

ORGANIC CONTROL FOR CRANBERRY INSECT MANAGEMENT

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With help from Anne L. Averill's section in the UMass Cranberry Chart Book (2017).

Cranberry insect management is difficult even with all the commercial synthetic compounds available. Be aware that organic production may not be a viable option unless there is low insect pressure and a good water supply available. Cranberry fruitworm, black-headed fireworm, cranberry weevil, and perhaps cranberry tipworm, pose the greatest threats to viability. Blunt-nosed leafhopper may also be a re-emerging and serious pest to contend with in Maine.

Maine growers who wish to be certified by an organic certification organization need to go through MOFGA Certification Services, LLC, a wholly-owned subsidiary of the Maine Organic Farmers and Gardeners Association (www.mofga.org). They are a USDA-accredited organic certifier, operating principally in the state of Maine. MOFGA has operated a certification program since 1972, the first state-level program in the country. Every certifier must work under standardized USDA rules and all inputs must be listed with OMRI (Organic Materials Review Institute). This list can be found on the web www.omri.org and a hard copy is supplied with certification. Some products are referred to as 'Restricted.' The restricted products have certain conditions attached to them that have to do with the generic materials in the product (amounts or frequency of application, etc.). OMRI also puts out a Generic Materials List. Three years of no synthetic chemical applications are necessary before a crop can be certified organic.

Use of cultural practices (sanding and/or flooding) is the most effective strategy for organic insect control.

- **Late-Water (LW) Flood** – This is an excellent choice to greatly reduce cranberry fruitworm levels; however, moths may move into LW-treated beds from other areas of infestation, including areas with wild cranberries. False armyworm, blossomworm, southern red mite, and gypsy moth may be managed with LW. Holding LW kills gypsy moth eggs laid on the bog as well as prevents establishment of many tiny caterpillars that drift in from infested uplands.
- **Sanding** – Most insect pests should be less abundant. A minimum depth of 1" is best for suppressing cranberry tipworm, but tipworm tends not to be a big problem where natural enemy populations have been safeguarded for several years or more.
- **Winter Flood** -- If you can winter flood, populations of most insects should be less abundant.

The following are options that are cleared for organic management on cranberry:

Azadirachtin products (Restricted Use)

Aza-Direct at 1-3.5 pt / A	Target small caterpillars with this biological insecticide – it serves as a repellent, antifeedant, and interferes with the molting process. Neemix was sprayed on a small test plot in downeast Maine in 2004, targeting cranberry tipworm, but tipworm infestation and tip damage levels did not noticeably decline.
Neemix 4.5 at 4-16 fl oz / A	

Bacillus thuringiensis (B.t.) products

Dipel DF (<i>kurstaki</i> strain) ½-1 lb / A	These compounds are most effective when applied multiple times in low gallonage against small caterpillars feeding on foliage. Treating early infestations is critical. Well timed chemigation systems are critical for good efficacy (6 min or less rinse time). Be aware that not all <i>B.t.</i> 's are certified for organic or have cranberry on the label.
Biobit HP (<i>kurstaki</i> strain) ½-1 lb / A	
Xentari (<i>aizawai</i> strain) ½-1½lb / A	

Grandevo 2-3 lb No chemigation allowed; Chromobacterium subtsugae strain

M-pede Insecticidal Soap 1-2% solution; no chemigation allowed.

Neem Oil Products Useful as a dormant application for suppression of southern red mite egg hatch. Do not chemigate. Use 1% rate for ground application. Be aware that it accelerates plant growth stage and adjust frost protection accordingly. Also suppresses eggs and motile mites post bloom.

--Trilogy

Nematodes (Availability limited) Expensive, but a good organic option for grub and girdler management should these ever become a problem in Maine cranberries.

Pyganic EC 1.4 16-64 fl oz / A Restricted. Spot-treating using low gallonage may be helpful for patchy infestations.

Pyganic EC 5.0 4.5-18 fl oz / A Note that any Pyrethins with added piperonyl butoxide are not allowed.

Spinosyn products

-- Entrust 80W 1.25-3 oz / A	Entrust is an effective, fast-acting, but quite short-lived insecticide. Do not exceed 9 oz per season. This is the better tool to use (compared to <i>Bt</i>) once caterpillars have already reached a larger size. When chemigating, a short rinse time (6 minutes or less) is necessary for good efficacy. Only use lowered rates if chemigation system is 4 minutes or under. Entrust is moderately toxic to aquatic invertebrates and is highly toxic to bees until it is thoroughly dried (residues are then safe to bees). Thus, spray at night, and when drying conditions are optimal overnight (aim to have it dry by morning).
-- Entrust SC 4-10 fl oz / A	

Venerate XC 1-8 qts / A Heat-killed Burkholderia spp. Strain A396; no chemigation; 4 hour REI; 0-day PHI; for use against armyworms, fireworms, leafrollers, spanworms (loopers) and *Spag* fruitworm; suppression only of mites, aphids, thrips and cranberry weevil.