

UC Citrus Entomology Monitoring Program

May 2000

University of California
Cooperative Extension

Kearney Agricultural Center

California Red Scale

Source of Information: Lindcove Research and Extension Center

Biofix: March 15-22, 2000 for Kern and Tulare Counties

Lower Developmental Threshold: 53°F

Current Accumulated Degree Day Units:

Kern: 561 DD

S. Tulare: 463 DD

N. Tulare: 483 DD

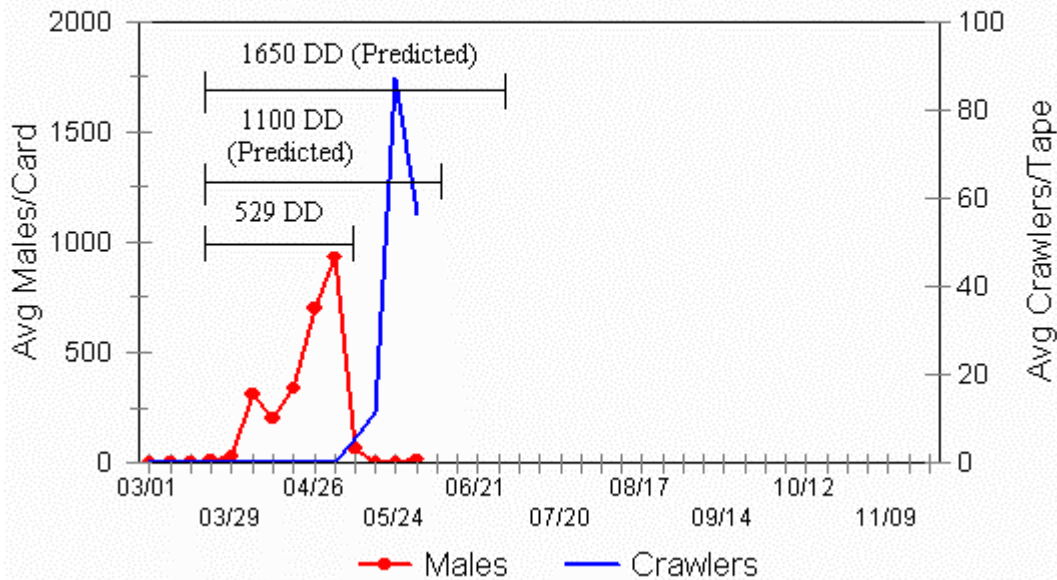
Fresno: 451 DD

Madera: 369 DD

Expected First Generation of Crawler activity: 550 DD

California red scale males began flying the second week of March. We expect to see the first generation of crawler emergence at 550 DD and, as of May 9, 2000 we have reached that number of degree day units in Kern County and the warmer orchards of Tulare County. Populations of California red scale develop in response to temperature and various regions of the San Joaquin Valley accumulate temperature units at different rates. See our web site for up-to-date degree day accumulations for the various regions <http://www.uckac.edu/citrusent/DegreeDay.htm>. The start and peak of the male flight is very useful information. If you know the accumulated degree-day units in your orchard you can predict when the crawlers will emerge (most effective time for Lorsban, Supracide and Sevin sprays), when scale are in the white cap stage (most effective time for Esteem sprays) and when scale are in the 3rd instar stage (the favorite stage for attack by *Aphytis* parasites).

California Red Scale 2000 Lindcove Citrus Field Station Block 21



If you plan to treat with Lorsban, Supracide, or Sevin: spray when the scale are crawlers. The insect is small, moving around and very susceptible to these insecticides. Spray during the 1st (550 DD) or 2nd generation (1650 DD) of activity to have the greatest impact on the population.

If you plan to treat with Esteem: Spray when the scale are white caps, just before they begin to molt and wait until the second generation of scale activity (1800 DD). Esteem is very toxic to eggs and pupae of the vedalia beetle. Vedula beetle is the best natural control of the cottony cushion scale. We need to avoid spraying Esteem during March through June in order to allow the vedalia beetle time to finish cleaning up the cottony cushion scale problems. Esteem will very effectively control California red scale when applied in the second generation (July).

If you are releasing *Aphytis* for California red scale: Try to avoid using an insecticide for scale control. Oil is still the recommended insecticide for the *Aphytis* release program. Generally it is applied during July. However, even oil has a negative impact on *Aphytis* because it can synchronize the scale stages and leave the *Aphytis* without 3rd instar scale to lay their eggs in.

Citricola scale Alert!

Citricola scale is very sensitive to that broad spectrum insecticides, Lorsban, Supracide, and Sevin that we used for California red scale for many years. We stopped using those insecticides for California red scale in 1997 because many populations of red scale were resistant to them. In 1998 and 1999 many growers used Esteem to control red scale and it did a great job on that pest. Esteem does not work very well on citricola scale. Esteem affects molting and citricola scale only molts twice per year. Here we are 3 years later, and we haven't used the Lorsban, Supracide, or Sevin treatments in many orchards for 2-3 years. Citricola scale is popping up it's ugly head in quite a few orchards throughout the San Joaquin Valley. Be on the lookout for the gray bodies of citricola scale lining up on the twigs. They will mature into females soon and begin releasing crawlers onto the leaves in May-July. If you have citricola scale in your orchard, Esteem will not help you and you need to go back to a Lorsban, Supracide, or Sevin treatment for scale control.

Citrus Cutworm

Source of Information: Lindcove Research and Extension Center

Biofix: January 25, 2000 for the Exeter and Ivanhoe area

Lower developmental threshold: 45.6°F

Current Accumulated Degree Day Units: 1110 DD

Begin Sampling for Cutworm Larvae: 250 DD (This occurred the last week of February)

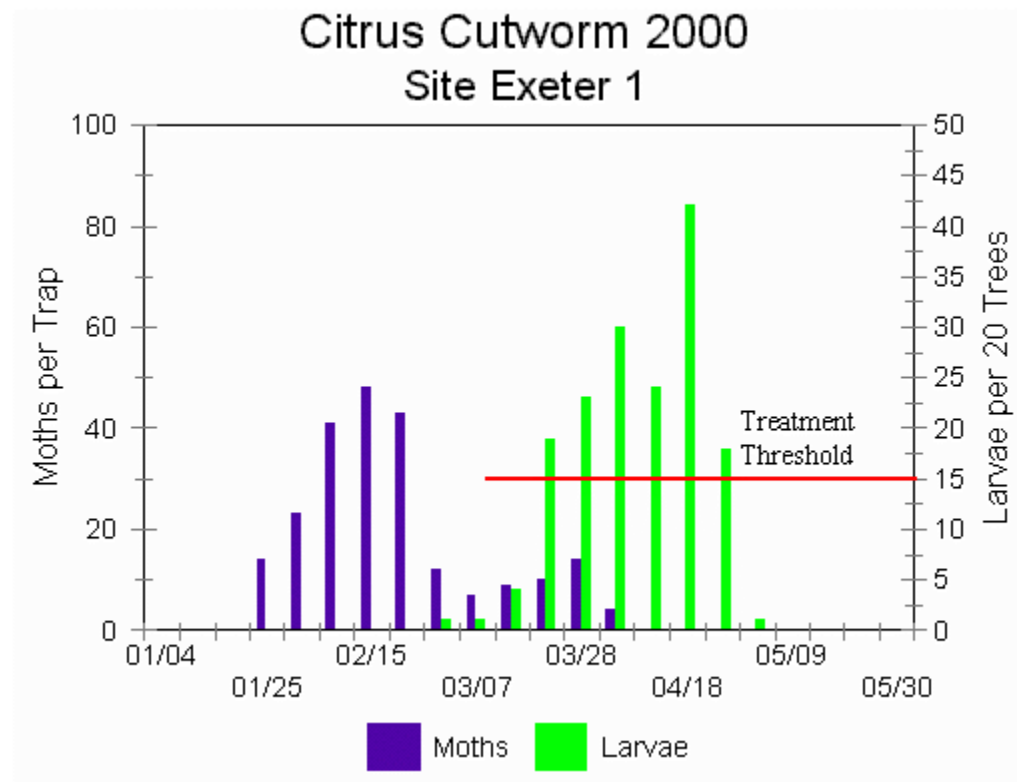
Expect to find 1st and 2nd instar larvae: 350-400 DD (This occurred the second week of March)

Apply microbials (Bt products): 400-550 DD (This period was during the last two weeks of March)

The figure below shows several important measurements and events for citrus cutworm in the Exeter area. We began accumulating degree-day units for citrus cutworm on the biofix day (2nd consecutive week of male moth capture) on January 25, 2000. We estimate, using a lower developmental threshold of 46°F and this biofix, that we will see larvae emerging approximately 350-400 degree-days later. The earliest we have seen larvae emerge is at 250 degree-days and so that is when we began sampling (last week of February). We saw larvae emerging in the Exeter area during the week of March 14, approximately 370 DD after the biofix. It is important to apply Bt (microbial) pesticides at the time (400-550 DD) when the smaller 1st and 2nd instars are present. This occurred in Exeter during the last two weeks of March. On April 4, we had accumulated 660 degree-days and could find 3rd and 4th instar larvae. Now the larvae are in the late larval and pupal stages and their numbers are dropping off dramatically. Orchards that have cutworm larvae now are being treated with broad spectrum thrips pesticides to kill both pests at the same time.

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 microbial insecticides work well during this period if they are small instars.

Threshold after petal fall: After petal fall, the threshold of tolerance of cutworm drops to 3-5 worms per 25 net shakes, per 1 hour search or per 20 trees sampled with a beating sheet. Our tolerance of cutworm is less after petal fall because they can quickly do damage to the new fruit. Broad spectrum insecticides are quicker acting and so are recommended for post petal fall sprays.



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 by subscription as Publication 3339 from UC DANR Communication Services (800-994-8849), or on the world wide web (<http://www.ipm.ucdavis.edu>).

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