

# July 2024 California red scale Memo

California red scale is a key pest of citrus in the SJV. Its life cycle starts as crawlers produced by overwintering females from the past season. Crawlers move and find a suitable place to start feeding. Once they have settled, they do not move.

## What's happening with the SJV CRS population?

As of June 27, second generation crawlers have started in Kern, Fresno, and Tulare counties and may start emerging in 1-2 weeks in Madera. Second instars may also be present, based on location of your orchard. California red scale populations are monitored using degree day units accumulated after the first-generation male flight (Biofix). 2024 Biofix was declared in March 10.



White dots on the twig are first instars of California red scale.

County	DD June 27	Life stage
Kern	1641	Second generation crawlers have emerged. Spray if necessary.
Tulare	1733	
Fresno	1551	
Madera	1406	

## When to spray?

Crawlers and first instars are the most susceptible stage (thin wax layer). The first and second generations have more synchronized population. Current population in the SJV immatures of the second generation.

## CRS management: mating disruption, insecticides, *Aphytis*!

- Monitor males using trap cards, treat at a threshold.
- Goal is to maintain CRS below the level that results in <5% fruit infestation.

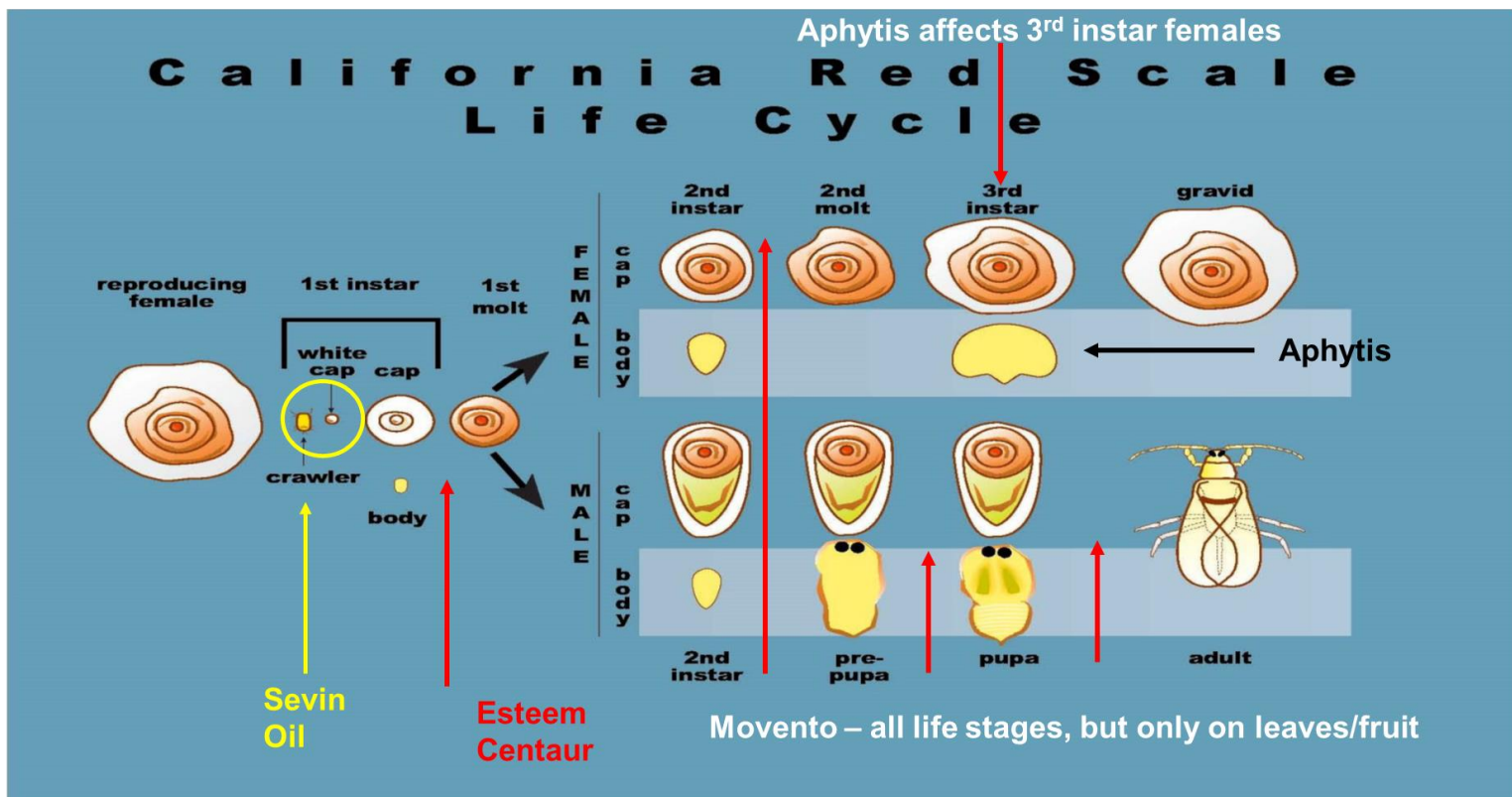
### Numbers on pheromone cards, what does it mean?

- ***Aphytis* release blocks** – pheromone cards overestimate scale numbers, as *Aphytis* attacks third instar females.
- **Insect growth regulator/mating disruption** – pheromone cards underestimate scale numbers as these treatments affect males more than they affect females. Use a threshold of 50 scales per flight.
- **Movento/Admire** – not a reliable predictor, especially if you have a history of scale infestation as these products do not kill scale on wood or scale.

# California red scale management choices – [UCIPM Guidelines](#)

Management choices	Efficacy	Selectivity	Spectrum
Mating disruption (Checkmate CRS)	Moderate: Effectiveness varies	Nontoxic	Narrow: CRS
<i>Aphytis melinus</i>	Moderate: effectiveness varies	Nontoxic	Narrow: CRS
Oils (415, omni)	Moderate: short residual	Short term effect on all arthropods	Broad: most pests
Esteem (Pyriproxyfen)	Moderate: Emerging resistance issues	Toxic to beetles	Narrow: CRS
Centaur (Buprofezin)	Moderate	Toxic to beetles	Interm: CRS, Citricola
Movento (Spirotetramat)	Moderate: Doesn't control scale on wood	Toxic to predatory mites	Interm: CRS, ACP
Sevin (Carbaryl)	Moderate: Resistance issues	Toxic to most natural enemies	Broad; CRS, Citricola scale, FRB

How to use life cycle for making pest management choices?



# Recommendations for chemical control of California red scale

- **Timing: treat the stage that is most sensitive**
- **Treat generations 1 or 2 when the scale population is uniform in stage (exception is spirotetramat, which seems to work in fall)**
- **Use the selective insecticides that allow natural enemies to survive when you can**
- **Rotate products to avoid resistance**
- **Good coverage: 750-1500 gpa/acre (7000-15000 l/ha) (spirotetramat 250 gpa/acre)**
- **Drive slowly! < 1.5 mph (2.4 kph)**

## Links to Pesticide trials on CRS

- [CRS trial 2015](#)
- [CRS trial 2016](#)
- [CRS trial 2017](#)
- [CRS trial 2018](#)
- [CRS trial 2019](#)
- [CRS Trial 2022](#)
- [CRS Trial 2023 Trial -1](#)
- [CRS Trial 2023 Trial-2](#)