

Apple & Pear Crop Protection Guide



Bayer provides solutions to help you increase the quality and marketable yield potential of your apple and pear crops.

RECOMMENDED APPLICATION TIMING: APPLES AND PEARS**

	Product	Registration No.	Pests	Dormant	Green Tip	Half-Inch Green	Tight Cluster	Pink/White Bud	Bloom	Petal Fall/Calyx	Fruit Set/First Cover Spray	Subsequent Summer Sprays	Pre Harvest	Post Harvest
HERBICIDES	Alion	30451	Grass and broadleaf weeds***		[Orange bar from Green Tip to Post Harvest]									
	sencor	Sencor 480 F – 26280 Sencor 75 DF – 17242	Grass and broadleaf weeds		[Orange bar from Green Tip to Subsequent Summer Sprays]									
	WeatherMAX HERBICIDE TRANSORFII	27487	Grass and broadleaf weeds		[Orange bar from Green Tip to Subsequent Summer Sprays]									
BIOLOGICAL FUNGICIDE	SERENADE OPTI	31666	Apple scab*, pear scab*, fire blight*, powdery mildew* (apples only).		[Green bar from Green Tip to Post Harvest]									
FUNGICIDES	Aliette	24458	Crown and root rot (<i>Phytophthora</i> spp.) ¹ Blister spot		A***	A***	A***, B***	A***, B***			B***	B***		A***, B***
	FLINT Extra	34962	Apple scab ³ , cedar apple rust, fly speck, powdery mildew, sooty blotch						3					
	Luna TRANQUILITY	30510	Apple scab, apple leaf scab, powdery mildew						4	4	4			
	SCALA	28011	Apple scab ⁵ , botrytis storage diseases, pear scab, penicillium storage diseases*											5
NEMATOCIDE	VELUM PRIME	32108	Nematodes*		[Purple bar from Green Tip to Post Harvest]									
INSECTICIDES	decis	33700	Apple leaf curling midge, oblique banded leafroller, Oriental fruit moth, pear psylla, Mullein plant bug, spring feeding caterpillars, tentiform leaf miner (adults)											
	MOVENTO	28953	Aphids (green, rosy and woolly apple), apple leaf curling midge*, mealybug, pear psylla, San Jose scale, whiteflies									6		
	SIVANTO prime	31452	Aphids (except woolly apple), leafhoppers, oystershell scale, pear psylla*, San Jose scale, spotted lanternfly*											
	vayego	33711	Oblique banded leafroller, Oriental fruit moth European apple sawfly, mullein bug* Plum curculio* Codling moth Apple maggot* Aphids*											
GROWTH REGULATOR	Ethrel	11580	For increased flowering, for use in non-bearing trees only ⁷											

HERBICIDES BIOLOGICAL FUNGICIDE FUNGICIDES NEMATOCIDE INSECTICIDES GROWTH REGULATOR

* Suppression only
 ** For other pome fruit crops, refer directly to the product labels.
 *** Do not use when ground is frozen

A*** Drench application timing only
 B*** Foliar application timing

¹ Aliette® fungicide is not registered for application in pears.
² Only for 'Mutsu', 'Jonagold' and 'Golden Delicious' apple varieties.

³ In areas outside of Ontario, apply Flint® Extra fungicide in a tank-mix with a compatible registered contact fungicide (EBDC) for two modes of action. Do not apply Flint Extra for apple scab in Ontario.

⁴ For apple scab, tank mix Luna Tranquility® fungicide with Dithane™ Rainshield™ fungicide (from pink on). Follow the more stringent label precautionary measures for mixing, loading and applying stated on both labels.

⁵ Dithane™ Rainshield™ fungicide should also be used with Scala® fungicide as part of a resistance management program.

⁶ Do not use Movento® insecticide on pear trees when fruit is present due to the possibility of adverse effects on the harvested commodity.

⁷ Ethrel® growth regulator is not registered for application on pear trees.

NOTES

Product	Features and Benefits	Key Pests / Disases Control	WAMLEGS Mixing Order	Maximum Applications per Crop Season	Use Rate and Application Tips	Chemical Class Group No.	Rainfast (hours)	REI (hours)	PHI (days)		
HERBICIDES		<ul style="list-style-type: none"> Provides pre-emergent control for a broad spectrum of broadleaf and grassy weeds Can be applied any time during the season as long as ground is not frozen or snow-covered Only needs 1/4" of rain to activate 	Annual grass and broadleaf weeds For a complete list of weeds, refer to the Alion® herbicide product label	L	Maximum 1 application	375 mL/ha (152 mL/ac.) Apply to established crops of at least three full growing seasons. If emerged weeds are present at the time of application, tank mix Alion with a contact herbicide. See product label for details.	Group 29 (indaziflam)	N/A	12	14	
		<ul style="list-style-type: none"> Broad-spectrum broadleaf and grass weed control Residual control with post-emergent contact activity on many annual weeds Approved for use on all ages of trees, from newly planted to well-established orchards 	Grass and broadleaf weeds For a complete list of weeds, refer to the Sencor® herbicide product label	Sencor 480 F – L Sencor 75 DF – W	Sencor 480 F – Maximum 1 application Sencor 75 DF – Maximum 1 application	Do not use Sencor on soils with less than 2% organic matter. Established trees: Sencor 75 DF – 1 kg/ha (404 g/ac.) Sencor 480 F – 1.5 L/ha (607 mL/ac.) Apply as a pre-emergence band application under trees in minimum of 150 to 300 L water/ha (16 to 32 gal./ac.) Newly planted trees: Sencor 75 DF – Coarse soil – 500 g/ha (202 g/ac.) – Medium soil – 750 g/ha (304 g/ac.) – Fine soil – 1 kg/ha (404 g/ac.) Sencor 480 F – Coarse soil – 750 mL/ha (304 mL/ac.) – Medium soil – 1.1 L/ha (445 mL/ac.) – Fine soil – 1.5 L/ha (604 mL/ac.) Apply as a pre-plant incorporated application in 150 to 300 L of water/ha (16 to 32 gal./ac.) before transplanting fruit trees.	Group 5 (metribuzin)	6	12	60	
		<ul style="list-style-type: none"> Unsurpassed and consistent weed control under ideal and tough conditions 30-minute rainfast guarantee Enhanced efficiency with a 540 g/L formulation 	Grass and broadleaf weeds For a complete list of weeds, refer to the Roundup WeatherMAX® herbicide product label	G	Refer to Roundup WeatherMAX product label	1.5 to 8 L/ha (0.6 to 3.2 L/ac.) Apply on established plantings only. Unless otherwise specified use 0.67 L per 100 L of water. For best results on harder to control perennials (such as bindweed, hemp dogbane, milkweed and Canada thistle), use 1.34 L per 100 L of water.	Group 9 (glyphosate)	0.5	12	30	
BIOLOGICAL FUNGICIDE		<ul style="list-style-type: none"> Broad-spectrum, biological foliar fungicide that provides effective anti-fungal and anti-bacterial activity Unique mode of action (FRAC Group BM02) makes for the best defence against the development of resistance Is exempt from tolerances (no MRL or residue concerns), so you can sell your crops into even the most restrictive markets 	Fire blight*	W	N/A	1.1 to 1.7 kg/ha (0.45 to 0.69 kg/ac.) Begin applications at 1 to 5% bloom and repeat on 7 to 10 day interval. During periods of rapid bloom development and frequent infection periods, spray intervals of 4 to 7 days may be required.	FRAC Group BM02 (<i>Bacillus subtilis</i> strain QST 713)	When dry	Immediately	0	
		Apple scab*, pear scab*, powdery mildew (apples only)*			1.7 to 3.3 kg/ha (0.69 to 1.33 kg/ac.) Apple and pear scab: Begin application at green tip or when environmental conditions become favorable for primary scab development and repeat on 7 to 10 day intervals. Powdery mildew (apples only): Begin application at tight cluster, or sooner, if conditions are conducive to disease development. Repeat applications on a 7 to 10 day interval.						
FUNGICIDES		<ul style="list-style-type: none"> Fully systemic fungicide rapidly absorbed by roots and leaves, allowing the plant to build its own defence against diseases and protecting new growth between applications Protective defence: stops plant infection by inhibiting spore germination and penetration into the plant 	Blister spot (only for 'Mutsu,' 'Jonagold' and 'Golden Delicious' varieties)	W	Foliar: maximum 3 applications If applying for both blister spot, and crown and root rot, may use a maximum of 10 kg/ha (4.04 kg/ac.) before harvest.	2 kg/ha (810 g/ac.) Foliar: Begin application at petal fall repeating at 7 day intervals. Do not mix with products containing copper.	P07 (Fosetyl AL)	1	4 days for thinning activities; 12 hours for other activities	30	
			Crown and root rot			Bearing trees - Foliar: Maximum 3 applications If applying for both blister spot, and crown and root rot, may use a maximum of 10 kg/ha (4.04 kg/ac.) before harvest.					For bearing trees: Foliar spray of 3 to 5 kg/ha (1.2 to 2 kg/ac.). Treat from tight cluster to pink when there is sufficient leaf area present to take up the spray. Do not apply to run-off. Treat again approximately 6 weeks later. Treat again in the fall soon after harvest. Do not mix with products containing copper.
						Non-bearing trees – Drench: Maximum 2 applications per year					Non-bearing trees – Drench: Make first application in spring any time after silver tip and again in early fall. Apply as a high-volume coarse spray to drench the trunk and soil surrounding the tree. Standard planting (up to 500 trees/ha); 10 grams/tree. High density planting (>500 trees/ha); 5 to 10 grams/tree. Do not mix with products containing copper.
		<ul style="list-style-type: none"> Low use rates in an easy-to-use liquid SC formulation Broad-spectrum fungicide with long-lasting preventive and translaminar activity Protects the leaf surface and penetrates the leaf tissue A potent inhibitor of spore germination and mycelial growth 	Apple scab ²	L	Maximum 4 applications Maximum 860 mL/ha (348 mL/ac.) per year	145 to 180 mL/ha (58 to 72 mL/ac.) Begin applications at half inch green and continue as needed on a 7 to 10 day interval.	Group 11 (trifloxystrobin)	2	4 days for thinning activities; 12 hours for other activities	14	
			Cedar apple rust, powdery mildew			145 to 215 mL/ha (58 to 86 mL/ac.) Begin applications preventatively and continue as needed on a 10 to 14 day interval. For powdery mildew control, use higher rate during pink to bloom stage.					
			Fly speck, sooty blotch			145 to 180 mL/ha (58 to 72 mL/ac.) Begin applications preventatively and continue as needed on a 10 to 14 day interval.					
	<ul style="list-style-type: none"> A broad-spectrum fungicide with preventive, systemic and post-infection (for apple leaf scab) properties Post-infection properties are effective for up to 72 hours after apple leaf scab infection Best suited for use in a preventive treatment program 	Powdery mildew	L	Maximum 4 applications. Maximum 3.2 L/ha (1.3 L/ac.) per year	600 mL/ha (243 mL/ac.) Begin applications preventatively and continue as needed on a 7 to 14 day interval.	Group 7 & 9 (fluopyram, pyrimethanil)	When dry	24 hours for thinning activities; 12 hours for other activities	Apples: 14 Pears: 72		
		Apple leaf scab, pear leaf scab			800 mL/ha (324 mL/ac.) Begin applications at half inch green and continue as needed on a 7 to 14 day interval.						
		Apple scab			800 mL/ha (324 mL/ac.) + 3 kg/ha (1.2 kg/ac.) of Dithane™ DG Rainshield NT. Begin applications at half inch green and continue as needed on a 7 to 14 day interval.						
	<ul style="list-style-type: none"> Excellent early-season control of leaf scab with up to 72 hours post-infection activity Provides systemic control that works well in cool or warm weather, for those critical early-season sprays Rapid uptake with translaminar activity to protect both sides of the leaf and expand the protected area Used as a pre-harvest spray, Scala® fungicide also protects apples in storage from destructive diseases such as botrytis and penicillium 	Apple scab, pear scab	L	Maximum 4 applications	0.75 to 1.0 L/ha (300 to 400 mL/ac.) Apply early in the season at 7 to 12 day intervals from green tip to pink stage. Do not apply post bloom.	Group 9 (pyrimethanil)	2	24 hours for thinning activities; 12 hours for other activities	Apples: 14 Pears: 72		
		Apple scab			0.75 L/ha (300 mL/ac.) + 3 kg/ha (1.2 kg/ac.) of Dithane™ DG. Apply early in the season at 7 to 12 day intervals from green tip to pink stage. Do not apply post bloom. Apples only.						
		Botrytis storage diseases, penicillium storage diseases*			Maximum 1 application 1.5 to 2.0 L/ha (610 to 810 mL/ac.) Apply two weeks prior to harvest.						
NEMATOCIDE		<ul style="list-style-type: none"> Broad-spectrum nematocidal activity targeting soil-dwelling, root-feeding nematodes A first-of-its-kind tool for managing nematodes in pome fruit crops in Canada Simple and easy to use 	Soil dwelling, root feeding nematodes (juveniles and adults)*	L	Maximum 500 g fluopyram/ha per year, regardless of formulation or method of application	500 mL/ha (202 mL/ac.) Apply by chemigation into root-zone. Apply to newly planted trees or those previously trained to drip, trickle or micro-sprinkler irrigation. Soil must be lightly pre-wetted to break soil surface tension prior to applications. Two applications recommended. Minimum 30-day interval between soil applications.	Group 7 (fluopyram)	N/A	12	7	
INSECTICIDES		<ul style="list-style-type: none"> Works fast – on contact and by ingestion Effective on a broad range of insect pests 	Plant bug/Mullein bug	E	Maximum 3 applications	100 mL/ha (40.48 mL/ac.)	Group 3 (deltamethrin)	1	12	Apples: 1 Pears: 7	
			Apple leaf curling midge			100 to 125 mL/ha (40.48 to 50.60 mL/ac.)					
			Pear psylla, (nymphs & adults) ³			175 mL/ha (71 mL/ac.) ³					
			Spring feeding caterpillars, Oblique banded leafroller			100 mL/ha (40.48 mL/ac.) Apply when first signs of feeding are visible.					
Oriental fruit moth	100 to 125 mL/ha (40.48 to 50.60 mL/ac.) Begin applications when treatment threshold (peak egg hatch) has been reached as indicated by monitoring with pheromone traps in conjunction with degree days.										
Tentiform leaf miner (adults)	125 mL/ha (50.60 mL/ac.) Apply when adults are first visible. Thorough coverage on trunk and scaffold limbs is recommended. Decis is not effective in controlling eggs of mining larvae and should be used to prevent re-infestation of adult generations.										
White apple leafhopper	100 mL/ha (40.48 mL/ac.) Spray when large numbers of adults are present.										
	<ul style="list-style-type: none"> Movento® insecticide controls pests that products with only contact or translaminar activity often miss With a unique two-way systemic control, Movento travels up and down the entire plant to protect leaves, roots and new growth Provides another mode of action for better resistance management and rotations Residual activity continues to protect new growth 	Aphids (green apple, rosy apple and woolly apple), pear psylla, whiteflies	L	Maximum 1.83 L/ha (0.74 L/ac.) per year	365 to 435 mL/ha (148 to 176 mL/ac.) ⁴ Post bloom only. Repeat at 14 to 21 day intervals as needed.	Group 23 (spirotetramat)	When dry	12	7		
		Mealybug, San Jose scale, apple leaf curling midge*			Maximum of 2 applications per season for apple leaf curling midge Maximum 1.83 L/ha (0.74 L/ac.) per year						
	<ul style="list-style-type: none"> The first insecticide in a new chemical sub-class, Group 4D Combines proven Group 4 insecticide efficacy with a favourable safety profile for many beneficial insects Minimal application timing restrictions allowing application based on pest thresholds, not plant staging Antifeedant properties and quick knockdown of adult pests 	Aphids (except woolly apple), leafhoppers, spotted lanternfly*	L	Maximum 2,000 mL/ha (809 mL/ac.) per crop season	500 to 750 mL/ha (202 to 303 mL/ac.)	Group 4D (flupyradifurone)	1	12	14		
		Oystershell scale, pear psylla*, San Jose scale			750 to 1,000 mL/ha (303 to 405 mL/ac.) + horticultural oil at 0.25% vol/vol ⁵						
	<ul style="list-style-type: none"> vayego® insecticide, a second generation diamide, combines excellent knockdown and control of key orchard pests Tank-mix friendly Registered for use on a wide variety of horticulture and row crops for systemic control of a variety of pests 	Codling moth, oblique banded leafroller, European apple sawfly	L	Maximum of 3 applications. Maximum 900 mL/ha (360 mL/ac.) per crop season	225 mL/ha (91 mL/ac.) Post bloom only.	Group 28 (tetraniliprole)	1	12	7		
		Aphids*			150 mL/ha (60 mL/ac.) Post bloom only.						
		Oriental fruit moth, mullein bug*, plum curculio*, apple maggot*			300 mL/ha (120 mL/ac.) Post bloom only.						
GROWTH REGULATOR		<ul style="list-style-type: none"> Enhances fruit production in young, non-bearing apple trees⁶ Vegetative growth is reduced during the season of application, promoting flower bud development the following spring 	Enhanced bloom	L		Apply a foliar spray to non-bearing trees, 1 to 2 weeks after peak bloom period. On young orchard trees just beginning to initiate a few flowers, delay applications until 3 to 5 weeks after full-bloom. DO NOT use on apple trees when fruit are present. Ensure trees are large enough to support a crop of apples before being treated. Dilute Sprayers Spur-type trees 2 L Ethrel/1,000 L water Non spur-type trees 4.25 L Ethrel/1,000 L water Concentrate Sprayers Spur-type trees 7 L Ethrel/500 L water Non spur-type trees 14 L Ethrel/500 L water	Ethephon* *Not classified	5	10 days for hand-pruning, scouting and training; 2 days for transplanting; 12 hrs for all other activities	N/A	

¹ Aliette® fungicide is not registered for application in pears.
² In areas outside of Ontario, apply Flint® Extra fungicide in a tank-mix with a compatible registered contact fungicide (EBCD) for two modes of action. Do not apply Flint Extra for apple scab control in Ontario.
³ Decis 100 EC insecticide does not control the hard shell of pear psylla. Do not apply more than once every 12 days. Applications timed for other pests may reduce the number of applications required for this pest. For use in Ontario only.
⁴ Do not use Movento insecticide on pear trees when fruit is present due to the possibility of adverse effects on the harvested commodity.
⁵ Oil when mixed with Sivanto Prime insecticide may cause fruit injury to certain varieties of pears, particularly d'Anjou and other sensitive varieties, when used alone or when other products are applied sequentially. The Directions for Use and Precautions on oil labels, as well as precautions in official Spray Guides, should be followed carefully when using oil as an adjuvant. Certain conditions, including but not limited to, application when temperatures are expected to exceed 30 C within 24 hours of application may result in fruit injury after the use of oil.
⁶ Ethrel® growth regulator is not registered for application on pear trees.
* Suppression only



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