

# 2014 MAINE Cranberry Pest Management Guide



*Insects*



*Weeds*



*Diseases*



Additional information collected from:

- *Northeast US Cranberry Pesticide Charts*
- *Wisconsin Cranberry School Proceedings*
- *Cranberry Pest Management in Wisconsin (online)*
- *University of Wisconsin's 'Fruit Pathology' web pages*
- *UMass Cranberry Chart Book (2010-2014)*
- *American Phytopathological Society*
- *Compendium of Blueberry and Cranberry Diseases*
- *The American Cranberry by Paul Eck*
- *Atlantic Cranberry Management Courses (2006 & 2008) (Canada)*

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***New this year:***  
**Insecticides: Venom®,  
Scorpion®, and Grandevo®**



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## INTRODUCTION

By C. D. Armstrong, Cranberry Professional, University of Maine Cooperative Extension

Pesticides are a valuable tool for boosting production and improving crop quality, but they should be used only when they are absolutely needed. With few exceptions, pesticides should be used only when pests are present in economically-damaging numbers and other methods cannot effectively control them. In some cases, however, preventative use is a necessary, cost-effective means of protecting your cranberry crop. Preventative use should be exercised only when knowledge of the pest indicates it is necessary. It is also important that you be familiar with alternatives to the use of traditional pesticides--such as a variety of flooding practices, *B.t.* products (such as Dipel), sprayable pheromones (if available), flame cultivation (for weed control), etc.

**NEW**

There are some new insecticides registered this year for cranberry use, most notably Venom® (by Valent) and Scorpion® (by Gowan). They are neonicotinoids with an active ingredient not found in any of our other cranberry insecticides: dinotefuran. All of our most problematic insect pests are on the label for each of these (including tipworm) but, unfortunately, the labels state “suppression only” for each one of them. There are two families of insects, however, that they apparently work very well against: flea beetles and leafhoppers, and these are two groups of pests that may be making a comeback as we scale back our use, as an industry, of broad-spectrum materials. Please contact me if you have any questions about either one of the new materials.

The Maine Board of Pesticides Control (BPC) recommends that you still check with your dealer for the registration status of any pesticide in order to be sure, and that you *always* check your label! You can also call and ask the Maine BPC at: (207) 287-2731 or, if you like, visit them online at:

<http://www.maine.gov/dacf/php/pesticides/> where you can also conveniently and easily [Search for Maine Registered Products](#)

**NOTICE: Pesticide registration status is subject to change and varies from state to state; therefore the author and the University of Maine Cooperative Extension cannot assume liability for recommendations. It is the responsibility of the applicator to verify the registration status of any pesticide BEFORE applying it. THE LABEL IS THE LAW: ALWAYS READ AND FOLLOW THE LABEL WHEN APPLYING PESTICIDES. Use of product names does not imply endorsement.**

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**Cover Photos by C. Armstrong -- Left to right: Redheaded flea beetle, Meadowsweet, and Red Leaf Spot fungus in its early stage.**

# CAUTIONS






## Herbicides

<u>Product</u>	<u>Maximum allowable formulation</u>	<u>Pre-harvest interval (PHI)</u>	<u>Restricted Entry Interval (REI)</u>	<u>Maximum number of applications per season</u>
Callisto (mesotrione)	16 fl oz	45 days	12 hrs	2 (14+ days apart)
Casoron 4G (dichlobenil)	100 lb	N/A	12 hrs	N/A
 Devrinol (napropamide)	18 lb	N/A	24 hrs	N/A
Evital 5G (norflurazon)	160 lb	N/A	12 hrs	1
 (low) Fusilade (fluazifop)	N/A	1 year	12 hrs	N/A
 Poast (sethoxydim)	5 pints	60 days	12 hrs	N/A
Reglone (diquat dibromide)	N/A	1 year	when dry	N/A
 low Roundup, Rodeo (glyphosate)	N/A	30 days	12 hrs	N/A
 low Roundup Weather MAX	N/A	30 days	4 hrs	N/A
 low Select Max (clethodim)	64 fl oz	30 days	24 hrs	N/A
2,4-D granular*	N/A	N/A	12 hrs	N/A
Stinger (clopyralid)	16 oz	50 days	12 hrs	2

















## Fungicides

	<u>Maximum formulation</u>	<u>PHI</u>	<u>REI</u>	<u>Max # apps per season</u>
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### **Chlorothalonils (Restricted Use)**

 Bravo Weather Stik    Chlorothalonil 720 SC    Echo 720	20 pints	50 days	12 hrs	3
 Equus 720 SST    Chloronil 720    Initiate 720	20 pints	50 days	12 hrs	3
 Bravo Ultrex    Equus DF	18 lb	50 days	12 hrs	3
 Echo 90DF	17.25 lb	50 days	12 hrs	3
 Equus 500 ZN, Initiate ZN	29 pints	50 days	12 hrs	3








### **Coppers**

	Badge X2: 10.5 lb	No PHI	48 hrs	3
 Badge X2    Badge SC	Badge SC: 21 pints	No PHI	48 hrs	3
 Champ Formula 2 Flowable	26.6 pints	No PHI	48 hrs	5
 3 lb Copper Flowable	32 pints	No PHI	24 hrs	3
 Nu-Cop 3L	17 pints	No PHI	48 hrs	3
 Nu-Cop HB    Nu-Cop 50 DF	12.6 lb	No PHI	48 hrs	3
 Top Cop with Sulfur	6 qt	No PHI	24 hrs	3
 MasterCop	9 pints	No PHI	48 hrs	3
 Champ WG	12.6 lb	No PHI	48 hrs	3
 Champ DP Dry Prill	28 lb	No PHI	48 hrs	5
 Cuprofix Ultra 40 Disperss	15 lb	No PHI	48 hrs	3
 Nordox	24 lb	No PHI	24 hrs	3
 Nordox 75 WG	15 lb	No PHI	12 hrs	3
 Kentan DF	15.75 lb	No PHI	48 hrs	3
 Kocide 2000	30 lb	No PHI	48 hrs	5
 Kocide 3000	17.5 lb	No PHI	48 hrs	5
 Copper-Count-N	24 qt	No PHI	48 hrs	3

























### **Mancozeb**



 Manzate Flowable, Manzate Max, Dithane F-45 RainShield	14.4 qt	30 days	24 hrs	3
 Dithane M-45, Roper DF RainShield, Koverall	18 lb	30 days	24 hrs	3
 Penncozeb 75DF or 80WP, Manzate Pro-Stick	18 lb	30 days	24 hrs	3
 ManKocide	21 lb	30 days	48 hrs	3
 Ferbam Granuflo (ferbam)	30 lb	50 days	24 hrs	5



### **Other Products**



 low Fosphite, Fungi-phite, K-Phite, Rampart (phosphites)	na	No PHI	4 hrs	na
 low Phostrol (phosphites)	24 pints	3 days	4 hrs	4
 low ProPhyt (phosphites) (for <i>Phytophthora root rot</i> )	12 pt	No PHI	4 hrs	3
 low Metastar 2EC (metalaxyl)	21 pints	45 days	48 hrs	3
Ridomil Gold SL (mefenoxam / metalaxyl-M)	5.25 pints	45 days	48 hrs	3
Ridomil Gold GR (mefenoxam / metalaxyl-M)	105 lb	45 days	48 hrs	3
Ultra Flourish (mefenoxam / metalaxyl-M)	10.5 pints	45 days	48 hrs	3
 Abound (azoxystrobin)	92.3 oz	3 days	4 hrs	6
 Aliette WDG (fosetyl-al)	20 lb	3 days	12 hrs	4
 Indar 2F (fenbuconazole)	48 oz	30 days	12 hrs	4
Proline (prothioconazole)	10 fl oz	45 days	12 hrs	2



## Insecticides

	Max actual toxicant/A	PHI (days)	REI	Max # of applications per season
 Actara* (thiamethoxam)	0.188 lb	30 days	12 hrs	(12 oz/A total for season)
 Admire (imidacloprid)	0.5 lb	30 days	12 hrs	(0.5 lb ai/acre)
 Assail (acetamiprid)	0.26 lb	60 days (if wet-harvest)	12 hrs	<b>2</b>
 Scorpion (denotefuran)	0.180 lb	7 days	12 hrs	<b>2</b> (0.360 lb ai/acre)
 Venom (denotefuran)	0.175 lb	7 days	12 hrs	<b>2</b> (0.350 lb ai/acre)
 Altacor (chlorantraniliprole)	0.2 lb	1 day	4 hrs	<b>3</b> (& 9 oz/A total for season)
 Avaunt (indoxacarb)	0.44 lb	30 days	12 hrs	(24 oz/A total for season)
 Belay (clothianidin)	0.2 lb	21 days	12 hrs	(12 oz/A total for season)
 B.t. products	N/A	No PHI	4 hrs	-
 Confirm (tebufenozide)	1 lb	30 days	4 hrs	<b>4</b>
 Delegate (spinetoram)	0.305 lb	21 days	4 hrs	<b>6</b>
 Diazinon*	12 lbs	7 days	5 days	<b>3</b>
 Entrust (spinosad)	0.15 lb	21 days	4 hrs	<b>6</b>
 Grandevo (Chromobacterium subsugae)	3 lbs	0 days	4 hrs	-
 Imidan (phosmet)	15.6 lbs	14 days	24 hrs / 3 days	(15.6 lb/A total for season)
 Intrepid* (methoxyfenozide)	1 lb	14 days	4 hrs	(64 fl oz/A total for season)
 Lorsban* (chlorpyrifos)	1½ lbs	60 days	24 hrs	<b>2</b> <b>Note:</b> Lorsban 75 WG formulation is not restricted use.
 Nematodes ( <i>parasitic worms</i> )	N/A	No PHI	0 hrs	-
 Nexter (pyridaben) [ <i>for mites</i> ]	1 lb	21 days	12 hrs	<b>2</b>
 Orthene (acephate)	1 lb	90 days	24 hrs	<b>1</b>
 Oberon (spiromefesin) [ <i>for mites</i> ]	0.75 lb	3 days	12 hrs	<b>3</b>
 Pyrenone or Pyronyl	60% PBO + 6% Pyrethrins	No PHI	12 hrs	-
 Rimon (novaluron)	0.23 lb	1 day	12 hrs	<b>3</b> <b>Note:</b> Rimon, Intrepid and Grandevo are toxic to aquatic invertebrates.
 Sevin (carbaryl)	4 lb	7 days	12 hrs	<b>5</b>

 **Extremely toxic to fish**  
 Moderately toxic to fish

 **Extremely toxic to bees**  
 Moderately toxic to bees

 **Extremely toxic to birds**  
 Moderately toxic to birds

 **Extremely toxic to people**  
 Moderately toxic to people

**NOTE:** Rimon® and Intrepid® are “moderately toxic” to aquatic invertebrates, such as lobsters, crayfish, and aquatic insects such as mayflies, dragonflies, etc. The toxicity of Scorpion® to aquatic invertebrates varies from practically nontoxic, all the way to highly toxic, depending on the species in question.

**\* = Restricted Use (requires a pesticide license to purchase or apply)**

### OTHER CAUTIONS:

- ◆ Pesticide-treated beds may need to be posted. Check labels. Workers and scouts should be notified prior to treatments & informed about re-entry times.
- ◆ **READ & FOLLOW LABEL INSTRUCTIONS.** Do not use a pesticide for control of a pest not listed on the label unless a specific recommendation is made by a person authorized to do so.
- ◆ Make all pesticide applications in a manner that prevents contamination of streams, ponds, and public ways, and impound water as long as possible after applications.
- ◆ Be aware of, and adhere to, guidelines regarding distances from the site of the chemical application to any protected areas. Consider the addition of drift retardants.
- ◆ Avoid insecticide applications during bloom to prevent bee killings. When it is unavoidable, make sprinkler applications at night and run sprinklers early the following morning to delay foraging and pollinating activity.
- ◆ Stored pesticides may deteriorate. Avoid freezing of liquid formulations. It is usually not advisable to use the held-over materials in opened containers. Follow regulations of the Board of Pesticides Control when disposing of pesticides<sup>5</sup> and their containers.
- ◆ **CONCENTRATE SPRAYS** may injure new growth, bloom, and small berries, particularly in hot and humid weather or if the emulsifiable concentrate (EC) content nears 50% of the mixture.

**Time Needed for Certain Pesticides to be Rainfast:**

Confirm & Intrepid:	6 hrs
SpinTor, Delegate, Rimon:	5 hrs
Poast:	1 hour
Roundup:	6 hrs
Roundup WeatherMax:	1 to 2 hrs
Select Max:	1 hour
Callisto:	4 hrs

**Recommended water-holding times:**

(Check the label on the product you are using to verify info.)

<u>At least 1 day:</u>	Avaunt®
<u>At least 3 days:</u>	Chlorothalonil products (e.g. Bravo®), & insecticides Nexter® & Diazinon®
<u>At least 5 days:</u>	Chlorpyrifos (e.g., Lorsban®) products and Actara®
<u>At least 14 days:</u>	Abound® fungicide.

**WARNING!!**

PESTICIDES ARE POISONOUS. READ AND FOLLOW ALL DIRECTIONS AND SAFETY PRECAUTIONS ON LABELS. HANDLE CAREFULLY AND KEEP ORIGINAL LABELED CONTAINERS IN LOCKED STORAGE AREA. DO NOT CONTAMINATE FORAGE, STREAMS OR PONDS. DISPOSE OF EMPTY CONTAINERS IN A LEGAL MANNER.

Repeated exposure to organophosphate insecticides (such as Diazinon, Imidan, and Lorsban) may, without symptoms, increase susceptibility to phosphate poisoning. Any pesticide-treated bed must not be entered until the restricted entry interval (REI) has elapsed (see the pesticide label). Workers should be notified prior to treatment. Tell family and co-workers. Make certain your doctor understands. After an accident, there may not be time.

IF SYMPTOMS OF ACUTE POISONING OCCUR, IMMEDIATELY TAKE VICTIM AND THE APPROPRIATE PESTICIDE LABEL OR CONTAINER TO THE NEAREST HOSPITAL EMERGENCY ROOM. FOR INFORMATION AND ADVICE AT ANY TIME, DAY OR NIGHT, CALL THE MAINE POISON CONTROL SYSTEM AT:

**1-800-222-1222**

## **REMINDER FOR RESPONSIBLE APPLICATORS**

**Remember that Lorsban, Sevin, Vapam, Abound, and products containing chlorothalonil are extremely toxic to fish and can cause fish kills. Diazinon is highly toxic to both fish *and* birds.** Also, keep in mind that Rimon and Intrepid are molting disruptors and are therefore labeled as '*moderately toxic to toxic*'—to aquatic invertebrates (freshwater and marine).

**For full pesticide labels and MSDSs visit *www.cdms.net***

To avoid contamination, do not clean equipment or dispose of wastes near open water. Drift, runoff or release of contaminated ditch water from treated areas may be hazardous to fish or other aquatic organisms in adjacent aquatic sites.

**Following any pesticide application, hold water for as long as possible.**

Granular insecticide formulations may cause bird kills, especially waterfowl that feed or drink on treated sites. Do not leave granules on bare ground where they could be eaten. Be sure granules fall into vines and are watered in by sprinkler irrigation. Drain away any puddles left behind, if possible.