

2023



EXTENSION AND ADVISORY TEAM

# SPRAY GUIDE FOR LEEKS

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Nova Scotia Vegetable Crop Spray Guide 2023  
[LEEK1-23]



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**Nova Scotia Vegetable Crop Spray Guide 2023**  
[LEEK1-23]

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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	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 (1.67-4.67 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. Allow 3 or more days after treatment before tillage. Best control of quackgrass is obtained when these herbicides are applied in the fall.
			<b>Touchdown Total</b>	1.8-5.0 L/ha	12 hours	7	
	14	carfentrazone-ethyl	<b>Aim EC</b>	36.5-117 mL/ha	12 hours	1	
<b>Pre-emergence</b>  <i>Stale Seedbed Technique</i>	22	diquat	<b>Reglone 240, Dessicash</b>	2.3-4.6 L/ha	24 hours	-	Apply in 300 – 1100L of water/ha to foliage of emerged weeds but before the crop has emerged.
<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.
	22	diquat	<b>Reglone 240, Dessicash</b>	2.3-4.6 L/ha	24 hours	-	Do not spray solution on the crop plant since it could be injured or killed. Use gramoxone for best control of grasses.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
Postemergence <i>Grass and broadleaf</i>	5	prometryn	<b>Gesagard 480 SC</b>	3.75 L/ha	12 hours	-	2 applications 10 days apart before weeds are 5 cm high. Make applications to well established transplanted leeks that have one fully expanded leaf.
	-	Acetic Acid	<b>Serene</b> <b>NEW 2023</b>	179-219.5 L/ha	When residue is dry	-	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.
Postemergence <i>Grasses</i>	1	Clethodim	<b>Select</b>	0.19-0.38 L/ha	12 hours	14	Apply at least 2 weeks after transplanting, when there is one fully expanded new leaf. Max one application per year. Ground application only. Mix with 0.5-1.0% v/v AMIGO adjuvant. Minimum spray volume 110 L/ha.
			<b>Centurion®</b>				
Post-transplant, before weed emergence	3	Pendimethalin	<b>Prowl H<sub>2</sub>O</b>	2.37 L/ha	5 days scouting 7 days hand-set irrigation 16 days hand weeding	30	Broadleaf & annual grass. Mineral soils: 2.37 L/ha. Muck soils: 6.6 L/ha 1 application per season. Minimum spray volume 200 L/ha
				6.6 L/ha			
	15	Dimethenamid-P	<b>Frontier Max</b>	963 mL/ha (mineral soil) 1.29 L/ha (muck soil)	24 hours	30	Apply a few days after transplanting when plants are established, and soil has settled around plants.
		Pyroxasulfone	<b>Pyroxasulfone 85 WG</b>	88-176 g/ha	5 days (hand weeding), 12 hours (general)	60	Do not apply it on sandy soil. Before applying to transplanted leek, verification of varietal tolerance must be confirmed to avoid potential injury to sensitive varieties. May result in temporary growth suppression if extreme conditions of high rainfall occur

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks	
<b>INSECTS:</b>								
Thrips	1B	malathion	<b>Malathion 85E</b>	1100-1345 mL/ha	12 hours	3	Apply using enough spray mixture to ensure thorough coverage. One application per year.	
	3	cyhalothrin-lambda	<b>Matador 120 EC or Labamba</b>	188 ml/ha	24 hours	14	Max 3 applications/yr. Allow 7 days between treatments. Apply in 500 L of water /ha.	
	5	spinetoram	<b>Delegate WG</b>	200-336 g/ha	12 hours	3	300-500 L water/ha with sufficient pressure to ensure spray solution penetrates leaf axils. Apply when thrips first appear targeting eggs at hatch and small nymphs. Use higher applications when insect pressure is high, or insects are at an advanced stage of growth. Maximum 3 applications per year with 7-10 days between treatments. Do not apply 2 consecutive applications of group 5 insecticides. Rotate to another class of insecticide for at least one application.	
			Spinosad	<b>Success 480SC</b>	218-262 ml/ha	When dry	3	<b>Suppression only.</b> Target small nymphs and eggs at hatching. Allow 7-10 days between applications. Maximum of 3 applications per year. Apply in 300-500 L/ha.
				<b>Entrust 80</b>	131-158 g/ha			
				<b>Entrust</b>	437-527 ml/ha			
	6	Abamectin	<b>Agri-Mek 1.9% EC</b>	0.6-1.2 L/ha	12 hours (13 days hand weeding 4 days hand-set irrigation 1 day thinning & scouting)	7	Foliar application only. Allow 7 days between applications. Apply when pest populations are building but before damage occurs. Consult local extension specialists, professional consultants, or other qualified authorities to determine appropriate threshold levels in your area. Use the higher application rate under heavy pest pressure.	

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
Thrips (cont.)	6 & 28	Abamectin + Cyantraniliprole	Minecto Pro	778 mL/ha	12 hours	30	Apply methylated seed oil surfactant at a rate of 0.25% v/v. Apply when leaf miner is first noticed and repeat when required. Max applications per season is 3. Minimum spray volume is 200 L/ha
	23	Spirotetramat	Movento 240 SC	365 mL/ha	12 hours	7	Apply when thrips are first noticed. 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 3-4 days after Movento is applied. 2 applications per season.
	28	Cyantraniliprole	Exirel	1000-1500 ml/ha	12 hours	1	<b>Suppression only.</b> Begin applications when populations are low. Thorough coverage is essential for 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. If thrips populations are high, use a registered insecticide with a different mode of action to reduce populations before applying Exirel. Make no more than 4 applications per season. Do not apply more than once every 5 days.
Leek Moth	3	cyhalothrin-lambda	Matador 120 EC or Labamba	188 ml/ha	24 hours	14	Max 3 applications/yr. Allow 7 days between treatments. Apply in 500 L of water /ha.



Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
Leek Moth (cont.)	5	spinetoram	Delegate WG	200-336 g/ha	12 hours	3	Recommended water volume of 300-500 L water/ha with sufficient pressure to ensure spray solution penetrates leaf axils. Apply when thrips first appear targeting eggs at hatch and small nymphs. Use higher applications when insect pressure is high, or insects are at an advanced stage of growth. Maximum 3 applications per year with 7-10 days between treatments. Do not apply 2 consecutive applications of group 5 insecticides. Rotate to another class of insecticide for at least one application. Do not apply within 3 days of harvest.
			Success 480 SC	218-262 ml/ha	When dry	3	
			Entrust 80	131-158 g/ha			
			Entrust	437-527 ml/ha			
	11	<i>Bacillus thuringiensis</i> , subsp. <i>aizawai</i> , (Strain ABTS-1857 fermentation solids, spores, and insecticidal toxins)	XenTari WG	500-1000 g/ha	4 hours	0	<b>Suppression only.</b> Apply sufficient spray volume to ensure uniform deposition on all plant surfaces; recommend 1000 L per ha.
28	Chlorantraniliprole	Coragen	250-375 mL/ha	12 hours	1	<b>Suppression only.</b> Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control.	
Two-spotted spider mite	23	Spiromesifen	Oberon™ <i>NEW 2023</i>	500-600 mL/ha	12 hours	7	Apply at a 7-day interval. The Max number of applications a season is 3. Minimum application volume is 100L/ha.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>DISEASES:</b>							
Purple Blotch	7	Benzovindiflupyr	<b>Aprovia</b>	750 ml/ha	12 hours	7	Begin applications when the plants are 5-10 centimeters high or when conditions become favorable for disease development. Make applications on a 7-14-day interval. Use the shorter interval when conditions are more conducive to disease. <b>Also controls garlic rust (<i>Puccinia allii</i>).</b>
		boscalid	<b>Cantus WDG</b>	0.475 kg/ha	12 hours	7	Max 6 applications/yr. Do not apply more than 2 sprays in succession before alternating to another fungicide family.
		penthiopyrad	<b>Fontelis</b>	1.25-1.75 L/ha	12 hours	3	Begin applications prior to disease development, continue a 7–14-day interval. Use higher rate and shorter intervals when disease pressure is high. Max seasonal rate is 5.25 L/ha. Make no more than 2 sequential applications before switching to another mode of action.
	7 & 3	Pydiflumetofen & Difenoconazole	<b>A20259</b>	1.0 L/ha	12 hours	7	Apply on a 7-14-day interval, starting prior to disease establishment. Apply as a broadcast spray in sufficient water (minimum of 150 L/ha). Switch to a non-group 7 and 3 fungicides after 2 consecutive applications. Max. 3.0 L/ha/year.
		Benzovindiflupyr & Difenoconazole	<b>Aprovia®Top</b> <b>NEW 2023</b>	967 mL/ha	12 hours	7	Make applications on a 7 – 14 days interval. Use the shorter interval when conditions are more conducive to disease. Apply specified rates in a minimum of 150 L of water per hectare up to 600 L of water per hectare. 2.9 L/ha to Green Onion subgroup.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>Purple Blotch</b> <i>(cont.)</i>	7 & 9	Fluopyram & pyrimethanil	<b>Luna Tranquility</b>	1200 ml/ha	12 hours	7	Begin fungicide applications preventatively. Continue as needed, on a 7-12-day interval. 2 applications per season max.
	7 & 11	boscalid/pyraclostrobin	<b>Pristine WG</b>	1.0-1.3 kg/ha	3 days (thinning), when dry (general)	7	Max 6 applications/yr. Apply at 7–14-day intervals. Do not make sequential applications when downy mildew occurs. (Suppression only).
	9 & 12	Cyprodinil and Fludioxinil	<b>Switch 62.5 WG</b>	775-975 g/ha	12 hours 3 days (hand weeding)	7	<b>Suppression only.</b> Begin when conditions are favorable for disease but before infection. Maximum of 3 applications/yr. Apply at 7–14-day intervals.
	11	pyraclostrobin	<b>Cabrio</b>	0.56-0.84 kg/ha	12 hours	7	Max 3 applications/yr. Do not apply more than 2 sprays in succession before alternating to another fungicide family. Use on a 10–14-day schedule.
	11 & 3	Azoxystrobin, difenoconazole	<b>Quadris Top</b>	710-1000 mL/ha	12 hours	7	Apply it as a broadcast foliar spray in sufficient water for thorough coverage. A minimum spray volume of 150 L/ha is recommended. Apply on a 7-14-day interval, starting prior to disease onset when conditions are conducive to disease. If disease pressure is high, use the highest rate and shortest interval.
<b>Downy Mildew</b>	7 & 11	boscalid/pyraclostrobin	<b>Pristine WG</b>	1.0-1.3 kg/ha	When dry, 3 days (thinning)	7	<b>Suppression only.</b> Max 6 applications/yr. Apply at 7–14-day intervals. Do not make sequential applications when downy mildew occurs.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>Downy Mildew</b> <i>(cont.)</i>	11	fenamidone	<b>Reason 500 SC</b>	400 ml/ha	When dry	7	<b>Suppression Only.</b> Begin application as soon as conditions become favourable for disease development. Apply in 300-600 L/ha on a 5–10-day interval. Max 4 applications per year. Plant back interval of 30 days. Make no more than 2 sequential applications of Reason 500 SC or other Group 11 fungicide before alternating with a fungicide from a different Group.
		pyraclostrobin	<b>Cabrio</b>	0.56-0.84 kg/ha	12 hours	7	<b>Suppression only.</b> Max 3 applications/yr. Do not apply more than 2 sprays in succession before alternating to another fungicide family. Use on a 10–14-day schedule.
	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 the 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 a 5-7-day interval. Max 3 applications.
	P07	Mono- and dibasic sodium, potassium, and ammonium phosphites	<b>Phostrol</b>	2.9-4.3 L/ha	12 hours	0	For preventative suppression of downy mildew begin foliar applications when conditions favoring disease development exist and continue a 7–14-day interval. Do not apply more than 7 applications per year.
	BM02	<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.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>Downy Mildew</b> <i>(cont.)</i>	49 & 40	Oxathiapiprolin & Mandipropamid	<b>Orondis Ultra</b>	0.4 L/ha	12 hours	7	Begin applications prior to disease development and continue a 7-10-day interval. Use shorter intervals when disease pressure is high. The use of a penetrating surfactant is recommended. No more than 2 consecutive sprays, maximum of 4 applications per season.
	M1	Copper	<b>Cueva</b>	0.5% to 2% solution, applied at 470-940 L/ha solution	4 hours	1	Re-apply using 5–10-day intervals.
	U15	Oxathiapiprolin	<b>Zorvec Enicade</b>	0.0875-0.35 L/ha	12 hours	0	Begin applications prior to disease development and continue a 5-10-day interval. Use higher rate and shorter interval when disease pressure is high.
<b>Botrytis leaf blight &amp; Botrytis Neck Rot</b>	7	boscalid	<b>Cantus WDG</b>	0.475 kg/ha	12 hours	7	Max 6 applications/yr. Do not apply more than 2 sprays in succession before alternating to another fungicide family.
	7 & 9	Fluopyram & pyrimethanil	<b>Luna Tranquility</b>	1200 ml/ha	12 hours	7	Begin fungicide applications preventatively. Continue as needed, on a 7-12-day interval. Apply maximum of 2 applications per season for Botrytis.
	7 & 11	boscalid/pyraclostrobin	<b>Pristine WG</b>	1.0-1.3 kg/ha	When dry, 3 days (thinning)	7	Max 6 applications/yr. Apply at 7–14-day intervals. Do not make sequential applications for downy mildew (suppression only).
	9 & 12	Cyprodinil and Fludioxinil	<b>Switch 62.5 WG</b>	775-975 g/ha	12 hours 3 days (hand weeding)	7	Maximum of 3 applications/yr. Begin when conditions are favorable for disease but before infection. Apply at 7–14-day intervals, no more than 2 sequential applications.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
Botrytis leaf blight & Botrytis Neck Rot <i>(cont.)</i>	M1	Copper	Cueva	0.5% to 2% solution, applied at 470-940 L/ha	4 hours	1	Re-apply using 5–10-day intervals.
	BM02	<i>Bacillus subtilis</i>	Serenade <i>Opti</i>	1.7-2.5 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.

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>