HIBISCUS SNOW SCALE

Scientific name: *Pinnaspis strachani* (Cooley)
Order: Hemiptera Family: Diaspididae (armored scale)
Common names Hibiscus snow scale, lesser snow scale

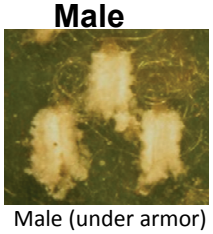
Snow scale on dracaena cane

HOST PLANTS

Hibiscus snow scale is known to infest over 150 ornamentals and fruit trees, including:

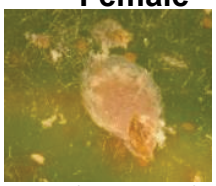
avocado
bird of paradise
carambola
cherimoya
chinaberry
citrus
coconut palm
croton
cycads
dracaena
ferns
geranium
hibiscus
indigenous hi`aloa
jacaranda
lychee
mango
Mexican creeper, native cotton (ma`o)
oleander
pandanus
pikake
plumeria
poinciana
sweet potato
ti
wisteria

Male



Male (under armor)

Female



Female, eggs, and crawlers under armor

actual size

Winged adult male

Enlarged view of exposed female and eggs

DESCRIPTION

The adult female's armor is tough, flat, irregularly oyster shell- or pear-shaped, white or dirty white. The female body is flat, yellow, and an elongated oval shape without wings, legs, or eyes.
Males pupate under armor that is white, long and narrow with three ridges running lengthwise. Adult males emerge with wings, eyes, and legs.

Damage on leaf surface

DAMAGE

Armored scales feed on plant juices and cause loss of vigor, deformation of infested plant parts, yellowish spots on leaf surfaces, loss of leaves, and even death of the plant. Scales can be seen on the underside of leaves beneath a yellowing area, on plant canes or branches.

Scales on underside of leaf

LIFE CYCLE / BEHAVIOR:

Egg to Reproducing Adult – approximately 30 days

- **Eggs** are laid under the armor of the female where they develop and hatch.
- The first **nymphal** stage after hatching, the only stage with legs (**crawlers**), remains under the maternal armor for several hours. They then emerge and can travel short distances while searching out places to settle.
- Once settled, these **nymphs** insert their sucking mouth parts into plants, start feeding, and create armor with secretions and cast skins.
- **Females,** remaining under armor to feed and reproduce, are spread mainly through passive transport on infested plant material. After five stages of development, **winged adult males,** capable of only weak flight or wind transport, emerge from their armor, living only a few hours to mate.

References: Beardsley, J.W. and R.H. Gonzalez. 1975. The biology and ecology of armored scales. Annual Review of Entomology. 20:47-73.
Hansen, J.D., A.H. Hara, and V.L. Tenbrink. 1992. Insecticidal dips for disinfesting commercial tropical cut flowers and foliage. Tropical Pest Management. 38:245-249.

BEST MANAGEMENT PRACTICES FOR HIBISCUS SNOW SCALE

	OPTIONS AVAILABLE
MONITORING TECHNIQUES	▪ Inspect propagative material for live scales before planting. ▪ Monitor overcrowding on benches since scale crawlers can spread from plant to plant without adequate spacing. ▪ Prune plants to maintain spacing and allow complete coverage of insecticides.
SELECT BEST CONTROL METHOD	▪ Treat propagative material with hot water (120 ^{o}F for at least 6 min) to kill scales before planting. ▪ Use horticultural oils that will effectively "smother" all stages (use on tolerant plants). ▪ Select systemic insecticides (dinotefuran) and insect growth regulators (pyriproxyfen, buprofezin) that are effective against armored scales and less harmful to beneficial insects. ▪ Concentrate insecticide applications to 'hot spots', to delay chemical resistance and to conserve beneficial insects like parasitoid wasps and predacious adult and immature lady beetles.
TREATMENT BEFORE MARKET	▪ Treat plants with hot water to kill adults and crawlers (120 ^{o}F for 6 min). ▪ Use approved chemicals that are least toxic to parasitoids to kill adult scales and crawlers.
FINAL INSPECTION	▪ Visually inspect all plants before shipment and remove any intact armor that may indicate presence of live scales.

PRECAUTIONARY STATEMENT / DISCLAIMER: These recommendations are provided only as a guide. Please read and follow all label directions.

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