

2004 Update to the 2003-04 New England Apple Pest Management Guide

Insect and Mite Management

Lorraine Los, University of Connecticut

Cancelled Product:

Dimethoate (Digon, Dimate) – The manufacturers have voluntarily withdrawn this product from use on several crops including apples. Growers may use existing stock for at least 1 more year.

New Products:

Calypso (thiacloprid): 4 lbs./gal F. Use 0.5 – 1.0 fl. ozs/100 gals. for aphids, leafminers, leafhoppers and mirid bugs; use 1.0 – 2.0 fl. ozs./100 gals. for apple maggot, codling moth, European apple sawfly, oriental fruit moth, plum curculio and suppression of scale insects. Belongs to the neonicotinoid class of insecticides (as do Provado, Actara and Assail) and offers systemic activity. Comparatively safe on beneficials. Do not apply more than 16 fl. ozs. per acre per year. Allow at least 7 days between applications. **Restricted entry interval 12 hours. Preharvest interval 30 days.**

Deliver (*Bacillus thuringiensis*, subsp. *kurstaki*) is another Bt product labeled for orchard use. As with other Bt products, its activity is primarily against early larval stages of fruitworms and leafrollers. **Restricted entry interval 4 hours. Preharvest interval 0 days.**

Nexter is a new formulation of pyridaben which is the same active ingredient as Pyramite. It will replace Pyramite, which is being discontinued by BASF. Existing stock of Pyramite may still be used. The Nexter label has similar wording to Pyramite; however, Nexter can only be used **once per season**. The restricted entry interval and preharvest interval are the same for both products. Add the following to the Pyramite entry on Page 94 of the NEAPMG:

Nexter (pyridaben): 75% WS. 4.4 – 5.2 oz. per acre for European red mite; 8.8 – 10.67 oz. per acre for twospotted spider mite (TSM). **Do not exceed 1 application per year. Restricted entry interval 12 hours. Preharvest interval 25 days.**

Warrior (lambda-cyhalothrin): 1 lb./gal. CS (capsule suspension). 2.56 – 5.12 fl. ozs. per acre. For leafrollers, internal fruit feeders, green fruitworm, leafminers, apple maggot, stink bugs, leafhoppers, plum curculio, Japanese beetle, plant bugs, periodical cicada, apple aphid, Rosy apple aphid, spirea aphid, and San Jose scale fruit infestations. Highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds.

See label for spray drift precautions when spraying in vicinity of aquatic areas. Do not apply more than 1.6 pts. per acre per year.; no more than 1.28 pts. per acre per year postbloom. **Restricted entry interval 24 hours. Preharvest interval 21 days.**

Zeal (etoxazole): 72% WDG. Miticide. 2.0 – 3.0 ozs. per acre. Effective against eggs and immature European red mite and twospotted spider mite. Not effective against adult mites. Does not control rust mites. Comparatively low toxicity to insect and mite predators. Maximum of 1 application per season. **Restricted entry interval 12 hours. Preharvest interval 28 days. [Registration status may vary within the New England states.]**

Label Changes: In the 2003-2004 NEAPMG, we indicated that label changes were pending for **Diazinon, Guthion** and **Imidan**. The Guthion label (see below) has been revised, but Diazinon and Imidan labels remain the same for 2004.

Actara – The 2003 label revision does not allow the use of Actara on apples in New England. However, growers who previously purchased this product can use according to original product label until supply exhausted. Actara is still labeled for pears, crabapples, loquat, mayhaw and quince as well as other non-fruit crops in all states.

There is also a new supplemental label for Actara, *Supplemental Directions for Use on Pome Fruits: Pollinator Precautions*. This Supplemental Label must be in the possession of the user at the time of pesticide application. Actara is highly toxic to bees exposed to direct treatment or residues on blooming crops. The supplemental label outlines correct timing for apples and pears, spray drift precautions, and other tactics to avoid contact to pollinators.

Assail - There is a new Supplemental Label for Assail which adds more target pests. The additional pests and rates include: 1.7 – 3.4 ozs. per acre for mullein plant bug and mealybug; 2.3 –3.4 ozs per acre for oriental fruit moth, European apple sawfly and Japanese beetle; and 3.4 ozs. per acre for apple maggot, plum curculio and San Jose scale (suppression only). The addition of a horticultural oil is recommended for improved performance especially for oriental fruit moth and San Jose scale.

Note: Pear psylla is also on the supplemental label because the rate has changed to 1.7 – 3.4 ozs. per acre.

Guthion – Guthion will now only be sold as Guthion Solupak 50% which is a water soluble packet. Growers may use up their existing stock of older product according to original label directions.

The following significant changes have been made to the Guthion Solupak 50% label for apples.

- Maximum allowable use is 8 pounds of Guthion Solupak per acre per year
- The **restricted entry interval is 14 days, but is reduced to 7 days for fireblight pruning (provided workers are thoroughly protected as per label).**
- **Preharvest interval is 14 or 21 days. 14 days if the last application does not exceed 2 pounds per acre. Otherwise, 21 days.**
- **The re-entry for the general public into Pick-Your-Own blocks is 30 days.**

- There is new language with regard to reducing spray drift, especially to protect aquatic habitats. There is a list of 12 “Requirements for Reducing Spray Drift”. This includes restrictions on wind speed (Apply only when the wind speed is less than 10 mph) and applications near water (Do not apply within 25 feet of permanent water bodies). Review this entire list before applying Guthion.

Note: The new Guthion label does not include plums. The tree fruit crops listed include apples, crab apples, pears, cherries, nectarines, and peaches.

Other Insecticide Corrections:

There is a typo on the Lorsban 50W rate for dogwood borer trunk sprays on Page 139. The rate for Lorsban 50WP should be 1.5 lbs. per 100 gals.

Disease Management

Lorraine P. Berkett and Christopher A. Benedict, University of Vermont
Daniel Cooley, University of Massachusetts

Agri-Fos (phosphorous acid): 46% solution of mono and di phosphorous acid. Foliar applications for control of *Phytophthora* crown and root rot on apples. Also labeled for scab control, but this use is not recommended. For crown and root rot, foliar applications should be made at 30 to 60 day intervals. Application rates of 1 1/4 to 2 1/2 quarts per acre, applied in water sufficient to wet foliage and allow uptake of the material. Where disease pressure is high, use the higher rates and shorter intervals. This material is very similar to fosetyl-Al (see Aliette). **Restricted entry interval 4 hrs. Preharvest interval 0 days.**

AgriMycin, AS 50 (streptomycin sulfate): Agrimycin is a17 WP (4–8 ozs./ 100 gals., see label for other rates); AS 50 is 65.8% streptomycin sulfate (recommended at 8 to 16 oz. per acre Bactericide used to prevent fire blight. Effective if used the day before, or the day of, a fire blight infection period. Where fire blight is expected to be a problem, the first spray is made after the first blossoms open when weather conditions favorable for the disease are present or predicted within 24 hours. Must be absorbed by the blossoms to be effective, should not be applied just before or during rain. The frequency of repeat applications depends on weather, blossom opening and disease pressure. Routine use to control shoot blight is not recommended. However, application within 24 hours after the beginning of a hail storm is recommended for *fire blight-threatened* orchards. Thorough coverage is essential for control. Application at concentration greater than 6X is not recommended. **Restricted entry interval 12 hours. Preharvest interval 50 days.**

Aliette (fosetyl aluminum): 80% WDG. Foliar application for control of *Phytophthora* crown and root rot on bearing and nonbearing apple trees and blister spot on fruit. Also labeled for control of fire blight, but is not recommended for that purpose. The material is absorbed by the foliage and transported to the roots. Avoid conditions that limit leaf absorption. Adjuvants which enhance pesticide penetration may cause phytotoxicity when mixed with Aliette. Do not apply within 2-3 weeks of leaf senescence on bearing trees. Under moderate disease pressure, apply 3 to 4 times at 5.0 lbs./100 gals. at a 60 day

spray interval, or at 2.5 lbs./100 gals on a 30 day interval. Use no more than 5 lbs. Aliette per acre. Do not exceed 20 lbs. Aliette per acre per season. Should not be used as a season-long solution to wet soils which can lead to Phytophthora root rot, but rather as a way to maintain production until longer term solutions such as drainage or raised beds can be installed. Do not tankmix with copper compounds. If use prior to or after copper applications, adjust pH to 6.0 or above with an alkaline buffer such as potassium carbonate. **Restricted entry interval 12 hours. Preharvest interval 14 days for bearing trees; 12 months for non-bearing trees.**

Apogee: Growth regulator that reduces shoot growth and reduce fire blight infections on shoots. Should only be used in those blocks with a history of fire blight, as applications need to be made when shoots are 1 to 3 in., which is before shoot symptoms generally show. Has no effect on blossom blight. Refer to label for rates.

AS 50 see AgriMycin.

Bac-Master: no longer sold by AMVAC.

Captan: The **Captan 80WDG** from MicroFlo has a 24 hour re-entry period for apples. Other captan products still have a 96 hr. re-entry period.

Messenger (harpin protein): a biological pesticide that stimulates the plants pest resistance systems. It does not directly attack pathogens. Messenger has shown variable efficacy against fire blight . It takes 5 – 7 days after application for the plant to develop resistance. Do not use with chlorinated water, or at pH below 5.0 or above 10.0.

OxiDate, StorOx (hydrogen dioxide): similar to hydrogen peroxide, kills fungi, bacteria and other microbes it contacts. OxiDate is labeled for use in the field, StorOx for use in post-harvest treatments. Field applications to apples are not recommended because the product can severely russet fruit.

Phostrol (phosphorous acid): 53.6% solution of phosphorous acid and ammonium phosphite. See Agri-Fos.

Reliant (phosphorous acid): 46% solution of mono and di phosphorous acid. See Agri-Fos.

Serenade (*Bacillus subtilis*): a biological control bacterium labeled for control of fire blight, scab, and powdery mildew. Serenade alone has not proven effective against these diseases. However, it has shown good activity against fire blight when used in alternating applications with streptomycin, and some activity against scab when used in alternating applications with other fungicides. Serenade should be used as a preventative.

Topsin M, Thiophanate Methyl (thiophanate methyl) : Formulated as a 70W WSB, 85 WDG or 4.5 FL. While rates for the 70% formulation are the same as previously described, rates for the 85% are labeled at 3.2 oz. to 4.8 oz. per 100 gal., and the 4.5 FL rates are 3.5 fl. oz. to 5 fl. oz. per 100 gal.

Other Disease Management Corrections:

Page 129 (and subsequent pages): “Dilute” defined on page 128, not on p. 126 as indicated.

Page 88, Table 14: Please note that mancozeb products have a 77 preharvest interval.

Weed Management

Jon Clements, University of Massachusetts

Addition to Notes on Herbicides, page 119: The statement "For non-bearing apples only." should be added to Fusilade.