

2020



EXTENSION AND ADVISORY TEAM

# GUIDE TO PEST MANAGEMENT IN MUSKMELON (CANTALOUPE AND HONEYDEW) AND WATERMELON

Nova Scotia Vegetable Crop Guide to Pest Management 2020  
[MEL1-20]



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							applications per season.
	4A	Clothianidin	<b>Clutch 50WDG</b>  <b>or</b>  <b>Clothianidin</b>	140 g/ha	12 hours	7	<b>Suppression only.</b> Apply when target pest(s) threshold populations are observed. Do not wait until population beyond threshold has been established. Monitor pest populations and make repeat applications at a minimum interval of 7 days if necessary. Max 2 applications/season.
<b>Aphids</b>	1B	malathion	<b>Malathion 85 E</b>	1100-1345 ml/ha	24 hours	3	Do not apply to cucurbits unless plants are dry.
	29	Flonicamid	<b>Beleaf 50SG</b>	0.12-0.16 kg/ha	12 hours	0 days	Thorough spray coverage of plant foliage is essential. Minimum of 94 L water/ha. Max 3 applications per season; allow 7 days between applications. <b>Avoid overnight storage of spray mixtures; do not use liquid fertilizer as a carrier and do not use adjuvants.</b>
	28	Cyantraniliprole	<b>Exirel</b>	500-1500 ml/ha	12 hours	1	Begin applications when treatment thresholds are reached. Thorough coverage is important to obtain optimum control. For optimum control, apply Hasten NT Spray Adjuvant* at an application rate of 0.25% v/v or MSO Concentrate with Leci-Tech* at an application rate of 0.5% v/v. Make no more than 4 applications per season.
<b>Aphids and Whiteflies</b>	23	spirotetramat	<b>Movento 240 SC</b>	220-365 ml/ha	12 hours	1	Minimum interval between applications is 7 days. Max 730 ml/ha of product applied per season. Movento is <b>TOXIC to bees</b> through direct contamination of pollen and nectar. <b>DO NOT apply</b> during crop

							flowering period or when flowering weeds are present.
			<b>Movento 150 OD</b>	347-585 ml/ha	12 hours	1	Minimum interval between applications is 7 days. Max 1.17 L/ha of product applied per season. Movento is <b>TOXIC to bees</b> through direct contamination of pollen and nectar. <b>DO NOT</b> apply during crop flowering period or when flowering weeds are present.
	9D	Afidopyropen	<b>Versys</b>	0.1 L/ha (aphids) 0.35-0.5 L/ha (whiteflies)	12 hours	0	<u>Melon aphid (<i>Aphis gossypii</i>)</u> , <u>green peach aphid (<i>Myzus persicae</i>)</u> , <u>sweet potato whitefly (<i>Bemisia tabaci</i>)</u> , <u>silverleaf whitefly (<i>Bemisia argentifolii</i>)</u> . Allow a minimum of 7 days between applications. Monitor population and reapply if necessary once thresholds are reached. Application during the crop blooming period may be made only in the evening when most bees are not foraging. Max 4 applications per year.
	4D	Flupyradifurone	<b>Sivanto Prime</b>	500-750 (aphids) 750-1000 (whiteflies)	12 hours	1	Certain varieties of Muskmelon have been shown to be sensitive to foliar application of Sivanto Prime potentially resulting in significant leaf necrosis. <b>Do not make foliar applications of Sivanto Prime on muskmelon.</b>
	NC	Potassium salts of fatty acids	<b>Kopa Insecticidal Soap</b>	8L in 400L water. Apply solution at 700-1900 L/ha	-	0	Do not spray when plants are under stress. Avoid spraying during full sun. Spray early in the morning or evening, or when overcast.
<b>Cutworms</b>	1A	carbaryl	<b>Sevin XLR</b>	2.5 L/ha	12 hours	5	Do not apply when field is in bloom



					(2 days hand-line irrigation)		or adjacent fields are in bloom. Climbing cutworms only.
	3A, 28	Lambda-cyhalothrin, chlorantraniliprole	<b>Voliam Xpress</b>	500 mL/ha	24 hours	1	Black cutworm. Apply to foliage when rain is not expected in the next 24 hours. For optimal control, make application to smaller plants or when lower portion of the plant can receive adequate spray coverage.
	6, 28	Abamectin, cyantraniliprole	<b>Minecto Pro</b>	385-556 mL/ha	12 hours	7	For early season cutworm control, apply to foliage when rain is not expected in the next 24 hours. For optimal control, apply to smaller plants or when lower portions of plant can receive adequate coverage.
	28	Cyantraniliprole	<b>Exirel</b>	500-750 ml/ha	12 hours	1	Begin applications when treatment thresholds are reached. Thorough coverage is important to obtain optimum control. For early season cutworm control, apply to foliage when rain is not expected in the next 24 hours. For optimal control, apply to smaller plants or when lower portions of plant can receive adequate coverage. Make no more than 4 applications per season.
<b>Mites</b>	23	spiromesifen	<b>Oberon</b>	500-600 ml/ha	12 hours	1	Maximum 3 applications per season. Minimum application volume of 100 L/ha. <b>Also controls whiteflies (including silverleaf, sweetpotato and greenhouse).</b> See label for buffer zone restrictions.
	1B	malathion	<b>Malathion 85 E</b>	1100-1345 ml/ha	12 hours	3	Do not apply to cucurbits unless plants are dry.
	25	Bifenzate	<b>Acramite 50WS</b>	851 g/ha (15 pouches/4	12 hours	3	Use for Two Spotted Spider Mite. Minimum 500 L/ha water to ensure

				ha)			thorough leaf coverage. Do not allow to become wet prior to use.
	6, 28	Abamectin, cyantraniliprole	<b>Minecto Pro</b>	385-670 mL/ha	12 hours	7	Apply when mites are first observed and repeat application, as needed, to maintain control within constraints of a sound resistance management program. Thorough coverage is important to obtain optimum control.
	NC	mineral oil	<b>Purespray Green Spray Oil 13E</b>	10 L in 1000 L water (1% solution) otherwise phytotoxicity may result.	12 hours	-	Use sufficient spray volume (up to 1000 L/ha) to ensure thorough crop coverage. Spider mites: begin when mites appear. Apply at 7 – 14 day intervals. Do not apply more than 8 summer spray applications per growing season.
<b>Brown Marmorated Stink Bug</b>	4A	Clothianidin	<b>Clutch 50WDG</b>	210 g/ha	12 hours	7	<b>Suppression only.</b> Apply when target pest threshold populations are observed. Do not wait until population beyond threshold has been established. Monitor pest populations and make repeat applications at a minimum interval of 7 days if necessary. Max 2 applications/season. <i>This product is toxic to bees exposed to direct treatment or residues on blooming crops. Do not apply during bloom or when bees are present.</i>
			<b>Clothianidin</b>				
<b>Cabbage looper</b>	18	Methoxyfenozide	<b>Intrepid 240F</b>	0.3 – 0.6 L/ha	12 hours	3	Apply at the first sign of feeding damage or when infestations reach threshold levels as determined by insect monitoring. After 7-14 days, repeat application if required based on monitoring. Use the higher rate for heavy infestations or advanced

							growth stages of the target pest.
	28	Cyantraniliprole	<b>Exirel</b>	250-500 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Maximum 4 applications/season.
<b>Armyworm</b>	28	Cyantraniliprole	<b>Exirel</b>	500 ml/ha	12 hours	1	Begin applications when treatment thresholds have been reached. Thorough coverage is important to obtain optimum control. Do not make more than 4 applications per season.
<b>Fall armyworm</b>				750 ml/ha			
<b>Corn earworm</b>				750-1000 ml/ha			
<b>Dipteran leafminers (larvae)</b>							

Pest	Group	Active Ingredient	Pesticide Product Name	Rate	Restricted Entry Interval (REI)	Pre-harvest Interval (days)	Remarks
<b>DISEASES:</b>							
<b>Alternaria Leaf spot</b>	M3	mancozeb	<b>Dithane DG Rainshield</b>	1.1-3.25 kg/ha	-	14	Start applications when runners begin to form or at first sign of disease, repeat on weekly intervals.
			<b>Manzate Pro-Stick</b>	1.1-3.25 kg/ha	24 hours	14	
	11	pyraclostrobin	<b>Cabrio EG</b>	560-840 g/ha	3 days for hand work	3	Max 4 applications/yr. Do not make more than 1 application before rotating to a different fungicide group.
	7	boscalid	<b>Cantus WDG</b>	460 g/ha	12 hours	0	Max 4 applications/yr. Make only 2 applications before rotating to a different fungicide group.
	29	Fluazinam	<b>Allegro 500F</b>	1.75 L of product/ha	24 hours	30	<b>Cantaloupe:</b> Apply as a broadcast spray on a preventative basis when runners/vines start to form or earlier at first signs of the disease. Spray volume: 280-470 L water/ha. 7 day interval. Max 6 applications per year. No more than 3 sequential applications before alternating to a different fungicide group.
	M1	Copper	<b>Cueva</b>	0.5% to 2% solution, applied at 470-940 L/ha.	4 hours	1	Re-apply using 5-10 day intervals.
	7	Benzovindiflupyr	<b>Aprovia</b>	500-750 ml/ha	12 hours	1	Begin applications prior to disease development and continue throughout the season on a 7 day interval. If disease

							pressure is high, use the highest rate. For best results, sufficient water volume must be used to provide thorough coverage. Apply as a broadcast foliar spray in a minimum of 150 L/ha of water for thorough coverage.
	7-3	Benzovindiflupyr & Difenoconazole	<b>Aprovia Top</b>	761-967 ml/ha			
	7, 3	Pydiflumetofen, difenoconazole	<b>Miravis Duo</b>	1 L/ha	12 hours	0	Apply on a 14 day interval, starting prior to disease establishment. Apply as a broadcast spray in sufficient water (minimum of 150 L/ha) for thorough coverage.
<b>Anthracnose and Downy Mildew</b>	M3	mancozeb	<b>Dithane DG Rainshield</b>	1.1-3.25 kg/ha	-	14	Start applications when runners begin to form or at first sign of disease, repeat on weekly intervals.
			<b>Manzate Pro-Stick</b>	1.1-3.25 kg/ha	24 hours	14	
	M5	chlorothalonil	<b>Bravo ZN</b>	3.2 L/ha Watermelon 4.8 L/ha Cantaloupe, Muskmelon, Honeydew	12 hours	2	<b>Anthracnose.</b> Begin applications when plants are in the first true leaf stage or when conditions are favourable for disease development. Repeat application 7 days later.
			<b>Echo 90DF</b>	2.7 kg/ha Cantaloupe, Muskmelon, Honeydew melon 1.8-2.7 kg/ha Watermelon	12 hours	1	<b>Anthracnose.</b> Also controls Scab. Not for Downy mildew. Begin applications when plants are in first true leaf stage or when conditions are favorable for disease development. Repeat applications at 7-day intervals. Under severe conditions, shorten the spray interval. DO NOT make more than 2 applications per season.
			<b>Echo 720</b>	3.3 L/ha Cantaloupe, Muskmelon, Honeydew			

				melon 2.2 L/ha watermelon			
	11	pyraclostrobin	<b>Cabrio EG</b>	560-840 g/ha	3 days for hand work	3	Max 4 applications/yr. Make only 1 application before rotating to a different fungicide group.
	M	copper sulfate	<b>Copper 53W</b>	2.5-3 kg/ha	48 hours	2	Apply in 1000 L of water/ ha
	M1	Copper	<b>Cueva</b>	0.5% to 2% solution, applied at 470-940 L/ha.	4 hours	1	Re-apply using 5-10 day intervals.
	7	Benzovindiflupyr	<b>Aprovia</b>	750 ml/ha	12 hours	1	<b>Anthracnose.</b> Begin applications prior to disease development and continue throughout the season on a 7 day interval. For best results, sufficient water volume must be used to provide thorough coverage. Apply as a broadcast foliar spray in a minimum of 150 L/ha of water for thorough coverage.
	7-3	Benzovindiflupyr & Difenoconazole	<b>Aprovia Top</b>	967 ml/ha			
	19	Polyoxin D Zinc Salt	<b>Diplomat 5SC</b>	463-926 ml/ha	When dry	0	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 (Anthracnose) or 5-8 day interval (Downy Mildew) as needed to maintain control.
<b>Downy Mildew</b>	21	cyazofamid	<b>Torrent 400SC</b>  and	0.15-0.2 L/ha  0.15 L/ha	12 hours	1	Max 6 applications/crop per year. Do not make sequential applications of Cyazofamid or products within the same group. Apply in 200 – 600 L water/ha. Apply on a 7-10 day schedule beginning

			<b>Sylgard 309 (organosilicone surfactant)</b>				at initial flowering or when disease conditions are favorable but prior to an outbreak. A plant back interval of 30 days is required.
	11	fenamidone	<b>Reason 500 SC</b>	400 ml/ha	When dry	14	Begin application as soon as crop and/or environmental conditions are favorable for disease development. Apply in 300-600 L/ha on a 5-10 day interval. Maximum 4 applications per year. Plant back interval of 30 days. Do not apply more than 1 application of Reason 500 SC or any other Group 11 fungicide before alternating with a fungicide from a different Group.
	29	Fluazinam	<b>Allegro 500F</b>	1.75 L of product/ha	24 hours	30	<b>Cantaloupe:</b> Apply as a broadcast spray on a preventative basis when runners/vines start to form or earlier at first signs of the disease. Spray volume: 280-470 L water/ha. 7 day interval. Max 6 applications per year. Max. 3 sequential applications before alternating to another fungicide belonging to a different chemical family.
	49, 40	Oxathiapiprolin, madipropamid	<b>Orondis Ultra</b>	400-600 mL/ha	12 hours	0	Begin applications prior to disease development and continue on a 7 to 10 day interval. Use the higher rate and shorter interval when disease pressure is high. Make one application and then switch to fungicides outside of groups 40 and 49. Max. 4 applications.
	U15	Oxathiapiprolin	<b>Zorvec Enicade</b>	0.0875-0.35 L/ha	12 hours	0	Begin applications prior to disease development and continue on a 5 to 14 day interval. Use higher rate and shorter

							interval when disease pressure is high or for susceptible varieties.
	44	<i>Bacillus subtilis</i>	<b>Serenade Opti</b>	0.6-1.7 Kg/ha	-	0	<b>Biopesticide that will only suppress the indicated diseases.</b> Begin application soon after emergence or transplant, when conditions are conducive to disease development. Repeat as necessary on 7-10 day intervals. During periods of rapid disease development, use in a rotational program with other registered fungicides.
	43	fluopicolide	<b>Presidio</b>	292 ml/ha	12 hours	2	Apply in 200-1000 L/ha. For resistance management, Presidio must be tank-mixed with a labeled rate of another fungicide registered for the target pathogen, but with a different mode of action. Apply in a tank mix with Bravo 500. Follow the most restrictive use directions of either label. Make foliar applications on a 7-10 day schedule beginning with initial flowering, or when disease conditions are favourable, but prior to disease development. Use lower rate and longer interval as preventive applications. Use the higher rate and shorter interval if disease is present.
	40	Dimethomorph	<b>Acrobat 50 WP</b>	450 g/ha	2 days (hands on), 12 hours (other activities)	2	<b>Suppression only. Must be applied as a tank mix with another fungicide against downy mildew.</b> Begin prior to disease infection and continue on a 5-10 day schedule. Do not exceed 5 applications/year. So not make more than 2 sequential applications.



	33	Mono and dibasic sodium and potassium and ammonium phosphites	<b>Phostrol</b>	2.9-5.8 L/ha	12 hours	1	<b>Suppression only.</b> Begin foliar applications when conditions favouring disease development exist and continue on a 7-14 day interval. May be tank mixed with Bravo 500, Bravo 720 or Bravo Ultrex. Read and follow the use directions on the individual product labels. Max 7 applications per season.
	40,45	Ametoctradin, dimethomorph	<b>Zampro</b>	0.8-1.0 L/ha	Hand harvesting – 1 day All other activities – 12 hours	1	To reduce the risk of development of resistance Zampro must be used in rotation with other fungicides having a different mode of action active against downy mildew. Begin applications prior to disease development; continue on a 5-7-day interval. Max 3 applications.
<b>Powdery Mildew</b>	NC	potassium bicarbonate	<b>MilStop</b>	2.8-5.6 kg/ha	4 hours	0	<b>Suppression only.</b> Max 10 applications per year. Apply at 7-14 day intervals in 500-1000 L/ha spray solution. Start application at first sign of disease.
	11	pyraclostrobin	<b>Cabrio EG</b>	560-840 g/ha	12 hours 3 days (hand harvesting)	3	Max 4 applications/yr. Make only 1 application before rotating to a different fungicide group.
	44	<i>Bacillus subtilis</i>	<b>Serenade Opti</b>	1.7-3.3 Kg/ha	-	0	<b>Biopesticide that will only suppress the indicated diseases.</b> Begin applications soon after emergence or transplant, when conditions are conducive for disease development. Repeat on a 7-10 day interval.
	44	<i>Bacillus amyloliquefaciens</i> strain D747	<b>Double Nickel LC (1x10<sup>10</sup> spores/ml)</b>	5-12.5 L/ha Low disease pressure: 2.5-5 L/ha	When dry	0	Growth stage: Fruit formation to end of maturity of cucurbits. Repeat application every 3 to 10 days for as long as conditions favor disease development.

			<b>Double Nickel 55</b> (5x10 <sup>10</sup> spores/g)	Foliar application: 1-2.5 kg/ha  Low disease pressure: 0.5-1 kg/ha			
	M5	chlorothalonil	<b>Bravo ZN</b>	4.8 L/ha	12 hours	2	Cantaloupe, Muskmelon, Honeydew: Begin applications at first true leaf stage and repeat on 7 day intervals. Shorten the spray interval under severe disease pressure. Maximum of 2 applications per season.
			<b>Echo 90DF</b>	2.7 kg/ha	12 hours	1	Begin applications when plants are in first true leaf stage or when conditions are favorable for disease development. Repeat applications at 7-day intervals. Under severe conditions, shorten the spray interval. DO NOT make more than 2 applications per season.
			<b>Echo 720</b>	3.3 L/ha			
	13	quinoxyfen	<b>Quintec</b>	300-440 ml/ha	12 hours	3	Maximum of 4 applications per year. Repeat applications on 10-14 day intervals. Apply before visual symptoms of Powdery Mildew appear. Quintec has no curative properties and will not control established infections. <b>Product is toxic to bees exposed to direct treatment, drift, or residues on crops or weeds.</b>
	7	penthiopyrad	<b>Fontelis</b>	1.25L/ha	12 hours	1	<b>Begin applications prior to disease development, continue on a 7-14 day interval.</b> Use higher rate and shorter interval when disease pressure is high.

							Maximum seasonal rate is 4.9 L/ha. Make only 2 sequential applications before switching to a product with another mode of action.
	7, 11	Fluopyram, trifloxystrobin	<b>Luna Sensation</b>	300-400 mL/ha	12 hours	0	Begin fungicide applications preventatively, when conditions are favourable for disease. Continue as needed on a 7- to 14-day interval. When disease pressure is severe use the higher rates. Do not make more than 2 applications before rotating to a fungicide with a different mode of action.
	-	<i>Streptomyces lydicus</i>	<b>Actinovate SP</b>	420 g/ 470-800 L water	1 hour	-	Spray to wet but avoid run-off. Apply as a foliar spray to leaves and blossoms. Make first application at transplant & repeat every 7-14 days.
	P5	<i>Reynoutria sachalinensis</i>	<b>Regalia Maxx</b>	<b>Outdoor Grown:</b> 0.125 - 0.25% v/v in 500 - 1000 L water/ha <b>Greenhouse Grown:</b> 0.125 - 0.25% v/v (1.25 - 2.50 ml/L or 500 - 1000 ml per 400 L water)	When dry	0	<b>Suppression only.</b> Apply preventatively or when disease symptoms first appear. Repeat at 7-10 day intervals. When environmental conditions and plant stage are conducive to rapid disease development, use in a rotational program with other registered fungicides.
	3	myclobutanil	<b>Nova 40W</b>	<b>175 g/ha</b>	12 hours	3	Apply at the first sign of disease development and again 10-14 days later. Apply in a minimum of 250 L water/ha.

						Maximum of 2 applications per year.	
	NC	mineral oil	<b>Purespray Green Spray Oil 13E</b>	10 L in 1000 L water (1% solution) otherwise phytotoxicity may result.	12 hours	-	<b>Suppression only.</b> Use sufficient spray volume (up to 1000 L/ha) to ensure thorough crop coverage. Begin when conditions are favourable for disease development or when first symptoms appear. Apply at 7 – 14 day intervals. Do not apply more than 8 summer spray applications per growing season.
	50	Metrafenone	<b>Vivando SC</b>	0.75-1.12 L/ha	12 hours	0	Begin applications prior to onset of disease. Apply at 7–14 day intervals. Use shorter interval if conditions are conducive to high disease pressure. Under conditions of very rapid growth, use the shorter interval to ensure new growth is adequately protected. Do not apply more than 2 sequential applications before alternating to a fungicide with a different mode of action. Max 3 applications/season.
	50	Pyriofenone	<b>Property 300SC</b>	0.3-0.366	12 hours	0	Initiate applications prior to disease development and continue on a 7 to 10 day interval beginning with initial flowering or when disease conditions are favorable for disease development.
	M1	Copper	<b>Cueva</b>	0.5% to 2% solution, applied at 470-940 L/ha.	4 hours	1	Re-apply using 5-10 day intervals.
	7	Benzovindiflupyr	<b>Aprovia</b>	500-750 ml/ha	12 hours	1	Begin applications prior to disease development and continue throughout the season on a 7 day interval. If disease

							pressure is high, use the highest rate. For best results, sufficient water volume must be used to provide thorough coverage. Apply as a broadcast foliar spray in a minimum of 150 L/ha of water for thorough coverage.
	7-3	Benzovindiflupyr & Difenconazole	<b>Aprovia Top</b>	761-967 ml/ha	12 hours	1	Begin applications prior to disease development and continue throughout the season on a 7 day interval. If disease pressure is high, use the highest rate. For best results, sufficient water volume must be used to provide thorough coverage. Apply as a broadcast foliar spray in a minimum of 150 L/ha of water for thorough coverage.
	7, 3	Pydiflumetofen, difenoconazole	<b>Miravis Duo</b>	1 L/ha	12 hours	0	Apply as a broadcast spray in sufficient water (minimum of 150 L/ha) for thorough coverage prior to disease development. Max. 2L/ha/season.
	19	Polyoxin D Zinc Salt	<b>Diplomat 5SC</b>	463-926 ml/ha	When dry	0	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 7-14 day interval as needed to maintain control.
<b>Scab</b>	M3	mancozeb	<b>Dithane DG Rainshield</b>	1.1-3.25 kg/ha	24 hours	14	Start applications when runners begin to form or at first sign of disease, repeat on weekly intervals.
			<b>Manzate Pro-Stick</b>	1.1-3.25 kg/ha			
	M	copper sulfate	<b>Copper 53W</b>	2.5-3 kg/ha	48 hours	2	
<b>Gummy Stem Blight</b>	3	Prothioconazole	<b>Proline 480SC</b>	420 mL/ha	24 hours	7	Apply up to one soil application and four (4) foliar applications per year. Repeat

							foliar applications as needed using a 5- to 10-day spray interval if conditions remain favorable for continued or increasing disease development.
	11	pyraclostrobin	<b>Cabrio EG</b>	560-840 g/ha	12 hours 3 days (hand harvesting)	3	Max 4 applications/yr. Do not make more than 1 application before rotating to a different fungicide group.
	7	boscalid	<b>Cantus WDG</b>	460 g/ha	12 hours	0	Max 4 applications/yr. Do not make more than 2 applications before rotating to a different fungicide group.
	M3	mancozeb	<b>Dithane DG</b> <b>Rainshield</b> <b>Manzate Pro-Stick</b>	1.1-3.25 kg/ha	24 hours	14	Start applications when runners begin to form or at first sign of disease, repeat on weekly intervals.
	29	Fluazinam	<b>Allegro 500F</b>	1.75 L of product/ha	24 hours	30	<b>Cantaloupe only:</b> Apply as a broadcast spray on a preventative basis when runners/vines start to form or earlier at first signs of the disease. Spray volume: 280-470 L water/ha. 7 day interval. Max of 6 applications per year. Make no more than 3 sequential applications before alternating to another fungicide belonging to a different chemical family.
	7	Benzovindiflupyr	<b>Aprovia</b>	750 ml/ha	12 hours	1	Begin applications prior to disease development and continue throughout the season on a 7 day interval. For best results, sufficient water volume must be used to provide thorough coverage. Apply as a broadcast foliar spray in a minimum of 150 L/ha of water for thorough coverage. To control Gummy stem blight use 190 L/ha of water.
	7-3	Benzovindiflupyr	<b>Aprovia Top</b>	967 ml/ha	12 hours	1	Begin applications prior to disease

		& Difenoconazole					development and continue throughout the season on a 7 day interval. For best results, sufficient water volume must be used to provide thorough coverage. Apply as a broadcast foliar spray in a minimum of 150 L/ha of water for thorough coverage. To control Gummy stem blight use 190 L/ha of water.
	7, 3	Pydiflumetofen, difenoconazole	<b>Miravis Duo</b>	1 L/ha	12 hours	0	Apply as a broadcast spray in sufficient water (minimum of 150 L/ha) for thorough coverage prior to disease development. Max. 2L/ha/season.
	7, 11	Boscalid, pyraclostrobin	<b>Pristine WG</b>	1.3 kg/ha	3 days (hand work) 12 hours (general)	0 (mechanical harvest) 3 (hand harvest)	Do not make sequential applications of PRISTINE WG Fungicide or other Group 11 fungicides. Begin applications prior to disease development and continue on a 7 to 14-day schedule.
	19	Polyoxin D Zinc Salt	<b>Diplomat 5SC</b>	463-926 ml/ha	When dry.	0	<b>Suppression.</b> Apply as a foliar spray in sufficient water for thorough coverage of foliage and fruit. Begin as a preventative application when conditions favour disease development, continue on a 7-14 day interval as needed for control.
<b>Phytophthora Blight/ Crown Rot</b>	43	fluopicolide	<b>Presidio</b>	220-292 ml/ha	12 hours	2	Apply as a soil or foliar application on a 7 to 10-day schedule beginning when conditions are favourable for disease development and prior to disease onset. Application should begin at planting or transplanting for best results. Max 2 applications per season.
	40,45	Ametoctradin,	<b>Zampro</b>	1.0 L/ha	Hand	1	Use in rotation with fungicides with a

		dimethomorph			harvesting – 1 day All other activities – 12 hours		different mode of action active against downy mildew to prevent resistance development. Begin applications prior to disease development; continue on a 5-7-day interval. Max 3 applications.
	49/U15	Oxathiapiprolin	<b>Orondis</b>	Foliar phase: 0.175-0.35 L/ha Soil phase: 0.7-2.8 L/ha	12 hours	0	<b>Foliar phase:</b> Begin applications prior to disease development and continue on a 5 to 14 day interval. Use higher rate and shorter interval when disease pressure is high. <b>Soil phase:</b> Apply at plant, in furrow, drip or in transplant water. See soil application directions on label. Make no more than 2 sequential applications of ORONDIS Fungicide before switching to a fungicide with a different mode of action. Do not use ORONDIS Fungicide for more than 33% of the total foliar fungicide applications. Maximum seasonal use rate for foliar use is 1.40 L/ha.
			<b>Zorvec Enicade</b>				
			<b>Zorvec Epicatrin</b>	0.35-1.4 L/ha	12 hours	0	<b>Soil phase:</b> Apply at plant, in furrow, drip or in transplant water. Use the higher rates for heavier soils, longer application intervals, or for susceptible varieties. <b>Do not follow soil applications of Epicatrin with foliar applications of Zorvec Enicade or other oxathiapiprolin-containing fungicides. Use either soil applications or foliar applications but not both to control the relevant disease.</b>
	44	<i>Bacillus</i>	<b>Double Nickel</b>	1-2.5 L/ha	When dry	0	<b>Partial suppression of soil level</b>



		<i>amyloliquefaciens</i> strain D747	LC (1x10 <sup>10</sup> spores/ mL)				<b>Phytophthora blight infection.</b> For transplanted crops: Apply preventatively to transplants in the greenhouse or nursery before transplanting. See ‘Soil application’ instructions on label. For crops grown from seed: Apply at planting, following the instructions for ‘Banded/in furrow application.’ See ‘Soil application’ instructions on label. Follow up applications can be made at 2-4 week intervals after planting or transplanting.
			Double Nickel 55 (5x10 <sup>10</sup> spores/ g)	0.5-2.5 kg/ha			
<b>Grey Mold</b>	7	penthiopyrad	Fontelis	1-1.5 L/ha	12 hours	1	<b>Begin applications prior to disease development; continue on a 7-14 day interval.</b> Use higher rate and shorter interval when disease pressure is high. Max seasonal rate is 4.9 L/ha. Make no more than 2 sequential applications before switching to another mode of action.

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>

# PESTICIDE EMERGENCY CONTACT INFORMATION

<b>Poison Control Centres</b>		
Nova Scotia	800.565.8161 <b>or</b> 902.428.8161	IWK, Halifax, NS
New Brunswick	911	Ask for Poison Information
Prince Edward Island	800.565.8161 <b>or</b> 902.428.8161	IWK, Halifax, NS
Newfoundland	709.722.1110	Dr. Charles A. Janeway Child Health Care Centre, St. John's, NF

<b>Environmental Emergencies (Pesticide Spills)</b>	
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

<b>Formulation and Measurement Abbreviations</b>			
FORMULATIONS		MEASUREMENTS	
DF	Dry flowable	mL	millilitre
EC, E	Oil-based emulsifiable concentrate	kPa	kilopascal
EG	Water dispersible granule	kg	kilogram
G	Granular	g	gram
L	Liquid	L	litre
SC	Suspension concentrate	BIU	Billions of International Units
Sn	Solution	ppm	parts per million (1000 ppb)
WP, W	Wettable powder	ppb	parts per billion (1/1000 ppm)

<b>Helpful Conversions<sup>1</sup></b>	
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

<sup>1</sup> **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 be more effective in smaller amounts. Therefore, even small conversion errors can lead to the use of incorrect rates (either too high or too low). Use metric – you will be glad you did!