



GUIDE TO PEST MANAGEMENT IN CRANBERRY

Nova Scotia Guide to Pest Management in Cranberry 2011
[Cran1-11]

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IMPORTANT

This publication was compiled by representatives from AgraPoint using information from the Pest Management Regulatory Agency of Health Canada, and specific pesticide labels. **This information is continuously changing and therefore it can cease to be current and accurate. Pesticide labels are the best source of information and should always be consulted prior to using a product.** The label is the best source of information on: registered crop uses, rates, days to harvest, compatibility with other pesticides, toxicity and other special information on its effective and safe use.

By printing this publication, AgraPoint does not offer any warranty or guarantee, nor do they assume any liability for any crop loss, animal loss, health, safety or environmental hazard caused by the use of a pesticide mentioned in this publication.

WARNINGS

This publication is meant to be used as a reference for possible pest control options. Where there are multiple brand names of a specific active ingredient registered in Canada, AgraPoint has only listed a few for reference purposes and as such does not endorse one brand over another. If you have purchased a generic product not specifically in this guide but has your crop and pest on the label, always follow that product label.

If any information in this or any other publication conflicts with the information on the label, always use the label recommendation. If you have an old label, your pesticide supplier should be able to give you the newest label. You are legally responsible for the safe use of pesticides you purchase. This means the safe transport and storage of these materials, the label rates used on crops, and the safe disposal of containers.

Pest	Pesticide Common Name	Pesticide Product Name	Rate	Days to Harvest	Remarks
WEEDS:					
Preemergence	diclobenyl	Casoron 4G	110 kg/ha (Use lower rates of application on sandy bogs or upland soils)	-	Use lower rates of application on sandy bogs or upland soils. The full label rate may cause plant damage on non-peat based bogs. Do not use on new plantings. Apply pre-bloom in early spring when perennial weeds are still dormant and annual weeds have not started to germinate. Do not use on newly sanded beds or beds that have been recently mowed. For more detail contact a crop specialist.
	napropamide	Devrinol 10G	45-67 kg/ha	-	Application should be made in the spring. If not enough rainfall occurs after application irrigate so soil is wet to a depth of 10 cm.
	mesotrione	Callisto 480 SC	0.3 L/ha	60	Make only one application per year. Apply in 100-200 L of water/ha
Post Emergence <i>Wickwiping</i>	glyphosate	Roundup 356 Sn	20% Solution	30	Apply as a wipe refer to label for recommendations.
		Touchdown 480	20% Solution	50	
	clopyralid	Lontrel 360	2% Solution	60	Wipe in the fall after harvest or in the spring before bud break.
	2,4-D	2,4-D Amine 500	33%	50	Apply as a wipe to actively growing weeds in June and July. Refer to label for recommendations.
Postemergence <i>Grasses</i>	fluazifop-p-butyl	Venture L	0.8-2.0 L/ha	-	Do not apply in the year of harvest. Apply post emergently on actively growing grasses. Max 1 application per

					year.
	sethoxydim plus Merge	Poast Ultra plus Merge	0.32-1.1 L/ha 1-2 L/ha	15	Apply to actively growing grasses
<i>Broadleaf weeds</i>	mesotrione	Callisto 480 SC	0.21 L/ha	60	Make only one application per year. Apply in 100-200 L of water/ha. On bearing beds apply between bud break and fruit set. On Non-bearing apply between bud break and 60 days prior to fall or winter flooding
INSECTS:					
Blackheaded Fireworm	phosmet	Imidan 50 WP	2.2 kg/ha	30	Apply the first application after egg hatch and the second application 5-7 days later. Maximum of 4 applications per year.
	acephate	Orthene 75 SP	0.75 kg/ha	75	Apply in 225-1650 L of water/ha. Apply the first application pre-bloom. A second application may be made post bloom if insect numbers indicate another application is required.
	malathion	Malathion 500 E	1.25-2.25 L/ha	3	Do not apply during bloom. Apply in 1000L of spray volume
	1,2-Benzisothiazolin-3-one	3M Sprayable Phermone for Mating Disruption	150-222 ml/ha	0	Repeat applications should be made at 2-3 week intervals during adult flight periods.
	diazinon	Diazinon 500E	4.5 L in 3200-3500 L/ha	7	Apply when insects first appear and repeat as necessary. Various diazinon products available.
	azinophos-methyl	Guthion 50 WSB	2.25 kg/ha	21	Apply in 1600 L of water/ha. Maximum of 2 applications per season with a minimum of 14 days between treatments. Re-entry interval of 7 days

	carbaryl	Sevin XLR Plus	6.4-7.6 L/ha	2	Apply in 3000 L of water/ha. Apply at late bloom and repeat as necessary at 7-10 day intervals. Various carbaryl products available
	tebufenozide	Confirm 240F	1.2 L/ha	30	Apply in a minimum of 190 L of water /ha. Maximum of 4 applications per season. Apply at first sign of larval infestation with a second application 10 days later. For second generation apply at 10% egg hatch followed by a second application 10 days later. Also controls <i>sparganothis</i> fruitworm.
	spinosad	Success 480 SC	182 ml/ha	21	Apply 1-3 applications at 7-10 day intervals. Apply in a minimum of 500 L of water. Target eggs at hatch or small larvae. See notes on label regarding chemigation of this product.
		Entrust 80W	109 g/ha	21	Apply 1-3 applications at 7-10 day intervals. Apply in a minimum of 500 L of water. Target eggs at hatch or small larvae. Field sprayer or airblast application only. OMRI listed product.
	chlorantraniliprole	Altacor	145-285 g/ha	1	Begin applications when treatment thresholds have been met. Apply in 200L/ha. Maximum 3 applications per season. Do not apply more than once every 7 days. <u>For chemigation (Blackheaded fireworm and Sparganothis fruitworm only) apply in 3000 L/ha. Do not apply more than 2 applications per year. Read Label for restrictions with Chemigation.</u>
	methoxyfenozide	Intrepid 240F	0.75-1.16 L/ha	14	For foliar applications, apply one or two applications during flower bud development period in a minimum of 200 L of water /ha. For summer generation apply the first application

					during peak egg lay and early hatch. Re-apply in 10-18 days. Use higher rate for high infestations. May be applied through a solid set overhead irrigation system that will apply water uniformly and within the confines of a closed perimeter of dykes only. (3200-3500 L of water/ha) <u>Read Label for restrictions with Chemigation.</u>
	spinetoram <i>Added June 17th</i>	Delegate WG	420 g/ha	21	Target eggs at hatch or small larvae. Maximum 3 applications per year with a minimum re-treatment interval of 7 days. Do not make more than two consecutive applications of group 5 insecticides. <u>Read Label for restrictions with Chemigation.</u>
Cranberry Fruitworm	Malathion	Malathion 500	1.25-2.25 L/ha	3	Do not apply during bloom. Apply in 1000L of spray volume
	carbaryl	Sevin XLR Plus	6.4-7.6 L/ha	2	Apply in 3000 L of water/ha. Apply at late bloom and repeat as necessary at 7-10 day intervals. Various carbaryl products available
	diazinon	Diazinon 500E	7 L in 3200-3500 L/ha	7	Apply when insects first appear and repeat as necessary. Various diazinon products available.
	azinophos-methyl	Guthion 50 WSB	1.125-2.25 kg/ha	21	Apply in 1600 L of water/ha. Maximum of 2 applications per season with a minimum of 14 days between treatments. Re-entry interval of 7 days
	spinosad	Success 480 SC	0.365 L/ha	21	Suppression only. Apply in 500 L of water per ha to ensure thorough coverage of the foliage. Apply 1 to 3 applications at 7-10 day intervals. Begin applications 3 to 7 days after fruit set has reached 50% which corresponds to egg hatch.

		Entrust 80 W	0.218 kg/ha	21	Suppression only. Apply in 500 L of water per ha to ensure thorough coverage of the foliage. Apply 1 to 3 applications at 7-10 day intervals. Begin applications 3 to 7 days after fruit set has reached 50% which corresponds to egg hatch. <i>OMRI listed product</i>
	chlorantraniliprole	Altacor	145-285 g/ha	1	Begin applications when treatment thresholds have been met. Apply in 200L/ha. Maximum 3 applications per season. Do not apply more than once every 7 days.
	methoxyfenozide	Intrepid 240F	1.16 L/ha	14	For foliar applications, apply one or two applications during flower bud development period in a minimum of 200 L of water /ha. For summer generation apply the first application during peak egg lay and early hatch. Re-apply in 10-18 days. May be applied through a solid set overhead irrigation system that will apply water uniformly and within the confines of a closed perimeter of dykes only. (3200-3500 L of water/ha) <u>Read Label for restrictions with Chemigation.</u>
Green and Brown Spanworm	<i>Bacillus thuringiensis</i>	Dipel 2X DF	275-550 g/ha	0	Needs to be applied to young larvae to be effective.
Leafroller species	<i>Bacillus thuringiensis</i>	Dipel 2X DF	525-1125 g/ha	0	Treat when larvae are young, before the crop is damaged. Repeat applications at an interval sufficient to maintain control, 3-14 days. Spray volume of 600 L/ha
Cranberry Tipworm	azinophos-methyl	Guthion 50 WSB	1.125-2.25 kg/ha	21	Apply in 1600 L of water/ha. Maximum of 2 applications per season with a minimum of 14 days between treatments. Re-entry interval of 7 days

	diazinon	Diazinon 500E	7 L/ha	7	Apply in 3200 – 3500 L of water/ha. Apply at peak egg hatch. To protect pollinators: apply in late evening/night, cover bee hives if necessary and spot treat where possible. Maximum of three applications per year. Read label for pre-cautions and specific use patterns.
	spinetoram <i>Added June 17th</i>	Delegate WG	420 g/ha	21	Suppression only. Target eggs at hatch or small larvae. Maximum 3 applications per year with a minimum re-treatment interval of 7 days. Do not make more than two consecutive applications of group 5 insecticides. <u>Read Label for restrictions with Chemigation.</u>

DISEASES:

Fruit Rot	copper oxychloride	Copper Oxychloride 50 WP	4 kg/ha	1	Apply in 500-1000 L of water/ha. Maximum of 3 applications per season. Apply at early bloom and repeat at 10-14 day intervals.
	ferbam	Ferbam 76 WDG	6.75 kg/ha	see note*	Begin applications at early bloom and repeat two more times at 2 week intervals. Maximum of 3 applications per season. *Label states do not apply within 28 days of mid-bloom. Clarification from UAP states, do not apply later than 28 days after mid-bloom. Consult UAP before applying product.
	chlorothalonil	Bravo 500	6.8-11.6 L/ha	50	Apply early bloom, late bloom and repeat 10-14 days later. Use high rate under severe conditions.
	folpet	Folpan 50 WP	10 kg/ha	30	Apply when 5% of blossoms are open. Repeat 10-14 days later when 50-75% of blossoms are open. Apply in up to

					2000 L of water/ha.
Twig/leaf blight and Upright Dieback	chlorothalonil	Bravo 500	6.8-11.6 L/ha	50	Apply at bud break, early bloom and late bloom.
	copper oxychloride	Copper Oxychloride 50 WP	4 kg/ha	1	For use on Twig/leaf blight only. Apply in 500-1000 L of water/ha. Maximum of 3 applications per season. Apply at early bloom and repeat at 10-14 day intervals.
Cottonball (<i>Monilinia oxycocc</i>)	propiconazole	Topas 250 E	500 ml/ha	45	Maximum of 4 applications per year. Apply first application at bud break, a second 10-14 days later, a third at early bloom and a fourth 10-14 days later.
		Misson 418 EC	300 ml/ha	45	

Product Toxicity

COMMON NAME	TRADE NAMES	Use	TOXICITY		
			TO BEES	TO APPLICATOR	
				ORAL	DERMAL
2,4-D	2,4-D Amine 500	H	mod	mod	low
acephate	Orthene	I	high	high	mod
azinphos methyl	Guthion, Sniper etc	I	high	high	high
<i>Bacillus thuringiensis</i>	Dipel,	I	low	low	low
carbaryl	Sevin XLR Plus	I	high	mod	mod
chlorothalonil	Bravo	F	low	low	low
clopyralid	Lontrel	H	low	low	low
copper oxychloride	Copper Oxychloride	F	low	mod	low
diazinon	Diazinon, DZN	I	high	mod	mod
diclobenyl	Casoron	H	low	low	low
ferbam	Ferbam	F	low	low	low
fluazifop-p-butyl	Venture	H	low	low	low
folpet	Folpan	F	low	low	low
glyphosate	Roundup, Touchdown, Glyfos	H	low	low	low
mesotrione	Callisto	H	low	low	low
malathion	Malathion	I	high	low	low
napropamide	Devrinol	H	low	low	low
phosmet	Imidan	I	high	mod	low
propiconazole	Topas, Mission	F	low	low	low
sethoxydim	Poast Ultra	H	low	low	low
spinosad	Success, Entrust	I	mod	low	low
tebufenozide	Confirm	I	low	low	low

References: EXTOUNET (<http://extounet.orst.edu/pips/ghindex.html>) and Individual Product MSDS sheets

PESTICIDE EMERGENCY CONTACT INFORMATION

Poison Control Centres		
Nova Scotia	800.565.8161 or 902.428.8161	IWK, Halifax, NS
New Brunswick	911	Ask for Poison Information
Prince Edward Island	800.565.8161 or 902.428.8161	IWK, Halifax, NS
Newfoundland	709.722.1110	Dr. Charles A. Janeway Child Health Care Centre, St. John's, NF

Environmental Emergencies (Pesticide Spills)	
Transport Canada Regional Operations Centre (24 hours)	
Nova Scotia	800.565.1633
New Brunswick	800.565.1633
Prince Edward Island	800.565.1633
Newfoundland	800.563.9089

ABBREVIATIONS & CONVERSIONS

Formulation and Measurement Abbreviations			
FORMULATIONS		MEASUREMENTS	
DF	Dry flowable	mL	millilitre
EC,E	Emulsifiable concentrate	kPa	kilopascal
F	Flowable	kg	kilogram
G	Granular	g	gram
L	Liquid	L	litre
WDG	Wettable dry granule	BIU	Billions of International Units
WP,W	Wettable powder	ppm	parts per million
SC	Suspension concentrate		
Sn	Solution		
SP	Soluble powder		

Helpful Conversions*	
kPa X 0.14 = pounds per square inch (psi)	millilitres X 0.035 = fluid ounces
hectares X 2.47 = acres	litres X 35 = fluid ounces
kilograms X 2.2 = pounds	litres X 0.22 = imperial gallons
kilograms per hectare X 0.89 = pounds per acre	litres per hectare X 14.17 = fluid ounces per acre
kilograms per hectare X 0.40 = kilograms per acre	litres per hectare X 0.40 = litres per acre
	degree-days C X 1.8 = degree-days F

* Pesticide Units of Measurement

It is not recommended to convert label rates to imperial units because there is a high probability of mathematical and rounding errors. Present day pesticides are formulated to have greater toxic effects in smaller amounts. Therefore, even small conversion errors can lead to the use of incorrect dosages (either too high or too low). Use metric – you will be glad you did!