

2010 MAINE Cranberry Pest Management Guide



Insects



Weeds



Diseases



Pest Management Office
491 College Ave
Orono, ME 04473-1295

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)*
- *American Phytopathological Society*
- *Compendium of Blueberry and Cranberry Diseases*
- *The American Cranberry* by Paul Eck
- *Atlantic Cranberry Management Courses (2006 & 2008) (Canada)*

New this year:

**2 new materials with tipworm
on the label: Rimon® and Belay®
and a change in spray
timing for cranberry
fruitworm!**

Available online at:

<http://extension.umaine.edu/cranberries/grower-services/cranberry-ipm-guide>



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Supplemental Pages:

- ✓ UMass & UMaine Extension Cranberry Publications Listings (with order forms)
- ✓ Maine Obsolete Pesticide Inventory Form
- ✓ Cranberry Pest Scouting Record / Template
- ✓ Cranberry Tipworm – Submission Form
- ✓ Answers to Common Nutrition Questions
- ✓ Index (page 62)
- ✓ Measures and Conversions Chart (back cover)

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.

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, vinegar (for weed control), etc.

NEW

There are some new insecticides registered this year for cranberry use, most notably Rimon® (by Chemtura AgroSolutions) and Belay® (by Valent USA Corporation). Both of these have cranberry tipworm on the label, as well as several other pests. Rimon® may be used up to three times per season, is an Insect Growth Regulator (IGR), and is very pollinator-friendly, whereas Belay® is a neonicotinoid that is very highly toxic to bees (active ingredient is clothianidin) and is therefore only registered for post-bloom use (up to 12 fl oz total per season). 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/agriculture/pesticides/>







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Cover Photos by C. Armstrong -- Left to right: Blunt-nosed Leafhopper, Milkweed plants, and Red Leaf Spot fungus in its early stage.

CAUTIONS








Herbicides

<u>Product</u>	<u>Maximum allowable formulation</u>	<u>Pre-harvest interval (PHI) (days)</u>	<u>Restricted Entry Interval (REI)</u>	<u>Maximum number of applications per season</u>
Callisto (mesotrione)	16 oz	45 days	12 hrs	2 (14+ days apart)
Casoron (dichlobenil)	100 lb	N/A	12 hrs	N/A
 Devrinol 50DF (napropamide)	18 lb	N/A	24 hrs	3
Evital (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
Princep (simazine)	4 qt	N/A	12 hrs	1
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 oz	30 days	24 hrs	N/A
2,4-D granular	N/A	N/A	12 hrs	N/A
Stinger	16 oz	50 days	12 hrs	2














Fungicides

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

	Bravo Weather Stik, Chlorothalonil 720 SC	19.5 pints	50 days	12 hrs	3
	Equus 720 SST, Chloronil 720	19.5 pints	50 days	12 hrs	3
	Chlorothalonil 720 F	20 pints	50 days	12 hrs	3
	Echo 720	21 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	27.75 pt	50 days	12 hrs	3








Coppers

	Champ Formula 2 Flowable	26.6 pints	No PHI	24 hrs	5
	3 lb Copper Flowable, Nu-Cop 3L	32 pints	No PHI	24 hrs	3
	Nu-Cop HB	12 lb	No PHI	24 hrs	3
	Top Cop with Sulfur	6 qt	No PHI	24 hrs	3
	Champion WP, Champ WG	40 lb	No PHI	24 hrs	5
	Champ Dry Prill	28 lb	No PHI	24 hrs	5
 (salmon)	Cuprofix MZ Disperss ( to  for other fish)	42 lb	30 days	24 hrs	3
	Kocide DF, Nu-Cop 50 DF, Nu-Cop 50 WP	24 lb	No PHI	24 hrs	3
	Kocide 2000	18 lb	No PHI	24 hrs	3
	Kocide 3000	10.5 lb	No PHI	24 hrs	3
	Copper-Count-N	24 qt	No PHI	12 hrs	3

Mancozeb, Manebs

	Manzate Flowable, Manex, Penncozeb 4 FL	14.4 qt	30 days	24 hrs	3
	Dithane F-45 RainShield	14.4 qt	30 days	24 hrs	3
	Dithane M-45, Dithane DF RainShield	18 lb	30 days	24 hrs	3
	Penncozeb 80 WP, Maneb 80 DP	18 lb	30 days	24 hrs	3
	Maneb 75DF, Penncozeb 75DF, Manzate Pro-Stick	18 lb	30 days	24 hrs	3
	ManKocide	96 lb	30 days	24 hrs	3

Other Products

	Ferbam Granuflo	30 lb	50 days	24 hrs	5
	Ridomil Gold SL	5.25 pints	45 days	48 hrs	3
	Ridomil Gold GR	105 lb	45 days	48 hrs	3
	Abound	92.3 oz	3 days	4 hrs	6
	Aliette WDG	20 lb	3 days	12 hrs	4
	Phostrol	24 pints	3 days	4 hrs	4
	Indar 75 WSP	16 oz	30 days	12 hrs	4
	Indar 2F	48 oz	30 days	12 hrs	4
 low	ProPhyt (for <i>Phytophthora</i> root rot)	12 pt	No PHI	4 hrs	3

Insecticides

		Max actual toxicant/A	PHI (days)	REI	Max # of applications per season	
	Actara* (thiamethoxam)	0.188 lb	30 days	12 hrs		(12 oz. total for season)
	Admire, Alias (imidacloprid)	0.5 lb	30 days	12 hrs		(0.5 lb ai/acre)
	Assail (acetamiprid)	0.26 lbs	1 day	12 hrs	2	
	Avaunt (indoxacarb)	0.44 lb	30 days	12 hrs		(24 oz. total for season)
	Belay (clothianidin)	0.2 lbs	21 days	12 hrs		(12 fl oz total for season)
	<i>B.t.</i> based products	N/A	No PHI	4 hrs	-	
	Confirm (tebufenozide)	1 lb	30 days	4 hrs	4	
	Delegate (spinetoram)	0.305 lb	21 days	4 hrs	6	
	Diazinon*	12 lbs	7 days	5 days	3	
	Entrust (spinosad)	0.45 lb	21 days	4 hrs	6	
	Imidan (phosmet)	15.6 lbs	14 days	24 hrs / 3 days		(15.6 lb total for season)
see note	Intrepid* (methoxyfenozide)	1 lb	14 days	4 hrs		(64 fl oz total for season)
	Lorsban* (chlorpyrifos)	1½ lbs	60 days	24 hrs	2	Note: Lorsban 75
	Nematodes (<i>parasitic worms</i>)	N/A	No PHI	0 hrs	-	WG formulation is not restricted use.
	Nexter (pyridaben) [<i>for mites</i>]	1 lb	21 days	12 hrs	2	
	Orthene (acephate)	1 lb	90 days	24 hrs	1	
	Oberon (spiromefesin) [<i>for mites</i>]	0.75 lb	3 days	12 hrs	3	
	Pyrenone or pyronyl 60% PBO + 6% Pyrethrins		No PHI	12 hrs	-	
see note	Rimon (novaluron)	0.23 lb	1 day	12 hrs	3	Note: Rimon and Intrepid are toxic to aquatic invertebrates.
	Sevin (carbaryl)	4 lb	7 days	12 hrs	5	
	SpinTor (spinosad)	0.45 lb	3 days	4 hrs	6	

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 & Intrepid are moderately toxic to aquatic invertebrates, such as lobsters, crayfish, and aquatic insects such as mayflies, dragonflies, etc.

*** = 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, and 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 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.)

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

1-800-442-6305

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.