

# 2019 SUPPLEMENT

## ***Fruit Crop Protection Guide*** **Publication 360S**

This supplement is an update to OMAFRA Publication 360, *Fruit Crop Protection Guide, 2018–2019*, published in Summer 2018. The following information includes new product registrations and changes from November 2017 to October 2018. For complete information, please refer to the full edition of Publication 360, *Fruit Crop Protection Guide*. This supplement can be downloaded from the OMAFRA website at [ontario.ca/crops](http://ontario.ca/crops). Refer to this website for updates throughout the year. Printed copies are available from OMAFRA Resource Centres or ServiceOntario Publications at [ontario.ca/publications](http://ontario.ca/publications).

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## NEW PRODUCTS

New Products	Registrant	Registration number	Crops	Pests controlled (unless suppression is indicated)	Relative acute toxicity	Bee toxicity
Diplomat 5SC (polyoxin D zinc salt 5%)	Engage Agro	32918	apple	powdery mildew (suppression)	very low	relatively non-toxic
			blueberry	botrytis blight (suppression), botrytis grey mould (suppression), mummy berry		
			currant, gooseberry, raspberry, blackberry	botrytis grey mould (suppression)		
			strawberry	botrytis grey mould (suppression), powdery mildew (suppression), anthracnose		
			grape	powdery mildew, botrytis bunch rot (suppression)		
Harvanta 50 SL (cyclaniliprole)	Engage Agro	32889	apple, pear	plum curculio (suppression), obliquebanded leafroller, codling moth, apple maggot (apple only, suppression), oriental fruit moth	moderate	highly toxic
			apricot	oriental fruit moth, plum curculio (suppression), obliquebanded leafroller, spotted wing drosophila		
			sweet cherry, tart cherry	plum curculio (suppression), obliquebanded leafroller, spotted wing drosophila		
			peach, nectarine	western flower thrips (suppression), oriental fruit moth, plum curculio (suppression), spotted wing drosophila		
			plum	oriental fruit moth, plum curculio (suppression), obliquebanded leafroller		
			grape	grape berry moth, spotted wing drosophila		
			walnut	leafroller, codling moth, husk maggot		
			pecan and sweet chestnut, filbert/hazelnut	leafrollers		
Luna Sensation (fluopyram + trifloxystrobin)	Bayer Cropscience Inc.	32107	sweet cherry	brown rot	very low	relatively non-toxic
			tart cherry	brown rot, leaf spot, powdery mildew		
			peach, nectarine	brown rot, scab, powdery mildew		
			plum	brown rot		
			apricot	brown rot, scab		

\* Potentially organic. Check with certifying body.

## NEW PRODUCTS

New Products	Registrant	Registration number	Crops	Pests controlled (unless suppression is indicated)	Relative acute toxicity	Bee toxicity
Minecto Pro (cyantraniliprole + abamectin)	Syngenta Canada	33023	apple	codling moth, oriental fruit moth, tentiform leafminer, obliquebanded leafroller, European apple sawfly, two-spotted spider mite, European red mite	high	highly toxic
			pear	codling moth, oriental fruit moth, obliquebanded leafroller, plum curculio, two-spotted spider mite, pear psylla, pear rust mite, European red mite		
OxiDate 2.0 * (hydrogen peroxide 27% and peroxyacetic acid 2.5%)	BioSafe Systems, LLC	32907	strawberry	botrytis grey mould (suppression)	moderate	non-toxic (could harm bees if exposed to direct contact)
			blueberry	mummy berry (partial suppression), phomopsis (partial suppression)		
			apple, pear	fire blight (partial suppression)		
			apple	scab (partial suppression), powdery mildew (suppression), black rot (partial suppression)		
Parasol Flowable (copper hydroxide)	NuFarm Agriculture Inc.	25901	apple, pear	fire blight	low	non-toxic
			sweet cherry, tart cherry	bacterial canker		
			filbert/hazelnut	bacterial blight		
			peach, nectarine	leaf curl		
Serifel ( <i>Bacillus amyloliquefaciens</i> strain MBI 600)	BASF Canada Inc.	30054	grape	botrytis bunch rot (suppression), powdery mildew (suppression)	low	non-toxic
XenTari ( <i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> )	NuFarm Agriculture Inc.	31557	apple, pear, plum, cherry, apricot	obliquebanded leafroller	very low	moderately toxic
			grape	grape berry moth		

\* Potentially organic. Check with certifying body.

## LABEL EXPANSIONS AND NEW USES

Product	Crop	Pest controlled (unless suppression is indicated)
Ambush 500 EC	peach, nectarine, plum	plum curculio
Beleaf 50SG	non-bearing apple, cherry	aphids
Delegate	apricot, sweet cherry, tart cherry, peach, nectarine, plum	peach tree borer (suppression), lesser peach tree borer (suppression)
	pecan and sweet chestnut	chestnut weevil (suppression)
	filbert/hazelnut	hazelnut weevil (suppression)
Entrust *	grape	spotted wing drosophila
Fontelis	blueberry	mummy berry (suppression), botrytis grey mould
	currant, gooseberry	botrytis grey mould
	raspberry	yellow rust, late leaf rust
Kopa *	apple	two-spotted spider mite
	blueberry	aphids
	raspberry, strawberry	aphids, two-spotted spider mite
	grape, pear	European red mite, two-spotted spider mite
	apricot, tart cherry, plum	European red mite, aphids
	sweet cherry	black cherry aphid
	peach, nectarine	European red mite, two-spotted spider mite, aphids
Oberon Flowable	raspberry, blackberry	two-spotted spider mite
ReTain PGR	sweet cherry	improved fruit set
Sirocco *	grape	botrytis bunch rot (suppression)
Success	grape	spotted wing drosophila
Timorex Gold *	grape	botrytis bunch rot

\*Potentially organic. Check with certifying body.

**SPOTTED WING DROSOPHILA EMERGENCY USE REGISTRATIONS UPDATE**

Emergency use registrations for spotted wing drosophila (SWD) are expected for the 2019 growing season. See [ontario.ca/spottedwing](http://ontario.ca/spottedwing) for the most up-to-date recommendations on SWD control.

**PRODUCT CANCELLATION OR REMOVAL**

Product	Chapter	Crop	Diseases and Insects	Change
Capture 240 E	3	raspberry	all pests	No longer registered for use in Ontario.

**IMPORTANT NOTICE REGARDING USE CANCELLATIONS OF IPRDIONE AND METIRAM PRODUCTS**

Current registered uses of iprodione fungicides (Rovral WP) will not be permitted on raspberries, strawberries, cherries, grapes, peaches, plums and apricots after **June 21, 2021**.

- ROVRAL WP (registration #15213) can be used until **June 21, 2021**.

Current registered uses of metiram fungicides (Polyram DF) will not be permitted on apples and grapes after **June 20, 2022**.

- POLYRAM DF (registration #20087) can be used until **June 20, 2022**.

**PRODUCT CHANGES AND CORRECTIONS TO PUBLICATION 360, FRUIT CROP PROTECTION GUIDE, 2018–2019**

<b>Product to Change</b>	<b>Chapter</b>	<b>Crop</b>	<b>Diseases and Insects</b>	<b>Change</b>
Actinovate SP	3, 4	blueberry, strawberry, grape	all pests	Not organically acceptable in 2018.
Acramite 50 WS	2, 3, 4, 6	apple, raspberry, grape, walnut, pecan, sweet chestnut, filbert/hazelnut	all pests	Belongs to insecticide group 20 D.
Alias 240 SC	3	blueberry	blueberry maggot	Not registered for blueberry maggot as currently indicated in Table 3–3, <i>Activity of Insecticides on Blueberry Pests and Impact on Honeybees</i> , p. 112.
Altacor	3	blueberry, raspberry	Japanese beetle, raspberry cane borer	Registered for Japanese beetle suppression. Add to Table 3–3, <i>Activity of Insecticides on Blueberry Pests and Impact on Honeybees</i> , p. 112. Registered for raspberry cane borer. Add to Table 3–8, <i>Activity of Insecticides on Raspberry Pests and Impact on Honeybees</i> , p. 151.
Beleaf 50 SG	3	strawberry	aphids, tarnished plant bug	Belongs to insecticide Group 29 (clarification in Table 3–12, <i>Activity of Insecticides and Miticides on Strawberry Pests and Impact on Honeybees</i> , p. 208).
Bioprotec CAF *	3	blueberry	cranberry fruitworm, cherry fruitworm	Registered for cranberry and cherry fruitworm. Add to Table 3–3, <i>Activity of Insecticides on Blueberry Pests and Impact on Honeybees</i> , p. 113.
Confine Extra	3	strawberry	leather rot	Restricted entry interval (REI): 12 hr.
Cueva	5	peach, nectarine	leaf curl	Rate clarification: 2% v/v in 470–940 L water/ha. Only at dormant timing.
Cygon 480-AG	3	blueberry	blueberry maggot	Restricted entry interval (REI): 12 hr.
Dipel 2X DF	3	blueberry	cranberry and cherry fruitworm	Registered for cranberry and cherry fruitworm. Add to Table 3–3, <i>Activity of Insecticides on Blueberry Pests and Impact on Honeybees</i> , p. 113.
Entrust *	2	apple	obliquebanded leafroller	Rate clarification: 364 mL/ha (correction on p. 37).
	2	apple	apple clear wing moth	Not registered for apple clearwing moth as currently indicated on page 49 and in Table 2–2, <i>Activity of Insecticides and Miticides on Apple Pests</i> , p. 71.
	3	blueberry, saskatoon berry	spotted wing drosophila	Preharvest interval (PHI): 1 day for spotted wing drosophila control.
	3	strawberry	spotted wing drosophila	Rate clarification: 292–364 mL/ha for spotted wing drosophila control (p. 181).
Fullback 125 SC	4	grape	black rot	Additional timing: 3–5 leaves, unfolded.
Fracture	3	strawberry	botrytis grey mould	Control, not suppression.
	4	grape	botrytis bunch rot	Control, not suppression.
	5	apricot, peach, nectarine, sweet cherry, tart cherry, plum	brown rot (blossom blight stage)	Suppression, not control.

\* Potentially organic. Check with certifying body.

<sup>1</sup> Sevin XLR is 43% active ingredient and contains 480 g or approximately 0.5 kg of carbaryl per litre. 1 L of Sevin XLR is roughly equivalent to 1 kg of Sevin 50 W.

<sup>2</sup> Sufficient water volumes must be used to thoroughly wet trees. For actual amount of NAA, refer to the label.

**PRODUCT CHANGES AND CORRECTIONS TO PUBLICATION 360, FRUIT CROP PROTECTION GUIDE, 2018–2019**

Product to Change	Chapter	Crop	Diseases and Insects	Change
Foray 48 BA	3	blueberry	leafroller	Not registered for leafroller as currently indicated in Table 3–3, <i>Activity of Insecticides on Blueberry Pests and Impact on Honeybees</i> , p. 113.
GF-120	6	walnut	husk maggot	Rate clarification: 1.5 L product + 6 L water/ha (p. 358). Mix 1 part GF 120 with 4 parts water and apply to tree canopy at 7.5 L spray mix for orchards or 200–300 mL mixture for individual trees.
	3	blueberry	blueberry maggot	Restricted entry interval (REI): when dry.
Guardman copper oxychloride 50	4, 5, 6	grape, sweet cherry, tart cherry, peach, filbert/hazelnut	all pests	Not organically acceptable in 2018.
Kanemite 15 SC	2, 5	apple	European red mite, two-spotted spider mite	Restricted entry interval is 12 hr.
		apple, pear	European red mite, two-spotted spider mite	Rate clarification: 2.07 L/ha.
Lagon 480 E	3	blueberry	blueberry maggot	Restricted entry interval (REI): 9 days for hand harvest, 12 hr for all other activities.
Opal	4, 6	grape, walnut, pecan, sweet chestnut, filbert/hazelnut	all pests	Not organically acceptable in 2018.
Phostrol	3	raspberry	phytophthora root rot	Preharvest interval (PHI): 0 days
Sevin XLR + Fruitone	2	apple	chemical thinning of early McIntosh	1 L Sevin XLR ( /1,000 L water) + 5–10 ppm Fruitone (NAA) <sup>1,2</sup> (correction on p. 87).
Success	2	apple	obliquebanded leafroller	Rate is 182 mL/ha (correction on p. 37).
	3	blueberry, saskatoon berry	spotted wing drosophila	Pre-harvest interval (PHI): 1 day for spotted wing drosophila control.
	3	strawberry	spotted wing drosophila	Rate is 145–182 mL/ha (correction on p. 181).
Timorex Gold	3	raspberry	botrytis grey mould	Registered for raspberry use only. Not registered for use on blackberries.
Tivano *	3	June-bearing strawberry, day-neutral strawberry	angular leaf spot	New rate: 12 L/ha
Vivando SC	4, 5	grape, tart cherry, peach, nectarine	all pests	Belongs to fungicide group 50.

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<sup>2</sup> Sufficient water volumes must be used to thoroughly wet trees. For actual amount of NAA, refer to the label.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 2: Apple Calendar (p. 11)</b>					
Diplomat 5SC (Group 19)	powdery mildew	<ul style="list-style-type: none"> <li>• green tip to half-inch green</li> <li>• half-inch green to tight cluster</li> <li>• tight cluster to pink</li> <li>• pink</li> <li>• petal fall (calyx)</li> <li>• first summer spray — 7–14 days after petal fall (calyx)</li> </ul>	259–926 mL/ha	<b>Suppression only.</b>	<p><b>Common name:</b> polyoxin D zinc salt</p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry interval:</b> When dry</p> <p><b>Maximum per season:</b> 2.77 L/ha</p>
Harvanta 50SL (Group 28)	obliquebanded leafroller	<ul style="list-style-type: none"> <li>• petal fall (calyx)</li> <li>• special summer sprays</li> </ul>	1.2–1.6 L/ha	<p>Toxic to bees. Do not apply during the crop blooming period. Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.</p> <p>For obliquebanded leafroller, apply when overwintering larvae become active. Can also be used later in the growing season at or just prior to egg hatch.</p> <p>For plum curculio, <b>suppression only.</b></p> <p>For apple maggot, <b>suppression only.</b></p>	<p><b>Common name:</b> cyaniliprole</p> <p><b>Preharvest interval:</b> 7 days</p> <p><b>Restricted entry interval:</b> 12 hr</p> <p><b>Maximum per season:</b> 5 applications (max 6 L/ha)</p>
	plum curculio	<ul style="list-style-type: none"> <li>• petal fall (calyx)</li> <li>• first summer spray — 7–14 days after petal fall</li> </ul>			
	codling moth	<ul style="list-style-type: none"> <li>• petal fall (calyx)</li> <li>• first summer spray — 7–14 days after petal fall</li> <li>• subsequent summer sprays</li> </ul>			
	apple maggot	<ul style="list-style-type: none"> <li>• subsequent summer sprays</li> </ul>			
	oriental fruit moth	<ul style="list-style-type: none"> <li>• petal fall (calyx)</li> <li>• special summer sprays</li> </ul>			
Kopa * (Group NC)	two-spotted spider mite	<ul style="list-style-type: none"> <li>• special summer sprays</li> </ul>	2% v/v in 700–1,900 L/ha	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed.</p> <p>Test a small area of each variety prior to spraying the whole block.</p> <p>This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical.</p> <p>Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress. Application within 3 days of sulphur may increase plant injury on sensitive plants.</p>	<p><b>Common name:</b> potassium salts of fatty acids</p> <p><b>Preharvest interval:</b> 12 hr</p> <p><b>Restricted entry interval:</b> 12 hr</p> <p><b>Maximum per season:</b> —</p>

\*Potentially organic. Check with certifying body.



## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 2: Apple Calendar (p. 11) continued</b>					
Minecto Pro (Group 28 + 6)	codling moth	<ul style="list-style-type: none"> <li>• first summer spray</li> <li>• subsequent summer sprays</li> </ul>	496 mL/ha	<p>Toxic to bees. Tank mix with 0.25%–1% (2.5–10 L/1,000 L water). Do not tank-mix with strobilurins, copper or captan fungicides. See product label for other tank-mix restrictions.</p> <p>For codling moth, apply before egg hatch (80–110 DDC) after BIOFIX). For second generation codling moth, timing is based on first egg hatch after establishing a new BIOFIX.</p> <p>For oriental fruit moth, apply at first egg hatch of the targeted generation.</p> <p>For obliquebanded leafroller, apply when overwintering larvae become active. For the summer generation larvae, product should be applied at 240–280 DDC.</p> <p>For European red mite and two-spotted spider mite, for best results, apply before a threshold of five spider mites per leaf is reached. Residual spider mite control is greater from spray deposits on newer leaves compared to older. For best results, use product extended from petal fall to 6 weeks post-petal fall.</p>	<p><b>Common name:</b> cyantraniliprole + abamectin  <b>Preharvest interval:</b> 28 days  <b>Restricted entry interval:</b> 12 hr  <b>Maximum per season:</b> 1 application</p>
	oriental fruit moth	<ul style="list-style-type: none"> <li>• petal fall (calyx)</li> <li>• special summer sprays</li> </ul>			
	tentiform leafminer	<ul style="list-style-type: none"> <li>• tight cluster to pink</li> <li>• petal fall (calyx)</li> <li>• special summer sprays</li> </ul>			
	obliquebanded leafroller	<ul style="list-style-type: none"> <li>• petal fall (calyx)</li> <li>• special summer sprays</li> </ul>			
	European apple sawfly	<ul style="list-style-type: none"> <li>• pink</li> <li>• petal fall (calyx)</li> </ul>			
	two-spotted spider mite	<ul style="list-style-type: none"> <li>• first summer spray</li> <li>• special summer sprays</li> </ul>			
	European red mite	<ul style="list-style-type: none"> <li>• petal fall (calyx)</li> <li>• first summer spray</li> <li>• special summer sprays</li> </ul>			

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## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 2: Apple Calendar (p. 11) continued</b>					
OxiDate 2.0 * (Group NC)	fire blight	<ul style="list-style-type: none"> <li>• bloom</li> <li>• petal fall (calyx)</li> </ul>	1.0% v/v	<p>Use sufficient spray mix to thoroughly wet target. Spray to point of run-off. Use 1% v/v (e.g., 10 L/1,000 L water).</p> <p>For increased coverage, use a compatible non-ionic wetting agent/surfactant.</p> <p>Do not spray OxiDate 2.0 during conditions of intense heat, drought or poor plant vigour. Avoid application before rain or when winds are gusty. OxiDate 2.0 works best using a solution of neutral pH.</p> <p>Do not apply when bees and beneficial insects are active. Refer to label for specific bee toxicity statements.</p> <p>For fire blight, scab and black rot, <b>partial suppression only.</b></p> <p>For powdery mildew, <b>suppression only.</b></p>	<p><b>Common name:</b> hydrogen peroxide + peroxyacetic acid</p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry interval:</b> 4 hr or when dry</p> <p><b>Maximum per season:</b> 8 applications</p>
	scab	<ul style="list-style-type: none"> <li>• green tip to half-inch green</li> <li>• pink</li> <li>• petal fall (calyx)</li> </ul>			
	powdery mildew	<ul style="list-style-type: none"> <li>• green tip to half-inch green</li> <li>• pink</li> <li>• petal fall (calyx)</li> </ul>			
	black rot	<ul style="list-style-type: none"> <li>• green tip to half-inch green</li> <li>• pink</li> <li>• petal fall (calyx)</li> </ul>			
Parasol Flowable (Group M)	fire blight	<ul style="list-style-type: none"> <li>• dormant to bud swell</li> </ul>	4.7 L/ha	<p>Copper is a contact bactericide only and does not have activity on the fire blight pathogen within the plant tissue. Apply when overwintering cankers begin to ooze as tree breaks dormancy. Thorough coverage of limbs and trunk is essential for good control. This spray does not eliminate the need for blossom blight management.</p>	<p><b>Common name:</b> copper hydroxide</p> <p><b>Preharvest interval:</b> dormant only</p> <p><b>Restricted entry interval:</b> 48 hr</p> <p><b>Maximum per season:</b> 1 application</p>
XenTari WG (Group 11)	obliquebanded leafroller	<ul style="list-style-type: none"> <li>• petal fall (calyx)</li> <li>• special summer sprays</li> </ul>	0.5–1.6 kg/ha	<p>Product must be consumed to be effective. Spray when and where pests are actively feeding. Apply in a high-volume spray (500–1,600 L/ha) to ensure thorough coverage on both sides of the leaves. Apply to young larvae, early in infestation. Death of insect may take several days. Apply weekly if needed.</p> <p>Acidify spray mix to below pH 7.0 and apply on cloudy days or in the evening.</p>	<p><b>Common name:</b> <i>Bacillus thuringiensis</i> subsp. <i>aizawai</i></p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry interval:</b> 12 hr</p> <p><b>Maximum per season:</b> —</p>

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 2: Non-bearing Apple Calendar (p. 56)</b>					
Beleaf 50 SG (Group 29)	aphids	• summer sprays	160 g/ha	No product specific comments.	<b>Common name:</b> flonicamid <b>Preharvest interval:</b> — <b>Restricted entry interval:</b> 12 hr (general re-entry), 48 hr (hand thinning) <b>Maximum per season:</b> 3 applications
Diplomat 5SC (Group 19)	powdery mildew	• first sprays	259–926 mL/ha	<b>Suppression only.</b>	<b>Common name:</b> polyoxin D zinc salt <b>Preharvest interval:</b> — <b>Restricted entry interval:</b> When dry <b>Maximum per season:</b> 2.77 L/ha
Minecto Pro (Group 28 + 6)	tentiform leafminer	• prebloom • summer sprays	496 mL/ha	Toxic to bees. Tank-mix with 0.25%–1% (2.5–10 L/1,000 L water). Do not tank-mix with strobilurins, copper or captan fungicides. See product label for other tank-mix restrictions.  For European red mite and two-spotted spider mite, for best results, apply before a threshold of five spider mites per leaf is reached. Residual spider mite control is greater from spray deposits on newer leaves compared to older.  For best results, use product extended from petal fall to 6 weeks post-petal fall.	<b>Common name:</b> cyantraniliprole + abamectin <b>Preharvest interval:</b> — <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> 1 application
	two-spotted spider mite	• summer sprays			
	European red mite	• summer sprays			

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## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 2: Non-bearing Apple Calendar (p. 56) continued</b>					
OxiDate 2.0 * (Group NC)	fire blight	• bloom	1.0% v/v	Use sufficient spray mix to thoroughly wet target. Spray to point of run-off. Use 1% v/v (e.g., 10 L/1,000 L water).  For increased coverage, use a compatible non-ionic wetting agent/surfactant.  Do not spray OxiDate 2.0 during conditions of intense heat, drought or poor plant vigour. Avoid application before rain or when winds are gusty. OxiDate 2.0 works best using a solution of neutral pH.  Do not apply when bees and beneficial insects are active. Refer to label for specific bee toxicity statements.  For fire blight and scab, <b>partial suppression only</b> .  For powdery mildew, <b>suppression only</b> .	<b>Common name:</b> hydrogen peroxide + peroxyacetic acid <b>Preharvest interval:</b> — <b>Restricted entry interval:</b> 4 hr or when dry <b>Maximum per season:</b> 8 applications
	scab	• first sprays			
	powdery mildew	• first sprays			
<b>Chapter 3: Blueberry Calendar (p. 91)</b>					
Diplomat 5SC (Group 19)	botrytis twig and blossom blight	• first bloom • fruit ripening	463–926 mL/ha	<b>Suppression only of botrytis grey mould.</b> Control of mummy berry.	<b>Common name:</b> polyoxin D zinc salt <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> when dry <b>Maximum per season:</b> 2.77 L/ha
	botrytis grey mould				
	mummy berry	• bud swell to green tip • green tip • pink bud			
Fontelis (Group 7)	mummy berry	• bud swell to green tip • green tip • pink bud	1.0–1.75 L/ha	<b>Suppression only of mummy berry.</b> Control of botrytis grey mould.  Rotate with fungicides from different groups. Begin applications when conditions favour disease development and continue as needed on a 7–10-day interval. Fontelis contains mineral oil in the formulation. Tank-mixing or rotating with oil-sensitive products (e.g., captan, sulphur) may cause crop safety issues. See label for tank-mix restrictions.	<b>Common name:</b> penthiopyrad <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> 5 applications (max 5.25 L/ha)
	botrytis grey mould	• first bloom • fruit ripening			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 3: Blueberry Calendar (p. 91) continued</b>					
Kopa * (Group NC)	aphids	<ul style="list-style-type: none"> <li>• green fruit</li> </ul>	2% v/v in 700–1,900 L/ha	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed.</p> <p>Test a small area of each variety prior to spraying the whole block.</p> <p>This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical.</p> <p>Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress.</p> <p>Application within 3 days of sulphur may increase plant injury on sensitive plants.</p>	<p><b>Common name:</b> potassium salts of fatty acids</p> <p><b>Preharvest interval:</b> 12 hr</p> <p><b>Restricted entry interval:</b> 12 hr</p> <p><b>Maximum per season:</b> —</p>
OxiDate 2.0 * (Group NC)	mummy berry	<ul style="list-style-type: none"> <li>• bud swell to green tip</li> <li>• green tip</li> <li>• pink bud</li> </ul>	1.0 % v/v	<p><b>Partial suppression only.</b></p> <p>Use sufficient spray mix to thoroughly wet target. Spray to point of run-off. Use 1% v/v (e.g., 10 L/1,000 L water).</p> <p>For increased coverage, use a compatible non-ionic wetting agent/surfactant.</p> <p>Do not spray OxiDate 2.0 during conditions of intense heat, drought or poor plant vigour. Avoid application before rain or when winds are gusty. OxiDate 2.0 works best using a solution of neutral pH.</p> <p>Do not apply when bees and beneficial insects are active. Refer to label for specific bee toxicity statements.</p>	<p><b>Common name:</b> hydrogen peroxide + peroxyacetic acid</p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry interval:</b> 4 hr or when dry</p> <p><b>Maximum per season:</b> 8 applications</p>
	phomopsis	<ul style="list-style-type: none"> <li>• green tip</li> <li>• pink bud</li> <li>• first bloom</li> <li>• petal fall</li> </ul>			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 3: Currants and Gooseberry Calendar (p. 115)</b>					
Diplomat 5SC (Group 19)	botrytis grey mould	<ul style="list-style-type: none"> <li>• just before blossoms open</li> <li>• bloom</li> </ul>	463–926 mL/ha	<b>Suppression only.</b>	<b>Common name:</b> polyoxin D zinc salt <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> when dry <b>Maximum per season:</b> 2.77 L/ha
Fontelis (Group 7)	botrytis grey mould	<ul style="list-style-type: none"> <li>• just before blossoms open</li> <li>• bloom</li> </ul>	1.0–1.75 L/ha	Rotate with fungicides from different groups. Begin applications when conditions favour disease development and continue as needed on a 7–10-day interval.  Fontelis contains mineral oil in the formulation. Tank-mixing or rotating with oil-sensitive products (e.g., captan, sulphur) may cause crop safety issues. See label for tank-mix restrictions.	<b>Common name:</b> penthiopyrad <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> 5 applications (max 5.25 L/ha)

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 3: Summer-fruiting Raspberry and Blackberry Calendar (p. 125)</b>					
Diplomat 5SC (Group 19)	botrytis grey mould	<ul style="list-style-type: none"> <li>bloom</li> <li>preharvest and harvest</li> </ul>	463–926 mL/ha	<b>Suppression only.</b>	<b>Common name:</b> polyoxin D zinc salt <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> when dry <b>Maximum per season:</b> 2.77 L/ha
Fontelis (Group 7)	yellow rust	<ul style="list-style-type: none"> <li>special sprays</li> </ul>	1.0–1.75 L/ha	Rotate with fungicides from different groups. Begin applications when conditions favour disease development and continue as needed on a 7–10-day interval.	<b>Common name:</b> penthiopyrad <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> 5 applications (max 5.25 L/ha)
	late leaf rust	<ul style="list-style-type: none"> <li>special sprays</li> </ul>		Fontelis contains mineral oil in the formulation. Tank-mixing or rotating with oil-sensitive products (e.g., captan, sulphur) may cause crop safety issues. See label for tank-mix restrictions.	
Kopa * (Group NC)	aphids	<ul style="list-style-type: none"> <li>green fruit</li> </ul>	2% v/v in 700–1,900 L/ ha	Begin applications when populations are low and reapply every 1–3 weeks as needed.  Test a small area of each variety prior to spraying the whole block.	<b>Common name:</b> potassium salts of fatty acids <b>Preharvest interval:</b> 12 hr <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> —
	two-spotted spider mite	<ul style="list-style-type: none"> <li>green fruit</li> </ul>		This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical.  Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress.  Application within 3 days of sulphur may increase plant injury on sensitive plants.	
Oberon Flowable (Group 23)	two-spotted spider mite	<ul style="list-style-type: none"> <li>prebloom (until blossoms open)</li> <li>green fruit</li> <li>postharvest</li> </ul>	880–1,160 mL/ha	No product-specific comments.	<b>Common name:</b> spiromesifen <b>Preharvest interval:</b> 3 days <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> 3 applications

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 3: Fall-bearing Raspberry Calendar (p. 137)</b>					
Diplomat 5SC (Group 19)	botrytis grey mould	<ul style="list-style-type: none"> <li>• bloom (mid-July to August)</li> <li>• preharvest and harvest</li> </ul>	463–926 mL/ha	<b>Suppression only.</b>	<b>Common name:</b> polyoxin D zinc salt <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> when dry <b>Maximum per season:</b> 2.77 L/ha
Fontelis (Group 7)	yellow rust	<ul style="list-style-type: none"> <li>• special sprays</li> </ul>	1.0–1.75 L/ha	Rotate with fungicides from different groups. Begin applications when conditions favour disease development and continue as needed on a 7–10-day interval.  Fontelis contains mineral oil in the formulation. Tank-mixing or rotating with oil-sensitive products (e.g., captan, sulphur) may cause crop safety issues. See label for tank-mix restrictions.	<b>Common name:</b> penthiopyrad <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> 5 applications (max 5.25 L/ha)
	late leaf rust	<ul style="list-style-type: none"> <li>• special sprays</li> </ul>			
Kopa * (Group NC)	aphids	<ul style="list-style-type: none"> <li>• bloom to green fruit</li> </ul>	2% v/v in 700–1,900 L/ha	Begin applications when populations are low and reapply every 1–3 weeks as needed.  Test a small area of each variety prior to spraying the whole block.  This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical.  Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress.  Application within 3 days of sulphur may increase plant injury on sensitive plants.	<b>Common name:</b> potassium salts of fatty acids <b>Preharvest interval:</b> 12 hr <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> —
	two-spotted spider mite	<ul style="list-style-type: none"> <li>• bloom to green fruit</li> </ul>			
Oberon Flowable (Group 23)	two-spotted spider mite	<ul style="list-style-type: none"> <li>• primocanes emerge</li> <li>• bloom to green fruit</li> </ul>	880–1,160 mL/ha	No product specific comments.	<b>Common name:</b> spiromesifen <b>Preharvest interval:</b> 3 days <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> 3 applications

\*Potentially organic. Check with certifying body.



## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 3: Non-bearing Strawberry Calendar (p. 163)</b>					
Diplomat 5SC (Group 19)	powdery mildew	<ul style="list-style-type: none"> <li>July to mid-August</li> <li>mid-August and again once or twice</li> </ul>	259–926 mL/ha	<b>Suppression only.</b>	<b>Common name:</b> polyoxin D zinc salt <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> when dry <b>Maximum per season:</b> 2.77 L/ha
Kopa * (Group NC)	aphids	<ul style="list-style-type: none"> <li>May or early June</li> <li>one month after planting and again once or twice at 2-week intervals</li> </ul>	2% v/v in 700–1,900 L/ha	Begin applications when populations are low and reapply every 1–3 weeks as needed.  Test a small area of each variety prior to spraying the whole block.  This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical.  Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress.  Application within 3 days of sulphur may increase plant injury on sensitive plants.	<b>Common name:</b> potassium salts of fatty acids <b>Preharvest interval:</b> 12 hr <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> —

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 3: June-bearing Strawberry Calendar (p. 171)</b>					
Diplomat 5SC (Group 19)	botrytis grey mould	<ul style="list-style-type: none"> <li>• first bloom</li> <li>• 7–10 days after first bloom</li> <li>• preharvest</li> </ul>	463–926 mL/ha	<b>Suppression only of botrytis grey mould and powdery mildew.</b> Control of anthracnose.	<b>Common name:</b> polyoxin D zinc salt <b>Preharvest interval:</b> 0 days <b>Restricted entry interval:</b> when dry <b>Maximum per season:</b> 2.77 L/ha
	powdery mildew	<ul style="list-style-type: none"> <li>• new growth after renovation</li> <li>• mid-August and again once or twice</li> </ul>	259–926 mL/ha		
	anthracnose	<ul style="list-style-type: none"> <li>• first bloom</li> <li>• 7–10 days after first bloom</li> <li>• preharvest</li> </ul>	463–926 mL/ha		
Kopa * (Group NC)	aphids	<ul style="list-style-type: none"> <li>• when flower buds are visible in the crown</li> <li>• green fruit</li> <li>• new growth after renovation</li> </ul>	2% v/v in 700–1,900 L/ha	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed.</p> <p>Test a small area of each variety prior to spraying the whole block.</p> <p>This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical.</p> <p>Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress.</p> <p>Application within 3 days of sulphur may increase plant injury on sensitive plants.</p>	<b>Common name:</b> potassium salts of fatty acids <b>Preharvest interval:</b> 12 hr <b>Restricted entry interval:</b> 12 hr <b>Maximum per season:</b> —
	two-spotted spider mite	<ul style="list-style-type: none"> <li>• green fruit</li> <li>• new growth after renovation</li> </ul>			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 3: June-bearing Strawberry Calendar (p. 171) continued</b>					
OxiDate 2.0 * (Group NC)	botrytis grey mould	<ul style="list-style-type: none"> <li>• when new growth first appears</li> <li>• first bloom</li> <li>• 7–10 days after first bloom</li> <li>• preharvest</li> </ul>	1.0 % v/v	<p><b>Suppression only.</b></p> <p>Use sufficient spray mix to thoroughly wet target. Spray to point of run-off. Use 1% v/v (e.g., 10 L/1,000 L water).</p> <p>For increased coverage, use a compatible non-ionic wetting agent/surfactant.</p> <p>Do not spray OxiDate 2.0 during conditions of intense heat, drought or poor plant vigour. Avoid application before rain or when winds are gusty. OxiDate 2.0 works best using a solution of neutral pH.</p> <p>Do not apply when bees and beneficial insects are active. Refer to label for specific bee toxicity statements.</p>	<p><b>Common name:</b> hydrogen peroxide + peroxyacetic acid</p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry interval:</b> 4 hr or when dry</p> <p><b>Maximum per season:</b> 8 applications</p>
<b>Chapter 3: Day-neutral Strawberry Calendar (page 187)</b>					
Diplomat 5SC (Group 19)	botrytis grey mould	<ul style="list-style-type: none"> <li>• bloom</li> <li>• bloom, green fruit and harvest (June, July, August)</li> <li>• bloom, green fruit and harvest (September)</li> </ul>	463–926 mL/ha	<p><b>Suppression only of botrytis grey mould and powdery mildew.</b> Control of anthracnose.</p>	<p><b>Common name:</b> polyoxin D zinc salt</p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry interval:</b> when dry</p> <p><b>Maximum per season:</b> 2.77 L/ha</p>
	powdery mildew	<ul style="list-style-type: none"> <li>• bloom</li> <li>• bloom, green fruit and harvest (June, July, August)</li> <li>• bloom, green fruit and harvest (September)</li> </ul>	259–926 mL/ha		
	anthracnose	<ul style="list-style-type: none"> <li>• bloom</li> <li>• bloom, green fruit and harvest (June, July, August)</li> </ul>	463–926 mL/ha		

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 3: Day-neutral Strawberry Calendar (page 187) continued</b>					
Kopa * (Group NC)	aphids	<ul style="list-style-type: none"> <li>when flower buds extend from the crown</li> </ul>	2% v/v in 700–1,900 L/ha	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed.</p> <p>Test a small area of each variety prior to spraying the whole block.</p> <p>This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical.</p> <p>Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress.</p> <p>Application within 3 days of sulphur may increase plant injury on sensitive plants.</p>	<p><b>Common name:</b> potassium salts of fatty acids  <b>Preharvest interval:</b> 12 hr  <b>Restricted entry interval:</b> 12 hr  <b>Maximum per season:</b> —</p>
	two-spotted spider mite	<ul style="list-style-type: none"> <li>when flower buds extend from the crown</li> <li>bloom and green fruit</li> <li>bloom, green fruit and harvest (June, July, August)</li> </ul>			
OxiDate 2.0 * (Group NC)	botrytis grey mould	<ul style="list-style-type: none"> <li>bloom</li> <li>bloom, green fruit and harvest (June, July, August)</li> <li>bloom, green fruit and harvest (September)</li> </ul>	1.0 % v/v	<p>Use sufficient spray mix to thoroughly wet target. Spray to point of run-off. Use 1% v/v (e.g., 10 L/1,000 L water).</p> <p>For increased coverage, use a compatible non-ionic wetting agent/surfactant.</p> <p>Do not spray OxiDate 2.0 during conditions of intense heat, drought or poor plant vigour. Avoid application before rain or when winds are gusty. OxiDate 2.0 works best using a solution of neutral pH.</p> <p>Do not apply when bees and beneficial insects are active. Refer to label for specific bee toxicity statements.</p>	<p><b>Common name:</b> hydrogen peroxide + peroxyacetic acid  <b>Preharvest interval:</b> 0 days  <b>Restricted entry interval:</b> 4 hr or when dry  <b>Maximum per season:</b> 8 applications</p>

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 4: Grape Calendar (p. 213)</b>					
Diplomat 5SC (Group 19)	powdery mildew	<ul style="list-style-type: none"> <li>• 3–5 leaves unfolded (10–15 cm shoot length)</li> <li>• shoot length 20–25 cm</li> <li>• trace bloom (first cap fall)</li> <li>• immediate postbloom to early fruit set</li> <li>• berries pea-sized</li> <li>• berry touch to cluster closure</li> <li>• beginning of ripening (veraison) through harvest</li> </ul>	259–926 mL/ha	No product specific comments.	<b>Common name:</b> polyoxin D zinc salt <b>Preharvest interval:</b> 0 days <b>Restricted entry period:</b> when dry <b>Maximum per season:</b> 2.77 L/ha
	botrytis bunch rot	<ul style="list-style-type: none"> <li>• trace bloom (first cap fall)</li> <li>• immediate postbloom to early fruit set</li> <li>• berry touch to cluster closure</li> <li>• beginning of ripening (veraison) through harvest</li> <li>• special sprays (when monitoring indicates the need)</li> </ul>	463–926 mL/ha	<b>Suppression only.</b>	
Entrust * (Group 5)	spotted wing drosophila	<ul style="list-style-type: none"> <li>• special sprays (when monitoring indicates the need)</li> </ul>	364 mL/ha	Apply with sufficient water to ensure complete coverage.	<b>Common name:</b> spinosad <b>Preharvest interval:</b> 7 days <b>Restricted entry period:</b> when dry (general re-entry)/7 days for hand labour (e.g., thinning, leaf pulling, hand harvest) <b>Maximum per season:</b> 3 applications
Harvanta 50SL (Group 28)	grape berry moth	<ul style="list-style-type: none"> <li>• berries pea-sized</li> <li>• beginning of ripening (veraison) through harvest</li> </ul>	1.2–1.6 L/ha	Avoid applying consecutively more than 2 times within a 30-day period. For grape berry moth, apply at first sustained catch. Avoid applying more than 2 times within a single generation of insect pests.	<b>Common name:</b> cyaniliprole <b>Preharvest interval:</b> 7 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 3 applications (max 4.8 L/ha)
	spotted wing drosophila	<ul style="list-style-type: none"> <li>• special sprays (when monitoring indicates the need)</li> </ul>			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 4: Grape Calendar (p. 213) continued</b>					
Kopa * (Group NC)	European red mite, two-spotted spider mite	<ul style="list-style-type: none"> <li>• berry touch to cluster closure</li> </ul>	2% v/v	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed. Use 2% v/v (e.g., 20 L/1,000 L water).</p> <p>Test a small area of each variety prior to spraying the whole block.</p> <p>This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical.</p> <p>Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to vines under stress.</p> <p>Application within 3 days of sulphur may increase plant injury on sensitive plants.</p>	<p><b>Common name:</b> potassium salts of fatty acids</p> <p><b>Preharvest interval:</b> 12 hr</p> <p><b>Restricted entry period:</b> 12 hr</p> <p><b>Maximum per season:</b> —</p>
Serifel (Group 44)	powdery mildew	<ul style="list-style-type: none"> <li>• 3–5 leaves unfolded</li> <li>• shoot length 20–25 cm</li> <li>• trace bloom</li> <li>• immediate postbloom to fruit set</li> <li>• berries pea-sized</li> <li>• berry touch to cluster close</li> <li>• beginning of ripening (veraison) through harvest</li> </ul>	0.25–0.5 kg/ha	<b>Suppression only.</b>	<p><b>Common name:</b> <i>Bacillus amyloliquefaciens</i> strain MBI 600</p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry period:</b> 4 hr or when dry</p> <p><b>Maximum per season:</b> —</p>
	botrytis bunch rot	<ul style="list-style-type: none"> <li>• trace bloom</li> <li>• immediate postbloom</li> <li>• berry touch to cluster closure</li> <li>• beginning of ripening (veraison) through harvest</li> </ul>			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 4: Grape Calendar (p. 213) continued</b>					
Sirocco * (Group 3)	botrytis bunch rot	<ul style="list-style-type: none"> <li>• trace bloom</li> <li>• immediate postbloom</li> <li>• berry touch to cluster closure</li> <li>• beginning of ripening (veraison) through harvest</li> </ul>	2.8–5.6 kg/ha	<p><b>Suppression only.</b></p> <p>Use the low rate in 500 L of water and the high rate in 1,000 L of water. Creates a mildly alkaline solution. Do not tank-mix with pH adjusters, oil or products not compatible with mild alkaline solutions.</p>	<p><b>Common name:</b> potassium bicarbonate</p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry period:</b> 4 hr</p> <p><b>Maximum per season:</b> 10 applications</p>
Success (Group 5)	spotted wing drosophila	<ul style="list-style-type: none"> <li>• special sprays (when monitoring indicates the need)</li> </ul>	182 mL/ha	Apply with sufficient water to ensure complete coverage.	<p><b>Common name:</b> spinosad</p> <p><b>Preharvest interval:</b> 7 days</p> <p><b>Restricted entry period:</b> when dry (general re-entry)/7 days for hand labour (e.g., training, thinning, leaf pulling, hand harvest)</p> <p><b>Maximum per season:</b> 3 applications</p>
Timorex Gold * (Group 46)	botrytis bunch rot	<ul style="list-style-type: none"> <li>• trace bloom (first cap fall)</li> <li>• immediate postbloom to early fruit set</li> <li>• berry touch to cluster closure</li> <li>• beginning of ripening (veraison) through harvest</li> <li>• special sprays (when monitoring indicates the need)</li> </ul>	1.5–2 L/ha	Do not tank-mix or alternate with Supra Captan, Maestro or sulphur products. See label for precautions on compatibility.	<p><b>Common name:</b> tea tree oil</p> <p><b>Preharvest interval:</b> 2 days</p> <p><b>Restricted entry period:</b> 4 hr</p> <p><b>Maximum per season:</b> —</p>
XenTari WG (Group 11)	grape berry moth	<ul style="list-style-type: none"> <li>• berries pea-sized</li> <li>• beginning of ripening (veraison) through harvest</li> </ul>	0.5–1.0 kg/ha	Apply in a high-volume spray to ensure thorough coverage on all sides of the cluster. Apply at first sustained trap catch. Reapply 7–10 days later, if needed. Acidify spray mix to below pH 7.0 and apply on cloudy days or in the evening.	<p><b>Common name:</b> <i>Bacillus thuringiensis</i> subsp. <i>aizawai</i></p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry period:</b> 12 hr</p> <p><b>Maximum per season:</b> 6 applications</p>

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Apricot Calendar (p. 245)</b>					
Delegate (Group 5)	peach tree borer	<ul style="list-style-type: none"> <li>special sprays</li> </ul>	420 g/ha	<p><b>Suppression only.</b></p> <p>Use spray volume at 1,500–2,000 L/ha. Using a handgun or backpack sprayer, direct the spray to cover the tree trunk and scaffold limbs from ground level to 1.5 m above ground, particularly the graft union and any pruning cuts. Thorough coverage is essential. Target the 1st instar larvae stage, beginning 7–10 days after first trap catch. Repeat applications at 14–21-day intervals.</p>	<p><b>Common name:</b> spinetoram  <b>Preharvest interval:</b> 3 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 3 trunk sprays</p>
	lesser peach tree borer				
Harvanta 50SL (Group 28)	obliquebanded leafroller	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	1.2–1.6 L/ha	<p>Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.</p> <p>For obliquebanded leafroller, for overwintering generation, apply at petal fall. For summer generations, apply at 240–280 DDC (base 6.1°C) after first sustained moth catch. If larval activity is extended, reapply after 10–14 days.</p> <p>For oriental fruit moth, apply at shuck fall at 194–208 DDC and special sprays at 639–667 DDC and 805–833 DDC.</p> <p>For plum curculio, <b>suppression only.</b></p>	<p><b>Common name:</b> cyclaniliprole  <b>Preharvest interval:</b> 7 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 5 applications (max 6 L/ha)</p>
	oriental fruit moth	<ul style="list-style-type: none"> <li>shuck split to shuck fall</li> <li>special sprays (when monitoring indicates the need)</li> </ul>			
	plum curculio	<ul style="list-style-type: none"> <li>shuck split to shuck fall</li> <li>first cover (10–12 days after shuck fall)</li> </ul>			
	spotted wing drosophila	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>			

\*Potentially organic. Check with certifying body.



## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Apricot Calendar (p. 245) continued</b>					
Kopa * (Group NC)	aphids	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	2% v/v	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed. Use 2% v/v (e.g., 20 L/100 L water).</p> <p>Test a small area of each variety prior to spraying the whole block. This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical. Applying soap more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress. Application within 3 days of sulphur may increase plant injury on sensitive plants.</p>	<p><b>Common name:</b> potassium salts of fatty acids  <b>Preharvest interval:</b> 12 hr  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> —</p>
	European red mite	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>			
Luna Sensation (Group 7 + 11)	brown rot (blossom blight stage) brown rot	<ul style="list-style-type: none"> <li>bloom</li> <li>petal fall to shuck</li> <li>shuck split to shuck fall</li> <li>first cover (10–12 days after shuck fall)</li> <li>prepick to harvest</li> </ul>	300–400 mL/ha	Use no more than 2 consecutive applications, then rotate to a different fungicide group.	<p><b>Common name:</b> fluopyram + trifloxystrobin  <b>Preharvest interval:</b> 1 day  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 1.98 L/ha</p>
	scab	<ul style="list-style-type: none"> <li>petal fall to shuck</li> <li>shuck split to shuck fall</li> <li>first cover (10–12 days after shuck fall)</li> </ul>			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Apricot Calendar (p. 245) continued</b>					
XenTari WG (Group 11)	obliquebanded leafroller	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	0.5–1.6 kg/ha	<p>Product must be consumed to be effective. Apply in a high-volume spray (500–1,600 L/ha) to ensure thorough coverage on both sides of the leaves. For overwintering generation, apply at petal fall. For summer generations, apply at 240–280 DDC (base 6.1°C) after first sustained moth catch. Death of insect may take several days. Apply weekly if needed.</p> <p>Acidify spray mix to below pH 7.0 and apply on cloudy days or in the evening. May provide suppression of oriental fruit moth.</p>	<p><b>Common name:</b> <i>Bacillus thuringiensis</i> subsp. <i>aizawai</i>  <b>Preharvest interval:</b> 0 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> —</p>
<b>Chapter 5: Sweet Cherry Calendar (p. 257)</b>					
Beleaf 50 SG (Group 29)	black cherry aphid	<ul style="list-style-type: none"> <li>petal fall</li> </ul>	120–160 g/ha	Use high rate for high pressure and/or dense foliage.	<p><b>Common name:</b> flonicamid  <b>Preharvest interval:</b> 14 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 3 applications</p>
Delegate (Group 5)	peach tree borer lesser peach tree borer	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	420 g/ha	<p><b>Suppression only.</b></p> <p>Use spray volume at 1,500–2,000 L/ha. Using a handgun or backpack sprayer, direct the spray to cover the tree trunk and scaffold limbs from ground level to 1.5 m above ground, particularly the graft union and any pruning cuts. Thorough coverage is essential. Target the 1st instar larvae stage beginning 7–10 days after first adult trap catch. Repeat applications at 14–21-day intervals.</p>	<p><b>Common name:</b> spinetoram  <b>Preharvest interval:</b> 5 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 3 trunk sprays</p>

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Sweet Cherry Calendar (p. 257) continued</b>					
Harvanta 50SL (Group 28)	obliquebanded leaf roller	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	1.2–1.6 L/ha	<p>Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.</p> <p>For obliquebanded leafroller, for overwintering generation, apply at petal fall. For summer generations, apply at 240–280 DDC (base 6.1°C) after first sustained moth catch. If larval activity is extended, reapply after 10–14 days.</p> <p>For plum curculio, <b>suppression only</b>.</p>	<p><b>Common name:</b> cyclaniliprole  <b>Preharvest interval:</b> 7 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 5 applications (max 6 L/ha)</p>
	plum curculio	<ul style="list-style-type: none"> <li>shuck fall</li> <li>first cover (12 days after shuck fall)</li> <li>second cover (12 days after first cover)</li> </ul>			
	spotted wing drosophila	<ul style="list-style-type: none"> <li>second cover (12 days after first cover)</li> <li>third cover</li> <li>prepick</li> </ul>			
Kopa * (Group NC)	black cherry aphids	<ul style="list-style-type: none"> <li>petal fall</li> </ul>	2% v/v	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed. Use 2% v/v (e.g., 20 L/100 L water).</p> <p>Test a small area of each variety prior to spraying the whole block. This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical. Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress. Application within 3 days of sulphur may increase plant injury on sensitive plants. Do not exceed a maximum rate of 950 L/ha of spray solution up to fruit formation.</p>	<p><b>Common name:</b> potassium salts of fatty acids  <b>Preharvest interval:</b> 12 hr  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> —</p>
Luna Sensation (Group 7 + 11)	brown rot (blossom blight stage) brown rot	<ul style="list-style-type: none"> <li>white bud</li> <li>bloom</li> <li>shuck fall</li> <li>first cover</li> <li>third cover</li> <li>prepick</li> </ul>	300–400 mL/ha	<p>Use no more than 2 consecutive applications, then rotate to a different fungicide group.</p>	<p><b>Common name:</b> fluopyram + trifloxystrobin  <b>Preharvest interval:</b> 1 day  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 1.98 L/ha</p>

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

LEGEND: DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Sweet Cherry Calendar (p. 257) continued</b>					
Parasol Flowable (Group M)	bacterial canker	<ul style="list-style-type: none"> <li>dormant (before bud break)</li> <li>fall spray</li> </ul>	8.8–13.1 L/ha	No product-specific comments.	<b>Common name:</b> copper hydroxide <b>Preharvest interval:</b> dormant only <b>Restricted entry period:</b> 48 hr <b>Maximum per season:</b> 2 applications
ReTain (Group NC)	improved fruit set	<ul style="list-style-type: none"> <li>early bloom</li> </ul>	333 g (1 pouch)/0.4 ha	Do not apply when fruit are present. Ensure thorough coverage for best results.	<b>Common name:</b> aviglycine hydrochloride <b>Preharvest interval:</b> 7 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 1 application
XenTari WG (Group 11)	obliquebanded leafroller	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	0.5–1.6 kg/ha	Product must be consumed to be effective. Apply in a high-volume spray using (500–1,600 L/ha) to ensure thorough coverage on both sides of the leaves.  For overwintering generation, apply at petal fall. For summer generations, apply at 240–280 DDC (base 6.1°C) after first sustained moth catch. Death of insect may take several days. Apply weekly if needed. Acidify spray mix to below pH 7.0 and apply on cloudy days or in the evening.	<b>Common name:</b> <i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> <b>Preharvest interval:</b> 0 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> —
<b>Chapter 5: Tart Cherry Calendar (p. 271)</b>					
Beleaf 50 SG (Group 29)	aphids	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	120–160 g/ha	Use high rate for high pressure and/or dense foliage.	<b>Common name:</b> flonicamid <b>Preharvest interval:</b> 14 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 3 applications
Delegate (Group 5)	peach tree borer lesser peach tree borer	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	420 g/ha	<b>Suppression only.</b>  Use spray volume at 1,500–2,000 L/ha. Using a handgun or backpack sprayer, direct the spray to cover the tree trunk and scaffold limbs from ground level to 1.5 m above ground, particularly the graft union and any pruning cuts. Thorough coverage is essential. Target the 1st instar larvae stage beginning 7–10 days after first adult trap catch. Repeat applications at 14–21-day intervals.	<b>Common name:</b> spinetoram <b>Preharvest interval:</b> 5 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 3 trunk sprays

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Tart Cherry Calendar (p. 271) continued</b>					
Harvanta 50SL (Group 28)	obliquebanded leaf roller	<ul style="list-style-type: none"> <li>• first cover (12 days after shuck split)</li> <li>• second cover (12 days after first cover)</li> </ul>	1.2–1.6 L/ha	<p>Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.</p> <p>For obliquebanded leafroller, apply at 240–280 DDC (base 7.2°C) after first sustained moth catch. Reapply 10 days later if emergence is extended.</p> <p>For plum curculio, <b>suppression only.</b></p>	<p><b>Common name:</b> cyclanilprole  <b>Preharvest interval:</b> 7 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 5 applications (max 6 L/ha)</p>
	spotted wing drosophila	<ul style="list-style-type: none"> <li>• second cover (12 days after first cover)</li> <li>• third cover</li> <li>• preharvest</li> </ul>			
	plum curculio	<ul style="list-style-type: none"> <li>• shuck split</li> <li>• first cover (12 days after shuck fall)</li> <li>• second cover (12 days after first cover)</li> </ul>			
Kopa * (Group NC)	European red mite	<ul style="list-style-type: none"> <li>• special sprays (when monitoring indicates the need)</li> </ul>	2% v/v	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed. Use 2% v/v (e.g., 20 L/100 L water).</p> <p>Test a small area of each variety prior to spraying the whole block. This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical. Applying soaps more than 3 times may cause plant injury. See label details. Avoid application in direct sunlight or to plants under stress. Application within 3 days of sulphur may increase plant injury on sensitive plants. Do not exceed a maximum rate of 950 L/ha of spray solution up to fruit formation.</p>	<p><b>Common name:</b> potassium salts of fatty acids  <b>Preharvest interval:</b> 12 hr  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> —</p>
	aphids	<ul style="list-style-type: none"> <li>• special sprays (when monitoring indicates the need)</li> </ul>			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Tart Cherry Calendar (p. 271) continued</b>					
Luna Sensation (Group 7 + 11)	leaf spot	<ul style="list-style-type: none"> <li>• petal fall</li> <li>• shuck split</li> <li>• first cover</li> <li>• second cover</li> <li>• third cover</li> </ul>	300–400 mL/ha	Use no more than 2 consecutive applications, then rotate to a different fungicide group.	<b>Common name:</b> fluopyram + trifloxystrobin <b>Preharvest interval:</b> 1 day <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 1.98 L/ha
	powdery mildew	<ul style="list-style-type: none"> <li>• first cover</li> <li>• second cover</li> <li>• postharvest</li> </ul>			
	brown rot (blossom blight stage) brown rot	<ul style="list-style-type: none"> <li>• bloom</li> <li>• shuck split</li> <li>• third cover</li> <li>• preharvest</li> </ul>			
Parasol Flowable (Group M)	bacterial canker	<ul style="list-style-type: none"> <li>• dormant (before bud break)</li> <li>• fall spray</li> </ul>	8.8–13.1 L/ha	No product specific comments.	<b>Common name:</b> copper hydroxide <b>Preharvest interval:</b> dormant only <b>Restricted entry period:</b> 48 hr <b>Maximum per season:</b> 2 applications
XenTari WG (Group 11)	obliquebanded leafroller	<ul style="list-style-type: none"> <li>• first cover (12 days after shuck fall)</li> <li>• second cover (12 days after first cover)</li> </ul>	0.5–1.6 kg/ha	Product must be consumed to be effective. Apply in a high-volume spray (500–1,600 L/ha) to ensure thorough coverage on both sides of the leaves.  Apply at 240–280 DDC (base 7.2°C) after first sustained moth catch. Death of insect may take several days. Apply weekly if needed.  Acidify spray mix to below pH 7.0 and apply on cloudy days or in the evening.	<b>Common name:</b> <i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> <b>Preharvest interval:</b> 0 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> —

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Peach and Nectarine Calendar (p. 289)</b>					
Ambush 500EC (Group 3)	plum curculio	• shuck split to shuck fall	400 mL/ha	Under high pressure may provide suppression only.	<b>Common name:</b> permethrin <b>Preharvest interval:</b> 7 days <b>Restricted entry period:</b> when dry <b>Maximum per season:</b> —
Delegate (Group 5)	peach tree borer lesser peach tree borer	• shuck split to shuck fall	420 g/ha	<b>Suppression only.</b> Use spray volume at 1,500–2,000 L/ha. Using a handgun or backpack sprayer, direct the spray to cover the tree trunk and scaffold limbs from ground level to 1.5 m above ground, particularly the graft union and any pruning cuts. Thorough coverage is essential. Target the 1st instar larvae stage, beginning 7–10 days after first trap catch. Repeat applications at 14–21-day intervals.	<b>Common name:</b> spinetoram <b>Preharvest interval:</b> 1 day <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 3 trunk sprays
Harvanta 50SL (Group 28)	oriental fruit moth	• shuck split to shuck fall • second-generation oriental fruit moth (OFM) spray • third-generation oriental fruit moth (OFM) spray (late varieties) • prepick spray	1.2–1.6 L/ha	Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.  For oriental fruit moth, apply at 194–208 DDC at shuck split, at 639–667 DDC and again at 722–750 DDC for second generation, 1,167–1,222 DDC and again at 1,361–1,389 DDC.  For plum curculio, <b>suppression only.</b> For western flower thrips, <b>suppression only.</b>	<b>Common name:</b> cyclaniliprole <b>Preharvest interval:</b> 7 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 5 applications (max 6 L/ha)
	plum curculio	• shuck split to shuck fall			
	western flower thrips	• petal fall to shuck • shuck split to shuck fall			
	spotted wing drosophila	• special sprays (when monitoring indicates the need)			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Peach and Nectarine Calendar (p. 289) continued</b>					
Kopa * (Group NC)	aphids	<ul style="list-style-type: none"> <li>petal fall to shuck</li> </ul>	2% v/v	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed. Use 2% v/v (e.g., 20 L/100 L water).</p> <p>Test a small area of each variety prior to spraying the whole block. This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical. Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress. Application within 3 days of sulphur may increase plant injury on sensitive plants. Do not exceed a maximum rate of 950 L/ha on nectarines. Do not exceed a maximum rate of 1,650 L/ha of spray solution on peaches. Do not use on yellow-skinned nectarines.</p>	<p><b>Common name:</b> potassium salts of fatty acids  <b>Preharvest interval:</b> 12 hr  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> —</p>
	European red mite	<ul style="list-style-type: none"> <li>prebloom (half-inch green to first pick)</li> <li>petal fall to shuck</li> <li>special sprays (when monitoring indicates the need)</li> </ul>			
	two-spotted spider mite	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>			
Luna Sensation (Group 7 + 11)	brown rot (blossom blight stage) brown rot	<ul style="list-style-type: none"> <li>pink</li> <li>bloom</li> <li>petal fall to shuck</li> <li>shuck split to shuck fall</li> <li>second-generation oriental fruit moth spray</li> <li>third generation oriental fruit moth spray (late varieties)</li> <li>prepick spray</li> </ul>	300–400 mL/ha	Use no more than 2 consecutive applications, then rotate to a different fungicide group.	<p><b>Common name:</b> fluopyram + trifloxystrobin  <b>Preharvest interval:</b> 1 day  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> max 1.98 L/ha</p>
	scab	<ul style="list-style-type: none"> <li>shuck split to shuck fall</li> <li>second-generation oriental fruit moth spray</li> </ul>			
	powdery mildew	<ul style="list-style-type: none"> <li>shuck split to shuck fall</li> <li>second-generation oriental fruit moth spray</li> </ul>			

\*Potentially organic. Check with certifying body.



## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Peach and Nectarine Calendar (p. 289) continued</b>					
Parasol Flowable (Group M)	leaf curl	<ul style="list-style-type: none"> <li>dormant (in March or early April before buds swell)</li> <li>fall spray</li> </ul>	4.5–8.9 L/ha	Use the higher rate when rainfall is very heavy and disease pressure is high.	<b>Common name:</b> copper hydroxide <b>Preharvest interval:</b> dormant only <b>Restricted entry period:</b> 48 hr <b>Maximum per season:</b> 2 applications

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## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Pear Calendar (p. 307)</b>					
Harvanta 50SL (Group 28)	obliquebanded leafroller	<ul style="list-style-type: none"> <li>petal fall</li> <li>summer sprays</li> </ul>	1.2–1.6 L/ha	<p>Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.</p> <p>For obliquebanded leafroller, for overwintering generation, apply at petal fall. For summer generations, apply at 240–280 DDC (base 6.1°C) after first sustained moth catch. If larval activity is extended, reapply after 10–14 days.</p> <p>For plum curculio, <b>suppression only.</b></p> <p>For codling moth, apply at 138 DDC for special sprays petal fall and 667–694 DDC for special sprays late summer.</p> <p>For oriental fruit moth, apply at egg hatch or 778–833 DDC for second cover and 1,361–1,389 DDC for special sprays late summer.</p>	<p><b>Common name:</b> cyclanilprole  <b>Preharvest interval:</b> 7 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 5 applications (max 6 L/ha)</p>
	plum curculio	<ul style="list-style-type: none"> <li>petal fall</li> </ul>			
	codling moth	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need at petal fall)</li> <li>special sprays (when monitoring indicates the need about mid-August and early September)</li> </ul>			
	oriental fruit moth	<ul style="list-style-type: none"> <li>second cover</li> <li>special sprays (when monitoring indicates the need about mid-August and early September)</li> </ul>			
Kopa * (Group NC)	European red mite	<ul style="list-style-type: none"> <li>green tip</li> <li>petal fall</li> </ul>	2% v/v	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed. Use with care on pears after delayed dormant stage due to potential for fruit marking. Use 2% v/v (e.g., 20 L/100 L water).</p> <p>Test a small area of each variety prior to spraying the whole block. This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical. Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress. Application within 3 days of sulphur may increase plant injury on sensitive plants.</p>	<p><b>Common name:</b> potassium salts of fatty acids  <b>Preharvest interval:</b> 12 hr  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> —</p>
	two-spotted spider mite	<ul style="list-style-type: none"> <li>petal fall</li> </ul>			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Pear Calendar (p. 307) continued</b>					
Minecto Pro (Group 28 + 6)	European red mite	• petal fall	496–1,000 mL/ha	<p>Tank mix with 0.25%–1% (2.5–10 L/1,000 L) spray oil. Do not tank-mix with strobilurins, copper or captan fungicides. See product label for other tank-mix restrictions.</p> <p>For European red mite and two-spotted spider mite, for best results, apply before a threshold of five spider mites per leaf is reached. Residual spider mite control is greater from spray deposits on newer leaves compared to older. If monitoring indicates the need, a second application at an interval of 21 days may be made.</p> <p>For oriental fruit moth, apply at first egg hatch or 778–833 DDC for second cover and 1,361–1,389 DDC for late summer spray.</p> <p>For codling moth, apply at 138 DDC and 667–694 DDC.</p> <p>For obliquebanded leafroller overwintering generation, apply at petal fall. For summer generations, apply at 240–280 DDC (base 6.1°C) after first sustained moth catch. If larval activity is extended, reapply after 10–14 days.</p> <p>For pear psylla, if monitoring indicates the need, a second application at an interval of 21 days may be made.</p> <p>For pear rust mite, apply before mite populations build up. Miticides are best applied alone. Thorough coverage is essential for good control.</p>	<p><b>Common name:</b> cyantraniliprole + abamectin  <b>Preharvest interval:</b> 28 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 1 application</p>
	two-spotted spider mite				
	oriental fruit moth	• second cover • special sprays (when monitoring indicates the need about mid-August and early September)	556 mL/ha		
	codling moth	• special sprays (when monitoring indicates the need at petal fall) • special sprays (when monitoring indicates the need about mid-August and early September)	556 mL/ha		
	obliquebanded leafroller	• petal fall • summer sprays	496–741 mL/ha		
	plum curculio	• petal fall	741–919 mL/ha		
	pear psylla	• petal fall • first cover (7–14 days after petal fall) • summer sprays	496–1,000 mL/ha		
pear rust mite	• petal fall • summer sprays	496–1,000 mL/ha			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Pear Calendar (p. 307) continued</b>					
OxiDate 2.0* (Group NC)	fire blight	<ul style="list-style-type: none"> <li>• bloom</li> <li>• petal fall</li> </ul>	1.0% v/v	<p><b>Partial suppression only.</b></p> <p>Use sufficient spray mix to thoroughly wet target. Spray to point of run-off. For increased coverage, use a compatible non-ionic wetting agent/surfactant. Do not spray during conditions of intense heat, drought or poor plant vigour. Avoid application before rain or when winds are gusty. Use 1% v/v (e.g., 10 L/100 L water).</p> <p>OxiDate 2.0 works best using a solution of neutral pH.</p>	<p><b>Common name:</b> hydrogen peroxide + peroxyacetic acid</p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry period:</b> 4 hr or when dry</p> <p><b>Maximum per season:</b> 8 applications</p>
Parasol Flowable (Group M)	fire blight	<ul style="list-style-type: none"> <li>• dormant</li> </ul>	4.7 L/ha	<p>Copper is a contact bactericide only and does not have activity on the fire blight pathogen within the plant tissue. Apply when overwintering cankers begin to ooze as tree breaks dormancy. Thorough coverage of limbs and trunk is essential for good control. This spray does not eliminate the need for blossom blight management.</p>	<p><b>Common name:</b> copper hydroxide</p> <p><b>Preharvest interval:</b> dormant only</p> <p><b>Restricted entry period:</b> 48 hr</p> <p><b>Maximum per season:</b> 1 application</p>
XenTari WG (Group 11)	obliquebanded leafroller	<ul style="list-style-type: none"> <li>• petal fall</li> <li>• summer sprays</li> </ul>	0.5–1.6 kg/ha	<p>Product must be consumed by insect to be effective. Apply in a high-volume spray (500–1,600 L/ha) to ensure thorough coverage on both sides of the leaves.</p> <p>For overwintering generation, apply at petal fall. For summer generations, apply at 240–280 DDC (base 6.1°C) after first sustained moth catch. Death of insect may take several days. Apply weekly if needed.</p> <p>Acidify spray mix to below pH 7.0 and apply on cloudy days or in the evening.</p>	<p><b>Common name:</b> <i>Bacillus thuringiensis</i> subsp. <i>aizawai</i></p> <p><b>Preharvest interval:</b> 0 days</p> <p><b>Restricted entry period:</b> 12 hr</p> <p><b>Maximum per season:</b> —</p>

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Plum Calendar (p. 327)</b>					
Ambush 500EC (Group 3)	plum curculio	<ul style="list-style-type: none"> <li>shuck split to shuck fall (when most of the shucks are off)</li> <li>first cover (12 days after shuck fall)</li> </ul>	425 mL/ha	Under high pressure may provide suppression only.	<b>Common name:</b> permethrin <b>Preharvest interval:</b> 7 days <b>Restricted entry period:</b> when dry <b>Maximum per season:</b> —
Delegate (Group 5)	peach tree borer lesser peach tree borer	<ul style="list-style-type: none"> <li>special sprays</li> </ul>	420 g/ha	<b>Suppression only.</b> Use spray volume at 1,500–2,000 L/ha. Using a handgun or backpack sprayer, direct the spray to cover the tree trunk and scaffold limbs from ground level to 1.5 m above ground, particularly the graft union and any pruning cuts. Thorough coverage is essential. Target the 1st instar larvae stage beginning 7–10 days after first adult trap catch. Repeat applications at 14–21-day intervals.	<b>Common name:</b> spinetoram <b>Preharvest interval:</b> 3 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 3 trunk sprays
Harvanta 50SL (Group 28)	oriental fruit moth	<ul style="list-style-type: none"> <li>shuck split to shuck fall (when most of the shucks are off)</li> <li>second cover</li> <li>prepick</li> </ul>	1.2–1.6 L/ha	Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.  For oriental fruit moth, apply at 194–208 DDC at shuck fall and 639–667 DDC and again at 805–833 DDC for second cover.  For plum curculio, <b>suppression only.</b>  For obliquebanded leafroller, for summer generations, apply at 240–280 DDC (base 6.1°C) after first sustained moth catch. If larval activity is extended, reapply after 10–14 days.	<b>Common name:</b> cyclanilprole <b>Preharvest interval:</b> 7 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 5 applications (max 6 L/ha)
	plum curculio	<ul style="list-style-type: none"> <li>shuck split to shuck fall (when most of the shucks are off)</li> <li>first cover (12 days after shuck fall)</li> </ul>			
	obliquebanded leafroller	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>			

\*Potentially organic. Check with certifying body.

## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 5: Plum Calendar (p. 327) continued</b>					
Kopa * (Group NC)	aphids	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	2% v/v	<p>Begin applications when populations are low and reapply every 1–3 weeks as needed. Use 2% v/v (e.g., 20 L/100 L water).</p> <p>Test a small area of each variety prior to spraying the whole block. This product must coat the bodies of susceptible, soft-bodied insects to be effective. Good coverage of all sides of plant parts is critical. Applying soaps more than 3 times may cause plant injury. See label for details. Avoid application in direct sunlight or to plants under stress. Application within 3 days of sulphur may increase plant injury on sensitive plants. Do not exceed 950 L/ha of spray solution up to fruit formation.</p>	<p><b>Common name:</b> potassium salts of fatty acids  <b>Preharvest interval:</b> 12 hr  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> —</p>
	European red mite	<ul style="list-style-type: none"> <li>green tip (just as buds are bursting)</li> </ul>			
Luna Sensation (Group 7 + 11)	brown rot (blossom blight stage) brown rot	<ul style="list-style-type: none"> <li>popcorn</li> <li>bloom</li> <li>petal fall to shuck</li> <li>shuck split to shuck fall</li> <li>first cover</li> <li>second cover</li> <li>prepick</li> </ul>	300–400 mL/ha	Use no more than 2 consecutive applications then rotate to a different fungicide group.	<p><b>Common name:</b> fluopyram + trifloxystrobin  <b>Preharvest interval:</b> 1 day  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 1.98 L/ha</p>
XenTari (Group 11)	obliquebanded leafroller	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	0.5–1.6 kg/ha	<p>Product must be consumed to be effective. Apply in a high-volume spray (500–1,600 L/ha) to ensure thorough coverage on both sides of the leaves.</p> <p>For summer generations, apply at 240–280 DDC (base 6.1°C) after first sustained moth catch. Death of insect may take several days. Apply weekly if needed. Acidify spray mix to below pH 7.0 and apply on cloudy days or in the evening.</p> <p>May provide suppression of oriental fruit moth.</p>	<p><b>Common name:</b> <i>Bacillus thuringiensis</i> subsp. <i>aizawai</i>  <b>Preharvest interval:</b> 0 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> —</p>

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## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 6: Walnut Calendar (p. 347)</b>					
Harvanta 50SL (Group 28)	leafroller	<ul style="list-style-type: none"> <li>• prebloom</li> <li>• summer sprays</li> </ul>	1.2–1.6 L/ha	Toxic to bees. Do not apply during the crop blooming period. Apply when overwintering larvae become active. Can also be used later in the growing season at or just prior to leafroller egg hatch. Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.	<b>Common name:</b> cyclaniliprole <b>Preharvest interval:</b> 30 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 5 applications (max 6 L/ha)
	codling moth	<ul style="list-style-type: none"> <li>• prebloom</li> <li>• summer sprays</li> </ul>	1.6 L/ha	Toxic to bees. Do not apply during the crop blooming period. Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.	
	husk maggot	<ul style="list-style-type: none"> <li>• summer sprays</li> </ul>	1.2–1.6 L/ha		
<b>Chapter 6: Pecan and Sweet Chestnut Calendar (p. 359)</b>					
Delegate (Group 5)	chestnut weevil	<ul style="list-style-type: none"> <li>• summer sprays</li> </ul>	420 g/ha	<b>Suppression only.</b> Apply when adults first appear in traps or at the first sign of adult feeding damage. Repeat in 14 days if populations warrant.  Use spray volume at 1,500–2,000 L/ha.	<b>Common name:</b> spinetoram <b>Preharvest interval:</b> 14 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 3 applications
Harvanta 50SL (Group 28)	leafroller	<ul style="list-style-type: none"> <li>• prebloom</li> <li>• summer sprays</li> </ul>	1.2–1.6 L/ha	Toxic to bees. Do not apply during the crop blooming period. Apply when overwintering larvae become active. Can also be used later in the growing season at or just prior to egg hatch. Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.	<b>Common name:</b> cyclaniliprole <b>Preharvest interval:</b> 30 days <b>Restricted entry period:</b> 12 hr <b>Maximum per season:</b> 5 applications (max 6 L/ha)

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## ADDITIONS AND NEW USES FOR 2019

**LEGEND:** DDC = degree days Celsius

Product to Add	Disease/Insect	Timing	Rate	Comments	Other Information
<b>Chapter 6: Filbert/Hazelnut Calendar (p. 369)</b>					
Delegate (Group 5)	hazelnut weevil	<ul style="list-style-type: none"> <li>special sprays (when monitoring indicates the need)</li> </ul>	420 g/ha	<p><b>Suppression only.</b></p> <p>Apply at the first sign of adult feeding damage. Repeat in 14 days if populations warrant. Hazelnut weevil is not usually a problem in commercial hazelnut orchards.</p>	<p><b>Common name:</b> spinetoram  <b>Preharvest interval:</b> 14 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 3 applications</p>
Harvanta 50SL (Group 28)	leafroller	<ul style="list-style-type: none"> <li>early spring (&gt;6.4 mm (¼ in.) vegetative growth)</li> <li>summer</li> </ul>	1.2–1.6 L/ha	<p>Toxic to bees. Do not apply during the crop blooming period. Apply when overwintering larvae become active. Can also be used later in the growing season at or just prior to egg hatch. Avoid applying consecutively more than 2 times within a 30-day period. Avoid applying more than 2 times within a single generation of insect pests.</p>	<p><b>Common name:</b> cyclaniliprole  <b>Preharvest interval:</b> 30 days  <b>Restricted entry period:</b> 12 hr  <b>Maximum per season:</b> 5 applications (max 6 L/ha)</p>
Parasol Flowable (Group M)	bacterial blight	<ul style="list-style-type: none"> <li>fall sprays</li> </ul>	4.4–11.4 L/ha	<p>Apply as a dormant spray only when three-quarters of leaves have fallen. Use other registered products for bacterial blight control before dormancy (time sprays after harvest but before fall rains). Use lower rate on small trees and higher rate on large trees. Do not use in combination with or closely following Vegol or Exirel.</p>	<p><b>Common name:</b> copper hydroxide  <b>Preharvest interval:</b> dormant only  <b>Restricted entry period:</b> 48 hr  <b>Maximum per season:</b> 1 application</p>

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