

# Lettuce Management Schedule

*A guide to weed, insect and  
disease management in field  
lettuce in Nova Scotia*



2018



# GUIDE TO PEST MANAGEMENT IN FIELD LETTUCE



**Nova Scotia Vegetable Crop Guide to Pest Management 2018**  
[LET1-18]

Updated March 22, 2018 by  
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## **IMPORTANT**

This publication was compiled by representatives from Perennia 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, Perennia 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, Perennia 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	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 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	12 hours	7	
			<b>Touchdown 480</b>	2.5-7.0 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>Pre-emergence</b>  <i>Stale Seedbed Technique</i>	22	paraquat	<b>Gramoxone 200 Sn</b>	2.75-5.5 L/ha	12 hours	-	Apply in 300 – 1100 L of water/ha to foliage of emerged weeds but before the crop has emerged.
		diquat	<b>Reglone 240, Dessicash</b>	2.3-4.6 L/ha	24 hours	-	

<b>Pre-emergence</b> <i>Annual Grasses and some broadleaves</i>	15	propyzamide	<b>Kerb 50 WSP</b>	2.2 kg/ha	24 hours	55	Use on mineral soils only. Do not replant a second crop of lettuce in the same season. One application/year. For transplanted lettuce apply Kerb 7-10 days post-transplant.
<b>Postemergence</b> <i>Inter-row shielded</i>	22	paraquat	<b>Gramoxone 200 Sn</b>	2.75-5.5 L/ha	12 hours	-	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, Dessicash</b>	2.3-4.6 L/ha	24 hours	-	
	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>	15	propyzamide	<b>Kerb 50 WSP</b>	2.2 kg/ha	24 hours	55	Transplanted lettuce only. Apply 7-10 days after planting. One application per year.
	1	sethoxydim	<b>Poast Ultra plus Merge</b>	0.32-1.1 L/ha 0.5-2 L/ha	12 hours	30	Transplanted lettuce – 1 application per year, between 1- 6 leaf stage Direct seeded – 2 applications/year. First between 1- 6 leaf stage, 2 <sup>nd</sup> 14 to 21 days after thinning. DO Not exceed 1.1 L/ha/year.
	1	fluazifop-p-butyl	<b>Venture L</b>	2.0 L/ha	12 hours	14	<b>Head &amp; Leaf Lettuce.</b> Apply as a post-emergent broadcast application. One application per season.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted-Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>INSECTS:</b>							
<b>Aster Leafhopper</b>	3	cypermethrin	<b>Mako</b>	125 ml/ha	-	14	7-14 day spray schedule. Up to 4 applications/season.
			<b>UP-Cyde</b>	200 ml/ha	12 hours	14	
	1A	carbaryl	<b>Sevin XLR Plus</b>	1.25-2.5 L/ha	12 hours	5 (head lettuce) 21 (leaf lettuce)	Use low rate on young plants. Repeat applications at 7-10 day intervals as necessary. <b>Do not apply</b> when foliage is wet or when rain or excessive humidity is expected during the next 2 days
	1B	malathion	<b>Malathion 500 EC</b>	1.5-2.75 L/ha	12 hours	3 (head lettuce) 14 (leaf lettuce)	Weekly or twice weekly during growing season.
-	kaolin	<b>Surround WP</b>	12.5-25 kg/ha	4 hours	-	<b>An OMRI Listed product suitable for organic production.</b> Apply in 500 L of water at 7-14 day intervals once initial infestation is detected. Use high rate for early applications. Do not exceed 25 kg/ha per application.	
<b>Aphids</b>	4	imidacloprid	<b>Admire 240 F</b>	10.2 ml/1000plants	12 hours	21	<b>Transplant tray plug drench.</b> Do not follow with soil or foliar treatments
			<b>Admire 240 F</b>	650 ml/ha	24 hours	21	<b>Soil application (field drench)</b> Apply after transplanting in 2000 L water/ha. Max 1 application per year.
			<b>Admire 240 F</b>	200 ml/ha	24 hours	7	<b>Foliar</b> – Do not make foliar application after either a transplant or soil drench of Admire.

	4	acetamiprid	<b>Assail 70 WP</b>	0.056-0.086 kg/ha	12 hours	7	Max 5 applications per year, alternate with other products.
	1B	acephate	<b>Orthene 75 SP</b>	563-825 g/ha	24 hours	7	Head lettuce only. Maximum of 4 applications/yr
	1B	dimethoate	<b>Lagon 480 EC</b>	700 ml/ha	3 day	7	Leaf lettuce only
	9B	Pymetrozine	<b>FulFill 50WG</b>	193 g/ha	12 hours	14	Apply when aphids first appear. Do not exceed 2 applications/ season. Allow 7 days between applications. Causes feeding cessation shortly after exposure 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.
	29	Flonicamid	<b>Beleaf 50SG</b>	0.12-0.16 kg/ha	12 hours	0 days	Thorough spray coverage of plant foliage is essential. Minimum of 94 L of water/ha. Max 3 applications /season; allow 7 days between applications. <b>Avoid overnight storage of spray mixtures, do not use liquid fertilizer as a carrier; do not use adjuvants.</b>
	4	thiamethoxam	<b>Actara 25 WP</b>	105 g/ha	12 hours	7	Apply before aphids reach damaging levels. Maximum 2 applications/year. <b>Actara 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> Allow at least 7 days between applications.
	4C	Sulfoxaflor	<b>Closer SC</b>	100-150 ml/ha	12 hours	3 days	Maximum 2 applications/growing season. Do not apply during crop

							flowering period or when flowering weeds are present in treatment area. Minimum treatment interval = 7 days.
	28	Cyantraniliprole	<b>Exirel</b>	500-1500 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. 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. Do not make more than 4 applications per season.
<b>Aphids and Whiteflies</b>	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/season. Movento is <b>TOXIC to bees</b> through direct contamination of pollen and nectar. <b>DO NOT apply</b> during crop flowering period or when flowering weeds are present in the field.
			<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. Movento is <b>TOXIC to bees</b> through direct contamination of pollen and nectar. <b>DO NOT apply</b> during crop flowering period or when flowering weeds are present in the field.
<b>Cabbage Looper</b>	11	<i>Bacillus thuringiensis</i>	<b>Dipel 2X DF</b>	275-550 g/ha	-	0	Apply when larvae are small and in the early instar stages. Not effective as larvae become larger.
			<b>Thuricide HPC</b>	2.0-4.25 L/ha	-	0	

	5	spinosad	<b>Success 480 SC</b>	182 ml/ha	12 hours	1	Max 3 applications/yr. Allow 7-10 days between applications
			<b>Entrust 80 W</b>	109 g/ha	12 hours	1	
			<b>Entrust SC</b>	364 ml/ha			
	5	spinetoram	<b>Delegate WG</b>	140-200 g/ha	4 hours	1	Time application with peak egg hatch or small larvae. Repeat applications based on population monitoring. Use higher rate for higher infestations or advanced growth stages. Max. 3 applications/year with a minimum of 5 days between treatments.
	3	cyhalothrin-lambda	<b>Matador 120 EC</b>	83 ml/ha	24 hours	3	Head lettuce only. Maximum 3 applications/year.
	1A	methomyl	<b>Lannate Toss-N-Go</b>	0.51-1.0 kg/ha	24 hours	7	
	1B	acephate	<b>Orthene 75 SP</b>	563-825 g/ha	24 hours	7	Head lettuce only. Max 4 applications per season. Apply in 225-1650 L of water/ha.
	28	chlorantraniliprole	<b>Coragen</b>	250 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Maximum 4 applications/season. Do not apply more than once every 3 days. Do not exceed 1 L/ha /season. Apply in a finished spray volume of 100L/ha.
18	Methoxyfenozide	<b>Intrepid 240F</b>	0.3 – 0.6 L/ha	12 hours	1	Apply at the first sign of feeding damage or when infestations reach threshold levels 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	Cyantraniliprole	<b>Exirel</b>	250-500 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not make more than 4 applications per season.
	11	<i>Bacillus thuringiensis</i> , subsp. <i>aizawai</i> , (Strain ABTS-1857 fermentation solids, spores, and insecticidal toxins)	<b>XenTari WG</b>	500-1000 g/ha	-	0	Apply sufficient spray volume to ensure uniform deposition on all plant surfaces; recommend 500 L per hectare.
<b>Cutworm</b>	3	cyhalothrin-lambda	<b>Matador 120 EC</b>	83 ml/ha	24 hours	3	Head lettuce only. Max 3 applications/year
	3	cypermethrin	<b>Ripcord 400 EC</b>	175 ml/ha	-	21	Do not disturb soil for 5 days after treating
	3	permethrin	<b>Pounce</b>	180-390 ml/ha	12 hours	-	Apply up to the 5-leaf stage. Do not disturb soil for 5 days after treating.
	28	Cyantraniliprole	<b>Exirel</b>	500-750 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. For early season cutworm control, apply to foliage when rain is not expected in the next 24 hours. For optimal control, apply to smaller plants or when lower portions of plant can receive adequate coverage. Make no more than 4 applications per season.
<b>Tarnished Plant Bug</b>	3	Lambda cyhalothrin	<b>Matador 120 EC</b>	83 ml/ha	24 hours	3	<b>For Head and Leaf Lettuce.</b> Use 500 L/ha of spray volume for thorough coverage. Maximum 3 applications per year, with a 7 day interval between treatments.

	1A	carbaryl	<b>Sevin XLR Plus</b>	2.5-5.25 L/ha	12 hours	5 (head lettuce) 21 (leaf lettuce)	
	4	thiamethoxam	<b>Actara 25 WP</b>	210 g/ha	12 hours	7	Apply before aphids reach damaging levels. Maximum one application/year. <b>This 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>
<b>Brown Marmorated Stink Bug</b>	1B	Malathion	<b>Malathion 85E</b>	1345 mL/ha	-	3 (head lettuce) 14 (leaf lettuce)	Ensure sufficient water volume is used to guarantee thorough coverage. Use a minimum of 500 L water/ha. Apply prior to harvest when treatment thresholds have been reached, as determined by local monitoring.
<b>Onion thrips</b>	5	Spinetoram	<b>Delegate WG</b>	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.
	23	Spirotetramat	<b>Movento 240 SC</b>	365 ml/ha	12 hours	3 days	Minimum 7 day interval between applications. Maximum allowed per crop season: 730 mL/ha. Apply when thrips are first identified. Movento should be used during the first half of the season when adult populations are relatively low or building. Reductions in numbers of thrips larvae may take 3 to 4 days after Movento is applied.
<b>Armyworm, Beet Armyworm, Fall Armyworm</b>	28	Cyantraniliprole	<b>Exirel</b>	500 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Make no more than 4 applications per season.

	11	<i>Bacillus thuringiensis</i> , subsp. <i>aizawai</i> , (Strain ABTS-1857 fermentation solids, spores, and insecticidal toxins)	<b>XenTari WG</b>	500-1000 g/ha	-	0	<b>Beet Armyworm.</b> Apply sufficient spray volume to ensure uniform deposition on all plant surfaces; recommend 500 L per ha.
<b>Corn earworm</b>	28	Cyantraniliprole	<b>Exirel</b>	750 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not make more than 4 applications per season.
<b>Dipteran leafminers (larvae)</b>	28	Cyantraniliprole	<b>Exirel</b>	1000-1500 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not make more than 4 applications per season.
<b>Flea Beetles</b>	28	Cyantraniliprole	<b>Exirel</b>	500-1000 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Re-application interval: 5 days. Max 4 applications/season.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted-Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>DISEASES:</b>							
Aster Yellows		-	-	-	-	-	Control Aster leafhoppers
Damping Off	4	metalaxyl	Ridomil 2G	25 kg/ha	-	-	Apply with seed in furrow. Do not use on transplants
	M	thiram	Thiram 75 WP	90 g/25kg seed	24 hours	-	
	4	metalaxyl-M and s-isomer	Apron XL LS	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.
Botrytis (Grey mold)	2	iprodione	Rovral 50 WP	1.5 kg/ha	12 hours	4	Max 4 applications/yr. Start after thinning, apply at 7 day intervals.
	7	boscalid	Cantus WDG	0.285 kg/ha	12 hours	14	Maximum 2 applications/year
	M	ferbam	Ferbam 76 WDG	2 kg/ha	-	-	Spray seedlings before transplant. Apply in 1000L / ha
	-	<i>Bacillus subtilis</i>	Serenade Opti	0.6-1.7 Kg/ha	-	0	<b>Biopesticides that will only suppress the indicated diseases.</b> Begin applications soon after emergence or transplant and continue as necessary on a 7-10 day interval. When conditions are conducive to rapid disease development, use in a rotational program with other registered fungicides. Thorough coverage is essential.

	-	<i>Trichoderma harzianum</i> Rifai strain KRL-AG2	<b>RootShield HC</b>	10 g / L of water	0 hours	-	This biopesticide is for suppression of botrytis blight ( <i>B. cinerea</i> ). Apply 10 grams/L of water to foliage every 7-14 days depending upon disease pressure. Apply sufficient spray volume to adequately cover the leaves. <b>This product does not work well when soils are below 10°C.</b>
	7	penthiopyrad	<b>Fontelis</b>	1.25-1.75 L/ha	12 hours	3	<b>Begin applications prior to disease development, continue on a 7-10 day interval.</b> Use higher rate and shorter interval 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.
<b>Downy Mildew</b>	4M	Metalaxyl-M/mancozeb	<b>Ridomil Gold MZ 68 WP</b>	2.5 kg/ha	24 hours	14	For head lettuce only. Apply every 14 days beginning at thinning. Maximum 3 applications per year.
	U	fosetyl-al	<b>Aliette WDG</b>	2.8 kg/ha	24 hours	7	Max 5 applications/year.
	-	<i>Bacillus subtilis</i>	<b>Serenade Opti</b>	1.7-3.3 Kg/ha	-	0	<b>Biopesticide that will only suppress the indicated diseases.</b> 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.
	44	<i>Bacillus amyloliquifaciens</i> strain D747	<b>Double Nickel LC (1x10<sup>10</sup>spores/mL)</b>	5-12.5 L/ha	-	0	Growth stage: Begin applications preventatively when conditions are favorable for onset of disease.

			<b>Double Nickel 55</b> <b>(5x10<sup>10</sup>spores/g)</b>	1-2.5 kg/ha			Repeat application every 7 to 10 days for as long as conditions favor disease development.
	40	mandipropamid	<b>Revus</b> plus <b>Non-ionic</b> <b>adjuvant</b>	400-600 ml/ha plus 0.125% 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 of fungicides, following resistance management guidelines. Maximum 4 applications/year.
	43	fluopicolide	<b>Presidio</b>	220-292 ml/ha	12 hours	2	<b>Apply in 200-1000 L/ha.</b> For resistance management, Presidio must be tank-mixed with a labelled rate of another fungicide registered for the target pathogen with a different mode of action. Apply in a tank mix with Aliette. Follow the most restrictive use directions of either label. Make foliar applications on a 7-10 day schedule beginning with initial flowering, or when disease conditions are favourable, but prior to disease development. Use lower rate and longer interval as preventive applications. Use the higher rate and shorter interval if disease is present.
	40	Dimethomorph	<b>Acrobat 50 WP</b>	450 g/ha	2 days (hand harvesting)  12 hours (no	0	<b>Must be applied as a tank mix with another fungicide active against downy mildew.</b> Begin applications when conditions

					entry)		favour disease development. Continue applications on a 5-10 day schedule as needed until weather conditions favouring infection and sporulation decrease. DO NOT use less than 200 L of water/ha for ground applications. Maximum 5 applications per year.
	33	Mono and dibasic sodium and potassium and ammonium phosphites	<b>Phostrol</b>	2.9-5.8 L/ha	12 hours	1	For preventative control of <b>downy mildew</b> , begin foliar applications when conditions favouring disease development exist and continue on a 7-21 day interval, if needed. Max 7 applications per year.
	40,45	Ametoctradin, dimethomorph	<b>Zampro</b>	1.0 L/ha	Hand harvesting –1 day All other activities – 12 hours	0	To reduce the risk of development of fungicide resistance use in rotation with other fungicides having a different mode of action active against downy mildew. Begin applications prior to disease development and continue on a 5-7-day interval. Max 3 applications.
	21	Cyazofamid	<b>Torrent 400 SC</b> <b>+ Sylgard 309</b>	0.20 L per hectare	12 hours	0	Make the first application after seeding or once the lettuce transplants are set in the field. Subsequent applications should be initiated when weather conditions are favourable for downy mildew development or when disease first appears in the field. All subsequent applications on a 7-14 day schedule, using the shorter

							interval when disease pressure is moderate to severe. Max 6 applications/ season. <b>A plant back interval of 30 days is required.</b>
	U15	Oxathiapiprolin  <i>NEW 2018</i>	<b>Zorvec Enicade</b>	0.175-0.35 L/ha	12 hours	0	Begin applications prior to disease development and continue on a 5-14 day interval. Use higher rate and shorter interval when disease pressure is high.
<b>Sclerotinia (Head and Leaf Drop)</b>	7	boscalid	<b>Cantus WDG</b>	0.385 kg/ha	12 hours	14	Max 2 applications/year.
	44	<i>Bacillus subtilis</i>	<b>Serenade Opti</b>	0.6-1.7 Kg/ha	-	0	<b>Biopesticide that will only suppress the indicated diseases.</b> Make the first application at planting (or immediately following planting but prior to crop emergence). Make a 2 <sup>nd</sup> application as a directed spray with multiple nozzles per seed line in sufficient water to ensure thorough coverage of lower plant leaves and surrounding soil surface within 7 days of thinning. Repeat applications on 10-14 day intervals if conditions for disease development persist.
	44	<i>Bacillus amyloliquefaciens</i> strain D747	<b>Double Nickel LC (1x10<sup>10</sup>spores/mL)</b>	Foliar: 5-12.5 L/ha  Low disease pressure: 1-5 L/ha	-	0	Growth stage: From planting to formation of the head of lettuce. Repeat application every 3 to 10 days for as long as conditions favor disease development. See <b>Soil application</b> on label. Apply at or after planting (but



				Soil: 1-2.5 L/ha			before plant emergence) as a banded seed line treatment, see <b>Banded/in furrow application</b> on label. Alternatively, apply to seed bed via overhead sprinkler chemigation with germination water, see <b>Chemigation Instructions</b> on label. Make second application at thinning or cultivation in sufficient water and multiple nozzles to ensure thorough coverage of lower leaves and surrounding soil surface. Incorporation with light irrigation after application may improve disease control. Repeat at 10-14 day intervals if conditions promoting disease persist.
			<b>Double Nickel 55</b> (5x10 <sup>10</sup> spores/g)	Foliar: 1-2.5 kg/ha  Low disease pressure: 0.2-1 kg/ha  Soil: 0.2-0.5 kg/ha			
	7	penthiopyrad	<b>Fontelis</b>	1.25-1.75 L/ha	12 hours	3	
	7	Isofetamid	<b>Kenja 400SC</b>	0.90 L/ha	12 hours	14	On direct seeded lettuce make the first application after emergence, thinning or prior to onset of disease development On transplanted lettuce make the first application immediately after

							transplanting or prior to the onset of disease development. Make a second application 14 days later if conditions continue to favor disease development. Do not make more than 2 applications per year.
<b>Powdery Mildew</b>	-	<i>Bacillus subtilis</i>	<b>Serenade Opti</b>	1.7-3.3 Kg/ha	-	0	<b>Biopesticides that will only suppress the indicated diseases.</b> 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.
	13	quinoxifen	<b>Quintec</b>	240 ml/ha	12 hours	1	Maximum of 4 applications per year. Repeat applications on 10-14 day intervals. <b>Apply before visual symptoms of Powdery Mildew appear. Quintec has no curative properties and will not control established infections. *</b> <b>Note *</b> – product is toxic to bees exposed to direct treatment, drift, or residues on crops or weeds.

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>

# 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
EW	Water-based concentrate	kg	kilogram
EG	Water dispersible granule	g	gram
F	Flowable	L	litre
G	Granule	BIU	Billions of International Units
SC	Suspension concentrate	ppm	parts per million (1000 ppb)
Sn	Solution	ppb	parts per billion (1/1000 ppm)
SP	Soluble powder		
WDG	Wettable dry granule		
WP, W	Wettable powder		

<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!