

SCALE INSECTS in MA CRANBERRY

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June 3, 2014

Scale are a kind of insect in the order Hemiptera. The species we have are armored scales. They have a waxy covering that protects the immobile yellow female insect underneath. The female feeds on the plant, generally attached to the side of the lower upright, blending in with the bark. The females develop eggs under their scale covering in the spring and release them as tiny crawlers, generally in June.

Keep posted for corrections and updates as we learn more about these cranberry pests.

If you think you have a possible infestation, bring in a bag of uprights including old wood (lowest part of upright), with name, site, and phone number on it to the Entomology Lab at the UMass Cranberry Station.

Do you have circular areas of red vine or dead spots?

If you have weak, red, or dead circles of vines this spring, perhaps you have scale insect. Two species of 'armored scale,' Putnam scale and the so-called 'Dearness scale' (ID pending), have appeared on about a dozen sites across the MA growing region. Putnam scale is more common. Scales look like bumps on the upright stem. They suck plant juices and weaken the vines.



On left: Putnam scale injury.



On right: 'Dearness scale' injury

What you need to know:

- 1) **Scout your acreage since you may not be able to see vine injury from a distance.** The affected areas can enlarge rapidly over the years.
- 2) Treatments will occur around bloom. A crucial step in scale control is determining when the majority of **crawlers** (immatures) have emerged (see description below). These tiny yellow specks can be seen moving on the stem, perhaps requiring a hand lens to see. The crawler period may last

for 2 weeks, likely just before and during bloom. This is the time when the insects spread, and build up to high densities, particularly on thick old stems of the upright.

The crawlers do not have a protective covering and are known to be vulnerable to a number of chemicals. Right now, if you miss the crawler stage, you may miss the boat. In the future, we hope to have an additional option aimed at adults.

3) Carefully check vines for scales. Run your fingers along the stem; scale covers will fall off easily. **Look for dark or white bumps on the upright's stem, going down to the oldest woody part of vines.** The bumps will be crunchy when crushed. If the insect is still alive, goo will come out. Empty scale covers often hang onto the stem, so it's important to check for the live scales. Where the covers have come off, there may be white spots on the stem.

4) We have insecticide efficacy information coming in, so **watch for updates**. Our current idea is that **Diazinon**, applied for management of other insects would be the best choice against the crawler stage. *Do not wash* the spray off in the morning; always spray on a **night** when the residue will be dry by morning if bees are foraging. In other crops, crawlers are susceptible to sprays of most insecticides, but these are even poorer choices at bloom!

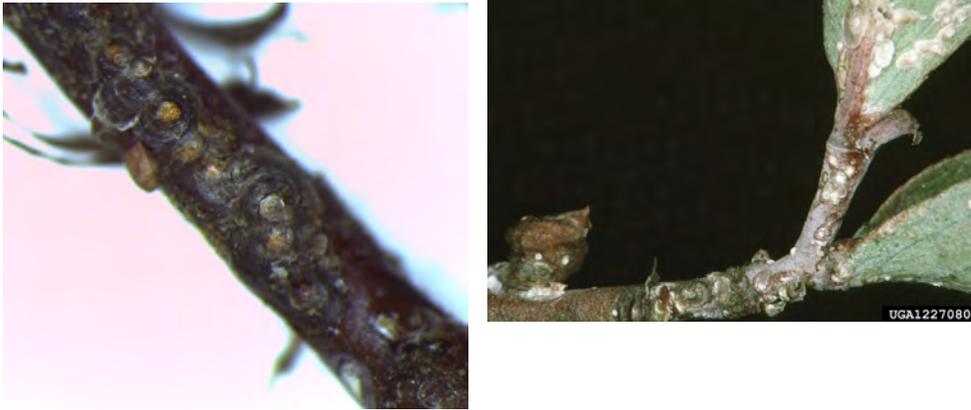
Sprays of broad-spectrum insecticides, such as Diazinon, likely will disrupt the natural enemies (e.g tiny wasps) that often keep scales suppressed. We are working on lower-risk options to avoid this and will report the results.



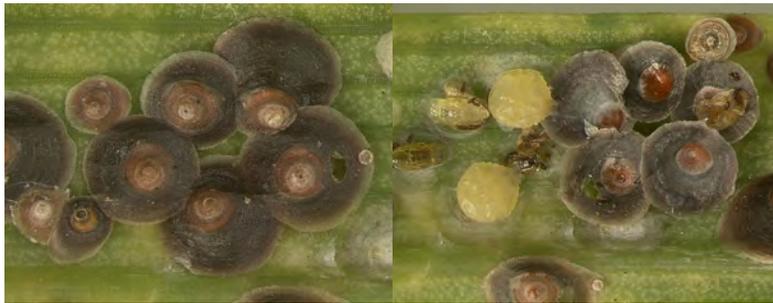
The blob-like females under their shell produce tiny (mite size) immatures called crawlers. Crawlers move to new sites to settle, insert mouthparts and make their own shell covering, which grows as the scale does. Crawlers can be picked up by the wind (Left figure: G. Conville in Forster et. al University of California pub #21529; Right photo: Jack Kelly Clark)

PUTNAM SCALE

In blueberry, there are two generations of Putnam scale, with crawlers appearing again in August. The scales settle in areas where the bark has lifted up; as the bark grows over the developing scale, it makes them more difficult to detect.



On left: Putnam scales on cranberry stem appear as small, dark discs. Where the scale covering has come off, you can sometimes see some white residue. On right, photo shows how the Putnam scales have integrated into the bark of the older and thicker parts of the stem (on blueberry) (Right photo: Jerry A. Paine, USDA)



Florida red scale, shown, is somewhat similar in appearance to Putnam scale. Adult females with intact scale covers on left; adult females with scale covers flipped over are shown on right (Photos: Lyle Buss University of Florida)



Putnam scale injury. On left: new spots appear. On right, after several years, vines are recovering at center. Scales would be most dense at the edges of the affected areas.

‘DEARNESS SCALE’

‘Dearness scale’ (below) (species ID is pending) is like a tiny white clamshell and can be seen easily on the woody part of the upright’s stem.



On left : shell covering on upright. On right: the insect underneath the shell is sac-like and legless (photo by J.S. Mann. DM Crop Consulting and Diagnostics, Ltd.).



A dead area on cranberry owing to severe ‘Dearness’ scale infestation. The tiny white dots are the shell coverings of the individual scale insects.