Extension and Advisory Team

Wild Blueberry Management Schedule

A guide to insect, weed and disease management in wild blueberries in Nova Scotia

2018

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GUIDE TO WEED, INSECT AND DISEASE MANAGEMENT IN WILD BLUEBERRY

Nova Scotia Guide to Pest Management in Wild Blueberry 2018
[WBLUE1-18]

Updated April 20, 2018 by
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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.

Always check with your Processor or Buyer to see what products are allowable for their markets

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
WEEDS:							
Pre Emergence *Broadleaf and Grass weeds*	5	hexazinone	**Velpar 75 DF (Sprout year)**	1.92-2.56 kg/ha	48 hours	-	Should be applied in 200 L of water per ha. Apply high rate on heavy and fine textured soils. Apply low rate on sandy and gravelly soils. **Apply before the crop emerges from the ground or crop damage may occur**.
			Pronone 10G	14-20 kg/ha			Must be applied evenly over an area with a properly calibrated granular applicator. Applications can be made until late June as long as foliage is not wet during application. Water is required to activate the herbicide.
			Velpar 75 DF (Crop year)	1.3 kg/ha			**Apply in early spring of fruiting year. Do not apply after buds have begun to break or crop damage may occur. Generally not recommended unless severe weed pressure may limit harvest ability.**
	2	nicosulfuron / rimsulfuron	**Ultim 75 DF** plus **Agral 90**	33.7 g/ha plus 0.2% v/v	12 hours	14 months	For control of quackgrass, annual grasses and redroot pigweed, plus suppression of poverty oatgrass, ticklegrass and black bulrush. Apply within a minimum of 140 L water/ha Apply when annual grasses have 1-6 leaves and perennial grasses have 3-6

							leaves. Apply in the spring of the sprout year. Stunting and yield losses may occur if blueberry plants are contacted by the spray. Applications made before lowbush blueberry emergence have increased safety when tank mixed with Velpar/Sinbar.
	20	dichlobenil	**Casoron G-4**	110-175 kg/ha	12 hours	100	To be used in the late winter or Fall when plants are dormant. Use the high rate (175 kg/ha) in the first year of use or to control grasses and tough perennial weeds. The low rate (110 kg/ha) can be used the following year for annual weed control.
	10	Glufosinate ammonium	**Ignite 15 SN**	2.7-5 L/ha	12 hours	-	**Application must be made in the non-crop year in dormant wild blueberry**. Application must be made to a field entering into the prune year in the following season, but after blueberry leaf drop, or mowing in the late fall, but before sprout emergence in the spring. Apply in a minimum of 110 l/ha and no more than 6.7 l/ha of product per season. Will control actively growing weeds.
	14	Sulfentrazone	**Authority 480**	0.292 L/ha	12 hours	3	**Needs to be applied when plants are dormant and prior to emergence of weeds.** Apply in a minimum spray volume of 100L/ha. Use spray booms only.
Broadleaf weeds and Suppression of Moss	14	flumioxazin	**Chateau WDG**	140-210 g/ha (labeled broadleaf weeds)	12 hours	-	**Only apply Chateau as a dormant post-harvest application (fall).** Unacceptable crop injury and yield loss may occur if product comes into contact with non-dormant structures. Make sure spray tank is cleaned according to label

				280-420 g/ha (moss)			recommendations before applying a foliar pesticide. Do not make more than two applications in a growing season. **Use low rate in coarse textured soils, high rate in medium textured soils.**
Mainly Grasses	5	terbacil	**Sinbar WDG**	1.5-2.5 kg/ha	12 hours	-	**This product controls mainly grasses and a few broadleaf species**. This product needs to be applied in 200 L of water /ha and before the blueberry plant emerges.
	15	propyzamide	**Kerb SC**	4.1-5.6 L/ha	24 hours	-	Apply in late fall of the crop or sprout year when plants are dormant. **Controls mainly grasses and a few broadleaf weeds including sheep sorrel.** This product is temperature and moisture dependant, and needs to be applied before the ground is frozen, but when daytime air temps are low. (late November). **Apply in 300-500 L of water/ha.**
	5	simazine	**Simazine 80 WP**	1.7-2.5 kg/ha	12 hours	60	Apply in 300 L/ha. Controls a few grasses and some broadleaf weeds.
			Princep-Nine-T	1.5-2.0 kg/ha			
Post Emergence *Grasses*	1	fluazifop-p-butyl	**Venture L**	1.0-2.0 L/ha	12 hours	60	**Can be applied in the cropping or sprouting years.** Apply post emergently on actively growing grasses. Maximum of 1 application per year. **This herbicide will not control fescue grasses**. Although the low rate will control some species it is recommended to use the high rate in most cases.
	1	sethoxydim	**Poast Ultra** plus **Assist or Merge**	1.1 L/ha plus 1% v/v	-	15	**Can be applied in the cropping or sprouting years.** Apply post emergently on actively growing grasses. Maximum of 1 application per year.

							This product is ideal for the control of late emerging grasses like Witchgrass due to the shorter PHI.
	2	foramsulfuron	**Option 2.25 OD** plus **28% UAN**	1.56 L/ha plus 2.5 L/ha	Wait for residues to dry	Sprout year only	**For <u>suppression</u> of Fine-leaf sheep fescue, sheep fescue, red fescue and tall fescue.** Apply at the 1-6 leaf stage in a minimum of 150 L/ha of water. <u>Use only once per year</u>. Read label for specific application instructions. This is mainly a contact herbicide with limited soil activity.
Broadleaf weeds	27	mesotrione	**Callisto 480 SC** plus **Agral 90**	0.3 L/ha plus 200 ml/100 L of water	12 hours	60	**Make only one application per year.** Apply either pre-emergent or post emergent to weeds. Apply in 100-200 L of water/ha. Apply up to the 8 leaf stage of weeds and pre-bloom to crop.
	2	tribenuron-methyl	**Spartan 75 DF** plus **Agral 90**	0.04 kg/ha plus 200 ml/100 L of water	12 hours	-	**To control Bunchberry.** Apply in 150-250 L of water/ha. -Can be applied in early spring of sprout year when bunchberry leaves emerge from ground. -Can also be applied as soon after harvest as possible (within 3-4 weeks) in the cropping year.
Selective Herbicide Treatments *Broadleaf weeds – Spot treatments*	4	clopyralid	**Lontrel 360 EC**	**Spot:** 42 ml in 200 L/1000m^2 **Small Sections:** 420 ml/ha	12 hours	-	**Apply in June of sprout year. Later applications may cause damage.** Do not treat whole fields with this product as it is registered for spot and small section applications. For small sections apply in a spray volume of 200 L/ha. **Will control Vetch spp.**
	4	Clopyralid	**Pyralid**	**Spot:** 50 ml per 1000 square metre area in 200 L of water.		10 months	For spot application only. Apply in June of sprout year. Later applications may cause damage. Make one application per year. **Will control Vetch spp.**

				Boom sprayer: 504 ml/ha in 150-200 L of water.			
	2	nicosulfuron / rimsulfuron	**Ultim 75 DF** plus **Agral 90**	4.2 g/100 L of water plus 200 ml/100 L of water	12 hours	14 months	**Apply in early summer of sprout year** (June-early July). Avoid spraying large areas as some stunting will occur. **This product is currently registered for <u>spot treatments of black bulrush.</u>**
	2	tribenuron-methyl	**Spartan 75 DF** plus **Agral 90**	2.5g in 10 L of water plus 20 ml/10 L of water	12 hours	-	**Apply as spot treatments in summer and early fall of sprout year.** Will control bunchberry, yellow loosestrife, bracken fern, wild rose and others. **Some stunting will occur to blueberry plants that were contacted with Spartan.**
Non-Selective Herbicide Treatments Spot and wiper treatments	4	dicamba	**Banvel II / Oracle**	2.1 L/1000 L water	12 hours	-	Mainly used for site preparation. **Do not spray blueberry foliage as it will kill the blueberry plant.**
	9	glyphosate	**Roundup Original, Roundup Transorb, Glyfos, Touchdown etc.**	**Spot:** 1-2% solution **Wick wiping:** 33% solution	12 hours	-	To be used in developing fields, in sprouting year, or in the fall after harvest. **Do not spray or touch blueberry foliage as it will kill the blueberry plant.**
	4	2,4-D	Various products	Consult labels	12 hours	-	Use in developing fields, in sprouting year, or in the fall after harvest. **Do not spray or touch blueberry foliage as it will kill the blueberry plant.**
	4	triclopyr	**Garlon 4**	**Bark treatment:** 1-5 % in oil **Stump treatment:** 20-30% in oil	12 hours	-	Can be applied at any time of year and should only be used in developing fields. **Do not spray or touch blueberry foliage as it will kill the blueberry plant.**

Late fall broadcast	9	Glyphosate	**Roundup Weathermax**	1.67 L/ha	12 hours	550 days	**For suppression of Lambkill (Sheep Laurel, *Kalmia angustifolia*) in newly cleared lowbush blueberry**, apply Roundup WeatherMAX in the fall after 95 % blueberry leaf drop, typically late October or November. Do not apply Roundup WeatherMAX before one or two heavy, damaging fall frosts have occurred. Lambkill plants should have at least 50 % green leaf colour at the time of application. Do not add adjuvant to the spray mixture. Treat only areas of the field which have lambkill present. Apply before pruning lowbush blueberry plants and do not prune for at least 14 days after application. **All fields treated with Roudup WeatherMAX must be pruned post treatment in the fall or the following spring before mid-May**
	4	dicamba	**Banvel II / Oracle**	4.6-7.1 L/ha	12 hours	-	**For control of sweet fern and Lambkill.** Apply in 550 L/ha of water. **Apply in the fall after harvest when sweet fern leaves are still green and <u>90% of the blueberry leaves have dropped</u>.** Fall pruning should be carried out 4-5 weeks after spraying.

For more detailed information on weed management refer to the "Wild Lowbush Blueberry IPM Weed Management Guide" from the New Brunswick Department of Agriculture, Fisheries and Aquaculture:

http://www2.gnb.ca/content/dam/gnb/Departments/10/pdf/Agriculture/WildBlueberries-BleuetsSauvages/C420-E.pdf

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
INSECTS:							
Blueberry leaftier (*Croesia curvalana*)	3	deltamethrin	**Decis 5 EC**	150 mL/ha	12 hours	14	Apply at F1 stage, in 100-200 litres of water per hectare.
			Poleci 2.5 EC	300 ml/ha			
Blueberry spanworm (*Itame argillacearia*)	1B	phosmet	**Imidan 70WP Instapak**	1.6 kg/ha	3 days	15	First application to be made when insects reach damaging levels. Max 2 applications per year, apply in 1000 litres of water/ha.
	5	spinetoram	**Delegate WG**	100-200 g/ha	12 hours	3	**Suppression only.** Apply at egg hatch to small larvae. Use high rate for higher populations and/or larger larvae. Max 3 applications per year, with a minimum re-treatment interval of 6 days. Avoid when pollinators are active.
	5	spinosad	**Success 480 SC**	145-182 ml/ha	Once product is dry	3	Apply at egg hatch to small larvae. **Apply in 300-500 litres of water per hectare.** Use high rate under high insect pressure or large larvae. Max. 3 applications per year. Repeat applications at 7-10 days.
			Entrust 80 W	80-109 g/ha	12 hours	3	Also controls oblique banded leafroller, winter moth and cabbage looper.
			Entrust SC	267-374 ml/ha			
	4	acetamiprid	**Assail 70 WP**	160 g/ha	12 hours	7	**Suppression only.** Apply in a minimum spray volume of 187L/ha.
	11	*Bacillus thuringiensis*	**Dipel 2X DF**	550-1125 g/L	-	0	Apply to larvae at 1st or 2nd instar. Apply in a minimum of 300 L/ha. Controls Chainspotted Geometer and

							various leafroller species.
	3	deltamethrin	**Decis 5 EC**	125 mL/ha	12 hours	14	For control of Bruce Spanworm. Apply in 100-200 litres of water per hectare. Avoid spraying during flowering.
			Poleci 2.5 EC ***NEW 2017***	300 ml/ha			
	28	chlorantraniliprole	**Altacor**	215-285 g/ha	12 hours	1	Do not make more than 3 applications per season. Do not apply more often that once every 7 days. Do not exceed 645g/ha per season.
	18	methoxyfenozide	**Intrepid 240F**	0.5 L/ha	12 hours	7	Apply when feeding damage is detected or when infestations reach thresholds as determined by local monitoring standards. Repeat applications after 7-14 days if required based on monitoring.
	18	tebufenozide	**Confirm 240 F**	1.0 L/ha	12 hours	14	Begin applications when first signs of feeding damage appears or when threshold is reached.
Blueberry flea beetle *(Altica sylvia)*	5	spinosad	**Success 480 SC**	165-220 ml/ha	Once product is dry	3	**Suppression of Flea Beetle larvae.** Apply mid-May to early June. Maximum of 3 applications per season. Apply high rate when populations are high. Best results when applied to early larval stages. Allow 7-10 day intervals between applications if required.
			Entrust 80W	100-132 g/ha			
			Entrust SC	334-440 ml/ha			
	4	acetamiprid	**Assail 70 WP**	160 g/ha	12 hours	7	Apply in a minimum spray volume of 187 L/ha.
	5	spinetoram	**Delegate WG**	200 g/ha	12 hours	3	Apply at early larval stages. Maximum of 3 applications per year, with a minimum re-treatment interval of 6 days. Avoid when pollinators are active.
	28	Cyantraniliprole ***NEW 2018***	**Exirel**	500-1000 ml/ha	12 hours	3	Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control.

Blueberry fruit fly (*Rhagoletis mendax*)	4	acetamiprid	**Assail 70 WP**	136-160 g/ha	12 hours	7	Apply in a finished spray volume of 187 L/ha (75 L/acre). Use high rate under heavy insect pressure or dense vegetation. Do not apply more than 4 applications per season. Do not apply more than once every 12 days.
	1B	phosmet	**Imidan 70WP Instapak**	1.6 kg/ha	3 days	15	Apply early to late July. Maximum 2 applications per year, apply in 1000 litres of water/ha.
	5	spinosad	**GF-120 NF Naturalyte Fruit Fly Bait**	1.0-1.5 L	Once product is dry	0	Apply early to late July. Apply with a large spray droplet size (4-6 mm). Begin applications as soon as traps indicate flies are present. Repeat on 7 day intervals, use a shorter interval during rainy periods. Max 5 applications per season.
	1B	dimethoate	**Cygon 480 EC**	580-825 mL/ha	3 days	15	**Consult your buyer before using this product to see if it is allowable for their markets.** Apply early to late July. If using an air-blast orchard sprayer, weather conditions should be checked frequently (every 15 minutes). Wind speed should be from 2 to 10 km/h. Relative humidity should not be less than 50%. Air temperature should not exceed 25°C. Max 2 applications per season.
			Lagon 480 E	600-825 mL/ha			
	1B	malathion	**Malathion 25W**	2.25 kg /1000 L	-	1	Apply early to late July. Average control.
	1A	carbaryl	**Sevin XLR PLUS**	4.0 L/ha	-	2	Apply early to late July. Apply in 1200-1500 litres of water per hectare.
	23	spirotetramat	**Movento 240 SC**	365-435 ml/ha	12 hours	7	Apply in 200-3000 L/ha. Allow for 7 days between applications.
	28	cyantraniliprole	**Exirel**	1000-1500 ml/ha	12 hours	3	Suppression only. **Restricted MRLs contact buyer before use.** Begin applications when treatment thresholds have been reached. Thorough coverage

							is essential for optimum control. For blueberry maggot, begin applications when populations are low. If blueberry maggot populations are high, use a registered insecticide with a different of mode of action to reduce the pest populations before applying Exirel™ insecticide. Do not make more than 4 applications per season. Reapplication interval is 5 days.
	4D	Flupyradifurone	**Sivanto Prime**	750-1000 ml/ha	12 hours	3	Minimum intervals between applications is 7 days. Apply in a minimum volume of 100 l/ha
White-marked tussock moth (*Orgyia leucostigma*)	11	*Bacillus thuringiensis kurstaki*	**Bioprotec CAF** **Foray 48 BA**	4.0 L/ha	-	-	Make 2 applications. Apply at peak 2nd instar larval development. Apply second application 2 – 5 days later.
Blueberry thrips (*Frankliniella vaccinii, Catinathrips kainos*)	3	permethrin	**Pounce 384 EC**	180 mL/ha	-	-	*Vegetative year only*. Make one application between mid-May and early June when plants are 1-2 cm.
	4	acetamiprid	**Assail 70 WP**	160 g/ha	12 hours	7	Apply when new shoots are 0.5 – 1.5 cm tall. Repeat applications may be made at least 12 days later if required. Apply in a minimum spray volume of 187 L/ha.
	1B	malathion	**Malathion 25W**	2.25 kg/1000 L	-	1	
Redstripped Fireworm	28	chlorantraniliprole	**Altacor**	215-285 g/ha	12 hours	1	Begin applications at treatment threshold. Do not make more than 3 applications per season. Do not apply more often that once every 7 days. Max 645g/ha per season.
Weevils	4	thiamethoxam	**Actara 25WG**	210-280 g/ha	12 hours	3	Apply before pests 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.**

	28	cyantraniliprole	**Exirel**	1000-1500 ml/ha	12 hours	3	**Restricted MRLs contact buyer before use.** Apply when most adults have emerged, but before they start laying eggs.
Brown marmorated stink bug	1B	malathion	**Malathion 85E**	1000 mL/ha	-	1	Apply prior to harvest when treatment thresholds have been reached, as determined by local monitoring. Max 3 applications.
	4	thiamethoxam	**Actara 25WG**	280 g/ha	12 hours	3	Apply before pests reach damaging levels. Scout fields and treat again if populations rebuild to potentially damaging levels. Application interval: 7 days. Max 2applications.
Blueberry Gall Midge	23	spirotetramat	**Movento 240 SC**	365-435 ml/ha	12 hours	7	Apply at egg hatch when buds are tightly closed. Apply in 200-3000 L/ha. Allow for 7 days between applications.
	28	cyantraniliprole	**Exirel**	750-1000 ml/ha	12 hours	3	Suppression only. **Restricted MRLs contact buyer before use**. Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control. Do not make more than 4 applications per season. Do not apply more than once every 5 days.
Spotted wing Drosophila (SWD)	28	cyantraniliprole	**Exirel**	1000-1500 ml/ha	12 hours	3	Suppression only. **Restricted MRLs contact buyer before use.** Begin applications when treatment thresholds have been reached. Thorough coverage is essential for optimum control. For SWD, begin applications when populations are low. Exirel™ targets the adult life stage of SWD. If SWD populations are high, use a registered insecticide with a different of mode of action to reduce the pest populations. Apply a subsequent application of

							Exirel™ if required. Do not make more than 4 applications per season. Do not apply more than once every 5 days.
	1B	phosmet	**Imidan 70WP Instapak**	1.6 kg/ha	3 days	15	A 2nd application may be made when indicated by insect infestations and local or provincial spray programs.
	5	spintoram	**Delegate WG**	315-420 g/ha	12 Hours	3 days	Apply as necessary at least 7 days apart. Maximum 3 applications per year.
	5	spinosad	**Entrust SC**	334-440 ml/ha	Once product is dry	3 days	Maximum 3 applications with a minimum re-treatment interval of 5 days.
			Success	165-220 ml/ha		3 day	
Lygus bugs (including tarnished plant bug)	29	Flonicamid	**Beleaf 50SG**	200 g/ha	12 hours	0	Suppression of Lygus bugs. Apply when lygus bugs first appear in the field and before populations reach high levels. Beleaf™ 50SG Insecticide will stop lygus bug feeding rapidly but it may take several days to see a reduction in lygus 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.

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
DISEASES:							
Monilinia Blight (*Monilinia vaccinii-corymbosi*) ***Fruiting Year Only***	3	propiconazole	**Topas/Tilt 250**	500 ml/ha	12 hours	60	Apply late April to mid to late May 40-50% F2 stage. Maximum of 2 applications per year.
			Mission 418 EC / Pivot / Bumper	300 ml/ha			
			Jade	500 ml/ha			
			Propi Super 25EC	500 ml/ha	12 hours	60	Apply first application when flower bud scales first appear and make a second application 10 days later. Use ground application or aerial application equipment, making no more than two applications per year. Use a minimum of 200 L of water per hectare if applying by ground equipment; use 40-50 L of water per hectare if applying by air.
	3	triforine	**Funginex 190 EC**	1.7 to 3 L/ha	48 hours	60	Apply late April to mid to late May 40-50% F2 stage. Max 3 applications per year.
	3	metconazole	**Quash**	180 g/ha	3 days	12	Apply pre infection. Apply at the green tip stage for mummy berry, at bloom for anthracnose, and at pre-bloom for Phomopsis. Make repeat applications on 7 day intervals. A maximum of 3 applications. Do not make more than 2 sequential applications.
	29	fluazinam	**Allegro 500F**	2.24 L	24 hours	30	Apply pre infection. **SUPPRESSION ONLY.** Apply as

							a foliar spray in 300-1000 L/ha. Max 4 applications per year. Begin applications at bud break and repeat applications every 7-10 days until petal fall.
	7	penthiopyrad	**Fontelis**	1.75 L/ha	12 hours	0	Begin applications prior to disease development, continue on a 7-10 day interval. Use higher rate and shorter interval when disease pressure is high. Max seasonal rate is 5.25 L/ha. Do not make more than 2 sequential applications before switching to another mode of action.
	-	*Bacillus subtilis*	**Serenade Opti**	2.0-3.3 kg/ha	-	0	Apply pre infection. **Biopesticide that may only suppress the indicated diseases.** Repeat as necessary on a 7-14 day interval.
	-	*Bacillus subtilis*	**Serenade Max**	3.5-6.0 kg/ha	-	0	Begin applications at the bud break stage of development. Repeat as necessary on a 7-14 day interval.
	3	prothioconazole	**Proline 480SC**	315-420 ml/ha	24 hours	7	Apply early bloom for fruit rot. Make a second application of Proline 480 SC or another approved fungicide 5-10 days later. Maximum 2 applications per year. Applications may be made by ground application equipment only. Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v.
	3-11	azoxystrobin, propiconazole	**Quilt**	1 L/ha	12 hours	30	In the fruiting year apply the first application when flower bud scales first appear and make a second application 10 days later. Make no more than two applications per year. Use a minimum of 200 L water/ha
Botrytis	M	captan	**Captan**	2.25 kg/ha	72 hours	2	Apply mid bloom to early fruit set.

blight *(Botrytis cinerea)* ***Crop Year Only***			**Supra 80 WDG** **Maestro 80 DF**	2.25 kg/ha			Do not apply more than twice consecutively.
	7	boscalid	**Cantus 70 WDG**	0.56 kg/ha	12 hours	0	
	9-12	cyprodinil, fludioxonil	**Switch 62.5 WG**	775 to 975 g/ha	12 hours	1	Make the first application during early bloom. A second application may be made 7-10 days later. **One of the actives in this product is persistent and may carryover. It is recommended that products containing fludioxonil not be used in areas treated with this product during the previous season.** Will also control anthracnose
	7-11	pyraclostrobin, boscalid	**Pristine WG**	1.3-1.6 kg/ha	24 hours	0	Begin applications prior to disease development and continue on a 7-14 day schedule. Use a shorter interval and/or higher rates when disease pressure is high. Maximum of 4 applications per season. **Will suppress Valdensinia leaf spot**.
	-	*Bacillus subtilis*	**Serenade Opti**	1.7-3.3 kg/ha	-	0	**Biopesticide that may only suppress the indicated diseases**. Begin application prior to disease development and repeat on 7-10 day intervals.
	-	*Bacillus subtilis*	**Serenade Max**	3.0-6.0 kg/ha	-	0	Begin applications at the first sign of disease or when conditions become conducive for disease development. Repeat as necessary on a 7-10 day interval.
	17	fenhexamid	**Elevate 50 WDG**	1.7 kg/ha	4 hours	1	Apply mid bloom to early fruit set. Do not apply more than twice consecutively.

	7	Isofetamid	**Kenja 400SC**	0.987-1.24 L/ha	12 hours	0	Initiate application prior to disease development. Do not make more than 2 sequential applications. Max 5 applications per year
	9	Pyrimethanil	**Scala SC**	2 l/ha	12 hours	1	Make first application pre-bloom and repeat at 7-10 day intervals. Max 3 applications per growing season. Follow resistance management recommendations
	7,9	Fluopyram and pyrimethanil	**Luna Tranquility**	1200 ml/ha	12 hours	1	Make first application at early flowering and repeat applications as required at 7-10 day intervals. Max 2 applications per season. Apply in 500 l/ha.
	-	Tea tree oil	**Timorex Gold**	1.5-2.0 L/ha	4 hours	2 days	Apply in 400-800 L/ha. For preventative treatments, apply at 7-14 day intervals, depending on disease level. Use the shorter application interval under conditions that promote rapid disease development.
	19	Polyoxin D Zinc Salt ***NEW 2018***	**Diplomat 5SC**	463-926 ml/ha	-	0	**Suppression**. Apply as a foliar spray in sufficient water to provide thorough coverage of foliage (and fruit when present). Begin as a preventative application when conditions favour disease development and continue on a 7-10 day interval as needed to maintain suppression
	7	Fluxapyroxad ***NEW 2018***	**Sercadis**	0.250-0.666 L/ha	12 hours	0	**Suppression.** Begin application prior to onset of disease and continue at a 7-14 day interval. Max 3 applications per season with a maximum product rate of 2 L/ha per season.

Septoria leaf spot *(Septoria spp.)*	M	chlorothalonil	**Bravo 500 / Bravo ZN**	7.2 L/ha	48 hours	54	**Application should be based on level of disease pressure the previous year. Max 2 applications per year.** One application can be made early to mid-June of the **sprout** year (depending on location) for Septoria. This application will also be of some benefit for Valdensinia leaf spot and Phomopsis canker. Apply Bravo ZN in 200-950 L/ha of water. **Important: Read Product Label Liability Statement**
	7-11	pyraclostrobin, boscalid	**Pristine WG**	1.6 kg/ha	24 hours	0	**Suppression of Septoria only**. Maximum number of applications in sprout year is 4; maximum number in crop year is 2. Begin applications prior to disease development.
	3	prothioconazole	**Proline 480 SC**	315 ml/ha	24 hours	7	**Suppression of Septoria only.** Apply at first sign of disease; a second application may be made 10-14 days later. Max 2 applications per year. The lowest labeled rate of a non-ionic surfactant may be tank mixed with Proline. **Look at label for buffer zones and airblast restrictions.**
	3-11	azoxystrobin, propiconazole	**Quilt**	1 L/ha	12 hours	30	**Suppression of Septoria only.** Apply at the first sign of disease in the spout year. One additional application may be made 10-14 days after initial application if conditions remain favourable for continued or increased disease development. Make no more than two applications per year. Use a minimum of 200 L

							per hectare of water or an appropriate water volume to provide full coverage.
	33	Mono- and dibasic sodium, potassium, and ammonium phosphites	**Phostrol**	2.9-5.8 L/ha	12 hours	-	Begin foliar sprays in the spring at approximately the pink bud stage and continue on a 14 day interval. Use sufficient volume of water for good coverage. Max 4 applications per season. Also for suppression of Phytophthora Root Rot *(Phytophthora spp.)*
	7	Fluxapyroxad ***NEW 2018***	**Sercadis**	0.250-0.666 L/ha	12 hours	0	Begin application prior to onset of disease and continue at a 7-14 day interval. Max 3 applications per season with a maximum product rate of 2 L/ha per season.
Valdensinia leaf spot (*Valdensinia heterodoxa*)	7-11	pyraclostrobin, boscalid	**Pristine WG**	1.3-1.6 kg/ha	24 hours	0	Begin applications prior to disease development and continue on a 7-14 day schedule. Use shorter interval and/or higher rates when disease pressure is high. Max 4 applications per season.
	29	fluazinam	**Allegro 500F**	0.4-0.8 L/ha in 300-1000 L water/ha	24 hours	30	**Suppression only**. Apply at early bloom or at first symptoms in fruiting fields and at an equivalent time in sprout fields. Application interval is 7-14 days. Use shorter interval and higher rate when disease pressure is high. Good spray coverage into the canopy is essential for good disease management. Max 4 applications per season.
	3	prothioconazole	**Proline 480SC**	400 mL/ha	24 hours	7	Apply at first sign of disease. After the initial application, one additional application may be made 10-14 days afterwards if conditions remain

							favourable for continued or increased disease development. Apply up to two (2) applications of Proline 480 SC/year. Applications may be made by ground application equipment only. Apply with a non-ionic surfactant, AgSurf or Agral 90 at 0.125% v/v.
	3-11	azoxystrobin, propiconazole	**Quilt**	1 L/ha	12 hours	30	**Suppression only.** Apply at the first sign of disease in the spout year. After the initial application, one additional application may be made 10-14 days afterwards if conditions remain favourable for continued or increased disease development. Make no more than two applications per year. Use a minimum of 200 L/ha of water or an appropriate water volume to provide full coverage.
	7	Benzovindiflupyr	**Aprovia**	750 ml/ha	12 hr	365 day	**Suppression only.** Only apply in non-cropping year. Make first application at first sign of disease. A second application can be made 10-14 days later. Use a non-ionic surfactant at 0.2% v/v. Max 1.5 L/ha/season.
Leaf Rust	M	chlorothalonil	**Bravo 500 / Bravo ZN**	7.2 L/ha	48 hours	54	**Application should be based on level of disease pressure the previous year.** Make an application in late July to early August of the sprout year (depending on location) for Rust. These applications will also be of some benefit for Valdensinia leaf spot and Phomopsis canker. Apply Bravo ZN

							in 200-950 L/ha of water. **Do not exceed 2 applications per year.**
	3	prothioconazole	**Proline 480 SC**	400 ml/ha	24 hours	7	**Suppression of Blueberry Leaf Rust only.** Apply at first sign of disease and an initial application may be made 10-14 days later. Do not make more than 2 applications per year. The lowest labeled rate of a non-ionic surfactant may be tank mixed with Proline. **Look at label for buffer zones and airblast restrictions.**
	3-11	azoxystrobin, propiconazole	**Quilt**	1 L/ha	12 hours	30	Apply at the first sign of disease in the spout year. After the initial application, one additional application may be made 10-14 days afterwards if conditions remain favourable for continued or increased disease development. Make no more than two applications per year. Use a minimum of 200 L per hectare of water or an appropriate water volume to provide full coverage.
	7	Benzovindiflupyr	**Aprovia**	500-750 ml/ha	12 hr	365 day	Only apply in non-cropping year. Make first application at first sign of disease. A second application can be made 10-14 days later. Use a non-ionic surfactant at 0.2% v/v. Max 1.5 L/ha/season. **Check with your buyer to see if this product can be used for their markets**
Powdery Mildew	3	myclobutanil	**Nova 40W**	340 g/ha	12 hours to 8 days *(See label)*	4 (hand harvest) 1 (mechanical harvest)	Apply at the first sign of disease development and repeat in 7-14 days. Do not apply more than 340 g/ha. Max 3 applications / growing season.

	-	mineral oil	**Purespray Green Spray Oil 13E**	10 L in 1000 L water (1% solution) otherwise phytotoxicity may result.	-	-	Use sufficient spray volume (up to 1000 L/ha) to ensure thorough crop coverage. Begin when conditions favour disease development and/or when first symptoms appear. Apply at 7 – 14 day intervals. Max 8 summer spray applications per growing season. **Also: Suppression of spider mites; deter aphids.*
	7,9	Fluopyram and pyrimethanil	**Luna Tranquility**	1200 ml/ha	12 hours	1	Make applications preventatively. Continue as needed on a 7-14 day intervals. Only use this product for Powdery mildew control when it coincides with the timing of Botrytis gray mold.
Anthracnose fruit rot, Alternaria fruit rot, Phomopsis canker	M	chlorothalonil	**Echo 90DF**	4.0 kg/ha	48 hours	54	**Contact processors to see if these products are allowable in crop year for their markets for these uses.** Make 3 applications; one at green tip, another at pink bud and another at petal fall. After petal fall, a protective schedule using a different registered product may be necessary to ensure control of fruit rot.
			Echo 720	5.0 L/ha			
	1	Thiophanate-methyl	**Senator 50 SC**	1.54 L/ha	-	60 days	*Phomopsis vaccinii* (Blossom & twig blight). Commence applications at bud break. Make 2 applications at a 10 - 14-day interval. Exact interval used depends on weather conditions and disease development.

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/ls-re/index-eng.php

Product Toxicity

COMMON NAME	TRADE NAMES	TOXICITY		
		TO BEES	TO APPLICATOR	
			ORAL	DERMAL
Herbicides				
2,4-D	2,4-D Amine 500	**low**	**mod**	**mod**
clopyralid	Lontrel	**low**	**low**	**low**
dicamba	Banvell II	**low**	**low**	**low**
dichlobenil	Casoron	**low**	**low**	**low**
fluazifop-p-butyl	Venture	**low**	**low**	**low**
flumioxazin	Chateau	**low**	**low**	**low**
formasulfuron	Option	**low**	**low**	**low**
Glufosinate ammonium	Ignite	**low**	**mod**	**mod**
glyphosate	Roundup, various	**low**	**low**	**low**
hexazinone	Velpar, Pronone	**low**	**low**	**low**
mesotrione	Callisto	**low**	**low**	**low**
nicosulfuron/rimsulfuron	Ultim	**low**	**low**	**low**
propyzamide	Kerb	**low**	**low**	**low**
sethoxydim	Poast Ultra	**low**	**low**	**low**
simazine	Simazine/Prince-Nine-T	**low**	**low**	**low**
terbacil	Sinbar	**low**	**low**	**low**
tribenuron-methyl	Spartan	**low**	**low**	**low**
triclopyr	Garlon	**low**	**mod**	**mod**
Insecticides and Fungicides				
acetamiprid	Assail	**high**	**mod**	**low**
Bacillus subtilis	Serenade Max/ASO	**low**	**low**	**low**
Bacillus thuringiensis	various	**low**	**low**	**low**
Benzovindiflupyr	Aprovia	**low**	**mod**	**low**
boscalid	Cantus	**low**	**low**	**low**
boscalid, pyraclostrobin	Pristine	**low**	**low**	**low**
captan	Captan, Maestro	**low**	**low**	**low**
carbaryl	Sevin XLR Plus	**high**	**mod**	**mod**
chlorantraniliprole	Altacor	**mod**	**low**	**low**
chlorothalonil	Bravo	**low**	**low**	**low**
cyantraniliprole	Exirel	**high**	**low**	**low**
cyprodinil, fludioxonil	Switch	**low**	**low**	**low**
deltamethrin	Decis	**high**	**low**	**low**
dimethoate	Cygon, Lagon	**high**	**mod**	**mod**
fenhexamid	Elevate	**low**	**low**	**low**
fluazinam	Allegro	**low**	**low**	**low**
Fluopyram, pyrimethanil	Luna Tranquility	**low**	**low**	**low**
Flupyradifurone	Sivanto Prime	**low**	**mod**	**mod**
Isofetamid	Kenja	**low**	**low**	**low**
malathion	Malathion	**high**	**mod**	**mod**

metconazole	Quash	**low**	**low**	**low**
methoxyfenozide	Intrepid	**low**	**low**	**low**
myclobutanil	Nova	**low**	**mod**	**mod**
penthiopyrad	Fontelis	**low**	**low**	**low**
propiconazole	Topas, Mission, Jade	**low**	**low**	**low**
prothioconazole	Proline 480 SC	**low**	**low**	**low**
permethrin	Pounce	**high**	**mod**	**low**
phosmet	Imidan	**high**	**mod**	**low**
Pyrimethanil	Scala	**low**	**low**	**low**
spinetoram	Delegate	**mod**	**low**	**low**
spinosad	GF-120 NF Naturalyte Fruit Fly Bait,	**mod**	**low**	**low**
spinosad	Success 480 SC/Entrust 80W	**mod**	**low**	**low**
spirotetramat	Movento 240 SC	**high**	**mod**	**mod**
thiamethoxam	Actara 25 WG	**high**	**mod**	**mod**
thiophanate-methyl	Senator	**low**	**low**	**low**
triforine	Funginex	**low**	**low**	**low**

References: EXTOXNET (http://extoxnet.orst.edu/pips/ghindex.html) and Individual Product MSDS sheet.

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!