

# APPLE GUIDE TO INSECT AND DISEASE MANAGEMENT

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



## **DISCLAIMER**

Recommendations in this guide are given for general information only and do not give the user the right to use a product in a manner not in accordance with the pesticide label or Pest Control Products Act. Perennia, by funding and printing this publication, and the editors/authors, do not offer any warranty or guarantee and do not assume any liability for crop loss, animal loss, health, safety, or environmental hazard caused by the use of any pesticide, advice, or recommendation in this schedule. Pesticides used in this schedule are products labeled for the target and crop. This information was retrieved from the Pest Management Regulatory Agency online list of Registered Products Database. The list of products presented in this schedule is intended to be complete, based on products known to be available in the region, but in no way is guaranteed to be complete. Some of the products listed may not be available. Trade names are given as a convenience to producers and are neither an endorsement of the product nor a suggestion that similar products are not available or effective.

**Discard old editions of the pesticide spray guide. Each year, Perennia specialists update the pesticides and information contained in this publication.**

## **ONLINE RESOURCE**

The information contained in the following summary is also available online in an interactive format at <https://www.farmdatatools.perennia.ca/pest-guides/>

### **Emergency and First Aid Procedure for Pesticide Poisoning**

- 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 Atlantic Canada Poison Centre. Phone: 1-844-764-7669 (NS & PEI).

All Pesticides in the Apple Insect and Disease Guide 2026



Group	Active Ingredient	Pesticide	PCP #	PHI (days)	REI General (days)	REI Hand Thin (days)	Product Maximum	Restricted Reapplication (days)	Potentially Organic	Status Update
<b>ANIMAL REPELLENT AND RODENTICIDE</b>										
-	Oils, meat, dried egg	<b>Bobbex SC</b>	29804	prohibited	0.5	-	-	14	Yes	
-	Sheep fat	<b>TRICO Repellent 6.4 EC</b>	34463	-	0.5	-	2 apps, 20 L/ha/yr	28	Yes	
NC	chlorophacinone	<b>Rozol Rat and Mouse Killer</b>	11824	-	-	-	-	-	No	
NC	zinc phosphide	<b>Zinc Phosphide Bait</b>	16122	-	-	-	-	-	No	
<b>BACTERICIDE</b>										
24	kasugamycin	<b>Kasumin 2L</b>	30591	90	0.5	-	4 apps, 20L/ha/yr	-	No	
25	streptomycin sulfate	<b>Streptomycin 17 WP</b>	10305	50	1-7, see label	14	3 apps	-	No	
BM	Aureobasidium pullulans	<b>Blossom Protect WG</b>	30552	0	0.2	-	5 apps	-	Yes	
BM02	Bacillus amyloliquefaciens D747	<b>Double Nickel LC SC</b>	31887	0	0.5	-	-	-	Yes	
<b>FUNGICIDE</b>										
1	thiophanate-methyl	<b>Senator 50 SC</b>	32096	7	0.5	-	2 apps	7	No	
3	flutriafol	<b>Fullback 125 SC</b>	31679	14	0.5	-	2 apps, 2048 mL/ha/yr	10	No	
3	mefentrifluconazole	<b>Cevya 400 SC</b>	33405	0	0.5	-	1.125 L/ha/yr	7	No	
3	myclobutanil	<b>Nova 40 WSP</b>	22399	14	0.5	12	6 apps	7	No	
3, 7	difenoconazole + benzovindiflupyr	<b>Aprovia Top EC</b>	31526	30	0.5	-	4 apps, 2.57 L/ha/yr	7	No	
3, 9	difenoconazole + cyprodinil	<b>Inspire Super EC</b>	30827	14	0.5	-	4 apps	7	No	
4	metalaxyl-M and S	<b>Ridomil Gold 480 SL</b>	28474	365	0.5	-	2 apps	-	No	
7	fluxapyroxad	<b>Sercadis 300 SC</b>	31697	0	0.5	-	4 apps	7	No	
7	inpyrfluxam	<b>Excalia 31 SC</b>	33819	Petal fall	0.5	-	2 apps, 584 mL/ha/yr	10	No	
7	isofetamid	<b>Kenja 400 SC</b>	31758	20	0.5	-	6 apps	10	No	
7	penthiopyrad	<b>Fontelis 200 SC</b>	30331	28	0.5	-	3-4 apps, 4.5 L/ha/yr	7	No	
7, 9	fluopyram + pyrimethanil	<b>Luna Tranquility SC</b>	30510	14	0.5-1	1	4 apps, 3.2 L/ha/yr	7	No	
7, 11	boscalid + pyraclostrobin	<b>Pristine WG</b>	27985	5	0.5	12	4 apps	7	No	
7, 11	pyraclostrobin + fluxapyroxad	<b>Merivon SC</b>	33951	5	0.5	12	4 apps	7	No	
9	pyrimethanil	<b>Scala 400 SC</b>	28011	14	0.5	1	4 apps	7	No	
11	Trifloxystrobin	<b>Flint Extra 42.6 SC</b>	34962	14	0.5	4	4 apps, 860 mL/ha/yr	7	No	
19	polyoxin d zinc salt	<b>Diplomat 5 SC</b>	32918	0	0.5	-	2.78 L/ha/yr	-	Yes	
29	fluzazinam	<b>Allegro 500F 40 SC</b>	27517	28	1	-	5 apps	7	No	
29	fluzazinam	<b>Downforce AG 40 SC</b>	34723	28	1	-	5 apps	7	No	
29	fluzazinam	<b>Vantana 500 SU</b>	35050	28	1	-	5 apps	7	No	
50	pyriofenone	<b>Property 300 SC</b>	32534	14	0.5	-	1.464 L/ha/yr	7	No	
52	ipflufenquin	<b>Migiwa 20 SC</b>	35443	7	0.5	-	3 apps, 660 mL/ha/yr	7	No	
BM	pseudomonas syringae	<b>Bio-Save 10 LP WP</b>	29673	-	-	-	-	-	Yes	
BM 01	Swinglea glutinosa	<b>EcoSwing 82 SN</b>	35206	0	0.2	-	10 apps	-	Yes	
BM02	QST 713 strain of dried Bacillus subtilis	<b>Serenade OPTI WP</b>	31666	0	0.2	-	-	7	Yes	
M	calcium polysulphide	<b>Lime Sulphur 30 SN</b>	16465	120	2	-	-	-	Yes	
M	sulphur	<b>Cosavet DF Edge 80 WG</b>	31869	1	1	-	-	-	Yes	
M01	sulphur	<b>Kumulus 80 DF WDG</b>	18836	1	1	-	8 apps	-	Yes	
M02	copper octanoate	<b>Cueva 1.8 SN</b>	31825	1	0.2	-	10 apps	5	Yes	

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M02	copper oxychloride	Copper Spray Fungicide 50 WP	19146	2	2	-	2 apps	7	Yes	
M02	sulphur	Microscopic Sulphur 92 WP	873	1	1	-	8 apps	-	Yes	
M03	mancozeb	Dithane Rainshield 75 WG	20553	77	0.5	35	4 apps	7	No	
M03	mancozeb	Manzate Max 480 F	33299	77	0.5	35	4-8 apps, 37.5 L/ha/yr	7	No	
M03	mancozeb	Manzate ProStick 75 DF	28217	77	0.5	35	4-8 apps, 24 kg/ha/yr	7	No	
M04	captan	Captan 480 SC	34551	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	No	
M04	captan	Captan L 482 SC	35343	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	No	
M04	captan	Maestro 80 WSP	33488	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	No	
M04	captan	Sharda Captan 48 SC	32300	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	No	
M04	captan	Supra Captan 80 WSP	33641	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	No	
M04	folpet	Follow 80 WDG	34314	1	0.5	6	6 apps	10	No	
M04	folpet	Folpan 80 WDG	27733	1	0.5	6	6 apps	10	No	
M3	mancozeb	Penncozeb 75 DF Raincoat WG	30241	77	0.5	35	4-8 apps	7	No	
NC	citric acid + lactic acid	Cyclone Plus SN	34762	0	0.2	-	-	7	Yes	
NC	garlic powder	Buran 15 SN	30601	0	0.2	-	18 L/ha/application	-	Yes	
NC	hydrogen peroxide + peroxyacetic acid	OxiDate 2.0 SN	32907	0	0.2	-	8 apps	5	Yes	
NC	potassium bicarbonate	MilStop 85 DU	28095	0	0.2	-	10 apps	7	Yes	
P05	Reynoutria sachalinensis	Regalia Maxx 20 SC	30199	0	0.5	-	-	7	Yes	
P06	Bacillus mycoides isolate J	LifeGard 40 WG	32526	0	0.2	-	-	7	Yes	
P07	fosetyl al	Aliette 80 WDG	24458	30	0.5	4	3 apps, 10 kg/ha/yr	-	No	
P07	mono- and dibasic sodium, potassium, and ammonium phosphites	Phostrol 53.6 LI	30449	0	-	-	6 apps	7	No	
U12	dodine	Syllit 400 FL	28351	7	2	-	2-4 apps	7	No	
U13	flutianil	Gatten 50.7 EC	34297	14	0.5	-	4 apps, 120 g/ha/yr	7	No	
<b>GROWTH REGULATOR AND THINNER</b>										
-	1-aminocyclopropanecarboxylic acid	Accede 40 SG	34861	-	0.5	-	2 apps	7	No	
-	Liquid fertilizer containing 12% nitrogen and 26% sulphur	Ammonium thiosulphate (ATS)	-	-	-	-	-	-	No	
NC	prohexadione-calcium	Apogee 27.5 WG	28042	45	0.5	-	4 apps	14	No	
-	metamitron	Brevis 150 SC	35694	72	0.5	5	2 apps, 4.48 L/ha/yr	5	No	
-	6-benzyladenine (aka 6-benzylaminopurine)	Cilis Plus 2.0 SN	29210	28	0.5	-	21.3 L/ha/yr	-	No	
-	naphthaleneacetic acid	Fruitone L 3.1 SN	31460	5	0.5	-	-	-	No	
-	1-Methylcyclopropene	Harvista 1.3 SC	32752	3	0.2	-	17.7 L/ha/yr	-	No	
NC	prohexadione-calcium	Kudos 27.5 WG	33010	45	0.5	-	4 apps	14	No	
-	naphthaleneacetic acid	Maintain 3.1 SC	33945	5	0.5	-	-	-	No	
-	6-benzyladenine	MaxCel 1.9 SN	28851	28	0.5	-	-	-	No	
-	gibberellins A4 & A7	Novagib 96 SL	30403	28	0.5	-	5 apps	-	No	
-	6-benzyladenine, gibberellins A4 & A7	Promalin 1.8 SL	16636	28	0.5	-	4 apps	-	No	
-	aviglycine hydrochloride	ReTain 15 SP	25609	7	0.5	-	-	-	No	
<b>INSECTICIDE</b>										
1A	carbaryl	Sevin XLR 43 SC	27876	75	0.5-4, see label	10-14, see label	High density 3.22 L/ha/year, low density 2.15 L/ha/year	4	No	
1A	oxamyl	Vydate 240 LI	17995	365	0.5-7, see label	30	7 L/ha/app, 1.68 kg active ingredient/ha foliar	-	No	

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1B	phosmet	Imidan 70 WP	29064	22	0.5-9, see label	Prohibited	2 apps	14	No	
3	cypermethrin	Up-cyde 2.5 EC	28795	7	0.5	-	3 apps	7	No	
3	deltamethrin	Decis 100 EC	33700	1	0.5	-	3 apps	12	No	
4	acetamiprid	Aceta 70 WP	33298	7	2	6	4 apps, 960 g/ha/yr	12	No	
4	acetamiprid	Assail 70 WP	27128	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	No	
4	thiacloprid	Theme 480 SC	34379	30	0.5	-	3 apps	-	No	Expiry date of registration December 31, 2026.
4, 15	acetamiprid and novaluron	Cormoran EC	33353	14	0.5	7	6.9 L/ha/yr	12	No	
4C	sulfoxaflor	Closer 240 SC	30826	7	0.5	-	2 apps	7	No	
4D	flupyradifurone	Sivanto Prime 200 SN	31452	14	0.5	-	2-4 apps, 2000 mL/ha/yr	10	No	
5	spinetoram	Delegate 25 WG	28778	7	0.5	-	3 apps	7	No	
5	spinosad	Entrust 80 WG	27825	7	0.5	-	3 apps	-	Yes	
5	spinosad	GF-120 Fruit Fly Bait SN	28336	0	0.5	-	10 apps	-	Yes	
6, 28	cyantraniliprole + abamectin	Minecto Pro SC	33023	28	0.5	-	1 app, 0.5 L/ha/yr	-	No	
9D	afidopyropen	Sefina 50 EC	33265	7	0.5	-	4 apps, 0.8 L/ha/yr	7	No	
9D	afidopyropen	Versys 100 EC	33266	7	0.5	-	4 apps, 0.4 L/ha/yr	7	No	
11	Bacillus thuringiensis	XenTari 48 WG	31557	0	0.2	-	-	-	Yes	
11	bacillus thuringiensis	Bioprotec PLUS SC	32425	0	0.2	-	-	-	Yes	
11	Bacillus thuringiensis	Dipel 2X DF	26508	0	0.2	-	-	-	Yes	
11	Bacillus thuringiensis	Foray 48BA SC	24978	0.5	0.5	-	-	-	Yes	
15	novaluron	Rimon 10 EC	28515	14	0.5	-	4 apps	-	No	
18	methoxyfenozide	Intrepid 240 SC	27786	14	0.5	-	2 apps	-	No	
23	spirodiclofen	Envidor 240 SC	28051	7	0.5	-	1 app	-	No	
23	spirotetramat	Movento 240 SC	28953	7	0.5	-	4-5 apps, 1.83 L/ha/yr	14	No	
28	chlorantraniliprole	Altacor MaX 70 WG	34654	5	0.5	-	3 apps	10	No	
28	cyantraniliprole	Exirel 100 SC	30895	3	0.5	-	4 apps, 4.5 L/ha/yr	7	No	
28	cyclaniliprole	Harvanta 50 SL	32889	7	0.5	-	3 apps, 4.8 L/ha/yr	14	No	
28	tetraniliprole	Vayego 200 SC	33711	7	0.5	-	3 apps	10	No	
29	flonicamid	Beleaf 50 SG	29796	21	0.5	3	3 apps, 600 g/ha/yr	7	No	
32	GS-omega/kappa-Htx-Hv1a	Spear-LEP 2 SN	34678	0	0.2	-	6 apps	3	Yes	
NC	Cydia pomonella Granulovirus	CYD-X SC	30120	0.5	0.5	-	-	-	Yes	
NC	Cydia pomonella Granulovirus	Virosoft CP4 SC	26533	0.5	0.2	-	2 apps	-	Yes	
NC	kaolin clay	Surround 95 WP	27469	0	0.5	-	-	-	Yes	
NC	potassium salt of fatty acids	Kopa 47 SN	31433	0.5	0.5	-	-	-	Yes	
NC	potassium salts of fatty acids	Opal 47 SN	28146	0	0.5	-	-	-	Yes	
NC	pheromones	Isomate-CM/OFM TT	29352	-	-	-	-	-	Yes	
<b>MITICIDE</b>										
6	abamectin	Agri-Mek 8.4 SC	31607	28	0.5	-	1 app, 170 mL/ha/yr	-	No	
21	pyridaben	Nexter 75 WP	25135	25	0.5	-	2 apps	30	No	
25	cyflumetofen	Nealta 200 SC	31284	7	0.5	-	2 apps	14	No	
20B	acequinocyl	Kanemite 15 SC	28641	14	0.5	-	2 apps	21	No	

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20D	bifenazate	<b>Acramite 50 WS</b>	27925	7	0.5	-	1 app	-	No	
21, 39	fenazaquin	<b>Magister 205 SC</b>	34544	10	0.5-1, see label	17	1 app, 2.63 L/ha/yr	-	No	
M02,UN	sulphur	<b>Microthiol Disperss 80 WP</b>	29487	1	1	-	-	-	Yes	
NC	petroleum oil	<b>Superior 70 Oil EC</b>	14981	-	0.5	-	1 app	-	Yes	
NC	canola oil	<b>Vegol Crop Oil 96 EC</b>	32408	0	0.5	-	2 apps dormant, 4 apps summer	-	Yes	
NC	mineral oil	<b>Purespray Green 13 E</b>	27666	0	0.5	-	2 apps dormant, 1 app summer	-	Yes	
<b>NEMATOCIDE</b>										
7	fluopyram	<b>Velum Prime 500 SC</b>	32108	7	0.5	-	-	30	No	

## Apple Bud Growth Stages



1. SILVER TIP



2. GREEN TIP



3. HALF-INCH GREEN



4. TIGHT CLUSTER



5. BUD SEPARATION



6. FULL PINK



7. FIRST BLOOM



8. FULL BLOOM



9. POST BLOOM-CALYX

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
<b>00 DORMANT TO BUD SWELL</b>										
Scale	NC	canola oil	Vegol Crop Oil 96 EC	2% v/v	0	0.5	-	2 apps dormant, 4 apps summer	-	<b>Crop Safety:</b> Do not use within 14 days of copper and 30 days of sulphur. Do not apply to wet foliage. 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. <b>Coverage:</b> Best results for mites are obtained when applied with a high volume of water 1,500 to 3,370 L/ha.
	NC	mineral oil	Purespray Green 13 E	10-20 L/1,000 L water	0	0.5	-	2 apps dormant, 1 app summer	-	<b>Pollinators:</b> Avoid application during bloom. <b>Crop Safety:</b> Do not use within 30 days of a sulphur application or within 14 days before or after captan fungicide. Do not exceed more than 10 L oil per ha per application for summer treatments.
	NC	petroleum oil	Superior 70 Oil EC	60 L/ha	-	0.5	-	1 app	-	<b>Coverage:</b> Best at high water volumes of 1,500 to 3,370 L/ha. <b>Crop Safety:</b> Do not apply during, before or after freezing temperatures/frost. Check compatibility with fungicide. May cause bark injury on Red Delicious, Empire, and Ambrosia. <b>Crop Stage:</b> To target scale, apply once at green tip to 1 cm green stage. To target European red mite, apply around egg hatch (tight cluster and before pink) but if practical it may be applied earlier.
<b>01 GREEN TIP</b>										
Apple scab	1	thiophanate-methyl	Senator 50 SC	250 mL/1,000 L	7	0.5	-	2 apps	7	<b>Crop Safety:</b> Do not mix with lime or other alkaline materials. Not compatible with oil applications. <b>Recommendation:</b> Historically resistance has been an issue.
	9	pyrimethanil	Scala 400 SC	0.75-1.0 L/ha, see label	14	0.5	1	4 apps	7	<b>Recommendation:</b> Performs well in cool spring conditions. Do not apply post bloom.
	29	fluazinam	Allegro 500F 40 SC	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	Downforce AG 40 SC	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	Vantana 500 SU	0.75-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	52	ipflufenquin	Migiwa 20 SC	220 mL/ha	7	0.5	-	3 apps, 660 mL/ha/yr	7	<b>Pest Stage:</b> Target primary scab and powdery mildew timing. <b>Recommendation:</b> Do not use the low rate for scab listed on the label as it is a sub-lethal dose for powdery mildew and may contribute to resistance development. Do not make more than two sequential applications as it is critical to preserve the efficacy of this new chemical group.
	BM 01	Swinglea glutinosa	EcoSwing 82 SN	2.35 L/ha	0	0.2	-	10 apps	-	<b>Pest Stage:</b> Prevention. Suppression only.
	BM02	QST 713 strain of dried Bacillus subtilis	Serenade OPTI WP	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.
	M	calcium polysulphide	Lime Sulphur 30 SN	916 mL / 100 L	120	2	-	-	-	<b>Crop Safety:</b> Do not spray when foliage is wet. May cause leaf damage, particularly when applied at calyx or early summer. <b>Coverage:</b> Thorough coverage is essential.
	M01	sulphur	Kumulus 80 DF WDG	6.0-22.5 kg/ha, see label	1	1	-	8 apps	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Usage may harm beneficials and result in elevated populations of European red mite and scale.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	M02	copper octanoate	<b>Cueva 1.8 SN</b>	0.5-2.0% solution, see label	1	0.2	-	10 apps	5	<b>Crop Safety:</b> Do not exceed 1.0% solution on russet-sensitive varieties when fruit is present. For very sensitive varieties (Golden Delicious, Jonagold) use the 0.5% rate.
	M02	sulphur	<b>Microscopic Sulphur 92 WP</b>	3-6.5 kg/1,000 L, see label	1	1	-	8 apps	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Usage may harm beneficials and result in elevated populations of European red mite and scale.
	M02,UN	sulphur	<b>Microthiol Disperss 80 WP</b>	200-750 g/100 L water, see label	1	1	-	-	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Usage may harm beneficials and result in elevated populations of European red mite and scale.
	M03	mancozeb	<b>Dithane Rainshield 75 WG</b>	6.0 kg/ha	77	0.5	35	4 apps	7	<b>Crop Stage:</b> Reapply on 5-7 day intervals during rapid tissue growth and rainy conditions. <b>Recommendation:</b> Use mancozeb products early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of most secondary diseases such as Black Rot and Bitter Rot.
	M03	mancozeb	<b>Manzate Max 480 F</b>	4.65-9.38 L/ha	77	0.5	35	4-8 apps, 37.5 L/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M03	mancozeb	<b>Manzate ProStick 75 DF</b>	3-6 kg/ha	77	0.5	35	4-8 apps, 24 kg/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M04	captan	<b>Captan 480 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Captan L 482 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Maestro 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	captan	<b>Sharda Captan 48 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Recommendation:</b> Use the 5 litres product/ha (2.4 kg a.i./ha) rate. <b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Supra Captan 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	folpet	<b>Follow 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	M04	folpet	<b>Folpan 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M3	mancozeb	<b>Penncozeb 75 DF Raincoat WG</b>	3.0-6.0 kg/ha	77	0.5	35	4-8 apps	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	NC	garlic powder	<b>Buran 15 SN</b>	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.
	U12	dodine	<b>Syllit 400 FL</b>	1.75-3.65 L/ha, see label	7	2	-	2-4 apps	7	<b>Crop Stage:</b> Do not use after first cover spray. Only when absolutely necessary, use for rescue protection after-infection at 5.28 L/ha. <b>Crop Safety:</b> Freezing or near freezing temperatures, particularly when accompanied by slow drying conditions may injure or pre-dispose the fruit to chemical injury. Do not feed pomace of treated apples to livestock.
<b>European red mite</b>	NC	canola oil	<b>Vegol Crop Oil 96 EC</b>	2% v/v	0	0.5	-	2 apps dormant, 4 apps summer	-	<b>Crop Safety:</b> Do not use within 14 days of copper and 30 days of sulphur. Do not apply to wet foliage. 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. <b>Coverage:</b> Best results for mites are obtained when applied with a high volume of water 1,500 to 3,370 L/ha.
	NC	mineral oil	<b>Purespray Green 13 E</b>	10-20 L/1,000 L water	0	0.5	-	2 apps dormant, 1 app summer	-	<b>Pollinators:</b> Avoid application during bloom. <b>Crop Safety:</b> Do not use within 30 days of a sulphur application or within 14 days before or after captan fungicide. Do not exceed more than 10 L oil per ha per application for summer treatments.
	NC	petroleum oil	<b>Superior 70 Oil EC</b>	60 L/ha	-	0.5	-	1 app	-	<b>Coverage:</b> Best at high water volumes of 1,500 to 3,370 L/ha. <b>Crop Safety:</b> Do not apply during, before or after freezing temperatures/frost. Check compatibility with fungicide. May cause bark injury on Red Delicious, Empire, and Ambrosia. <b>Crop Stage:</b> To target scale, apply once at green tip to 1 cm green stage. To target European red mite, apply around egg hatch (tight cluster and before pink) but if practical it may be applied earlier.
	NC	potassium salt of fatty acids	<b>Kopa 47 SN</b>	2% v/v in 700-1,900 L/ha water	0.5	0.5	-	-	-	<b>Pest Stage:</b> Begin applications when mite populations are low and reapply every 1-3 weeks as needed. <b>Crop Safety:</b> Test a small areas of each variety prior to spraying the whole block. Application of soaps more than 3 times in one season may cause plant injury. Avoid application in direct sunlight or to plants under stress. Application within 3 days of sulphur may increase plant injury on sensitive plants. <b>Coverage:</b> Product coats the bodies of susceptible insects, so good coverage of plant parts is vital.
<b>Fire blight – overwintering bacteria</b>	M02	copper oxychloride	<b>Copper Spray Fungicide 50 WP</b>	3.2 kg/ha	2	2	-	2 apps	7	<b>Crop Stage:</b> Apply at silver tip to up to 1/4 inch green tip to reduce the risk of fire blight infections (blossom blight management still required). Will also provide apple scab control but contact activity only. <b>Crop Safety:</b> Do not apply after 1/4-inch green because phytotoxicity and russetting may occur. Compatible with oil. <b>Coverage:</b> Thorough coverage of limbs and trunk is essential for good control.
<b>02 HALF-INCH GREEN &amp; TIGHT CLUSTER</b>										
<b>Apple scab</b>	1	thiophanate-methyl	<b>Senator 50 SC</b>	250 mL/1,000 L	7	0.5	-	2 apps	7	<b>Crop Safety:</b> Do not mix with lime or other alkaline materials. Not compatible with oil applications. <b>Recommendation:</b> Historically resistance has been an issue.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	3	mefentrifluconazole	<b>Cevya 400 SC</b>	0.25-0.375 L/ha, see label	0	0.5	-	1.125 L/ha/yr	7	<b>Recommendation:</b> Resistance to group 3 fungicides is widespread in the apple scab population in Nova Scotia.
	03, 07	difenoconazole + benzovindiflupyr	<b>Aprovia Top EC</b>	643 mL/ha	30	0.5	-	4 apps, 2.57 L/ha/yr	7	<b>Recommendation:</b> The high rate must be used for control of powdery mildew, brooks fruit spot, sooty blotch and flyspeck. Do not make more than two consecutive applications of a group 3 or 7 containing fungicide.
	03, 09	difenoconazole + cyprodinil	<b>Inspire Super EC</b>	560-836 mL/ha, see label	14	0.5	-	4 apps	7	<b>Pest Stage:</b> No activity on fruit scab so do not use after petal fall. <b>Recommendation:</b> At the high rate, will also control Brooks Spot and Sooty Blotch/Flyspeck.
	7	fluxapyroxad	<b>Sercadis 300 SC</b>	333 mL/ha	0	0.5	-	4 apps	7	<b>Recommendation:</b> Use a non-ionic surfactant at 0.125%.
	7	inpyrflumax	<b>Excalia 31 SC</b>	146-292 mL/ha	Petal fall	0.5	-	2 apps, 584 mL/ha/yr	10	<b>Recommendation:</b> For powdery mildew, application must include a 100% organosilicone adjuvant such as Xiameter.
	7	isofetamid	<b>Kenja 400 SC</b>	0.913 L/ha	20	0.5	-	6 apps	10	<b>Recommendation:</b> Do not make more than two consecutive applications of group 7 containing fungicides before rotating to a fungicide with a different mode of action.
	7	penthiopyrad	<b>Fontelis 200 SC</b>	1.0-1.5 L/ha, see label	28	0.5	-	3-4 apps, 4.5 L/ha/yr	7	<b>Crop Safety:</b> Contains a mineral oil in the formulation that may cause issues in tank mixes. Do not use near Captan products. Do not tank mix with thinning agents.
	07, 09	fluopyram + pyrimethanil	<b>Luna Tranquility SC</b>	600-800 mL/ha, see label	14	0.5-1	1	4 apps, 3.2 L/ha/yr	7	<b>Recommendation:</b> The rate required to control apple scab is higher than to control powdery mildew. Therefore, if using the product at the powdery mildew rate, include a protectant for apple scab. Do not make more than two consecutive applications of group 7 or group 9 containing fungicides before rotating with a fungicide from a different group.
	9	pyrimethanil	<b>Scala 400 SC</b>	0.75-1.0 L/ha, see label	14	0.5	1	4 apps	7	<b>Recommendation:</b> Performs well in cool spring conditions. Do not apply post bloom.
	11	Trifloxystrobin	<b>Flint Extra 42.6 SC</b>	145-180 g/ha, see label	14	0.5	4	4 apps, 860 mL/ha/yr	7	<b>Recommendation:</b> Do not use for management of powdery mildew in Nova Scotia. Resistance to group 11 products is present so control will not be achieved. For scab, use a half rate of a group M product for resistance management. Do not exceed 4 total applications of group 11 containing fungicides per year.
	29	fluazinam	<b>Allegro 500F 40 SC</b>	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	<b>Downforce AG 40 SC</b>	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	<b>Vantana 500 SU</b>	0.75-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	52	ipflufenquin	<b>Migiwa 20 SC</b>	220 mL/ha	7	0.5	-	3 apps, 660 mL/ha/yr	7	<b>Pest Stage:</b> Target primary scab and powdery mildew timing. <b>Recommendation:</b> Do not use the low rate for scab listed on the label as it is a sub-lethal dose for powdery mildew and may contribute to resistance development. Do not make more than two sequential applications as it is critical to preserve the efficacy of this new chemical group.
	BM 01	Swinglea glutinosa	<b>EcoSwing 82 SN</b>	2.35 L/ha	0	0.2	-	10 apps	-	<b>Pest Stage:</b> Prevention. Suppression only.
	BM02	QST 713 strain of dried Bacillus subtilis	<b>Serenade OPTI WP</b>	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.
	M02	copper octanoate	<b>Cueva 1.8 SN</b>	0.5-2.0% solution, see label	1	0.2	-	10 apps	5	<b>Crop Safety:</b> Do not exceed 1.0% solution on russet-sensitive varieties when fruit is present. For very sensitive varieties (Golden Delicious, Jonagold) use the 0.5% rate.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	M03	mancozeb	<b>Dithane Rainshield 75 WG</b>	6.0 kg/ha	77	0.5	35	4 apps	7	<b>Crop Stage:</b> Reapply on 5-7 day intervals during rapid tissue growth and rainy conditions. <b>Recommendation:</b> Use mancozeb products early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of most secondary diseases such as Black Rot and Bitter Rot.
	M03	mancozeb	<b>Manzate Max 480 F</b>	4.65-9.38 L/ha	77	0.5	35	4-8 apps, 37.5 L/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M03	mancozeb	<b>Manzate ProStick 75 DF</b>	3-6 kg/ha	77	0.5	35	4-8 apps, 24 kg/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M04	captan	<b>Captan 480 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Captan L 482 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Maestro 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	captan	<b>Sharda Captan 48 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Recommendation:</b> Use the 5 litres product/ha (2.4 kg a.i./ha) rate. <b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Supra Captan 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	folpet	<b>Follow 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M04	folpet	<b>Folpan 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M3	mancozeb	<b>Penncozeb 75 DF Raincoat WG</b>	3.0-6.0 kg/ha	77	0.5	35	4-8 apps	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	NC	garlic powder	<b>Buran 15 SN</b>	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	U12	dodine	Syllit 400 FL	1.75-3.65 L/ha, see label	7	2	-	2-4 apps	7	<p><b>Crop Stage:</b> Do not use after first cover spray. Only when absolutely necessary, use for rescue protection after-infection at 5.28 L/ha.</p> <p><b>Crop Safety:</b> Freezing or near freezing temperatures, particularly when accompanied by slow drying conditions may injure or pre-dispose the fruit to chemical injury. Do not feed pomace of treated apples to livestock.</p>
Branching	-	6-benzyladenine	MaxCel 1.9 SN	75 to 200 ppm, see label	28	0.5	-	-	-	<p><b>Crop Stage:</b> Branching can be induced by applying a mist to notched wood from green tip and up until bloom time. Fruitlet thinning is done when the average king fruitlet diameter measures between 6-14 mm.</p> <p><b>Recommendation:</b> Apply as a thinner with temperatures of 21-24°C before and after application. Do not apply this product if the temperature is below 16°C. Works best in extended drying periods. May be applied with mancozeb fungicides.</p>
	-	6-benzyladenine (aka 6-benzylaminopurine)	Cilis Plus 2.0 SN	0.475-9.54 L/ha (50 to 200 ppm), see label	28	0.5	-	21.3 L/ha/yr	-	<p><b>Crop Stage:</b> Branching can be induced by applying a mist to notched wood from green tip and up until bloom time. Fruitlet thinning is done when the average king fruitlet diameter measures between 6-14 mm.</p> <p><b>Recommendation:</b> Apply as a thinner with temperatures of 21-24°C before and after application. Do not apply this product if the temperature is below 16°C. Works best in extended drying periods. May be applied with mancozeb fungicides.</p>
	-	6-benzyladenine, gibberellins A4 & A7	Promalin 1.8 SL	See label for rates based on use pattern	28	0.5	-	4 apps	-	<p><b>Crop Stage:</b> Notch above a paradormant bud and apply Promalin and MaxCel from green tip and up until bloom time. Apply as a mist to the notch.</p> <p><b>Crop Safety:</b> Do not use when temperatures are below freezing, above 32°C or if rain is forecast within 6 hours.</p>
European red mite	NC	mineral oil	Purespray Green 13 E	10-20 L/1,000 L water	0	0.5	-	2 apps dormant, 1 app summer	-	<p><b>Pollinators:</b> Avoid application during bloom.</p> <p><b>Crop Safety:</b> Do not use within 30 days of a sulphur application or within 14 days before or after captan fungicide. Do not exceed more than 10 L oil per ha per application for summer treatments.</p>
	NC	petroleum oil	Superior 70 Oil EC	60 L/ha	-	0.5	-	1 app	-	<p><b>Coverage:</b> Best at high water volumes of 1,500 to 3,370 L/ha.</p> <p><b>Crop Safety:</b> Do not apply during, before or after freezing temperatures/frost. Check compatibility with fungicide. May cause bark injury on Red Delicious, Empire, and Ambrosia.</p> <p><b>Crop Stage:</b> To target scale, apply once at green tip to 1 cm green stage. To target European red mite, apply around egg hatch (tight cluster and before pink) but if practical it may be applied earlier.</p>
Powdery mildew	3	flutriafol	Fullback 125 SC	585-877 mL/ha, see label	14	0.5	-	2 apps, 2048 mL/ha/yr	10	<p><b>Recommendation:</b> Resistance to group 3 fungicides is widespread in the apple scab population in Nova Scotia so no control is not expected. Use an alternative product to manage apple scab.</p>
	3	myclobutanil	Nova 40 WSP	340 g/ha	14	0.5	12	6 apps	7	<p><b>Crop Stage:</b> There must be enough tissue present for this product to be absorbed.</p> <p><b>Recommendation:</b> Ineffective on scab due to resistance to group 3 fungicides. Effective on powdery mildew.</p> <p><b>Crop Safety:</b> Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.</p>
	03, 07	difenoconazole + benzovindiflupyr	Aprovia Top EC	643 mL/ha	30	0.5	-	4 apps, 2.57 L/ha/yr	7	<p><b>Recommendation:</b> The high rate must be used for control of powdery mildew, brooks fruit spot, sooty blotch and flyspeck. Do not make more than two consecutive applications of a group 3 or 7 containing fungicide.</p>
	03, 09	difenoconazole + cyprodinil	Inspire Super EC	560-836 mL/ha, see label	14	0.5	-	4 apps	7	<p><b>Pest Stage:</b> No activity on fruit scab so do not use after petal fall.</p> <p><b>Recommendation:</b> At the high rate, will also control Brooks Spot and Sooty Blotch/Flyspeck.</p>
	7	fluxapyroxad	Sercadis 300 SC	333 mL/ha	0	0.5	-	4 apps	7	<p><b>Recommendation:</b> Use a non-ionic surfactant at 0.125%.</p>
7	inpyrfluxam	Excalia 31 SC	146-292 mL/ha	Petal fall	0.5	-	2 apps, 584 mL/ha/yr	10	<p><b>Recommendation:</b> For powdery mildew, application must include a 100% organosilicone adjuvant such as Xiameter.</p>	

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	7	penthiopyrad	Fontelis 200 SC	1.0-1.5 L/ha, see label	28	0.5	-	3-4 apps, 4.5 L/ha/yr	7	<b>Crop Safety:</b> Contains a mineral oil in the formulation that may cause issues in tank mixes. Do not use near Captan products. Do not tank mix with thinning agents.
	07, 09	fluopyram + pyrimethanil	Luna Tranquility SC	600-800 mL/ha, see label	14	0.5-1	1	4 apps, 3.2 L/ha/yr	7	<b>Recommendation:</b> The rate required to control apple scab is higher than to control powdery mildew. Therefore, if using the product at the powdery mildew rate, include a protectant for apple scab. Do not make more than two consecutive applications of group 7 or group 9 containing fungicides before rotating with a fungicide from a different group.
	07, 11	boscalid + pyraclostrobin	Pristine WG	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.
	07, 11	pyraclostrobin + fluxapyroxad	Merivon SC	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. <b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.
	19	polyoxin d zinc salt	Diplomat 5 SC	259-926 mL/ha, see label	0	0.5	-	2.78 L/ha/yr	-	<b>Pest Stage:</b> Apply preventatively.
	50	pyriofenone	Property 300 SC	0.3 - 0.366 L/ha	14	0.5	-	1.464 L/ha/yr	7	Activity can be improved with the addition of a non-ionic surfactant at the rates specified on the surfactant label or at 0.25-0.5% if no rate is specified on the surfactant label.
	52	ipflufenquin	Migiwa 20 SC	220 mL/ha	7	0.5	-	3 apps, 660 mL/ha/yr	7	<b>Pest Stage:</b> Target primary scab and powdery mildew timing. <b>Recommendation:</b> Do not use the low rate for scab listed on the label as it is a sub-lethal dose for powdery mildew and may contribute to resistance development. Do not make more than two sequential applications as it is critical to preserve the efficacy of this new chemical group.
	BM02	QST 713 strain of dried Bacillus subtilis	Serenade OPTI WP	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.
	M	sulphur	Cosavet DF Edge 80 WG	0.75 kg/1,000 L water	1	1	-	-	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Be aware that usage may result in elevated populations of European red mite and scale.
	M01	sulphur	Kumulus 80 DF WDG	6.0-22.5 kg/ha, see label	1	1	-	8 apps	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Usage may harm beneficials and result in elevated populations of European red mite and scale.
	M02	sulphur	Microscopic Sulphur 92 WP	3-6.5 kg/1,000 L, see label	1	1	-	8 apps	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Usage may harm beneficials and result in elevated populations of European red mite and scale.
	M02,UN	sulphur	Microthiol Dispers 80 WP	200-750 g/100 L water, see label	1	1	-	-	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Usage may harm beneficials and result in elevated populations of European red mite and scale.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	NC	canola oil	<b>Vegol Crop Oil 96 EC</b>	2% v/v	0	0.5	-	2 apps dormant, 4 apps summer	-	<b>Crop Safety:</b> Do not use within 14 days of copper and 30 days of sulphur. Do not apply to wet foliage. 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. <b>Coverage:</b> Best results for mites are obtained when applied with a high volume of water 1,500 to 3,370 L/ha.
	NC	garlic powder	<b>Buran 15 SN</b>	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.
	NC	hydrogen peroxide + peroxyacetic acid	<b>OxiDate 2.0 SN</b>	1.0% v/v (1 L product in 100 L of water)	0	0.2	-	8 apps	5	<b>Coverage:</b> Use a compatible wetting agent/surfactant. <b>Crop Safety:</b> Do not spray during conditions of intense heat, drought, or poor plant vigour. <b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. <b>Beneficials:</b> Avoid application before rain or when bees and beneficial insects are active.
	NC	mineral oil	<b>Purespray Green 13 E</b>	10-20 L/1,000 L water	0	0.5	-	2 apps dormant, 1 app summer	-	<b>Pollinators:</b> Avoid application during bloom. <b>Crop Safety:</b> Do not use within 30 days of a sulphur application or within 14 days before or after captan fungicide. Do not exceed more than 10 L oil per ha per application for summer treatments.
	NC	potassium bicarbonate	<b>MilStop 85 DU</b>	2.8-5.6 kg/ha	0	0.2	-	10 apps	7	
	P05	Reynoutria sachalinensis	<b>Regalia Maxx 20 SC</b>	0.125-0.25% v/v in 1,000 L	0	0.5	-	-	7	
	U13	flutianil	<b>Gatten 50.7 EC</b>	440-590 mL/ha	14	0.5	-	4 apps, 120 g/ha/yr	7	
<b>03 BUD SEPARATION</b>										
<b>Apple scab</b>	Refer to section 02 HALF-INCH GREEN & TIGHT CLUSTER									
<b>Codling moth</b>	NC	pheromones	<b>Isomate-CM/OFM TT</b>	500 dispensers/ha	-	-	-	-	-	<b>Crop Stage:</b> Place pheromone traps for monitoring codling moth in orchard by bloom. Apply dispensers no later than petal fall, before first flight. <b>Recommendation:</b> Dispensers last up to 150 days for codling moth. Mating disruption occurs but most orchards will require insecticides.
<b>Nematodes</b>	7	fluopyram	<b>Velum Prime 500 SC</b>	500 mL/ha	7	0.5	-	-	30	<b>Coverage:</b> Apply specified dosage by chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment. Soil must be lightly pre-wetted prior to application. <b>Recommendation:</b> For optimum results, apply to newly planted trees or those previously trained to irrigation. <b>Crop Safety:</b> Do not apply more than 500 g fluopyram/ha per year, noting that the foliar fungicide Luna Tranquility also contains fluopyram.
<b>Obliquebanded leafroller</b>	11	Bacillus thuringiensis	<b>Dipel 2X DF</b>	1.12-1.68 kg/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Best results if applications made in evening or on cloudy day. Do not allow the spray mixture to stand in the tank for more than 12 hrs.
	32	GS-omega/kappa-Hctx-Hv1a	<b>Spear-LEP 2 SN</b>	1.2-2.3 L/ha, see label	0	0.2	-	6 apps	3	<b>Coverage:</b> Apply in a minimum spray volume of 470 L/ha. <b>Recommendation:</b> To be used in a tank mix with a low rate of Bt product for control of lepidopteran pests registered on the crop.
<b>Powdery mildew</b>	3	flutriafol	<b>Fullback 125 SC</b>	585-877 mL/ha, see label	14	0.5	-	2 apps, 2048 mL/ha/yr	10	<b>Recommendation:</b> Resistance to group 3 fungicides is widespread in the apple scab population in Nova Scotia so no control is not expected. Use an alternative product to manage apple scab.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	3	myclobutanil	<b>Nova 40 WSP</b>	340 g/ha	14	0.5	12	6 apps	7	<b>Crop Stage:</b> There must be enough tissue present for this product to be absorbed. <b>Recommendation:</b> Ineffective on scab due to resistance to group 3 fungicides. Effective on powdery mildew. <b>Crop Safety:</b> Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	03, 07	difenoconazole + benzovindiflupyr	<b>Aprovia Top EC</b>	643 mL/ha	30	0.5	-	4 apps, 2.57 L/ha/yr	7	<b>Recommendation:</b> The high rate must be used for control of powdery mildew, brooks fruit spot, sooty blotch and flyspeck. Do not make more than two consecutive applications of a group 3 or 7 containing fungicide.
	03, 09	difenoconazole + cyprodinil	<b>Inspire Super EC</b>	560-836 mL/ha, see label	14	0.5	-	4 apps	7	<b>Pest Stage:</b> No activity on fruit scab so do not use after petal fall. <b>Recommendation:</b> At the high rate, will also control Brooks Spot and Sooty Blotch/Flyspeck.
	7	fluxapyroxad	<b>Sercadis 300 SC</b>	333 mL/ha	0	0.5	-	4 apps	7	<b>Recommendation:</b> Use a non-ionic surfactant at 0.125%.
	7	inpyrflumax	<b>Excalia 31 SC</b>	146-292 mL/ha	Petal fall	0.5	-	2 apps, 584 mL/ha/yr	10	<b>Recommendation:</b> For powdery mildew, application must include a 100% organosilicone adjuvant such as Xiameter.
	7	penthiopyrad	<b>Fontelis 200 SC</b>	1.0-1.5 L/ha, see label	28	0.5	-	3-4 apps, 4.5 L/ha/yr	7	<b>Crop Safety:</b> Contains a mineral oil in the formulation that may cause issues in tank mixes. Do not use near Captan products. Do not tank mix with thinning agents.
	07, 09	fluopyram + pyrimethanil	<b>Luna Tranquility SC</b>	600-800 mL/ha, see label	14	0.5-1	1	4 apps, 3.2 L/ha/yr	7	<b>Recommendation:</b> The rate required to control apple scab is higher than to control powdery mildew. Therefore, if using the product at the powdery mildew rate, include a protectant for apple scab. Do not make more than two consecutive applications of group 7 or group 9 containing fungicides before rotating with a fungicide from a different group.
	07, 11	boscalid + pyraclostrobin	<b>Pristine WG</b>	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.
	07, 11	pyraclostrobin + fluxapyroxad	<b>Merivon SC</b>	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. <b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.
	11	Trifloxystrobin	<b>Flint Extra 42.6 SC</b>	145-180 g/ha, see label	14	0.5	4	4 apps, 860 mL/ha/yr	7	<b>Recommendation:</b> Do not use for management of powdery mildew in Nova Scotia. Resistance to group 11 products is present so control will not be achieved. For scab, use a half rate of a group M product for resistance management. Do not exceed 4 total applications of group 11 containing fungicides per year.
	19	polyoxin d zinc salt	<b>Diplomat 5 SC</b>	259-926 mL/ha, see label	0	0.5	-	2.78 L/ha/yr	-	<b>Pest Stage:</b> Apply preventatively.
	50	pyriofenone	<b>Property 300 SC</b>	0.3 - 0.366 L/ha	14	0.5	-	1.464 L/ha/yr	7	Activity can be improved with the addition of a non-ionic surfactant at the rates specified on the surfactant label or at 0.25-0.5% if no rate is specified on the surfactant label.
	52	ipflufenquin	<b>Migiwa 20 SC</b>	220 mL/ha	7	0.5	-	3 apps, 660 mL/ha/yr	7	<b>Pest Stage:</b> Target primary scab and powdery mildew timing. <b>Recommendation:</b> Do not use the low rate for scab listed on the label as it is a sub-lethal dose for powdery mildew and may contribute to resistance development. Do not make more than two sequential applications as it is critical to preserve the efficacy of this new chemical group.
BMO2		QST 713 strain of dried Bacillus subtilis	<b>Serenade OPTI WP</b>	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.
M01		sulphur	<b>Kumulus 80 DF WDG</b>	6.0-22.5 kg/ha, see label	1	1	-	8 apps	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Usage may harm beneficials and result in elevated populations of European red mite and scale.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	M02	sulphur	<b>Microscopic Sulphur 92 WP</b>	3-6.5 kg/1,000 L, see label	1	1	-	8 apps	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Usage may harm beneficials and result in elevated populations of European red mite and scale.
	M02,UN	sulphur	<b>Microthiol Disperss 80 WP</b>	200-750 g/100 L water, see label	1	1	-	-	-	<b>Crop Safety:</b> 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. <b>Beneficials:</b> Usage may harm beneficials and result in elevated populations of European red mite and scale.
	NC	garlic powder	<b>Buran 15 SN</b>	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.
	NC	hydrogen peroxide + peroxyacetic acid	<b>OxiDate 2.0 SN</b>	1.0% v/v (1 L product in 100 L of water)	0	0.2	-	8 apps	5	<b>Coverage:</b> Use a compatible wetting agent/surfactant. <b>Crop Safety:</b> Do not spray during conditions of intense heat, drought, or poor plant vigour. <b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. <b>Beneficials:</b> Avoid application before rain or when bees and beneficial insects are active.
	NC	potassium bicarbonate	<b>MilStop 85 DU</b>	2.8-5.6 kg/ha	0	0.2	-	10 apps	7	
	U13	flutianil	<b>Gatten 50.7 EC</b>	440-590 mL/ha	14	0.5	-	4 apps, 120 g/ha/yr	7	
<b>Rosy apple aphid</b>	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	04C	sulfoxaflor	<b>Closer 240 SC</b>	100-400 mL/ha, see label	7	0.5	-	2 apps	7	<b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	04D	flupyradifurone	<b>Sivanto Prime 200 SN</b>	500-750 mL/ha, up to 1000 mL/ha for scale + horticultural oil, see label	14	0.5	-	2-4 apps, 2000 mL/ha/yr	10	<b>Crop Safety:</b> Certain conditions, including but not limited to, application when temperatures are expected to exceed 30C within 24 hours of application may result in fruit injury after the use of oil.
	09D	afidopyropen	<b>Sefina 50 EC</b>	0.2 L/ha	7	0.5	-	4 apps, 0.8 L/ha/yr	7	
	09D	afidopyropen	<b>Versys 100 EC</b>	0.1 L/ha	7	0.5	-	4 apps, 0.4 L/ha/yr	7	
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	29	flonicamid	<b>Beleaf 50 SG</b>	120-200 g/ha, see label	21	0.5	3	3 apps, 600 g/ha/yr	7	<b>Pest Stage:</b> At threshold.
<b>Speckled green fruitworm</b>	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	11	bacillus thuringiensis	<b>Bioprotec PLUS SC</b>	0.44 - 2.5 L/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Product must be consumed by the target insect to be effective. <b>Recommendation:</b> Best results are obtained if applications are made in the evening or on a cloudy day. <b>Coverage:</b> Apply in a high-volume spray to young larvae, early in infestation.
	28	chlorantraniliprole	<b>Altacor MaX 70 WG</b>	73-143 g/ha, see label	5	0.5	-	3 apps	10	<b>Pest Stage:</b> For the caterpillar complex, apply when the larvae are active in the pink to petal fall period. For obliquebanded leafroller, apply from pink stage through petal fall before they roll leaves. For summer generations, monitor adult moth flight and apply at first egg hatch. Repeat application may be needed 10 days later. For codling moth, apply just prior to first generation egg hatch at 80-100 degree days after the biofix date. Reapply if necessary, 10-14 days later.
Winter moth and green pug moth	3	cypermethrin	<b>Up-cyde 2.5 EC</b>	280-400 mL/ha, see label	7	0.5	-	3 apps	7	<b>Recommendation:</b> Avoid applying synthetic pyrethroids when temperatures rise above 25°C because they are much less effective under these conditions. <b>Beneficials:</b> Disruptive to IPM programs by harming beneficials and leading to mite flare ups. Up-cyde is somewhat less disruptive to predatory mites whereas Decis is broad spectrum and one of the most powerful synthetic pyrethroids.
	3	deltamethrin	<b>Decis 100 EC</b>	75-125 mL/ha, see label	1	0.5	-	3 apps	12	<b>Recommendation:</b> Avoid applying synthetic pyrethroids when temperatures rise above 25°C because they are much less effective under these conditions. <b>Beneficials:</b> Do not apply during bloom period. Disruptive to IPM programs by harming beneficials and leading to mite flare ups. Up-cyde is somewhat less disruptive to predatory mites whereas Decis is broad spectrum and one of the most powerful synthetic pyrethroids.
	5	spinosad	<b>Entrust 80 WG</b>	109 g/ha	7	0.5	-	3 apps	-	<b>Pest Stage:</b> Treat when larvae are actively feeding but before they roll up the leaves. <b>Coverage:</b> If adjusting spray volume, use the same spray concentration (g product/L water).
	11	Bacillus thuringiensis	<b>XenTari 48 WG</b>	500-1600 g/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Apply to young larvae, early in infestation. <b>Recommendation:</b> Death of insect may take several days. Apply on cloudy days or in the evening. <b>Coverage:</b> Product must be consumed to be effective. Spray when and where pests are actively feeding.
	11	bacillus thuringiensis	<b>Bioprotec PLUS SC</b>	0.44 - 2.5 L/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Product must be consumed by the target insect to be effective. <b>Recommendation:</b> Best results are obtained if applications are made in the evening or on a cloudy day. <b>Coverage:</b> Apply in a high-volume spray to young larvae, early in infestation.
	18	methoxyfenozide	<b>Intrepid 240 SC</b>	750-1000 mL/ha, see label	14	0.5	-	2 apps	-	<b>Pest Stage:</b> Apply when obliquebanded leafroller larvae are actively feeding before they roll up leaves. For codling moth, apply at 80-110 degree days after the biofix date. <b>Crop Safety:</b> Do not feed apple pomace to livestock.
<b>04 PINK</b>										
<b>Apple scab</b>	Refer to section 02 HALF-INCH GREEN & TIGHT CLUSTER									
<b>Deer</b>	-	Oils, meat, dried egg	<b>Bobbex SC</b>	One part Bobbex with 5 parts water	prohibited	0.5	-	-	14	<b>Crop Safety:</b> Do not apply to bearing trees with edible crops. Spray plants when temperature is between 2° and 30°C. <b>Coverage:</b> Spray on dry plants and allow product to dry completely. Re-apply as required in heavily browsed areas on new growth and after rain. <b>Recommendation:</b> Prior to deer fencing, the product may be used as a deer repellent.
	-	Sheep fat	<b>TRICO Repellent 6.4 EC</b>	10 L/ha in 500-600 L of water/ha	-	0.5	-	2 apps, 20 L/ha/yr	28	<b>Crop Safety:</b> Apply foliar spray only before flowering. Use freshly mixed spray solution each time product is applied. DO NOT apply undiluted. Apply only at temperatures above 2°C and below 30°C. Avoid application in direct sunlight on hot days to avoid damage to leaves. It is recommended to apply in the early morning or late afternoon. <b>Recommendation:</b> Prior to deer fencing, the product may be used as a deer repellent.
<b>European apple sawfly</b>	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	5	spinetoram	<b>Delegate 25 WG</b>	210-420 g/ha, see label	7	0.5	-	3 apps	7	<b>Pest Stage:</b> For obliquebanded leafroller, apply when overwintering larvae are active and before they roll up in leaves. For codling moth, apply at 100 degree days after the biofix date. For suppression of apple maggot, apply 7-10 days after the first apple maggot fly is caught on yellow sticky boards.
	06, 28	cyantraniliprole + abamectin	<b>Minecto Pro SC</b>	496 mL/ha	28	0.5	-	1 app, 0.5 L/ha/yr	-	<b>Crop Stage:</b> For best results, use product within petal fall to 6 weeks post-petal fall. <b>Pest Stage:</b> Apply before a threshold of 5 mites/leaf is reached for best results. <b>Recommendation:</b> The product has a combination of active ingredients with a full rate of group 6 and a half rate of the group 28. Best label use for Nova Scotia is for targeting mites. Apply with 0.25-1% v/v spray oil or 0.1-0.5% non-ionic surfactant.
	28	chlorantraniliprole	<b>Altacor MaX 70 WG</b>	73-143 g/ha, see label	5	0.5	-	3 apps	10	<b>Pest Stage:</b> For the caterpillar complex, apply when the larvae are active in the pink to petal fall period. For obliquebanded leafroller, apply from pink stage through petal fall before they roll leaves. For summer generations, monitor adult moth flight and apply at first egg hatch. Repeat application may be needed 10 days later. For codling moth, apply just prior to first generation egg hatch at 80-100 degree days after the biofix date. Reapply if necessary, 10-14 days later.
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	28	tetraniliprole	<b>Vayego 200 SC</b>	225 mL/ha	7	0.5	-	3 apps	10	<b>Pollinators:</b> Toxic to bees. Apply only post-bloom for all labelled insect pests. <b>Recommendation:</b> Monitor obliquebanded leafroller adult moth flight, and apply at first egg hatch. Apply before codling moth first egg hatch (80-110 degree days Celsius after biofix date).
<b>European apple sawfly</b>	NC	kaolin clay	<b>Surround 95 WP</b>	25-50 kg/1000 L of water per ha, see label	0	0.5	-	-	-	<b>Recommendation:</b> Efficacy depends on complete coverage of leaves and fruit. Apply for prevention and keep fruit completely covered during egg laying periods. Lengthening re-spray interval past 14 days is not recommended. <b>Crop Safety:</b> Surround keeps plant surfaces cool and may cause maturity delays of 3 to 7 days, especially in cool regions.
<b>Obliquebanded leafroller</b>	5	spinetoram	<b>Delegate 25 WG</b>	210-420 g/ha, see label	7	0.5	-	3 apps	7	<b>Pest Stage:</b> For obliquebanded leafroller, apply when overwintering larvae are active and before they roll up in leaves. For codling moth, apply at 100 degree days after the biofix date. For suppression of apple maggot, apply 7-10 days after the first apple maggot fly is caught on yellow sticky boards.
	5	spinosad	<b>Entrust 80 WG</b>	109 g/ha	7	0.5	-	3 apps	-	<b>Pest Stage:</b> Treat when larvae are actively feeding but before they roll up the leaves. <b>Coverage:</b> If adjusting spray volume, use the same spray concentration (g product/L water).
	11	Bacillus thuringiensis	<b>XenTari 48 WG</b>	500-1600 g/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Apply to young larvae, early in infestation. <b>Recommendation:</b> Death of insect may take several days. Apply on cloudy days or in the evening. <b>Coverage:</b> Product must be consumed to be effective. Spray when and where pests are actively feeding.
	11	bacillus thuringiensis	<b>Bioprotec PLUS SC</b>	0.44 - 2.5 L/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Product must be consumed by the target insect to be effective. <b>Recommendation:</b> Best results are obtained if applications are made in the evening or on a cloudy day. <b>Coverage:</b> Apply in a high-volume spray to young larvae, early in infestation.
	11	Bacillus thuringiensis	<b>Dipel 2X DF</b>	1.12-1.68 kg/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Best results if applications made in evening or on cloudy day. Do not allow the spray mixture to stand in the tank for more than 12 hrs.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	28	chlorantraniliprole	<b>Altacor MaX 70 WG</b>	73-143 g/ha, see label	5	0.5	-	3 apps	10	<b>Pest Stage:</b> For the caterpillar complex, apply when the larvae are active in the pink to petal fall period. For obliquebanded leafroller, apply from pink stage through petal fall before they roll leaves. For summer generations, monitor adult moth flight and apply at first egg hatch. Repeat application may be needed 10 days later. For codling moth, apply just prior to first generation egg hatch at 80-100 degree days after the biofix date. Reapply if necessary, 10-14 days later.
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	32	GS-omega/kappa-Htx-Hv1a	<b>Spear-LEP 2 SN</b>	1.2-2.3 L/ha, see label	0	0.2	-	6 apps	3	<b>Coverage:</b> Apply in a minimum spray volume of 470 L/ha. <b>Recommendation:</b> To be used in a tank mix with a low rate of Bt product for control of lepidopteran pests registered on the crop.
	NC	kaolin clay	<b>Surround 95 WP</b>	25-50 kg/1000 L of water per ha, see label	0	0.5	-	-	-	<b>Recommendation:</b> Efficacy depends on complete coverage of leaves and fruit. Apply for prevention and keep fruit completely covered during egg laying periods. Lengthening re-spray interval past 14 days is not recommended. <b>Crop Safety:</b> Surround keeps plant surfaces cool and may cause maturity delays of 3 to 7 days, especially in cool regions.
<b>Powdery mildew</b> Refer to section 03 BUD SEPARATION										
<b>Rosy apple aphid</b>	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	04C	sulfoxaflor	<b>Closer 240 SC</b>	100-400 mL/ha, see label	7	0.5	-	2 apps	7	<b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	04D	flupyradifurone	<b>Sivanto Prime 200 SN</b>	500-750 mL/ha, up to 1000 mL/ha for scale + horticultural oil, see label	14	0.5	-	2-4 apps, 2000 mL/ha/yr	10	<b>Crop Safety:</b> Certain conditions, including but not limited to, application when temperatures are expected to exceed 30C within 24 hours of application may result in fruit injury after the use of oil.
	09D	afidopyropen	<b>Sefina 50 EC</b>	0.2 L/ha	7	0.5	-	4 apps, 0.8 L/ha/yr	7	
	09D	afidopyropen	<b>Versys 100 EC</b>	0.1 L/ha	7	0.5	-	4 apps, 0.4 L/ha/yr	7	
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	29	flonicamid	<b>Beleaf 50 SG</b>	120-200 g/ha, see label	21	0.5	3	3 apps, 600 g/ha/yr	7	<b>Pest Stage:</b> At threshold.
	NC	canola oil	<b>Vegol Crop Oil 96 EC</b>	2% v/v	0	0.5	-	2 apps dormant, 4 apps summer	-	<b>Crop Safety:</b> Do not use within 14 days of copper and 30 days of sulphur. Do not apply to wet foliage. 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. <b>Coverage:</b> Best results for mites are obtained when applied with a high volume of water 1,500 to 3,370 L/ha.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	NC	mineral oil	<b>Purespray Green 13 E</b>	10-20 L/1,000 L water	0	0.5	-	2 apps dormant, 1 app summer	-	<b>Pollinators:</b> Avoid application during bloom. <b>Crop Safety:</b> Do not use within 30 days of a sulphur application or within 14 days before or after captan fungicide. Do not exceed more than 10 L oil per ha per application for summer treatments.
	NC	potassium salt of fatty acids	<b>Kopa 47 SN</b>	2% v/v in 700-1,900 L/ha water	0.5	0.5	-	-	-	<b>Pest Stage:</b> Begin applications when mite populations are low and reapply every 1-3 weeks as needed. <b>Crop Safety:</b> Do not use within 30 days of a sulphur application or within 14 days before or after captan fungicide. Do not exceed more than 10 L oil per ha per application for summer treatments. <b>Crop Safety:</b> Test a small areas of each variety prior to spraying the whole block. Application of soaps more than 3 times in one season may cause plant injury. Avoid application in direct sunlight or to plants under stress. Application within 3 days of sulphur may increase plant injury on sensitive plants. <b>Coverage:</b> Product coats the bodies of susceptible insects, so good coverage of plant parts is vital.
	NC	potassium salts of fatty acids	<b>Opal 47 SN</b>	1% (1 L/100 L water)	0	0.5	-	-	-	<b>Crop Safety:</b> Applying this product within 3 days of sulphur application may increase the plant damage caused by sulphur on sensitive plants. Apply to a maximum of three consecutive applications to ensure plant injury does not occur.
<b>Tarnished plant bug</b>	3	cypermethrin	<b>Up-cyde 2.5 EC</b>	280-400 mL/ha, see label	7	0.5	-	3 apps	7	<b>Recommendation:</b> Avoid applying synthetic pyrethroids when temperatures rise above 25°C because they are much less effective under these conditions. <b>Beneficials:</b> Disruptive to IPM programs by harming beneficials and leading to mite flare ups. Up-cyde is somewhat less disruptive to predatory mites whereas Decis is broad spectrum and one of the most powerful synthetic pyrethroids.
	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	04C	sulfoxaflor	<b>Closer 240 SC</b>	100-400 mL/ha, see label	7	0.5	-	2 apps	7	<b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	NC	kaolin clay	<b>Surround 95 WP</b>	25-50 kg/1000 L of water per ha, see label	0	0.5	-	-	-	<b>Recommendation:</b> Efficacy depends on complete coverage of leaves and fruit. Apply for prevention and keep fruit completely covered during egg laying periods. Lengthening re-spray interval past 14 days is not recommended. <b>Crop Safety:</b> Surround keeps plant surfaces cool and may cause maturity delays of 3 to 7 days, especially in cool regions.
<b>05 BLOOM</b>										
<b>Apple scab</b>	Refer to section 02 HALF-INCH GREEN & TIGHT CLUSTER									
<b>Blossom thinning</b>	-	Liquid fertilizer containing 12% nitrogen and 26% sulphur	<b>Ammonium thiosulphate (ATS)</b>	13.6 L ATS in 935 L/ha water	-	-	-	-	-	<b>Crop Stage:</b> ATS should be applied towards the later part of full bloom (80-100% FB) when adequate pollination of king blossoms has occurred. <b>Crop Safety:</b> Some foliage burn can occur from the application. Do not exceed the recommended concentration. Not recommended for use on defruiting young trees.
<b>Fire blight</b>	24	kasugamycin	<b>Kasumin 2L</b>	5 L/1,000 L water	90	0.5	-	4 apps, 20L/ha/yr	-	<b>Pest Stage:</b> Apply during bloom prior to a wetting period when there is a high risk of blossom blight infection as determined by PomeBlight. Re-application may be needed if warm, wet conditions (>20°C) prevail in days following application. <b>Coverage:</b> Do not apply with more than 1,000 L/ha of water. Include a surfactant such as Agral 90 at 500 mL per 1000 L (0.05% v/v) of water. <b>Crop Safety:</b> Limit tank mixes. If it is necessary to include mancozeb with your antibiotic, reduce your rate of surfactant by at least half to avoid strep burn.
	25	streptomycin sulfate	<b>Streptomycin 17 WP</b>	600 g/1,000 L water	50	1-7, see label	14	3 apps	-	<b>Pest Stage:</b> Apply during bloom prior to a wetting period when there is a high risk of blossom blight infection as determined by PomeBlight. Re-application may be needed if warm, wet conditions (>20°C) prevail in days following application. <b>Recommendation:</b> When entering treated areas within 7 days of application to perform activities that involve contact with treated plants, soil or water, the listed personal protective equipment must be worn. <b>Coverage:</b> Do not apply with more than 1,000 L/ha of water. Include a surfactant such as Agral 90 at 500 mL per 1000 L (0.05% v/v) of water. <b>Crop Safety:</b> Limit tank mixes. If it is necessary to include mancozeb with your antibiotic, reduce your rate of surfactant by at least half to avoid strep burn.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	BM	Aureobasidium pullulans	Blossom Protect WG	1 package/1,000 L water	0	0.2	-	5 apps	-	<b>Pest Stage:</b> For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Application preferably in the evening and prior to rainfall.
	BM02	Bacillus amyloliquefaciens D747	Double Nickel LC SC	5.0-7.5 L/ha, see label	0	0.5	-	-	-	<b>Pest Stage:</b> For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors.
	BM02	QST 713 strain of dried Bacillus subtilis	Serenade OPTI WP	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.
	NC	citric acid + lactic acid	Cyclone Plus SN	1.4% (v/v) (14 L/1000 L water)	0	0.2	-	-	7	<b>Pest Stage:</b> For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors.
	NC	garlic powder	Buran 15 SN	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.
<b>Fruit elongation</b>	-	6-benzyladenine, gibberellins A4 & A7	Promalin 1.8 SL	See label for rates based on use pattern	28	0.5	-	4 apps	-	<b>Crop Stage:</b> Notch above a paradormant bud and apply Promalin and MaxCel from green tip and up until bloom time. Apply as a mist to the notch. <b>Crop Safety:</b> Do not use when temperatures are below freezing, above 32°C or if rain is forecast within 6 hours.
<b>Fruit set after frost</b>	-	6-benzyladenine, gibberellins A4 & A7	Promalin 1.8 SL	See label for rates based on use pattern	28	0.5	-	4 apps	-	<b>Crop Stage:</b> Notch above a paradormant bud and apply Promalin and MaxCel from green tip and up until bloom time. Apply as a mist to the notch. <b>Crop Safety:</b> Do not use when temperatures are below freezing, above 32°C or if rain is forecast within 6 hours.
<b>Russetting</b>	-	6-benzyladenine, gibberellins A4 & A7	Promalin 1.8 SL	See label for rates based on use pattern	28	0.5	-	4 apps	-	<b>Crop Stage:</b> Notch above a paradormant bud and apply Promalin and MaxCel from green tip and up until bloom time. Apply as a mist to the notch. <b>Crop Safety:</b> Do not use when temperatures are below freezing, above 32°C or if rain is forecast within 6 hours.
<b>Vegetative growth suppression</b>	NC	prohexadione-calcium	Apogee 27.5 WG	270-450 g/1,000 L	45	0.5	-	4 apps	14	<b>Crop Stage:</b> Apply at 2.5 to 7.5 cm of new shoot growth. Growth reduction is greater before 15 cm shoot growth. If required, make sequential applications at 14-21 day intervals. For most orchards, two applications provide good growth control. <b>Recommendation:</b> The decrease in fire blight susceptibility becomes effective about 10 days after application. Lower rates are recommended in young orchards where shoot growth is desirable. Safe to apply with Streptomycin or Kasumin during bloom. <b>Crop Safety:</b> Apply with spray grade ammonium sulphate in an equal 1:1 ratio with the amount of Apogee used. Apple varieties prone to cracking like Empire and Stayman cay experience increased cracking and may decrease the yield of Cortland. <b>Coverage:</b> Include a surfactant such as Agral 90 at 500 mL per 1000 L (0.05% v/v) of water.
	NC	prohexadione-calcium	Kudos 27.5 WG	270-450 g/1000 L water	45	0.5	-	4 apps	14	<b>Crop Stage:</b> Apply at 2.5 to 7.5 cm of new shoot growth. Growth reduction is greater before 15 cm shoot growth. If required, make sequential applications at 14-21 day intervals. For most orchards, two applications provide good growth control. <b>Recommendation:</b> The decrease in fire blight susceptibility becomes effective about 10 days after application. Lower rates are recommended in young orchards where shoot growth is desirable. Safe to apply with Streptomycin or Kasumin during bloom. <b>Crop Safety:</b> Apply with spray grade ammonium sulphate in an equal 1:1 ratio with the amount of Kudos used. Apple varieties prone to cracking like Empire and Stayman cay experience increased cracking and may decrease the yield of Cortland. <b>Coverage:</b> Include a surfactant such as Agral 90 at 500 mL per 1000 L (0.05% v/v) of water.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
<b>06 PETAL FALL</b>										
Apple brown bug	3	cypermethrin	Up-cyde 2.5 EC	280-400 mL/ha, see label	7	0.5	-	3 apps	7	<b>Recommendation:</b> Avoid applying synthetic pyrethroids when temperatures rise above 25°C because they are much less effective under these conditions. <b>Beneficials:</b> Disruptive to IPM programs by harming beneficials and leading to mite flare ups. Up-cyde is somewhat less disruptive to predatory mites whereas Decis is broad spectrum and one of the most powerful synthetic pyrethroids.
	3	deltamethrin	Decis 100 EC	75-125 mL/ha, see label	1	0.5	-	3 apps	12	<b>Recommendation:</b> Avoid applying synthetic pyrethroids when temperatures rise above 25°C because they are much less effective under these conditions. <b>Beneficials:</b> Do not apply during bloom period. Disruptive to IPM programs by harming beneficials and leading to mite flare ups. Up-cyde is somewhat less disruptive to predatory mites whereas Decis is broad spectrum and one of the most powerful synthetic pyrethroids.
	4	thiacloprid	Theme 480 SC	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
Apple scab	1	thiophanate-methyl	Senator 50 SC	250 mL/1,000 L	7	0.5	-	2 apps	7	<b>Crop Safety:</b> Do not mix with lime or other alkaline materials. Not compatible with oil applications. <b>Recommendation:</b> Historically resistance has been an issue.
	03, 09	difenoconazole + cyprodinil	Inspire Super EC	560-836 mL/ha, see label	14	0.5	-	4 apps	7	<b>Pest Stage:</b> No activity on fruit scab so do not use after petal fall. <b>Recommendation:</b> At the high rate, will also control Brooks Spot and Sooty Blotch/Flyspeck.
	7	inpyrflumax	Excalia 31 SC	146-292 mL/ha	Petal fall	0.5	-	2 apps, 584 mL/ha/yr	10	<b>Recommendation:</b> For powdery mildew, application must include a 100% organosilicone adjuvant such as Xiameter.
	7	isofetamid	Kenja 400 SC	0.913 L/ha	20	0.5	-	6 apps	10	<b>Recommendation:</b> Do not make more than two consecutive applications of group 7 containing fungicides before rotating to a fungicide with a different mode of action.
	7	penthiopyrad	Fontelis 200 SC	1.0-1.5 L/ha, see label	28	0.5	-	3-4 apps, 4.5 L/ha/yr	7	<b>Crop Safety:</b> Contains a mineral oil in the formulation that may cause issues in tank mixes. Do not use near Captan products. Do not tank mix with thinning agents.
	07, 09	fluopyram + pyrimethanil	Luna Tranquility SC	600-800 mL/ha, see label	14	0.5-1	1	4 apps, 3.2 L/ha/yr	7	<b>Recommendation:</b> The rate required to control apple scab is higher than to control powdery mildew. Therefore, if using the product at the powdery mildew rate, include a protectant for apple scab. Do not make more than two consecutive applications of group 7 or group 9 containing fungicides before rotating with a fungicide from a different group.
	07, 11	boscalid + pyraclostrobin	Pristine WG	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.
	07, 11	pyraclostrobin + fluxapyroxad	Merivon SC	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. <b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.
	11	Trifloxystrobin	Flint Extra 42.6 SC	145-180 g/ha, see label	14	0.5	4	4 apps, 860 mL/ha/yr	7	<b>Recommendation:</b> Do not use for management of powdery mildew in Nova Scotia. Resistance to group 11 products is present so control will not be achieved. For scab, use a half rate of a group M product for resistance management. Do not exceed 4 total applications of group 11 containing fungicides per year.
	29	fluazinam	Allegro 500F 40 SC	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
29	fluazinam	Downforce AG 40 SC	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.	

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	29	fluazinam	Vantana 500 SU	0.75-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	52	ipflufenquin	Migiwa 20 SC	220 mL/ha	7	0.5	-	3 apps, 660 mL/ha/yr	7	<b>Pest Stage:</b> Target primary scab and powdery mildew timing. <b>Recommendation:</b> Do not use the low rate for scab listed on the label as it is a sub-lethal dose for powdery mildew and may contribute to resistance development. Do not make more than two sequential applications as it is critical to preserve the efficacy of this new chemical group.
	BM 01	Swinglea glutinosa	EcoSwing 82 SN	2.35 L/ha	0	0.2	-	10 apps	-	<b>Pest Stage:</b> Prevention. Suppression only.
	BM02	QST 713 strain of dried Bacillus subtilis	Serenade OPTI WP	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.
	M02	copper octanoate	Cueva 1.8 SN	0.5-2.0% solution, see label	1	0.2	-	10 apps	5	<b>Crop Safety:</b> Do not exceed 1.0% solution on russet-sensitive varieties when fruit is present. For very sensitive varieties (Golden Delicious, Jonagold) use the 0.5% rate.
	M03	mancozeb	Dithane Rainshield 75 WG	6.0 kg/ha	77	0.5	35	4 apps	7	<b>Crop Stage:</b> Reapply on 5-7 day intervals during rapid tissue growth and rainy conditions. <b>Recommendation:</b> Use mancozeb products early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of most secondary diseases such as Black Rot and Bitter Rot.
	M03	mancozeb	Manzate Max 480 F	4.65-9.38 L/ha	77	0.5	35	4-8 apps, 37.5 L/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M03	mancozeb	Manzate ProStick 75 DF	3-6 kg/ha	77	0.5	35	4-8 apps, 24 kg/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M04	captan	Captan 480 SC	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	Captan L 482 SC	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	Maestro 80 WSP	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	captan	Sharda Captan 48 SC	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Recommendation:</b> Use the 5 litres product/ha (2.4 kg a.i./ha) rate. <b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	Supra Captan 80 WSP	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	M04	folpet	<b>Follow 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M04	folpet	<b>Folpan 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M3	mancozeb	<b>Penncozeb 75 DF Raincoat WG</b>	3.0-6.0 kg/ha	77	0.5	35	4-8 apps	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	NC	garlic powder	<b>Buran 15 SN</b>	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.
	U12	dodine	<b>Syllit 400 FL</b>	1.75-3.65 L/ha, see label	7	2	-	2-4 apps	7	<b>Crop Stage:</b> Do not use after first cover spray. Only when absolutely necessary, use for rescue protection after-infection at 5.28 L/ha. <b>Crop Safety:</b> Freezing or near freezing temperatures, particularly when accompanied by slow drying conditions may injure or pre-dispose the fruit to chemical injury. Do not feed pomace of treated apples to livestock.
<b>Fire blight</b>	NC	prohexadione-calcium	<b>Apogee 27.5 WG</b>	270-450 g/1,000 L	45	0.5	-	4 apps	14	<b>Crop Stage:</b> Apply at 2.5 to 7.5 cm of new shoot growth. Growth reduction is greater before 15 cm shoot growth. If required, make sequential applications at 14-21 day intervals. For most orchards, two applications provide good growth control. <b>Recommendation:</b> The decrease in fire blight susceptibility becomes effective about 10 days after application. Lower rates are recommended in young orchards where shoot growth is desirable. Safe to apply with Streptomycin or Kasumin during bloom. <b>Crop Safety:</b> Apply with spray grade ammonium sulphate in an equal 1:1 ratio with the amount of Apogee used. Apple varieties prone to cracking like Empire and Stayman cay experience increased cracking and may decrease the yield of Cortland. <b>Coverage:</b> Include a surfactant such as Agral 90 at 500 mL per 1000 L (0.05% v/v) of water.
	NC	prohexadione-calcium	<b>Kudos 27.5 WG</b>	270-450 g/1000 L water	45	0.5	-	4 apps	14	<b>Crop Stage:</b> Apply at 2.5 to 7.5 cm of new shoot growth. Growth reduction is greater before 15 cm shoot growth. If required, make sequential applications at 14-21 day intervals. For most orchards, two applications provide good growth control. <b>Recommendation:</b> The decrease in fire blight susceptibility becomes effective about 10 days after application. Lower rates are recommended in young orchards where shoot growth is desirable. Safe to apply with Streptomycin or Kasumin during bloom. <b>Crop Safety:</b> Apply with spray grade ammonium sulphate in an equal 1:1 ratio with the amount of Kudos used. Apple varieties prone to cracking like Empire and Stayman cay experience increased cracking and may decrease the yield of Cortland. <b>Coverage:</b> Include a surfactant such as Agral 90 at 500 mL per 1000 L (0.05% v/v) of water.
	P06	Bacillus mycoides isolate J	<b>LifeGard 40 WG</b>	333 g/1000 L water	0	0.2	-		7	<b>Pest Stage:</b> DO NOT APPLY DURING BLOOM. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors.
<b>Fruitlet thinning</b>	-	metamitron	<b>Brevis 150 SC</b>	1.12-2.24 L/ha	72	0.5	5	2 apps, 4.48 L/ha/yr	5	<b>Crop Stage:</b> Late petal fall until 16-18 mm. <b>Crop Safety:</b> Avoid applying to trees less than 4 years old. Do not add any adjuvants that increase droplet spreading or penetration. Do not spray on wet leaves. Apply when air temperatures are between 10°C and 29°C and delay application if temperature will exceed 29°C within five days of application. Avoid drift to plum and cherry trees. <b>Recommendation:</b> Use a carbon balance model like BrevisSmart to adjust rates up or down based on weather conditions. Direct more product on upper canopies.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	-	naphthaleneacetic acid	<b>Fruitone L 3.1 SN</b>	30-584 mL/935 L water, see label	5	0.5	-	-	-	<p><b>Crop Stage:</b> Effective when king fruitlets average 7 to 12 mm in diameter. Adjust the rate to obtain desired results.</p> <p><b>Crop Safety:</b> Application to fruit &gt;15 mm may result in misshapen or pygmy fruit in sensitive varieties.</p> <p><b>Recommendation:</b> The preferred application temperature is between 21° and 24°C under slow drying conditions. Applications are not recommended below 16°C or above 27°C. Adjust nozzles to deliver 2/3 of the spray volume in the upper portion of a tree.</p>
	-	naphthaleneacetic acid	<b>Maintain 3.1 SC</b>	29-586 mL/935 L water, see label	5	0.5	-	-	-	<p><b>Crop Stage:</b> Effective when king fruitlets average 7 to 12 mm in diameter. Adjust the rate to obtain desired results.</p> <p><b>Crop Safety:</b> Application to fruit &gt;15 mm may result in misshapen or pygmy fruit in sensitive varieties.</p> <p><b>Recommendation:</b> The preferred application temperature is between 21° and 24°C under slow drying conditions. Applications are not recommended below 16°C or above 27°C. Adjust nozzles to deliver 2/3 of the spray volume in the upper portion of a tree.</p>
	01A	carbaryl	<b>Sevin XLR 43 SC</b>	0.5–2.0 L/1,000 L water	75	0.5-4, see label	10-14, see label	High density 3.22 L/ha/year, low density 2.15 L/ha/year	4	<p><b>Crop Stage:</b> When fruit reach a size range of 7 to 14 mm they are most sensitive to thinner application.</p> <p><b>Crop Safety:</b> Note the preharvest intervals for early maturing varieties such as Paula Red. May be applied with mancozeb fungicides.</p> <p><b>Recommendation:</b> Sevin is classified as a mild, reliable thinner. Adjust nozzles to deliver 2/3 of the spray volume in the upper portion of a tree. Frequently combined with Fruitone for more aggressive thinning. The best thinning is achieved when weather is moderate (21°C to 25°C) for 3 days following application. Application below 17°C may result in insufficient thinning and temperatures above 27°C may result in excessive thinning. Adjust rates accordingly.</p> <p><b>Pollinators:</b> DO NOT APPLY SEVIN DURING BLOOM PRIOR TO 100% PETAL FALL AS IT IS TOXIC TO BEES.</p>
<b>Green apple aphid</b>	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<p><b>Coverage:</b> Good coverage essential.</p> <p><b>Pollinators:</b> Do not apply during bloom.</p>
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<p><b>Pest Stage:</b> At threshold.</p>
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04C	sulfoxaflor	<b>Closer 240 SC</b>	100-400 mL/ha, see label	7	0.5	-	2 apps	7	<p><b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.</p>
	04D	flupyradifurone	<b>Sivanto Prime 200 SN</b>	500-750 mL/ha, up to 1000 mL/ha for scale + horticultural oil, see label	14	0.5	-	2-4 apps, 2000 mL/ha/yr	10	<p><b>Crop Safety:</b> Certain conditions, including but not limited to, application when temperatures are expected to exceed 30C within 24 hours of application may results in fruit injury after the use of oil.</p>
	09D	afidopyropen	<b>Sefina 50 EC</b>	0.2 L/ha	7	0.5	-	4 apps, 0.8 L/ha/yr	7	
	09D	afidopyropen	<b>Versys 100 EC</b>	0.1 L/ha	7	0.5	-	4 apps, 0.4 L/ha/yr	7	
<b>Leafrollers</b>	5	spinetoram	<b>Delegate 25 WG</b>	210-420 g/ha, see label	7	0.5	-	3 apps	7	<p><b>Pest Stage:</b> For obliquebanded leafroller, apply when overwintering larvae are active and before they roll up in leaves. For codling moth, apply at 100 degree days after the biofix date. For suppression of apple maggot, apply 7-10 days after the first apple maggot fly is caught on yellow sticky boards.</p>
	5	spinosad	<b>Entrust 80 WG</b>	109 g/ha	7	0.5	-	3 apps	-	<p><b>Pest Stage:</b> Treat when larvae are actively feeding but before they roll up the leaves.</p> <p><b>Coverage:</b> If adjusting spray volume, use the same spray concentration (g product/L water).</p>

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	06, 28	cyantraniliprole + abamectin	<b>Minecto Pro SC</b>	496 mL/ha	28	0.5	-	1 app, 0.5 L/ha/yr	-	<b>Crop Stage:</b> For best results, use product within petal fall to 6 weeks post-petal fall. <b>Pest Stage:</b> Apply before a threshold of 5 mites/leaf is reached for best results. <b>Recommendation:</b> The product has a combination of active ingredients with a full rate of group 6 and a half rate of the group 28. Best label use for Nova Scotia is for targeting mites. Apply with 0.25-1% v/v spray oil or 0.1-0.5% non-ionic surfactant.
	11	Bacillus thuringiensis	<b>XenTari 48 WG</b>	500-1600 g/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Apply to young larvae, early in infestation. <b>Recommendation:</b> Death of insect may take several days. Apply on cloudy days or in the evening. <b>Coverage:</b> Product must be consumed to be effective. Spray when and where pests are actively feeding.
	11	bacillus thuringiensis	<b>Bioprotec PLUS SC</b>	0.44 - 2.5 L/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Product must be consumed by the target insect to be effective. <b>Recommendation:</b> Best results are obtained if applications are made in the evening or on a cloudy day. <b>Coverage:</b> Apply in a high-volume spray to young larvae, early in infestation.
	11	Bacillus thuringiensis	<b>Dipel 2X DF</b>	1.12-1.68 kg/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Best results if applications made in evening or on cloudy day. Do not allow the spray mixture to stand in the tank for more than 12 hrs.
	11	Bacillus thuringiensis	<b>Foray 48BA SC</b>	2.8-4.0 L/ha, see label	0.5	0.5	-	-	-	<b>Pest Stage:</b> Apply when pests are actively feeding.
	18	methoxyfenozide	<b>Intrepid 240 SC</b>	750-1000 mL/ha, see label	14	0.5	-	2 apps	-	<b>Pest Stage:</b> Apply when obliquebanded leafroller larvae are actively feeding before they roll up leaves. For codling moth, apply at 80-110 degree days after the biofix date. <b>Crop Safety:</b> Do not feed apple pomace to livestock.
	28	chlorantraniliprole	<b>Altacor MaX 70 WG</b>	73-143 g/ha, see label	5	0.5	-	3 apps	10	<b>Pest Stage:</b> For the caterpillar complex, apply when the larvae are active in the pink to petal fall period. For obliquebanded leafroller, apply from pink stage through petal fall before they roll leaves. For summer generations, monitor adult moth flight and apply at first egg hatch. Repeat application may be needed 10 days later. For codling moth, apply just prior to first generation egg hatch at 80-100 degree days after the biofix date. Reapply if necessary, 10-14 days later.
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	28	cyclaniliprole	<b>Harvanta 50 SL</b>	1.2-1.6 L/ha, see label	7	0.5	-	3 apps, 4.8 L/ha/yr	14	<b>Pest Stage:</b> Apply when overwintering leafroller larvae become active or just prior to second generation egg hatch. For codling moth, apply at beginning of egg hatch. <b>Pollinators:</b> Toxic to bees. <b>Recommendation:</b> Avoid applying group 28 insecticides consecutively more than 2 times within a 30 day period.
	28	tetraniliprole	<b>Vayego 200 SC</b>	225 mL/ha	7	0.5	-	3 apps	10	<b>Pollinators:</b> Toxic to bees. Apply only post-bloom for all labelled insect pests. <b>Recommendation:</b> Monitor obliquebanded leafroller adult moth flight, and apply at first egg hatch. Apply before codling moth first egg hatch (80-110 degree days Celsius after biofix date).
	NC	kaolin clay	<b>Surround 95 WP</b>	25-50 kg/1000 L of water per ha, see label	0	0.5	-	-	-	<b>Recommendation:</b> Efficacy depends on complete coverage of leaves and fruit. Apply for prevention and keep fruit completely covered during egg laying periods. Lengthening re-spray interval past 14 days is not recommended. <b>Crop Safety:</b> Surround keeps plant surfaces cool and may cause maturity delays of 3 to 7 days, especially in cool regions.
<b>Mites</b>	6	abamectin	<b>Agri-Mek 8.4 SC</b>	170 mL/ha	28	0.5	-	1 app, 170 mL/ha/yr	-	<b>Crop Stage:</b> Petal fall through six weeks following petal fall. <b>Crop Safety:</b> May cause russeting on Golden Delicious and other light-skinned varieties. Do not apply with Captan/Maestro or within 14 days of a Captan/Maestro application. <b>Coverage:</b> Apply with 10-20 L/ha of Superior Oil 70 EC. <b>Pollinators:</b> Toxic to bees.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	06, 28	cyantraniliprole + abamectin	<b>Minecto Pro SC</b>	496 mL/ha	28	0.5	-	1 app, 0.5 L/ha/yr	-	<b>Crop Stage:</b> For best results, use product within petal fall to 6 weeks post-petal fall. <b>Pest Stage:</b> Apply before a threshold of 5 mites/leaf is reached for best results. <b>Recommendation:</b> The product has a combination of active ingredients with a full rate of group 6 and a half rate of the group 28. Best label use for Nova Scotia is for targeting mites. Apply with 0.25-1% v/v spray oil or 0.1-0.5% non-ionic surfactant.
	20B	acequinocyl	<b>Kanemite 15 SC</b>	2.1 L/ha	14	0.5	-	2 apps	21	<b>Pest Stage:</b> Effective on all life stages of European red and two-spotted mites. <b>Coverage:</b> Apply with a minimum of 1000 L of water/ha.
	20D	bifenazate	<b>Acramite 50 WS</b>	568-851 g/ha, see label	7	0.5	-	1 app	-	<b>Pest Stage:</b> Primarily active on motile stage of mites. <b>Recommendation:</b> Apply lower rate for two-spotted spider mite and higher rate for European red mite. Not effective for rust mites.
	21	pyridaben	<b>Nexter 75 WP</b>	300-600 g/ha, see label	25	0.5	-	2 apps	30	<b>Recommendation:</b> Apply lower rate for European red mite and higher rate for two-spotted spider mite. Rotate with miticides with different modes of action. <b>Pest Stage:</b> Effective on immature stages but not eggs of European red mite, two-spotted spider mite and apple rust mite.
	21, 39	fenazaquin	<b>Magister 205 SC</b>	1.75-2.63 L/ha, see label	10	0.5-1, see label	17	1 app, 2.63 L/ha/yr	-	<b>Recommendation:</b> Rapid motile knockdown and reduces egg hatch for next generation. Active at high and low temperatures. Also controls powdery mildew when applied as a summer miticide. <b>Pollinators:</b> Do not apply during the crop blooming period.
	23	spirodiclofen	<b>Envidor 240 SC</b>	750 mL/ha	7	0.5	-	1 app	-	<b>Pest Stage:</b> Effective on eggs, all nymphal stages and adult females. <b>Crop Safety:</b> Do not graze livestock in treated orchards. <b>Coverage:</b> Apply with a minimum of 1,000 L of water/ha.
	25	cyflumetofen	<b>Nealta 200 SC</b>	1 L/ha	7	0.5	-	2 apps	14	<b>Pest Stage:</b> Effective on all stages of European red mite and two-spotted spider mite. <b>Recommendation:</b> Do not apply if rain is expected within 1 hour. <b>Coverage:</b> Apply with a minimum of 500 L/ha of water. Higher water volumes are recommended to ensure thorough coverage.
	NC	canola oil	<b>Vegol Crop Oil 96 EC</b>	2% v/v	0	0.5	-	2 apps dormant, 4 apps summer	-	<b>Crop Safety:</b> Do not use within 14 days of copper and 30 days of sulphur. Do not apply to wet foliage. 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. <b>Coverage:</b> Best results for mites are obtained when applied with a high volume of water 1,500 to 3,370 L/ha.
	NC	mineral oil	<b>Purespray Green 13 E</b>	10-20 L/1,000 L water	0	0.5	-	2 apps dormant, 1 app summer	-	<b>Pollinators:</b> Avoid application during bloom. <b>Crop Safety:</b> Do not use within 30 days of a sulphur application or within 14 days before or after captan fungicide. Do not exceed more than 10 L oil per ha per application for summer treatments.
<b>Mullein bug</b>	3	cypermethrin	<b>Up-cyde 2.5 EC</b>	280-400 mL/ha, see label	7	0.5	-	3 apps	7	<b>Recommendation:</b> Avoid applying synthetic pyrethroids when temperatures rise above 25°C because they are much less effective under these conditions. <b>Beneficials:</b> Disruptive to IPM programs by harming beneficials and leading to mite flare ups. Up-cyde is somewhat less disruptive to predatory mites whereas Decis is broad spectrum and one of the most powerful synthetic pyrethroids.
	3	deltamethrin	<b>Decis 100 EC</b>	75-125 mL/ha, see label	1	0.5	-	3 apps	12	<b>Recommendation:</b> Avoid applying synthetic pyrethroids when temperatures rise above 25°C because they are much less effective under these conditions. <b>Beneficials:</b> Do not apply during bloom period. Disruptive to IPM programs by harming beneficials and leading to mite flare ups. Up-cyde is somewhat less disruptive to predatory mites whereas Decis is broad spectrum and one of the most powerful synthetic pyrethroids.
	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	04C	sulfoxaflor	<b>Closer 240 SC</b>	100-400 mL/ha, see label	7	0.5	-	2 apps	7	<b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
<b>Phytophthora crown and root rot</b>	P07	fosetyl al	<b>Aliette 80 WDG</b>	3-5 kg/ha, see label	30	0.5	4	3 apps, 10 kg/ha/yr	-	<b>Coverage:</b> Foliar spray only. <b>Crop Stage:</b> Apply from tight cluster to pink when there is sufficient leaf area to take up the spray and there is no bloom that would reduce coverage. Treat again 6 weeks later.
<b>Powdery mildew</b> Refer to section 03 BUD SEPARATION										
<b>Rosy apple aphid</b>	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04C	sulfoxaflor	<b>Closer 240 SC</b>	100-400 mL/ha, see label	7	0.5	-	2 apps	7	<b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	04D	flupyradifurone	<b>Sivanto Prime 200 SN</b>	500-750 mL/ha, up to 1000 mL/ha for scale + horticultural oil, see label	14	0.5	-	2-4 apps, 2000 mL/ha/yr	10	<b>Crop Safety:</b> Certain conditions, including but not limited to, application when temperatures are expected to exceed 30C within 24 hours of application may results in fruit injury after the use of oil.
	09D	afidopyropen	<b>Sefina 50 EC</b>	0.2 L/ha	7	0.5	-	4 apps, 0.8 L/ha/yr	7	
	09D	afidopyropen	<b>Versys 100 EC</b>	0.1 L/ha	7	0.5	-	4 apps, 0.4 L/ha/yr	7	
	23	spirotramat	<b>Movento 240 SC</b>	365-435 mL/ha, see label	7	0.5	-	4-5 apps, 1.83 L/ha/yr	14	<b>Pollinators:</b> Do not apply when bloom or flowering weeds are present. Apply only after petal fall. <b>Recommendation:</b> Control may not be visible for 2-3 weeks after treatment.
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	29	flonicamid	<b>Beleaf 50 SG</b>	120-200 g/ha, see label	21	0.5	3	3 apps, 600 g/ha/yr	7	<b>Pest Stage:</b> At threshold.
<b>Russetting</b>	-	6-benzyladenine, gibberellins A4 & A7	<b>Promalin 1.8 SL</b>	See label for rates based on use pattern	28	0.5	-	4 apps	-	<b>Crop Stage:</b> Notch above a paradormant bud and apply Promalin and MaxCel from green tip and up until bloom time. Apply as a mist to the notch. <b>Crop Safety:</b> Do not use when temperatures are below freezing, above 32°C or if rain is forecast within 6 hours.
	-	gibberellins A4 & A7	<b>Novagib 96 SL</b>	1.5 - 1.9 L of product/ha in no more than 935 L water/ha	28	0.5	-	5 apps	-	<b>Crop Stage:</b> Make the first application at the beginning of petal fall. <b>Recommendation:</b> May only reduce russetting caused by climatic factors affecting the fruit during the first 30-40 days of development (not pest, disease or chemical). Works best if climatic conditions allow an extended drying period. Rainfast in 6 hours.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
Vegetative growth suppression	NC	prohexadione-calcium	Apogee 27.5 WG	270-450 g/1,000 L	45	0.5	-	4 apps	14	<p><b>Crop Stage:</b> Apply at 2.5 to 7.5 cm of new shoot growth. Growth reduction is greater before 15 cm shoot growth. If required, make sequential applications at 14-21 day intervals. For most orchards, two applications provide good growth control.</p> <p><b>Recommendation:</b> The decrease in fire blight susceptibility becomes effective about 10 days after application. Lower rates are recommended in young orchards where shoot growth is desirable. Safe to apply with Streptomycin or Kasumin during bloom.</p> <p><b>Crop Safety:</b> Apply with spray grade ammonium sulphate in an equal 1:1 ratio with the amount of Apogee used. Apple varieties prone to cracking like Empire and Stayman cay experience increased cracking and may decrease the yield of Cortland.</p> <p><b>Coverage:</b> Include a surfactant such as Agral 90 at 500 mL per 1000 L (0.05% v/v) of water.</p>
	NC	prohexadione-calcium	Kudos 27.5 WG	270-450 g/1000 L water	45	0.5	-	4 apps	14	<p><b>Crop Stage:</b> Apply at 2.5 to 7.5 cm of new shoot growth. Growth reduction is greater before 15 cm shoot growth. If required, make sequential applications at 14-21 day intervals. For most orchards, two applications provide good growth control.</p> <p><b>Recommendation:</b> The decrease in fire blight susceptibility becomes effective about 10 days after application. Lower rates are recommended in young orchards where shoot growth is desirable. Safe to apply with Streptomycin or Kasumin during bloom.</p> <p><b>Crop Safety:</b> Apply with spray grade ammonium sulphate in an equal 1:1 ratio with the amount of Kudos used. Apple varieties prone to cracking like Empire and Stayman cay experience increased cracking and may decrease the yield of Cortland.</p> <p><b>Coverage:</b> Include a surfactant such as Agral 90 at 500 mL per 1000 L (0.05% v/v) of water.</p>
White apple leafhopper	4	acetamiprid	Aceta 70 WP	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<p><b>Coverage:</b> Good coverage essential.</p> <p><b>Pollinators:</b> Do not apply during bloom.</p>
	4	acetamiprid	Assail 70 WP	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<p><b>Pest Stage:</b> At threshold.</p>
	4	thiacloprid	Theme 480 SC	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04D	flupyradifurone	Sivanto Prime 200 SN	500-750 mL/ha, up to 1000 mL/ha for scale + horticultural oil, see label	14	0.5	-	2-4 apps, 2000 mL/ha/yr	10	<p><b>Crop Safety:</b> Certain conditions, including but not limited to, application when temperatures are expected to exceed 30C within 24 hours of application may results in fruit injury after the use of oil.</p>
	28	cyantraniliprole	Exirel 100 SC	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<p><b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix</p> <p><b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.</p>
07 FIRST COVER Apple scab	7	isofetamid	Kenja 400 SC	0.913 L/ha	20	0.5	-	6 apps	10	<p><b>Recommendation:</b> Do not make more than two consecutive applications of group 7 containing fungicides before rotating to a fungicide with a different mode of action.</p>
	7	penthiopyrad	Fontelis 200 SC	1.0-1.5 L/ha, see label	28	0.5	-	3-4 apps, 4.5 L/ha/yr	7	<p><b>Crop Safety:</b> Contains a mineral oil in the formulation that may cause issues in tank mixes. Do not use near Captan products. Do not tank mix with thinning agents.</p>
	07, 09	fluopyram + pyrimethanil	Luna Tranquility SC	600-800 mL/ha, see label	14	0.5-1	1	4 apps, 3.2 L/ha/yr	7	<p><b>Recommendation:</b> The rate required to control apple scab is higher than to control powdery mildew. Therefore, if using the product at the powdery mildew rate, include a protectant for apple scab. Do not make more than two consecutive applications of group 7 or group 9 containing fungicides before rotating with a fungicide from a different group.</p>
	07, 11	boscalid + pyraclostrobin	Pristine WG	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<p><b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.</p>
	07, 11	pyraclostrobin + fluxapyroxad	Merivon SC	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<p><b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage.</p> <p><b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.</p>

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	11	Trifloxystrobin	<b>Flint Extra 42.6 SC</b>	145-180 g/ha, see label	14	0.5	4	4 apps, 860 mL/ha/yr	7	<b>Recommendation:</b> Do not use for management of powdery mildew in Nova Scotia. Resistance to group 11 products is present so control will not be achieved. For scab, use a half rate of a group M product for resistance management. Do not exceed 4 total applications of group 11 containing fungicides per year.
	29	fluazinam	<b>Allegra 500F 40 SC</b>	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	<b>Downforce AG 40 SC</b>	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	<b>Vantana 500 SU</b>	0.75-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	BM 01	Swinglea glutinosa	<b>EcoSwing 82 SN</b>	2.35 L/ha	0	0.2	-	10 apps	-	<b>Pest Stage:</b> Prevention. Suppression only.
	BM02	QST 713 strain of dried Bacillus subtilis	<b>Serenade OPTI WP</b>	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.
	M02	copper octanoate	<b>Cueva 1.8 SN</b>	0.5-2.0% solution, see label	1	0.2	-	10 apps	5	<b>Crop Safety:</b> Do not exceed 1.0% solution on russet-sensitive varieties when fruit is present. For very sensitive varieties (Golden Delicious, Jonagold) use the 0.5% rate.
	M03	mancozeb	<b>Dithane Rainshield 75 WG</b>	6.0 kg/ha	77	0.5	35	4 apps	7	<b>Crop Stage:</b> Reapply on 5-7 day intervals during rapid tissue growth and rainy conditions. <b>Recommendation:</b> Use mancozeb products early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of most secondary diseases such as Black Rot and Bitter Rot.
	M03	mancozeb	<b>Manzate Max 480 F</b>	4.65-9.38 L/ha	77	0.5	35	4-8 apps, 37.5 L/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M03	mancozeb	<b>Manzate ProStick 75 DF</b>	3-6 kg/ha	77	0.5	35	4-8 apps, 24 kg/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M04	captan	<b>Captan 480 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Captan L 482 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Maestro 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	M04	captan	<b>Sharda Captan 48 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Recommendation:</b> Use the 5 litres product/ha (2.4 kg a.i./ha) rate. <b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Supra Captan 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	folpet	<b>Follow 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M04	folpet	<b>Folpan 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M3	mancozeb	<b>Pencozeb 75 DF Raincoat WG</b>	3.0-6.0 kg/ha	77	0.5	35	4-8 apps	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	NC	garlic powder	<b>Buran 15 SN</b>	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.
	U12	dodine	<b>Syllit 400 FL</b>	1.75-3.65 L/ha, see label	7	2	-	2-4 apps	7	<b>Crop Stage:</b> Do not use after first cover spray. Only when absolutely necessary, use for rescue protection after-infection at 5.28 L/ha. <b>Crop Safety:</b> Freezing or near freezing temperatures, particularly when accompanied by slow drying conditions may injure or pre-dispose the fruit to chemical injury. Do not feed pomace of treated apples to livestock.
<b>Black rot</b>	07, 11	boscalid + pyraclostrobin	<b>Pristine WG</b>	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.
	07, 11	pyraclostrobin + fluxapyroxad	<b>Merivon SC</b>	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. <b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.
	M04	captan	<b>Maestro 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	captan	<b>Supra Captan 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	M04	folpet	<b>Follow 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M04	folpet	<b>Folpan 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
<b>Fruitlet thinning</b>	-	1-aminocyclopropanecarboxylic acid	<b>Accede 40 SG</b>	200 to 400 ppm, see label	-	0.5	-	2 apps	7	<p><b>Stage:</b> Most effective when king fruitlet diameter averages 15-20 mm.</p> <p><b>Recommendation:</b> Most effective when the maximum temperature on the day of application and for the following 2-3 days is 18C or higher. Lack of efficacy is observed at 30C.</p> <p><b>Coverage:</b> Direct 80% of the spray into the upper 2/3rd of the tree canopy. Use a non-ionic surfactant such as Agral 90 at 0.125% v/v to improve consistency of performance and response.</p>
	-	6-benzyladenine	<b>MaxCel 1.9 SN</b>	75 to 200 ppm, see label	28	0.5	-	-	-	<p><b>Crop Stage:</b> Branching can be induced by applying a mist to notched wood from green tip and up until bloom time. Fruitlet thinning is done when the average king fruitlet diameter measures between 6-14 mm.</p> <p><b>Recommendation:</b> Apply as a thinner with temperatures of 21-24°C before and after application. Do not apply this product if the temperature is below 16°C. Works best in extended drying periods. May be applied with mancozeb fungicides.</p>
	-	6-benzyladenine (aka 6-benzylaminopurine)	<b>Cilis Plus 2.0 SN</b>	0.475-9.54 L/ha (50 to 200 ppm), see label	28	0.5	-	21.3 L/ha/yr	-	<p><b>Crop Stage:</b> Branching can be induced by applying a mist to notched wood from green tip and up until bloom time. Fruitlet thinning is done when the average king fruitlet diameter measures between 6-14 mm.</p> <p><b>Recommendation:</b> Apply as a thinner with temperatures of 21-24°C before and after application. Do not apply this product if the temperature is below 16°C. Works best in extended drying periods. May be applied with mancozeb fungicides.</p>
	-	metamitron	<b>Brevis 150 SC</b>	1.12-2.24 L/ha	72	0.5	5	2 apps, 4.48 L/ha/yr	5	<p><b>Crop Stage:</b> Late petal fall until 16-18 mm.</p> <p><b>Crop Safety:</b> Avoid applying to trees less than 4 years old. Do not add any adjuvants that increase droplet spreading or penetration. Do not spray on wet leaves. Apply when air temperatures are between 10°C and 29°C and delay application if temperature will exceed 29°C within five days of application. Avoid drift to plum and cherry trees.</p> <p><b>Recommendation:</b> Use a carbon balance model like BreviSmart to adjust rates up or down based on weather conditions. Direct more product on upper canopies.</p>
	-	naphthaleneacetic acid	<b>Fruitone L 3.1 SN</b>	30-584 mL/935 L water, see label	5	0.5	-	-	-	<p><b>Crop Stage:</b> Effective when king fruitlets average 7 to 12 mm in diameter. Adjust the rate to obtain desired results.</p> <p><b>Crop Safety:</b> Application to fruit &gt;15 mm may result in misshapen or pygmy fruit in sensitive varieties.</p> <p><b>Recommendation:</b> The preferred application temperature is between 21° and 24°C under slow drying conditions. Applications are not recommended below 16°C or above 27°C. Adjust nozzles to deliver 2/3 of the spray volume in the upper portion of a tree.</p>
	-	naphthaleneacetic acid	<b>Maintain 3.1 SC</b>	29-586 mL/935 L water, see label	5	0.5	-	-	-	<p><b>Crop Stage:</b> Effective when king fruitlets average 7 to 12 mm in diameter. Adjust the rate to obtain desired results.</p> <p><b>Crop Safety:</b> Application to fruit &gt;15 mm may result in misshapen or pygmy fruit in sensitive varieties.</p> <p><b>Recommendation:</b> The preferred application temperature is between 21° and 24°C under slow drying conditions. Applications are not recommended below 16°C or above 27°C. Adjust nozzles to deliver 2/3 of the spray volume in the upper portion of a tree.</p>

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	01A	carbaryl	Sevin XLR 43 SC	0.5–2.0 L/ 1,000 L water	75	0.5-4, see label	10-14, see label	High density 3.22 L/ha/year, low density 2.15 L/ha/year	4	<p><b>Crop Stage:</b> When fruit reach a size range of 7 to 14 mm they are most sensitive to thinner application.</p> <p><b>Crop Safety:</b> Note the preharvest intervals for early maturing varieties such as Paula Red. May be applied with mancozeb fungicides.</p> <p><b>Recommendation:</b> Sevin is classified as a mild, reliable thinner. Adjust nozzles to deliver 2/3 of the spray volume in the upper portion of a tree. Frequently combined with Fruitone for more aggressive thinning. The best thinning is achieved when weather is moderate (21°C to 25°C) for 3 days following application. Application below 17°C may result in insufficient thinning and temperatures above 27°C may result in excessive thinning. Adjust rates accordingly.</p> <p><b>Pollinators:</b> DO NOT APPLY SEVIN DURING BLOOM PRIOR TO 100% PETAL FALL AS IT IS TOXIC TO BEES.</p>
<b>Mites</b>	Refer to section 06 PETAL FALL									
<b>08 SECOND COVER</b>										
Apple scab	7	isofetamid	Kenja 400 SC	0.913 L/ha	20	0.5	-	6 apps	10	<p><b>Recommendation:</b> Do not make more than two consecutive applications of group 7 containing fungicides before rotating to a fungicide with a different mode of action.</p>
	7	penthiopyrad	Fontelis 200 SC	1.0-1.5 L/ha, see label	28	0.5	-	3-4 apps, 4.5 L/ha/yr	7	<p><b>Crop Safety:</b> Contains a mineral oil in the formulation that may cause issues in tank mixes. Do not use near Captan products. Do not tank mix with thinning agents.</p>
	07, 09	fluopyram + pyrimethanil	Luna Tranquility SC	600-800 mL/ha, see label	14	0.5-1	1	4 apps, 3.2 L/ha/yr	7	<p><b>Recommendation:</b> The rate required to control apple scab is higher than to control powdery mildew. Therefore, if using the product at the powdery mildew rate, include a protectant for apple scab. Do not make more than two consecutive applications of group 7 or group 9 containing fungicides before rotating with a fungicide from a different group.</p>
	07, 11	boscalid + pyraclostrobin	Pristine WG	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<p><b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.</p>
	07, 11	pyraclostrobin + fluxapyroxad	Merivon SC	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<p><b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage.</p> <p><b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.</p>
	11	Trifloxystrobin	Flint Extra 42.6 SC	145-180 g/ha, see label	14	0.5	4	4 apps, 860 mL/ha/yr	7	<p><b>Recommendation:</b> Do not use for management of powdery mildew in Nova Scotia. Resistance to group 11 products is present so control will not be achieved. For scab, use a half rate of a group M product for resistance management. Do not exceed 4 total applications of group 11 containing fungicides per year.</p>
	29	fluazinam	Allegro 500F 40 SC	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<p><b>Pest Stage:</b> Prevention.</p> <p><b>Recommendation:</b> Do not make more than three consecutive applications.</p> <p><b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.</p>
	29	fluazinam	Downforce AG 40 SC	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<p><b>Pest Stage:</b> Prevention.</p> <p><b>Recommendation:</b> Do not make more than three consecutive applications.</p> <p><b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.</p>
	29	fluazinam	Vantana 500 SU	0.75-1.0 L/ha, see label	28	1	-	5 apps	7	<p><b>Pest Stage:</b> Prevention.</p> <p><b>Recommendation:</b> Do not make more than three consecutive applications.</p> <p><b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.</p>
	BM 01	Swinglea glutinosa	EcoSwing 82 SN	2.35 L/ha	0	0.2	-	10 apps	-	<p><b>Pest Stage:</b> Prevention. Suppression only.</p>
	BM02	QST 713 strain of dried Bacillus subtilis	Serenade OPTI WP	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<p><b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.</p>
	M02	copper octanoate	Cueva 1.8 SN	0.5-2.0% solution, see label	1	0.2	-	10 apps	5	<p><b>Crop Safety:</b> Do not exceed 1.0% solution on russet-sensitive varieties when fruit is present. For very sensitive varieties (Golden Delicious, Jonagold) use the 0.5% rate.</p>

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	M03	mancozeb	<b>Dithane Rainshield 75 WG</b>	6.0 kg/ha	77	0.5	35	4 apps	7	<b>Crop Stage:</b> Reapply on 5-7 day intervals during rapid tissue growth and rainy conditions. <b>Recommendation:</b> Use mancozeb products early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of most secondary diseases such as Black Rot and Bitter Rot.
	M03	mancozeb	<b>Manzate Max 480 F</b>	4.65-9.38 L/ha	77	0.5	35	4-8 apps, 37.5 L/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M03	mancozeb	<b>Manzate ProStick 75 DF</b>	3-6 kg/ha	77	0.5	35	4-8 apps, 24 kg/ha/yr	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.
	M04	captan	<b>Captan 480 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Captan L 482 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Maestro 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	captan	<b>Sharda Captan 48 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Recommendation:</b> Use the 5 litres product/ha (2.4 kg a.i./ha) rate. <b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Supra Captan 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	folpet	<b>Follow 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M04	folpet	<b>Folpan 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M3	mancozeb	<b>Penncozeb 75 DF Raincoat WG</b>	3.0-6.0 kg/ha	77	0.5	35	4-8 apps	7	<b>Crop Stage:</b> Best used early in the season because it is compatible with oil and has a long preharvest interval. Not effective for control of summer diseases. <b>Pest Stage:</b> For primary scab control, reapply protectant fungicides on 5-7 day intervals during rapid tissue growth and rainy conditions.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	NC	garlic powder	<b>Buran 15 SN</b>	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.
<b>Codling moth</b>	01B	phosmet	<b>Imidan 70 WP</b>	2.68 kg/ha	22	0.5-9, see label	Prohibited	2 apps	14	<b>IMPORTANT:</b> All hand thinning activities must be completed prior to application. <b>Pest Stage:</b> For codling moth, target 3% egg hatch based on 140 degree days after the biofix date.
	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	5	spinetoram	<b>Delegate 25 WG</b>	210-420 g/ha, see label	7	0.5	-	3 apps	7	<b>Pest Stage:</b> For obliquebanded leafroller, apply when overwintering larvae are active and before they roll up in leaves. For codling moth, apply at 100 degree days after the biofix date. For suppression of apple maggot, apply 7-10 days after the first apple maggot fly is caught on yellow sticky boards.
	06, 28	cyantraniliprole + abamectin	<b>Minecto Pro SC</b>	496 mL/ha	28	0.5	-	1 app, 0.5 L/ha/yr	-	<b>Crop Stage:</b> For best results, use product within petal fall to 6 weeks post-petal fall. <b>Pest Stage:</b> Apply before a threshold of 5 mites/leaf is reached for best results. <b>Recommendation:</b> The product has a combination of active ingredients with a full rate of group 6 and a half rate of the group 28. Best label use for Nova Scotia is for targeting mites. Apply with 0.25-1% v/v spray oil or 0.1-0.5% non-ionic surfactant.
	11	Bacillus thuringiensis	<b>XenTari 48 WG</b>	500-1600 g/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Apply to young larvae, early in infestation. <b>Recommendation:</b> Death of insect may take several days. Apply on cloudy days or in the evening. <b>Coverage:</b> Product must be consumed to be effective. Spray when and where pests are actively feeding.
	15	novaluron	<b>Rimon 10 EC</b>	0.93-1.4 L /1,000 L, see label	14	0.5	-	4 apps	-	<b>Pest Stage:</b> Apply at 80 degree days after biofix date just prior to or after egg laying. Rimon is applied earlier than other products because it has ovicidal activity.
	18	methoxyfenozide	<b>Intrepid 240 SC</b>	750-1000 mL/ha, see label	14	0.5	-	2 apps	-	<b>Pest Stage:</b> Apply when obliquebanded leafroller larvae are actively feeding before they roll up leaves. For codling moth, apply at 80-110 degree days after the biofix date. <b>Crop Safety:</b> Do not feed apple pomace to livestock.
	28	chlorantraniliprole	<b>Altacor MaX 70 WG</b>	73-143 g/ha, see label	5	0.5	-	3 apps	10	<b>Pest Stage:</b> For the caterpillar complex, apply when the larvae are active in the pink to petal fall period. For obliquebanded leafroller, apply from pink stage through petal fall before they roll leaves. For summer generations, monitor adult moth flight and apply at first egg hatch. Repeat application may be needed 10 days later. For codling moth, apply just prior to first generation egg hatch at 80-100 degree days after the biofix date. Reapply if necessary, 10-14 days later.
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	28	cyclaniliprole	<b>Harvanta 50 SL</b>	1.2-1.6 L/ha, see label	7	0.5	-	3 apps, 4.8 L/ha/yr	14	<b>Pest Stage:</b> Apply when overwintering leafroller larvae become active or just prior to second generation egg hatch. For codling moth, apply at beginning of egg hatch. <b>Pollinators:</b> Toxic to bees. <b>Recommendation:</b> Avoid applying group 28 insecticides consecutively more than 2 times within a 30 day period.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	28	tetraniliprole	Vayego 200 SC	225 mL/ha	7	0.5	-	3 apps	10	<b>Pollinators:</b> Toxic to bees. Apply only post-bloom for all labelled insect pests. <b>Recommendation:</b> Monitor obliquebanded leafroller adult moth flight, and apply at first egg hatch. Apply before codling moth first egg hatch (80-110 degree days Celsius after biofix date).
	32	GS-omega/kappa-Htx-Hv1a	Spear-LEP 2 SN	1.2-2.3 L/ha, see label	0	0.2	-	6 apps	3	<b>Coverage:</b> Apply in a minimum spray volume of 470 L/ha. <b>Recommendation:</b> To be used in a tank mix with a low rate of Bt product for control of lepidopteran pests registered on the crop.
	NC	Cydia pomonella Granulovirus	CYD-X SC	100 - 250 mL/ha, see label	0.5	0.5	-	-	-	May provide control of codling moth when used in conjunction with other active ingredients. Virus must be ingested to be effective. After death, larvae will disintegrate and release new viral bodies which may infect other codling moth larvae. Apply in late afternoon or on a cloudy day to avoid exposure to sunlight. Use higher rates if monitoring indicates high pressure. Make at least 2 applications per codling moth larval generation. Frequent applications at low rates may be more effective than one or two applications at high rate. Use water near pH 7.0 in spray tank.
	NC	Cydia pomonella Granulovirus	Virosoft CP4 SC	250 mL/ha	0.5	0.2	-	2 apps	-	<b>Pest Stage:</b> Initiate application just prior to egg hatch. Do not apply more than twice per pest generation. <b>Recommendation:</b> Apply in late afternoon or on a cloudy day to avoid exposure to sunlight.
	NC	kaolin clay	Surround 95 WP	25-50 kg/1000 L of water per ha, see label	0	0.5	-	-	-	<b>Recommendation:</b> Efficacy depends on complete coverage of leaves and fruit. Apply for prevention and keep fruit completely covered during egg laying periods. Lengthening re-spray interval past 14 days is not recommended. <b>Crop Safety:</b> Surround keeps plant surfaces cool and may cause maturity delays of 3 to 7 days, especially in cool regions.
	NC	mineral oil	Purespray Green 13 E	10-20 L/1,000 L water	0	0.5	-	2 apps dormant, 1 app summer	-	<b>Pollinators:</b> Avoid application during bloom. <b>Crop Safety:</b> Do not use within 30 days of a sulphur application or within 14 days before or after captan fungicide. Do not exceed more than 10 L oil per ha per application for summer treatments.
<b>09 THIRD COVER</b>										
<b>Apple maggot</b>	01B	phosmet	Imidan 70 WP	2.68 kg/ha	22	0.5-9, see label	Prohibited	2 apps	14	<b>IMPORTANT:</b> All hand thinning activities must be completed prior to application. <b>Pest Stage:</b> For codling moth, target 3% egg hatch based on 140 degree days after the biofix date.
	4	acetamiprid	Aceta 70 WP	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.
	4	acetamiprid	Assail 70 WP	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	Theme 480 SC	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04, 15	acetamiprid and novaluron	Cormoran EC	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	5	spinetoram	Delegate 25 WG	210-420 g/ha, see label	7	0.5	-	3 apps	7	<b>Pest Stage:</b> For obliquebanded leafroller, apply when overwintering larvae are active and before they roll up in leaves. For codling moth, apply at 100 degree days after the biofix date. For suppression of apple maggot, apply 7-10 days after the first apple maggot fly is caught on yellow sticky boards.
	5	spinosad	GF-120 Fruit Fly Bait SN	1.5 L/6 L water/ha	0	0.5	-	10 apps	-	<b>Pest Stage:</b> Begin applications as soon as monitoring traps indicate flies are present in the orchard and continue coverage until flights stop. <b>Recommendation:</b> Repeat applications every 7 days, reapplying sooner if rain washes off the deposit.
	28	chlorantraniliprole	Altacor MaX 70 WG	73-143 g/ha, see label	5	0.5	-	3 apps	10	<b>Pest Stage:</b> For the caterpillar complex, apply when the larvae are active in the pink to petal fall period. For obliquebanded leafroller, apply from pink stage through petal fall before they roll leaves. For summer generations, monitor adult moth flight and apply at first egg hatch. Repeat application may be needed 10 days later. For codling moth, apply just prior to first generation egg hatch at 80-100 degree days after the biofix date. Reapply if necessary, 10-14 days later.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	28	cyclaniliprole	<b>Harvanta 50 SL</b>	1.2-1.6 L/ha, see label	7	0.5	-	3 apps, 4.8 L/ha/yr	14	<b>Pest Stage:</b> Apply when overwintering leafroller larvae become active or just prior to second generation egg hatch. For codling moth, apply at beginning of egg hatch. <b>Pollinators:</b> Toxic to bees. <b>Recommendation:</b> Avoid applying group 28 insecticides consecutively more than 2 times within a 30 day period.
	28	tetraniliprole	<b>Vayego 200 SC</b>	225 mL/ha	7	0.5	-	3 apps	10	<b>Pollinators:</b> Toxic to bees. Apply only post-bloom for all labelled insect pests. <b>Recommendation:</b> Monitor obliquebanded leafroller adult moth flight, and apply at first egg hatch. Apply before codling moth first egg hatch (80-110 degree days Celsius after biofix date).
	NC	kaolin clay	<b>Surround 95 WP</b>	25-50 kg/1000 L of water per ha, see label	0	0.5	-	-	-	<b>Recommendation:</b> Efficacy depends on complete coverage of leaves and fruit. Apply for prevention and keep fruit completely covered during egg laying periods. Lengthening re-spray interval past 14 days is not recommended. <b>Crop Safety:</b> Surround keeps plant surfaces cool and may cause maturity delays of 3 to 7 days, especially in cool regions.
<b>Apple scab</b>	7	isofetamid	<b>Kenja 400 SC</b>	0.913 L/ha	20	0.5	-	6 apps	10	<b>Recommendation:</b> Do not make more than two consecutive applications of group 7 containing fungicides before rotating to a fungicide with a different mode of action.
	7	penthiopyrad	<b>Fontelis 200 SC</b>	1.0-1.5 L/ha, see label	28	0.5	-	3-4 apps, 4.5 L/ha/yr	7	<b>Crop Safety:</b> Contains a mineral oil in the formulation that may cause issues in tank mixes. Do not use near Captan products. Do not tank mix with thinning agents.
	07, 09	fluopyram + pyrimethanil	<b>Luna Tranquility SC</b>	600-800 mL/ha, see label	14	0.5-1	1	4 apps, 3.2 L/ha/yr	7	<b>Recommendation:</b> The rate required to control apple scab is higher than to control powdery mildew. Therefore, if using the product at the powdery mildew rate, include a protectant for apple scab. Do not make more than two consecutive applications of group 7 or group 9 containing fungicides before rotating with a fungicide from a different group.
	07, 11	boscalid + pyraclostrobin	<b>Pristine WG</b>	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.
	07, 11	pyraclostrobin + fluxapyroxad	<b>Merivon SC</b>	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. <b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.
	11	Trifloxystrobin	<b>Flint Extra 42.6 SC</b>	145-180 g/ha, see label	14	0.5	4	4 apps, 860 mL/ha/yr	7	<b>Recommendation:</b> Do not use for management of powdery mildew in Nova Scotia. Resistance to group 11 products is present so control will not be achieved. For scab, use a half rate of a group M product for resistance management. Do not exceed 4 total applications of group 11 containing fungicides per year.
	29	fluazinam	<b>Allegro 500F 40 SC</b>	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	<b>Downforce AG 40 SC</b>	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	<b>Vantana 500 SU</b>	0.75-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	BM 01	Swinglea glutinosa	<b>EcoSwing 82 SN</b>	2.35 L/ha	0	0.2	-	10 apps	-	<b>Pest Stage:</b> Prevention. Suppression only.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	BM02	QST 713 strain of dried <i>Bacillus subtilis</i>	<b>Serenade OPTI WP</b>	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.
	M02	copper octanoate	<b>Cueva 1.8 SN</b>	0.5-2.0% solution, see label	1	0.2	-	10 apps	5	<b>Crop Safety:</b> Do not exceed 1.0% solution on russet-sensitive varieties when fruit is present. For very sensitive varieties (Golden Delicious, Jonagold) use the 0.5% rate.
	M04	captan	<b>Captan 480 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Captan L 482 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Maestro 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	captan	<b>Sharda Captan 48 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Recommendation:</b> Use the 5 litres product/ha (2.4 kg a.i./ha) rate. <b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Supra Captan 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	folpet	<b>Follow 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M04	folpet	<b>Folpan 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	NC	garlic powder	<b>Buran 15 SN</b>	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.
<b>Codling moth</b>	01B	phosmet	<b>Imidan 70 WP</b>	2.68 kg/ha	22	0.5-9, see label	Prohibited	2 apps	14	<b>IMPORTANT:</b> All hand thinning activities must be completed prior to application. <b>Pest Stage:</b> For codling moth, target 3% egg hatch based on 140 degree days after the biofix date.
	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	5	spinetoram	<b>Delegate 25 WG</b>	210-420 g/ha, see label	7	0.5	-	3 apps	7	<b>Pest Stage:</b> For obliquebanded leafroller, apply when overwintering larvae are active and before they roll up in leaves. For codling moth, apply at 100 degree days after the biofix date. For suppression of apple maggot, apply 7-10 days after the first apple maggot fly is caught on yellow sticky boards.
	06, 28	cyantraniliprole + abamectin	<b>Minecto Pro SC</b>	496 mL/ha	28	0.5	-	1 app, 0.5 L/ha/yr	-	<b>Crop Stage:</b> For best results, use product within petal fall to 6 weeks post-petal fall. <b>Pest Stage:</b> Apply before a threshold of 5 mites/leaf is reached for best results. <b>Recommendation:</b> The product has a combination of active ingredients with a full rate of group 6 and a half rate of the group 28. Best label use for Nova Scotia is for targeting mites. Apply with 0.25-1% v/v spray oil or 0.1-0.5% non-ionic surfactant.
	11	Bacillus thuringiensis	<b>XenTari 48 WG</b>	500-1600 g/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Apply to young larvae, early in infestation. <b>Recommendation:</b> Death of insect may take several days. Apply on cloudy days or in the evening. <b>Coverage:</b> Product must be consumed to be effective. Spray when and where pests are actively feeding.
	15	novaluron	<b>Rimon 10 EC</b>	0.93-1.4 L /1,000 L, see label	14	0.5	-	4 apps	-	<b>Pest Stage:</b> Apply at 80 degree days after biofix date just prior to or after egg laying. Rimon is applied earlier than other products because it has ovicidal activity.
	18	methoxyfenozide	<b>Intrepid 240 SC</b>	750-1000 mL/ha, see label	14	0.5	-	2 apps	-	<b>Pest Stage:</b> Apply when obliquebanded leafroller larvae are actively feeding before they roll up leaves. For codling moth, apply at 80-110 degree days after the biofix date. <b>Crop Safety:</b> Do not feed apple pomace to livestock.
	28	chlorantraniliprole	<b>Altacor MaX 70 WG</b>	73-143 g/ha, see label	5	0.5	-	3 apps	10	<b>Pest Stage:</b> For the caterpillar complex, apply when the larvae are active in the pink to petal fall period. For obliquebanded leafroller, apply from pink stage through petal fall before they roll leaves. For summer generations, monitor adult moth flight and apply at first egg hatch. Repeat application may be needed 10 days later. For codling moth, apply just prior to first generation egg hatch at 80-100 degree days after the biofix date. Reapply if necessary, 10-14 days later.
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	28	cyclaniliprole	<b>Harvanta 50 SL</b>	1.2-1.6 L/ha, see label	7	0.5	-	3 apps, 4.8 L/ha/yr	14	<b>Pest Stage:</b> Apply when overwintering leafroller larvae become active or just prior to second generation egg hatch. For codling moth, apply at beginning of egg hatch. <b>Pollinators:</b> Toxic to bees. <b>Recommendation:</b> Avoid applying group 28 insecticides consecutively more than 2 times within a 30 day period.
	28	tetraniliprole	<b>Vayego 200 SC</b>	225 mL/ha	7	0.5	-	3 apps	10	<b>Pollinators:</b> Toxic to bees. Apply only post-bloom for all labelled insect pests. <b>Recommendation:</b> Monitor obliquebanded leafroller adult moth flight, and apply at first egg hatch. Apply before codling moth first egg hatch (80-110 degree days Celsius after biofix date).
	32	GS-omega/kappa-Htx-Hv1a	<b>Spear-LEP 2 SN</b>	1.2-2.3 L/ha, see label	0	0.2	-	6 apps	3	<b>Coverage:</b> Apply in a minimum spray volume of 470 L/ha. <b>Recommendation:</b> To be used in a tank mix with a low rate of Bt product for control of lepidopteran pests registered on the crop.
	NC	Cydia pomonella Granulovirus	<b>CYD-X SC</b>	100 - 250 mL/ha, see label	0.5	0.5	-	-	-	May provide control of codling moth when used in conjunction with other active ingredients. Virus must be ingested to be effective. After death, larvae will disintegrate and release new viral bodies which may infect other codling moth larvae. Apply in late afternoon or on a cloudy day to avoid exposure to sunlight. Use higher rates if monitoring indicates high pressure. Make at least 2 applications per codling moth larval generation. Frequent applications at low rates may be more effective than one or two applications at high rate. Use water near pH 7.0 in spray tank.
	NC	Cydia pomonella Granulovirus	<b>Virosoft CP4 SC</b>	250 mL/ha	0.5	0.2	-	2 apps	-	<b>Pest Stage:</b> Initiate application just prior to egg hatch. Do not apply more than twice per pest generation. <b>Recommendation:</b> Apply in late afternoon or on a cloudy day to avoid exposure to sunlight.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	NC	kaolin clay	Surround 95 WP	25-50 kg/1000 L of water per ha, see label	0	0.5	-	-	-	<b>Recommendation:</b> Efficacy depends on complete coverage of leaves and fruit. Apply for prevention and keep fruit completely covered during egg laying periods. Lengthening re-spray interval past 14 days is not recommended. <b>Crop Safety:</b> Surround keeps plant surfaces cool and may cause maturity delays of 3 to 7 days, especially in cool regions.
Flyspeck and sooty blotch	3	mefentrifluconazole	Cevya 400 SC	0.25-0.375 L/ha, see label	0	0.5	-	1.125 L/ha/yr	7	<b>Recommendation:</b> Resistance to group 3 fungicides is widespread in the apple scab population in Nova Scotia.
	03, 07	difenoconazole + benzovindiflupyr	Aprovia Top EC	643 mL/ha	30	0.5	-	4 apps, 2.57 L/ha/yr	7	<b>Recommendation:</b> The high rate must be used for control of powdery mildew, brooks fruit spot, sooty blotch and flyspeck. Do not make more than two consecutive applications of a group 3 or 7 containing fungicide.
	03, 09	difenoconazole + cyprodinil	Inspire Super EC	560-836 mL/ha, see label	14	0.5	-	4 apps	7	<b>Pest Stage:</b> No activity on fruit scab so do not use after petal fall. <b>Recommendation:</b> At the high rate, will also control Brooks Spot and Sooty Blotch/Flyspeck.
	07, 11	boscalid + pyraclostrobin	Pristine WG	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.
	07, 11	pyraclostrobin + fluxapyroxad	Merivon SC	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. <b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.
	11	Trifloxystrobin	Flint Extra 42.6 SC	145-180 g/ha, see label	14	0.5	4	4 apps, 860 mL/ha/yr	7	<b>Recommendation:</b> Do not use for management of powdery mildew in Nova Scotia. Resistance to group 11 products is present so control will not be achieved. For scab, use a half rate of a group M product for resistance management. Do not exceed 4 total applications of group 11 containing fungicides per year.
	M04	captan	Maestro 80 WSP	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	captan	Supra Captan 80 WSP	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	folpet	Follow 80 WDG	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M04	folpet	Folpan 80 WDG	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
NC	hydrogen peroxide + peroxyacetic acid	OxiDate 2.0 SN	1.0% v/v (1 L product in 100 L of water)	0	0.2	-	8 apps	5	<b>Coverage:</b> Use a compatible wetting agent/surfactant. <b>Crop Safety:</b> Do not spray during conditions of intense heat, drought, or poor plant vigour. <b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. <b>Beneficials:</b> Avoid application before rain or when bees and beneficial insects are active.	
P07	mono- and dibasic sodium, potassium, and ammonium phosphites	Phostrol 53.6 LI	4.4 L/ha	0	-	-	6 apps	7	<b>Pest Stage:</b> Prevention.	
Mites	Refer to section 06 PETAL FALL									

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
Obliquebanded leafroller	5	spinetoram	<b>Delegate 25 WG</b>	210-420 g/ha, see label	7	0.5	-	3 apps	7	<b>Pest Stage:</b> For obliquebanded leafroller, apply when overwintering larvae are active and before they roll up in leaves. For codling moth, apply at 100 degree days after the biofix date. For suppression of apple maggot, apply 7-10 days after the first apple maggot fly is caught on yellow sticky boards.
	5	spinosad	<b>Entrust 80 WG</b>	109 g/ha	7	0.5	-	3 apps	-	<b>Pest Stage:</b> Treat when larvae are actively feeding but before they roll up the leaves. <b>Coverage:</b> If adjusting spray volume, use the same spray concentration (g product/L water).
	06, 28	cyantraniliprole + abamectin	<b>Minecto Pro SC</b>	496 mL/ha	28	0.5	-	1 app, 0.5 L/ha/yr	-	<b>Crop Stage:</b> For best results, use product within petal fall to 6 weeks post-petal fall. <b>Pest Stage:</b> Apply before a threshold of 5 mites/leaf is reached for best results. <b>Recommendation:</b> The product has a combination of active ingredients with a full rate of group 6 and a half rate of the group 28. Best label use for Nova Scotia is for targeting mites. Apply with 0.25-1% v/v spray oil or 0.1-0.5% non-ionic surfactant.
	11	Bacillus thuringiensis	<b>XenTari 48 WG</b>	500-1600 g/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Apply to young larvae, early in infestation. <b>Recommendation:</b> Death of insect may take several days. Apply on cloudy days or in the evening. <b>Coverage:</b> Product must be consumed to be effective. Spray when and where pests are actively feeding.
	11	bacillus thuringiensis	<b>Bioprotec PLUS SC</b>	0.44 - 2.5 L/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Product must be consumed by the target insect to be effective. <b>Recommendation:</b> Best results are obtained if applications are made in the evening or on a cloudy day. <b>Coverage:</b> Apply in a high-volume spray to young larvae, early in infestation.
	11	Bacillus thuringiensis	<b>Dipel 2X DF</b>	1.12-1.68 kg/ha, see label	0	0.2	-	-	-	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Best results if applications made in evening or on cloudy day. Do not allow the spray mixture to stand in the tank for more than 12 hrs.
	18	methoxyfenozide	<b>Intrepid 240 SC</b>	750-1000 mL/ha, see label	14	0.5	-	2 apps	-	<b>Pest Stage:</b> Apply when obliquebanded leafroller larvae are actively feeding before they roll up leaves. For codling moth, apply at 80-110 degree days after the biofix date. <b>Crop Safety:</b> Do not feed apple pomace to livestock.
	28	chlorantraniliprole	<b>Altacor MaX 70 WG</b>	73-143 g/ha, see label	5	0.5	-	3 apps	10	<b>Pest Stage:</b> For the caterpillar complex, apply when the larvae are active in the pink to petal fall period. For obliquebanded leafroller, apply from pink stage through petal fall before they roll leaves. For summer generations, monitor adult moth flight and apply at first egg hatch. Repeat application may be needed 10 days later. For codling moth, apply just prior to first generation egg hatch at 80-100 degree days after the biofix date. Reapply if necessary, 10-14 days later.
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	28	cyclaniliprole	<b>Harvanta 50 SL</b>	1.2-1.6 L/ha, see label	7	0.5	-	3 apps, 4.8 L/ha/yr	14	<b>Pest Stage:</b> Apply when overwintering leafroller larvae become active or just prior to second generation egg hatch. For codling moth, apply at beginning of egg hatch. <b>Pollinators:</b> Toxic to bees. <b>Recommendation:</b> Avoid applying group 28 insecticides consecutively more than 2 times within a 30 day period.
28	tetraniliprole	<b>Vayego 200 SC</b>	225 mL/ha	7	0.5	-	3 apps	10	<b>Pollinators:</b> Toxic to bees. Apply only post-bloom for all labelled insect pests. <b>Recommendation:</b> Monitor obliquebanded leafroller adult moth flight, and apply at first egg hatch. Apply before codling moth first egg hatch (80-110 degree days Celsius after biofix date).	
32	GS-omega/kappa-Hctx-Hv1a	<b>Spear-LEP 2 SN</b>	1.2-2.3 L/ha, see label	0	0.2	-	6 apps	3	<b>Coverage:</b> Apply in a minimum spray volume of 470 L/ha. <b>Recommendation:</b> To be used in a tank mix with a low rate of Bt product for control of lepidopteran pests registered on the crop.	
Scale	04C	sulfoxaflor	<b>Closer 240 SC</b>	100-400 mL/ha, see label	7	0.5	-	2 apps	7	<b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	04D	flupyradifurone	<b>Sivanto Prime 200 SN</b>	500-750 mL/ha, up to 1000 mL/ha for scale + horticultural oil, see label	14	0.5	-	2-4 apps, 2000 mL/ha/yr	10	<b>Crop Safety:</b> Certain conditions, including but not limited to, application when temperatures are expected to exceed 30C within 24 hours of application may result in fruit injury after the use of oil.
	23	spirotramat	<b>Movento 240 SC</b>	365-435 mL/ha, see label	7	0.5	-	4-5 apps, 1.83 L/ha/yr	14	<b>Pollinators:</b> Do not apply when bloom or flowering weeds are present. Apply only after petal fall. <b>Recommendation:</b> Control may not be visible for 2-3 weeks after treatment.
<b>10 FOURTH COVER</b>										
<b>Apple maggot</b>	01B	phosmet	<b>Imidan 70 WP</b>	2.68 kg/ha	22	0.5-9, see label	Prohibited	2 apps	14	<b>IMPORTANT:</b> All hand thinning activities must be completed prior to application. <b>Pest Stage:</b> For codling moth, target 3% egg hatch based on 140 degree days after the biofix date.
	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	5	spinetoram	<b>Delegate 25 WG</b>	210-420 g/ha, see label	7	0.5	-	3 apps	7	<b>Pest Stage:</b> For obliquebanded leafroller, apply when overwintering larvae are active and before they roll up in leaves. For codling moth, apply at 100 degree days after the biofix date. For suppression of apple maggot, apply 7-10 days after the first apple maggot fly is caught on yellow sticky boards.
	28	chlorantraniliprole	<b>Altacor MaX 70 WG</b>	73-143 g/ha, see label	5	0.5	-	3 apps	10	<b>Pest Stage:</b> For the caterpillar complex, apply when the larvae are active in the pink to petal fall period. For obliquebanded leafroller, apply from pink stage through petal fall before they roll leaves. For summer generations, monitor adult moth flight and apply at first egg hatch. Repeat application may be needed 10 days later. For codling moth, apply just prior to first generation egg hatch at 80-100 degree days after the biofix date. Reapply if necessary, 10-14 days later.
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
	28	cyclaniliprole	<b>Harvanta 50 SL</b>	1.2-1.6 L/ha, see label	7	0.5	-	3 apps, 4.8 L/ha/yr	14	<b>Pest Stage:</b> Apply when overwintering leafroller larvae become active or just prior to second generation egg hatch. For codling moth, apply at beginning of egg hatch. <b>Pollinators:</b> Toxic to bees. <b>Recommendation:</b> Avoid applying group 28 insecticides consecutively more than 2 times within a 30 day period.
	28	tetraniliprole	<b>Vayego 200 SC</b>	225 mL/ha	7	0.5	-	3 apps	10	<b>Pollinators:</b> Toxic to bees. Apply only post-bloom for all labelled insect pests. <b>Recommendation:</b> Monitor obliquebanded leafroller adult moth flight, and apply at first egg hatch. Apply before codling moth first egg hatch (80-110 degree days Celsius after biofix date).
<b>Apple scab</b>	7	isofetamid	<b>Kenja 400 SC</b>	0.913 L/ha	20	0.5	-	6 apps	10	<b>Recommendation:</b> Do not make more than two consecutive applications of group 7 containing fungicides before rotating to a fungicide with a different mode of action.
	7	penthiopyrad	<b>Fontelis 200 SC</b>	1.0-1.5 L/ha, see label	28	0.5	-	3-4 apps, 4.5 L/ha/yr	7	<b>Crop Safety:</b> Contains a mineral oil in the formulation that may cause issues in tank mixes. Do not use near Captan products. Do not tank mix with thinning agents.
	07, 09	fluopyram + pyrimethanil	<b>Luna Tranquility SC</b>	600-800 mL/ha, see label	14	0.5-1	1	4 apps, 3.2 L/ha/yr	7	<b>Recommendation:</b> The rate required to control apple scab is higher than to control powdery mildew. Therefore, if using the product at the powdery mildew rate, include a protectant for apple scab. Do not make more than two consecutive applications of group 7 or group 9 containing fungicides before rotating with a fungicide from a different group.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	07, 11	boscalid + pyraclostrobin	<b>Pristine WG</b>	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.
	07, 11	pyraclostrobin + fluxapyroxad	<b>Merivon SC</b>	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. <b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.
	11	Trifloxystrobin	<b>Flint Extra 42.6 SC</b>	145-180 g/ha, see label	14	0.5	4	4 apps, 860 mL/ha/yr	7	<b>Recommendation:</b> Do not use for management of powdery mildew in Nova Scotia. Resistance to group 11 products is present so control will not be achieved. For scab, use a half rate of a group M product for resistance management. Do not exceed 4 total applications of group 11 containing fungicides per year.
	29	fluazinam	<b>Allegro 500F 40 SC</b>	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	<b>Downforce AG 40 SC</b>	0.5-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	29	fluazinam	<b>Vantana 500 SU</b>	0.75-1.0 L/ha, see label	28	1	-	5 apps	7	<b>Pest Stage:</b> Prevention. <b>Recommendation:</b> Do not make more than three consecutive applications. <b>Crop Safety:</b> Do not tank mix with oil and allow at least 3 days before oil application.
	BM 01	Swinglea glutinosa	<b>EcoSwing 82 SN</b>	2.35 L/ha	0	0.2	-	10 apps	-	<b>Pest Stage:</b> Prevention. Suppression only.
	BM02	QST 713 strain of dried Bacillus subtilis	<b>Serenade OPTI WP</b>	1.7-3.3 kg/ha, see label	0	0.2	-	-	7	<b>Recommendation:</b> Local efficacy data is unavailable. Consult local advisors. Nova Scotia recommends use ONLY in organic production situations for management of fire blight blossom blight where no antibiotic options are available.
	M02	copper octanoate	<b>Cueva 1.8 SN</b>	0.5-2.0% solution, see label	1	0.2	-	10 apps	5	<b>Crop Safety:</b> Do not exceed 1.0% solution on russet-sensitive varieties when fruit is present. For very sensitive varieties (Golden Delicious, Jonagold) use the 0.5% rate.
	M04	captan	<b>Captan 480 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Captan L 482 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Maestro 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2 apps low density, 10 apps high density	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.
	M04	captan	<b>Sharda Captan 48 SC</b>	5 L/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Recommendation:</b> Use the 5 litres product/ha (2.4 kg a.i./ha) rate. <b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants.
	M04	captan	<b>Supra Captan 80 WSP</b>	3 kg/ha	15-19, see label	2-6, see label	15-24, see label	2-10 apps	7	<b>Crop Safety:</b> Not compatible with strongly alkaline materials. Do not use 7-14 days before or after an oil application (worse after an oil than before). Early season sprays may cause injury to the foliage of Red Delicious. Do not tank-mix with surfactants. Do not use WSP in a tank mix with boron, chlorine or oil and rinse the tank well before and after boron.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	M04	folpet	<b>Folrow 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	M04	folpet	<b>Folpan 80 WDG</b>	3.0-3.75 kg/ha, see label	1	0.5	6	6 apps	10	<b>Crop Safety:</b> Do not apply just before bloom until 30 days after petal fall as it may cause russetting, especially to sensitive varieties such as Golden Delicious, Red Delicious and Stayman Winesap. Do not use within 14 days of oil.
	NC	garlic powder	<b>Buran 15 SN</b>	1.8% (9 L in 500 L water)	0	0.2	-	18 L/ha/application	-	<b>Pest Stage:</b> For apple scab, this product does not have protectant activity. It should be used only as a post-infection treatment, applied after rainfall when infections are occurring. For fire blight suppression, Nova Scotia recommends use ONLY in organic production situations and for more information contact local crop advisors. <b>Recommendation:</b> Do not apply to wet leaves or if rain is expected to fall within 48 hours. Apply with a non-ionic surfactant such as Agral 90 at a rate of 0.1%.
<b>Potato leafhopper</b>	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04, 15	acetamiprid and novaluron	<b>Cormoran EC</b>	0.7-1.05 L/ha, see label	14	0.5	7	6.9 L/ha/yr	12	<b>Crop Safety:</b> Do not allow Cormoran to drift onto grapes as leaf spotting may occur.
	04D	flupyradifurone	<b>Sivanto Prime 200 SN</b>	500-750 mL/ha, up to 1000 mL/ha for scale + horticultural oil, see label	14	0.5	-	2-4 apps, 2000 mL/ha/yr	10	<b>Crop Safety:</b> Certain conditions, including but not limited to, application when temperatures are expected to exceed 30C within 24 hours of application may results in fruit injury after the use of oil.
<b>White apple leafhopper</b>	4	acetamiprid	<b>Aceta 70 WP</b>	80-240 g/ha, see label	7	2	6	4 apps, 960 g/ha/yr	12	<b>Coverage:</b> Good coverage essential. <b>Pollinators:</b> Do not apply during bloom.
	4	acetamiprid	<b>Assail 70 WP</b>	80-240 g/ha, see label	7	0.5-2, see label	6	4 apps, 960 g/ha/yr	12	<b>Pest Stage:</b> At threshold.
	4	thiacloprid	<b>Theme 480 SC</b>	145-290 mL/ha, see label	30	0.5	-	3 apps	-	
	04D	flupyradifurone	<b>Sivanto Prime 200 SN</b>	500-750 mL/ha, up to 1000 mL/ha for scale + horticultural oil, see label	14	0.5	-	2-4 apps, 2000 mL/ha/yr	10	<b>Crop Safety:</b> Certain conditions, including but not limited to, application when temperatures are expected to exceed 30C within 24 hours of application may results in fruit injury after the use of oil.
	28	cyantraniliprole	<b>Exirel 100 SC</b>	500 - 1500 mL/ha, see label	3	0.5	-	4 apps, 4.5 L/ha/yr	7	<b>Pest Stage:</b> Apply before first egg hatch at 80-110 degree days after biofix <b>Pollinators:</b> Do not apply when bloom or flowering weeds are present.
<b>11 AUGUST TO NOVEMBER</b>										
<b>Fruit maturity management</b>	-	1-Methylcyclopropene	<b>Harvista 1.3 SC</b>	5.9-17.7 L/ha, see label	3	0.2	-	17.7 L/ha/yr	-	<b>Crop Stage:</b> Apply 3–21 days before anticipated harvest using an injector nurse tank. <b>Crop Safety:</b> Do not allow product to contact any copper. <b>Recommendation:</b> Can impact or delay the onset and extent of red color development, so use lower rates within the rate range on bicolored apple varieties. Rainfast in 1 hour. For best results, apply with Xiameter surfactant at 0.05% v/v.

Pest	Group	Active Ingredient	Pesticide	Rate	PHI (days)	REI (days)	REI Thinning (days)	Product Maximum	Restricted Reapplication (days)	Notes / Restrictions / Warnings
	-	aviglycine hydrochloride	<b>ReTain 15 SP</b>	1 pouch of 333 g per acre (0.4 ha)	7	0.5	-	-	-	<p><b>Crop Stage:</b> Apply three to four weeks prior to the anticipated beginning of the normal harvest period of untreated fruit to delay the harvest period up to 7 to 10 days. ReTain applied one to two weeks before harvest typically will not delay the start of the harvest (1st pick), but will help control the maturation rate of the later picks.</p> <p><b>Crop Safety:</b> Under difficult colouring conditions, colour development of certain bi-color apple varieties such as Gala and Honeycrisp™ will be delayed when ReTain is applied at one pouch per 0.4 hectare (1 acre).</p> <p><b>Recommendation:</b> Rainfast in 8 hours.</p>
<b>Mice/Voles</b>	NC	chlorophacinone	<b>Rozol Rat and Mouse Killer</b>	see label for available products	-	-	-	-	-	<p><b>Recommendation:</b> Apply after harvestable fruit has been removed. Commence baiting in late fall before first snowfall.</p>
	NC	zinc phosphide	<b>Zinc Phosphide Bait</b>	4.5-9.0 kg/ha, see label	-	-	-	-	-	<p><b>Crop Stage:</b> Apply in early fall after the apple harvest and before leaf-fall or lodging of the grass. Repeat at least once before snow is expected.</p> <p><b>Beneficials:</b> To protect wildlife, do not apply to bare ground and distribute bait evenly.</p>
<b>Phytophthora crown and root rot</b>	P07	fosetyl al	<b>Aliette 80 WDG</b>	3-5 kg/ha, see label	30	0.5	4	3 apps, 10 kg/ha/yr	-	<p><b>Coverage:</b> Foliar spray only.</p> <p><b>Crop Stage:</b> Apply from tight cluster to pink when there is sufficient leaf area to take up the spray and there is no bloom that would reduce coverage. Treat again 6 weeks later.</p>
<b>Storage rots</b>	07, 11	boscalid + pyraclostrobin	<b>Pristine WG</b>	1.0-1.2 kg/ha, see label	5	0.5	12	4 apps	7	<p><b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage. Therefore, late season use is preferred.</p>
	07, 11	pyraclostrobin + fluxapyroxad	<b>Merivon SC</b>	0.3-0.4 L product/ha, see label	5	0.5	12	4 apps	7	<p><b>Recommendation:</b> Good control of summer diseases and provides good protection prior to storage.</p> <p><b>Crop Safety:</b> Caution should be exercised if Merivon is tank mixed with products formulated as emulsifiable concentrates (EC) or containing high amounts of solvents.</p>
<b>12 POSTHARVEST</b>										
<b>Storage rots</b>	BM	pseudomonas syringae	<b>Bio-Save 10 LP WP</b>	500 g/300 L	-	-	-	-	-	<p><b>Recommendation:</b> Apply as a postharvest dip or drench application. Agitate the mixture to ensure proper suspension. Treat fruit for at least one minute.</p>
<b>13 ADDITIONS FOR NON-BEARING ORCHARD</b>										
<b>Nematodes</b>	01A	oxamyl	<b>Vydate 240 LI</b>	Foliar or drench	365	0.5-7, see label	30	7 L/ha/app, 1.68 kg active ingredient/ha foliar	-	<p><b>Crop Safety:</b> Nonbearing only.</p> <p><b>Crop Stage:</b> Apply in spring just as active root and green leaf growth commences on young whips and non-bearing trees already established. Apply on a 2-3 week schedule for a total of three applications. Temperatures should be over 7°C.</p> <p><b>Crop Safety:</b> Do not apply to trees under water stress or if not actively growing. Do not dip nursery stock.</p> <p><b>Recommendation:</b> Very toxic to the applicator so requires a closed cab application if handling more than 20 kg of active ingredient. For best results apply a foliar spray in addition to a soil drench.</p>
	7	fluopyram	<b>Velum Prime 500 SC</b>	500 mL/ha	7	0.5	-	-	30	<p><b>Coverage:</b> Apply specified dosage by chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment. Soil must be lightly pre-wetted prior to application.</p> <p><b>Recommendation:</b> For optimum results, apply to newly planted trees or those previously trained to irrigation.</p> <p><b>Crop Safety:</b> Do not apply more than 500 g fluopyram/ha per year, noting that the foliar fungicide Luna Tranquility also contains fluopyram.</p>
<b>Phytophthora crown and root rot</b>	4	metalaxyl-M and S	<b>Ridomil Gold 480 SL</b>	1 mL in 5 L of water	365	0.5	-	2 apps	-	<p><b>Recommendation:</b> Use only if phytophthora is a concern based on historical observations and/or laboratory analysis. Nonbearing only.</p> <p><b>Coverage:</b> Apply before new growth begins as a thorough drench to soil around base of tree and a second application in late August. Do not apply as a foliar spray.</p>