

2023



EXTENSION AND ADVISORY TEAM

SPRAY GUIDE FOR CELERY

Nova Scotia Vegetable Crop Spray Guide 2023
[CEL1-23]



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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 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!

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
WEEDS:							
Preplant <i>Perennial weeds including quackgrass</i>	9	Glyphosate	Roundup Transorb HC	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.
			Roundup WeatherMAX	1.67-4.67 L/ha	12 hours	7	
			Touchdown Total	1.8-5.0 L/ha	12 hours	7	
	14	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.
After transplanting celery & prior to weed emergence	3	Pendimethalin	Prowl H₂O	2.37 L/ha <i>(Mineral Soil)</i>	24 hours	60	Uniformly apply as a broadcast over the top application at least 21 days after transplanting and prior to the emergence weeds. One application per year. Will not control emerged weeds. Destroy existing weeds before applying. Treatments are most effective in controlling weeds when adequate rainfall or overhead irrigation is received within seven (7) days after application. Apply in a minimum of 200 L/ha water. DO NOT apply herbicide more than once during a season or more than once in two consecutive years.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
After transplanting celery & prior to weed emergence (cont.)	15	S-metolachlor	Dual II Magnum	1.2-1.5 L/ha (mineral soils)	12 hours	62 days	Apply in 150-200 L water/ha. Directed or broadcast spray. Ground application only. In general, the risk of crop injury is less with post-directed than from post over-the-top post-transplanting applications. The use of a spray adjuvant or the addition of another registered herbicide as a tank mixture increases the risk of crop injury from post-emergence applications. Dual II Magnum may be used to treat row-middles in bedded crops, as long as the total amount applied does not exceed 1.75 L/ha in that crop. Use lower rates on coarse-textured soils and higher rates on fine-textured soils.
			Komodo				
Postemergence Treatments	5	Prometryn	Gesagard 480 SC	3.75-4.58 L/ha	24 hours	54	Apply to transplanted celery only, 21 days after transplanting and before weeds reach 5 cm in height. Only one application per season.
Seedling annuals	7	Linuron	Afolan F	2 – 3.73 L/ha	7 days (scouting)	-	Cancelled use with an extended phase out period, last date of use on celery is November 5, 2024. Apply to transplant as soon as new growth has started. Some temporary discoloration may occur. Use lower rate on lighter soils (lower in clay or organic matter) and higher rates on heavier soils
			Lorox L	1.9 – 3.5 L/ha	4 days (other activities)		
Postemergence Treatments Annuals and broadleaves	-	Acetic Acid	Serene NEW 2023	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.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Postemergence Treatments <i>Annual Grasses, quackgrass</i>	1	Sethoxydim	Poast® Ultra	0.32L/ha-1.1 L/ha	12 hours	30	Maximum application 1.1 L/ha per year. Most effective control when application is made at the 2 to 5 leaf stage when annual grasses are small and in the growing process. Apply to quackgrass when in the 3-leaf stage of growth; competition of quackgrass is typically eliminated for 6 to 8 weeks, cultivation is not recommended within 7 days of treatment for wide row crops to aid in weed control.
		Clethodim	Select® NEW 2023	0.19-0.38 L/ha	12 hours	30	Apply SELECT postemergence of weeds and crop. Apply a maximum of one application per year using ground equipment. Apply in a minimum spray volume of 110 L/ha. Apply with Amigo or Journey HSOC Adjuvant.
Postemergence Treatments <i>Intra-Row Shielded</i>	14	Flumioxazin	Chateau WDG	140-210 g/ha	12 hours	Do not apply after transplanting	Apply Chateau Herbicide WDG as a hooded or shielded application to row middles prior to transplanting for pre-emergence control of the weeds. Rainfall or irrigation must occur between application and transplanting in order to activate the product.
			Chateau EZ	149 – 224 mL/ha	12 hours	Do not apply after transplanting	Apply Chateau EZ Herbicide as a hooded or shielded application to row middles prior to transplanting for preemergence control of the weeds. Rainfall or irrigation must occur between application and transplanting in order to activate the product. Do not apply more than 224 mL/ha during a single growing season.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
INSECTS:							
Leafhoppers	1A	Carbaryl	Sevin XLR Plus	1.25-2.5 L/ha	5 days (hand harvest, pruning, irrigation) 12 hours (scouting, hand weeding, thinning)	5	Aster leafhoppers spread aster yellows. Apply up to 2 sprays at 7–10-day intervals beginning early July. Also spray weeds in headlands and control leafhoppers on adjacent carrots and lettuce.
	3	Cypermethrin	Mako	86 mL/ha	12 hours	7	Potato leafhopper. Apply in 500 L of water per hectare when insects are first noticed. Repeat as required up to 3 applications per season.
			UP-Cyde 2.5 EC	140 ml/ha	12 hours	7	Potato leafhopper. Apply in 550 L of water / ha when insects are first noticed. Maximum of three applications per season. Minimum 7 days between applications.
	-	Kaolin	Surround WP	12.5 - 25 kg/ha	-	0	This is an OMRI listed control product and is suitable for organic production. Apply in 500 L of water. Apply at 7–14-day intervals once initial infestation is detected. Use high rate for early applications. Do not exceed 25 kg/ha per application.
Tarnished Plant Bug	3	Lambda-cyhalothrin	Matador 120 EC	83 ml/ha	12 hours	3	Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds. Reapply after a minimum of 7 days if monitoring indicates it is necessary. Max 3 applications per year, apply in 500 L of water /ha.
			Labamba		24 hours		
			Warrior		12 hours		

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Tarnished Plant Bug (cont.)	4	thiamethoxam	Actara 25 WG	210 g/ha	12 hours	7	Reduction in Damage. Apply before aphids reach damaging levels. Maximum one application per year. Use at least 100 L of water per hectare. 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.
	15	Novaluron	Rimon 10 EC	835 mL/ha	12 hours	3	Tarnished plant bug nymph control. First application should be made when insect populations reach locally determined economic thresholds. Reapplication on at a 10–14-day interval may be required. Do not apply more than 3 applications per crop per season. Do not apply more than 2.5L of product per hectare per season.
	29	Flonicamid	Beleaf 50SG	3 applications: 0.2 kg/ha 2 applications: 0.3 kg/ha	12 hours	0	Suppression. Apply when tarnished plant bugs first appear in the field and before populations reach high levels. Beleaf will stop tarnished plant bugs feeding rapidly but it may take several days to see a reduction in tarnished plant bug numbers. Reapply when new insects are detected. Allow a minimum of 7 days between applications. Do not apply more than 3 applications per year.
		<i>Beauveria bassiana</i> strain ANT-03	BioTitan	4 – 8 g/L	4 hours	0	BioTitan WP is most effective when used early before high insect populations develop. It takes 5-7 days after the first application to observe control. Re-apply on 7-day intervals if necessary. If a fungicide must be used, make application at least 4 days before or 2 days after BioTitan application. See label for detailed mixing instructions. 500-1000L of spray volume will typically be required per hectare.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Aphids	1B	Dimethoate	Lagon 480 E	700 mL/ha	3 days	7	Do not apply more than 3 applications per growing season. Begin application 3 weeks after transplanting.
		Malathion	Malathion 85 E	1100 mL/ha	24 hours	7	Apply if aphids are plentiful. Trim celery at harvest. Max one application per year.
	4	Imidacloprid	Admire 240	6 mL/100m row	24 hours	45	Apply in-furrow spray directed on or below seed. Use 2000 L/ha of water as a narrow (5 cm or less) surface band over seed line during planting. Application should be made with sufficient water to ensure incorporation into the root zone. Subsurface side-dress on both sides of each row of seedlings or established transplants; apply in 200 L/ha of water. When applied as a post-seeding drench, transplant-water drench, or hill drench; use higher water volumes. No more than one application per season. Do not apply any subsequent application of a group 4 insecticide following treatment with Admire.
		Acetamiprid	Assail 70 WP	56 – 86 g/ha	12 hours	7	Maximum 5 applications per year and alternate with other insecticide families. Do not apply more than once every 7 days.
			Aceta 70 WP				
		Thiamethoxam	Actara 25 WG	105 g/ha	12 hours	7	Apply before aphids reach damaging levels. Maximum two applications per year. 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. Allow at least 7 days between applications.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Aphids (cont.)	4C	Sulfoxaflor	Closer SC	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 the treatment area. Minimum treatment interval = 7 days.
	4A & 28	Thiamethoxam, cyantraniliprole	Minecto Duo 40WG	750 g/ha	12 hours	-	Soil application. See label for application details and rotational crop restrictions. Do not use subsequent foliar group 4 or group 28 insecticides in the same season.
	9B	Pymetrozine	Fulfill 50WG <i>LAST SALE 2023, LAST USE 2024</i>	193 g/ha	12 hours	14	Apply when aphids first appear. Do not exceed 2 applications per season. Allow 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.
	9D	Afidopyropen	Versys <i>Sefina®</i> <i>NEW 2023</i>	0.1 L/ha <i>0.2 L/ha</i>	12 hours	0	<u>Green peach aphid (<i>Myzus persicae</i>), potato aphid (<i>Macrosiphum euphoribae</i>) & lettuce aphid (<i>Nasonovia ribis-nigri</i>).</u> Allow a minimum of 7 days between applications. Monitor pest population and reapply if necessary once thresholds are reached. Max 4 applications per year.
	28	Cyantraniliprole	Exirel	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.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Aphids (cont.)	29	Flonicamid	Beleaf 50SG	0.12-0.16 kg/ha	12 hours	0 days	Thorough spray coverage of plant foliage is essential. Minimum of 94 litres of water/ha. Maximum of 3 applications per season, allowing 7 days between applications. Avoid overnight storage of spray mixtures, do not use liquid fertilizer as a carrier and do not use adjuvants.
	-	Mineral Oil	SuffOil-X® NEW 2023	13L of product/ 100L of H2O	12 hours	0	Begin applications when pests appear. Apply at 7-14-day intervals. Do not apply more than 8 applications per year.
Aphids and Whiteflies	4D	Flupyradifurone	BYI 02960 200SL	Aphids: 500 – 750 mL/ha Whiteflies: 750 mL/ha – 1000 mL/ha	12 hours	1	Minimum interval between applications: 7 days. Minimum application volumes : 100 L/ha. Maximum allowed per crop season: 2000 mL/ha. Foliar Application Notes: Apply as a directed foliar spray ensuring thorough coverage
	9D	Afidopyropen	Versys	0.35-0.5 L/ha	12 hours	0	<u>Sweet potato whitefly (<i>Bemisia tabaci</i>) & silverleaf whitefly (<i>Bemisia argentifolii</i>).</u> Allow a minimum of 7 days between applications. Monitor pest population and reapply if necessary once thresholds are reached. Max 4 applications per year.
			Sefina® NEW 2023	0.7-1.0 L/ha			
	23	Spirotetramat	Movento 240 SC	220-365 ml/ha	12 hours	3	
Movento 150 OD			347-585 ml/ha	12 hours	3		
Whiteflies	-	<i>Beauveria bassiana</i> strain R444	BASSIDOR NEW 2023	0.5-1.0g in 1L of water	4 hours	0	Apply every 3-7 days depending on pest pressure. Ensure to use enough water to sufficiently cover the crop. Use within 6 hours of mixing.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Cabbage Looper	4A & 28	Thiamethoxam, cyantraniliprole	Minecto Duo 40WG	750 g/ha	12 hours	-	Soil application. Early-season control. See label for application details and rotational crop restrictions. Do not use subsequent foliar group 4 or group 28 insecticides in the same season.
	5	Spinetoram	Delegate WG	140-200 g/ha	12 hours	1	Time application with peak egg hatch. Repeat applications based on population monitoring. Use higher rate for higher infestations or advanced growth stages. Maximum of 3 applications/year with a minimum re-treatment interval of 5 days.
		Spinosad	Success 480 SC	182 ml/ha	12 hours	1	Maximum of 3 applications per year. Allow 7-10 days between applications.
			Entrust 80 or Entrust	109 g/ha 364 ml/ha			
	11	<i>Bacillus thuringiensis</i>	Thuricide HPC	2-4.25 L/ha	-	0	THURICIDE HPC is a biological insecticide and is intended for use against leaf-chewing larvae (caterpillars) of lepidopterous species. Apply at first sign of infestation when worms are small and repeat at 7–10-day intervals when needed to maintain control.
		<i>Bacillus thuringiensis</i> , subsp. <i>aizawai</i> ,	XenTari WG	500-1000 g/ha	4 hours	0	Apply sufficient spray volume to ensure uniform deposition on all plant surfaces.
	18	Methoxyfenozide	Intrepid	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 insect monitoring. Repeat applications after 7-14 days if required based on population monitoring. Use the higher rate for heavy infestations, advanced growth stages of the target pest or larger crop canopies.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Cabbage Looper <i>(cont.)</i>	28	Chlorantranili-prole	Coragen	250 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Maximum of 4 applications per season. Do not apply more than once every 3 days. Do not exceed 1 L of Coragen/ha/season. Apply in a finished spray volume of 100L/ha.
		Cyantraniliprole	Exirel	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.
Leaf Miner	4	Acetamiprid	Assail 70 WP	86 g/ha	12 hours	7	Maximum of 5 applications per season. Do not apply more than once every 7 days.
			Aceta 70 WP				
	4A & 28	Thiamethoxam, cyantraniliprole	Minecto Duo 40WG	750 g/ha	12 hours	-	Soil application. See label for application details and rotational crop restrictions. Do not use subsequent foliar group 4 or group 28 insecticides in the same season.
	6	Abamectin	Agri-Mek 1.9 EC	0.6-1.1 L/ha	12 hours	14	Maximum of 4 applications per season. Do not make 2 sequential applications.
			Agri-Mek SC	135-250 mL/ha 0.1-0.5% v/v non-ionic surfactant (NIS)			
6 & 28	Abamectin, cyantraniliprole	Minecto Pro	370-741 mL/ha	12 hours	7	Tank-mix with a non-ionic surfactant. Do not make sequential applications of any group 6 or 28 insecticides.	
15	Novaluron	Rimon 10 EC	464-603 ml/ha	12 hours	2	Apply when pea leaf miner or damage first appear. Reapply based on monitoring. Allow 7-14 days between applications. Do not apply more than 3 applications per crop per season.	

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Leaf Miner (cont.)	28	Cyantraniliprole	Exirel	1000-1500 ml/ha	12 hours	1	(Larvae) 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.
Imported Cabbage worm and Diamondback Moth	5	Spinosad	Entrust 80	109 g/ha	12 hours	1	Maximum of 3 applications per year. Allow 7-10 days between applications.
			Success 480 SC	182 ml/ha			
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.
	23	Spirotetramat	Movento 240 SC	365 ml/ha	12 hours	3 days	Minimum interval between applications: 7 days. 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.
Carrot weevil	1B	Phosmet	Imidan 50WP Instapak	2.25 kg/ha	12 hours	40	Use up to 1000 L of water/ha. Max one applications/season.
	28	Cyantraniliprole	Exirel	1000-1500 mL/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Do not make more than 4 applications per season. Do not apply more than once every 5 days. Apply in a minimum finished spray volume of 100 L/ha by ground.
Armyworm, Beet Armyworm, Fall Armyworm	11	<i>Bacillus thuringiensis, subsp. aizawai,</i>	XenTari WG	500-1000 g/ha	4 hours	0	Beet armyworm. Apply sufficient spray volume to ensure uniform deposition on all plant surfaces.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Armyworm, Beet Armyworm, Fall Armyworm (cont.)	28	Cyantraniliprole	Exirel	500 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. For optimal control, apply to smaller plants or when lower portions of plant can receive adequate coverage. Do not make more than 4 applications per season.
Cutworms	1B	Chlorpyrifos <i>FINAL USAGE 2023</i>	Warhawk 480 EC	1.2-2.4 L/ha	24 hours	70	SOIL TREATMENT: Apply 2.4 litres in 200-400 L/ha. Apply once as a soil treatment 3-7 days before planting or transplanting. Do not incorporate. Also apply to a 15 m strip into adjacent fence rows. SEEDLING TREATMENT: Apply 1.2-2.4 litres in 200-400 L/ha. Apply once as a broadcast spray at the 2- to 5-leaf stage of the crop.
	6 & 28	Abamectin, cyantraniliprole	Minecto Pro	370-556 mL/ha 0.1-0.5% v/v non-ionic surfactant (NIS)	12 hours	7	Tank-mix with a non-ionic surfactant. Do not make sequential applications with any group 6 or 28 insecticides.
	28	Cyantraniliprole	Exirel	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 it 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. Do not make more than 4 applications per season.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Corn earworm	28	Cyantraniliprole	Exirel	750 mL/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. For optimal control, apply to smaller plants or when lower portions of plant can receive adequate coverage. Do not make more than 4 applications per season.
Flea beetle	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. For optimal control, apply to smaller plants or when lower portions of plant can receive adequate coverage. Do not make more than 4 applications per season.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
DISEASES:							
Damping Off	M	Thiram	Thiram 75 WP	90 g in 225 mL water /25 kg seed	-	-	Apply in slurry form as a seed treatment.
Early and Late Blight	7	Penthiopyrad	Fontelis	1.0-1.75 L/ha	12 hours	3	Begin applications prior to disease development and continue a 7- to 14-day interval for septoria late blight. Use higher rate and shorter interval when disease pressure is high.
	7 & 11	Boscalid, pyraclostrobin	Pristine WG	1.0 Kg/ha	24 hours	0	For suppression of early and late leaf blight. Apply once per season for <i>Cercospora</i> (early blight) and twice per season for <i>Septoria</i> (late blight). For hand harvesting and thinning in leafy vegetables do not enter for 9 days after application.
	11	Trifloxystrobin	Flint	Early blight: 190-210 g/ha Late blight: 210 g/ha	12 hours	7	Begin applications preventatively and continue as needed on a 7–14-day interval. Use the higher rate and shorter spray interval when disease pressure is severe. A minimum spray volume of 280 L/ha is recommended. DO NOT apply more than 840 g of Flint per hectare per season.
		Azoxystrobin	Quadris Flowable Azoshy 250 SC	0.672-1.120 L/ha	12 hours	1	Begin applications prior to disease development. Apply at 7–12-day intervals. Max 3 applications/season.
	M	Thiram	Thiram 75 WP	90 g in 225 mL water /25 kg seed	-	-	Apply in slurry form as a seed treatment for seedling blights.
		Copper sulphate	Copper 53 W	3.8 kg/ha	48 hours	2	Apply when the plants are 10 to 12cm high and repeat at intervals of 7 to 10 days throughout the season. Do not exceed 5 applications per year.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Early and Late Blight (cont.)	M1	Copper	Cueva	0.5% to 2% solution, applied at 470-940 L/ha.	4 hours	1	Re-apply using 5–10-day intervals. Use higher rate when disease pressure is high.
	M ²	Copper oxychloride	Guardman	4 kg in 1000 L of water	48 hours	2 days	Start applications when plants are 5 cm. high and repeat at 5–10-day intervals.
	M3	Mancozeb	Dithane DG 75 <i>LAST USE 2023</i>	2.25 – 3.25 Kg/ha	24 hours	14	Begin applications in plant bed as soon as plants emerge; repeat at 3-to-5-day intervals in plant bed and at 7-day intervals after plants are set in the field. Remove residues by stripping, trimming, and washing.
	M5	Chlorothalonil	Bravo ZN	1.6-2.4 L/ha (early blight) 2.4-4.0 L/ha (late blight)	12 hours	7	Start applications shortly after crop emergence. <u>Early blight</u> : 3–5-day intervals. <u>Late blight</u> : 3–10-day intervals. Max 2 appl/year. Wash and trim celery at harvest.
			Echo 720	1.1-1.7 L 3-5 day schedule -- OR -- 1.7-2.8 L 8-10 day schedule	12 hours	7	Echo 90DF and Echo 720: For control of early blight and late blight in celery seedbeds, use 1.1 – 1.6 Kg of Echo 90DF (or 1.4-1.9 L of Echo 720) per 1000 litres of water and apply 1,400 litres per hectare twice weekly or as needed to maintain control. Start applications shortly after crop emergence. Use the higher rate under severe disease conditions. Maximum number of applications/years: • 2 (field) • 1 (greenhouse seedbeds) * Wash and trim celery at harvest.
			Echo 90WSP	0.9-1.3 Kg 3–5-day schedule 1.3-2.3 Kg 8–10-day schedule	12 hours	7	

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Early and Late Blight (cont.)	-	Chloropicrin	Chloropicrin 100 Liquid Soil Fumigant NEW 2023	93 L/ha	-	-	Apply as broadcast or banded. Must determine the buffer zone distance required by calculating the broadcast equivalent application rate. After application Leave the soil undisturbed for 10 to 14 days. At the end of the exposure period, aerate the soil by plowing or deep cultivation. Aerate for at least 5 days after opening row.
Pink Rot (<i>Sclerotinia sclerotiorum</i>)	7 & 11	Boscalid, pyraclostrobin	Pristine WG	1.0 – 1.3 Kg/ha	24 hours	0	For suppression of white mold. Apply up to twice per season before disease develops. For hand harvesting and thinning in leafy vegetables do not enter for 9 days after application.
	7 & 12	Pydiflumetofen fludioxonil	Miravis Prime	800-1,000 mL/ha	12 hours	0	For control of Sclerotinia diseases. Apply immediately after emergence or prior to disease development. In transplanted leafy vegetables, apply immediately after transplanting or prior to disease development. A second application should be made if either the soil is disturbed by cultivation or thinning, or conditions occur that are conducive to disease development. Apply no closer than a 7-day interval. Use the higher rate under conditions favouring high disease pressure.
	-	<i>Bacillus subtilis</i>	Serenade Opti	1.7-3.3 Kg/ha	4 hours	0	Serenade Opti is a biopesticide that will only suppress the indicated diseases. Make the first application approximately 8 weeks before harvest and repeat on a 14-day interval. Apply Serenade Opti as a directed spray in sufficient water to ensure thorough coverage of the base of the plants and the surrounding soil surface.
Grey mould (<i>Botrytis cinerea</i>)	7	Penthiopyrad	Fontelis	1.25-1.75 L/ha	12 hours	3	Begin applications prior to disease development and continue a 7- to 10-day interval. Use higher rate and shorter interval when disease pressure is high.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-Harvest Interval (days)	Remarks
Grey mould <i>(Botrytis cinerea)</i> <i>(cont.)</i>	7 & 12	Pydiflumetofen fludioxonil	Miravis Prime	800-1,000 mL/ha	12 hours	0	For suppression of Botrytis grey mould, begin applications prior to or at the onset of disease and repeat applications on a 7 – 10-day interval if conditions remain favourable to disease development. Use the higher rate and shorter interval under conditions favouring high disease pressure.
Anthracnose	11	Azoxystrobin	Quadris Flowable	1.12 L/ha	12 hours	1	Begin applications prior to disease development. Apply at 7–12-day intervals. Max 3 applications/season.
	9 & 12	Cyprodinil, Fludioxonil	Switch 62.5 WG	775-975 g/ha	12 hours	0	Begin applications prior to or at the onset of disease and repeat applications on a 7–10-day interval if conditions remain favorable for disease development.
Downy Mildew <i>(Peronospora spp,</i> <i>Bremia Latacae)</i>	U15	Oxathiapiprolin	Zorvec Enicade	0.175-0.35 L/ha	12 hours	0	Begin applications prior to disease development and continue a 5-to-14-day interval. Use higher rate and shorter interval when disease pressure is high.

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>