



Pest Control Products Recommended for Use on Grapes in British Columbia

Table 1. Herbicides recommended for control of weeds in vineyards, including general characteristics, application rates and effectiveness against perennial and annual broadleaved and grassy weeds. Read the *Grape Management Guide* section on Vegetation for additional information on cover crops and instructions for using herbicide effectively. **READ THE PRODUCT LABEL BEFORE MIXING AND APPLYING ANY PESTICIDE.**

Product	General Characteristics, Rates and Restrictions												Weeds Controlled (X = good –excellent control; x = poor control or top kill only)			
	Chemical Group	Dermal Toxicity	Oral Toxicity	Applicator Certificate	EIQ	Optimum pH	Maximum Amount or Applications/season	Pre-Harvest Interval (days)	Re-entry Interval	Target growth stage	Water volume/ha	Application rate(s)	Annual broadleaved	Annual grasses	Perennial broadleaved	Perennial grasses
Casoron 4G	20	S	S	N	20.8				24 h	Germinating seeds, Seedlings	Apply to moist soils	110-170 kg/ha	X	X	X	X
Devrinol 50WP	15	S	S	N	12.6		1		24 h	Germinating seeds	Apply to moist soils	8 kg/ha	x	X		
Frontier	15	S	S	N	14		1	1-2 years	24 h	Non-bearing only		1.4 L/ha	X	X		
Gramoxone	22	M	M	Y	31			7	48 h	Growing plants	200 - 500 L/ha	5.5 L/ha	X	X		X
Ignite	10	S	S	N	28.3	5.5	6.7 L	40	24 H	Growing plants	110 – 330 L/ha	3 - 5 L/ha	X	X	x	X
Roundup, Laredo, Victor, Wrangler, Touchdown	9	S	S	N	15.3	> 8	12 L	30	24 h	Growing plants	90 – 330 L/ha	2 – 12 L/ha depending on weeds present	X	X	X	X

Table 2. Fungicides recommended for control of grape bunch rot and powdery mildew, including general characteristics, application rates, and impact on beneficial arthropods. Read the *Grape Management Guide* section on Diseases for additional control information. **READ THE PRODUCT LABEL BEFORE MIXING AND APPLYING ANY PESTICIDE.**

Product	General Characteristics and Restrictions								Target Diseases (Product rate/ha)		Comments / Impact on Common Beneficial Insects and Mites
	Chemical Group	Dermal Toxicity	Oral Toxicity	Applicator Certificate	EIQ	Maximum Applications/season	Pre-Harvest Interval (days)	Re-entry Interval	Botrytis Bunch Rot	Powdery Mildew	
Bordeaux mixture (copper oxychloride 50%)	M	S	S	N	67.7			24 h		3 kg/1000 L	Fungicides listed in this table are generally harmless to beneficial insects and mites, unless indicated otherwise. Alternate your fungicides for resistance management!
Elevate (fenhexamid 50%)	17	S	S	N	11.7	3	7	24 h	1.12 kg/ha (450 g/acre)		Do not apply more than 2 consecutive sprays
Flint (trifloxystrobin 50% WG)	11	S	S	N	30.9	4	14	5 d		105-140 g/ha (43-57 g/acre)	Apply preventively and continue as needed on a 14-21 day interval. Do not apply more than 2 sequential sprays.
Kumulus DF (sulphur 80%)	M	S	S	N	45.5		1 table 21 wine	24 h		4.2 kg/ha (1.7 kg/acre)	Repeated applications can be harmful to beneficial mites. Apply at 10-day intervals. May cause injury during hot weather (> 27 C).
Lance WDG (boscalid 70%)	7	S	S	N	43.7	5	14	24 h		315 g/ha (128 g/acre)	Apply on a 10-14 day schedule. Use the shorter interval when disease pressure is high. May also provide suppression of botrytis bunch rot.
Lime Sulphur (sulphide sulphur 22%)	M	S	S	N		1	120	24 h		100 L lime sulphur in 1000 L of water.	Apply 500L of spray mixture/ ha during dormant stage prior to bud swell. Spray to point of runoff, cover completely.
Nova (myclobutanil 40%)	3	S	S	N	33.0	5	14	24 h		200 g/ha (81 g/acre)	Apply at 21-day intervals.
Rovral (iprodione 50%)	2	S	S	N	11.0	2	7	24 h	1.5 kg/ha (600 g/acre)		Apply beginning at mid to late bloom. Protect fruit before complete bunch closure.
Scala (pyrimethanil 400 g/L)	9	S	S	N	14.3	3	7	24 h	2.0 L/ha (810 mL/acre)		Apply at 7 day intervals. Thorough coverage of bunches is essential.
Sovran (kresoxim-methyl 50% WG)	11	S	S	N	11.7	4	14	48 h		240-300 g/ha (100-122 g/acre)	Apply at 14-21-day intervals. Do not apply more than 2 sequential sprays. Caution, drift may injure cherries.
Vanguard (cyprodinil 75%)	9	S	S	N	21.9	2	7	48 h	750 g/ha (300 g/acre)		Caution, drift may injure cherries.
Wettable sulphur (sulphur 92%)	M	S	S	N	45.5		1 table 21 wine	24 h		4.5-6.0 kg/ha 1.8-2.4 kg/acre	Use the higher rate when vines are in full leaf. Apply at 10-day intervals. Re-apply after rain. May harm to beneficial mites. May cause injury during hot weather (> 27 C).

Table 3. General characteristics, application rates, and impact on beneficial arthropods of **insecticides and miticides** recommended for control of grape pests. Read the *Grape Management Guide* section on Insects for additional control information on these and other pests. **READ THE PRODUCT LABEL BEFORE MIXING AND APPLYING ANY PESTICIDE.**

Product	General Characteristics and Restrictions									Pests Controlled (Product rate/ha)						Impact on Common Beneficial Insects and Mites	
	Chemical Group	Dermal Toxicity	Oral Toxicity	Applicator Certificate	EIQ	Optimum pH	Maximum Applications/season	Pre-Harvest Interval (days)	Re-entry Interval	Virginia Creeper Leafhopper	Western Grape Leafhopper	Spider Mites	European Red Mite	Grape Erineum Mite	Scale insects		Grape mealybug
Acramite 50 WS	25	S	S	N	14.8	-	1	14	12 h – 5 days			567 g	851 g				Beneficial arthropods include European earwig, ladybugs, lacewings, predatory bugs, leafhopper parasitoids, spiders, predatory mites, and predatory thrips. Tolerance of beneficials will vary according to the history of pesticide use.
Ambush 500EC	3	S	S	N	56.4	6	1	7	24 h		140 mL						Harmful to all beneficial arthropods.
Pounce	3	S	S	N	56.4	6	1	7	24 h		175 mL						
Assail	4	V	S	Y	-	-	2	7	24 h	80 g	80 g						Can suppress some beneficial insects. Harmful to bees.
Cymbush 250EC	3	S	S	N	27.3	6	3	7	24 h		240 mL						Harmful to all beneficial insects and mites.
Diazinon 50WP	1 B	S	M	N	34.2	7	1+	16	48 h	3.0 - 3.75 kg	3.0 - 3.75kg					3.0 - 3.8 kg	Will suppress beneficials except predatory mites.
Envidor 240 SC	23	S	S	N	-	-	1	14	12 h – 6 days			0.75 L	0.75 L				Toxic to predatory mites.
Guthion SC, Sniper 240E	1 B	V	V	Y	43.1	6	3	21-28	2-14 days	1.25 - 2.5 L	1.25 – 2.5 L						Harmful to beneficial insects. Will not be registered after December 31, 2007.
Kelthane AP-35	3	S	S	N	29.9	5	1	7	24 h			1.5-4.8 kg					Safe for all beneficials.
Kumulus DF	M	S	S	N	29.9	-	1+	21*	24 h					3.4 kg			Generally considered safe. *Preharvest interval on table grapes: 1 day
Malathion	1B	S	S	N	23.2	5	1+	3	24 h	1.8 L	1.8 L	1.8 L			1.8 L	1.8 L	Will suppress most beneficials except predatory mites.
Pyramite	21	S	S	N	25.8	-	1	25	24 h			300-600 g					Safe for beneficial insects; high rates harmful to predatory mites.
Sevin XLR	1A	S	M	Y	22.6	7	1+	5	48 h	320 mL–640 mL	5.3 L						Moderate to high impact on all beneficials.
Thionex 50 WP	2A	V	M	N	42.1	6	1+	30	24 h	1kg/1000L	1 kg/1000L						Will also control leaf form of phylloxera. Will suppress beneficial except predatory mites.
Zolone Flo	1B	S	M	Y	24.4	6	8	14	48 h	2.0L	2.0 L						Will suppress beneficials except predatory mites.

Legend:

Products: This list includes pesticide products considered compatible with BC Interior vineyard pest management programs. Limited field performance information is available on Malathion. Refer to insect and diseases descriptions 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: S (slightly toxic), M (moderately toxic), V (very toxic) – see page R-4 of the Grape Management Guide for more information.

Applicator certificate: N (no), Y (yes) according to WCB regulations.

EIQ: Environmental Impact Quotient is a value based on the effect of the pesticide on applicators, pickers, customers, groundwater, fish, birds, bees and beneficial insects and mites (Kovach et al, Cornell University, NY, 1992). The higher the value, the greater the impact of the pesticide on the environment. To determine the Field EIQ Rating for each product, multiply the EIQ value X % active ingredient X rate/ha (L or Kg) X number of applications. The total field EIQ rating for a given pest management program is the total of the EIQ ratings of the pesticides used.

Pests/Diseases/Weeds Controlled: list includes only pests, diseases and weeds against which a pesticide is registered and recommended for use in the BC Interior.

Impact on Common Beneficial Insects and Mites: Comments reflect current understanding of toxicity of products to common beneficial insects and mites found in vineyards in the BC Interior. Toxicity can vary among vineyards according to the history of pesticide use.

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