

Pest Control Products Recommended for Use on Grapes in British Columbia

Table 1. INSECTICIDES AND MITICIDES

Read the *Best Practices Guide for Grapes* section on Insects and Mites for additional control information on these and other pests. See explanatory notes on page 8 of this document.
READ THE PRODUCT LABEL BEFORE MIXING AND APPLYING ANY PESTICIDE.

Insect or Mite	Recommended Product Choices	Grp ¹	Oral Toxicity	Optimum pH	Max. Applies/Season	Amount per		REI ²	PHI ³ (days)	Precautions and Notes
						Ha	Acre			
Virginia Creeper Leafhopper (VCL) and/or Western Grape Leafhopper (WGL) (p. 5.3-4)	Sevin XLR (carbaryl)	1A	M			VCL*: 640 mL WGL*: 5.25-6.4 L	VCL*: 260 mL WGL*: 2.1-2.6 L	24 h*	5	Moderate to high impact on all beneficials. If only VCL is present, preserve beneficials by applying the recommended rate. Applicator's certificate needed.
	Pro Malathion 50EC (malathion)	1B	S	5	1	2.0 L/1000 L of water		12 h – 5 days	3	Will suppress most beneficials except predatory mites. Not effective against the WGL.
	Malathion 85E (malathion)	1B	S	5	1	880 mL/1000 L of water		12 h – 5 days	3	
	Admire 240 F (imidacloprid)	4A	S		2	200 mL	80 mL	24 h	0	Toxic to bees. Target Assail sprays to small nymphs. Avoid using Group 4 products more than twice/year to prevent mite problems. Use the higher rate of Clutch when insect pressure is high. Closer is registered for suppression of leafhoppers.
	Assail 70 WP (acetamiprid)	4A	S	5-6	2	80 g	32 g	12 h – 13 days	5	
	Clutch (clothianidin)	4A	S		2	100-140 g	40-57 g	12 h	1	
	Closer SC (sulfoxaflor)	4C	S		2	200-400 mL	80-160 mL	12 h	7	
	Sivanto Prime (flupyradifurone)	4D	S			500-750 mL	200-300 mL	12– 24 h	0	
	Surround WP (kaolin)	NC	S			25-50 kg	10-20 kg	24 h*	0	Suppression of leafhoppers. Do not apply post-bloom on table grapes. May be harmful to beneficials.
	Ambush 500EC (permethrin)	3A	S	6	1	140 mL	56 mL	when dry	7	Harmful to all beneficial arthropods. Toxic to bees.
	Pounce 384EC (permethrin)	3A	S	6	2	175 mL	71 mL	when dry	21	
	Pyganic (pyrethrins)	3A	S	5.5-7	8	2.32 – 4.65 L	0.94-1.9 L	12 h	0	For use on organic grapes. Harmful to all beneficial arthropods. Toxic to bees.
Additional Notes: Monitor (see page 5-31) and target wingless immature stages of leafhoppers as adults are more difficult to control. Some insecticides registered for the control of leafhoppers are ineffective against the Western grape leafhopper therefore it is important to determine if this species is present in your vineyard. Consider applying insecticides only to areas where leafhoppers have exceeded the threshold level to help preserve beneficials.										

¹Group number for resistance management (see p. 7-6, *Best Practices Guide for Grapes*)

²Re-entry interval on the label (see p. 7-2). Re-entry intervals for grapes usually vary widely by activity. See label for details where a range of re-entry times are shown. An asterisk(*) indicates that no re-entry is shown on the label, but the WorkSafe BC re-entry interval may apply and is shown.

³Pre-harvest interval (see p. 7-13).

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						Ha	Acre			
Climbing Cutworms (p. 5.3-7)	Altacor (chlorantranilprole)	28	S		3	215-285 g	87-115 g	12 h	14	Direct sprays to the developing buds.
	Pounce 384EC (permethrin)	3A	S	6	2	180-360 mL	70-145 mL	when dry	21	Harmful to all beneficial arthropods. Toxic to bees. Apply at the first sign of cutworm damage in spring, to the trunk and soil surface near trunk base. Use higher rate for larger cutworms.
	Intrepid (methoxyfenozide)	18			2	600 mL	243 mL	12 h	30	Apply at first sign of cutworm damage in the spring, to the trunk, cordons, unopened buds and tender shoots.
Additional Notes: To help reduce cutworm damage, do not control broadleaf weeds until shoots have elongated and the first leaves have expanded.										
Snailcase Bagworm (p. 5.3-21)	Dipel 2X DF (<i>Bacillus thuringiensis</i>)	11	S	6	4	125-250 g/ 400L water		24 h*	0	Apply in late summer when larvae are feeding.
	Bioprotec CAF (<i>Bacillus thuringiensis</i>)	11	S	6	1	2.8 L	1.1 L	24 h*	0	
Grape Mealybug (p. 5.3-13)	Insecticidal Soap	NC	S			1% spray (1L/100 L)		24 h*	0-5	Target sprays to the crawler stage in the spring. Do not apply with sulphur or within 3 days of sulphur spray. Also suppresses leafhoppers.
	Movento 240 SC (spirotetramat)	23	S		2	365-585 mL	148-236 mL	12 h	7	Movento has good systemic activity. DO NOT apply to table grapes. Toxic to bees.
	Pro Malathion 50EC (malathion)	1B	S	5	1	2.0 L/1000 L of water		12 h – 5 days	3	Target sprays to the crawler stage in the spring. Will suppress most beneficials except predatory mites.
	Malathion 85E (malathion)	1B	S	5	1	880 mL/1000 L of water		12 h – 5 days	3	
	Clutch (clothianidin)	4A	S			2	140-210 g	57-85 g	12 h	1
Additional Notes: It is important to monitor for and control mealybugs if you have or suspect leafroll virus in your vineyard.										
Grape Phylloxera (p. 5.3-3)	Movento 240 SC (spirotetramat)	23	S		2	365-585 mL	148-236 mL	12 h	7	Movento has good systemic activity. DO NOT apply to table grapes. Toxic to bees.
	Clutch (clothianidin)	4A	S		2	140-210 g	57-85 g	12 h	1	Toxic to bees. Avoid using Group 4 products more than twice/season to prevent mite problems. Use the higher rate when insect pressure is high.
Additional Notes: Resistant rootstocks provide an effective means of combating phylloxera.										
Scale Insects (p. 5.3-15)	Insecticidal Soap	NC	S			1% spray (1L/100 L)		24 h*	0-5	Target sprays to the crawler stage in the summer. Do not apply with sulphur or within 3 days of sulphur spray. Also suppresses leafhoppers.

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Scale Insects (p. 5.3-15)	Movento 240 SC (spirotetramat)	23	S		2	365-585 mL	148-236 mL	12 h	7	DO NOT apply to table grapes. Toxic to bees.
	Pro Malathion 50EC (malathion)	1B	S	5	1	2.0 L/1000 L of water		12 h – 5 days	3	Target sprays to the crawler stage in the summer. Will suppress most beneficials except predatory mites.
	Malathion 85E (malathion)	1B	S	5	1	880 mL/1000 L of water		12 h – 5 days	3	
	Additional Notes: It is important to monitor for and control scale insects if you have or suspect leafroll virus in your vineyard.									
Thrips (p. 5.3-16)	Entrust (spinosad)	5	S	7	3	109 g	44 g	dry-15 days	7	For suppression of thrips.
	Success 480 SC (spinosad)	5	S	6-7	3	182 mL	74 mL	dry-15 days	7	For suppression of thrips.
	Clutch (clothianidin)	4A	S		2	140 g	57 g	12 h	1	Toxic to bees. Avoid using Group 4 products more than twice/season to prevent mite problems. Use the higher rate when insect pressure is high.
	Additional Notes: Thrips are not normally an economic concern for wine grapes. Inspect table grapes for the presence of thrips in spring from around 75% bloom to the end of fruit set and apply insecticides as required. Avoid mowing cover crops during bloom and fruit set.									
Two-Spotted Spider Mites and European Red Mites (p. 5.3-17)	Insecticidal Soap	NC	S			1% spray (1L/100 L)		24 h*	0-5	Do not apply with sulphur or within 3 days of sulphur spray. Also suppresses leafhoppers.
	Pro Malathion 50EC (malathion)	1B	S	5	1	2.0 L/1000 L of water		12 h – 5 days	3	Will suppress most beneficial insects except predatory mites.
	Malathion 85E (malathion)	1B	S	5	1	880 mL/1000 L of water		12 h – 5 days	3	
	Agri-mek (abamectin)	6	V	6-7	2	585-1170 mL	236-474 mL	12 h - 21 day	28	Use higher rate for severe infestations. Applicator's Certificate needed.
	Nexter (pyridaben)	21	S	4-9	1	300-600 g	120-243 g	24 h	25	Safe for beneficial insects; high rates harmful to predatory mites.
	Envidor 240 SC (spirodiclofen)	23	S	5-7	1	0.75 L	300 mL	12 h -2 days	14	Toxic to predatory mites. Post-bloom application only.
	Acramite 50 WS (bifenazate)	25	S	<7	1	568 g (spider mite); 851 g (Eur. red mite)	230 g (spider mite) 345 g (Eur. red mite)	12 h -5 days	14	May harm beneficial insects and predatory mites. Rates are equivalent to 2-3 pouches per 2 acres.
	Nealta (cyflumetofen)	25	S		2	1 L	405	12 h	14	Effective on all life stages. Safe on beneficial insects.
	PureSpray Green Spray Oil 13E (mineral oil)	NC	S			10 L	4 L	12 h	0-wine 14-table	Summer oil for suppression of mites. Do not apply within 14 days of a sulphur or captan spray.
	Additional Notes: To preserve and enhance beneficial species that help to control mites, apply pesticides only when necessary and only to parts of the vineyard where pest populations are sufficiently high to warrant control. Rotate materials from different chemical groups to help prevent development of mite resistance.									

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						Ha	Acre			
Grape Erineum Mite (p. 5.3-20)	Kumulus DF or Microthiol Disperss (sulphur)	M	S			3.4 kg	1.3 kg	24 h	21-wine 14-table	May cause injury during hot weather See label for sensitive varieties.
	PureSpray Green Spray oil 13E (mineral oil)	NC	S			10 L	4 L	12 h	0-wine 14-table	Summer oil for suppression of mites. Do not apply within 14 days of a sulphur or captan spray.
	Insecticidal Soap	NC	S			1% spray (1L/100 L)		24 h*	0-5	Do not apply with sulphur or within 3 days of sulphur spray. Also suppresses leafhoppers.
Additional Notes: Erineum mite is seldom a problem in vineyards where sulphur is applied routinely for powdery mildew control. Applications of sulphur are most effective early in the season when galls are first being formed on new leaves.										
Grape Leaf Rust Mite (p. 5.3-21)	There are no miticides currently registered specifically for the control of grape leaf rust mite. Sulphur (Kumulus) applied for grape erineum mite will also help to control grape leaf rust mite. Apply in high volume sprays during bud swell to woolly bud stage.									
Yellow Jacket Wasps (p. 5.3-11)	Ripcord (cypermethrin)	3	S		2	150 mL	60 mL	24 h*	2-mechanical 7-hand	Do not use on table grapes. PHI is 7 days for hand harvest or 2 days for mechanical harvest.
Spotted Wing Drosophila (p. 5.3-12)	Imidan 70 WP (phosmet)	1B	M		3	2.2 kg	0.9 kg	14	14	Toxic to bees and most beneficial insects.
	Emergency labels for Malathion 85E and Mako Insecticide (formerly Ripcord 400EC) are posted at: http://www.gov.bc.ca/planthealth under <i>Pesticides in Agriculture</i> .									

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Table 2. FUNGICIDES

Read the *Best Practices Guide for Grapes* section on Diseases for additional information on disease management. See explanatory notes on page 8 of this document.

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Disease	Recommended Product Choices	Grp ¹	Oral Toxicity	Max. Applics/Season	Amount per		REI ²	PHI ³ (days)	Precautions and Notes
					Ha	Acre			
Powdery Mildew (p. 5-4)	Microthiol Disperss or Kumulus DF (sulphur 80%)	M	S		4.2 kg	1.7 kg	24 h	21-wine 14-table	Repeated applications may harm beneficial mites. Apply at 10-day intervals. May cause injury during hot weather (> 27 °C) and on sensitive varieties.
	PureSpray Green Spray Oil 13E (mineral oil)	NC	S		10 L	4 L	12 h	0-wine 14-table	Summer oil for suppression of powdery mildew. Apply on a 10-21 day interval. Do not apply within 14 days of a sulphur or captan spray.
	Quintec (quinoxifen)	13	S	3	300 ml	122 mL	12 h	14	Apply at 14 day intervals.
	Vivando (metrafenone 300g/L)	U8	S	3	750 ml	304 mL	12 h to 4 days	14	Apply at 14-21 day intervals; use shorter interval for high disease pressure. Do not apply more than 2 sequential sprays.
	Priwen 500EC (spiroxamine)	5	S	2-3	400-600 mL	162-243 mL	12 h to 24 days	35	Wine grapes only. Do not use on table grapes. Use on a preventative schedule at 14 day intervals.
	Nova (myclobutanil 40%)	3	S	2	200 g	81 g	12 h to 14 days	14	Apply at 21-day intervals. Limit group 3 fungicides to 2 sprays per season for resistance management.
	Inspire (difenoconazole)	3	S	2	292 mL	118 mL	2-10 days	7	Apply at 11-21 day intervals. Limit group 3 fungicides to 2 sprays per season for resistance management.
	Mettle (tetraconazole)	3	S	2	219 – 365 mL	89 -148 mL	12 h to 23 days	15	Apply at 14-21 day intervals. Limit group 3 fungicides to 2 sprays per season for resistance management.
	Fullback (flutriafol)	3	S	2	585 – 731 mL	237 – 296 mL	12 h to 15 days	14	Apply at 14-21 day intervals. Limit group 3 fungicides to 2 sprays per season for resistance management.
	Aprovia Top (difenoconazole + benzovindiflupyr)	3+7	S	6	643 mL	260 mL	12 h to 10 days	21	Apply at 11-21 day intervals beginning at budbreak. Use shorter interval under high disease pressure. Do not apply more than 2 sequential sprays.
	Sercadis fungicide (fluxapyroxad)	7	S	6	250 mL	101 mL	12 h	14	Apply beginning at bud break or prior to onset of disease on a 7 to 14 day interval.
	Cantus WDG (boscalid 70%)	7	S	3	315 g	128 g	12 h	14	Apply on a 10-14 day schedule. Use the shorter interval when disease pressure is high.
	Luna Tranquility (fluopyram + pyrimethanil)	7+9	S	3	600 mL	243 mL	12-24 h	7	Wine grapes only. Apply preventatively and continue as needed on a 7-14 day interval.
	Pristine WG (boscalid + pyraclostrobin)	7+11	S	3	420-735 g	170-300 g	dry to 21 days	14	See label for details on rates and spray intervals. Also suppresses botrytis. Do not use on table grapes.
	Flint (trifloxystrobin 50%)	11	S	2	105-140 g	43-57 g	12 h to 12 days	14	Apply preventively and continue as needed on a 14-21 day interval. Limit group 11 fungicides to 2 sprays per season for resistance management.
Sovran WG (kresoxim-methyl 50%)	11	S	2	240-300 g	100-122 g	48 h	14		

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Powdery Mildew (p. 5-4)	Milstop or Sirocco (potassium bicarbonate)	NC	S		2.8-5.6 kg	1.1-2.3 kg	4 h	0	Apply at 7-14 day intervals.
	Serenade MAX (<i>Bacillus subtilis</i>)	44	S		3.0 – 6.0 kg	1.2-2.4 kg	24 h*	0	Biofungicide. Disease suppression only. Do not tank mix with other products or fertilizers.
	Double Nickel (<i>Bacillus amyloliquefaciens</i>)	44	S		2.5 - 10 L	1 - 4 L	dry	0	Biofungicide. Disease suppression only. Apply at 3-10 day intervals. Use higher rate and closer timings under high disease pressure.
	Regalia Maxx (<i>Reynoutria sachalinensis</i>)	P	S		0.125 - 0.25 % solution (1.25-2.5 L/1000 L water)		dry	0	Apply preventatively or when disease symptoms first appear. Biofungicide. Disease suppression only.
	Actinovate SP (<i>Streptomyces lydicus</i>)	NC	S		425 - 840 g	172 - 340 g	dry	0	Biofungicide. Disease suppression only.
	Buran (garlic powder)	NC	S		18 L	7.3 L	dry	0	Diseases suppression only.
	Fracture (BLAD polypeptide)	NC	S	5	1.5 - 3.3 L	0.6 – 1.3 L	24 h*	0	Biofungicide. Diseases suppression. Use higher rate for high disease pressure. Apply at 7-10 day intervals.
	Timorex Gold (tea tree oil)	NC	S		1.5-2.0		4 h	2	Disease suppression only. Apply at 7-14 day intervals. Do not apply with sulphur or captan products.
	Lime Sulphur (sulphide sulphur 30%)	M	S	1	73 L / 1000 L of water		48 h	120	Apply 500L of spray mixture/ha during dormant stage in late fall or early spring prior to bud swell.
	Cueva (copper octanoate)	M	S		0.5% to 2% solution (0.5 - 2 L/100 L water) Apply at 470-940 L per hectare		4 h	1	Apply at the start of flowering and continue every 7 to 10 days. Do not mix with lime.
Good control of mildew from early shoot growth onward is critical. Key timings include: 5 to 10 cm growth; just before or immediately after bloom; at regular intervals, or according forecasting programs, until grapes begin to soften and red varieties begin development of colour and white varieties change from green to white or yellow. Use shorter application intervals and/or higher label rates under high disease pressure.									
Botrytis Bunch Rot (p. 5-10)	Rovral (iprodione 50%)	2	S	2	1.5 kg	600 g	12 h	7	Apply beginning at mid to late bloom. Protect fruit before complete bunch closure.
	Elevate (fenhexamid 50%)	17	S	3	1.12 kg	450 g	4 h	7	Do not apply more than 2 consecutive sprays
	Scala (pyrimethanil 400 g/L)	9	S	3	2.0 L	810 mL	12-24 h	7	Apply at 7 day intervals. Thorough coverage of bunches is essential.
	Vanguard (cyprodinil 75%)	9	S	2	750 g	300 g	48 h	7	Caution, drift may injure cherries. Thorough coverage of bunches is essential.
	Switch 62.5 WG (cyprodinil + fludioxonil)	9+12	S	2	775 - 975 g	314 - 395 g	12 h to 7 days	7	21 day application interval. Thorough coverage of bunches is essential.

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Botrytis Bunch Rot (p. 5-10)	Kenja 400 SC (isofetamid)	7	S	3	1.46 – 1.61 L	591 - 652 mL	12 h	14	Apply at critical timings on a 14 day interval. Thorough coverage of bunches is essential.
	Luna Tranquility (fluopyram + pyrimethanil)	7+9	S	2	1.2 L	485 mL	12-24 h	7	Wine grapes only. Thorough coverage of bunches is essential.
	Pristine WG (boscalid + pyraclostrobin)	7+11	S	3	420 - 735 g	170 - 300 g	dry to 21 days	14	Suppression only for botrytis. See label for details on rates and spray intervals. Do not use on table grapes.
	Serenade MAX (<i>Bacillus subtilis</i>)	44	S		3.0 – 6.0 kg	1.2-2.4 kg	24 h*	0	Biofungicide. Disease suppression only. Do not tank mix with other products. May also suppress sour rot.
	Double Nickel (<i>Bacillus amyloliquefaciens</i>)	44	S		3.0 - 25L	1.2 – 10 L	dry	0	Biofungicide. Disease suppression only. Apply at bloom, pre-bunch closure, veraison, and pre-harvest. Use higher rates under high disease pressure.
	Regalia Maxx (<i>Reynoutria sachalinensis</i>)	P	S		0.25 % solution (2.5 L/1000 L water)		dry	0	Biofungicide. Disease suppression only.
	Fracture (BLAD polypeptide)	NC	S	5	1.5-3.3 L	0.6 – 1.3 L	24 h*	0	Biofungicide. Apply prior to onset of disease when conditions favor Botrytis development during early bloom, bunch preclosure, veraison and ripening
	Botector (<i>Aureobasidium pullulans</i>)	NC	S	4	400 g	162 g	dry	0	Biofungicide. Suppression only. Apply to the bunch zone. Sensitive to some fungicides – see label.
Key timings for Botrytis fungicide applications: bloom, just before bunch closing, veraison, and pre-harvest. Botrytis control becomes more difficult as the fruit matures because heavy canopy growth and bunch closing make it difficult to place the fungicide where it is needed, and grapes become increasingly susceptible. Use shorter application intervals and/or higher label rates under high disease pressure.									
Sour Rot (p. 5-12)	Serenade MAX (<i>Bacillus subtilis</i>)	44	S		3.0 – 6.0 kg	1.2-2.4 kg	24 h*	0	Disease suppression only. Do not tank mix with other products or fertilizers.
	Reduce fruit damage by controlling mildew, bunch rot, and feeding injury from wasps and birds.								

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Table 3. HERBICIDES

Read the *Best Practices Guide for Grapes* sections on Weeds and Vineyard Floor Management for additional information on cover crops and instructions for using herbicide effectively. See explanatory notes on page 8 of this document. **READ THE PRODUCT LABEL BEFORE MIXING AND APPLYING ANY PESTICIDE.**

Herbicide	General Characteristics, Rates and Restrictions											Weeds Controlled (X = good-excellent control; x= poor control or top kill)				Comments
	Chemical Group ¹	Dermal Toxicity	Oral Toxicity	Applicator Certificate	Optimum pH	Maximum Amount or Applications/Season	Pre-Harvest Interval (days) ³	Re-entry Interval ²	Target Weed Growth Stage	Water Volume/ha	Application Rate(s)	Annual Broadleaf	Annual Grasses	Perennial Broadleaf	Perennial Grasses	
Aim EC (carfentrazone)	14	S	S	N		1	3	12 h	Growing plants (≤ 10cm)	Minimum 100 L/ha	37-117mL /ha (15-47 ml/acre)	X		X		Use a hooded sprayer
						2	30	12 h	Sucker management	200 L/ha	150 mL /ha (61 ml/acre)	X		X		Apply with an adjuvant. See label.
Alion (indaziflam)	29	S	S	N		1	14	12 h	Germinating seeds	Minimum 93 L/ha	375 mL/ha (152 mL/acre)	X	X			Use only in vineyards established 5 years or longer. See label for additional precautions.
Casoron G4 (dichlobenil)	20	S	S	N				24 h	Germinating seeds	Apply to moist soils	110-175 kg/ha (44-70 kg/acre)	X	X	X	X	Treat only dormant vines established for 2 or more years
Chateau WDG (flumioxazin)	14	S	S	N		2	60	12 h	Germinating seeds	Apply to moist soils	280-420 g/ha (113-170 g/acre)	X	X	x	x	For use in established vineyards. Rates vary by soil type; see label
Devrinol 50 DF (napropamide)	15	S	S	N	5.5-7	1		12 h	Germinating seeds	Apply to moist soils	9 kg/ha (3.6 kg/acre)	x	X			For use in established vineyards
Frontier (dimethenamid)	15	S	S	N		1	1-2 years	24 h	Germinating seeds, seedlings	Minimum 170 L/ha	1.4 L/ha (566 mL/acre)	X	X			For 1 st or 2 nd year non-bearing grapes
Gramoxone Ⓜ (paraquat)	22	M	M	Y	<7		7	24 h	Growing plants	1100 L/ha	5.5 L/ha (2.2 L/acre)	X	X	x	X	Apply in May to early June
Ignite SN (glufosinate ammonium)	10	S	S	N	5.5	6.7 L	40	12 h	Growing plants	330-1100 L/ha	2.7-5.0 L/ha (1.1-2.0 L/acre)	X	X	x	X	For use in established vineyards.
Karmex DF (diuron)	7	S	S	N				12 h	Germinating seeds, seedlings	250-400 L/ha	2.25-3.25 kg/ha (0.9-1.3 kg/acre)	X	X	x	X	For use in established vineyards. Rates vary by soil type; see label
Poast Ultra (sethoxydim)	1	S	S	N		1	30	12 h	Growing plants	50-200 L/ha	0.32 – 1.1 L/ha (130–445 mL/acre)		X		x	Adjust rate for banded application. Use with Merge adjuvant, see label.

Table 3. HERBICIDES

Read the *Best Practices Guide for Grapes* sections on Weeds and Vineyard Floor Management for additional information on cover crops and instructions for using herbicide effectively. See explanatory notes on page 8 of this document. **READ THE PRODUCT LABEL BEFORE MIXING AND APPLYING ANY PESTICIDE.**

Herbicide	General Characteristics, Rates and Restrictions											Weeds Controlled (X = good-excellent control; x= poor control or top kill)				Comments
	Chemical Group ¹	Dermal Toxicity	Oral Toxicity	Applicator Certificate	Optimum pH	Maximum Amount or Applications/Season	Pre-Harvest Interval (days) ³	Re-entry Interval ²	Target Weed Growth Stage	Water Volume/ha	Application Rate(s)	Annual Broadleaf	Annual Grasses	Perennial Broadleaf	Perennial Grasses	
Roundup, Credit, Crush'R-Plus, Glyphos, Vantage, Touchdown (glyphosate)	9	S	S	N	5-7.5	3	14	12 h	Growing plants	50 – 300 L/ha	See label	X	X	X	X	For use in established vineyards. Rates vary by product; see label
Venture L (fluazifop-P)	1	S	S	N		1	30	12 h	Growing plants	50-200 L/ha	2 L/ha (800 mL/acre)		X		X	For bearing and non-bearing grapes

Explanatory Notes / Legend:

- This publication is a companion document to the *Best Practices Guide for Grapes for British Columbia Growers*. Page number references point to more detailed information in the Best Practices Guide - <http://www.bcwgc.org/best-practices-guide>.
- **Products:** This list includes pesticide products considered compatible with B.C. Interior vineyard pest management programs. Limited field performance information is available on Malathion and Surround. Refer to insect and diseases descriptions in the *Best Practices Guide for Grapes* for other control options and best management practices.
- **Chemical Group:** Do not repeat the use of pesticides with the same Chemical Group number as this practice will select for resistant individuals or strains within a population.
- **Toxicity, oral:** S (slightly toxic), M (moderately toxic), V (very toxic) – see page 7-2 of the *Best Practices Guide for Grapes* for more information.
- **Re-entry Intervals (REI):** Do not enter or allow workers to enter the vineyard until the re-entry time has passed following a pesticide application. Note: REIs for grapes often vary widely by activity. See label for details where a range of re-entry times are shown. Typically the longest REI is required for girdling and cane turning. Tying/training, leaf pulling and hand harvesting usually also require relatively long REIs. An asterisk (*) indicates that no REI is shown on the label, but the WorkSafe BC re-entry interval may apply and is shown.
- **Pests/Diseases/Weeds Controlled:** list includes only pests, diseases and weeds against which a pesticide is registered and recommended for use in the B.C. Interior.
- **Maximum Applications/Season:** product labels often indicate the maximum number of times a product can be used per season. In some cases we have recommended fewer applications for resistance management purposes.
- **Notes on impacts to beneficial insects and mites:** Comments reflect current understanding of toxicity of products to common beneficial insects and mites found in vineyards in the B.C. Interior. Toxicity can vary among vineyards according to the history of pesticide use.

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