

## Herbicides Registered for Broadcast Application

Active Ingredient	Product	Product Rate		Water Volume	Pre Harvest Interval (Days)	Application Timing (see label for additional information/precautions)
		kg or L / ha	kg or L / ac			
<b>Soil-applied residual herbicide treatments</b>						
flumioxazin	Chateau WDG	Suppress Moss: 0.28-0.42 kg/ha	Suppress Moss: 0.11-0.17 kg/ac	Min 100 L/ha (9 gal/ac)	None available	Apply to dormant blueberry, ideally late fall of crop year after pruning. Use low rate for coarse textured soils and high rate for medium soils, <5% soil O.M.
hexazinone	Pronone 10G	14-20 kg/ha	5.7-8.1 kg/ac	Min 200 L/ha (18 gal/ac)	None available	Spring of sprout year, before new blueberry plant growth emerges.
	Velpar DF	1.92-2.56 kg/ha	0.78-1.0 kg/ac			Early spring of fruiting year.
mesotrione	Callisto 480 SC	0.3 L/ha	0.12 L/ac	100-200 L/ha (9-18 gal/ac)	60	Spring of both sprout and crop year, PRE to 2 leaf weed stage. One application per season.
propyzamide	Kerb 50 WSP	3.25-4.5 kg/ha	1.3-1.8 kg/ac	300-500 L/ha (27-45 gal/ac)	None available	Late fall of fruiting or sprout year, after blueberry plant defoliation. Best results when soil temperatures are low, but above freezing and soil moisture is high.
simazine	Princep Nine-T	1.5-2.0 kg/ha	0.6-0.8 kg/ac	300 L/ha (27 gal/ac)	60	Late fall, after blueberry defoliation; or spring of sprout year, before new blueberry plant growth emerges.
terbacil	Sinbar WP	1.5-2.5 kg/ha	0.6-1.0 kg/ac	Min 200 L/ha (18 gal/ac)	None available	Spring of sprout year, before new blueberry plant growth emerges or late fall, when dormant.
<b>Selective, over-the-top, foliar herbicide treatments</b>						
fluazifop-p-butyl	Venture L	1-2 L/ha	0.4-0.8 L/ac	100-200 L/ha (9-18 gal/ac)	60 fruit, 420 sprout	Late spring, sprout and fruiting year, control of grasses only. Low rate for annual grass control.
mesotrione	Callisto 480 SC + Agral 90	0.3 L/ha + 200 ml Agral 90 per 100 L water	0.12 L/ac + 200 ml Agral 90 per 100 L water	100-200 L/ha (9-18 gal/ac)	60	Late spring of sprout or crop year, prebloom. Apply up to 8 leaf weed stage. One application per season.
sethoxydim	Poast Ultra + Merge or Assist	0.47-1.1 L/ha + 1-2 L/ha Merge or Assist	0.19-0.45 L/ac + 0.4-0.8 L/ac Merge or Assist	100-200 L/ha (9-18 gal/ac)	15	Late spring, sprout and fruiting year, control of grasses only. Low rate for annual grass control.
tribenuron-methyl	Spartan + Agral 90	0.040 kg/ha + 200 ml Agral 90 per 100 L water	0.016 kg/ac + 200 ml Agral 90 per 100 L water	150-250 L/ha (13-22 gal/ac)	None available	<b>Spring sprout year:</b> Bunchberry leaves unfolded at a 45 degree angle, before blueberry re-growth more than 2 cm. <b>Late summer fruiting year:</b> apply 1-4 weeks after blueberry harvest.
<b>Non-selective, over-the-top herbicide treatments</b>						
dicamba	Banvel II/Oracle	4.6-7.1 L/ha	1.9-2.9 L/ac	550 L/ha (50 gal/ac)	None available	Fall of fruiting year after 90% blueberry plant leaf drop.
dicamba + 2,4-D ester	Banvel II/Oracle + 2,4-D LV ester 600	2.3 L/ha + 5.7 L/ha	0.93 L/ac + 2.3 L/ac	550 L/ha (50 gal/ac)	None available	Fall of fruiting year after 90% blueberry plant leaf drop. Only use low volatile formulations of 2,4-D ester.

## Herbicides Registered for Spot Application

Active Ingredient	Product	Type of Application	Herbicide Mixture (g or L product)	Pre Harvest Interval	Application Timing (see label for additional information/precautions)
<b>Selective spot herbicide treatments</b>					
clopyralid	Lontrel 360	Spot spray	Spot: 42 ml in 200 L water, treats 1000 m <sup>2</sup> Boom: 420 ml/ha in 150-200 L water	10 months	Sprout year – June or when tufted vetch is early bloom. Later applications may result in yield reductions the following year.
nicosulfuron/ rimsulfuron	Ultim 75 DF + Agral 90	Spot spray	Spot: 4.2 g plus 200 ml Agral 90 per 100 L water	14 months	Early summer of sprout year - black bulrush.
tribenuron methyl	Spartan + Agral 90	Spot spray	2.5 g in 10 L water plus 20 ml Agral 90 per 10 L water	None available	Summer or early fall of sprout year. Varies with weed targeted.
<b>Non-selective spot and wiper herbicide treatments</b>					
2,4-D LV ester	Numerous trade names	Spot spray	Consult individual labels	None available	Site preparation, non crop.
dicamba	Banvel II / Oracle	Spot spray	2.1 L per 1000 L water	None available	Site preparation – brush control.
glyphosate	Roundup Original, Roundup Ultra 2, Roundup Weathermax, Touchdown iQ, Touchdown Total, Factor, Factor 540, Credit, Credit Plus, Glyphos, Vantage, Vantage Plus, Vantage Plus MAX, Polaris, Traxion and others	Spot spray	1-2 % solution (1-2 L in water to total 100 L) Roundup Weathermax: 0.67 to 1.34 % solution (0.67-1.34 L in water to total 100L)	Non crop year	Site preparation, sprout year, after harvest.
		Roller	5 to 10 % solution (0.5-1 L in water to total 10 L) Roundup Weathermax: 3.3–6.7 % solution (0.33-0.67 L in water to total 10 L)	Non crop year	
		Wiper	33 % solution (1 part product:2 parts water) Roundup Weathermax: 22% solution (0.57L in 2L of water)	Non crop year	
triclopyr	Garlon Ultra	Spot spray or paint brush	20 – 30% solution in mineral or vegetable oil	None available	Site preparation, one application per year.

**Label Information:** Information listed in this guide is provided to growers as a convenience. Pesticides must be applied according to label directions. Please refer to the product label before application and for more information on each product. Label information overrides any discrepancies between information presented in this guide and the label. Label information can be found at the Health Canada Pesticide Label Search, available on-line at <http://pr-rp.hc-sc.gc.ca/lr-re/index-eng.php>.

## Additional Information for Herbicides Used on Wild Blueberry

Active Ingredient	Product	Group	Hazard	Protection Equipment	Buffer Zone (metres)		Restrictions (hours)		Herbicide Activity		Leaching Potential	Bee Toxicity	Winter Storage
					Water <1m	Terrestrial Habitat	Rain-free Period	Re-Entry Interval	Foliar	Soil			
2,4-D	2,4-D	4	Warning	a f g j	-	-	2	12	yes	no	moderate	low	C
clopyralid	Lontrel	4	Caution	b f j	-	-	4	12	yes	no	low to moderate	low	A
dicamba	Banvel II /Oracle	4	Warning	d f	1	15	4	12	yes	limited	very high	low	B
fluazifop-p-butyl	Venture	1	Caution	b e h j	15	15	2	12	yes	no	very low	low	C
flumioxazin	Chateau	14	Caution	d f g j m	5	30	0	12	limited	yes	low	low	C
glyphosate	Various	9	Caution	a f j	15	15	1-6	12	yes	no	extremely low	low	B
hexazinone	Pronone	5	Warning	b f	1	5	0	48	no	yes	very high	low	C
hexazinone	Velpar	5	Caution	a f j	1	5	0	48	limited	yes	very high	low	C
mesotrione	Callisto	27	Caution	a f j	1	4	3	12	yes	yes	low	low	B
nicosulfuron/rimsulfuron	Ultim	2	Warning	a f	10	5	2-4	12	yes	no	high	low	C
propyzamide	Kerb	15	Caution	d f h	-	10	0	24	no	yes	low	low	C
sethoxydim	Poast Ultra	1	Caution	d f h j	0	1	1	12	yes	no	low	low	B
simazine	Princep Nine-T	5	Warning	d f h j	1	5	0	12	no	yes	high	low	C
terbacil	Sinbar	5	Caution	a g j	10	35	0	12	limited	yes	very high	low	C
tribenuron-methyl	Spartan	2	Warning	a f j	15	15	4-6	12	yes	no	moderate	low	C
triclopyr	Garlon Ultra	4	Caution	d f h j	-	-	2	12	yes	no	low	low	B

**Protection Equipment:** **a** - long-sleeved shirt and long pants, **b** - coveralls or disposable spray suit, **d** - coveralls or disposable spray suit over long sleeved shirt and pants, **e** - waterproof gloves, **f** - chemically-resistant gloves, **g** - shoes plus socks, **h** - chemically resistant footwear plus socks, **j** - protective eye wear, **l** - chemically resistant head gear for overhead application, **m** - approved respirator, **n** - chemical-resistant spray suit.

**Herbicide Activity: Foliar** – Indicates whether or not susceptible weeds will be controlled by herbicide contact with above ground plant tissue (leaves). **Soil** – Indicates whether or not late emerging susceptible weeds will be controlled for some time after application by residual herbicide activity as they germinate from the soil.

**Bee Toxicity:** Degree of toxicity to honey bees. If possible, all pesticide applications should be avoided during times of bee activity within fields, such as mid-day during bloom periods.

**Winter Storage:** Winter storage requirement codes are: **A** - Do not allow to freeze, **B** - Preferably should not freeze. If frozen, return to original state by allowing product to warm to 10-20°C and agitate thoroughly before use, **C** - Not usually damaged by freezing. Store in cool dry place.

Pesticide Emergency Information	
Poison Control Centres	
New Brunswick	Dial 911, ask for Poison Information
Newfoundland	Dr. Charles A. Janeway Child Healthcare Centre, St. John's (709) 722-1110
Nova Scotia Prince Edward Island	The Izaak Walton Killam Hospital for Children, Halifax 1-800-565-8161
Environmental Pesticide Spill	
New Brunswick Prince Edward Island Nova Scotia	1-800-565-1633
Newfoundland	1-800-563-9089
PMRA Websites	
Pesticide Label Search	
<a href="http://pr-rp hc-sc.gc.ca/lr-re/index-eng.php">http://pr-rp hc-sc.gc.ca/lr-re/index-eng.php</a>	
Drift Mitigation	
<a href="#">Buffer Zone Calculator Link</a>	

Helpful Conversions
Units
kPa x 0.14 = pounds per square inch
hectares x 2.47 = acres
kilograms x 2.2 = pounds
1000 grams (g) = 1 kilogram (kg)
millilitres x 0.035 = fluid ounces
litres x 35 = fluid ounces
litres x 0.22 = imperial gallons
1000 millilitres (mL) = 1 Litre (L)
$^{\circ}\text{F} = (^{\circ}\text{C} \times 9/5) + 32$
$^{\circ}\text{C} = (^{\circ}\text{F} - 32) \times 5/9$
miles per hour x 1.61 = km per hour
5 mL = 1 tsp
Volume per Area
kg per ha x 0.89 = pounds per ac
kg per ha x 0.40 = kilograms per ac
g per ha x 0.015 = ounces per ac
tonnes per ha x 0.45 = tons per ac
L per ha x 0.40 = litres per ac
L per ha x 0.09 = gallons per ac
L per ha x 14.17 = fluid ounces per ac
L per ha x 0.71 = pints per acre
mL per ha x 0.015 = fl. ounces per ac
L per ha x 0.11 = US gallons per ac
L per ha x 0.86 = US pints per ac

Abbreviations	
Formulation	Measurements
DF Dry flowable	ac acre
EC,E Emulsifiable concentrate	g gram
F Flowable	g.a.e. grams acid equivalent
G Granular	ha hectare
L Liquid	kg kilogram
LV Low Volatile	kPa kilopascal
SC Suspension concentrate	L litre
Sn Solution	m metre
SP Soluble Powder	mL millilitre
WDG Water Dispersible Granule	psi pounds per square inch
WP,W Wetable Powder	% v/v percent volume to volume
WSP Water Soluble Pouches	
Personal Protection Equipment	
Gloves	
e - waterproof gloves f - chemical resistant gloves	
Head and Lung	
j - eye protection, application m - approved respirator	
l - chemically resistant headgear for overhead application	
Clothes	
a - long-sleeved shirt/pants b - coveralls or disposable spray suit	
d - coveralls or disposable spray suit over long sleeved shirt/pants	
n - chemical-resistant spray suit	
Footwear	
g - shoes plus socks h - chemically resistant footwear plus socks	

**Pre Harvest Interval (PHI):** The minimum number of days between the last application of the pesticide and harvest.

**Group:** Weed Science Society of America's nationally accepted grouping of herbicides based on site of action.

**Hazard:** The signal words Danger, Warning and Caution appear on the pesticide label and indicate the level of hazard associated with handling or using the product. Products bearing the signal word **Danger** have an extreme or high hazard rating. Products labeled **Warning** have a moderate hazard rating and a **Caution** warning is associated with a low level of hazard. The degree of hazard may be due to toxicity, flammability, explosiveness or corrosiveness.

**Buffer Zones:** Distance between the closest point of direct pesticide application and the nearest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands) and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands). Water < 1m refers to wet areas with less than 1 meter of water depth. All buffer zones are for boom sprayers unless indicated. A buffer zone calculator is available [here](#).

**Rain-free Period:** The recommended minimum time in hours between pesticide application and rain. If rain occurs during the rain-free period, pest control may be significantly reduced.

**Restricted-Entry Interval (REI):** The minimum time in hours before you can enter a field that has been treated with the pesticide without wearing appropriate protective equipment.

**Leaching Potential:** The potential for a pesticide to be leached or carried by surface run-off is determined by characteristics of both the pesticide and the field. Surface slope, proximity to surface water, low organic matter content, depth to aquifer and heavy rainfall are some of the factors which lead to run-off and leaching problems when combined with pesticides of a moderate to high leaching potential.