

## UC Pest Management Guidelines

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### AVOCADO

### ARMORED SCALES

Scientific Names:

California red scale: *Aonidiella aurantii*

Dictyospermum scale: *Chrysomphalus dictyospermi*

Greedy scale: *Hemiberlesia rapax*

Latania scale: *Hemiberlesia lataniae*

(Reviewed: 7/01, updated: 7/03)



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#### DESCRIPTION OF THE PESTS

Armored scales are distributed on many hosts throughout the avocado-growing areas of California. [Latania scale](#) is the most commonly found armored scale on avocado. The occurrence of [California red scale](#) on avocado is not very common while the other two species occur commonly but at low levels that do not cause economic damage. [Female scales](#) have a roundish cover, about the size of a pin head. The cover is removable at all stages of latania scale and dictyospermum scale and most stages of other armored scales. An exception is mated, adult female California red scale whose covers are firmly attached to leaves, wood, or fruit. When mature, female scales produce 100 to 150 eggs beneath their covers. [Crawlers](#) hatch and emerge from under covers at a rate of two to three per day. Crawlers search for a suitable places to settle and can be spread about by dropping onto uninfested branches, by wind, birds, or picking crews. Crawlers tend to settle in small depressions on twigs, fruits, or leaves and start feeding. Midway through the second instar, [females and males](#) begin to develop differently. Males form an [elongated cover](#) while female covers remain circular. With each molt female covers develop a concentric ring around the raised center. The covers of latania and greedy scales are grey, while that of dictyospermum scale is yellow brown, and that of red scale is an orange-red color.

[Adult male scales](#) are tiny, two-winged insects that emerge from elongated scale covers after four molts. They live about 6 hours, do not feed, and their sole purpose is to reproduce. The number of male flights, along with the number of generations per year, is from two to four, depending on the

growing region of the state.

## DAMAGE

Armored scales are most abundant on branches or twigs and may appear on leaves and fruit as infestations progress. Latania and red scales are found equally among these surfaces, while dictyospermum scale is most frequently found on fruit and leaves. Greedy scale feeds on twigs and branches. Damage can be worse on young trees and small twigs may be killed. The presence of the scales on the peel will result in fruit being culled, although fruit quality is not impaired.

Armored scales do not produce honeydew, a sticky substance typical of many plant-sucking pests.

## BIOLOGICAL CONTROL

Both parasites and predators keep scales under control. The lady beetles [Lindorus \(=Rhyzobius\) lophanthae](#), [Chilocorus orbis \(=C. stigma\)](#), and [Cycloneda sanguinea](#) feed on scales. The California green lacewing [Chrysoperla californica](#), another general predator, along with the [brown lacewing](#), [Hemerobius pacificus](#), may be found occasionally feeding on all stages of scale. Several predaceous thrips, including [Watsoniella flavipes](#) and [sixspotted thrips](#) ([Scolothrips sexmaculatus](#)) also feed on armored scales. Predaceous mites, [Cheletomimus berlesei](#) and [Hemisarcoptes malus](#), have also been seen feeding on scales. Numerous parasites, some native and some introduced, also prey on scales and include species in the genera [Aspidiotiphagus](#), [Comperiella](#), and [Aphytis](#).

## ORGANICALLY ACCEPTABLE METHODS

Biological control and oil sprays

## MANAGEMENT DECISIONS

With rare exceptions, armored scales are under good biological control. In the infrequent case that control may be justified, oil is the most selective pesticide available. Time scale treatments to coincide with the end of maximum crawler emergence. This varies some with species and occurs at least twice each year. Use double-sided sticky tape around twigs and check regularly to monitor when crawlers are hatching. Once large numbers are detected, apply a treatment.

## TREATMENT

Pesticide (commercial name)	Amount/Acre	P.H.I.+ (days)
A. NARROW RANGE OIL#	Label rates	0
COMMENTS: Restricted entry interval: 4 hours. Requires good coverage to be effective. Oil does kill some beneficial wasps and suppresses beneficial mite populations, however the residue does not persist and parasitic wasps can emerge from parasitized scale or be commercially released soon after treatment.		

+ Preharvest interval. Do not apply within this many days of harvest.

# Acceptable for use on organically grown produce.

## PRECAUTIONS

## PUBLICATION



UC IPM Pest Management Guidelines: Avocado

UC ANR Publication 3436

Insects and Mites

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