

# Organic Grape Disease Management Schedule for Nova Scotia 2009/2010



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## **Sources of Information on Pesticides**

Organic Agricultural Centre of Canada  
Web Site: <http://www.organicagcentre.ca/>

Information Service of the Pest Management Regulatory Agency  
Phone: 1-800-267-6315  
Web Site : <http://www.eddenet.pmra-arla.gc.ca/4.0/4.0.asp>

Pest Management Regulatory Agency –Electronic Labels: Search Tool  
Web Site: <http://www.pmra-arla.gc.ca/english/main/search-e.html>

National Pesticide Information Centre  
Web Site: <http://npic.orst.edu/>

Chemfinder WebsERVER  
Web Site: <http://chembiofinderbeta.cambridgesoft.com/>

Environment Assistance  
Pesticide and Chemical Spills  
Phone: 1-800-565-1633

## **Emergency and First-Aid Procedure for Pesticide Poisoning**

- Become familiar with the chemicals you are using. Keep a list of common names in case of accidents or emergencies. This information can be found on product labels cross-referenced in this publication.
- If a pesticide has come in contact with the skin or has been spilled on clothing, remove the clothing and wash the skin thoroughly with soap and warm water.
- If a person suspects poisoning from exposure to a pesticide by swallowing, inhalation or contact with skin or eyes, read the label on the pesticide container and carry out first-aid treatment as suggested.
- Immediately after first-aid treatment has been given, wrap the patient in a coat or blanket and rush him/her to the nearest hospital. Take the list of chemical common names with you and identify the one being used.
- If a person is unconscious or lapses into unconsciousness, call **911** immediately.
- Emergency advice on pesticide poisoning is available from the Poison Information Centre, Halifax, NS. Phone 1-800-565-8161 (NS & PEI).

## Toxicity Table

LD <sub>50</sub> (mg/kg)	Hazard Rating	Relative Toxicity Rating
Above 500	Very Low Hazard	1
101-500	Low Hazard	2
21-100	Moderate Hazard	3
11-20	Very High Hazard	4
10 and less	Extremely Hazardous	5

### Pesticide Formulation Abbreviations

DF	dry flowable	SN	solution
DP	dispersible powder	SP	soluble powder
DU	dust	SU	suspension
EC or E	emulsifiable concentrate	SURF	surfactant
F or FLO	flowable solution	W or WP	wettable powder
GR or G	granular	WSP	water soluble pouch
SC	spray concentrate	WDG or DG	water dispersible granules
EG	water dispersible granule		

### **Warning**

Please note that we make no warranty or guarantee of any kind, expressed or implied, concerning the use of products listed in this publication. The user assumes all risks, whether recommendations are followed or not. This publication is intended as a guide only.

For specific product information always refer to and follow directions on the label.



**TABLE 1 PESTICIDES LISTED IN THIS SCHEDULE**

This listing includes all the commercially registered fungicides that control grape diseases and listed by OMRI. \*Permitted substances for organic production but may have restrictions on their use. Check with your certifying body as to their permissible use.

Chemical Name	Trade name	Fungicide Group	Re-entry Time (hrs)	Days to Harvest	Disease Controlled
<i>Bacillus subtilis</i>	<b>Serenade</b>	11	Dry	0	Powdery mildew, botrytis bunch rot
copper oxychloride	<b>Copper Spray*</b>	M	-	1	Powdery and downy mildew
tri-basic copper sulphate	<b>Copper 53W*</b> <b>Basicop</b>	M	-	1	Powdery and downy mildew, Phomopsis cane and leaf spot
lime sulphur	<b>Lime Sulphur*</b>	M	-	120	Powdery mildew
potassium bicarbonate	<b>Milstop</b>	M	4	0	Powdery mildew
sulphur	<b>Kumulus</b> <b>Microscopic Sulphur</b>	M	-	21	Powdery mildew

# Organic Grape Management Schedule for Nova Scotia 2009/2010

A guide to disease management in vineyards

- Pesticide rates are given on a per hectare basis, based on label information and vine canopy development. Water volumes range from 1700 L/ha at First Leaf to 2800 L/ha at Berry Pea-Sized.
- All rates are based on label rates. Please refer to specific notes or your agricultural advisor for details.
- Always read the label before using any pesticide. Where differences between the label and this schedule occur, label information prevails.

Disease	Products	Formulation	Rate per ha	Notes
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## Dormant

<b>Powdery Mildew</b>	To control overwintering mildew infections.			
	▶ Lime Sulphur	22 F	50.00 L	Apply in 500 L of water per hectare. Apply once per season prior to bud swell (late March to mid April) to suppress overwintering population of cleistothecia (initial inoculum). Spray to point of runoff. May injure "sulphur shy" cultivars.

## First Leaf, 1.25-5.0 cm shoot length

Fungicide rates are based on a dilute water volume of 1700 L/ha

<b>Phomopsis cane and leaf spot</b>	Use one of the following listed fungicides.			
	▶ Kumulus	DF	7.14 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
	▶ Microscopic Sulphur		7.60 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord

## 3-5 Leaves Unfolded 10-15 cm shoot length

Fungicide rates are based on a dilute water volume of 1700 L/ha

<b>Phomopsis cane and leaf spot</b>	Use one of the following listed fungicides.			
	▶ Kumulus	DF	7.14 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
	▶ Microscopic Sulphur		7.60 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord

<b>Black Rot</b>	Only treat at this period if the disease was serious the previous growing season. Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.			
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	▶ Copper + Hydrated lime	53 W	3 kg/1000L + 6 kg/1000L	Bordeaux mixture. Cannot be used on vinifera and French hybrid cultivars
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<b>Powdery Mildew</b>	If mildew was a problem during the previous growing season select an appropriate fungicide listed below. Under extreme mildew pressure treatments can begin earlier.			
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	▶ Microscopic Sulphur		7.14 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
	▶ Kumulus	DF	7.60 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
	▶ Milstop	85 WP	2.80 -5.60 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha. Do not mix with products that are not compatible with a mildly alkaline solution.
	▶ Serenade Max		3.00-6.00 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha

Disease	Products	Formulation	Rate per ha	Notes
<b>Shoot Length, 20-25 cm</b>				
Fungicide rates are based on a dilute water volume of 1700 L/ha				
<b>Phomopsis cane and leaf spot</b>	Use one of the following listed fungicides.			
	▶ Kumulus	DF	7.14 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
	▶ Microscopic Sulphur		7.60 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
<b>Black Rot</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.			
	▶ Copper + Hydrated lime	53 W	3 kg/1000L + 6 kg/1000L	Bordeaux mixture. Cannot be used on vinifera and French hybrid cultivars
<b>Downy Mildew</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.			
	▶ Copper Spray + Hydrated lime		3 kg/1000 L + 6 hg/1000 L	Apply as a dilute spray with a water volume of 1500 L per hectare.
	▶ Copper + Hydrated lime	53 W	3 kg/1000L + 6 kg/1000L	Bordeaux mixture. Cannot be used on vinifera and French hybrid cultivars
<b>Powdery Mildew</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.			
	▶ Microscopic Sulphur		7.14 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
	▶ Kumulus	DF	7.60 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
	▶ Milstop	85 WP	2.80 -5.60 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha. Do not mix with products that are not compatible with a mildly alkaline solution.
	▶ Serenade Max		3.00-6.00 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha
<b>Immediate Prebloom (flower clusters with floret separation)</b>				
Fungicide rates are based on a dilute water volume of 1700 L/ha				
<b>Downy Mildew</b>	Fruit clusters are highly susceptible to downy mildew during the bloom to pea-sized berries stage of development. If bloom is delayed or if wet weather is expected repeat the application. Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.			
	▶ Copper Spray + Hydrated lime		3 kg/1000 L + 6 hg/1000 L	Apply as a dilute spray with a water volume of 1500 L per hectare.
	▶ Copper + Hydrated lime	53 W	3 kg/1000L + 6 kg/1000L	Bordeaux mixture. Cannot be used on vinifera and French hybrid cultivars

Disease and Insects	Products	Formulation	Rate per ha	Notes
<b>Powdery Mildew</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.			
▶	Microscopic Sulphur		7.14 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
▶	Kumulus	DF	7.60 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
▶	Milstop	85 WP	2.80 -5.60 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha. Do not mix with products that are not compatible with a mildly alkaline solution.
▶	Serenade Max		3.00-6.00 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha
<b>Black Rot</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.			
▶	Copper + Hydrated lime	53 W	3 kg/1000L + 6 kg/1000L	Bordeaux mixture. Cannot be used on vinifera and French hybrid cultivars
<b>End of Flowering to Early Fruit Set</b>				
Fungicide rates are based on a dilute water volume of 2200 L/ha				
<b>Downy Mildew</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.			
▶	Copper Spray + Hydrated lime		3 kg/1000 L + 6 hg/1000 L	Apply as a dilute spray with a water volume of 1500 L per hectare.
▶	Copper + Hydrated lime	53 W	3 kg/1000L + 6 kg/1000L	Bordeaux mixture. Cannot be used on vinifera and French hybrid cultivars
<b>Powdery Mildew</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table for 2 options.			
▶	Microscopic Sulphur		10.56 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
▶	Kumulus	DF	9.24 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
▶	Milstop	85 WP	2.80 -5.60 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha. Do not mix with products that are not compatible with a mildly alkaline solution.
▶	Serenade Max		3.00-6.00 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha
<b>Black Rot</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.			
▶	Copper + Hydrated lime	53 W	3 kg/1000L + 6 kg/1000L	Bordeaux mixture. Cannot be used on vinifera and French hybrid cultivars

## Berries Pea-Sized

Fungicide rates are based on a dilute water volume of 2800 L/ha

<b>Powdery Mildew</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.		
▶ Microscopic Sulphur		21.4 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
▶ Kumulus	DF	12.6 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
▶ Milstop	85 WP	2.80 -5.60 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha. Do not mix with products that are not compatible with a mildly alkaline solution.
▶ Serenade Max		3.00-6.00 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha

## Berry Touch to Cluster Closure

Fungicide rates are based on a dilute water volume of 2800 L/ha

<b>Powdery Mildew</b>	Fungicides may control more than one disease; select one that best fits the control program. Refer to Table 2 for options.		
▶ Microscopic Sulphur		21.4 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
▶ Kumulus	DF	7.10 kg	OMRI Restricted. Do not use on Foch, de Chaunac, Concord
▶ Milstop	85 WP	2.80 -5.60 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha. Do not mix with products that are not compatible with a mildly alkaline solution.
▶ Serenade Max		3.00-6.00 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha
<b>Botrytis Bunch Rot</b>	Direct spray to the fruiting zone of the grape canopy, use at least 1000 L of water to provide good coverage. Susceptible cultivars, vinifera and vinifera hybrids may require more than 1 application during the bunch closing period.		
▶ Serenade Max		3.00-6.00 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha

## Beginning of Ripening (veraison period)

Fungicide rates are based on a dilute water volume of 2800 L/ha

<b>Botrytis Bunch Rot</b>	Direct spray to the fruiting zone of the grape canopy, use at least 1000 L of water to provide good coverage. Susceptible cultivars, vinifera and vinifera hybrids may require more than 1 application during the bunch closing period. If late summer and fall weather conditions are wet and humid, additional fungicide applications may be required to control botrytis during this period. This is especially important for vineyards with cultivars that are designated for late harvest or ice wine.		
▶ Serenade Max		3.00-6.00 kg	Use the high rate and short spray intervals when conditions favor disease development. Complete coverage is required, use a minimum water volume of 500 L/ha

## Postharvest

<b>Hardening-off Vines</b>	Postharvest applications of copper can assist in the maturing of new wood which may help increase the winter hardiness of canes. Two or more applications of copper may be necessary in young plantings or plantings with high vigor. Use a sufficient volume of water to obtain complete coverage of the vine. Some premature defoliation may be observed, but should not affect vine vigor.		
▶ Copper + Lime	53 WP	3.00 kg/1000 L	Add 6 kg of hydrated lime per 1000 L of water with the copper product.
Basicop + Lime	53 WP	L	
Copper Spray + Lime	50 WP	+ 6 kg/ 1000 L	
Guardsman	50 WP	L	
Copper + Lime			

