

Apple

Stage of Development: Dormant to Silver Tip							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Ambrosia Beetle	Notes: There are currently no registered products for controlling ambrosia beetle on apples. Good sanitation is the best management strategy. Remove large wood piles and prunings from the orchard. Cultural control by maintaining optimum tree vigour is important as ambrosia beetles are attracted to trees weakened by drought, transplanting, disease, etc. See description of ambrosia beetles for more information on the life cycle and methods to intercept female beetles flying into orchard.						
Fire Blight	Copper hydroxide (Parasol) 25901	M1	4.7 L	1.9 L	48 hrs	2 days	Apply in sufficient water for complete coverage. Max. two applications per year.
	copper octanoate (Cueva Commercial) 31825	M1	Prepare 0.5-2% solution (5-20 L/1000 L water)		4 h	1	Apply 470-940 L of mixture/ha (190-380 L/acre) as a dormant spray as buds begin to swell, repeating at the bud burst stage, and weekly thereafter as needed, up to six sprays. Remove cankers by March 31. See fire blight description. The higher rate for dormant sprays is more likely to be effective.
	copper oxychloride (Copper Spray 19146)	M1	4kg	1.6kg	48 h	n/a	Remove cankers by March 31. See fire blight description.

Stage of Development: 15 mm Green to Tight Cluster							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Rosy Apple Aphid	afidopyropen (Versys) 33266	9D	0.1 L	0.04 L	12 hrs	7 days	Allow 7 days between applications. Do not apply more than 4 times per season. For resistance management, rotate with another insecticide group after 2 applications.
	sulfoxaflor (Closer) 30826	4C	100-200 mL	40-80 mL	12 h	7	Do not apply more than 2 times/season. Spray interval: minimum 7 days.
Apple Aphid	afidopyropen (Versys) 33266	9D	0.1 L	0.04 L	12 hrs	7 days	Allow 7 days between applications. Do not apply more than 4 times per season. For resistance management, rotate with another insecticide group after 2 applications.
	sulfoxaflor (Closer) 30826	4C	100-200 mL	40-80 mL	12 h	7	Do not apply more than 2 times/season. Spray interval: minimum 7 days.
Woolly Apple Aphid	sulfoxaflor (Closer) 30826	4C	200 mL	80 mL	12 h	7	Suppression only. Do not apply more than 2 times/season. Spray interval: minimum 7 days.
San Jose Scale	mineral oil (Superior 70) 14981	NC	60 L	24 L	12 h	n/a	Apply once at green tip to 1 cm green stage. Do not use prior to or during freezing temperatures or rain. May cause bark damage on Red Delicious.
	mineral oil	NC	90 L	36 L	12 h	n/a	Apply once at green tip to 1 cm green stage. Do not use prior

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Stage of Development: 15 mm Green to Tight Cluster							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	(Guardsman) 23370						to or during freezing temperatures or rain. May cause bark damage on Red Delicious.
	mineral oil (Purespray Green) 27666	NC	20L/1000 L of Water	20L/1000 L of Water	12 h	0	Apply once at green tip to 1 cm green stage. Do not use prior to or during freezing temperatures or rain. May cause bark damage on Red Delicious.
European Red Mite	mineral oil (Superior 70) 14981	NC	60 L	24 L	12 h	n/a	Apply once at green tip to 1 cm green stage. Do not use prior to or during freezing temperatures or rain. May cause bark damage on Red Delicious.
	mineral oil (Guardsman) 23370	NC	90 L	36 L	12 h	n/a	Apply once at green tip to 1 cm green stage. Do not use prior to or during freezing temperatures or rain. May cause bark damage on Red Delicious.
	mineral oil (Purespray Green) 27666	NC	20L/1000 L of Water	20L/1000 L of Water	12 h	0	Apply once at green tip to 1 cm green stage. Do not use prior to or during freezing temperatures or rain. May cause bark damage on Red Delicious.
Notes: Dormant oil is very important for integrated mite control program.							
Powdery Mildew (Apples)	Polyoxin D Zinc Salt (Diplomat 5SC) 32918	19	259 - 926 ml	104 - 374 ml		0 days	Suppression of powdery mildew. Begin as a preventative application when conditions favour disease development, 7 - 14 day spray interval. Number of applications: 3-10 depending on rate.
	benzovindiflupyr + difenoconazole (Aprovia Top) 31526	3 + 7	643 mL	260 mL	12 h	30	Rotate with other fungicides that do not contain Group 3 or Group 7 fungicides for resistance management. Do not apply more than 2 consecutive applications.
	benzovindiflupyr (Aprovia) 31981	7	500 mL	202 mL	12 h	30	Rotate with other non-Group 7 products. Do not apply in two consecutive sprays nor more than 2 L/ha (1.0 L/acre) per season.
	fluxapyroxad (Sercadis) 31697	7	167-333 mL	68-135 mL	12 h	0	The use of a non-ionic surfactant (0.125%) is recommended. Begin treatment when conditions favour disease development. Apply a second spray 7-14 days up to blossom if conditions for disease development persist. Maximum amount per season: 1.33 L/ha (538 mL/acre). Maximum 4 applications per season.
	difenoconazole + cyprodinil (Inspire Super) 30827	3 + 9	836 mL	338 mL	12 h	14	Suppression of powdery mildew. Limit use of group 3 fungicides (Nova, Inspire, Fullback) to 2 sprays/season.
	flutriafol (Fullback) 31679	3	585 - 877 mL	237 - 355 mL	12 h	14	Limit use of group 2 fungicides (Nova, Inspire, Fullback) to 2 sprays/season. Rotate with fungicides from other groups.
	myclobutanil (Nova 40WP) 22399	3	340 g	140 g	12 h-12	14	Limit use of Group 3 fungicides (nova, Inspire) to 2 sprays per season. Rotate with fungicides from other groups. 12

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Stage of Development: 15 mm Green to Tight Cluster							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
					days		days REI for thinning.
	kresoxim-methyl (Sovran) 26257	11	240 - 450 g	100 - 182 g	48 h	30	Use high rate for high disease pressure. Limit sprays of group 11 fungicides to 2 per season. Caution: drift may injure cherries.
	trifloxystrobin (Flint) 30619	11	140 - 210 g	57 - 85 g	12 h-4 days	14	Use the higher rate during pink to bloom stages. Limit sprays of group 11 fungicides (Flint, Sovran, Pristine) to 2 per season. 4 days REI for thinning.
	thiophanate-methyl (Senator 50SC) 32096	1	3.15 L	1.27 L	24 h*	1	May harm predatory mites. Maximum 2 applications per season.
	mineral oil (Purespray Green) 27666	NC	10 L	4 L	12 h	0	For suppression of powdery mildew, apply in a minimum of 1000 L water/ha at tight cluster and repeat at 10-14 day intervals. Do not use in combination with or within 14 days of sulphur, Kumulus, Microthiol or captan. Do not apply during freezing temperatures.
	sulphur (Cosavet DF Edge 31869, Kumulus 18836)	M2	7.0 kg	2.8 kg	24 h	1	Do not apply sulphur in combination with, immediately before, or closely following oil sprays.
	boscalid + pyraclostrobin (Pristine WG) 27985	7 + 11	1.0 - 1.2 kg	405 - 485 g	dry to 12 days	5	Avoid more than 2 consecutive applications. Limit sprays of Group 11 fungicides (Flint, Sovran, Pristine) to 2 per season. 12 days REI for thinning.
	penthiopyrad (Fontelis) 30331	7	1.0-1.5 L	405-607 mL		28	Do not apply more than 3 times per season, or more than twice sequentially. Use high rate for high disease pressure.
	fluopyram pyrimethanil (Luna Tranquility) 30510	7 + 9	600 mL	242 mL	12 h	14	Use as preventative treatment. Do not apply more than 2 times/season.
	Notes: Early spring applications of fungicide (beginning no later than tight cluster) are necessary to prevent secondary spread of powdery mildew in susceptible apple varieties.						
Apple Scab	Isofetamid (Kenja 31758)	7	913 ml	369 ml	12 hours	20	Do not apply more than 2 consecutive Group 7 applications. Application interval: 10 to 14 days.
	benzovindiflupyr + difenoconazole (Aprovia Top) 31526	3 + 7	386 - 643 mL	156 - 260 mL		30	Tank mix with protectant fungicide for improved fruit scab control. Use high rate for mildew. Rotate with other fungicide groups for resistance management. Do not apply more than 2.57 L/ha/season.
	copper octanoate (Cueva Commercial) 31825	M1	Prepare 0.5-2% solution (5-20 L/1000 L water)		4 h	1	Apply 470-940 L of mixture/ha (190-380 L/acre). Do not exceed 1% rate for varieties susceptible to russetting. Repeat every 7-10 days as long as weather conditions favour disease development.

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Stage of Development: 15 mm Green to Tight Cluster							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	benzovindiflupyr (Aprovia) 31981	7	300-500 mL	121-202 mL	12 h	30	For improved fruit scab control, tank mix with a protectant fungicide (see label). Rotate with other non-Group 7 products. Do not apply in two consecutive sprays nor more than 2 L/ha (1.0 L/acre) per season.
	fluxapyroxad (Sercadis) 31697	7	167-333 mL	68-135 mL	12 h	0	The use of a non-ionic surfactant (0.125%) is recommended. Begin treatment when conditions favour disease development. Apply a second spray 7-14 days up to blossom if conditions for disease development persist. Maximum amount per season: 1.33 L/ha (538 mL/acre). Maximum 4 applications per season.
	fluazinam (Allegro) 27517	29	0.50-1.0 L	202-404 mL	24 h-3 days	28	Use highest rates and shortest intervals for high disease pressure. Will also suppress European red mite, apple rust mite and two spotted spider mites. 3 days REI for thinning.
	difenoconazole + cyprodinil (Inspire Super) 30827	3 + 9	560 - 836 mL	227 - 338 mL	12 h	14	Limit sprays of Group 3 fungicides (Nova, Inspire, Fullback) to 2 times/season. Tank mix with a protectant fungicide (Dithane, Manzate, Polyram, captan) for resistance management.
	pyrimethanil (Scala) 28011	9	0.75 - 1.0 L	304 - 405 mL	12 h-24 h	14	Do not use for apple scab after bloom. 24 hour REI for thinning.
	flutriafol (Fullback) 31679	3	950 mL	385 mL	12 h	14	Tank mix with the full rate of a protectant (e.g. Dithane, Manzate, Polyram, Captan, Maestro). Limit sprays of group 3 fungicides (Nova, Inspire, Fullback) to 2 times/season for resistance management.
	myclobutanil (Nova 40WP) 22399	3	340 g	140 g	12 h-12 days	14	Tank mix with the full rate of Dithane, Manzate, Polyram, Captan, or Maestro. Limit sprays of group 3 fungicides (Nova, Inspire, Fullback) to 2/season for resistance management. 12 days REI for thinning.
	kresoxim-methyl (Sovran) 26257	11	360 g	150 g	48 h	30	Caution: drift may injure cherries. Limit sprays of group 11 fungicides (Flint, Sovran, Pristine) to 2 per season.
	trifloxystrobin (Flint) 30619	11	140 - 175g	57 - 71 g	12 h - 4 days	14	Avoid more than 2 consecutive sprays. Limit sprays of Group 11 fungicides (Flint, Sovran, Pristine) to 2/season. 4 days REI for thinning.
	boscalid + pyraclostrobin (Pristine WG) 27985	7 + 11	1.0 - 1.2 kg	405 g - 485 g	dry - 12 days	5	Avoid more than 2 consecutive applications. Limit sprays of Group 11 fungicides (Flint, Sovran, Pristine) to 2 per season. 12 days REI for thinning.
	penthiopyrad (Fontelis) 30331	7	1.0-1.5 L	405-607 mL	12 h	28	Do not apply more than 3 times per season, or more than twice sequentially. Use high rate for high disease pressure.
	fluopyram	7 + 9	800 mL	323 mL	12 h	14	Do not apply more than 2 times per season.

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Stage of Development: 15 mm Green to Tight Cluster							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	pyrimethanil (Luna Tranquility) 30510						
	mancozeb (Dithane 20553, Manzate 28217)	M3	6.0kg	2.4 kg	24 h*	45	
	metiram (Polyram) 20087	M3	6.0 kg	2.4 kg	24 h*	45	
	captan (Captan Supra 24613, (Maestro)26408	M4	3.75kg	1.5kg	48h	7	Do not apply captan in combination with, immediately before or closely following oil sprays
Notes: Eradicant sprays are best used in a protective program. However they can be used soon after an infection period and still provide control.							
Notes: Foliage is susceptible to apple scab as early as green tip. Apply protective fungicides if wet weather is forecast. See apple scab description for more information.							

Stage of Development: Pink							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Obliquebanded and Threelined Leafrollers	cyclaniliprole (Harvanta 50SL) 32889	28	1.2 - 1.6 L	485 - 647 ml	12	7 days	Toxic to bees. Do not make more than 3 applications per crop year. Where possible, rotate the use of Harvanta or other Group 28 insecticides with different groups that control the same pests.
	Bacillus thuringiensis (Bioprotec PLUS) 32425	11	1.8-2.5 L	0.73-1.0 L	24 h*	0	Will also control other leaf-feeding larvae present. See Notes.
	Bacillus thuringiensis (Dipel 2X DF) 26508	11	1.125 - 1.675 kg	455 - 678 g	24 h*	0	Will also control other leaf-feeding larvae present.
	tebufenozide (Confirm) 24503	18	1.0 L	405 mL	dry - 12 h	14	Confirm should only be used if leafroller damage was low to moderate at harvest the previous season. Spray interval: 10 to 14 days.
Green Fruitworms	Bacillus thuringiensis (Bioprotec PLUS) 32425	11	1.8-2.5 L	0.73-1.0 L	24 h*	0	Will also control other leaf-feeding larvae present. See Notes.
	chlorantraniliprole (Altacor) 28981	28	145-215 g	59-87 g	12 h	5	Repeat if necessary at petal fall. Do not apply more than 3 times per season. Spray interval - 10 to 14 days.

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Stage of Development: Pink							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Eyespotted Bud Moth	cyantraniliprole (Exirel) 30895	28	500- 1000 mL	202- 404 mL	12 h	3	Apply when larvae are active. Do not apply more than 4 times per season. Do not tank mix with Flint, Sovran, Pristine, copper or captan. Toxic to bees. Spray interval: 10 to 14 days.
	spinetoram (Delegate) 28778	5	210-420 g	85-170 g	12 h	7	Apply when larvae are active. Use the higher rate under high pest pressure and/or larger larvae. Spray interval: 14 days.
	chlorantraniliprole (Altacor) 28981	28	145-285 g	59-115 g	12 h	5	Apply at pink to petal fall when larvae are active. Do not apply more than 3 times per season. Spray interval - 10 to 14 days.
Codling Moth	pheromone (Isomate CM Flex) 31589	NC	1000	400	n/a	0	Dispensers must be hung before expected first emergence of moths.
	pheromone (Isomate CM/LR TT) 28814	NC	750	300	n/a	0	Also controls leafrollers.
	pheromone (Isomate C+) 22899	NC	1000	400	n/a	0	Dispensers must be hung before expected first emergence of moths.
Notes: Apply dispensers before moths begin to emerge in the spring following label instructions for dispenser rates and application to trees.							
Powdery Mildew (Apples)	Polyoxin D Zinc Salt (Diplomat 5SC) 32918	19	259 - 926 ml	104 - 374 ml		0 days	Suppression of powdery mildew. Begin as a preventative application when conditions favour disease development, 7 - 14 day spray interval. Number of applications: 3-10 depending on rate.
	benzovindiflupyr + difenoconazole (Aprovia Top) 31526	3 + 7	643 mL	260 mL	12 h	30	Rotate with other fungicides that do not contain Group 3 or Group 7 fungicides for resistance management. Do not apply more than 2 consecutive applications.
	benzovindiflupyr (Aprovia) 31981	7	500 mL	202 mL	12 h	30	Rotate with other non-Group 7 products. Do not apply in two consecutive sprays nor more than 2 L/ha (1.0 L/acre) per season.
	fluxapyroxad (Sercadis) 31697	7	167-333 mL	68-135 mL	12 h	0	The use of a non-ionic surfactant (0.125%) is recommended. Begin treatment when conditions favour disease development. Apply a second spray 7-14 days up to blossom if conditions for disease development persist. Maximum amount per season: 1.33 L/ha (538 mL/acre). Maximum 4 applications per season.
	calcium polysulphide (Lime sulphur 23%) 25356	M2	12.5 L/1000 L water	12.5 L/1000 L water	48 h	n/a	Lime sulphur may injure "sulphur shy" varieties. May cause injury during hot temperatures. May harm predatory mites.
	difenoconazole +	3 + 9	836 mL	338 mL	12 h	14	Suppression of powdery mildew. Limit use of group 3

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Stage of Development: Pink							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	cyprodinil (Inspire Super) 30827						fungicides (Nova, Inspire, Fullback, Inspire Super) to 2 sprays/season.
	flutriafol (Fullback) 31679	3	585 - 877 mL	237 - 355 mL	12 h	14	Rotate with fungicides from other groups. Limit use of group 3 fungicides (Nova, Inspire, Fullback) to 2 sprays/season.
	Bacillus subtilis (Serenade Opti) 31666	44	1.7-3.3 kg	0.69-1.3 kg	24 h*	0	Suppression only. Apply preventatively at 7- to 10-day intervals.
	calcium polysulphide (Lime sulphur 30%) 16465	M2	9 L/1000 L	9 L/1000 L	48 h	n/a	Lime sulphur may injure "sulphur shy" varieties. May cause injury during hot temperatures. May harm predatory mites.
	myclobutanil (Nova 40WP) 22399	3	340 g	140 g	12 h - 12 days	14	Rotate with fungicides from other group. Limit use of group 3 fungicides (Nova, Inspire, Fullback) to 2 sprays/season.
	kresoxim-methyl (Sovran) 26257	11	240 - 450 g	100 - 182 g	48 h	30	CAUTION: Sovran drift may injure cherries. Use higher rate during pink stage. Limit sprays of group 11 fungicides (Flint, Sovran, Pristine) to 2/season.
	trifloxystrobin (Flint) 30619	11	140 - 210 g	57 - 85 g	12 h - 4 days	14	Use the higher rate from pink to Bloom stages. Limit sprays of group 11 fungicides (Flint, Sovran, pristine) to 2 sprays/season. 4 days REI for thinning.
	thiophanate-methyl (Senator 50SC) 32096	1	3.15 L	1.27 L	24 h*	1	May harm predatory mites. Maximum 2 applications per season.
	mineral oil (Purespray Green) 27666	NC	10L	4 L	12 h	0	For suppression of powdery mildew, apply in a minimum of 1000 L water/ha at tight cluster and repeat at 10-14 day intervals. Do not use in combination with or within 14 days of sprays containing sulphur or captan.
	sulphur (Cosavet DF Edge 31869, Kumulus 18836)	M2	7.0 kg	2.8 kg	24 h	1	Do not apply sulphur in combination with, immediately before, or closely following oil sprays. See description of powdery mildew.
	boscalid + pyraclostrobin (Pristine WG) 27985	7 + 11	1.0 - 1.2 kg	405 g - 485 g	dry to 12 days	5	Avoid more than 2 consecutive applications. Limit sprays of Group 11 fungicides (Flint, Sovran, Pristine) to 2 per season. Caution: Sovran drift may injure cherries. 12 days REI for thinning.
	penthiopyrad (Fontelis) 30331	7	1.0-1.5 L	405-607 mL	12 h	28	Do not apply more than 3 times per season, or more than twice sequentially. Use high rate for high disease pressure.
	fluopyram pyrimethanil (Luna Tranquility) 30510	7 + 9	600 mL	242 mL	12 h	14	Use preventatively. Do not apply more than 2 times per season.

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Stage of Development: Pink							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Notes: Rotate fungicides from different groups for resistance management.							
Apple Scab	Isofetamid (Kenja 31758)	7	913 ml	369 ml	12 hours	20	Do not apply more than 2 consecutive Group 7 applications. Application interval: 10 to 14 days.
	benzovindiflupyr + difenoconazole (Aprovia Top) 31526	3 + 7	386 - 643 mL	156 - 260 mL	12 h	30	Tank mix with protectant fungicide for improved fruit scab control. Use high rate for mildew. Rotate with other fungicide groups for resistance management. Do not apply more than 2.57 L/ha/season.
	copper octanoate (Cueva Commercial) 31825	M1	Prepare 0.5-2% solution (5-20 L/1000 L water)		4 h	1	Apply 470-940 L of mixture/ha (190-380 L/acre). Do not exceed 1% rate for varieties susceptible to russetting. Repeat every 7-10 days as long as weather conditions favour disease development.
	benzovindiflupyr (Aprovia) 31981	7	300-500 mL	121-202 mL	12 h	30	For improved fruit scab control, tank mix with a protectant fungicide (see label). Rotate with other non-Group 7 products. Do not apply in two consecutive sprays nor more than 2 L/ha (1.0 L/acre) per season.
	fluxapyroxad (Sercadis) 31697	7	167-333 mL	68-135 mL	12 h	0	The use of a non-ionic surfactant (0.125%) is recommended. Begin treatment when conditions favour disease development. Apply a second spray 7-14 days up to blossom if conditions for disease development persist. Maximum amount per season: 1.33 L/ha (538 mL/acre). Maximum 4 applications per season.
	fluazinam (Allegro) 27517	29	0.50 - 1.0 L	202 - 404 mL	24 h-3 days	28	Use highest rates and lowest intervals for high disease pressure. Will also suppress European red mite, two-spotted spider mite, and apple rust mite. 3 days REI for thinning.
	difenoconazole + cyprodinil (Inspire Super) 30827	3 + 9	560 - 836 mL	227 - 338 mL	12 h	14	Limit sprays of group 3 fungicides (Nova, Inspire, Fullback) to 2/season. Tank mix with a protectant fungicide (e.g. Dithane, Manzate, Polyram, Captan, maestro) for resistance management.
	pyrimethanil (Scala) 28011	9	0.75-1.0 L	304-405 mL	12 h-24 h	14	Do not use after bloom for for apple scab. 24 hour REI for thinning.
	flutriafol (Fullback) 31679	3	950 mL	385 mL	12 h	14	Tank mix with full rate of a protectant (e.g. Dithane, Manzate, Polyram, Captan, Maestro). Limit sprays of group 3 fungicides (Nova, Inspire, Fullback) to 2 sprays/season for resistance management.
	myclobutanil (Nova 40WP) 22399	3	340 g	140 g	12 h-12 days	14	Tank mix with the full rate of Dithane, Manzate, Polyram, Captan or Maestro. Limit sprays of group 3 fungicides (Nova, Inspire) to 2/season for resistance management. 12 days REI for thinning.

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Stage of Development: Pink							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	kresoxim-methyl (Sovran) 26257	11	360 g	150 g	48 h	30	CAUTION: Drift may injure cherries. Limit sprays of group 11 fungicides (Flint, Sovran, Pristine) to 2/season.
	trifloxystrobin (Flint) 30619	11	140 - 175 g	57 - 71 g	12 h – 4 days	14	Avoid more than 2 consecutive sprays. Limit sprays of Group 11 fungicides (Flint, Sovran, Pristine) to 2/season.
	boscalid + pyraclostrobin (Pristine WG) 27985	7 + 11	1.0 - 1.2 kg	405 g - 485 g	dry to 12 days	5	Avoid more than 2 consecutive applications. Limit sprays of Group 11 fungicides (Flint, Sovran, Pristine) to 2/season. 12 days REI for thinning.
	penthiopyrad (Fontelis) 30331	7	1.0-1.5 L	405-607 mL	12 h	28	Do not apply more than 3 times per season, or more than twice sequentially. Use high rate for high disease pressure.
	fluopyram pyrimethanil (Luna Tranquility) 30510	7 + 9	800 mL	323 mL	12 h	14	Do not apply more than 2 times per season.
	mancozeb (Dithane 20553, Manzate 28217)	M3	6.0 kg	2.4 kg	24 h*	45	
	metiram (Polyram) 20087	M3	6.0 kg	2.4 kg	24 h*	45	
	captan (Captan Supra 24613, (Maestro)26408	M4	3.75 kg	1.5 kg	48 h	7	Do not use during bloom.
Notes: Pink through petal fall is a high risk period for scab infection. Prevent infection by keeping trees covered with protectant fungicides during this period.							
Notes: Eradicant sprays are best used in a preventative program. However they can be used soon after an infection period and still provide control. See apple scab in Disease Section for more information.							

Stage of Development: Blossom							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Fruittree and European Leafrollers	Bacillus thuringiensis (Bioprotec PLUS) 32425	11	1.8-2.5 L	0.7-1.3 kg	24 h*	0	Will also control other leaf-feeding larvae present. See Notes. Spray interval: 7 days under optimal conditions.
	Bacillus thuringiensis (Bioprotec CAF) 26854	11	4.0 L	1.6 L	24 h*	0	See Notes. Will also control other leaf-feeding larvae present. Spray interval: 7 days under optimal conditions.

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Stage of Development: Blossom							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	Bacillus thuringiensis (Dipel 2X DF) 26508	11	1.125 - 1.675 kg	455 - 678 g	24 h*	0	Will also control other leaf-feeding larvae present.
	Bacillus thuringiensis (Foray) 24978	11	4.0 L	1.6 L	24 h*	0	Will also control bud moth.
	Notes: Apply Bacillus thuringiensis (Bt) products when bloom is 80% or more during late afternoon or on a cloudy day when no rain is forecast for 24 hours. If there is more than 2 mm rainfall within 24 h of application, re-apply product. Wait 7 days (in the absence of rain) before applying a second treatment of Bt or another product. Optimum solution pH for Bt products is 6.						
Green Fruitworms	Bacillus thuringiensis (Bioprotec PLUS) 32425	11	1.8-2.5 L	0.7-1.3 L	24 h*	0	Will also control other leaf-feeding larvae present. See Notes.
	Bacillus thuringiensis (Bioprotec CAF) 26854	11	4.0 L	1.6 L	24 h*	0	Will also control bud moth. Spray interval: 7 days under optimal conditions.
	Bacillus thuringiensis (Dipel 2X DF) 26508	11	1.125 - 1.675 kg	455 - 678 g	24 h*	0	Will also control bud moth.
	Bacillus thuringiensis (Foray) 24978	11	4.0 L	1.6 L	24 h*	0	Will also control bud moth.
Obliquebanded and Threelined Leafrollers	Bacillus thuringiensis (Bioprotec PLUS) 32425	11	1.8-2.5 L	0.73-1.0 L	24 h*	0	Will also control other leaf-feeding larvae present. See Notes.
	Bacillus thuringiensis (Bioprotec CAF) 26854	11	4.0 L	1.6 L	24 h*	0	Will also control bud moth.
	Bacillus thuringiensis (Dipel 2X DF) 26508	11	1.125 - 1.675 kg	455 - 678 g	24 h*	0	Will also control other leaf-feeding larvae present.
	Bacillus thuringiensis (Foray) 24978	11	4 L	1.6 L	24 h*	0	Will also control other leaf-feeding larvae present.
Notes: Apply Bacillus thuringiensis (Bt) products when bloom is 80% or more during late afternoon or on a cloudy day when no rain is forecast for 24							

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Stage of Development: Blossom							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
hours. If there is more than 2 mm rainfall within 24 h of application, re-apply product. Wait 7 days (in the absence of rain) before applying a second treatment of Bt or another product. Optimum solution pH for Bt products is 6.							
Fire Blight	copper octanoate (Cueva Commercial) 31825	M1	Prepare 0.5-2% solution (5-20 L/1000 L water)		4 h	1	Apply 470-940 L of mixture/ha (190-380 L/acre). Repeat every 7-10 days as long as weather conditions favour disease development (maximum 6 sprays/season). See Fire blight description.
	Bacillus amyloliquefaciens (Double Nickel 55) 31888	44	1-1.5 kg	405-607 g		0	Suppression only. Apply at blossom to end of flowering at 3- to 7-day intervals. Can be mixed with copper sprays. Can be applied post-bloom for shoot blight management.
	prohexadione calcium (Apogee) 28042	n/a	1350 g	546 g	12 h	45	For suppression of shoot blight, apply at 2.5 to 7.5 cm of new shoot growth. Will also reduce shoot growth.
	Aureobasidium pullulans (Blossom Protect) 30552	NC	See Label	See Label	dry	n/a	Apply up to 4 times from 10-90% bloom if weather conditions favour blossom infection. Do not tank mix with other fungicides.
	streptomycin sulphate (Streptomycin 17) 10305	25	1.8 kg or 100 ppm (see notes)	729 g or 100 ppm (see notes)	24 h-14 days	50	Apply at blossom stage if weather conditions favour blossom infection. Maximum 3 applications (5.4 kg/ha/season). 100 ppm rate (600 g of Streptomycin per 1000 L of water) is based on high volume spray. Use sufficient water volume for thorough blossom wetting. 14 day REI for thinning.
	kasugamycin (Kasumin) 30591	24	5.0 L	2.0 L	12 h	90	Apply at 20-30% bloom or when conditions favour disease development. Do not apply after petal fall.
	Bacillus subtilis (Serenade Opti) 31666	44	1.1-1.7 kg	445-688 g	24 h*	0	Suppression only. Apply at 1-5% blossom and repeat as needed during the blossom period.
Notes: Warm weather followed by rain favours blossom infection. See fire blight section of the Guide (page 7-13) for information on risk assessment based on temperature.							
Crown and Root Rot	fosetyl-al (Aliette) 27688	33	5.0 kg	2.0 kg	dry	30	See description of crown rot for more information.

Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Tentiform Leafminer	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Apply against egg (to control new hatch) and early sap feeder stages of first and second generation tentiform leafminers when locally established thresholds have been

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Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
							reached. Add 0.25 - 1% spray oil/ spray mixture. Also controls leafroller and mites. Maximum 1 application per season.
	sulfoxaflor + spinetoram (TwinGuard) 31442	4C, 5	250 - 500 g	101 - 202 g	12 h	7	Apply at egg hatch or first sign of sap-feeder larvae. Do not apply more than 2 times per season. TOXIC to bees. Spray interval: 14 days.
	abamectin (Agri-Mek SC) 31607	6	170 mL	69 mL	dry	28	Apply with 0.25% superior oil. Do not apply more than once/season. Will also control rust mites and leafminer larvae. Residual control: 21 days.
	clothianidin (Clutch) 29382	4A	140 g- 210 g	57-85 g	12 h	7	Make the first application shortly after petal fall, before insect populations reach economic thresholds. Do not apply more than twice/season alone or alternately with other Group 4 products. TOXIC to bees. Spray interval: 10 to 14 days.
	imidacloprid (Admire 24094, Alias 28475)	4	380 mL	154 mL	24 h	7	Will also control aphids, leafhoppers and campyloomma. Do not apply more than 2 times/season alone or alternately with other Group 4 products. Spray interval: minimum 10 days.
	acetamiprid (Assail) 27128	4	80-120 g	32-48 g	12 h-6 days	7	Do not apply more than twice per season alone or alternately with Admire. Spray interval - 12 days. REIs of 2 days for scouting and 6 days is for thinning.
	spinetoram (Delegate) 28778	5	210-420 g	85-170 g	12 h	7	Apply at egg hatch or first sign of sap-feeder larvae. Do not apply more than 3 times per season. use higher rate under high pest pressure. Spray interval: 7 days.
	methoxyfenozide (Intrepid) 27786	18	500 mL	200 mL	12 h	14	Apply at first egg hatch of first generation. Spray interval: 14 to 21 days.
Notes: The leafminer parasite is an effective biological control agent. 30% parasitism of first generation tissue-feeder larvae in the spring will provide control of leafminers for the rest of the season. If chemical control is needed rotate products for resistance management. Avoid using Group 4 products more than twice/season for all registered uses to prevent mite problems.							
Obliquebanded and Threelined Leafrollers	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Monitor larval population in the spring, and apply when overwintering larvae become active. Add 0.25 - 1% spray oil/ spray mixture. Also controls mites. Maximum 1 application per season.
	cyclaniliprole (Harvanta 50SL) 32889	28	1.2 - 1.6 L	485 - 647 ml	12	7 days	Toxic to bees. Do not make more than 3 applications per crop year. Where possible, rotate the use of Harvanta or other Group 28 insecticides with different groups that control the same pests.
	Bacillus thuringiensis (Bioprotec PLUS)	11	1.8-2.5 L	0.73-1.0 L	24 h*	0	Will also control other leaf-feeding larvae present. See Notes. Spray interval: 7 days under optimal conditions.

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Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	32425						
	spinosad (Success) 26835	5	182 g	74 g	dry	7	Do not apply more than 3 times/season. Spray interval: 7 to 10 days.
	sulfoxaflor + spinetoram (TwinGuard) 31442	4C, 5	250 - 500 g	101 - 202 g	12 h	7	Apply when larvae are active. Do not apply more than 2 times per season. TOXIC to bees. Spray interval: 14 days.
	Bacillus thuringiensis (Bioprotec CAF) 26854	11	4.0 L	1.6 L	24 h*	0	Will also control bud moth. Spray interval: 7 days under optimal conditions.
	Bacillus thuringiensis (Dipel 2X DF) 26508	11	1.125 - 1.675 kg	455 - 678 g	24 h*	0	Will also control bud moth. Spray interval: 7 days under optimal conditions.
	cyantraniliprole (Exirel) 30895	28	500- 1000 mL	202- 404 mL	12 h	3	Apply when larvae are active. Do not apply more than 4 times/ season. Do not tank mix with Sovran, Flint, Pristine, copper or captan fungicides. Toxic to bees. Spray interval: 10 to 14 days.
	spinosad (Entrust) 30382	5	364 mL	147 mL	dry	7	Do not apply more than 3 times per season. Will reduce pansy spot. Spray interval: 7 to 10 days.
	spinetoram (Delegate) 28778	5	210-420 g	85-170 g	12 h	7	Apply when larvae are actively feeding but before they roll up in leaves. Do not apply more than 3 times per season. Use the higher rate under pest pressure and/or larger larvae. Spray interval: 14 days.
	methoxyfenozide (Intrepid) 27786	18	0.75 L	304 mL	12 h	14	Do not apply more than 2 times per season. Spray interval: 14 to 21 days.
	Bacillus thuringiensis (Foray) 24978	11	4.0 L	1.6 L	24 h*	0	Will also control bud moth. Spray interval: 7 days under optimal conditions.
	chlorantraniliprole (Altacor) 28981	28	145-285 g	59-115 g	12 h	5	Do not apply more than 3 times/season. For rates above 215 g/ha (87 g/ac), do not apply more than twice/season. Spray interval - 10 to 14 days.
	tebufenozide (Confirm) 24503	18	1 L	405 mL	dry-12 h	14	Do not apply more than 4 times per season. Spray interval: 10 to 14 days.
	pheromone (Isomate CM/LR TT) 28814	NC	750	300	n/a	0	Install before first moth flight. Will also aid in control of second generation codling moth.
Notes: Confirm, Intrepid, Delegate, Success, Entrust, Bt products, Exirel and Altacor are stomach poisons so complete coverage is important for satisfactory control. These products will also control any bud moth larvae present. Success, Entrust and Delegate will suppress thrips.							

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Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Eyespotted Bud Moth	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Add 0.25 - 1% spray oil/ spray mixture. Also controls leafroller and mites. Maximum 1 application per season.
	spinosad (Success) 26835	5	182 mL	74 mL	dry	7	Do not apply more than 3 times/season. Will reduce pansy spot. Spray interval: 7 to 10 days.
	cyantraniliprole (Exirel) 30895	28	500- 1000 mL	202- 404 mL	12 h	3	Apply when larvae are active. Do not apply more than 4 times per season. Do not tank mix with Sovran, Flint, Pristine, copper or captan fungicides. Toxic to bees. Spray interval: 10 to 14 days.
	spinosad (Entrust) 30382	5	364 mL	147 mL	dry	7	Do not apply more than 3 times per season. Will reduce pansy spot. Will also control any leafroller present. Spray interval: 7 to 10 days.
	spinetoram (Delegate) 28778	5	210-420 g	85-170 g		7	Do not apply more than 3 times per season for all labeled uses. Spray interval: 14 days.
	chlorantraniliprole (Altacor) 28981	28	145-285 g	59-115 g	12 h	5	Apply when larvae are active. Do not apply more than 3 times per season.
McDaniel, Twospotted Spider Mites	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Apply before a threshold of five spider mites per leaf is reached. Add 0.25 - 1% spray oil/ spray mixture. Also controls leafrollers. Maximum 1 application per season.
	cyflumetofen (Nealta) 31284	25	1 L	405 mL	12 h	7	Do not apply more than 2 times per season. Spray interval: 14 days.
	acequinocyl (Kanemite) 28641	20B	2.1 L	850 mL	12 h	14	Do not apply more than 2 times/season. Does not control rust mites. Spray interval: 21 days.
	pyridaben (Nexter) 25135	21	300 - 600 g	120 - 240 g	24 h	25	Use highest rate. Do not apply more than 2 times/season. Controls rust mite. Residual control: 7-10 days.
	spirodiclofen (Envidor) 28051	23	750 mL	300 mL	12 h	7	Apply only once/season. Controls rust mite. Spray interval: minimum 7 days.
	clofentezine (Apollo) 21035	10	300 - 600 mL	120 - 240 mL	4 - 12 h	21	Do not apply more than once/season or beyond more than 14 days after petal fall. Controls eggs and young mites. Does not control rust mite. Residual control: 45 days.
	bifenazate (Acramite) 27925	25	568 g	229 g	12 h	7	Does not control rust mite. Residual control: 21 days.
European Red Mite	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Apply before a threshold of five spider mites per leaf is reached. Add 0.25 - 1% spray oil/ spray mixture. Also controls leafroller and mites. Maximum 1 application per season.
	cyflumetofen (Nealta) 31284	25	1 L	405 mL	12 h	7	Do not apply more than 2 times per season. Spray interval: 14 days.

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Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	acequinocyl (Kanemite) 28641	20B	2.1 L	850 mL	12 h	14	Do not apply more than twice/season. Controls all life stages. Does not control rust mite. Spray interval: 21 days.
	pyridaben (Nexter) 25135	21	300-600 g	120-240 g	24 h	25	Use higher rate. Do not apply more than twice per season. Controls rust mite. Residual control: 7-10 days.
	spirodiclofen (Envidor) 28051	23	750 mL	300 mL	12 h	7	Only once per season. Controls rust mite. Spray interval: minimum 7 days.
	clofentezine (Apollo) 21035	10	300-600 mL	120-240 mL	4-12 h	21	Do not apply more than once per season or beyond 14 days after petal fall. Controls eggs and young mites. Does not control rust mite. Residual control: 45 days.
	bifenazate (Acramite) 27925	25	851 g	344 g	12 h	7	Does not control rust mite. Residual control: 21 days.
<p>Notes: It is important to rotate products with different group numbers to avoid development of pesticide resistance. Do not apply products from the same group more than once per season. The presence and number of predatory mites should first be determined using a mite counting service before spraying. Apply the products in sufficient water to ensure thorough and uniform coverage.</p>							
Fruittree and European Leafrollers	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Add 0.25 - 1% spray oil/ spray mixture. Also controls mites. Maximum 1 application per season.
	Bacillus thuringiensis (Bioprotec PLUS) 32425	11	1.8-2.5 L	0.73-1.0 L	24 h*	0	Will also control other leaf-feeding larvae present. See Notes.
	spinosad (Success) 26835	5	182 mL	74 mL	dry	7	Do not use more than 3 times/season. Will reduce pansy spot. Spray interval: 7 to 10 days.
	Bacillus thuringiensis (Bioprotec CAF) 26854	11	4.0 L	1.6 L	24 h*	0	Will also control other leaf-feeding larvae present. Spray interval: 7 days under optimal conditions.
	Bacillus thuringiensis (Dipel 2X DF) 26508	11	1.125 - 1.675 kg	455 - 678 g	24 h*	0	Will also control other leaf-feeding larvae present. Spray interval: 7 days under optimal conditions.
	cyantraniliprole (Exirel) 30895	28	500 - 1000 mL	202 - 404 mL	12 h	3	Apply when larvae are active. Do not apply more than 4 times/season. Do not tank mix with Sovran, Flint, Pristine, copper or captan fungicides. TOXIC to bees. Spray interval: 10 to 14 days.
	spinosad (Entrust) 30382	5	364 mL	147 mL	dry	7	Do not apply more than 3 times/season. Will reduce pansy spot. Spray interval: 7 to 10 days.
	spinetoram (Delegate) 28778	5	210-420 g	85-170 g		7	Do not apply more than 3 times per year for all labeled uses. Spray interval: 14 days.

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Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	Bacillus thuringiensis (Foray) 24978	11	4.0 L	1.6 L	24 h*	0	Will also control other leaf-feeding larvae present. Spray interval: 7 days under optimal conditions.
Western Flower Thrips	cyclaniliprole (Harvanta 50SL) 32889	28	1.2 - 1.6 L	485 - 647 ml	12	7 days	Toxic to bees. For suppression only. Do not make more than 3 applications per crop year. Where possible, rotate the use of Harvanta or other Group 28 insecticides with different groups that control the same pests.
Green Fruitworms	Bacillus thuringiensis (Bioprotec PLUS) 32425	11	1.8-2.5 L	0.73-1.0 L	24 h*	0	Will also control other leaf-feeding larvae present. See Notes. Spray interval: 7 days under optimal conditions.
	Bacillus thuringiensis (Bioprotec CAF) 26854	11	4.0 L	1.6 L	24 h*	0	Thorough coverage is very important. Will also control bud moth and leafroller larvae present. Spray interval: 7 days under optimal conditions.
	Bacillus thuringiensis (Dipel 2X DF) 26508	11	1.125 - 1.675 kg	455 - 678 g	24 h*	0	Thorough coverage is very important. Will also control bud moth and leafroller larvae present. Spray interval: 7 days under optimal conditions.
	Bacillus thuringiensis (Foray) 24978	11	4.0 L	1.6 L	24 h*	0	Thorough coverage is very important. Will also control bud moth and leafroller larvae present. Spray interval: 7 days under optimal conditions.
	chlorantraniliprole (Altacor) 28981	28	145-215 g	59-87 g	12 h	5	Do not apply more than 3 times/season. Spray interval - 10 to 14 days. Spray interval - 10 to 14 days.
San Jose Scale	sulfoxaflor + spinetoram (TwinGuard) 31442	4C, 5	250 - 500 g	101 - 202 g	12 h	7	Apply when crawlers are active. Thorough coverage is important for good control. Do not apply more than 2 times per season. TOXIC to bees. Spray interval: 14 days.
	spirotetramat (Movento 240 SC) 28953	23	365-585 mL	148-237 mL	12 h	7	Toxic to bees. Apply Movento with an adjuvant such as Agral 90 after petal fall. Do not exceed 1120 mL/ha/season. Also controls apple leaf curling midge. Spray interval: minimum 14 days.
Rust Mites and Pearleaf Blister Mite	pyridaben (Nexter) 25135	21	300 g	120 g	24 h	25	Do not apply more than twice per season. Residual control: 7-10 days.
	spirodiclofen (Envidor) 28051	23	750 mL	300 mL	12 h	7	Apply only once per season. Spray interval: minimum 7 days.
Mullein Bug (Campyloma)	sulfoxaflor (Closer) 30826	4C	200-400 mL	80-160 mL	12 h	7	Do not apply during bloom or when flowering weeds are present. Do not apply more than 2 times per season. Spray interval: minimum 7 days.
	imidacloprid (Admire)	4	380 mL	154 mL	24 h	7	Will also control aphids and leafhoppers. Do not apply more

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Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	24094, Alias 28475)						than once/season. See note below regarding repeated use. Spray interval: minimum 10 days.
	acetamiprid (Assail) 27128	4	80-160 g	32-64 g	12 h-6 days	7	Will also control aphids. Do not apply more than once/season. See note below regarding repeated use. Do not apply during bloom. Spray interval - 12 days. REIs of 2 days for scouting and 6 days is for thinning.
	thiacloprid (Calypso) 28429	4	145-290 mL	59-117 mL	12 h	30	Do not apply more than once/season. See note below regarding repeated use. Spray interval: 14 to 21 days.
Notes: Avoid using Group 4 products more than once/season for Campyloomma and more than twice/season for all other registered uses to prevent mite problems. Ensure thorough coverage. Fruit greater than 12 mm diameter are not affected by campyloomma feeding. Apply as early in petal fall as possible without risk of harming pollinating insects foraging in the trees or flowering ground cover.							
Apple Leaf Curling Midge	spirotetramat (Movento 240 SC) 28953	23	365-585 mL	148-237 mL	12 h	7	Toxic to bees. Apply Movento with an adjuvant such as Agral 90 after petal fall. Do not exceed 1120 mL/ha/season. Spray interval: minimum 14 days. Do not apply until after petal fall. Apple leaf curling midge is not a problem in healthy bearing trees but control is essential in nursery and young plantings.
White Apple Leafhopper	clothianidin (Clutch) 29382	4A	140-210 g	57-85 g	12 h	7	TOXIC to bees. See notes above regarding number of applications of Group 4 products/season. Spray interval: 10 to 14 days.
	imidacloprid (Admire 24094, Alias 28475)	4	200 mL	81 mL	24 h	7	Will also suppress aphids and leafminers. Do not apply these products alone or alternately with other Group 4 products more than twice/season (see additional notes). Spray interval: minimum 7 days.
	acetamiprid (Assail) 27128	4	80-120 g	32-48 g	12 h-6 days	7	Will also suppress aphids and leafminers. Do not apply this products alone or alternately with other Group 4 products more than twice/season (see additional notes). Spray interval - 12 days. REI of 2 days for scouting and 6 days is for thinning.
	thiacloprid (Calypso) 28429	4	145 mL	59 mL	12 h	30	Spray interval: 14 to 21 days.
Notes: To prevent mite problems, avoid using Group 4 products (Calypso, Assail, Admire, Alias, Clutch) more than twice/season for all registered uses.							
Apple Clearwing Moth	novaluron (Rimon) 28515	15	1.4 L/1000 L of water	1.4 L/1000 L of water	12	14	Target larvae in the spring, apply when there is a lot of frass development. Direct spray on tree trunk with a hand gun or backpack sprayer. Do not apply more than 2 times/season. Not recommended for summer applications as it may disrupt biological control of mites. Spray interval: 14 days.
Powdery Mildew (Apples)	Polyoxin D Zinc Salt (Diplomat 5SC)	19	259 - 926 ml	104 - 374 ml		0 days	Suppression of powdery mildew. Begin as a preventative application when conditions favour disease development, 7 -

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Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	32918						14 day spray interval. Number of applications: 3-10 depending on rate.
	benzovindiflupyr + difenoconazole (Aprovia Top) 31526	3 + 7	643 mL	260 mL	12 h	30	Rotate with other fungicides that do not contain Group 3 or Group 7 fungicides for resistance management. Do not apply more than 2 consecutive applications.
	benzovindiflupyr (Aprovia) 31981	7	500 mL	202 mL	12 h	30	Rotate with other non-Group 7 products. Do not apply in two consecutive sprays nor more than 2 L/ha (1.0 L/acre) per season.
	calcium polysulphide (Lime sulphur 23%) 25356	M2	12.5 L/1000 L water	12.5 L/1000 L water	48 h	n/a	Lime sulphur may inure "sulphur shy" varieties or may cause injury during hot temperatures. May harm predatory mites.
	difenoconazole + cyprodinil (Inspire Super) 30827	3 + 9	836 mL	338 mL	12 h	14	Suppression of powdery mildew. Limit use of Group 3 fungicides (Nova, Inspire, Fullback) to 2 sprays/season.
	flutriafol (Fullback) 31679	3	585 - 877 mL	237 - 355 mL	12 h	14	Limit use of Group 3 fungicides (Nova, Inspire, Fullback) to 2 sprays/season. Rotate with fungicides from other groups.
	Bacillus subtilis (Serenade Opti) 31666	44	1.7-3.3 kg	0.69-1.3 kg	24 h*	0	Suppression only. Apply preventatively at 7- to 10-day intervals.
	calcium polysulphide (Lime sulphur 30%) 16465	M2	9 L/1000 L	9 L/1000 L	48 h	n/a	Lime sulphur may injure "sulphur shy" varieties or may cause injury during hot temperatures. May harm predatory mites.
	myclobutanil (Nova 40WP) 22399	3	340 g	140 g	12 h - 12 days	14	Limit use of Group 3 fungicides (Nova, Inspire, Fullback) to 2 sprays/season. Rotate with fungicides from other groups. 12 days REI for thinning.
	kresoxim-methyl (Sovran) 26257	11	240 - 450 g	100 - 182 g	48 h	30	CAUTION: Sovran drift may injure cherries. Limit sprays of Group 11 fungicides (Flint, Sovran, Pristine) to 2/season for resistance management. Rotate with fungicides from other groups.
	trifloxystrobin (Flint) 30619	11	140 - 210 g	57 - 85 g	12 h - 4 days	14	Limit sprays of Group 11 fungicides (Flint, Sovran, Pristine) to 2/season for resistance management. Rotate with fungicides from other groups. CAUTION: Sovran may injure cherries. 4 days REI for thinning.
	thiophanate-methyl (Senator 50SC) 32096	1	3.15 L	1.27 L	24 h*	1	May harm predatory mites. Maximum 2 applications per season.
	mineral oil (Purespray Green)	NC	10 L	4 L	12 h	0	For suppression of powdery mildew, apply in a minimum of 1000 L water/ha at tight cluster and repeat at 10-14 day

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³Pre-harvest interval (Pesticides Chapter). Note: always read and follow the directions on the pesticide label.

Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	27666						intervals. Do not use in combination with or within 14 days of sprays containing sulphur or captan.
	sulphur (Cosavet DF Edge 31869, Kumulus 18836)	M2	7.0 kg	2.8 kg	24 h	1	
	boscalid + pyraclostrobin (Pristine WG) 27985	7 + 11	1.0 - 1.2 kg	405 g - 485 g	dry to 12 days	5	Limit sprays of Group 11 fungicides (Flint, Sovran, Pristine) to 2/season for resistance management. Rotate with other fungicides. Use the higher rate during pink to bloom stages. Caution: Sovran drift may injure cherries. 12 days REI for thinning.
	penthiopyrad (Fontelis) 30331	7	1.0-1.5 L	405-607 mL	12 h	28	Do not apply more than 3 times per season, or more than twice sequentially. Use high rate for high disease pressure.
	fluopyram pyrimethanil (Luna Tranquility) 30510	7 + 9	600 mL	242 mL	12 h	14	Use preventatively. Do not apply more than 2 times per season.
	Notes: Additional notes: Rotate fungicides from different groups for resistance management.						
Apple Scab	Isfetamid (Kenja 31758)	7	913 ml	369 ml	12 hours	20	Do not apply more than 2 consecutive Group 7 applications. Application interval: 10 to 14 days.
	benzovindiflupyr + difenoconazole (Aprovia Top) 31526	3 + 7	386 - 643 mL	156 - 260 mL	12 h	30	Tank mix with protectant fungicide for improved fruit scab control. Use high rate for mildew. Rotate with other fungicide groups for resistance management. Do not apply more than 2.57 L/ha/season.
	copper octanoate (Cueva Commercial) 31825	M1	Prepare 0.5-2% solution (5-20 L/1000 L water)		4 h	1	Apply 470-940 L of mixture/ha (190-380 L/acre). Do not exceed 1% rate for varieties susceptible to russetting. Repeat every 7-10 days as long as weather conditions favour disease development.
	benzovindiflupyr (Aprovia) 31981	7	300-500 mL	121-202 mL	12 h	30	For improved fruit scab control, tank mix with a protectant fungicide (see label). Rotate with other non-Group 7 products. Do not apply in two consecutive sprays nor more than 2 L/ha (1.0 L/acre) per season.
	fluazinam (Allegro) 27517	29	0.50 - 1.0 L	202 - 404 mL	25 h-3 days	28	Use highest rate and shortest interval for high disease pressure. Will also suppress mites. 3 days REI for thinning.
	difenoconazole + cyprodinil (Inspire Super) 30827	3 + 9	560 - 836 mL	227 - 338 mL	12 h	14	Limit sprays of group 3 fungicides (Nova, Inspire, Fullback) to 2 per season. Tank mix with a protectant fungicide (Dithane, Manzate, Polyram, Captan, Maestro)) for resistance management.
	flutriafol (Fullback) 31679	3	950 mL	385 mL	12 h	14	Tank mix with a full rate of a protectant such as Dithane, Manzate, Polyram, Captan or Maestro. Note that Dithane,

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Stage of Development: Petal fall or Calyx							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
							Manzate and Polyram have a 45-day PHI. Limit sprays of group 3 fungicides (Nova, Inspire, Fullback) to 2/season for resistance management.
	myclobutanil (Nova 40WP) 22399	3	340 g	140 g	12 h - 12 days	14	Do not use as an eradicant treatment after bloom. Tank mix with the full rate of a protectant such as Dithane, Manzate, Polyram, Captan or Maestro. Note that Dithane, Manzate and Polyram have a 45-day PHI. Limit sprays of group 3 fungicides (Nova, Inspire, Fullback) to 2/season for resistance management. 12 days REI for thinning.
	kresoxim-methyl (Sovran) 26257	11	360 g	150 g	48 h	30	CAUTION: Sovran drift may injure cherries. Limit sprays of group 11 fungicides (Flint, Sovran, Pristine) to 2/season.
	trifloxystrobin (Flint) 30619	11	140 - 175 g	57 - 71 g	12 h - 4 days	14	Limit sprays of group 11 fungicides (Flint, Sovran, Pristine) to 2/season. 4 days REI for thinning.
	boscalid + pyraclostrobin (Pristine WG) 27985	7 + 11	1.0 - 1.2 kg	405 g - 485 g	dry to 12 days	5	Avoid more than 2 consecutive applications. Limit sprays of group 11 fungicides (Flint, Sovran, Pristine) to 2 per season. 12 days REI for thinning.
	penthiopyrad (Fontelis) 30331	7	1.0-1.5 L	405-607 mL	12 h	28	Do not apply more than 3 times per season, or more than twice sequentially. Use high rate for high disease pressure.
	fluopyram pyrimethanil (Luna Tranquility) 30510	7 + 9	800 mL	323 mL	12 h	14	Do not apply more than 2 times per season.
	mancozeb (Dithane 20553, Manzate 28217)	M3	6.0 kg	2.4 kg	24 h*	45	
	metiram (Polyram) 20087	M3	6.0 kg	2.4 kg	24 h*	45	After second cover spray, reduce rate to 4.50 kg product per hectare if scab pressure is low in the orchard.
	captan (Captan Supra 24613, (Maestro) 26408)	M4	3.75 kg	1.5 kg	48 h	7	Do not use during bloom.
	Notes: Pink through petal fall is a high risk period for apple scab infection. Prevent infection by keeping trees covered with protectant fungicides during this period.						
	Notes: Eradicant sprays are best used in a protective program. However they can be used soon after an infection period and still provide control.						
Fire Blight	copper octanoate (Cueva Commercial) 31825	M1	Prepare 0.5-2% solution (5-20 L/1000 L water)		4 h	1	Apply 470-940 L of mixture/ha. Repeat every 7-10 days as long as weather conditions favour disease development (maximum 6 applications per season). See Fire blight description.
	prohexadione	n/a	1350 g	546 g	12 h	45	For suppression of shoot blight, apply at 2.5 to 7.5 cm of new

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Stage of Development: Petal fall or Calyx

Insect or Disease	Recommended Product Choices	Grp ¹	Amount Per Ha	Amount Per Acre	REI ²	PHI ³ (days)	Precautions and Notes
	calcium (Apogee) 28042						shoot growth with subsequent applications at 14-21 day intervals. Max. 4 sprays/yr. Will also reduce shoot growth.

Stage of Development: Summer

Insect or Disease	Recommended Product Choices	Grp ¹	Amount Per Ha	Amount Per Acre	REI ²	PHI ³ (days)	Precautions and Notes
Codling Moth	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Apply before egg hatch for first generation and at first egg hatch for second generation codling moth based on pheromone trap catches and degree days after biofix. Add 0.25 - 1% spray oil/ spray mixture. Also controls leafroller and mites. Maximum 1 application per season.
	cyclaniliprole (Harvanta 50SL) 32889	28	1.2 - 1.6 L	485 - 647 ml	12	7 days	Toxic to bees. Do not make more than 3 applications per crop year. Where possible, rotate the use of Harvanta or other Group 28 insecticides with different groups that control the same pests.
	sulfoxaflor + spinetoram (TwinGuard) 31442	4C, 5	500 g	202 g	12 h	7	Apply at first egg hatch based on degree days and if prescribed spray threshold reached based on pheromone trap catches. Do not apply more than 2 times per season. TOXIC to bees. Also controls leafroller larvae. Spray interval: 14 days.
	cyantraniliprole (Exirel) 30895	28	500- 750 mL	202- 304 mL	12 h	3	Apply before egg hatch for first generation and at first egg hatch for second generation codling moth based on pheromone trap catches and degree days after biofix. Also controls leafroller. Do not tank mix with Sovran, Flint, Pristine, copper or captan fungicides. Toxic to bees. Spray interval: 10 to 14 days.
	phosmet (Imidan WP) 29064	1B	3.75 kg	1.5 kg	7 days	14	Controls larvae. Highly toxic to bees. Spray interval: 10 days.
	granulovirus (Virosoft) 26533	NC	250 mL	100 mL	24 h*	0	Slow acting, with no leafroller control. Virus must be ingested to be effective. Apply product in late afternoon or on a cloudy day to avoid direct exposure to sunlight. Spray interval: 14 days.
	clothianidin (Clutch) 29382	4A	210-420 g	85-170 g	12 h	7	For suppression only. Do not apply more than a total of 420 g/ha/ (170 g/ac)/season. Spray interval: 14 days.
	acetamiprid (Assail) 27128	4	240 g	97 g	12 h-6 days	7	Do not apply more than twice per season. Will also control aphids, leafminer & leafhoppers. Toxic to bees. Spray interval - 12 days. REI of 6 days is for thinning.

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Stage of Development: Summer							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	thiacloprid (Calypso) 28429	4	290-440 mL	117-178 mL	12 h	30	Controls larvae, will also control aphids. Does not control leafrollers. Low toxicity to bees, but high toxicity to lacewings. Use low rate for first brood if low to moderate pressure. Do not exceed a total of 870 mL/ha (352 mL/ac) per season. Spray interval: 14 to 21 days.
	novaluron (Rimon) 28515	15	0.93 - 1.4 L / 1000 L water	0.376 - 0.566 L / 1000 L water	12 h	14	Controls eggs and larvae. Will also control leafroller eggs. Do not apply more than 4 times or 11 L/ha/season. May disrupt biological control of mites. Spray interval: 10 to 14 days.
	spinosad (Entrust) 30382	5	364 mL	147 mL	4 h	7	Suppression only. Approved for organic fruit production. Spray interval: 7 to 10 days.
	spinetoram (Delegate) 28778	5	420 g	170 g	12 h	7	Apply at first egg hatch based on pheromone trap catches and degree days after biofix. Control larvae before they enter fruit. Do not apply more than 3 times per season. Use higher rate under high pest pressure. Also controls leafroller. Spray interval: 14 days.
	methoxyfenozide (Intrepid) 27786	18	1 L	405 mL	12 h	14	Controls eggs and larvae. Do not apply more than 2 times per season. Spray interval: 14 to 21 days.
	chlorantraniliprole (Altacor) 28981	28	145-215 g	58-86 g	12 h	5	Apply at first egg hatch based on pheromone trap catches and degree days after biofix. Controls eggs and larvae. Also controls leafroller. Do not exceed 645 g/ha (261 g/ac) per season. Will provide control of apple clearwing moth.
	tebufenozide (Confirm) 24503	18	1 L	405 mL	dry-12 h	14	Do not use if there is resistance to Group 1 insecticides or if pest pressure is moderate to high. Do not apply more than 4 times/season. Spray interval: 10 to 14 days.
Notes: Thorough and timely spray coverage is essential for good control. All products except in Groups 1B and 4-4A will also control any leafroller and bud moth larvae present. Avoid using Group 4 products more than twice/season for all registered uses to prevent mite problems. Group 4 products will also control aphids and leafhoppers present. To minimize the development of resistance, if a product was used in the spring, do not use again in the summer.							
Obliquebanded and Threelined Leafrollers	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Add 0.25 - 1% spray oil/ spray mixture. Also controls mites. Maximum 1 application per season.
	cyclaniliprole (Harvanta 50SL) 32889	28	1.2 - 1.6 L	485 - 647 ml	12	7 days	Toxic to bees. Do not make more than 3 applications per crop year. Where possible, rotate the use of Harvanta or other Group 28 insecticides with different groups that control the same pests.
	spinosad (Success) 26835	5	182 mL	74 mL	dry	7	Do not apply Group 5 products (Success, Entrust, Delegate) more than 3 times/season. Will also control eyespotted bud moth larvae present. Spray interval: 7 to 10 days.

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Stage of Development: Summer							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	sulfoxaflor + spinetoram (TwinGuard) 31442	4C, 5	250 - 500 g	101 - 202 g	12 h	7	Apply at first egg hatch. Do not apply more than 2 times per season. TOXIC to bees. Spray interval: 14 days.
	cyantraniliprole (Exirel) 30895	28	500- 1000 mL	202- 404 mL	12 h	3	Monitor adult moth flight and apply at first egg hatch. Do not tank mix with Sovran, Flint, Pristine, copper or captan fungicides. Toxic to bees. Spray interval: 10 to 14 days.
	spinosad (Entrust) 30382	5	364 mL	147 mL	dry	7	Do not apply more than 3 times per season. Will also control eyespotted bud moth. Will reduce pansy spot. Spray interval: 7 to 10 days.
	spinetoram (Delegate) 28778	5	210-420 g	85-170 g	12 h	7	Do not apply more than 3 times per season. Use the higher rate under high pest pressure and/or larger larvae. Will also control eyespotted bud moth present. Spray interval: 14 days.
	methoxyfenozide (Intrepid) 27786	18	0.75 L	304 mL	12 h	14	Do not apply more than 2 time/season. Will also control eyespotted bud moth. Spray interval: 14 to 21 days.
	chlorantraniliprole (Altacor) 28981	28	145-285 g	59-115 g	12 h	5	Monitor adult moth flight and apply at first egg hatch. Do not apply more than 3 times/season, for rates above 215 g/ha (87 g/ac), do not apply more than twice/season.
	tebufenozide (Confirm) 24503	18	1 L	405 mL	dry-12 h		Do not apply more than 4 times/season. Will also control eyespotted bud moth.
	pheromone (Isomate CM/LR TT) 28814	NC	750	300	n/a	0	Install before first moth flight. Will also aid in control of summer generation of codling moth.
Notes: Altacor, Confirm, Intrepid, Delegate, Exirel, Success, Bt products and TwinGuard are stomach poisons so complete coverage is important for satisfactory control.							
Eyespotted Bud Moth	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Add 0.25 - 1% spray oil/ spray mixture. Also controls leafroller and mites. Maximum 1 application per season.
	spinosad (Success) 26835	5	182 mL	74 mL	dry	7	Do not apply more than 3 times/season. Spray interval: 7 to 10 days.
	cyantraniliprole (Exirel) 30895	28	500- 1000 mL	202- 404 mL	12 h	3	Do not apply more than 4 times per season. Do not tank mix with Sovran, Flint, Pristine, copper or captan fungicides. Toxic to bees. Spray interval: 10 to 14 days.
	spinosad (Entrust) 30382	5	364 mL	147 mL	dry	7	Do not apply more than 3 times per season. Spray interval: 7 to 10 days.
	spinetoram (Delegate) 28778	5	210-420 g	85-170 g	12 h	7	Apply at first egg hatch. Use the higher rate under high pest pressure and/or larger larvae. Spray interval: 14 days.
	chlorantraniliprole	28	145-285 g	59-115 g	12 h	5	Apply when larvae are active. Do not apply more than 3

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Stage of Development: Summer							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	(Altacor) 28981						times per season.
	Notes: Blocks with high populations the previous summer should be sprayed at pink followed by a petal fall spray. Blossom sprays applied against leafroller will also control bud moth larvae present. An effective spring control program will reduce the need to control the summer generation.						
European Red Mite	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Apply before a threshold of five spider mites per leaf is reached. Add 0.25 - 1% spray oil/ spray mixture. Also controls leafroller and mites. Maximum 1 application per season.
	cyflumetofen (Nealta) 31284	25	1 L	405 mL	12 h	7	For control of all life stages. Do not apply more than 2 times/season. Not for rust mite control. Spray interval: 14 days.
	abamectin (Agri-Mek SC) 31607	6	170 mL	69 mL	dry	28	Apply with 0.25% superior oil. Do not apply more than once/season. Will also control rust mites and leafminer larvae. Residual control: 21 days.
	acequinocyl (Kanemite) 28641	20B	2.1 L	850 mL	12 h	14	Do not apply more than twice per season. For control of all life stages. Spray interval: 21 days.
	pyridaben (Nexter) 25135	21	300-600 g	120-240 g	24 h	25	Maximum 2 applications per season. Residual control: 7-10 days.
	spirodiclofen (Envidor) 28051	23	750 mL	300 mL	12 h	7	Use Envidor only once per season. Spray interval: minimum 7 days.
	mineral oil (Purespray Green) 27666	NC	10 L	4 L	12 h	0	For suppression only. Begin applications when mites first appear, allow 10-14 days between applications. Do not use within 14 days of captan or sulphur. Post harvest sprays may be made to reduce over-wintering pressure.
	bifenazate (Acramite) 27925	25	851 g	344 g	12 h	7	Not for rust mite control. Residual control: 21 days.
	Notes: Rotate products with different group numbers to avoid development of pesticide resistance. Do not apply products from the same group more than once per season. The presence and number of predatory mites should first be determined using a mite counting service before spraying. Apply the products in sufficient water to ensure thorough and uniform coverage.						
McDaniel, Twospotted Spider Mites	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Apply before a threshold of five spider mites per leaf is reached. Add 0.25 - 1% spray oil/ spray mixture. Also controls leafrollers. Maximum 1 application per season.
	cyflumetofen (Nealta) 31284	25	1 L	405 mL	12 h	7	For control of all life stages. Do not apply more than 2 times/season. Not for rust mite control. Spray interval: 14 days.
	abamectin (Agri-Mek SC) 31607	6	170 mL	69 mL	dry	28	Apply with 0.25% superior oil. Do not apply more than once/season. Will also control rust mites and leafminer larvae. Residual control: 21 days.
	acequinocyl	20B	2.1 L	850 mL	12 h	14	Do not apply more than 2 times/season. Spray interval: 21

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Stage of Development: Summer							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	(Kanemite) 28641						days.
	pyridaben (Nexter) 25135	21	300 - 600 g	120 - 240 g	24 h	25	Maximum two applications per season. Residual control: 7-10 days.
	spirodiclofen (Envidor) 28051	23	750 mL	300 mL	12 h	7	Use only once/season. Spray interval: minimum 7 days.
	bifenazate (Acramite) 27925	25	851 g	344 g	12 h	7	Does not control rust mites. Residual control: 21 days.
Notes: Rotate products with different Group numbers to avoid development of pesticide resistance. Do not apply products from the same group more than once/season. The prevalence of predatory mites should first be determined using mite counting services before spraying. Apply the products in sufficient water volume to ensure thorough and uniform coverage.							
Tentiform Leafminer	abamectin + cyantraniliprole (Minecto Pro) 33023	6 + 28	496 mL	201 mL	12 h	28	Apply against egg (to control new hatch) and early sap feeder stages of first and second generation tentiform leafminers when locally established thresholds have been reached. Add 0.25 - 1% spray oil/ spray mixture. Also controls leafroller and mites. Maximum 1 application per season.
	sulfoxaflor + spinetoram (TwinGuard) 31442	4C, 5	250 - 500 g	101 - 202 g	12 h	7	Apply at egg hatch or first sign of sap-feeder larvae. Do not apply more than 2 times/season. TOXIC to bees. Spray interval: 14 days.
	abamectin (Agri-Mek SC) 31607	6	170 mL	69 mL	dry	28	Apply with 0.25% superior oil. Do not apply more than once/season. Will also control leaf and rust mites. Residual control: 21 days.
	imidacloprid (Admire 24094, Alias 28475)	4	380 mL	154 mL	24 h	7	Will also control aphids and leafhoppers. Do not apply more than twice per season alone or alternately. Spray interval: minimum 10 days.
	acetamiprid (Assail) 27128	4	80-120 g	32-48 g	12 h-6 days	7	Will also control aphids and leafhoppers. Do not apply more than twice per season alone or alternately. Spray interval - 12 days. REIs of 2 days for scouting and 6 days is for thinning.
	spinetoram (Delegate) 28778	5	210-420 g	85-170 g	12 h	7	Apply at egg hatch or first sign of sap-feeder larvae. Do not apply more than 3 times per season. Use higher rate under high pest pressure. Spray interval: 14 days.
Notes: The leafminer parasite is an effective biological control agent. 30% parasitism of first generation tissue-feeder larvae in the spring will provide control of leafminers for the rest of the season. If chemical control is needed rotate products for resistance management.							
Rosy Apple Aphid	afidopyropen (Versys) 33266	9D	0.1 L	0.04 L	12 hrs	7 days	Allow 7 days between applications. Do not apply more than 4 times per season. For resistance management, rotate with another insecticide group after 2 applications.
	flupyradifurone	4D	500-750 mL	202-304 mL	12 h	14	Minimum interval between applications: 10 days. Maximum

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Stage of Development: Summer							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	(Sivanto Prime) 31452						amount per season: 2000 mL/ha (810 mL/acre).
	sulfoxaflor + spinetoram (TwinGuard) 31442	4C, 5	250 g	101 g	12 h	7	Do not apply more than 2 times per season. TOXIC to bees. Spray interval: 14 days.
	cyantraniliprole (Exirel) 30895	28	750- 1500 mL	304- 607 mL	12 h	3	Do not apply more than 4 times/season. Do not tank mix with Sovran, Flint, Pristine, copper or captan fungicides. Toxic to bees. Spray interval: 10 to 14 days.
	malathion (Malathion 85E) 8372	1B	610 - 880 mL/1000 L		12 hr - 3 days	3	This product is harmful to beneficial insects that attack aphids. Apply the spray mixture in sufficient volume to ensure thorough coverage. Only two applications per year. Spray interval: 10 days.
	flonicamid (Beleaf) 29796	9C	160 g	65 g	12 h-2 days	21	Experience in the field indicates there may be issues with current label rate. 2 days REI for thinning.
	sulfoxaflor (Closer) 30826	4C	100-200 mL	40-80 mL	12 h	7	Do not apply more than 2 times/season. Spray interval: minimum 7 days.
	spirotetramat (Movento 240 SC) 28953	23	365- 435 mL	148- 176 mL	12 h	7	Apply Movento with an adjuvant such as Agral 90. Do not exceed 1830 mL Movento/ha (741 mL/acre) per season. Also controls woolly apple aphid. Toxic to bees. Spray interval: minimum 14 days.
	clothianidin (Clutch) 29382	4A	140-210 g	57-85 g	12 h	7	Do not apply more than twice/season. Spray interval: 10 to 14 days.
	imidacloprid (Admire 24094, Alias 28475)	4	230 mL	93 mL	24 h	7	Will also control leafminer and leafhopper. Because use of these products has resulted in mite problems, do not apply more than twice per season alone or alternately or against any other pests the remainder of the season. Spray interval: minimum 7 days.
	acetamiprid (Assail) 27128	4	80-120 g	32-48 g	12 h-6 days	7	Do not apply this products alone or alternately with other Group 4 products more than twice/season (see additional notes). Will also control white apple leafhopper. Spray interval - 12 days. REIs of 2 days for scouting and 6 days is for thinning.
	mineral oil (Purespray Green) 27666	NC	10 L/1000 L water	10 L/1000 L water	12 h	n/a	Do not use within 14 days before or after captan or sulphur.
Apple Aphid	afidopyropen (Versys) 33266	9D	0.1 L	0.04 L	12 hrs	7 days	Allow 7 days between applications. Do not apply more than 4 times per season. For resistance management, rotate with another insecticide group after 2 applications.

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Stage of Development: Summer							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	flupyradifurone (Sivanto Prime) 31452	4D	500-750 mL	202-304 mL	12 h	14	Minimum interval between applications: 10 days. Maximum amount per season: 2000 mL/ha (810 mL/acre)
	sulfoxaflor + spinetoram (TwinGuard) 31442	4C, 5	250 g	101 g	12 h	7	Do not apply more than 2 times/season. TOXIC to bees. Spray interval: 14 days.
	malathion (Malathion 85E) 8372	1B	610 - 880 mL/1000 L water		12 h - 3 days	3	Harmful to beneficial insects that attack aphids. Apply the spray mixture in sufficient volume to ensure thorough coverage. Only two applications per year. Spray interval: 10 days.
	flonicamid (Beleaf) 29796	9C	160 g	65 g	12 h-2 days	21	Field reports indicate the rates may not provide satisfactory level of control. 2 days REI for thinning.
	sulfoxaflor (Closer) 30826	4C	100 - 200 mL	40 - 80 mL	12 h	7	Do not apply more than 2 times/season. Spray interval: minimum 7 days.
	spirotetramat (Movento 240 SC) 28953	23	365-435 mL	148-176 mL	12 h	7	Apply Movento with an adjuvant such as Agral 90. Do not exceed 1830 mL Movento/ha (741 mL/acre) per season. Also controls woolly apple aphid and apple leaf curling midge. Toxic to bees. Spray interval: minimum 14 days.
	clothianidin (Clutch) 29382	4A	140 - 210 g	57 - 85 g	12 h	7	Do not apply group 4 insecticides more than 2 time/season to avoid possible mite problems. Spray interval: 10 to 14 days.
	imidacloprid (Admire 24094, Alias 28475)	4	230 mL	93 mL	24 h	7	Will also control leafhopper and leafminer. Do not apply Group 4 products more than 2 times/season to avoid possible mite problems. Spray interval: minimum 7 days.
	acetamiprid (Assail) 27128	4	80-120 g	32-48 g	12 h-6 days	7	Do not apply Group 4 insecticides more than 2 times/season to avoid possible mite problems. Spray interval - 12 days. REIs of 2 days for scouting and 6 days is for thinning.
Apple Grain Aphid	flupyradifurone (Sivanto Prime) 31452	4D	500-750 mL	202-304 mL	12 h	14	Minimum interval between applications: 10 days. Maximum amount per season: 2000 mL/ha (810 mL/acre). Chemical control is rarely needed.
White Apple Leafhopper	flupyradifurone (Sivanto Prime) 31452	4D	500-750 mL	202-304 mL	12 h	14	Minimum interval between applications: 10 days. Maximum amount per season: 2000 mL/ha (810 mL/acre).
	clothianidin (Clutch) 29382	4A	140 g- 210 g	57-85 g	12 h	7	Do not apply more than twice/season. Spray interval: 10 to 14 days.
	imidacloprid (Admire 24094, Alias 28475)	4	200 mL	93 mL	24 h	7	Will also control aphid and leafminer. Do not apply more than twice per season. See note below. Spray interval: minimum 7 days.

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Stage of Development: Summer							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
	acetamiprid (Assail) 27128	4	80-120 g	32-48 g	12 h-6 days	7	Will also suppress aphids and leafminers. Do not apply this products alone or alternately with other Group 4 products more than twice/season (see additional notes). Spray interval - 12 days. REIs of 2 days for scouting and 6 days is for thinning.
	thiacloprid (Calypso) 28429	4	145 mL	59 mL	12 h	30	Do not apply more than twice/season. Spray interval: 14 to 21 days.
Notes: Avoid using Group 4 products more than twice/season for all registered uses to prevent mite problems.							
San Jose Scale	flupyradifurone (Sivanto Prime) 31452	4D	750-1000 mL + 0.25% oil	304-405 mL + 0.25% oil	12 h	14	Minimum interval between applications: 10 days. Maximum amount per season: 2000 mL/ha (810 mL/acre).
	sulfoxaflor + spinetoram (TwinGuard) 31442	4C, 5	250 - 500 g	101 - 202 g	12 h	7	Apply when crawlers are active. Thorough coverage is important for good control. Do not apply more than 2 times per season. TOXIC to bees. Spray interval: 14 days.
	sulfoxaflor (Closer) 30826	4C	200-400 mL	80-160 mL	12 h	7	Do not apply more than twice/season. Spray interval: minimum 7 days.
	spirotetramat (Movento 240 SC) 28953	23	365-585 mL	148-237 mL	12 h	7	Apply Movento with an adjuvant such as Agral 90. Do not exceed 1830 mL Movento/ha (741 mL/acre) per season. Also controls woolly apple aphid. Toxic to bees. Spray interval: minimum 14 days.
Notes: Use sufficient water volume to ensure thorough and uniform coverage of the tree limbs and trunks. Leave lower nozzles on when spraying high density trees in order to control scales on the trunks.							
Apple Clearwing Moth	spinosad (Success) 26835	5	125 mL	50 mL	dry	7	Thoroughly spray lower trunk using a hand-gun sprayer. Apply within 10 days of first moth emergence, and repeat at 7 - 10 day intervals up to a maximum of 7 applications/season.
	spinosad (Entrust) 30382	5	364 mL	147 mL	dry	7	Thoroughly spray lower trunk using a hand gun sprayer. Apply within 10 days of first adult emergence, and repeat at 7-10 day intervals up to a maximum of 7 applications.
	spinetoram (Delegate) 28778	5	420 g	170 g	12 h	7	For suppression only. Apply 1-2 applications 14 days apart targeting young larvae. Direct spray on trunk particularly on graft unions and pruning cuts using a handgun or backpack sprayer. Use spray volume of 1500-2000 L/ha to ensure thorough coverage. Do not apply more than 3 times per season for all labeled uses. Spray interval: 14 days.
Notes: Use pheromone traps to determine the timing of adult emergence. Adult activity may occur from early June to mid August, but monitoring is required to ensure proper timing.							
Woolly Apple	sulfoxaflor +	4C, 5	250 g	101 g	12 h	7	For suppression only. Do not apply more than 2 times per

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Stage of Development: Summer							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Aphid	spinetoram (TwinGuard) 31442						season. TOXIC to bees. Spray interval: 14 days.
	malathion (Malathion 85E) 8372	1B	610 mL /1000 L		24 h*	3	This product is harmful to beneficial insects that attack aphids. Apply the spray mixture in sufficient volume to ensure thorough coverage. Only two applications per year. Spray interval: 10 days.
	flonicamid (Beleaf) 29796	9C	160 g	65 g	12 h-2 days	21	Experience in the field indicates there may be issues with current label rate. 2 days REI for thinning.
	sulfoxaflo (Closer) 30826	4C	200 mL	80 mL	12 h	7	For suppression only. Do not apply more than twice/season. Spray interval: minimum 7 days.
	clothianidin (Clutch) 29382	4A	140 - 210 g	57-85 g	12 h	7	Do not apply more than twice/season. Spray interval: 10 to 14 days.
Rust Mites and Pearleaf Blister Mite	abamectin (Agri-Mek SC) 31607	6	170 mL	69 mL	dry	28	Apply with 0.25% superior oil. Do not apply more than once/season. Will also control leaf mites and leafminer larvae. Residual control: 21 days.
	pyridaben (Nexter) 25135	21	300 - 600 g	120 - 240 g	24 h	25	Maximum 2 applications per season. Residual control: 7-10 days.
	spirodiclofen (Envidor) 28051	23	750 mL	300 mL	12 h	7	Apply only once per season. Spray interval: minimum 7 days.
Mealybugs	spirotetramat (Movento 240 SC) 28953	23	365-585 mL	148-237 mL	12 h		Apply Movento with an adjuvant such as Agral 90 after. Minimum interval between applications: 14 days. Maximum 1.83 L/ha (741 mL/acre) per season.
Apple Leaf Curling Midge	spirotetramat (Movento 240 SC) 28953	23	365-585 mL	148-237 mL	12 h	7	Suppression only. Maximum of 2 applications per season. Minimum interval between sprays: 14 days.
	Notes: Apple leaf curling midge is not a problem in healthy bearing trees, but it is essential to protect nursery and new plantings. Movento and Cygon/Lagon applied against other pests of non-bearing trees will provide control.						
Stink Bugs	Notes: There are no registered products. Contact field advisor. Products registered for brown marmorated stink bugs (Actara and Clutch) will provide some control. Check product labels.						
Fire Blight	copper octanoate (Cueva Commercial) 31825	M1	Prepare 0.5-2% solution (5-20 L/1000 L water)		4 h	1	Apply 470-940 L of mixture/ha. Repeat every 7-10 days as long as weather conditions favour disease development (maximum 6 applications per season). See Fire blight description.
	Notes: There are no products that can be applied to cure fire blight following infection. Preventative copper sprays may help to protect against new infections. Scout susceptible orchards for symptoms and prune out infected shoots, being careful to disinfect tools between cuts.						
Post-Harvest Rots Initiated in the Orchard	pyrimethanil (Scala) 28011	9	1.5-2.0L	607-810 mL	12 h-24 h	14	Apply 2 weeks before harvest to help control storage rots caused by Botrytis and Penicillium. 24 hour REI for thinning.

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Stage of Development: Summer							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Crown and Root Rot	fosetyl-al (Aliette) 27688	33	5.0 kg	2.0 kg	dry	30	See description of crown rot for more information.
Powdery Mildew (Apples)	Notes: See petal fall for available fungicides. Use caution with sulphur or oil sprays during hot weather. Jonagold is sensitive to sulphur.						
Apple Scab	Notes: If no scab is present on apple leaves or fruit by the end of June, scab sprays are not needed for the remainder of the season. If scab symptoms are present, continue protectant fungicide coverage until harvest, with particular consideration to rainy weather. See Petal fall section for available fungicides. Check pre-harvest intervals before any late-season sprays.						

Stage of Development: Post-Harvest							
Insect or Disease	Recommended Product Choices	Grp¹	Amount Per Ha	Amount Per Acre	REI²	PHI³ (days)	Precautions and Notes
Apple Clearwing Moth	novaluron (Rimon) 28515	15	1.4 L/1000 L	1.4 L/1000 L	12 h	14	Apply in September. Direct spray on tree trunk with a hand gun or backpack sprayer. Inspect trunk and limbs for signs of apple clearwing moth damage and spray if present. Do not apply more than 2 times/season.
Fire Blight	Copper hydroxide (Parasol) 25901	M1	4.7 L	1.9 L	48 hrs	2 days	Apply after harvest with 50% leaf drop. Max. two applications per year.

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