

GUIDE TO PEST MANAGEMENT IN GARLIC

Nova Scotia Vegetable Crop Guide to Pest Management 2011
[GAR1-11]

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IMPORTANT

This publication was compiled by representatives from AgraPoint using information from the Pest Management Regulatory Agency of Health Canada, 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
WEEDS:					
Preplant <i>Perennial weeds including quackgrass</i>	glyphosate	Roundup 356 Sn	2.5-7.0 L/ha	-	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.
		Roundup WeatherMAX	1.67-8.0 L/ha	-	
		Touchdown 480	2.5-7.0 L/ha	-	
	carfentrazone-ethyl	Aim EC	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.
Stale Seedbed Technique	paraquat	Gramoxone 200 Sn	2.75-5.5 L/ha	-	Apply in 300 to 1100 L of water/ha to foliage of the emerged weeds but before the crop has emerged. Use Gramoxone for best control of grasses.
	diquat	Reglone	2.3-4.6 L/ha	-	
Preemergence	chlorthal dimethyl	Dacthal W-75	9.0-18.0 Kg/ha	-	Apply at seeding or at transplanting.
	napropamide	Devrinol 50 DF	2.25-4.5 Kg/ha	60	Apply only one application per season.
Postemergence <i>Annual grasses</i>	sethoxydim	Poast Ultra plus Merge	0.32-1.1 Kg/ha	50	Apply postemergence to annual grasses in the 1 to 6 leaf stage. Apply at 1.1 L/ha for quackgrass control.
			1-2 L/ha		

<i>Broadleaf weeds</i>	bromoxynil	Pardner (280 g/L)	1.0 L/ha	58	Apply in 200 to 300 L/ha of water, early postemergence to weeds. Only one application per year.
<i>Inter-row shielded</i>	paraquat	Gramoxone 200 Sn	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	Reglone	2.3-4.6 L/ha	-	
	carfentrazone-ethyl	Aim EC	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.
INSECTS:					
Aphids and thrips	lambda-cyhalothrin	Matador 120 EC	188 mL/ha	14	Thrips only – 3 applications per season.
	malathion	Malathion 25 WP	4.25 Kg/ha	3	Apply in enough spray volume to provide adequate coverage.
		Malathion 500 E	1.1-2.75 L/ha	3	
Onion maggots	chlorpyrifos	Lorsban 4 E	3.5 L/ha in 1000 L of water	50	Apply as a drench over the row on newly emerged plants (in the spring).
		Pyrinex 480 EC	3.5 L/ha in 1000 L of water	50	Apply as soil drench banded over the seedling row.
Cutworms	chlorpyrifos	Pyrinex 480 EC	2.4 L/ha	50	Apply once per season in 200-400 L/ha. Make an application 3-7 days before planting. or at the 2-5 leaf stage when damage is observed.
DISEASES:					
Purple blotch <i>Alternaria</i>	boscalid	Lance WDG	0.475 Kg/ha	7	Maximum 6 applications per year. No more than two applications in succession without rotating to different fungicide family. Purple blotch
	pyraclostrobin	Cabrio EG	0.56-0.84 Kg/ha	7	Maximum 2 sequential applications. Maximum total of 3 applications. Alternaria
	boscalid &	Pristine WG	1-1.3 Kg/ha	7	Maximum 6 applications per growing

	pyraclostrobin				season. Apply at 7-14 day intervals.
Green Mold <i>Penicillium</i>	iprodione	Rovral 500 WP	4 g/L water	-	Dip garlic cloves in the Rovral suspension for 30 minutes prior to planting in the fall.
Botrytis leaf blight and neck rot	boscalid & pyraclostrobin	Pristine WG	1-1.3 Kg/ha	7	Maximum 6 applications per growing season. Apply at 7-14 day intervals. Do not make sequential applications of Pristine WG when downy mildew occurs. Suppression only of downy mildew.
	boscalid	Lance WDG	0.475 Kg/ha	7	Maximum 6 applications per year. No more than two applications in succession without rotating to different fungicide family.
	<i>Bacillus subtilis</i>	Serenade MAX	3.0-6.0 Kg/ha	0	Serenade Max and Serenade ASO are biopesticides that will only suppress the indicated diseases. Begin applications at the 1 st sign of disease, or when conditions become conducive for disease development. Repeat as necessary on a 7-10 day interval.
	Serenade ASO	12.0-18.0 L/ha	0		
Downy Mildew	fenamidone	Reason 500 SC	400 ml/ha	7	Suppression Only. Begin application as soon as crop and/or environmental conditions 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 2 sequential applications of Reason 500 SC or any other Group 11 fungicide before alternating with a fungicide from a different Group.
	pyraclostrobin	Cabrio EG	0.56-0.84 Kg/ha	7	Maximum 2 sequential applications. Maximum total of 3 applications. Suppression only

	<i>Bacillus subtilis</i>	Serenade MAX	3.0-6.0 Kg/ha	0	Serenade Max and Serenade ASO are biopesticides that will only suppress the indicated diseases. Begin applications at the 1 st sign of disease, or when conditions become conducive for disease development. Repeat as necessary on a 7-10 day interval.
		Serenade ASO	12.0-24.0 L/ha	0	
	boscalid & pyraclostrobin	Pristine WG	1-1.3 Kg/ha	7	Maximum 6 applications per growing season. Apply at 7-14 day intervals. Do not make sequential applications of Pristine WG when downy mildew occurs. Suppression only of downy mildew.

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

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	Oil-based emulsifiable concentrate	kPa	kilopascal
EG	Water dispersible granule	kg	kilogram
WG	Wettable granule	g	gram
WDG	Wettable dry granule	L	litre
WP, W	Wettable powder	BIU	Billions of International Units
Sn	Solution	ppm	parts per million (1000 ppb)
		ppb	parts per billion (1/1000 ppm)

Helpful Conversions¹	
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

¹ **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!