

Parsnip Management Schedule

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



2019



GUIDE TO PEST MANAGEMENT IN PARSNIP



Nova Scotia Vegetable Crop Guide to Pest Management 2019
[PAR1-19]

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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
WEEDS:							
Preplant <i>Perennial weeds including quackgrass</i>	9	glyphosate	Roundup 356 Sn	1.25-2.5 L/ha	-	7	Apply in the fall or spring prior to planting. Annual weed control programs are necessary to control weeds germinating after planting. For quackgrass control, apply to actively growing quackgrass when at least 4 new leaves are present. The low rate (2.5 L/ha) will provide a minimum of one season control, while higher rates (4.75 to 7 L/ha) will provide longer term control. The low rate of Roundup should be applied in 50 to 100 L/ha water. If higher water volumes are used add a suitable surfactant. Wait 72 hours before plowing under. Best control of quackgrass is obtained when these herbicides are applied in the fall.
			Roundup WeatherMAX	1.67-8.0 L/ha	12 hours	7	
			Touchdown 480	2.5-7.0 L/ha	12 hours	7	
	14	carfentrazone-ethyl	Aim EC	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.
Pre-emergence Treatment Grasses and broadleaves	7	linuron	Afolan F	1.4-2.7 L/ha	-	-	Use lower rate on sandy soils. Heavy rain at emergence can cause injury. Plant seed at least 1.3 cm deep.

			Lorox L	1.3-1.9 L/ha	-	60	Apply as a band or broadcast application after planting
Pre-emergence followed by Postemergence	7	linuron	Afolan F	1.4-2.0 L/ha	-	-	These treatments need to be at least 2 weeks apart. Do not apply more than 2.7 L on sandy soils. Nozzle pressure must not exceed 275 kPa as crop injury may result. Applications at high temperatures can cause injury.
			Followed by Afolan F	2.0-2.7 L/ha			
			Lorox L	1.3-1.9 L/ha	-	60	Treatments need to be at least 2 weeks apart. Never apply more than two applications per season.
			Followed by Lorox L	2.5 L/ha			
Postemergence <i>Inter-row shielded</i>	22	paraquat	Gramoxone 200 Sn	2.75-5.5 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.
	22	diquat	Reglone 240, Dessicash	2.3-4.6 L/ha	24 hours	-	
	14	carfentrazone-ethyl	Aim EC	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.
Emerged Weeds	7	linuron	Afolan F	2.0-5.0 L/ha	-	-	Apply when parsnips are 8-15 cm high. Do not apply more than 2.7 L on sandy soils. Nozzle pressure must not exceed 275 kPa as crop injury may result. Applications at high temperatures can cause injury.
			Lorox L	1.9-4.7 L/ha	-	60	Apply in 220-440 L water/ha. Apply before broadleaf weeds reach 15 cm. Do not spray in hot dry weather or injury may result.

			Herbicidal Oil Agricultural Weedkiller #1	600-800 L/ha	-	30	Apply undiluted when true leaves develop and before parsnip roots are thicker than a pencil. Weeds should be less than 10 cm high.
	1	Clethodim	Centurion + Amigo (adjuvant)	0.125-0.19 L/ha Quackgrass: 0.38 L/ha 0.5% v/v Quackgrass: 1.0% v/v	12 hours	30	<i>To be used only with the adjuvant AMIGO. Annual grasses:</i> Apply Centurion when the annual grasses and volunteer cereals are in the 2 to 6 leaf stage. Most effective control is achieved when application is made prior to tillering when grasses are small and actively growing. <i>Quackgrass:</i> Apply Centurion when the quackgrass is in the 2 to 6 leaf stage and 6 to 15 cm in height. Most effective results are achieved when application is made at the 3 to 5 leaf stage, when the canopy is uniform and actively growing. Apply a maximum of two applications per year. If repeat application is required, allow at least 14 days between first and second application. <i>* Refer to section "MINOR USES" in the label for additional use instructions.</i>

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INSECTS:							
Aphids	29	Flonicamid	Beleaf 50SG	0.12-0.16 kg/ha	12 hours	3	Thorough spray coverage of plant foliage is essential. Minimum of 94 L water/ha. Maximum of 3 applications per season, allow 7 days between applications. Avoid overnight storage of spray mixtures; do not use liquid fertilizer as a carrier and do not use adjuvants.
	4	Thiamethoxam	Actara 25 WG	105 g/ha	12 hours	7	Also controls Aster leafhopper. Apply before pests reach damaging levels. Scout fields and treat again if populations rebuild to potentially damaging levels. Max of 2 applications/season. Application interval: 7 days. Apply in sufficient water volume to ensure adequate coverage. Do not use less than 100 L/ha.
	4C	Sulfoxaflor	Closer SC	50-150 ml/ha	12 hours	7	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. Minimum 100 L/ha spray volume for ground application.
Carrot weevil	28	Cyantraniliprole <i>NEW 2019</i>	Exirel	1000-1500 ml/ha	12 hours	1	Begin applications at the 2-3 leaf stage or when scouting indicates the presence of weevils. Consult local agricultural authorities to determine appropriate threshold levels for carrot weevil in your area. Do not make more than 4 applications per season. Do not apply more than once every 7 days.

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DISEASES:							
Root Canker	M	Chlorothalonil	Bravo 500 / Bravo ZN	2.8 L/ha	48 hours	7	Start applications around mid-August and repeat at 7-10 day intervals. Max 7 applications/season.
			Echo 90DF	1.5 kg/ha			
			Echo 720	1.9 L/ha			
White mould (<i>Sclerotinia sclerotiorum</i>)	44	<i>Bacillus subtilis</i>	Serenade Opti	1.1-2.2 Kg/ha	-	0	Biopesticide that will only suppress the indicated diseases. Begin application soon after emergence and when conditions are conducive to disease development. Repeat as necessary on a 7-10 day interval.
Gray Mold	7	Penthiopyrad	Fontelis	1.0-1.75 L/ha	12 hours	0	Begin applications prior to disease development, continue on a 7-14 day interval. Use higher rate and shorter interval when disease pressure is high. Max seasonal rate is 4.5 L/ha. Do not make more than 2 sequential applications before switching to another mode of action.
Leaf blight (<i>Alternaria spp.</i>)	11	Trifloxystrobin	Flint	140-210 g/ha	12 hours	7	Begin applications preventatively and continue as needed on a 14-day interval. Use higher rate and shorter spray interval when disease pressure is severe. Use sufficient water for thorough coverage. DO NOT apply more than 840 g per hectare per season.

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

Poison Control Centres		
Nova Scotia	800.565.8161 or 902.428.8161	IWK, Halifax, NS
New Brunswick	911	Ask for Poison Information
Prince Edward Island	800.565.8161 or 902.428.8161	IWK, Halifax, NS
Newfoundland	709.722.1110	Dr. Charles A. Janeway Child Health Care Centre, St. John's, NF

Environmental Emergencies (Pesticide Spills)	
Transport Canada Regional Operations Centre (24 hours)	
Nova Scotia	800.565.1633
New Brunswick	800.565.1633
Prince Edward Island	800.565.1633
Newfoundland	800.563.9089

ABBREVIATIONS & CONVERSIONS

Formulation and Measurement Abbreviations			
FORMULATIONS		MEASUREMENTS	
EC, E	Oil-based emulsifiable concentrate	mL	millilitre
EW	Water-based concentrate	kPa	kilopascal
F	Flowable	kg	kilogram
Sn	Solution	g	gram
		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!