

GUIDE TO WEED MANAGEMENT IN RASPBERRY



Nova Scotia Guide to Pest Management in Raspberry 2017
[RASP1-17]

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IMPORTANT

This publication was compiled by representatives from Perennia using information from the Pest Management Regulatory Agency of Health Canada, and specific pesticide labels. **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 few 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
PLANTING YEAR							
Soil Applied:	15	napropamide	Devrinol DF or Devrinol DF-XT (50 DF-XT)	9 kg/ha	12 hours	-	Apply once per season in the fall through early spring before weeds emerge. Incorporation by rainfall, irrigation or cultivation is essential. Do not apply to frozen ground. Use directed spray, avoiding contact with fruit or foliage.
	14	Flumioxazin <i>NEW 2017</i>	Chateau	420 g/ha	12 hours	7	Apply prior to weed emergence. Do not apply to fine-textured soils. Do not make a sequential application within 30 days of the first application. Maximum 2 applications per season.
Post Emergence: <i>Grasses</i>	1	fluzifop-p-butyl	Venture L	1.2-2.0 L/ha	12 hours	1	Apply when crop is at 2-6 leaf stage and do not make more than two applications per season with a 14 day minimum re-treatment interval.
Post Emergence: <i>Broadleaf weeds</i>	4	2,4-D	2,4-D (470 g/L) 2,4-D (564 g/L) 2,4-D (660 g/L)	1.2 L/ha 0.92 L/ha 0.83 L/ha	12 hours	-	Apply in 100-200 L water/ha. Do not apply when plants are in bloom. Keep spray off new shoots as much as possible. DO NOT apply more than two applications per year.
Post Emergence: <i>Non-selective</i>	22	paraquat	Gramoxone	5.5 L/ha	24 hours	-	Apply in 1000 L water /ha. For spot spray, apply 55 ml in 10 L of water and spray until foliage is wet. Only emerged weeds will be controlled. Direct spray at base of canes in spring before new shoots emerge.

	14	carfentrazone-ethyl	Aim plus Agral 90	37-117 ml/ha plus 0.25% v/v	12 hours	15	Must be applied with a hooded sprayer to control weeds between rows. Apply only once per year. Apply in minimum 100 L/ha of spray solution. Crop injury will occur if spray contacts any part of the crop.
ESTABLISHED PLANTINGS							
Soil Applied: <i>Broadleaf and grass weeds</i>	20	dichlobenil	Casoron 4G	110-175 kg/ha	12 hours	100	Apply on established raspberries in late fall or late winter when soil is cool, moist but unfrozen, and before weeds emerge. Do not apply if air temperature is above 10-15 °C. Do not use on light, sandy soil.
	15	napropamide	Devrinol DF or Devrinol DF-XT (50 DF-XT)	9 kg/ha	12 hours	-	Apply once per season before weeds emerge either in the fall or spring. Incorporation by rainfall, irrigation or cultivation is essential. Do not apply to frozen ground and do not apply to fruit or foliage.
	14	Flumioxazin <i>NEW 2017</i>	Chateau	420 g/ha	12 hours	7	Apply prior to weed emergence. Do not apply to fine-textured soils. Do not make a sequential application within 30 days of the first application. Maximum 2 applications per season.
	5	simazine	Princep Nine-T (90WG)	2-2.5 kg/ha	12 hours	-	Do not use in first year plantings. Apply as a directed spray in early spring, before the weeds emerge. Apply in 300-1000 L water/ha. Use lower rate on coarse, sandy soils. Avoid spraying young shoots.

	5 15	terbacil plus napropamide	Sinbar (80 WDG) plus Devrinol	0.41- 0.84 kg/ha plus 4 kg/ha	12 hours	70	Only use on plantings that have been established for at least one year. Apply as a single band or broadcast application in a minimum of 200 L of water. Applications should be made in the fall or early spring before fruit set. Only one application per season. For use on soils with a range of 8-10% organic matter only. Do not spray crop foliage, exposed roots or on weakened or diseased plants.
	29	Indaziflam <i>NEW 2017</i>	Indaziflam 500 SC	150 ml/ha	12 hours	14	Use on plantings established for at least one year. Do not apply prior to any type of soil disturbance. If application is to be made after soil disturbance, apply only after the soil settles. Apply as a directed spray to the soil, either under dormant canes prior to bud break and new cane emergence or after mowing but prior to new cane emergence. Apply a maximum of one application per season, using ground equipment.
Post Emergence: <i>Grasses</i>	1	fluazifop-p- butyl	Venture L	1.2-2.0 L/ha	12 hours	1	Apply in the spring OR in the fall (August to October) and again in the spring. Do not make more than two applications per season.
	1	sethoxydim	Poast Ultra plus Merge	0.32-1.1 L/ha plus 0.5-2 L/ha	12 hours	37	Apply to actively growing grasses before tillering. Apply in 100-200 L water/ha. Do not apply if rain is forecast within 1 hour of application.

Post Emergence: <i>Broadleaf weeds</i>	4	2,4-D	2,4-D (470 g/L) 2,4-D (564 g/L) 2,4-D (660 g/L)	1.2 L/ha 0.92 L/ha 0.83 L/ha	12 hours	-	Use amine formulation. Apply in 100-200 L water/ha. Do not apply when plants are in bloom. Keep spray off new shoots as much as possible. DO NOT apply more than two applications per year.
Post Emergence: <i>Broadleaf weeds and Grasses</i>	2	rimsulfuron	Prism SG plus Non-ionic surfactant (CITOWETT PLUS, AGRAL 90, or AG-SURF)	60 g/ha plus 0.2 % v/v	12 hours	21	Make a single application early post emergent to actively growing weeds with a recommended non-ionic surfactant. Use a directed spray application to provide complete coverage of the weeds and minimize spray contact with plants. When banded (50% band or less), Prism may be applied twice per year. Do not apply more than 60 g/ha on a broadcast application basis per year. Use a minimum of 100 L of water/ha (recommended spray volume of 140-190 L/ha).
Post Emergence: <i>Non Selective</i>	22	paraquat	Gramoxone	5.5 L/ha	24 hours	-	Apply in 1100 L water/ha in early spring before new shoots emerge or in fall when canes are mature. For spot spray apply 55 ml in 10 L of water and spray until foliage is wet. Only emerged weeds will be controlled. Direct spray at base of canes with low boom sprayer.
	22 5	paraquat plus simazine	Gramoxone plus Princep Nine-T	5.5 L/ha plus 2-2.5 kg/ha	24 hours	-	For emerged weeds with residual control of germinating weeds. Apply as a directed spray to established plantings. Apply with 1100 L water/ha. Use lower rate on

							sandy soils. Do not spray young raspberry shoots.
	10	glufosinate ammonium	Ignite	6.67 L/ha	12 hours	-	For use in the production year of raspberries grown in the biennial production system, or in a planting that will be removed after harvest. Do not apply to immature or weak plantings. Apply when shoots are 10-20 cm to suppress the emerged flush of primocanes and control any weeds emerged at the time of treatment. Apply in a minimum of 330 L water/ha. Avoid drift onto green tissue of primocanes.
	14	carfentrazone-ethyl	Aim plus Agral 90	37-117 ml/ha plus 0.25% v/v	12 hours	15	Must be applied with a hooded sprayer to control weeds between rows. Apply only once per year. Apply in minimum 100 L/ha of spray solution. Crop injury will occur if spray contacts any part of the crop.

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>

Product Toxicity

COMMON NAME	TRADE NAMES	TOXICITY		
		TO BEES	TO APPLICATOR	
			ORAL	DERMAL
2,4-D	2,4-D Amine 500	low	mod	mod
carfentrazone-ethyl	Aim EC	low	low	low
dichlobenil	Casoron	low	low	low
fluazifop-p-butyl	Venture	low	low	low
glufosinate ammonium	Ignite	low	low	low
glyphosate	Roundup, Touchdown, Glyphos	low	low	low
napropamide	Devrinol DF	low	low	low
paraquat	Gramoxone	low	high	mod
rimsulfuron	Prism SG	?	low	low
simazine	Princep Nine-T	low	low	low
sethoxydim	Poast Ultra	low	low	low

References: EXTTOXNET (<http://extoxnet.orst.edu/pips/ghindex.html>) and Individual Product MSDS sheets

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	Emulsifiable concentrate	kPa	kilopascal
F	Flowable	kg	kilogram
G	Granular	g	gram
L	Liquid	L	litre
WDG	Wettable dry granule	BIU	Billions of International Units
WP,W	Wettable powder	ppm	parts per million
SC	Suspension concentrate		
Sn	Solution		
SP	Soluble powder		

Helpful Conversions*	
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

*** 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 have greater toxic effects in smaller amounts. Therefore, even small conversion errors can lead to the use of incorrect dosages (either too high or too low). Use metric – you will be glad you did!