

Organic Apple Orchard Management Schedule for Nova Scotia

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

-All rates are per hectare of mature("standard") trees or full dilute volume of about 3370 litres of water /ha. To adjust for smaller trees and higher density plantings, refer to Tree Row Volume factsheet TF 92002 or Integrated Fruit Production Guide.
 -All rates are based on label rates. In some cases, reduced rates can be used based on factors other than tree size. Please refer to specific notes or your agricultural advisor for details.
 -Always read the label before using any pesticide. Where differences between the label and this schedule occur, label information prevails.
 -Always checked to determine if the selected pesticide is acceptable for use under your certifying organization.
 -OMRI Restricted are non-synthetic product that can be used when there are no other acceptable products.

| Disease and Insects | Products | Formulation | Rate per ha | Notes |
|---------------------|---|-------------------------|-----------------------------|---|
| Dormant | | | | |
| Fire Blight | Prune out infected shoots and limbs and treat over wintering cankers with copper to reduce bacterial at bloom time. | | | |
| | 10-10-100 Bordeaux Mixture | Copper Sulphate + | 10 kg/1000 L + | OMRI Restricted. Add copper sulphate to sprayer when one third full of water, pre dissolve copper in a pail of warm water. Apply hydrated lime when tank is two thirds full and maintain agitation to prevent settling of spray materials. See production guide for additional info on how to prepare a Bordeaux mixture. |
| | Superior Oil | Hydrated lime 70 Sec | 10 kg/1000 L 20 L/1000 L | |
| | Copper Spray Fungicide | | 4 kg | OMRI Restricted. No lime required. |

GREEN TIP

| | | | | |
|--------------------------|--|-------------------------|----------------------------|---|
| Apple Scab | Use one of the following listed fungicides. Best control will be obtained if fungicides are applied prior to infections. Use temperature plus length of wetting to determine infection periods. Use a sufficient volume of water to allow for good coverage of green tissue. | | | |
| | ▶ 2-5-100 Bordeaux Mixture | Copper Sulphate + | 2 kg/1000 L + | OMRI Restricted. Apply copper sulphate to sprayer when one third full of water, pre dissolve copper in a pail of warm water. Apply hydrated lime when tank is two thirds full and maintain agitation to prevent settling of spray materials. See production guide for additional info on how to prepare a Bordeaux mixture. |
| | Superior Oil | Hydrated Lime 70 sec | 5 kg/1000 L 20 L/1000 L | |
| | ▶ Kumulus | DF | 22.5 kg | OMRI Restricted. Does not use with in <u>30 days of oil spray</u> or if a frost is anticipated. |
| | ▶ Microscopic Sulphur | | 21.4 kg | OMRI Restricted. Does not use with in <u>30 days of oil spray</u> or if a frost is anticipated. |
| | ▶ Lime Sulphur | | 41 L | OMRI Restricted. Will provide some after infection activity. Do not apply when foliage is wet. |
| European Red Mite | Assess winter eggs on twigs and bark, refer to Pest Management Fact Sheet #6-"Sampling winter eggs and early season management" or the Atlantic Integrated Fruit Production Guide. | | | |
| | ▶ Superior Oil | 70 sec | 65 L | OMRI Restricted. Best results are obtained when applied with a high volume of water 1,500 to 3,370 L/ha. Do not apply oil during freezing temperatures or just following a frost. Check compatibility with fungicide. May cause bark injury on Red Delicious and Empire. |

15 mm GREEN to TIGHT CLUSTER

| | | | | |
|-----------------------|---|----|---------|---|
| Apple Scab | Use a fungicide as listed under Green Tip. Check fungicide compatibility with oil treatments for mites. | | | |
| Powdery Mildew | If mildew was a problem during the previous growing season select an appropriate fungicide listed below. In most cases mildew treatment should begin around the tight cluster stage of bud development. Under extreme mildew pressure treatments can begin earlier. General fungicide treatments for powdery mildew will also control apple scab. | | | |
| | ▶ Kumulus | DF | 22.5 kg | OMRI Restricted. Does not use with in <u>30 days of oil spray</u> or if a frost is anticipated. |
| | ▶ Microscopic Sulphur | | 21.4 kg | OMRI Restricted. Does not use with in <u>30 days of oil spray</u> or if a frost is anticipated. |

| Disease and Insects | Products | Formulation | Rate per ha | Notes |
|--------------------------|---|-------------|-------------|---|
| Winter Moth | Assess larvae at this stage and refer to Pest Management Fact Sheet #8 or the Atlantic Integrated Fruit Production Guide. | | | |
| European Red Mite | Assess winter eggs on twigs and bark. Refer to Pest Management Fact Sheet #6 or the Atlantic Integrated Fruit Production Guide. | | | |
| | ▶ Superior Oil | 70 sec | 65 L | OMRI Restricted Best results are obtained when applied with a high volume of water 1,500 to 3,370 L/ha. Do not apply oil during freezing temperatures or just following a frost. Check compatibility with fungicide. May cause bark injury on Red Delicious and Empire. |

BUD SEPARATION

| | | | | |
|---------------------------------------|--|-------------|---------|--|
| Apple Scab | Use one of the following listed fungicides. | | | |
| | ▶ 1-2-100 Bordeaux Mixture + Oil | 70 sec | 7.6 L | OMRI Restricted Add copper sulphate to sprayer when one third full of water, pre dissolve copper in a pail of warm water. Apply hydrated lime when tank is two thirds full and maintain agitation to prevent settling of spray materials. See production guide for additional info on how to prepare a Bordeaux mixture. |
| | ▶ Kumulus | DF | 22.5 kg | OMRI Restricted. Does not use with in 30 days of oil spray or if a frost is anticipated. |
| | ▶ Microscopic Sulphur | | 21.4 kg | OMRI Restricted. Does not use with in 30 days of oil spray or if a frost is anticipated. |
| | ▶ Lime Sulphur | | 41 L | OMRI Restricted. Will provide some after infection activity. Do not apply when foliage is wet. |
| Powdery Mildew | Use one of the fungicides listed for 15 mm Green Tip to Tight Cluster. | | | |
| Winter Moth Green Pug Moth | Green Pug Moth seldom needs treatment. Contact an IPM advisor for advice on control of this pest. | | | |
| | ▶ Dipel | 2X DF | 280 g | OMRI Acceptable |
| Rosy Apple Aphid | Assess at this time. Refer to Pest Management Fact Sheet # 10, or the Atlantic Integrated Fruit Production Guide. Control measures pre-bloom will be more effective than post bloom. | | | |
| | ▶ Safer Insecticidal Soap | Concentrate | 33 L | OMRI Restricted. Use a minimum of 1000 L of water per hectare |

PINK

| | | | | |
|--------------------------|---|----|---------|-----------------|
| Apple Scab | Use one of the following listed fungicides. | | | |
| | ▶ Kumulus | DF | 22.5 kg | OMRI Restricted |
| | ▶ Microscopic Sulphur | | 21.4 kg | OMRI Restricted |
| | ▶ Lime Sulphur | | 41 L | OMRI Restricted |
| Powdery Mildew | Use one of the fungicides listed for 15 mm Green Tip to Tight Cluster. | | | |
| European Red Mite | The use of seaweed extract such as Acadian Liquid to maintain healthy foliage has helped to reduce the impact of mites on fruit yields and quality. Apply 3-4 applications starting at calyx at a rate of 2.5 l/ha. | | | |

| Disease and Insects | Products | Formulation | Rate per ha | Notes |
|---------------------------------|--|-------------|--------------|--|
| Rosy Apple Aphid | Assess at this time. Refer to Pest Management Fact Sheet # 10, or the Atlantic Integrated Fruit Production Guide. Control measures pre-bloom will be more effective than post bloom. | | | |
| | ▶ Safer Insecticidal Soap | Concentrate | 33 L | OMRI Restricted. Use a minimum of 1000 L of water per hectare |
| Obliquebanded Leafroller | Assess at this time. Refer to Pest Management Fact Sheets 16. Leafrollers are often controlled by pesticides that are applied at this time of year for more serious pest insects. If a specific treatment is required for only leafroller then select one of the following pesticides. | | | |
| | ▶ Entrust | 80 W | 109 g | OMRI Acceptable. Maximum of 3 applications per year. Application should be timed for hatch of larvae and prior to there rolling up of leaves Should also control other Lepidoptera species at this time |
| | ▶ Dipel | 2X DF | 1.1-1.7 kg | OMRI Acceptable. Apply when larvae are young and actively feeding. Use a sufficient volume of water to provide even coverage. Best results obtained when applied during cloud cover or in the evening. |
| BLOOM | | | | |
| Apple Scab | If possible, avoid all sprays during bloom. | | | |
| Insects | DO NOT USE INSECTICIDES DURING BLOOM. | | | |
| Pollination | Place bee hives (2-3 per hectare) in orchards at 10% bloom. | | | |
| Wild Apple Trees | Flag during bloom for later removal to help with maggot control. | | | |
| Fire Blight | Use Cougarblight or Maryblight prediction models to determine the risk of fire blight infections during the bloom period | | | |
| | ▶ Streptomycin | 17 | 600g/1,000 L | OMRI Restricted. Apply prior to a wetting period when there is a high risk of infection. Most effective when applied as a dilute spray and not in a tank mix. Re-application is needed two to three days if warm wet conditions (20°C) prevail. Do not apply more than three times per season. OMRI Restricted |
| | ▶ BlightBan | C9-1 | 375-500 g | OMRI Acceptable. Use high rate under conditions of high disease pressure. Apply at 15-20% bloom followed by a second application at full bloom. Copper-based products are incompatible with BlightBan. |
| | ▶ Bloomtime | Biological | 375-500 g | OMRI Acceptable. Use high rate under conditions of high disease pressure. Apply at 15-20% bloom followed by a second application at full bloom. Copper-based products are incompatible with Bloomtime. |
| CALYX | | | | |
| Apple Scab | Use one of the recommended fungicides listed for Pink. Avoid the application of sulphur when temperatures is above 27°C . | | | |
| Powdery Mildew | Use one of the fungicides listed for 15 mm Green Tip to Tight Cluster. | | | |
| Winter Moth Fruitworms | Assess and refer to Pest Management Fact Sheets #8 and #14 or the Atlantic Integrated Fruit Production Guide. | | | |
| | ▶ Dipel | 2X DF | 280 g | OMRI Acceptable. . Apply when larvae are young and actively feeding. Use a sufficient volume of water to provide even coverage. Best results obtained when applied during cloud cover or in the evening. |
| Apple Leafrollers | Assess at this time for Pale apple, Obliquebanded or Threelined leafroller. These leafrollers are often adequately controlled by treatments for other larval insects. | | | |
| | ▶ Entrust | 80 W | 109 g | OMRI Acceptable. Registered for OBLR but will also control other leaf rollers and caterpillars. Maximum of 3 applications per year. Application should be timed for hatch of larvae and prior to there rolling up of leaves. |
| | ▶ Dipel | 2X DF | 1.1-1.7 kg | OMRI Acceptable. Apply when larvae are young and actively feeding. Use a sufficient volume of water to provide even coverage. Best results obtained when applied during cloud cover or in the evening. |

| Disease and Insects | Products | Formulation | Rate per ha | Notes |
|--|---|-------------|---------------------|---|
| Mites | Assess active mites and mite eggs on leaves. Regular application of a kelp extract to improve foliar nutrition may help suppress mite populations. | | | |
| Rosy Apple Aphid | Assess at this time. Refer to Pest Management Fact Sheet # 10- "Thresholds for Rosy Apple Aphids in Nova Scotia", or the Atlantic Integrated Fruit Production Guide. | | | |
| | ▶ Safer Insecticidal Soap | Concentrate | 33 L | Use a minimum of 1000 L of water per hectare |
| Stinging Bugs | Assess as close to petal fall as possible. | | | |
| | ▶ Surround | | 25-50 kg | OMRI Acceptable. Apply before infestation begins and repeat on a 7-14 interval |
| White Apple Leafhopper | Assess at this time. Refer to Pest Management Fact Sheet # 19. | | | |
| | ▶ Surround | | 25-50 kg | OMRI Acceptable. Apply before infestation begins and repeat on a 7-14 interval |
| FIRST COVER | | | | |
| Apple Scab | Use one of the recommended fungicides listed under Pink. | | | |
| Mites | Assess mites and mite eggs on leaves. Regular application of a kelp seaweed extract to improve foliar nutrition may help suppress mite populations. | | | |
| Codling Moth | Hang pheromone traps at this time (1 trap per 2 hectares). Approximate date June 10. | | | |
| | ▶ Isomate-C Plus | | 500-1000 twist ties | OMRI Acceptable. Place twist ties in the orchard following the first capture of a male moth. Place ties in the upper third of the tree canopy. Number of ties should be based upon pest pressure |
| SECOND COVER | | | | |
| Apple Scab | Use one of the recommended fungicides listed for Pink. | | | |
| Codling Moth | | | | |
| | ▶ Isomate- C Plus | | 500-1000 twist ties | OMRI Acceptable. Place twist ties in the orchard following the first capture of a <u>male moth</u> . Place ties in the upper third of the tree canopy. Number of ties should be based upon pest pressure |
| | ▶ Virosoft CP4 | L | 250 mL | OMRI Acceptable. Apply just prior to egg hatch and repeat application in 10-14 days. Best results are obtained when applied late afternoon or during cloud cover. |
| THIRD COVER | | | | |
| Apple Scab | Depending on primary scab season length and freedom from primary infections, rates of broad spectrum fungicides may be reduced. Use one of the list fungicides for Pink. | | | |
| Apple Maggot | Hang traps in early July. Monitoring traps will determine when first maggot flies appear and when control is needed. It is recommended that yellow cards be replaced after 30 days of field exposure. | | | |
| | ▶ Surround | WP | 25-50 kg | OMRI Acceptable. Apply 2 sprays 7 days before expected egg laying or at first trap captures. Continue applications every 7-14 days to keep fruit completely covered until late August. Base rates on tree row volume. |
| European Red, Two- Spotted and Rust Mites | Assess mites and mite eggs on leaves. Regular application of a kelp extract to improve foliar nutrition may help suppress mite populations. | | | |

| Disease and Insects | Products | Formulation | Rate per ha | Notes |
|---|---|-------------|-------------|--|
| Codling Moth | | | | |
| | ▶ Virosoft CP4 | L | 250 mL | OMRI Acceptable. Best results are obtained when applied late afternoon or during cloud cover. |
| FOURTH COVER | | | | |
| Obliquebanded Leafroller | | | | |
| | Diepel 2X | DF | 1.12 | OMRI Acceptable. Apply when larvae are young and actively feeding. Use a sufficient volume of water to provide even coverage. Best results obtained when applied during cloud cover or in the evening. |
| | Entrust | | 109 g | OMRI Acceptable. Registered for OBLR but will also control other leaf rollers and caterpillars. Maximum of 3 applications per year. Application should be timed for hatch of larvae and prior to there rolling up of leaves. |
| Eyepotted Bud Moth | May also be controlled by Entust application for OBLR. | | | |
| Spotted Tentiform Leafminer | Monitor and assess mines for parasitism, refer to Pest Management Fact Sheet # 21. | | | |
| Apple Scab | Use a fungicide listed under Third Cover. | | | |
| Sooty Blotch Fly Speck | Use a fungicide that controls apple scab as well as sooty blotch and fly speck. | | | |
| Apple Maggot | Clean out or replace traps after first treatment. Monitoring traps will determine when and if additional control is needed. Entrust applied for OBLR may suppress maggot. | | | |
| | ▶ Surround | WP | 25-50 kg | OMRI Acceptable. Continue applications every 7-14 days to keep fruit completely covered until late August. Base rates on tree row volume. |
| European Red and Two-spotted Mites | Assess mites and mite eggs on leaves. Treat only when thresholds are reached. | | | |
| Codling Moth | Treat as in Third Cover if captures warrant. | | | |
| White Apple Leafhopper | Asses at this time. | | | |
| | ▶ Surround | WP | 25-50 kg | OMRI Acceptable. Apply before infestation begins and repeat on a 7-14 interval |
| AUGUST to NOVEMBER | | | | |
| Leaf tissue Analysis | Collect samples the first week of August. | | | |
| Storage Rots | Place fruit in clean bins. | | | |
| Mice | Clean up drops, keep orchard floor clean and mowed. Place tree guards on young trees and encourage predator populations. | | | |