



Scale Insects in Cranberry

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What are scale insects?

- Tiny, sucking insects
 - Relatively sedentary
 - Mostly female
 - Can have multiple generations per year
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- **The species matters!**

The problem

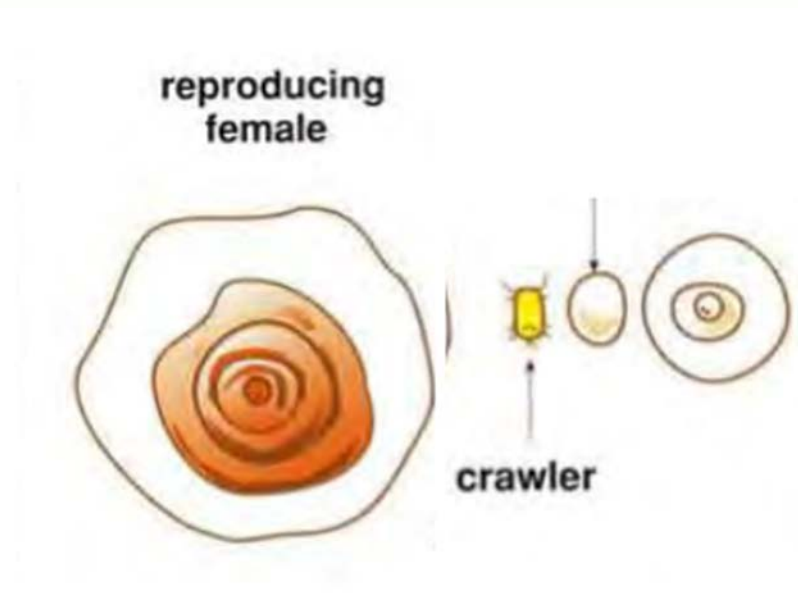
- Stunted, delayed vine growth
- Dead patches in beds
- Reduced fruit set
- Sooty mold infestations can reduce fruit quality (fresh) and photosynthesis



Basic life cycle

Egg → Crawler → Nymph → Adult

- Crawler stage is most vulnerable ... but short!
 - 24-48 hours
 - And first week or so after settling as nymphs



What to look for ...

- Blackish patches
- Dead spots or holes
- Vines that are darker green



What to look for ...



Black patches of sooty mold from a scale infestation in a bog mid-March (photo: CBouska)

What to look for ... up close



Two major types of scale insects ... we have both.

- **Armored scale**

- Detachable protective 'armor'
 - Protects them from environment, natural predators, and us.
- Sedentary after crawler stage



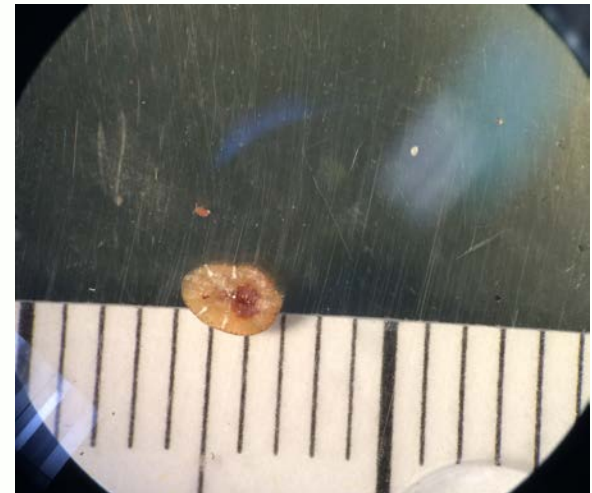
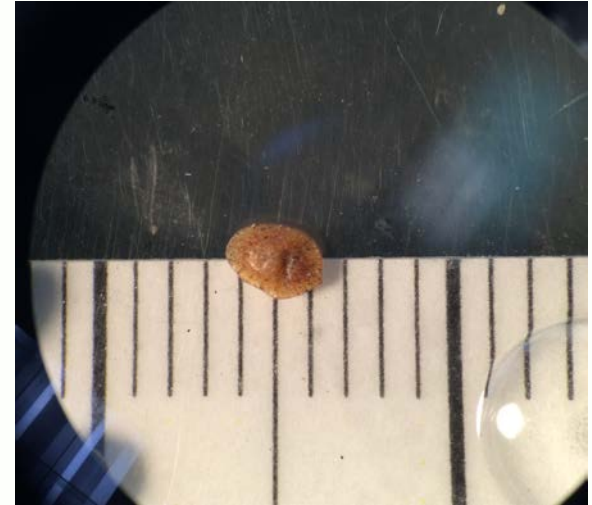
- **Soft scale**

- No protective 'armor'
 - Susceptible to predation, environment, and sprays
- Feed on foliage – sap from phloem
 - Produce honeydew
- Will move seasonally



Soft Scale – Brown soft scale

- Usually found on leaves, often on underside
- No protective ‘armor’
 - Exposed to sprays – especially immature nymphs and crawlers
 - Overwinter as immatures on leaves
- Vascular feeders
 - Systemic insecticides are effective
- Broader control options



Brown soft scale control options

1. Monitor and treat at the crawler stage or right after the crawlers have settled**
2. Treatments during dormancy can target overwintering immatures (chemigation not as effective)
 - 2% insecticidal soap
 - 2% insecticidal soap with an OP (may need to retreat 1 week later)
3. Root absorbed systemic insecticides (Imidacloprid) have shown 90% control rates



Armored scale – greedy scale

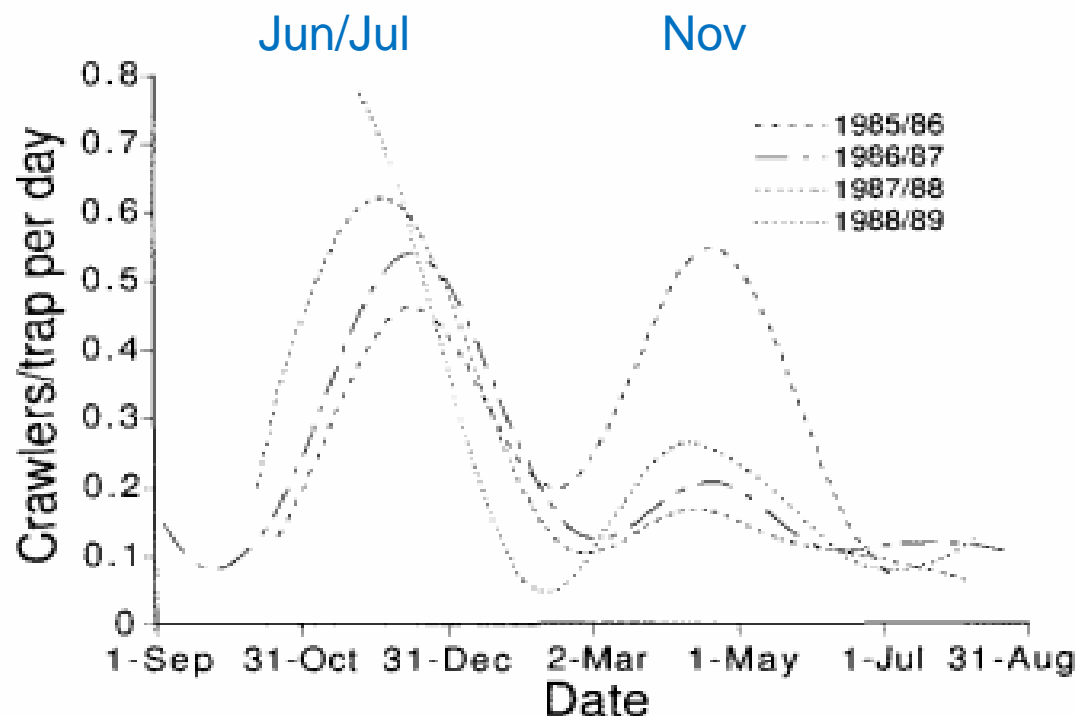
- Tend to be located on the stems and vines
- Protective armor makes control challenging
 - Timing is important!
- Feed directly on plant cells, not sap from phloem
 - Do not secrete honeydew
 - Minimal control with systemic and translaminar insecticides
- Must identify and target crawler stage!





Greedy Scale: Monitoring is Crucial!!

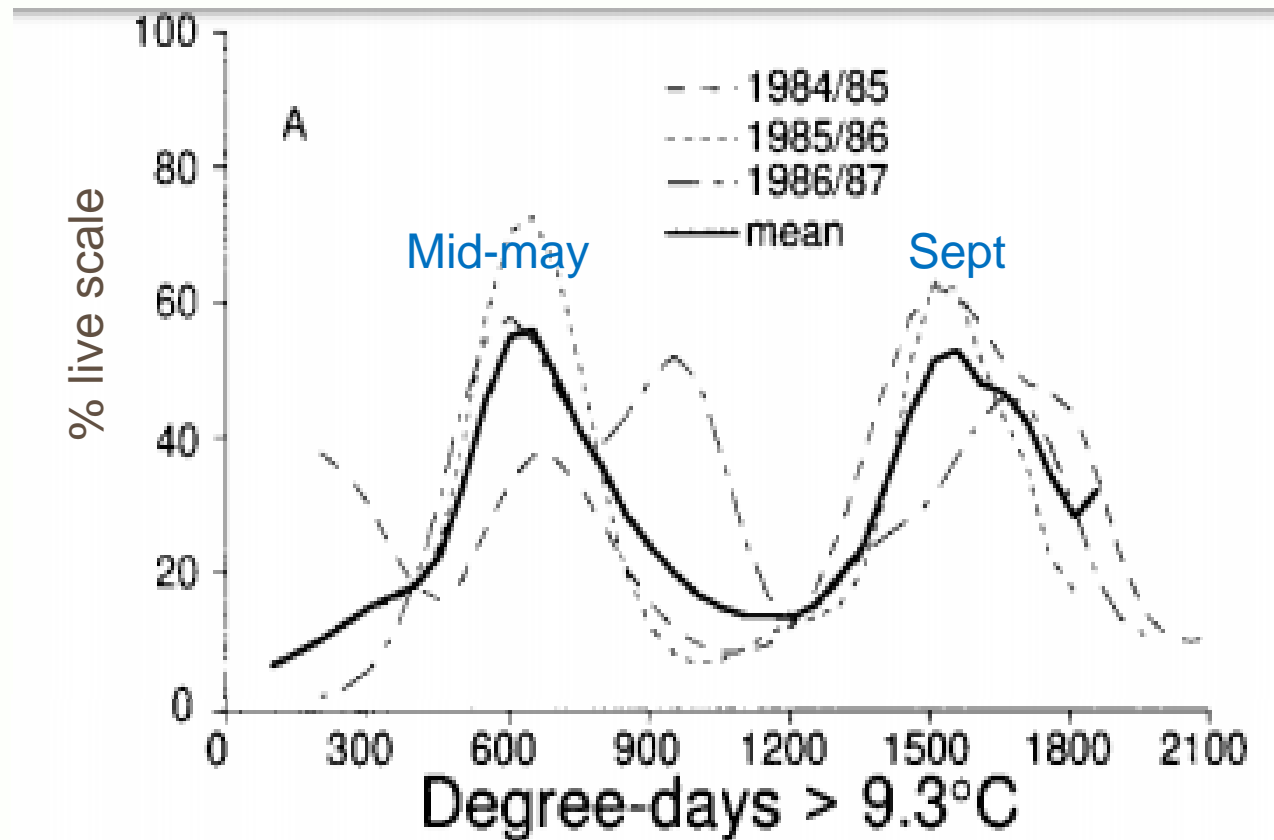
- NZ study looked at peak crawler emergence



Blank, R., G. Gill, and M. Upsdell.
1996. New Zealand Journal of
Crop and Horticultural Science,
24: 239-248

Fig. 7 Greedy scale (*Hemiberlesia rapax*) crawler activity on kiwifruit (*Actinidia deliciosa*) wood assessed using sticky tape traps over four seasons.

- NZ study also looked at presence of 1st nymphs (settled crawlers)





Brown Soft Scale

Coccus hesperidum

Hosts: camellia, dogwood, daphne, holly, but especially a pest of greenhouse ornamentals and houseplants

Damage: build up in large numbers on leaves and may kill the host plant; produce abundant honeydew.

Description: TYPE I scale, $\frac{1}{8}$ "– $\frac{3}{16}$ " in length, oval, flattened, soft shell, green-brown in color; crawlers yellow-brown

Overwintering Stage: as immature scales on leaves

Other Factors: these scales feed on leaf undersurface and often are overlooked; primarily a pest of indoor ornamentals; two generations per year outside, up to six generations indoors.

Control: numerous predators and parasites control these insects in ornamentals outdoors, predators can offer relief from scale infestations if introduced into greenhouse settings; cyfluthrin

0.75% EC can be applied to control adult scales, but thorough coverage is necessary; Orthene 9.4% EC or insecticidal soap for crawler control.



Treatment recommendation

- Use double-sided tape to monitor for crawler emergence when temps reach 60° F
- Apply horticulture oil (dormant, delayed-dormant)
 - Time application to coincide with warmer temps, dry weather, and crawler emergence
- Continue to monitor – you'll likely need to apply again 2-4 weeks later



Oils and soaps

- Insecticidal soaps
 - Damage protective coat of soft-bodied insects causing them to dehydrate
- Horticulture oils (petroleum- and vegetable-based)
 - Smother and suffocate
 - Dormant oils = heavier, less refined. Used when plants are dormant
 - Summer, superior oils = lighter, more refined. Can be applied when plants are active
- Neem oil (botanical insecticide)
 - Made from neem tree seeds
 - Smothers and suffocates ... but also has some insecticidal properties
 - Most effective against actively growing immature insects

