

# GUIDE TO PEST MANAGEMENT IN MELONS

**Nova Scotia Vegetable Crop Guide to Pest Management 2011**  
[MEL1-11]

Revised June 16, 2011 by  
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## IMPORTANT

This publication was compiled by representatives from AgraPoint using information from the Pest Management Regulatory Agency of Health Canada, specific pesticide labels, previous Atlantic Provinces Vegetable Pest Guides and manufacturer's information. **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 couple 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
<b>WEEDS:</b>					
<b>Preplant</b>  <i>Perennial weeds including quackgrass</i>	glyphosate	<b>Roundup 356 Sn</b>	1.25-2.5 L/ha	7	Apply in the fall or spring prior to planting. Annual weed control programs will be necessary to control weeds germinating after planting. For quackgrass control, apply to actively growing quackgrass when at least 4 new leaves are present. The low rate (2.5 L/ha) will provide a minimum of one season control, while higher rates (4.75 to 7 L/ha) will provide longer term control. The low rate of Roundup should be applied in 50 to 100 L/ha water. If higher water volumes are used add a suitable surfactant. Wait 72 hours before plowing under. Best control of quackgrass is obtained when these herbicides are applied in the fall.
		<b>Roundup WeatherMAX</b>	1.67-8.0 L/ha	7	
		<b>Touchdown 480</b>	2.5-7.0 L/ha	7	
	carfentrazone-ethyl	<b>Aim EC</b>	36.5-117 mL/ha	1	Apply in minimum spray volume of 100 L/ha. Refer to label for target weeds, buffer zones and rates. Use high flow rate nozzles to apply the highest spray volume.
<b>Pre-emergence</b>  <i>Germinating annual grasses and some broadleaves</i>	chlorthal dimethyl	<b>Dacthal W-75</b>	9-15.5 kg/ha		Apply when crop has 4-5 true leaves. If weeds have emerged crop should be cultivated and weeded prior to application.

	naptalam	<b>Alanap-3</b>	11-30 L/ha	-	Apply up to 48 hours after planting. Do not apply in adverse growing conditions.
	clomazone	<b>Command 360 ME</b>	0.78 L/ha	60	Apply as a pre-emergent application after seeding but before emergence of the crop or weeds. Apply in 95-375 L/ha of spray volume. <b>Do Not apply on sandy soils.</b> Apply once per season. Do not incorporate. <b>Unacceptable damage may occur on some varieties of muskmelon and watermelon. Read the product label</b>
<b>Preemergence</b> <i>Stale Seedbed Technique</i>	paraquat	<b>Gramoxone 200 Sn</b>	2.75-5.5 L/ha	-	Apply in 300 – 1100 L of water/ha to foliage of emerged weeds but before the crop has emerged
	diquat	<b>Reglone 240</b>	2.3-4.6 L/ha	-	
<b>Postemergence</b> <i>Grasses</i>	sethoxydim	<b>Poast Ultra plus Merge</b>	0.32-1.1 L/ha 1-2 L/ha	30	Apply to actively growing grasses at the 1-6 leaf stage.
<i>Broadleaf Weeds</i>	naptalam	<b>Alanap-3</b>	11-30 L/ha	-	May be applied one month after pre-emergence spray when the crop has emerged but the weeds have not.
<i>Inter-row shielded</i>	paraquat	<b>Gramoxone 200 Sn</b>	2.75-5.5 L/ha	-	Do not spray solution on the crop plant since it could be injured or killed. Use gramoxone for best control of grasses.
	diquat	<b>Reglone 240</b>	2.3-4.6 L/ha	-	
	carfentrazone-ethyl	<b>Aim EC</b>	36.5-117 mL/ha	1	Apply in minimum spray volume of 100 L/ha. Refer to label for target weeds, buffer zones and rates. Use high flow rate nozzles to apply the highest spray volume.

<b>INSECTS:</b>					
<b>Cucumber Beetle and Flea Beetle</b>	imidacloprid	<b>Admire 240</b>	Soil: 18 ml/100m row	21	Apply in furrow on or below seed in 200 L/ha or as a narrow surface band over seeding line.
			Transplant: 25 ml/1000plants		Apply into planting hole before planting. Apply dosage in 150 ml of planting water per plant.
	rotenone	<b>Rotenone 5%</b>	4.5 kg/ha	1	Repeat applications at 5-7 day intervals
	carbaryl	<b>Sevin XLR Plus</b>	2.5 L/ha	5	Do not apply when field is in bloom or adjacent fields are in bloom.
	kaolin clay	<b>Surround WP</b>	12.5-25 kg/ha	0	Cucumber beetle control only. Max 5 applications/yr.
	endosulfan	<b>Thiodan 4 EC</b>	1.5 L/ha	2	Make four applications at 7 day intervals starting in late June.
		<b>Thionex 50 WP</b>	1.1 kg/ha	2	
malathion	<b>Malathion 85 E</b>	1100-1345 ml/ha	3	Do not apply to cucurbits unless plants are dry.	
<b>Aphids</b>	endosulfan	<b>Thiodan 4 EC</b>	1.5 L/ha	2	Make four applications at 7 day intervals starting in late June.
		<b>Thionex 50 WP</b>	1.1 kg/ha	2	
	malathion	<b>Malathion 85 E</b>	1100-1345 ml/ha	3	Do not apply to cucurbits unless plants are dry.
	Flonicamid	<b>Beleaf 50SG</b>	0.12-0.16 kg/ha	0 days	Thorough spray coverage of plant foliage is essential. Minimum of 94 litres of water/ha. Maximum of 3 applications per season, allow 7 days between applications. <b>Avoid overnight storage of spray mixtures, do not use liquid fertilizer as a carrier and do not use adjuvants.</b>
<b>Aphids and Whiteflies</b>	spirotetramat	<b>Movento 240 SC</b>	220-365 ml/ha	1	Minimum interval between applications is 7 days. Maximum of 730 ml/ha of product applied per season. <b>This</b>

					<b>product is TOXIC to bees through direct contamination of pollen and nectar. DO NOT apply this product during crop flowering period or when flowering weeds are present in the field, orchard or vineyard.</b>
		<b>Movento 150 OD</b>	347-585 ml/ha	1	Minimum interval between applications is 7 days. Maximum of 1.17 L/ha of product applied per season. <b>This product is TOXIC to bees through direct contamination of pollen and nectar. DO NOT apply this product during crop flowering period or when flowering weeds are present in the field, orchard or vineyard.</b>
<b>Cutworms</b>	carbaryl	<b>Sevin XLR Plus</b>	2.5 L/ha	5	Do not apply when field is in bloom or adjacent fields are in bloom. Climbing cutworms only.
<b>Mites</b>	dicofol	<b>Kelthane 50 W</b>	1.0-1.25	7	Max 1 application/yr.
	spiromesifen	<b>Forbid 240 SC</b>	500-600 ml/ha	7	Maximum of 3 applications per season. Minimum application volume of 100 L/ha. <b>Also controls whiteflies (including silverleaf, sweetpotato and greenhouse)</b> 12 hour REI. See label for buffer zone restrictions.
	malathion	<b>Malathion 85 E</b>	1100-1345 ml/ha	3	Do not apply to cucurbits unless plants are dry.
<b>DISEASES:</b>					
<b>Pythium damping - off</b>	metalaxyl-M and s-isomer	<b>Apron XL LS</b>	20–40 ml / 100kg of seed	-	One application as a seed treatment  Do not treat seeds in Canada

<b>Alternaria Leaf spot</b>	mancozeb	<b>Dithane DG Rainshield</b>	1.0-3.25 kg/ha	14	Start applications when runners begin to form or at first sign of disease, repeat on weekly intervals.
		<b>Manzate Pro-Stick</b>	1.0-3.25	14	
	pyraclostrobin	<b>Cabrio EG</b>	560-840 g/ha	3	Max 4 applications/yr. Do not make more than 1 application before rotating to a different fungicide group. 24 hr re-entry.
	boscalid	<b>Lance WDG</b>	460 g/ha	0	Max 4 applications/yr. Do not make more than 2 applications before rotating to a different fungicide group. 4 hr re-entry.
<b>Anthracnose and Downy Mildew</b>	mancozeb	<b>Dithane DG Rainshield</b>	1.0-3.25 kg/ha	14	Start applications when runners begin to form or at first sign of disease, repeat on weekly intervals.
		<b>Manzate Pro-Stick</b>	1.0-3.25	14	
	chlorothalonil	<b>Bravo 500</b>	3.2 L/ha	7	Repeat on 7 day intervals. Also controls scab when applied at a rate of 4.8 L/ha.
	pyraclostrobin	<b>Cabrio EG</b>	560-840 g/ha	3	Max 4 applications/yr. Do not make more than 1 application before rotating to a different fungicide group. 24 hr re-entry.
	copper sulfate	<b>Copper 53W</b>	2.5-3 kg/ha	1	Apply in 1000 L of water per ha
<b>Downy Mildew</b>	cyazofamid	<b>Ranman 400SC</b> and <b>Sylgard 309 (organosilicone surfactant)</b>	0.15-0.2 L/ha  0.15 L/ha	1	<b>Max 6 applications per crop per year. Do not make sequential applications of Ranman or products within the same group.</b> Apply in 200 – 600 L of water per hectare. Apply on a 7-10 day schedule beginning at initial flowering or when disease conditions are favorable but prior to an outbreak. A plant back interval of 30 days is required.
		fenamidone	<b>Reason 500 SC</b>	400 ml/ha	14

					become favourable for disease development. Apply in 300-600 L/ha. Applications should be made on a 5-10 day interval. Maximum 4 applications per year. Plant back interval of 30 days. Do not apply more than 1 application of Reason 500 SC or any other Group 11 fungicide before alternating with a fungicide from a different Group.
	mandipropamid	<b>Revus</b> plus <b>Non-ionic adjuvant</b>	400-600 ml/ha plus 0.125% v/v	0	<b>Suppression of Downy mildew.</b> Applications should begin prior to disease development and continue throughout the season on a 7-10 day schedule of fungicides, following the resistance management guidelines. Maximum four applications per year. <b>REVUS Fungicide may be tank mixed with Bravo 500 Agricultural Fungicide for any Field Cucurbits listed on that label. Follow the most restrictive use directions of either label.</b>
	propamocarb / chlorothalonil	<b>Tattoo C</b>	1.8-2.7 L/ha	2	Apply TATTOO C fungicide as a foliar spray in a preventative program. Apply in a spray volume of 300-600 L/ha. Begin applications when conditions are favourable for disease development but before infection occurs. Continue on 7-14 day intervals until the threat of disease is over. Use the high rate and shorter application interval under high disease pressure and when conditions of rapid disease development exist. When applying TATTOO C using intervals longer than 7 days, alternate with an application of a contact fungicide between TATTOO C applications. Do not apply more than 5 applications of

					TATTOO C per growing season.
	<i>Bacillus subtilis</i>	<b>Serenade MAX</b>	1.0-3.0 Kg/ha	0	<b>Serenade Max, Serenade ASO and Rhapsody ASO are biopesticides that will only suppress the indicated diseases.</b> Begin application soon after emergence or transplant, when conditions are conducive to disease development. Repeat as necessary on 7-10 day intervals. When environmental conditions and plant stage are conducive to rapid disease development, use in a rotational program with other registered fungicides.
		<b>Serenade ASO</b>	5.0-15.0 L/ha	0	
		<b>Rhapsody ASO</b>	1.0-2.0 L/100 L of water	0	
	fluopicolide	<b>Presidio</b>	220-292 ml/ha	2	Apply in 200-1000 L/ha. For resistance management, Presidio Fungicide must be tank-mixed with a labelled rate of another fungicide registered for the target pathogen, but with a different mode of action. Apply Presidio Fungicide in a tank mix with Bravo 500. Follow the most restrictive use directions of either label..  Make foliar applications on a 7 to 10 day schedule beginning with initial flowering, or when disease conditions are favourable, but prior to disease development. Use the lower rate and longer interval as preventive applications. Use the higher rate and shorter interval if disease is present.
<b>Powdery Mildew</b>	potassium bicarbonate	<b>MilStop</b>	2.8-5.6 kg/ha	0	Max 10 applications/yr. Apply at 7-14 day intervals in 500-1000 L/ha spray solution. Start application at first sign of disease. <b>Suppression only!</b>

	pyraclostrobin	<b>Cabrio EG</b>	560-840 g/ha	3	Max 4 applications/yr. Do not make more than 1 application before rotating to a different fungicide group. 24 hr REI
	<i>Bacillus subtilis</i>	<b>Serenade MAX</b>	3.0-6.0 Kg/ha	0	<b>Serenade Max and Serenade ASO are biopesticides that will only suppress the indicated diseases.</b> Begin applications soon after emergence or transplant, when conditions are conducive for disease development. Repeat applications on an interval of 7-10 days.
		<b>Serenade ASO</b>	5.0-15.0 L/ha	0	
		<b>Rhapsody ASO</b>	1.0-2.0 L/100 L of water	0	<b>Rhapsody ASO is a biopesticide that will only suppress the indicated diseases.</b> <b>Powdery Mildew, Cercospora leaf spot, Gummy stem blight.</b> Begin application soon after emergence or transplant when environmental conditions in the greenhouse and plant stage are conducive to rapid disease development. Repeat as necessary on 7 to 10 day intervals. Thorough coverage is essential. Rhapsody can be rotated with other registered fungicides.
	chlorothanil	<b>Bravo 500</b>	4.8 L/ha	1	Begin applications at first true leaf stage and repeat on 7 day intervals. Shorten the spray interval under severe disease pressure. Maximum of 7 applications per season.
	quinoxyfen	<b>Quintec</b>	300-440 ml/ha	3	Maximum of 4 applications per year. Repeat applications on 10-14 day intervals. 12 hr worker re-entry interval. <b>Apply before visual symptoms of Powdery Mildew appear. Quintec has no curative properties and will not control established infections. * Note</b> <b>* – product is toxic to bees exposed</b>

					<b>to direct treatment, drift, or residues on crops or weeds.</b>
<b>Scab</b>	mancozeb	<b>Dithane DG Rainshield</b>	1.0-3.25 kg/ha	14	Start applications when runners begin to form or at first sign of disease, repeat on weekly intervals.
		<b>Manzate Pro-Stick</b>	1.0-3.25	14	
	copper sulfate	<b>Copper 53W</b>	2.5-3 kg/ha	1	Apply in 1000 L of water per ha
<b>Gummy Stem Blight</b>	pyraclostrobin	<b>Cabrio EG</b>	560-840 g/ha	3	Max 4 applications/yr. Do not make more than 1 application before rotating to a different fungicide group. 24 hr REI
	boscalid	<b>Lance WDG</b>	460 g/ha	0	Max 4 applications/yr. Do not make more than 2 applications before rotating to a different fungicide group. 4 hr REI
	mancozeb	<b>Dithane DG Rainshield</b>	1.0-3.25 kg/ha	14	Start applications when runners begin to form or at first sign of disease, repeat on weekly intervals
		<b>Manzate Pro-Stick</b>	1.0-3.25	14	
<b>Phytophthora Blight/ Crown Rot</b>	fluopicolide	<b>Presidio</b>	220-292 ml/ha	2	Apply as a soil or foliar application on a 7 to 10-day schedule beginning when conditions are favourable for disease development and prior to disease onset. For best results, application should begin at planting or transplanting. Maximum 2 applications allowed.

Use the following web link to search for any pesticide label mentioned in this guide, or any other pesticide registered in Canada:

[http://pr-rp.pmra-arla.gc.ca/portal/page?\\_pageid=34,17551&\\_dad=portal&\\_schema=PORTAL](http://pr-rp.pmra-arla.gc.ca/portal/page?_pageid=34,17551&_dad=portal&_schema=PORTAL)

# PESTICIDE EMERGENCY CONTACT INFORMATION

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

<b>Environmental Emergencies (Pesticide Spills)</b>	
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

<b>Formulation and Measurement Abbreviations</b>			
FORMULATIONS		MEASUREMENTS	
DF	Dry flowable	mL	millilitre
EC, E	Oil-based emulsifiable concentrate	kPa	kilopascal
EG	Water dispersible granule	kg	kilogram
G	Granular	g	gram
L	Liquid	L	litre
SC	Suspension concentrate	BIU	Billions of International Units
Sn	Solution	ppm	parts per million (1000 ppb)
WP, W	Wettable powder	ppb	parts per billion (1/1000 ppm)

<b>Helpful Conversions<sup>1</sup></b>	
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

<sup>1</sup> **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 be more effective in smaller amounts. Therefore, even small conversion errors can lead to the use of incorrect rates (either too high or too low). Use metric – you will be glad you did!