

2023



EXTENSION AND ADVISORY TEAM

# SPRAY GUIDE FOR SPINACH

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Nova Scotia Vegetable Crop Spray Guide 2023  
[Spin1-23]



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## LIABILITY STATEMENT

Recommendations in this guide are given for general information only and do not give the user the right to use a product in a manner not in accordance with the pesticide label or Pest Control Products Act. Perennia, by funding and printing this publication, and the editors/authors, do not offer any warranty or guarantee and do not assume any liability for crop loss, animal loss, health, safety, or environmental hazard caused by the use of any pesticide, advice, or recommendation in this schedule. Pesticides used in this schedule are products labeled for the target and crop. This information was retrieved from the Pest Management Regulatory online of Registered Products Database. The list of products presented in this schedule is intended to be complete, based on products known to be available in the region, but in no way is guaranteed to be complete. Some of the products listed may not be available. Trade names are given as a convenience to producers and are neither an endorsement of the product nor a suggestion that similar products are not available or effective.

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## PESTICIDE EMERGENCY CONTACT INFORMATION

Poison Control Centres		
Nova Scotia	800.565.8161 or 902.470.8161	IWK, Halifax, NS
New Brunswick	911	Ask for Poison Information
Prince Edward Island	800.565.8161 or 902.470.8161	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
L	Liquid	kg	kilogram
Sn / Su	Suspension	g	gram
WP/W	Wettable powder	L	litre
		BIU	Billions of International Units
		ppm	parts per million (1000 ppb)
		ppb	parts per billion (1/1000 ppm)

Helpful Conversions <sup>1</sup>	
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!

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>WEEDS:</b>							
<b>Preplant</b>  <i>Perennial weeds including quackgrass</i>	9	glyphosate	<b>Roundup WeatherMAX</b>	1.67-4.67 L/ha	12 hours	7	Do not use in greenhouses. 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 it to actively growing quackgrass when at least 4 new leaves are present. The low rate (1.67 L/ha) will provide a minimum of one season control, while higher rates 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>Touchdown Total</b>	1.6-5.0 L/ha	12 hours	7	
	14	carfentrazone-ethyl	<b>Aim EC</b>	36.5-117 mL/ha	12 hours	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>Postemergence</b> <i>Grasses</i>	1	sethoxydim	<b>Poast Ultra plus Merge</b>	0.32 - 1.1 L/ha 1-2 L/ha	12 hours	15	Apply to actively growing grasses. See label for weed-specific rates. Maximum one application per year. Assist® Oil Concentrate can be substituted for Merge.
		clethodim	<b>Select or Centurion plus Amigo</b>	0.125 - 0.19 L/ha plus 0.5 %v/v	12 hours	14	Not for use in greenhouses. Apply a maximum of two applications per year with 14 days between applications. Ground application only when grassy weeds are in 2-6 leaf stage

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>Postemergence</b> <i>Inter-row shielded</i>	14	carfentrazone-ethyl	<b>Aim EC</b>	36.5-117 mL/ha	12 hours	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, use a hooded sprayer and apply to row middles.
<b>Postemergence</b> <i>Grasses and Broadleaves</i>	-	Acetic Acid	<b>Serene</b>  <b>NEW 2023</b>	179-717.5 L/ha  (See label - small annual vs established perennial)	When residue is dry	-	Greenhouse or field use. Apply as a uniform band or spot application directed at weeds on the ground between the crops. Use hooded or shielded application equipment. Do not spray the crop directly. Do not apply it when plants are under stress. Retreatment is required for regrowth of weeds.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>INSECTS:</b>							
Leaf Miners	4	acetamiprid	Assail 70 WP Aceta 70 WP	86 g/ha	12 hours	7	Max 5 applications/yr. with 7-day intervals between sprays. Begin application when insect populations reach recognized economic threshold levels. Consult the provincial extension service, professional consultants, or other qualified authorities to determine appropriate threshold levels for treatment in your area. Adequate spray coverage is essential for optimum control.
	28	Cyantraniliprole	Exirel	1-1.5 L/ha	12 hours	1	For optimum control apply Hasten NT Spray Adjuvant* at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech* at an application rate of 0.5% v/v. Max. 4 applications per season with a 7-day interval between sprays.
		Cyclaniliprole	Cyclaniliprole 50SL	1.2 L/ha	12 hours	1	Thorough coverage is essential to achieve the best results. Spray volumes of 200-1000L/ha recommended. Avoid applying any Group 28 insecticide consecutively more than 2 times within a 30-day period. Make no more than 3 applications in a year with a minimum of 7 days between treatments.
Aphids	1B	malathion	Malathion 85E	1345 ml/ha	12 hours	7	Use sufficient spray volume to achieve adequate plant coverage. Max. 1 application per year. Do not apply unless foliage is dry.
	4	acetamiprid	Assail 70 WP Aceta 70 WP	56-86 g/ha	12 hours	7	Max. 5 applications/yr. maintaining 7-day spray intervals. Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Use the high rate under heavy pest pressure.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>Aphids</b> (cont.)	4	thiamethoxam	<b>Actara 25 WG</b>	105 g/ha	12 hours	7	Apply before aphids reach damaging levels. Max 2 applications/year, with at least 7 days between them. <b>Product is highly toxic to bees, do not apply to blooming crops and wait at least 5 days before placing beehives in a treated field.</b>
	4C	Sulfoxaflor	<b>Closer SC</b>	100-150 ml/ha	12 hours	3	Do not use in greenhouses. Max. 2 applications/season with at least 7 days between them. Do not apply during crop flowering period or when flowering weeds are present in the treatment area.
	9B	Pymetrozine	<b>FulFill 50WG</b>	193 g/ha	12 hours	14	Apply when aphids first appear. Do not exceed 2 applications/season, allowing 7 days between applications. Causes feeding cessation shortly after application but aphids may remain on the plant for 2-4 days before they die. The use of a non-ionic surfactant at a rate of 0.25% v/v is recommended to improve performance under drought stress conditions.
	28	Tetraniliprole	<b>Vayego 200 SC</b>	150 mL/ha	12 hours	1	Do not apply in greenhouses. <b>Suppression.</b> Begin applications when thresholds have been reached. Apply as directed foliar spray ensuring thorough coverage. Allow a minimum of 5 days between applications, with no more than 4 applications per season. Minimum application volume of 100L/ha.
	29	Flonicamid	<b>Beleaf 50SG</b>	0.12-0.16 kg/ha	12 hours	0	Thorough spray coverage of plant foliage is essential. Minimum of 94 L of water/ha used. Max 3 applications/season, allowing for 7 days between applications. Do not use liquid fertilizer as a carrier and do not use adjuvants.



Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>Aphids</b> (cont.)	-	Mineral oil	<b>Purespray Green Spay oil 13E</b>  <b>NEW 2023</b>	1% solution	12 hours	1	Deter feeding. Ground application only once aphids appear. Maximum of 8 applications per year, maintaining 7–14-day intervals between applications.
<b>Aphids and Whiteflies</b>	4D	Flupyradifurone	<b>BYI 02960 200SL</b>	<b>Aphids:</b> 500 – 750 mL/ha  <b>Whiteflies:</b> 750 – 1000 mL/ha	12 hours	1	Apply as a directed foliar spray ensuring thorough coverage. Minimum application volume of 100 L/ha. Allow 7 days between applications. No more than 2000 mL/ha per season.
	9D	Afidopyropen	<b>Versys</b>	Aphids: 0.1 L/ha  Whitefly: 0.35-0.5 L/ha	12 hours	0	Do not apply in greenhouses. <u>Green peach aphid (<i>Myzus persicae</i>)</u> , <u>potato aphid (<i>Macrosiphum euphoribae</i>)</u> & <u>lettuce aphid (<i>Nasonovia ribis-nigri</i>)</u> . <u>Sweet potato whitefly (<i>Bemisia tabaci</i>)</u> & <u>silverleaf whitefly (<i>Bemisia argentifolii</i>)</u> . Max. 4 applications per year, maintaining a minimum of 7 days between applications. Monitor pest population and reapply if necessary once thresholds are reached. Minimum spray volume of 100-200L/ha.
			<b>Sefina®</b>  <b>NEW 2023</b>	<b>Aphid:</b> 0.2 L/ha  <b>Whitefly:</b> 0.7-1.0 L/ha			
	23	Spirotetramat	<b>Movento 240 SC</b>	220-365 ml/ha	12 hours	3	Minimum 7-day interval between applications. Maximum of 730 ml/ha of product applied per season. <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.</b>

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>Aphids and Whiteflies</b> (cont.)	23	spirotetramat	<b>Movento 150 OD</b>	347-585 ml/ha	12 hours	3	Minimum 7-day interval between applications. Maximum 1.17 L/ha of product applied/season. <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.</b>
	28	Cyclaniliprole	<b>Cyclaniliprole 50SL</b>	1.2 L/ha	12 hours	1	<b>Whitefly suppression only.</b> Thorough coverage is essential to achieve the best results. Avoid applying any Group 28 insecticide consecutively more than 2 times within a 30-day period. Make no more than 3 applications in a year, maintaining a minimum of 7 days between treatments.
	NC	Potassium salts of fatty acids	<b>Kopa Insecticidal Soap</b>	8L in 400L water	-	0	For field and greenhouse use. Do not spray when plants are under stress. Avoid spraying during full sun. Apply at 700-1900 L solution/ha
<b>Whiteflies</b>	-	Beauveria bassiana strain R444	<b>Bassidor</b> <b>NEW 2023</b>	0.5-1.0g/L of water	4 hours	0	<b>Greenhouse only. Control.</b> Apply as a full cover spray without excess runoff every 3-7 days depending on the crop and the severity of the pest pressure. Preferable application when humidity is high, UV is low (late afternoon).
<b>Cabbage looper</b>	5	spinosad	<b>Success</b>	182 mL/ha	When dry	1	Do not apply in greenhouses. Max. 3 applications/yr., with 7-10 days between applications.
			<b>Entrust 80</b>	109 g/ha			Do not apply in greenhouses. Max 3 applications/yr. Allow 7-10 days between applications.
			<b>Entrust</b>	364 ml/ha			
		spinetoram	<b>Delegate</b>	140-200 g/ha	12 hours	1	Time application with peak egg hatch or small larvae. Repeat applications based on monitoring. Use higher rate for higher infestations or advanced growth stages. Max. 3 applications per year with a minimum interval of 5 days.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
Cabbage looper (cont.)	11	<i>Bacillus thuringiensis</i>	Dipel 2X DF	275 - 550 g/ha	4 hours	0	Use in a minimum of 200 L/ha water.
			Thuricide HPC	2.0 - 4.25 L/ha	-	0	
		<i>Bacillus thuringiensis</i> , subsp. <i>aizawai</i> ,	XenTari WG	500 - 1000 g/ha	4 hours	0	<b>Also, for the control of Beet Armyworm.</b> Apply sufficient spray volume to ensure uniform deposition on all plant surfaces; recommend 500 L/ha.
	18	Methoxyfenozide	Intrepid	0.3 – 0.6 L/ha	12 hours	1	Apply at the first sign of feeding damage or threshold levels reached as determined by monitoring. Repeat applications after 7-14 days if required based on monitoring. Use higher rate for heavy infestations, advanced growth stages of the target pest or larger crop canopies.
	28	chlorantraniliprole	Coragen	250 ml/ha	12 hours	1	Begin applications when treatment thresholds are reached. Max. 4 applications/season, maintaining minimum 3-day interval. Apply in a finished spray volume of 100L/ha. Do not make foliar application for minimum of 60 days following in-furrow or soil application w Group 28 insecticide.
		Cyclaniliprole	Cyclaniliprole 50SL	0.8 – 1.2 L/ha	12 hours	1	Thorough coverage is essential. Avoid applying any Group 28 insecticide consecutively more than 2 times within a 30-day period. Make no more than 3 applications in a year, with a minimum of 7 days between treatments.
		Tetraniliprole	Vayego 200 SC	225 mL/ha	12 hours	1	Not for greenhouse use. <b>Suppression.</b> Begin applications when thresholds have been reached. Apply as a directed foliar spray ensuring thorough coverage. Max. 4 applications per season, with a minimum of 5 days between applications. Minimum application volume of 100L/ha.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
Tarnished Plant Bug	4	thiamethoxam	Actara 25 WG	210 g/ha	12 hours	7	Apply before aphids reach damaging levels. Use at least 100L water/ha. Max one application/year. <b>Product is highly toxic to bees, do not apply to blooming crops. Wait at least 5 days before placing beehives in a treated field.</b>
	29	Flonicamid	Beleaf 50SG	0.20 – 0.30 Kg/ha	12 hours	0	<b>Suppression.</b> Apply when tarnished plant bugs first appear in the field and before populations reach high levels. Thorough coverage is essential for optimum control: use a minimum of 94L/ha. Maximum 0.6 kg product per year, with a minimum of 7 days between applications.
	-	Beauveria bassiana strain ANT-03	BioTitan WP	4 – 8 g/L water	4 hours	0	Begin treatment at the first sign of insect pests. If a fungicide must be used, make the application of the fungicide at least 4 days before the BioTitan WP application or at least 2 days after BioTitan WP application. Apply in 500 – 1000 L of water/ha. Reapply as necessary within a 7-day interval. No limit to the number of applications.
Onion thrips	5	Spinetoram	Delegate WG	200 - 336 g product/ha	12 hours	1	Max 3 applications/year. Apply when onion thrips first appear targeting egg hatch and small nymphs. Repeat in 7-10 days if needed. Recommended water volume is 300-500L/ha.
	23	Spirotetramat	Movento 240 SC	365 ml/ha	12 hours	3	Minimum interval between applications: 7 days. Maximum allowed per crop season: 730 mL/ha. Apply when thrips are first identified. Should be used when adult populations are relatively low/building. Reductions in numbers of thrips larvae may take 3 to 4 days after application. <b>Toxic to bees.</b>

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
Flea Beetles	28	Cyantraniliprole	Exirel	500 - 1000 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Max. 4 applications/season with a minimum re-application interval of 5 days.
		Cyclaniliprole	Cyclaniliprole 50SL Or Harvanta 50SL	1.2 L/ha	12 hours	1	Thorough coverage is essential to achieve the best results. Avoid applying any Group 28 insecticide consecutively more than 2 times within a 30-day period. Make no more than 3 applications in a year, with a minimum of 7 days between treatments.
		Tetraniliprole	Vayego 200 SC	150 mL/ha	12 hours	1	Do not apply in greenhouses. Begin applications when treatment thresholds have been reached. Apply as a directed foliar spray ensuring thorough coverage. Max. 4 applications per season, allow a minimum of 5 days between applications. Minimum application volume of 100L/ha.
Spider Mites	-	Mineral oil	SuffOil-X®  NEW 2023	13 L/ 1000L of water	12 hours	0	Suppression only. Begin applications when pests appear. Apply at 7–14-day intervals. Do not apply more than 8 applications per year.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>DISEASES</b>							
<b>Anthracnose</b>	9, 12	Cyprodinil and fludioxonil	<b>Switch 62.5 WG</b>	775 - 975 g/ha	3 days	3	Begin applications prior to or at the onset of disease and repeat applications at 7-10-day intervals if conditions remain favourable for disease development. Max. 2 applications per year. Apply in sufficient water to ensure thorough coverage (175-225 L of water /ha)
<b>Pythium</b>	4	metalaxyl-M and s-isomer	<b>Apron XL LS</b>	20 – 40 ml / 100kg of seed	-	-	One application as a seed treatment. Do not apply to leafy greens that are destined to be grown in the greenhouse.
	28	Propamocarb hydrochloride	<b>Tattoo</b>	1.5 mL product / L of water	12 hours	2	Apply by directed nozzles to the lower portion of the plants and surrounding soil. <u>Apply as soil application only</u> , mixed in 650-1500 L water/ha. Make the first application when conditions become favorable and continue applications on a 21–40-day interval until threat of disease is over up to 9.2 L/ha.
	M01	Elemental copper	<b>Ultim Fungicide</b>	7 – 11.25 g/100, 000 seeds			Must be applied with ProBio CC1008 seed coat, as per label directions. Apply using mechanical, slurry or mist-type seed treating equipment.
	BM02	<i>Trichoderma harzianum</i> Rifai strain T22	<b>Trianium P</b>	<b>High crop density:</b> Apply 3 g/m <sup>2</sup> of cultivated area. <b>Low crop density or in rows:</b> 30g/1000 plants	-	-	<b>Greenhouse only.</b> Start drench application directly after planting. Use a water volume equal to 10% of substrate volume (high crop density= 2 – 5 L/m <sup>2</sup> , low crop density = 100L/1000 plants). Use a half-rate dose if plants have been treated with TRIANUM P previously. Repeat the half-rate booster dose every 10 weeks or after potting-on. <b>Can also be used to suppress damping off (<i>Rhizoctonia solani</i>) in field grown spinach, see label for directions.</b>

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
Downy Mildew	4	metalaxyl-M and S-isomer	Ridomil Gold 480 SL	1 L/ha	12 hours	-	Apply at planting as a banded application over the row, pre-plant incorporated application. One application per season. Do not apply after planting.
	7, 11	boscalid, pyraclostrobin	Pristine WG	1.6 Kg/ha	24 hours  Hand harvesting/ thinning: 9 days	0	<b>Suppression.</b> Apply when disease first appears. Follow 5-7 days later with a fungicide with a different mode of action. Do not make sequential applications of Pristine or other group 11 fungicides. Max. 2 applications per year.
	11	azoxystrobin	Quadris	1.125 L/ha	12 hours	7	Max. 2 application/yr. Begin applications prior to disease establishment and repeat at 7-day intervals. Apply in sufficient volume for thorough coverage (minimum 100L/ha).
			Azoshy 250SC				
		Fenamidone	Reason 500 SC	400 ml/ha	-	2	Begin applications prior to onset of disease which typically occurs in humid weather or when rains and heavy dews occur, approx. early to after mid-June. Continue applications on a 7-day interval. Do not make more than one application of Reason 500 SC before alternating with a fungicide from a different group. Apply with sufficient water to ensure thorough coverage of foliage. Max. 4 applications per season.
	28	Propamocarb hydrochloride	Tattoo	2.3 L/ha	12 hours	2	Make foliar applications when conditions first become favourable for disease development (ex. high moisture and moderate temperature), but before infection. Continue applications on a 7-10-day interval until threat of disease is over, up to 4 applications. Apply as ground application only, mixed in 200 - 400 L water/ha.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>Downy Mildew</b> (cont.)	40	mandipropamid	<b>Revus + Non-ionic adjuvant</b>	400-600 ml/ha plus 0.25% v/v	12 hours	1	<b>For control of Downy Mildew and Blue Mold.</b> Applications should begin prior to disease development and continue throughout the season on a 7-10-day schedule (following resistance management guidelines). Max. 4 applications per year.
	43	fluopicolide	<b>Presidio</b>	292 ml/ha	12 hours	2	Not for use in greenhouse. Apply in 200-1000 L/ha. Make foliar applications on a 7-10-day schedule beginning with initial flowering, or when disease conditions are favorable, but prior to disease development. Use the lower rate and longer interval as preventive applications. Use higher rate and shorter interval if disease is present.
	49, 40	Oxathiapiprolin, Mandipropamid	<b>Orondis Ultra</b>	0.6 L/ha	12 hours	1	Begin applications prior to disease development and continue a 7-to-10-day interval. Use shorter intervals when disease pressure is high. Make no more than 2 sequential applications before switching to a different mode of action. Max. 4 applications per season. The minimum recommended water volume for application is 100L/ha.
	M	copper sulfate	<b>Copper 53W</b>	2.5 kg/ha	48 hours	2 days	Apply at 7-10-day intervals. Max. 5 applications per year.
	U15	Oxathiapiprolin	<b>Zorvec Enicade</b>	0.175-0.35 L/ha	12 hours	0	Begin applications prior to disease development and continue a 5-14-day interval. Use higher rate and shorter intervals when disease pressure is high. Max. 4 applications total, no more than 2 sequential.



Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>White rust</b> ( <i>Albugo occidentalis</i> )	19	Polyoxin D zinc salt	<b>Diplomat 5SC</b>	463 ml/ha	When dry	0	Apply as a foliar spray in sufficient water to provide thorough coverage of foliage. Begin as a preventative application when conditions favour disease development and continue a 7-14-day interval as needed to maintain suppression. Do not apply more than 150 g a.i./ha/year.
	21	Cyazofamid	<b>Torrent 400SC</b>  Plus <b>Sylgard 309</b>	0.15-0.2 L/ha  Plus 0.15 L/ha surfactant	12 hours	1	<b>Suppression only.</b> Max. 5 applications per year. Do not make sequential applications. Apply at 7-day intervals beginning when disease is first seen or when conditions favour disease development. Use the low rate for preventative applications or very low disease pressure; use high rate as disease pressure increases. Spray volume to use varies with the amount of plant growth and will range from 300-500 L/ha. <b>A plant back interval of 30 days is required.</b>
	M	copper sulfate	<b>Copper 53W</b>	2.5 kg/ha	48 hours	2 days	Apply at 7–10-day intervals. Max. 5 applications per year.
	BM02	<i>Bacillus subtilis</i>	<b>Serenade Opti</b>	0.6-1.1 Kg/ha	4 hours	0	Begin applications at the first sign of disease, or when conditions become conducive for disease development. Repeat as necessary on a 7-10-day interval.
<b>Sclerotinia rot</b> ( <i>Sclerotinia sclerotiorum</i> , <i>Sclerotinia minor</i> )	7	penthiopyrad	<b>Fontelis</b>	1.25-1.75 L/ha	12 hours	3	Begin applications prior to disease development, continue a 7-10-day interval. Use higher rate and shorter intervals when disease pressure is high. Max seasonal rate is 5.25 L/ha. Do not make more than 2 sequential applications before switching to another mode of action.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>Sclerotinia rot</b> ( <i>Sclerotinia sclerotiorum</i> , <i>Sclerotinia minor</i> ) (cont.)	7, 11	boscalid, pyraclostrobin	<b>Pristine WG</b>	1.0 – 1.3 Kg/ha	24 hours  Hand harvesting/ thinning: 9 days	0	<b>For suppression of white mold.</b> Apply once per season before disease develops.
		Pyraclostrobin, Fluxapyroxad	<b>Merivon</b>	0.3 – 0.4 L/ha	12 hours  Hand harvesting/ thinning: 9 days  Scouting/ Mechanical harvest/hand set irrigation: 1 day	Hand harvest: 9 days  Mechanical harvest: 1 day	<b>Suppression of Sclerotinia leaf drop.</b> Begin applications prior to onset of disease development. Maximum of 3 applications in a year, with a spray interval of 7-14 days. Use the shorter interval and/or the higher rate when disease pressure is high. Apply subsequent applications if disease persists or weather conditions are favourable for disease development. DO NOT apply to spinach as a tank mix with anything other than water.
<b>Grey mould</b> ( <i>Botrytis cinerea</i> )	7	penthiopyrad	<b>Fontelis</b>	1.25-2.25 L/ha	12 hours	3	Begin applications prior to disease development, continue a 7-10-day interval. Use higher rate and shorter intervals when disease pressure is high. Max seasonal rate is 5.25 L/ha. Do not make more than 2 sequential applications before switching to another mode of action.
	9, 12	Cyprodinil and fludioxonil	<b>Switch 62.5 WG</b>	775-975 g/ha	3 days	3	Begin applications prior to or at the onset of disease and repeat applications at 7-to-10-day intervals if conditions remain favourable for disease development. Make no more than 2 applications per year. Apply in sufficient water to ensure thorough coverage: 175-225 L of water /ha.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
	-	Hydrogen Peroxide and Peroxyacetic acid	<b>OxiDate® 2.0.</b> <b>NEW 2023</b>	1.0 L/100 L of water	4 hours or until spray has dried	0	<b>Partial suppression in Asian water spinach.</b> The maximum number of applications per year is 8. Apply at 5–7-day spray intervals, depending upon the level of disease pressure.

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.hc-sc.gc.ca/lr-re/index-eng.php>