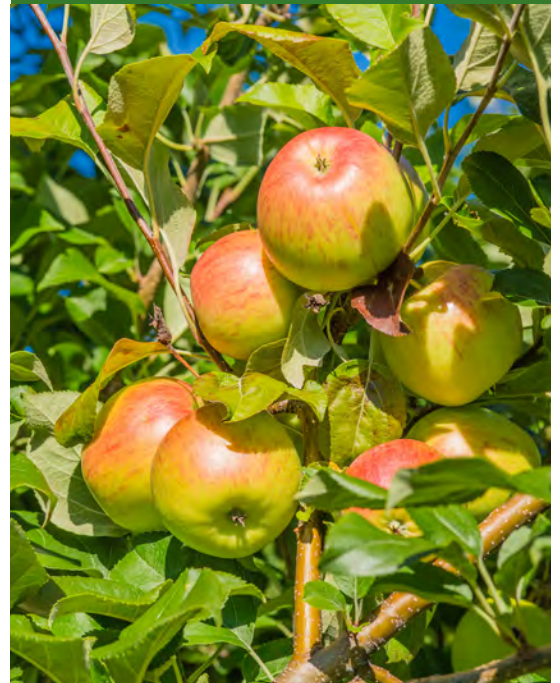


Organic Apple Orchard Management Schedule

A guide to insect, mite and disease management in organic apple orchards in Nova Scotia



2017



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Sources of Information on Pesticides

Information Service of the Pest Management Regulatory Agency

Phone: 1-800-267-6315

Web Site: <http://www.hc-sc.gc.ca/cps-spc/pest/index-eng.php>

Pest Management Regulatory Agency –Electronic Labels: Search Tool

Web Site: <http://pr-rp.hc-sc.gc.ca/ls-re/index-eng.php>

Ontario Pesticides Classification Database

Web Site: <https://www.lrcsde.lrc.gov.on.ca/PCDWeb/showSearch.action>

National Pesticide Information Centre

Web Site: <http://npic.orst.edu/>

Environmental Emergencies – Nova Scotia

Pesticide and Chemical spills

Phone: 1-800-565-1633

Organic Agriculture Centre of Canada

Web Site: <http://www.organicagcentre.ca/>

Emergency and First Aid Procedure for Pesticide Poisoning

- Become familiar with the chemicals you are using. Keep a list of common and active ingredient names in case of accidents or emergencies. This information can be found on product labels and cross-referenced in this publication.
- If poisoning from exposure to a pesticide by swallowing, inhalation or contact with skin or eyes is suspected, read the product label of the pesticide container and carry out first aid treatment as suggested.
- If a person is seriously injured, call **911** immediately.
- Emergency advice on pesticide poisoning is available 24 hours/day from the IWK Regional Poison Information Centre, Halifax, NS. Phone: 1-800-565-8161 (NS & PEI).

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Pesticide Formulation Abbreviations

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

Warning

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

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

Products listed may not be accepted by all organic certifying bodies. Organic growers must check with their certifying bodies prior to using any of the listed products below.

This guide only lists products registered on apple orchards. For use on other tree fruit crops, refer to the product label to confirm crop registration and specific application information.

Problem Codes

The following codes can be used on the spray record sheet when recording your monitoring and spray activities. These codes are the same as those used in the Orchard Outlook newsletter. We encourage you to use these codes, as they may make record-keeping easier.

Insects		Insects	
Apple Brown Bug	ABB	Tarnished Plant Bug	TPB
Apple Grain Aphid	AGA	Tent Caterpillar	TC
Apple Leaf-Curling Midge	ALM	White Apple Leafhopper	WALH
Apple Maggot	AM	Winter Moth	WM
Codling Moth	CM	Mites	
Xyleborus spp. borer	EFTB	Apple Rust Mite	ARM
European Fruit Scale	EFS	European Red Mite	ERM
European Apple Sawfly	EAS	Lemon Yellow Mite	LYM
Eyespotted Bud Moth	ESBM	Pear Leaf Blister Mite	PLBM
Fruittree Leafroller	FTR	Pear Rust Mite	PRM
Green Apple Aphid	GAA	Two-spotted Spider Mite	TSSM
Green Pug Moth	GPM	Typhlodromus pyri	TYPH
Leafrollers	LR	Diseases	
Lecanium Scale	LS	Apple Scab	AS
Mullein Bug	MB	Bitter Pit	BP
Oystershell Scale	OS	Blossom End Rot	BER
Obliquebanded Leafroller	OBL	European Canker	EC
Pale Apple Leafroller	PAL	Fire Blight	FB
Pear Psylla	PP	Fly Speck	FS
Plum Curculio	PC	Gleosporium Canker	GC
Rosy Apple Aphid	RAA	Powdery Mildew	PM
San Jose Scale	SJS	Sooty Blotch	SB
Speckled Green Fruitworm	SGFW		
Stinging Mirids (ABB & MB)	SM		

Overview of Apple Orchard Management

Stage	Problem	Management Options			
		Monitoring	Physical Control	Chemical Control	Other
April	Xyleborus spp. borer European Red Mite Fire Blight Cankers	x x x	 x 	 x	
May	Canker Xyleborus spp. borer		x	x	
Green Tip	Apple Scab European Red Mite	x	x	x	
15 mm Green to Tight Cluster	Apple Scab Powdery Mildew European Red Mite Spotted Tentiform Leafminer Winter Moth	x x x x	 x 	x x	
Bud Separation	Apple Scab Powdery Mildew Fruitworm Winter Moth	x		x x x x	
Pink	Apple Scab Powdery Mildew European Red Mite Rosy Apple Aphid Oblique Banded and Three Lined Leafroller Tarnished Plant Bug	x x x x x		x x x x x	
Bloom	Apple Sawfly Pollination Wild Apple Tree Fire Blight	 x	x x	 x	 x
Calyx	Apple Scab Powdery Mildew European Red Mite Apple Sawfly Twospotted Spider Mite Pale Apple, Oblique-banded Three Lined Leafroller Rosy Apple Aphid Stinging Bugs Tarnished Plant Bug White Apple Leafhopper Winter Moth Fruitworm	x x x x x x x x x x x x x		x x x x x x x x x x x	

		Monitoring	Physical Control	Chemical Control	Other
First Cover	Apple Scab Powdery Mildew Codling Moth European Red Mite Apple Rust Mite Twospotted Spider Mite	x x x x x x		x x x x x	
Second Cover	Apple Scab Powdery Mildew Fire Blight Codling Moth	x x x x	x	x x x	
Third Cover	Apple Scab Powdery Mildew Fire Blight Apple Maggot Codling Moth European Red Mite Twospotted Spider Mite Apple Rust Mite Spotted Tentiform Leafminer	x x x x x x x x x	x x	x x x x x x x x	
Fourth Cover	Apple Scab Apple Maggot European Red Mite Two-spotted Spider Mite Apple Rust Mite Codling Moth Eyespotted Bud Moth White Apple Leafhopper	x x x x x x x x	x	x x x x x x x x	
Early August	Soil & Leaf Analysis	x			
Late August	Storage Rots			x	
Pre Harvest	Fruit Injury	x			
Post Harvest	Storage Rots Mice	x	x	x x	

PESTICIDES LISTED IN THIS GUIDE

This listing includes all the registered products (excluding herbicides) detailed in the Organic Apple Management Guide. Products are listed according to primary insects and diseases in Nova Scotia. Secondary diseases and pests may be present on some labels. Consult product labels for additional information.

Active Ingredient	Product	Chemical Family	Group	Relative Toxicity Ratings			Preharvest Interval (days)	Re-Entry Interval (minimum)	Diseases/Insects Controlled
				Acute (1=Low 4=High)	Bee (1=Low 3=High)	Typths (1=Low 4=High)			
FUNGICIDES									
<i>Pseudomonas syringae</i>	Biosave	Biopesticide	NC	1	N/A	N/A	N/A	N/A	Postharvest moulds (suppression)
<i>Aureobasidium pullulans</i>	Blossom Protect	Biopesticide	NC	1	1	1	0	12 h	Fire blight – blossom blight
Garlic powder	Buran	Biopesticide	NC	1	1	1	0	12 h	Apple scab, powdery mildew (suppression)
<i>Reynoutria sachalinensis</i>	Regalia Maxx	Biopesticide	NC	1	1	1	0	12 h	Powdery mildew, sooty blotch/fly speck, bitter rot (suppression)
<i>Bacillus subtilis</i>	Serenade OPTI	Biopesticide	NC	1	1	1	0	12 h	Fire blight, apple scab (suppression)
sulphur	Kumulus	Inorganic	M1	1	1	3	1	24 h	Apple scab, powdery mildew
sulphur	Microscopic Sulphur	Inorganic	M1	2	1	3	1	24 h	Apple scab, powdery mildew
sulphur	Microthiol Disperss	Inorganic	M1	2	1	3	1	24 h	Apple scab, powdery mildew
Calcium polysulphide	Lime Sulphur	Inorganic	M1	4	1	3	2	48 h	Apple scab, powdery mildew
copper octanoate	Cueva	Inorganic	M2	1	1	2	1	4 h	Apple scab, fire blight
copper oxychloride	Copper Spray Fungicide	Inorganic	M2	3	1	2	2	48 h	Fire blight – overwintering bacteria
INSECTICIDES/MITICIDES									
petroleum oil	Superior Oil	Mineral oil	NC	4	1	3	0	12 h	European red mite, scale
mineral oil	Purespray Green	Mineral oil	NC	1	1	3	0	12 h	European red mite, scale
K salts of fatty acids	Opal	Inorganic	NC	1	1	4	0	12 h	Aphids, mites
Kaolin clay	Surround	Inorganic	NC	1	1	3	0	12 h	Tarnished plant bug, leafrollers, apple maggot, codling moth, European apple sawfly (suppression)
<i>C. pomonella</i> Granulovirus	Virosoft CP4	Biopesticide	NC	1	1	1	0	12 h	Codling moth
spinosad	Entrust	Spinosyns	5	1	3	2	7	12 h	Leafrollers
spinosad	GF-120 Fruit Fly Bait	Spinosyns	5	1	3	2	0	12 h	Apple maggot (suppression)
bacillus thuringiensis	Dipel 2XDF	Bt Microbial	11	1	1	1	0	12 h	Winter moth, leafrollers
bacillus thuringiensis	Bioprotec CAF	Bt Microbial	11	1	1	1	0	12 h	Winter moth, leafrollers

Organic Apple Orchard Management Guide for Nova Scotia

A guide to insect, mite, and disease management in organic apple orchards.

All rates are per hectare of mature ("standard") trees or full dilute volume of about 3,370 litres of water/ha. To adjust for smaller trees and higher density plantings, refer to Crop Adapted Spraying at <http://sprayers101.com/>.

All rates are based on label rates. In some cases, reduced rates can be used based on factors other than tree size. Please refer to specific notes or your agricultural advisor for details.

Always read the label before using any pesticide. Where differences between the label and this guide occur, label information prevails.

These products may not be accepted by all certifying bodies. Organic growers must check with their certifying bodies prior to using any of the listed products below. This guide only lists products registered on apple orchards. For use on other tree fruit crops, refer to the product label to confirm crop registration and specific application information.

Disease & Insect	Products	Group	Formulation	Rate	Notes
GREEN TIP					
Apple Scab	Use one of the following listed fungicides. Apply fungicides on preventative schedule and keep new tissue covered. Check compatibility with oil.				
	▶ Microscopic Sulphur	M1	92 WP	6.5 kg/1,000 L	Do not apply within 30 days of an oil treatment. Do not apply if high temperatures (>26° C) and humidity prevail or are expected during the three days following application. Do not use on Delicious. Usage may result in elevated populations of European red mite and scale.
	▶ Kumulus	M1	80 DF	7.5 kg/1,000 L	
	▶ Microthiol Dispers	M1	80 WP	7.5 kg/1,000 L	
	▶ Lime Sulphur	M1	29 SU	9.2 L/1,000 L	Do not spray when foliage is wet. Thorough coverage is essential. May cause leaf damage, particularly when applied at calyx or early summer. Also labelled for scale/mite control. Is the only organic product with some post-infection control of apple scab.
	▶ Cueva	M2	1.8 S	0.5-2.0% solution	Do not exceed 1.0% solution on russet-sensitive varieties. Apply at 5-10 day intervals. Do not make more than 10 applications per year.
	▶ Buran (suppression)	NC	14 S	17 L/1,000 L	This product does not have protectant activity. It should only be used as a post-infection treatment, applied after rainfall or when conditions are conducive to disease development. The treatment should be conducted before 350 degree hours (base 0°C) after the beginning of the infection. Begin applications at the first sign of disease. Subsequent applications may be made every 7-10 days if conditions remain conducive to disease development. Do not apply if rain is expected to fall within 48 hours.
	▶ Serenade OPTI (suppression)	NC		1.7-3.3 kg/ha	Begin application at green tip or when environmental conditions become favorable for primary scab development, and repeat on 7-10 day intervals. When conditions are conducive to heavy disease pressure, use Serenade Opti in a rotational program with other registered fungicides.
Fire Blight	Copper application at silver tip to green tip can be effective in reducing the overwintering bacterial population and is a useful component of an overall fire blight management strategy.				
	▶ Copper Spray Fungicide	M2	50 WP	3.2 kg/ha	Compatible with oil. Will also provide apple scab control but contact activity only. Do not make more than two applications per year. Use of copper after green tip may increase the risk of fruit russetting.
European Red Mite	Assess winter eggs on twigs and bark, refer to Pest Management Fact Sheet #6 or Best Management Practices for NS Apple Production. See http://perennia.ca/fruit.php				
	▶ Superior Oil Purespray	NC	70 EC	20 L/1,000 L	Best results are obtained when applied with a high volume of water 1,500 to 3,370 L/ha. Do not apply oil during or just prior to expected freezing temperatures or immediately following a frost. Check compatibility with fungicide. May cause bark injury on Red Delicious, Empire, and Ambrosia.
	▶ Green Spray Oil	NC	13 E	20 L/1,000 L	

Disease & Insect	Products	Group	Formulation	Rate	Notes
HALF-INCH GREEN					
Apple Scab	Use one of the fungicides as listed under Green Tip. Check fungicide compatibility with oil treatments for mites.				
Powdery Mildew	If mildew pressure was high during the previous growing season select an appropriate fungicide listed below. In most cases mildew treatment should begin around the tight cluster stage of bud development. Under extreme mildew pressure treatments can begin earlier.				
	▶ Microscopic Sulphur	M1	92 WP	6.5 kg/1,000 L	Do not apply within 30 days of an oil treatment. Do not apply if high temperatures (>26° C) and humidity prevail or are expected during the three days following application. Do not use on Delicious. Usage may result in elevated populations of European red mite and scale.
	▶ Kumulus	M1	80 DF	7.5 kg/1,000 L	
	▶ Microthiol Disperss	M1	80 WP	7.5 kg/1,000 L	
	▶ Buran (suppression)	NC	14 S	17 L/1,000 L	Begin applications at the first sign of disease. Subsequent applications may be made every 7-10 days if conditions remain conducive to disease development. Do not apply if rain is expected to fall within 48 hours.
	▶ Regalia Maxx (suppression)	NC	19 S	2.5 L/1,000 L	Repeat applications at 7-10 day intervals depending upon crop growth and disease pressure. When environmental conditions and plant stage are conducive to rapid disease development, use Regalia Maxx in a rotational program with other registered fungicides. May also suppress sooty blotch/flyspeck, and bitter rot.
	▶ Serenade OPTI (suppression)	NC		1.7-3.3 kg/ha	Begin application at tight cluster, or sooner, if conditions are conducive to disease development. Repeat applications on a 7-10 day interval. Additional sprays beyond second cover may be needed on susceptible varieties or under heavy disease pressure. When conditions are conducive to heavy disease pressure, use Serenade Opti in a rotational program with other registered fungicides.
	▶ Purespray Green Spray Oil (suppression)	NC	13 E	10 L/1,000 L	Apply at tight cluster and continue every 10-14 days. Avoid application during bloom. Use the shorter spray interval when disease conditions are severe. Do not use within 30 days of a sulphur application.
Winter Moth	Assess larvae at this stage and refer to Pest Management Fact Sheet # 8 or Best Management Practices for NS Apple Production. See http://perennia.ca/fruit.php				
Spotted Tentiform Leafminer	Assess adult activity at this time and refer to Pest Management Fact Sheet # 21. See http://perennia.ca/fruit.php				
European Red Mite	Treatments listed under Green Tip may be used.				
Solupacks- Many pesticides have been packed into solupacks, be aware that these may not dissolve properly in the presence of oil, boron or chlorine in the spray tank.					
BUD SEPARATION					
Apple Scab	Use one of the fungicides as listed under Green Tip. Check fungicide compatibility with oil treatments for mites.				
Powdery Mildew	Use one of the fungicides listed for Half-Inch Green. Check fungicide compatibility with oil treatments for mites.				
Winter Moth	Green pug moth seldom needs treatment. Contact an IPM advisor for advice on control of this pest. Application timing is late tight cluster to pink.				
Green Pug Moth	▶ Entrust	5	240 SC	364 mL/ha	Do not make more than 3 applications per year.
	▶ Dipel	11	2X DF	1.13-1.68 kg/ha	More effective on early instar caterpillars. Best results are obtained if applications are made in the evening or on a cloudy day.
	▶ Bioprotec	11	CAF	2.8-4.0 L/ha	More effective on early instar caterpillars. Best results are obtained if applications are made in the evening or on a cloudy day.
Speckled Green Fruitworm	Refer to Best Management Practices for NS Apple Production for larval assessment. See http://perennia.ca/fruit.php . Treatments for winter moth and/or green pug moth would also control speckled green fruit worm.				
Rosy Apple Aphid	Refer to Best Management Practices for NS Apple Production for larval assessment. See http://perennia.ca/fruit.php				

APPLE - HALF-INCH GREEN TO BUD SEPARATION

Disease & Insect	Products	Group	Formulation	Rate	Notes
PINK					
Apple Scab	Use one of the fungicides as listed under Green Tip. Check fungicide compatibility with oil treatments for mites.				
Powdery Mildew	Use one of the fungicides listed for Half-Inch Green. Check fungicide compatibility with oil treatments for mites.				
Rosy Apple Aphid	Assess at this time. Refer to Pest Management Fact Sheet # 10 or Best Management Practices for NS Apple Production. See http://perennia.ca/fruit.php If thresholds warrant, treat using an insecticide listed below.				
	▶ Opal	NC	46 S	20 L/1,000 L	Combining this product with sulfur or applying this product within 3 days of sulfur application may increase the plant damage caused by sulfur on sensitive plants. Do not tank mix Opal Insecticidal Soap with sulfur when temperatures are higher than 32°C.
	▶ Purespray Green Spray Oil (suppression)	NC	13 E	10 L/1,000 L	Do not use within 30 days of a sulphur application.
Tarnished Plant Bug	Assess need for treatment based on orchard history and monitoring. Treatments for tarnished plant bug pre-bloom will not affect populations of other stinging bugs such as apple brown bug or mullein bug which are not present until petal fall/calyx.				
	▶ Surround (suppression)	NC	95 WP	25-50 kg/ha	Start application before infestation begins and continue at 7-14 day intervals. Lengthening re-spray interval past 14 days is not recommended. Efficacy depends on complete coverage of leaves and fruit.
Obliquebanded Leafroller	Assess at this time. Refer to Pest Management Fact Sheet # 16. If treatment is required to control a high overwintering population of oblique-banded leafroller then select one of the following pesticides.				
	▶ Entrust	5	240 SC	364 mL/ha	Do not make more than 3 applications per year.
	▶ Dipel	11	2X DF	1.13-1.68 kg/ha	More effective on early instar caterpillars. Best results are obtained if applications are made in the evening or on a cloudy day.
	▶ Bioprotec	10	CAF	2.8-4.0 L/ha	More effective on early instar caterpillars. Best results are obtained if applications are made in the evening or on a cloudy day.
	▶ Surround (suppression)	NC	95 WP	25-50 kg/ha	Apply first 2 sprays 7 days apart starting just prior to green tip stage of host development or at initial emergence of leafroller larvae, as determined by monitoring. Make initial application before larvae roll up into leaves. For subsequent generations apply at 7-14 day intervals as larvae emerge. Efficacy depends on complete coverage of leaves and fruit.
European Apple Sawfly	Assess need for pre-bloom treatment based on orchard history of damage.				
	▶ Surround (suppression)	NC	95 WP	25-50 kg/ha	Apply at first detection. Continue applications every 7 days to keep fruit completely covered during egg laying period. Efficacy depends on complete coverage of leaves and fruit.

Disease & Insect	Products	Group	Formulation	Rate	Notes
BLOOM					
Apple Scab	Use one of the fungicides listed under Green Tip.				
Insects	DO NOT USE INSECTICIDES DURING BLOOM.				
Mites	DO NOT USE MITICIDES DURING BLOOM.				
Pollination	Place bee hives (2-3 per hectare) in orchards at 10% bloom.				
Wild Apple Trees	Flag during bloom for removal to eliminate unmanaged hosts for diseases and pests (e.g. apple maggot).				
Fire Blight	Use Maryblyt™ or other prediction models to determine the risk of fire blight infections during the bloom period. See below for product choices when risk is high.				
Fire Blight	▶ Cueva	M2	1.8 S	0.5-2.0% solution	Do not exceed 1.0% solution on russet-sensitive varieties. Apply at 5-10 day intervals. Do not make more than 10 applications per year.
	▶ Blossom Protect	NC	WG	1 package/1,000 L	Rate is based upon 2 m of canopy height. Apply up to 5 times 1-2 days ahead of Maryblyt™-forecasted risk of blossom blight infection. Apply with 1000 L/ha of water.
PETAL FALL/CALYX					
Apple Scab	Use one of the fungicides listed under Green Tip.				
Powdery Mildew	Use one of the fungicides listed for Half-Inch Green.				
Winter Moth	Assess and refer to Pest Management Fact Sheets # 8 and # 14 or Best Management Practices for NS Apple Production. See http://perennia.ca/fruit.php				
Fruitworms	Use one of the treatments listed under Bud Separation.				
Apple Leafrollers	Assess at this time for Pale apple, Obliquebanded, Fruittree or Threelined leafroller.				
	▶ Entrust	5	240 SC	364 mL/ha	Do not make more than 3 applications per year.
	▶ Dipel	11	2X DF	1.13-1.68 kg/ha	More effective on early instar caterpillars. Best results are obtained if applications are made in the evening or on a cloudy day.
	▶ Bioprotec	10	CAF	2.8-4.0 L/ha	More effective on early instar caterpillars. Best results are obtained if applications are made in the evening or on a cloudy day.
	▶ Surround (suppression)	NC	95 WP	25-50 kg/ha	Apply first 2 sprays 7 days apart starting just prior to green tip stage of host development or at initial emergence of leafroller larvae, as determined by monitoring. Make initial application before larvae roll up into leaves. For subsequent generations apply at 7-14 day intervals as larvae emerge. Efficacy depends on complete coverage of leaves and fruit.
Mites	Assess active mites and mite eggs on leaves. Treat only when thresholds are reached.				
	▶ Purespray Green Spray Oil (suppression)	NC	13 E	10 L/1,000 L	Suppression of European Red Mite only. Begin applications when mites first appear. Apply every 10-14 days depending upon the level of pest pressure. Post harvesting sprays may be made to reduce over-wintering pressure. Do not exceed more than 10 L oil per ha per application for summer treatments. Do not use within 30 days of a sulphur application.
Rosy Apple Aphid	Assess at this time. Refer to Pest Management Fact Sheet # 10 or Best Management Practices for NS Apple Production. See http://perennia.ca/fruit.php . If treatment is needed, use of the products listed under Pink.				
Stinging Bugs	Assess as close to petal fall as possible.				
	▶ Surround (suppression)	NC	95 WP	25-50 kg/ha	Start application before infestation begins and continue at 7-14 day intervals. Lengthening re-spray interval past 14 days is not recommended. Efficacy depends on complete coverage of leaves and fruit.
European Apple Sawfly	Treat as a special spray where there has been a history of damage. Apply as soon as petals have fallen. Use of the insecticides listed under Pink.				

Disease & Insect	Products	Group	Formulation	Rate	Notes
FIRST COVER					
Apple Scab	Use one of the fungicides listed under Green Tip.				
Powdery Mildew	Use one of the fungicides listed for Half-Inch Green.				
Codling Moth	Hang pheromone traps at this time (1 trap per 2 hectares). Approximate date June 10.				
Mites	Assess mites and mite eggs on leaves. Treat only when thresholds are reached. Use one of the miticides listed under Petal Fall/Calyx.				
SECOND COVER					
Apple Scab	Use one of the fungicides listed under Green Tip.				
Codling Moth	Monitor trap captures and if captures warrant, use one of the recommended treatments listed below.				
	▶ Virosoft	NC	CP4	250 mL/ha	Virus particles must be ingested by larvae to be effective. Applications should be timed so that early-instar larvae on the surface of the leaf or fruit come in contact with the virus before entering the fruit. Apply just prior to egg hatch and repeat application in 10-14 days. Best results are obtained when applied late afternoon or during cloudy days.
	▶ Surround (suppression)	NC	95 WP	25-50 kg/ha	Apply at first detection. Continue applications every 7 days to keep fruit completely covered during egg laying period. Efficacy depends on complete coverage of leaves and fruit.
THIRD COVER					
Apple Scab	Use one of the fungicides listed under Green Tip. Depending on primary scab season length and freedom from primary infections, reduced rates of fungicides may be used. Inspect orchards for primary scab and refer to label instructions before reducing rates of fungicides.				
Apple Maggot	Hang traps in early July. Monitoring traps will determine when first maggot flies appear and when control is needed. It is recommended that yellow cards be replaced after 30 days of field exposure.				
	▶ GF-120 Fruit Fly Bait (suppression)	5	S	1.5 L/6 L water/ha	Begin applications as soon as monitoring traps indicate flies are present in the orchard and continue coverage until flights stop. Repeat applications every 7 days, reapplying sooner if rain washes off the deposit. Do not apply more than 10 applications per season.
	▶ Surround (suppression)	NC	95 WP	25-50 kg/ha	Apply 2 sprays 7 days apart before expected oviposition or at first detection of infestation. Continue applications every 7-14 days to keep fruit completely covered during egg laying period. Efficacy depends on complete coverage of leaves and fruit.
Mites	Assess mites and mite eggs on leaves. Treat only when thresholds are reached. Use one of the miticides listed under Petal Fall/Calyx.				
Obliquebanded Leafroller	Assess larval population. If treatment is required, use one of the leafroller products listed under Petal Fall/Calyx.				
Codling Moth	Monitor trap captures and if captures warrant, use one of the recommended treatments listed under Second Cover.				
FOURTH COVER					
Apple Scab	Use one of the fungicides listed under Green Tip. Depending on primary scab season length and freedom from primary infections, reduced rates of fungicides may be used. Inspect orchards for primary scab and refer to label instructions before reducing rates of fungicides.				
Apple Maggot	Use one of the insecticides listed under Third Cover.				
Mites	Assess mites and mite eggs on leaves. Treat only when thresholds are reached. Use one of the miticides listed under Petal Fall/Calyx.				
AUGUST to NOVEMBER					
Leaf Tissue Analysis	Collect tissue samples for nutrient analysis the first week of August or when terminal growth has completed for the season.				
Storage Rots	Postharvest dip applications – for control of blue and gray mould.				
	▶ Biosave (suppression)	NC	10 LP	500 g/300 L	Apply as a postharvest dip or drench application. Agitate the mixture to ensure proper suspension. Treat fruit for at least one minute. Recycled dip/drench suspensions will need to be recharged at intervals dependent on individual use conditions. Non-recovery Spray: Agitate the mixture to ensure proper suspension. Apply to freshly cleaned fruit prior to waxing. Apply over soft, clean brushes or donut rolls.
Mice/Voles	Clean up drop apples and keep orchard floor clean and mowed. Place tree guards on young trees and encourage predator populations.				
APPLE - FIRST COVER TO AUGUST TO NOVEMBER					