

Sweet Potato Management Schedule

A guide to weed, insect and disease management in sweet potatoes in Nova Scotia



2019



GUIDE TO PEST MANAGEMENT IN SWEET POTATO



Nova Scotia Vegetable Crop Guide to Pest Management 2019
[SWTPOT1-19]

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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	2.5-7.0 L/ha	-	-	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.
			Roundup WeatherMAX	1.67-8.0 L/ha	12 hours	-	
			Touchdown 480	2.5-7.0 L/ha	12 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.
Stale Seedbed Technique	22	diquat	Reglone L, Dessicash	2.3-4.6 L/ha	24 hours	-	Apply before crop emergence to foliage of emerged weeds. Read label for water volumes required per hectare.
	22	paraquat	Gramoxone L	2.7-5.5 L/ha	24 hours	-	
	10	glufosinate ammonium	Ignite 15 Sn	2.7-5.0 L/ha	12 hours	-	

Pre Transplant Pre Weed Emergence	14	Flumioxazin	Chateau WDG / Flumioxazin 51 WDG	105 g/ha	12 hours	-	Do not apply more than 105 g of Chateau WDG per hectare during a single growing season. Do not plant greenhouse grown transplants/slips into Chateau-treated fields. Do not use on any sweet potato variety other than “Beauregard”, unless user has tested Chateau WDG on other variety and has found crop tolerance to be acceptable. <i>Do not apply on soils with > 5% OM, or fine-textured soils.</i>
Post Transplant Pre Weed Emergence	13	clomazone	Command 360 ME	1.55 L/ha	12 hours	95	Apply in a minimum of 95 L/ha. One application per season. Read label for crop rotation restrictions.
	3	chlorthal	Dacthal W-75	18 kg/ha (max per season)	12 hours	-	Apply uniformly to the soil at transplanting. “Layby” application can be made 6 weeks after transplanting. If weeds are present, the crop should be weeded and cultivated prior to application.
Post Emergence Grasses	1	sethoxydim	Poast Ultra Merge	1.1 L/ha 1-2 L/ha	12 hours	30	Apply to actively growing grasses.
	15	s-metolachlor	Dual Magnum Dual II Magnum	1.25-1.75 L/ha 1.25-1.75 L/ha	12 hours	105	Early post-emergence (2-5 days after transplanting). Make only one application per year. Apply foliar by ground application only. Apply using a spray volume of 200 - 400 L water/ha. PHI is 105 days.

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INSECTS:							
Potato Flea Beetle, Tuber Flea Beetle, potato Leafhopper	3	Lambda-cyhalothrin	Matador 120 EC	83 ml/ha	24 hours	7	Apply in a minimum of 100 L of water/ha. Do not apply more than 3 applications per year; allow 7 days between applications.
			Warrior	83 ml/ha	24 hours	7	
Aphids and Whiteflies	23	spirotetramat	Movento 240 SC	220-365 ml/ha	12 hours	7	Minimum interval between applications is 7 days. Maximum of 730 ml/ha of product applied per season. Movento 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 in the field.
			Movento 150 OD	347-585 ml/ha	12 hours	7	Minimum interval between applications is 7 days. Maximum of 1.17 L/ha of product applied per season. Movento 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 in the field.
	29	Flonicamid	Beleaf 50SG	0.12-0.16 kg/ha	12 hours	7	Aphids only. Thorough spray coverage of plant foliage is essential. Minimum 94 L water/ha. Max 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	Aphids and Aster leafhopper. Apply before pests reach damaging levels. Scout fields and treat again if populations rebuild to potentially damaging levels. Max 2 applications /season. Application interval: 7 days. Apply in sufficient water volume to ensure adequate coverage. Do not use less than 100 L/ha.
	9D	Afidopyropen <i>NEW 2019</i>	Versys	0.35-0.5 L/ha	12 hours	7	<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. Application during the crop blooming period may be made only in the evening when most bees are not foraging.
Aphids	4C	Sulfoxaflor	Closer SC	50-150 ml/ha	12 hours	7	Max 2 applications/growing season. Do not apply during crop flowering period or when flowering weeds are present. Minimum treatment interval = 7 days. Minimum 100 L/ha spray volume for ground application.
	28	Cyantraniliprole	Exirel	500 to 1500 ml/ha	12 hours	7	Begin applications when treatment thresholds are reached. Thorough coverage is important to obtain optimum control. For optimum control of aphids, 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. Do not apply more than once every 5 days.
	9D	Afidopyropen <i>NEW 2019</i>	Versys	0.1 L/ha	12 hours	7	<u>Green peach aphid (<i>Myzus persicae</i>) & potato aphid (<i>Macrosiphum euphoribae</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. Application during the crop blooming period may be made only in the evening when most bees are not foraging.
Larvae of: European Chafer, Japanese Beetle, Masked Chafers, Asiatic Garden Beetle, Oriental Beetle	4A	Clothianidin	Clothianidin or Clutch 50WDG	448 g/ha	12 hours	-	Apply Clothianidin or Clutch preplant incorporated, prior to transplanting the sweet potato slips. Use sufficient water volume to ensure thorough and uniform coverage, and to ensure optimal uptake and performance. Length of control may vary due to climate and soil conditions. If pest pressure begins to increase in the growing season, apply a registered insecticide with an alternate mode of action. Apply once per season.
Cabbage looper	18	Methoxyfenozide	Intrepid 240F	0.3 – 0.6 L/ha	12 hours	14	Apply at the first sign of feeding damage or when infestations reach threshold levels as determined by insect monitoring. Repeat on 7-14 days intervals if required based on population monitoring. Use the higher

							rate for heavy infestations or advanced growth stages of the target pest.
	28	Cyantraniliprole	Exirel	250-500 ml/ha	12 hours	7	Begin applications when treatment thresholds have been reached. Thorough coverage is important for optimum control. Do not make more than 4 applications/season. Do not apply more than once every 5 days.
Colorado potato beetle	28	Cyantraniliprole	Exirel	750-1000 ml/ha	12 hours	7	Begin applications when treatment thresholds have been reached. Thorough coverage is important for optimum control. Use the higher application rate when larger larvae are present. Do not make more than 4 applications per season. Do not apply more than once every 5 days.
Armyworm, Beet Armyworm, Fall armyworm	28	Cyantraniliprole	Exirel	500 ml/ha	12 hours	7	Begin applications when treatment thresholds have been reached. Thorough coverage is important for optimum control. Do not make more than 4 applications/season. Do not apply more than once every 5 days.
	11	<i>Bacillus thuringiensis</i> , subsp. <i>aizawai</i> , (Strain ABTS-1857 fermentation solids, spores, and insecticidal toxins)	XenTari WG	500-1000 g/ha	-	0	Beet armyworm. Apply sufficient spray volume to ensure uniform deposition on all plant surfaces; recommend 500 L per ha.
Variegated cutworm	28	Cyantraniliprole	Exirel	500-750 ml/ha	12 hours	7	Begin applications when treatment thresholds have been reached. Thorough coverage is important for optimum control. Do not make more than 4 applications per season. Do not apply more than once every 5 days.

Corn earworm Tobacco hornworm (suppression) Tomato hornworm (suppression)	28	Cyantraniliprole	Exirel	750 ml/ha	12 hours	7	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not make more than 4 applications/season. Do not apply more than once every 5 days.
European corn borer	28	Cyantraniliprole	Exirel	500-750 ml/ha	12 hours	7	Begin applications when treatment thresholds have been reached. Thorough coverage is important for optimum control. Time application to coincide with peak egg hatch. Scout for European corn borer by monitoring egg laying and egg hatch to determine application timing. Do not make more than 4 applications per season. Do not apply more than once every 5 days.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted-Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
DISEASES:							
Bacterial Soft Rot (Post Harvest)	-	Hydrogen peroxide	StorOx	100 ml / 10L of water	When dry	-	Spray diluted solution on tuber to runoff after harvest and before storage. Use 4.15-8.30 L of water per tonne.
White mould (<i>Sclerotinia sclerotiorum</i>)	44	<i>Bacillus subtilis</i>	Serenade Opti	1.1-2.2 Kg/ha	-	0	Serenade Opti is a 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.
Stem rot (<i>Fusarium oxysporum</i> f. sp. <i>batatas</i>) Scurf (<i>Monilochaetes infuscans</i>)	M	Thiram	Granuflo-T	1.75 kg in 1000 L of water	24 hours	-	Dip roots of sprouts for 30 seconds in the suspension. Plant promptly after treatment.
Early blight (<i>Alternaria solani</i>) Brown spot (<i>Alternaria alternata</i>)	7-3	Benzovindiflupyr & Difenoconazole	Aprovia Top	643-967 ml/ha	12 hours	14	Begin applications prior to disease development and continue throughout the season on a 7-14 day interval. Make no more than 2 consecutive applications before switching to a non-Group 7 and 3 fungicide. If disease pressure is high, use

							the highest rate and shortest interval. For Early Blight, use the high rate and short application interval under high disease pressures A minimum of 150 L/ha for ground applications is recommended. <i>(Suppression of Brown spot)</i>
Suppression of Plant pathogenic nematodes including: Root lesion nematodes (<i>Pratylenchus</i> spp.), Root knot nematodes (<i>Meloidogyne</i> spp.), Potato cyst nematodes (including Pale cyst and Golden Nematode) (<i>Globodera pallida</i>, <i>Globodera rostochiensis</i>)	7	Fluopyram	Velum Prime	500 mL/ha Or 4.5 mL/100 m row (based on 90 cm row spacing)	12 hours	-	Soil Applications using ground equipment: Spray specified dosage in a 10-15 cm band in- furrow at planting and cover with soil. For best results direct the in-furrow spray to the seed and soil. Apply in 50-150 L of water per hectare. For transplanted crops: 1. Post-planting drench, or hill drench. 2. Transplant water drench with mechanical planting. 3. Transplant water drench with hand planting.

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	
DF	Dry flowable	mL	millilitre
EC, E	Oil-based emulsifiable concentrate	kPa	kilopascal
EG	Water dispersible granule	kg	kilogram
F	Flowable	g	gram
G	Granule	L	litre
L	Liquid	BIU	Billions of International Units
WDG	Wettable dry granule	ppm	parts per million (1000 ppb)
WP, W	Wettable powder	ppb	parts per billion (1/1000 ppm)
WG	Wettable granule		
SC	Suspension concentrate		
Sn	Solution		

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!