

**SCALE INSECTS: BROWN SCALE (*Eulecanium* spp.)**

**SAN JOSE SCALE (*Quadraspidiotus perniciosus*)**

**WHITE PEACH SCALE (*Pseudaulacaspis pentagona*)**



California Red Scale on citrus



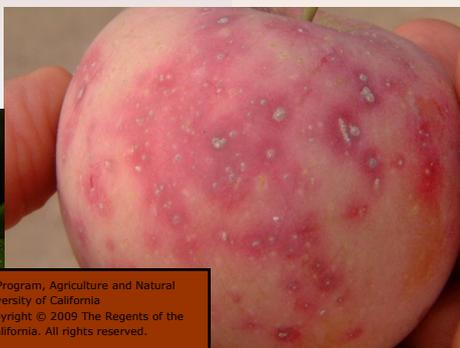
Brown Scale



'White Peach' or 'Mulberry' Scale on peach. This scale infests branches and can defoliate the tree but does not attack the fruit. It attacks apricot, almond, pear, bean, walnut, potato and many other crops

San Jose Scale on apple—feeding causes red spots on fruit

Cottony Cushion Scale. Note white ribbed egg-sack



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## Description

There are numerous scale insects attacking citrus, stone fruit, apples and other perennial fruit and nut trees in Afghanistan. Apples are often seen in the market with red spots where scales have been feeding. Damage includes loss of tree vigour, growth and productivity, and death of limbs. Some types produce honeydew.

## Monitoring

San Jose Scale: Monitoring of fruit damage on stone fruits and nuts in

Threshold live scales	Treatment
Below 20%	No treatment
20% - 60%	Winter Oil
Over 60%	Winter Oil + buprofezin

previous season. If damage was recorded, collect 100 fruit spurs in the dormant season and examine with a hand-lens for live and for parasitized scales (look for hole in shell).

Other Scales Most scales are monitored as above by observing presence in the previous season or by examining shoots in winter. In citrus (and in stone fruit if no dormant season control has been used), the emergence of 'crawlers' in early summer must be monitored for effective timing of treatment. Monitor for crawlers by wrapping sticky tape around 1-year-old branches (12mm diameter) that are infested with live female scales.

## Control

There are many natural enemies of scale insects including parasitic wasps. Pesticides toxic to natural enemies (e.g. chlorpyrifos, cypermethrin) should be avoided. Winter sprays cause the least damage.

San Jose Scale: Winter oil spray alone or combined with an insect growth regulator (e.g. pyriproxifen, buprofezin) is the best treatment.

Citrus: In citrus, chlorpyrifos treatment should be timed when crawlers are active, but pyriproxifen or buprofezin are preferred and should be delayed until all crawlers of the second generation in June/July have emerged and started feeding. Summer oil sprays are recommended for use in July or