the effect does not last as long as Esteem.

Cottony cushion scale

Now (March through April) is the time to control cottony cushion scale with vedalia beetle, before the thrips and scale spraying season begins. Vedalia beetles began to show up in a number of citrus orchards during mid-March.

Cottony cushion scale problems have diminished since we first disrupted the vedalia beetle with insect growth regulators (Knack, Esteem, Applaud) in 1998. However, since we are continuing to use Esteem for red scale and starting to use Admire for glassy-winged sharpshooter (it also disrupts vedalia) you should continue to watch for cottony cushion scale outbreaks. The vedalia beetle is far better at controlling this pest than pesticides. If you have cottony cushion scale in a block, and do not have vedalia, now is the time to release some beetles into the block. A small number of beetles (25 adults) released into a block in February-April, will have time to expand and clean up cottony cushion scale problems during April and May. You need to get the cottony cushion scale problems cleaned up before citrus growers begin using Esteem for California red scale control in June and July.

Suggested sampling method: Walk down four evenly spaced rows in the orchard. Within each row, lift up foliage and search for live cottony cushion scale on the trunk, branches and leaves of 10 trees. If you see any live cottony cushion scale and no evidence of vedalia beetles, then you should find some vedalia beetles to release into your block. Vedalia beetles work best if the population consists primarily of adult female cottony cushion scales that are filled with eggs. Insecticides that are used for cottony cushion scale are broad spectrum and are not very effective and so should be avoided if possible.

Citrus Peelminer

On February 22, 2002, members of the citrus, grape, cotton, stone fruit, and nursery industries met to discuss the current status of citrus peelminer, *Marmara gulosa*, in the San Joaquin Valley. Traditionally, citrus peelminer has been found infesting grapefruit, oleanders and willows, was located primarily in Kern County, and rarely attained more than 3% infestation of citrus fruit. Since 1998-99, citrus peelminer has been an increasing problem in Tulare County, has attacked a number of varieties of both grapefruit and navels at the level of 30-80% of the fruit, and it has been found heavily infesting a number of host plants it was rarely seen on in this region (grapes, cotton, peppers, ornamentals, and weeds). This change in behavior suggests that there may be a new biotype or species involved. During the winter freeze of 1998 when much of the local citrus fruit could not be marketed, the Tulare County Ag Commissioners office field biologist observed that peelminer-infested fruit arrived in Tulare County from Mexico. Because the peelminer is considered a native species, this shipment could not be rejected. The problems with peelminer have grown since this period, also suggesting that a new strain or biotype entered the region.

Citrus peelminer infestations were severe in 2000 and 2001 in susceptible varieties of citrus (pummelos, grapefruit, and early navels such as Fukomotos, TIs, and Atwoods). In 2001, grape stems and berries were attacked in a number of vineyards with varieties of grapes with large berries such as Red Globe. Insecticides applied to citrus were ineffective in slowing down the progression of the infestation, probably because the fruit is rapidly expanding at the time of year the pest is attacking it, and there are many generations of this pest depositing eggs on the fruit. Native parasitic wasps are attacking citrus peelminer, but, so far, they are not in high enough numbers to control it. A species of wasp (*Cirrospilus coachellae*) from the Coachella Valley is reared at UC Riverside and was released in 2001 in >25 locations in the San Joaquin Valley. However, we do not yet know if the parasite has survived the winter and if it will do as well in the San Joaquin Valley as it did in other regions. In Arizona and the Coachella Valley of California citrus peelminer has had outbreaks approximately every 10 years that subside over a 3-4 year period. We do not know if we are dealing with an outbreak that will subside, or a new pest that will continue to attack various crops. In 2001, towards the end of the season when the neighboring infested crops began to mature, heavy migration of peelminer moths into nearby citrus occurred. Thus, this pest is using a number of crops in sequence to support its population throughout the year. The wide host range will make it difficult to control the pest unless a regional approach is taken. This was discussed at length at the meeting and plans are underway to obtain funding.

Beth Grafton-Cardwell
University of California
Kearney Agricultural Center
bethgc@uckac.edu