

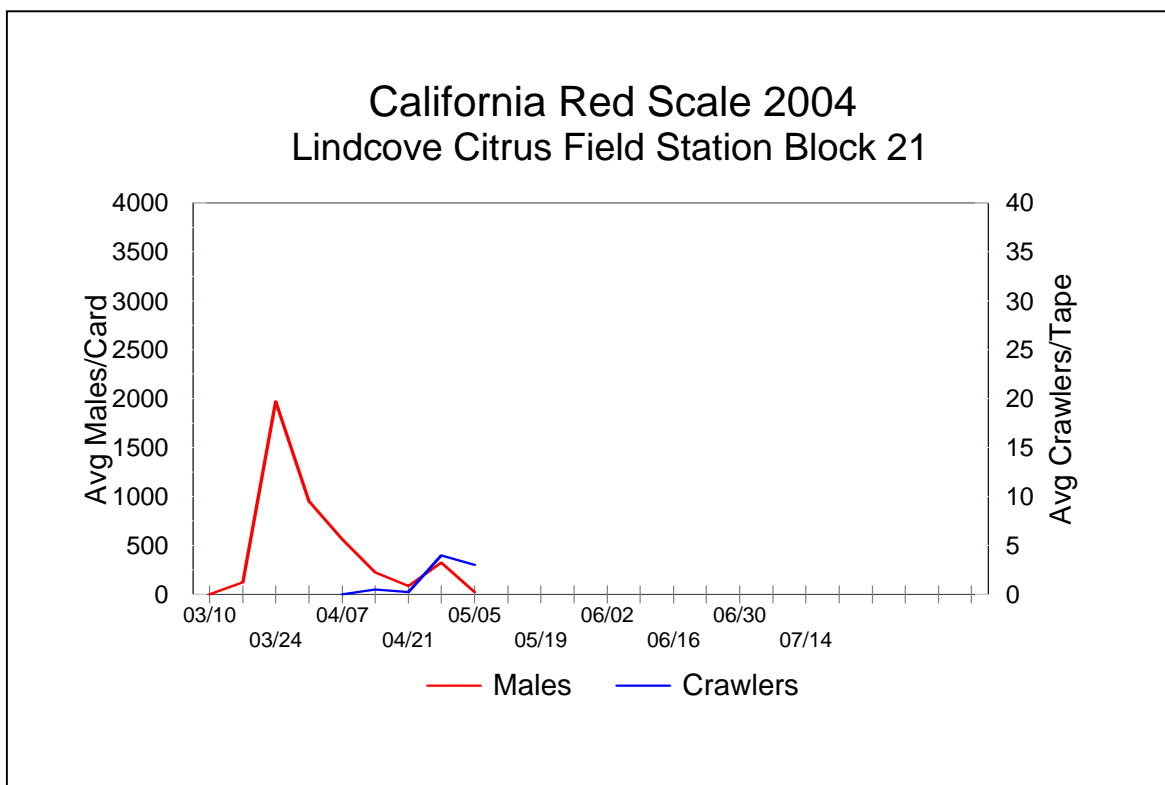
California Red Scale – Crawlers are Emerging

	1st male flight	1st gen. crawlers	2nd male flight (predicted)	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	Mar 8	Apr 26	May 31						
Tulare	Mar 15	Apr 26	May 31						
Fresno	Mar 22	May 3	June 7						

Current DD (as of May 10) - Kern: 815, Tulare: 740, Fresno: 665

California Red Scale crawlers have been emerging in all of the citrus growing regions of the San Joaquin Valley for several weeks (see graph below), and are beginning to molt into the second instar (at the 800 degree-day mark). The recent cooling trend will slow down development temporarily, providing an excellent opportunity for an insect growth regulator application (Esteem or Applaud) if called for. Insect growth regulators work best if applied just before the scale molt. Weather predictions at the moment are for a return to the 90°s for the week of May 17, which would result in a predicted second male flight for the last week of May or early June depending upon your orchard location (see table above). Due to the incredibly warm last week of April and first week of May, degree-day accumulations for CRS are at least two weeks ahead of the 2003 season.

Degree-day calculations for CRS are maintained on our website: <http://citrusent.uckac.edu/DegreeDay.htm>.



Cottony Cushion Scale – Vedalia is nearing the end of its activity

Vedalia beetles returned to San Joaquin Valley orchards during March-May and did an excellent job of eliminating cottony cushion scale in most orchards. Usually, vedalia needs 6-8 weeks to clean up a cottony cushion scale population and it needs to do that before insecticide treatments kill it or the heat of summer arrives. Thus, the best time for vedalia beetle activity is the March-May period. When vedalia arrives late (May-June) it often doesn't have enough time to complete its work. Insecticides that are toxic to vedalia beetle include: pyrethroids (Danitol and Baythroid), neonicotinoids (Assail, Provado, Admire), and insect growth regulators (Esteem and Applaud). You should wait to use these insecticides in blocks with cottony cushion scale until the vedalia declines naturally in June. If the vedalia does not arrive in time, then Supracide, Malathion, Sevin, or Applaud can be used to reduce the cottony cushion scale. However, our studies are showing that these insecticides do not work well in Mar-May when the cottony cushion scale is in the adult stage. The insecticides work much better in June or July when the adult females are dead and the population consists of small stages on the leaves of the tree. So let the vedalia do its work now, and spray later if the population isn't cleaned up to your satisfaction.

If you would like to see photos of cottony cushion scale or vedalia beetle, see the brochure, "Stages of the Cottony Cushion Scale (*Icerya purchasi*) and its Natural Enemy, the Vedalia Beetle (*Rodolia cardinalis*)": <http://anrcatalog.ucdavis.edu/merchant.ihtml?pid=5525&step=4> .

Citricola Scale

Citricola scale is becoming one of the worst pests of citrus in the San Joaquin Valley. At this time of year, it is in the large female stage on the twigs. The eggs are laid underneath the female and they have been hatching for several weeks. The crawlers look similar to red scale crawlers, except that they are much larger. At this time of year, the female scales produce honeydew that rains down on the leaves and twigs and grows sooty mold. Generally, insecticide treatments are not as effective at this time of year because the females are hard to kill and the eggs and crawlers are protected underneath her body. We suggest, that if the population isn't too heavy, you wait till late July or early August to treat because the eggs will be completely hatched and the nymphs position themselves on the outside of the tree on the leaves. Lorsban is still the best control agent, probably because of the fuming action. Other organophosphates and carbamates are also effective. The foliar neonicotinoid Assail can be effective in reducing their numbers and has a good fit in the early season (March-May) since it will kill the adult females. Applaud will control citricola scale, although slowly because it has to affect them as they hatch eggs or molt. Biological control is ineffective for this pest and so pesticides are necessary. Do not let the populations build up to high numbers or you will see fruit production reduced in the following year.

Katydids

Katydids are becoming an increasing problem as growers shift to using soft pesticides such as Esteem for red scale and Success for citrus thrips. In stone fruits, Success works very well for katydids. However, in citrus, katydid emergence continues for a much longer period of time and Success treatments for citrus thrips are not necessarily timed for small katydid instars or don't last long enough to get the nymphs that emerge later in the season. Growers have been routinely adding low rates of organophosphates (Lorsban, Dibrom, Cygon) or pyrethroids (Danitol, Baythroid, Renounce) to the Success thrips treatment to control katydid, or treating with a full rate of pyrethroid for both pests. A newly registered insecticide that has a lot of promise for katydid control is Micromite (diflubenzuron). It is an insect growth regulator that prevents the nymphs from molting properly and prevents young female katydids from producing viable eggs. We are conducting a trial at Lindcove Research and Extension Center and have seen that a 3.125 oz rate of this insecticide is controlling katydids for several weeks. While we haven't screened it against natural enemies yet, as an insect growth regulator, it should be softer than pyrethroids for the natural enemies.

Photographic Guide to Citrus Fruit Scarring

The photographic guide to citrus fruit scarring is designed for growers, PCAs, and packinghouse personnel to learn to recognize the types of damage that various insects, snails, chemicals and mechanical agents can cause to citrus fruit. This brochure is available for you to print on your color printer directly off of the web at <http://anrcatalog.ucdavis.edu/merchant.ihtml?pid=5592&step=4>. If you prefer a hard copy published version, they are available from the Citrus Research Board 559-738-0246 or from Beth Grafton-Cardwell 559-646-6591.

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