

17 Appendices

17.1 Pesticide Data

Table 17.1.1 Common names, product names, formulations, and days-to-harvest for pesticides used on tree fruits.

| Common Names/ Products Formulations | DAYS TO HARVEST (A) | | | | | |
|---|---------------------|----------|-------------|---------|--------------------------|-------|
| | Apples | Apricots | Cherries | Peaches | Pears | Plums |
| Insecticides and Acaricides | | | | | | |
| *abamectin/*avermectin | | | | | | |
| *Agri-Mek, *Temprano 0.15EC | 28 | — | — | — | 28 | 21 |
| *Abba 0.15EC, *Gladiator | 28 | — | — | — | 28 | 21 |
| acequinocyl | | | | | | |
| Kanemite 15SC | 14 | — | — | — | 14 | — |
| acetamiprid | | | | | | |
| Assail 30SG | 7 | 7 | 7 | 7 | 7 | 7 |
| (\$)azadirachtin | | | | | | |
| §Neemix 4.5L, §Aza-Direct 1.2L, Azatin XL 0.27EC | 0 | 0 | 0 | 0 | 0 | 0 |
| *azinphos-methyl | | | | | | |
| *Guthion 50WS | 14(A) | — | 15 | — | 14 | — |
| bifenthrin | | | | | | |
| *Bifenture 2EC, *Brigade 10WS, 2 EC,*Fanfare 2EC | — | — | — | — | 14 | — |
| §Bt (<i>Bacillus thuringiensis</i>) | | | | | | |
| §Deliver 18WG | 0 | 0 | 0 | 0 | 0 | 0 |
| §Dipel 10.3 DF | 0 | 0 | 0 | 0 | 0 | 0 |
| §Biobit HP | 0 | 0 | 0 | 0 | 0 | 0 |
| §Javelin WG | 0 | 0 | 0 | 0 | 0 | 0 |
| §Agree 3.8 WS | 0 | — | — | 0 | 0 | 0 |
| buprofezin | | | | | | |
| Centaur WDG | 14 | 14 | 14 | 14 | 14 | 14 |
| buprofezin & flubendiamide | | | | | | |
| Tourismo | 14 | 14 | 14 | 14 | 14 | 14 |
| Carbaryl | | | | | | |
| Sevin 4F, 4EC | 3 | 3 | 3 | 3 | 3 | 3 |
| chlorantraniliprole | | | | | | |
| Altacor 35WDG | 5 | 10 | 10 | 10 | 5 | 10 |
| chlorantraniliprole & thiamethoxam | | | | | | |
| Voliam Flexi WDG | 35 | 14 | 14 | 14 | 35 | 14 |
| chlorantraniliprole & cyhalothrin | | | | | | |
| Voliam Xpress WDG | 21 | 14 | 14 | 14 | 35 (60 with adjuvant) | 14 |
| chlorpyrifos | | | | | | |
| Lorsban Advanced | PB/28(A) | — | 21 | 14 | PB | PB |
| *Lorsban 4EC | PB/28(A) | — | 21 | 14 | PB | PB |
| Lorsban 75WG | PB/28(A) | — | 14 or 21(C) | 14 | PB | PB |
| clofentezine | | | | | | |
| Apollo 4SC | 45 | 21 | 21 | 21 | 21 | — |
| clothianidin | | | | | | |
| Clutch 50 WDG | 7 | — | — | — | 7 | — |
| Belay 2.1 | 7 | — | — | 21 | 7 | — |

Table 17.1.1 Common names, product names, formulations, and days-to-harvest for pesticides used on tree fruits.

| Common Names/ Products Formulations | DAYS TO HARVEST (A) | | | | | |
|---|---------------------|----------|----------|----------|----------|----------|
| | Apples | Apricots | Cherries | Peaches | Pears | Plums |
| Insecticides and Acaricides (continued) | | | | | | |
| cyfluthrin *Baythroid XL 1E, 2EC, *Leverage 2.7SE | 7 | 7 | 7 | 7 | 7 | 7 |
| diazinon *Diazinon 50WP, AG600 | 21/PF(A) | 21 | 21 | 21 | 21 | 21 |
| deltamethrin *Battalion 1.5 EC, *Battalion 0.2 EC *Delta Gold 1.56 EC | 21 | — | — | — | 21 | — |
| dimethoate Dimethoate 400, 4EC | — | — | — | — | 28 | — |
| emamectin benzoate *Proclaim 5SG | 14 | — | — | — | 14 | — |
| endosulfan *Thionex 50WP *Thionex 3EC | 21 21 | — — | — — | — — | — — | — — |
| esfenvalerate *Asana XL 0.66EC | 21 | 14 | 14 | 14 | 28 | 14 |
| etoxazole Zeal 72WS | 14 | 7 | 7 | 7 | 14 | 7 |
| fenbutatin-oxide, hexakis *Vendex 50WP | 14 | — | 14 | 14 | 14 | 14 |
| fenpropathrin *Danitol 2.4EC | 14 | 3 | 3 | 3 | 14 | 3 |
| fenpyroximate Portal 0.4EC | 14 | 7 | 7 | 7 | 14 | 7 |
| flonicamid Beleaf 50SG | 21 | 14 | 14 | 14 | 21 | 14 |
| flubendiamide Belt SC | 14 | 7 | 7 | 7 | 14 | 7 |
| gamma-cyhalothrin *Proaxis 0.5CS | 21 | 14 | 14 | 14 | 21 | 14 |
| §granulosis virus §Carpovirusine 0.99SC §Cyd-X 0.06SC | 0 0 | — — | — — | — — | 0 0 | — 0 |
| hexythiazox Savey 50DF Onager 1 EC | 28 28 | 28 7 | 28 7 | 28 7 | 28 28 | 28 7 |
| imidacloprid Admire Pro *Leverage 2.7SE | 7 7 | 0 7 | 7 7 | 0 7 | 7 7 | 7 7 |
| indoxacarb Avaunt 30 WDG | 14 | 14 | 14 | 14 | 28 | 14 |
| §kaolin §Surround 95WP | 0 | 0 | 0 | 0 | 0 | 0 |
| lambda-cyhalothrin *Lambda-Cy 1CS, *Taiga-Z 1CS, *Warrior 1CS, *Warrior II 2.08CS *Endigo ZC | 21 35 | 14 14 | 14 14 | 14 14 | 21 35 | 14 14 |

Table 17.1.1 Common names, product names, formulations, and days-to-harvest for pesticides used on tree fruits.

| Common Names/ Products Formulations | DAYS TO HARVEST (A) | | | | | |
|--|---------------------|-----------------|-----------------|----------------|--------------|--------------|
| | <i>Apples</i> | <i>Apricots</i> | <i>Cherries</i> | <i>Peaches</i> | <i>Pears</i> | <i>Plums</i> |
| <i>Insecticides and Acaricides (continued)</i> | | | | | | |
| malathion | | | | | | |
| Malathion 57EC, 5EC | — | 6 | 3 | 7 | — | — |
| methidathion | | | | | | |
| *Supracide 2EC, 25WP | PB | PB | PB | PB | PB | PB |
| methomyl | | | | | | |
| *Lannate 2.4L, 90SP | 14 | — | — | 4 | 7 | — |
| methoxyfenozide | | | | | | |
| Intrepid 2F | 14 | — | — | — | 14 | — |
| novaluron | | | | | | |
| Rimon 0.83 EC | 14 | 8 | — | 8 | — | 8 |
| oxamyl | | | | | | |
| *Vydate 2L | 14 | — | — | — | 14 | — |
| permethrin | | | | | | |
| *Ambush 25WP, *Perm-Up 3.2EC | PF | — | 3 | 14 | PB | — |
| *Pounce 3.2EC, 25WP | PF | — | 3 | 14 | PB | — |
| (§)oil | | | | | | |
| JMS Stylet Oil, §Omni Oil 6E, (§)Purespray Spray Oil | 0 | 0 | 0 | 0 | 0 | 0 |
| phosmet | | | | | | |
| Imidan 70WS | 7 | 14 | 7 (C) | 14 | 7 | 7 |
| potassium fatty acids | | | | | | |
| §Des-X, §M-Pede | 0 | 0 | 0 | 0 | 0 | 0 |
| See Des-X label about possible phytotoxicity after fruit formation on pears, cherries, and smooth-skinned stone fruit. | | | | | | |
| (§)pyrethrin/rotenone | | | | | | |
| §PyGanic 1.4 EC | 0 | 0 | 0 | 0 | 0 | 0 |
| Pyrenone 6.0% EC | 0 | 0 | 0 | 0 | 0 | 0 |
| pyridaben | | | | | | |
| Nexter 75WS | 25 | PH | PH | 7 | 7 | 7 |
| pyriproxyfen | | | | | | |
| Esteem 35WP | 45 | 14 | 14 | 14 | 45 | 14 |
| rynaxypyr (see chlorantraniliprole) | | | | | | |
| spinetoram | | | | | | |
| Delegate 25WG | 7 | 14 | 7 | 1 | 7 | 7 |
| (§)spinosad | | | | | | |
| §Entrust 80WP | 7 | 14 | 7 | 14 | 7 | 7 |
| §GF-120 | 0 | 0 | 0 | 0 | 0 | 0 |
| spirodiclofen | | | | | | |
| Envidor 2 SC | 7 | 7 | 7 | 7 | 7 | 7 |
| spirotetramat | | | | | | |
| Movento 240SC | 7 | 7 | 7 | 7 | 7 | 7 |
| thiacloprid | | | | | | |
| Calypso 4F | 30 | — | — | — | 30 | — |
| thiamethoxam | | | | | | |
| Actara 25WDG | 14/35 | 14 | 14 | 14 | 14/35 | 14 |
| zeta cypermethrin | | | | | | |
| *Mustang Max EC | 14 | 14 | 14 | 14 | 14 | 14 |

Table 17.1.1 Common names, product names, formulations, and days-to-harvest for pesticides used on tree fruits.

| Common Names/ Products Formulations | DAYS TO HARVEST (A) | | | | | |
|---|---------------------|-----------------|-----------------|----------------|--------------|--------------|
| | <i>Apples</i> | <i>Apricots</i> | <i>Cherries</i> | <i>Peaches</i> | <i>Pears</i> | <i>Plums</i> |
| Fungicides and Bactericides | | | | | | |
| azoxystrobin Abound 2.08F | — | 0 | 0 | 0 | — | 0 |
| § <i>Bacillus subtilis</i> §Serenade ASO | 0 | 0 | 0 | 0 | 0 | 0 |
| captan Captan 50WP, 80WDG, Captec 4L | 0 | 0 | 0 | 0 | — | 0 |
| chlorothalonil Bravo Weather Stik, Ultrex Echo 720, 90DF, Chloronil 720, Concorde, Equus, Applause DF, 720 | — | SS | SS | SS | — | SS |
| (§)copper hydroxide Kocide 2000, 4.5LF, 101, DF §Champ Formula-2. §NuCop 50DF | HIG | BL | BL,PH (C) | BL | BL | BL |
| copper oxychloride sulfate C-O-C-S WDG | GT | PF | PF,PH (C) | BL,PF | BL | BK,PF |
| copper sulfate Cuprofix Ultra Disperss 40DF, Basicop | 2C | BL | BL, PH | SS | BL | BL |
| cyprodinil Vanguard WG | 0 | 2 | 2(C) | 2 | 0 | 2 |
| DCNA Botran 75WP | — | 10 | 10(D) | 10 | — | BL |
| difenoconazole Inspire Super MP | 14 | 2 | 2(C) | 2 | 14 | 2 |
| dodine Syllit 65WP, FL | 7 | — | 7, PH | 15 | 7 | — |
| fenarimol Vintage 1SC | 30 | — | 0 | — | 30 | — |
| fenbuconazole Indar 2F | 14 | 0 | 0 | 0 | — | 0 |
| fenhexamid Elevate 50WDG | — | 0 | 0 | 0 | 0 | 0 |
| ferbam Ferbam Granuflo | 7 | — | - | 21 | 7 | — |
| fluopyram + pyrimethanil (Luna Tranquility) [a] | 72 | — | — | — | — | — |
| fluopyram + trifloxystrobin (Luna Sensation) [a] | 14 | — | 1 | — | — | — |
| flutriafol (Topguard) | 14 | 7 | 7 | 7 | 7 | 7 |
| fluxapyroxad + pyraclostrobin (Merivon) [a] | 0 | 0 | 0 | 0 | 0 | 0 |
| fosetyl-Al Aliette WDG | 14 | (B) | (B) | (B) | 14 | (B) |

Table 17.1.1 Common names, product names, formulations, and days-to-harvest for pesticides used on tree fruits.

| Common Names/ Products Formulations | DAYS TO HARVEST (A) | | | | | |
|--|---------------------|-----------------|-----------------|----------------|--------------|--------------|
| | <i>Apples</i> | <i>Apricots</i> | <i>Cherries</i> | <i>Peaches</i> | <i>Pears</i> | <i>Plums</i> |
| Fungicides and Bactericides(continued) | | | | | | |
| §hydrogen dioxide (hydrogen peroxide) | | | | | | |
| §OxiDate | 0 | 0 | 0 | 0 | 0 | 0 |
| iprodione | | | | | | |
| Rovral 50WP, 4 Flowable, Iprodione 4L, AG | — | PF | PF | PF | — | PF |
| kresoxim-methyl | | | | | | |
| Sovran 50WG | 30 | — | — | — | 30 | — |
| (§)lime sulfur | | | | | | |
| Allpro Lime Sulfur, §Rex lime sulfur solution, Miller Lime Sulfur Solution, Sulfurix Lime Sulfur | 0 | — | 0 | 0 | 0 | 0 |
| mancozeb | | | | | | |
| Manzate Max Penncozeb 75DF | BL,77(A) | — | — | — | BL,77(A) | — |
| mancozeb + copper hydroxide | | | | | | |
| ManKocide | BL | — | — | — | BL | — |
| mefanoxam | | | | | | |
| Ridomil Gold SL | 0 | 0 | 0 | 0 | 0 | 0 |
| metiram | | | | | | |
| Polyram 80WP | BL,77(A) | — | — | — | — | — |
| myclobutanil | | | | | | |
| Rally 40WSP | 14 | 0 | 0 | 0 | — | 0 |
| (§)oxytetracycline | | | | | | |
| §Mycoshield 17WP, Fireline 17WP | 60 | — | — | 21 | 60 | — |
| <i>Pantoea agglomerans</i> strain E325 | | | | | | |
| §Bloomtime Biological FD | PF | — | — | — | PF | — |
| pen thiopyrad (Fontelis) | 28 | — | 0 | 0 | 28 | 0 |
| phosphite products | | | | | | |
| Agri-fos, Fungi-Phite, Phostrol Topaz | 0 | 0 | 0 | 0 | 0 | 0 |
| prohexadione calcium | | | | | | |
| Apogee 27.5DF | 45 | — | — | — | — | — |
| propiconazole | | | | | | |
| Orbit 3.6EC, Tilt | — | 0 | 0 | 0 | — | 0 |
| pyraclostrobin | | | | | | |
| Cabrio EG | 0 | - | 0 | - | - | - |
| pyraclostrobin + boscalid | | | | | | |
| Pristine 38WDG | 0 | 0 | 0 | 0 | 0 | 0 |
| pyrimethanil | | | | | | |
| Scala | 72 | 2 | — | 2 | 72 | 2 |
| quinoxifen | | | | | | |
| Quintec | - | — | 7 | 7 | 7 | 7 |
| (§)streptomycin | | | | | | |
| §Agri-Mycin 17WP, Firewall 17WP, Streptrol 17WP, Agricultural streptomycin 17WP | 50 | — | — | — | 30 | — |

Table 17.1.1 Common names, product names, formulations, and days-to-harvest for pesticides used on tree fruits.

| Common Names/ Products Formulations | DAYS TO HARVEST (A) | | | | | |
|--|---------------------|----------|----------|---------|-------|-------|
| | Apples | Apricots | Cherries | Peaches | Pears | Plums |
| Fungicides and Bactericides(continued) | | | | | | |
| (§)sulfur | | | | | | |
| §Kumulus DF, § Microthiol Disperss, Wetttable sulfur Thiolux Jet | PH | — | 0 | 0 | PH | 0 |
| tebuconazole | | | | | | |
| Elite 45WSP | — | — | 0 | 0 | — | — |
| Tebuzol 45DF | 75 | 0 | 0 | 0 | 75 | 0 |
| tebuconazole + trifloxystrobin | | | | | | |
| Adament 50WG | 75 | 1 | 1 | 1 | 75 | 1 |
| thiophanate-methyl | | | | | | |
| Topsin M WSB, 70WP | (A) | 1 | 1 | 1 | 1 | 1 |
| Topsin 4.5L | (A) | 1 | 1 | 1 | — | 1 |
| T-methyl 70W WSB | 1 | 1 | 1 | 1 | 1 | 1 |
| thiram | | | | | | |
| Thiram Granuflo | — | — | — | 7 | — | — |
| triadimefon | | | | | | |
| Triadimefon 50DF, Bayleton | 45 | — | — | — | 45 | — |
| trifloxystrobin | | | | | | |
| Flint | 14 | — | — | — | 14 | — |
| Gem 500 SC | — | 1 | 1 | 1 | — | 1 |
| triflumizole | | | | | | |
| Procure 50WS | 14 | — | 1 | — | 14 | — |
| ziram | | | | | | |
| Ziram 76DF | 14 | 30 | 14 | 14 | 14 | — |

Key:

BL Do not apply beyond bloom.
GT Do not apply beyond green tip.
HIG Do not apply beyond 1/2-in green.
PB Prebloom applications only.
PF Do not apply beyond petal fall.
PH Postharvest applications allowed.
SS Do not apply beyond shuck split.
2C Do not apply after 2d cover spray.
(A) If more than one value is given, depends on rate, method and/or number of applications; check label.

(B) Nonbearing trees only.**(C)** Tart cherries only.**(D)** Sweet cherries only

— Not registered for use on crop.

* Restricted-use pesticide; may be purchased and used only by certified applicators, or used by someone under the supervision of a certified applicator.

§ Potentially acceptable in certified organic programs

(§) Not all formulations of the active ingredient are acceptable in certified organic programs.

Table 17.1.2. Common names, product names, formulations, and days-to-harvest for growth regulators.

| Common Name/ Product Name | Formulation | EPA Reg. No. | Crop | Preharvest Interval |
|-----------------------------------|-------------|--------------|-----------------|---------------------|
| Amid-Thin W naphthalene-acetamide | 8.4 WP | 5481-426 | Apple, pear | — |
| Apogee prohexadione calcium | 27.5% DF | 7969-188 | Apple | 45 days |
| Ethrel ethephon | 2 lb/gal | 264-267 | Apple, cherries | 7 days |

Table 17.1.2. Common names, product names, formulations, and days-to-harvest for growth regulators.

| Common Name/ Product Name | Formulation | EPA Reg. No. | Crop | Preharvest Interval |
|---|---------------------|---------------------|------------------------------|--------------------------------|
| Exilis Plus cytokinin | 2.0% liquid | 62097-9 | Apple | 86 days |
| Fruitone L naphthalene-acetic acid | 3.5% liquid | 5481-47 | Apple, Pear | 2 days |
| Fruitone N naphthalene-acetic acid | 3.1% | 5481-427 | Apple, pear | 2 days |
| MaxCel cytokinin | 1.9% | 73049-407 | Apple | 86 days |
| Novagib gibberellin | 1.0% liquid | 62097-7 | Apple | — |
| Perlan cytokinin+gibberellin | 1.8% + 1.8% liquid | 62097-6 | Apple | — |
| PoMaxa Naphthaleneacetic acid | 3.1% | 73049-487 | Apple, pear | 7 days |
| §ProGibb gibberellic acid | 4% liquid | 73049-15 | cherries | 0 days |
| §ProGibb Plus 2X gibberellic acid | 20% SP | 73049-16 | Sweet cherry | 0 days |
| §ProVide 10 SG gibberellin | 10% SG | 73049-409 | Apple | — |
| Promalin cytokinin+gibberellin | 1.8% + 1.8% liquid | 73049-41 | Apple, pear, sweet cherry | — |
| ReTain AVG | 15% SP | 73049-45 | Apple, pear | 7 days |
| RiteSize cytokinin+gibberellin | 1.8% + 0.18% liquid | 55146-86 | Apple | — |
| RiteWay cytokinin 6-BA | 1.9% liquid | 71368-60 | Apple | 86 days |
| Tre-Hold RTU naphthalene-acetic acid | 1.15% | 5481-452 | Apple, pear, nectarine | — |
| Typy cytokinin+gibberellin | 1.8% + 1.8% liquid | 55146-78 | Apple | — |
| TypRus gibberellin 4+7 | 2.0% liquid | 55146-85 | Apple | — |

— Preharvest interval information not provided on label.

§Potentially acceptable in certified organic programs

17.2 EPA numbers and worker protection standard re-entry and personal protective equipment (PPE) guidelines.

Worker Notification: Under most circumstances, worker employers must make sure that workers are notified about areas where pesticide applications are taking place or where restricted-entry intervals are in effect. Some pesticide labels require you to notify workers BOTH orally AND with signs posted at entrances to the treated area. Unless the pesticide labeling requires both types of notification, notify workers EITHER orally OR by the posting of warning signs at entrances to treated areas. You must inform workers which method of notification is being used. For details on notification requirements both for these products and those not represented below, refer to the product label and the Worker Protection Standard, 40 CFR part 170. NOTE: Every attempt has been made to keep this table up-to-date and accurate, however, for your and your workers safety always consult the label if in doubt about required PPE and othe details about Agricultural Use Requirements undet the Worker Protection Standard.

Table 17.2.1 Insecticides and acaricides

| Product | EPA Reg. No. | Common Name | REI (hrs) | Applicator PPE | Early Entry PPE |
|-----------------------|----------------|-----------------------------------|-----------|----------------|-----------------|
| *Abba 0.1EC | 66222-139 | abamectin | 12 | dfghij | dfghj |
| Acramite 50WS | 400-503 | bifenazate | 12 | ac | cfk |
| Actara | 100-938 | thiamethoxam | 12 | acf | cfk |
| Admire Pro 4.6SC | 264-827 | imidacloprid | 12 | acf | cfk |
| §Agree WG | 70051-47 | Bt | 4 | abcp | bck |
| *Agri-Mek 0.15EC | 100-898 | abamectin | 12 | dfghij | dfghj |
| Altacor 35WDG | 352-730 | chlorantraniliprole, rynaxypyr | 4 | ac | ac |
| Apollo 4SC | 66222-47 | clofentezine | 12 | acf | cfk |
| *Asana XL 0.66EC | 352-515 | esfenvalerate | 12 | acfh | cfhk |
| Assail 30SG | 8033-36-70506 | acetamiprid | 12 | abcj | bck |
| Avaunt 30WDG | 352-597 | indoxacarb | 12 | abc | beg |
| §Aza-Direct 1.2L | 71908-1-10163 | azadirachtin | 4 | abc | bck |
| Azatin XL 0.27EC | 70051-27-59807 | azadirachtin | 4 | acfh | cfhk |
| *Battalion 0.2EC | 264-1007-66330 | deltamethrin | 12 | dfghij | dfghj |
| *Battalion 1.5 EC | 66330-374 | deltamethrin | 12 | dfghij | dfghj |
| *Baythroid XL 1EC | 264-840 | beta-cyfluthrin | 12 | acfh | cfhk |
| Beleaf 50SG | 71512-10-279 | flonicamid | 12 | abc | bck |
| Belay | 59639-150 | clothianidin | 12 | acf | cfk |
| Belt SC | 264-1025 | flubendiamide | 12 | acf | cfk |
| *Bifenture EC | 70506-57 | bifenthrin | 12 | acfh | cfk |
| §Biobit HP | 73049-54 | Bt | 4 | abc | bck |
| Biobit XL 2.1FC | 73049-46 | Bt | 4 | abc | bck |
| *Brigade 10WS | 279-3108 | bifenthrin | 12 | abc | bck |
| *Brigade 2EC | 279-3313 | bifenthrin | 12 | acf | cfk |
| Calypso 4F | 264-806 | thiacloprid | 12 | acf | cfk |
| §Carpovirusine 0.99SC | 66330-55 | granulosis virus | 4 | acfhlo | achf |
| Centaur WDG | 71711-21 | buprofezin | 12 | abc | beg |
| Checkmate CM-F 14.3S | 56336-37 | pheromone | 4 | abcj | bcd |
| Checkmate CM-OFM Duel | 56336-49 | pheromone | 0 | b | – |
| Checkmate OFM-F 24.6S | 56336-24 | pheromone | 0 | abc | – |
| Clutch 50 WDG | 59639-152 | clothianidin | 12 | abc | bck |
| §Cyd-X 0.06SC | 70051-44 | granulosis virus | 4 | ac | bck |
| *Danitol 2.4EC | 59639-35 | fenpropathrin | 24 | acfh | cfhk |
| Delegate 25WG | 62719-541 | spinetoram | 4 | ac | cfk |
| §Deliver 18WG | 70051-69 | Bt | 4 | abc | bck |
| *Delta Gold 1.5 EC | 264-1011-1381 | deltamethrin | 12 | dfghij | dfghj |
| §Des-X | 67702-22-70051 | potassium fatty acids | 12 | dfghij | |

Table 17.2.1 Insecticides and acaricides

| Product | EPA Reg. No. | Common Name | REI (hrs) | Applicator PPE | Early Entry PPE |
|---------------------|---------------------|-------------------------------------|-------------------|-----------------------|------------------------|
| *Diazinon 50W | 66222-10 | diazinon | 96 | abc | bcjk |
| Dimate 4EC | 51036-110-9779 | dimethoate | 48 | afghjl | fghjk |
| Dimethoate 4EC | 19713-231 | dimethoate | 48 | fghjk | fghjk |
| Dimethoate 400 | 34704-207 | dimethoate | 10 days | acfil | efgj |
| §Dipel DF | 73049-39 | Bt | 4 | abcp | bck |
| *Endigo ZC | 100-1276 | lambda-cyhalothrin, thiamethoxam | 24 | dfgij | dfgj |
| §Entrust 80WP | 62719-282 | spinosad | 4 | ac | bck |
| Envidor 2SC | 264-831 | spirodiclofen | 12 | abc | abc |
| Esteem 35WP | 59639-115 | pyriproxyfen | 12 | ac | bce |
| *Fanfare 2EC | 66222-99 | bifenthrin | 12 | acfh | cfk |
| §GF-120 | 62719-498 | spinosad | 4 | ac | bck |
| *Guthion 50WS | 66222-162 | azinphos-methyl | 14-15 days (E) | efghijm | efghj |
| Imidan 70-W | 10163-169 | phosmet | 3-7 days (E) | abcjl | bcjk |
| Intrepid 2F | 62719-442 | methoxyfenozide | 4 | abc | beg |
| §Isomate-C TT | 53575-25 | pheromone | 0 | b | — |
| §Isomate-CM/OFM TT | 53575-30 | pheromone | 0 | b | — |
| Isomate PTB Dual | 53575-43 | pheromone | 0 | b | — |
| Isomate-M 100 | 53575-19 | pheromone | 0 | b | — |
| §Javelin 7.5WDG | 70051-66 | Bt | 4 | abcp | bck |
| JMS Stylet Oil | 65564-1 | paraffinic oil | 12 | acf | cfk |
| Kanemite 15SC | 66330-38 | acequinocyl | 12 | acf | cfk |
| Kelthane 50WSP | 62719-414 | dicofol | 48 | bcehijl | bchk |
| §Kumulus 80DF | 51036-352 | sulfur | 24 | abfh | bchk |
| *Lambda-Cy 1EC | 70506-121 | lambda-cyhalothrin | 24 | acfh | acf |
| *Lannate 90SP | 352-342 | methomyl | 48-96(E) | acfhilq | cfhk |
| *Lannate LV 2.4L | 352-384 | methomyl | 48-96(E) | acfhilq | cfhk |
| *Leverage 2.7SE | 264-770 | imidacloprid/cyfluthrin | 12 | dfghi | fghk |
| *Leverage 360 | 2645-1104 | imidacloprid/ beta-cyfluthrin | 12 | acf | cfk |
| Lorsban Advanced | 62719-591 | chlorpyrifos | 96 | dfgijlq | dfgj |
| Lorsban 75WG | 62719-301 | chlorpyrifos | 96 | dfgijlq | dfgj |
| Malathion 57EC | 34704-108 | malathion | 12 | acfh | cfhk |
| Malathion 5EC | 19713-217 | malathion | 12 | acf | cfk |
| Movento 240SC | 264-1050 | spirotetramat | 24 | acfh | acfh |
| §M-Pede 49L | 53219-6 | insecticidal soap | 12 | ac | bck |
| *Mustang Max EC | 279-3327 | zeta-cypermethrin | 12 | acfh | cfk |
| §Neemix | 70051-9 | azadirachtin | 12 | acfh | cfhk |
| Nexter 75WS | 7969-106 | pyridaben | 12 | abchjl | bchjkl |
| §Omni Spray Oil 6E | 5905-368 | mineral oil | 12 | acf | cfk |
| Onager 1EC | 10163-277 | hexythiazox | 12 | abc | abc |
| *Perm-Up 3.2EC | 70506-9 | permethrin | 12 | acfh | cef |
| Portal 0.4EC | 71711-19 | fenpyroximate | 12 | acfhj | dfghij |
| *Pounce 25 WP | 279-3051 | permethrin | 12 | abc | bck |
| *Proaxis 0.5CS | 74921-3-34704 | gamma-cyhalothrin | 24 | acfh | cfk |
| *Proclaim 5SG | 100-904 | emamectin benzoate | 12 or 48 (E) | acef | cfhk |
| Provado 1.6F | 264-763 | imidacloprid | 12 | acf | cfk |
| Purespray Spray Oil | 69526-5 | petroleum oil | 4 | acf | cef |
| §Purespray Green | 69526-9 | mineral oil | 4 | acf | cfk |

Table 17.2.1 Insecticides and acaricides

| Product | EPA Reg. No. | Common Name | REI (hrs) | Applicator | Early Entry |
|--------------------|---------------|--|-----------|------------|-------------|
| | | | | PPE | PPE |
| §PyGanic 1.4EC | 1021-1771 | pyrethrins | 12 | acf | cfk |
| Pyrenone | 432-1033 | pyrethrins/PBO | 12 | acf | cfk |
| Rimon 0.83EC | 66222-35-400 | novaluron | 12 | acfh | cefh |
| Savey 50DF | 10163-250 | hexythiazox | 12 | abc | abc |
| Sevin XLR Plus | 264-333 | carbaryl | 12 | acfj | cfjk |
| Sevin 4F | 264-349 | carbaryl. | 12 | acfj | cfjk |
| Sherpa | 34704-983 | imidacloprid | 12 | acf | cfk |
| SPLAT Cydia | 80286-3 | pheromone | 4 | acfh | afhk |
| SPLAT OFM 30M-1 | 80286-1 | pheromone | 4 | acfh | afhk |
| *Supracide 25W | 10163-244 | methidathion | 72 | abclq | bck |
| §Surround WP | 70060-14 | kaolin | 4 | aclo | ac |
| *Taiga Z 1CS | 100-1112-1381 | lambda-cyhalothrin | 24 | acfh | cfk |
| *Temprano 0.15EC | 67760-71-400 | abamectin | 12 | acfh | dfgh |
| *Thionex 3EC | 66222-63 | endosulfan | 7 days | acfhijm | cfhk |
| *Thionex 50W | 66222-62 | endosulfan | 20 days | acfhijm | cfhk |
| Tourismo | 71711-33 | buprofezin & flubendiamide | 12 | abej | cfghj |
| §Trilogy | 70051-2 | neem extract | 4 | acf | cfk |
| *Vendex 50WP | 1812-413 | hexakis | 48 | dfghijq | cfhk |
| §Virosoft CP4 | 72898-4 | granulosis virus | 4 | abch | bchk |
| Voliam Flexi | 100-1319 | thiamethoxam/ chlorantraniliprole | 12 | acf | cfk |
| *Voliam Xpress EC | 100-1320 | lambda-cyhalothrin/ chlorantraniliprole | 24 | acf | cfk |
| *Vydate 2L | 352-372 | oxamyl | 48 | dfghijm | dfghj |
| *Warrior II 2.08CS | 100-1295 | lambda-cyhalothrin | 24 | acfh | cfk |
| Zeal 72WS | 59639-138 | etoxazole | 12 | acf | acf |

Table 17.2.2 Fungicides and bactericides

| Product | EPA Reg. No. | Common Name | REI (hrs) | Applicator | Early Entry |
|-------------------------|----------------|---|-----------|------------|-------------|
| | | | | PPE | PPE |
| Abound 2.08F | 100-1098 | azoxystrobin | 4 | acf | cfk |
| Adament 50WG | 264-1052 | trifloxystrobin | 12 | acf | cfk |
| Ag Streptomycin | 66222-121 | streptomycin | 12 | acfo | efgo |
| §Agri-Mycin 17WP | 55146-96 | streptomycin | 12 | acf | efg |
| Agri-fos | 71962-1 | phosphite | 4 | abch | bcdh |
| Aliette WDG | 264-516 | fosetyl-Al | 12 | abch | bchk |
| Allpro Lime Sulfur | 769-558 | lime sulfur | 48 | efghijl | efghj |
| Apogee 27.5% | 7969-188 | prohexadione calcium | 12 | acf | cfk |
| Applause 720 | 50534-188 | chlorothalonil | 12 | acfh | cfhk |
| Bac-Master | 55146-80-5481 | streptomycin | 12 | abcl | fchk |
| Bayleton 50DF | 264-737-5481 | triadimefon | 12 | acfj | cfk |
| Bloomtime Biological FD | 71975-1 | <i>Pantoea agglomerans</i> strain E325 | 4 | abco | bck |
| Botran 75W | 10163-189 | dichloronitroaniline | 12 | ac | bck |
| Bravo Weather Stik | 50534-188-100 | chlorothalonil | 12 | acf | cfhk |
| Bravo Ultrex | 50534-201-100 | chlorothalonil | 12 | dfghijl | dfghj |
| Cabrio EG | 7969-187 | pyraclostrobin | 12 | acf | cfk |
| Captan 50WP | 66330-234 | captan | 24(E) | achilo | cfhk |
| Captan 80WDG | 66222-58-66330 | captan | 24(E) | acfhio | cfhk |

Table 17.2.2 Fungicides and bactericides

| Product | EPA Reg. No. | Common Name | REI (hrs) | Applicator PPE | Early Entry PPE |
|----------------------------|---------------------|---|------------------|-----------------------|------------------------|
| Captec 4L | 66330-239 | captan | 24(E) | acfh | cfhk |
| Champ Formula-2 4.6F | 55146-64 | copper hydroxide | 24(E) | acfh | cfhk |
| Chloronil 720 | 50534-188-100 | chlorothalonil | 12 | acf | cfhk |
| C-O-C-S WDG | 34704-326 | copper oxychloride & basic copper sulfate | 24 | acfh | cfhk |
| Concorde | 72167-24-1812 | chlorothalonil | 12 | acfh | cfhk |
| Cuprofix Ultra 40 Disperss | 70506-201 | basic copper sulfate | 48 | ac | cfk |
| Dithane Rainshield DF | 62719-402 | mancozeb | 24 | acf | cfk |
| Dithane F-45 Rainshield | 62719-396 | mancozeb | 24 | cefhi | cef |
| Dithane M45 | 62719-387 | mancozeb | 24 | cefhi | cef |
| Echo 720 | 60063-7 | chlorothalonil | 12(E) | acfhm | cfhk |
| Echo 90DF | 60063-10 | chlorothalonil | 12(E) | acfhm | bchk |
| Elevate 50WDG | 66330-35 | fenhexamid | 12 | acf | cfk |
| Elite 45WP | 264-749 | tebuconazole | 12 | acfh | acfh |
| Equus 500ZN | 72167-27-66222 | chlorothalonil | 12 | acfh | cfhk |
| Ferbam Granuflo | 45728-7 | ferbam | 24 | acfhjl | cfhjk |
| Fireline | 80990-1 | oxytetracycline HCl | 12 | acfh | cfhk |
| Firewall 17WP | 80990-4-82695 | streptomycin | 12 | acfq | cef |
| Flint | 264-777 | trifloxystrobin | 12 | acf | cfk |
| Fontelis | 352-834 | Penthiopyrad | 12 | ac | cdef |
| Fungi-Phite | 83472-1 | phosphite | 4 | abch | bchk |
| GEM 500 SC | 264-826 | trifloxystrobin | 12 | acf | cfk |
| Indar 2F | 62719-416 | enbuconazole | 12 | acfj | cfk |
| Inspire Super | 100-1317 | difenoconazole & cyprodinil | 12 | acf | cfk |
| Iprodione 4L AG | 51036-340 | iprodione | 24 | acefjl | cef |
| JMS Stylet Oil | 65564-1 | Paraffinic oil | 4 | acf | cfk |
| Kocide 3000 | 352-662 | copper hydroxide | 48 | acfh | cfhk |
| §Kumulus DF | 51036-352 | sulfur | 24 | acfh | cfhk |
| Luna Sensation | 264-1090 | fluopyram + trifloxystrobin | 12 | acf | cef |
| Luna Tranquility | 264-1085 | pyrimethanil + fluopyram | 12 | acf | cef |
| *Manzate 75DF | 1812-414-352 | mancozeb | 24 | cefhi | cef |
| Manzate Max | 1812-416 | mancozeb | 24 | cefhi | bceh |
| ManKocide | 1812-360 | mancozeb + copper hydroxide | 24 | cefhi | cefh |
| Merivon | 7969-310 | pyraclostrobin + fluxapyroxad | 12 | acf | cdef |
| Mertect 340-F | 100-889 | thiabendazole | 12 | ac | cfk |
| §Microthiol Disperss | 70506-187 | sulfur | 24 | acf | cfhk |
| Miller Lime Sulfur | 66196-2-72 | lime sulfur | 48 | efghijl | efghj |
| §Mycoshield 17WP | 55146-97 | oxytetracycline HCl | 12 | acfh | cfhk |
| No Scald-DPA-23 | 2792-45 | diphenylamine | psthvst | acf | — |
| §NuCop 50DF | 45002-4 | copper hydroxide | 24 | acfh | cfhk |
| §OxiDate | 70299-2 | hydrogen dioxide | 1 | eg | bck |
| Penbotec 400SC | 43813-32-64864 | pyrimethanil | psthvst | acf | — |
| Penncozeb 75DF | 70506-185 | mancozeb | 24 | cefhi | cef |
| Penncozeb 4FL | 70506-194 | mancozeb | 24 | cefhi | cef |
| Phostrol | 55146-83 | phosphite | 4 | acfh | cfhk |
| Polyram 80DF | 7969-105-34704 | metiram | 24 | cefhi | cef |

Table 17.2.2 Fungicides and bactericides

| Product | EPA Reg. No. | Common Name | REI (hrs) | Applicator | Early Entry |
|---------------------------|----------------|--------------------------|-----------|------------|-------------|
| | | | | PPE | PPE |
| Pristine 38WDG | 7969-199 | pyraclostrobin/boscalid | 12 | acf | cfk |
| Procure 50WS | 400-431 | triflumazole | 12 | acf | cfk |
| Quash | 59639-147 | metconazole | 12 | acf | cfk |
| Quintec | 62719-375 | quinoxifen | 12 | acf | cfk |
| Rally 40WSP | 62719-410 | myclobutanil | 24 | acfh | cfhk |
| §Rex Lime Sulfur Solution | 71096-6 | lime sulfur | 48 | efghijl | efghj |
| Ridomil Gold EC | 100-801 | mefanoxam | 48 | acf | cfk |
| Rovral 50WP | 264-453 | iprodione | 24 | efgijl | cfk |
| Rovral 4 Flowable | 264-482 | iprodione | 24 | acf | cfk |
| Scala | 264-788 | pyrimethanil | 12 | acf | ack |
| Scholar | 100-969 | fludioxonil | psthvst | acf | — |
| Scholar SC | 100-1242 | fludioxonil | psthvst | acf | — |
| §Serenade ASO | 69592-12 | <i>Bacillus subtilis</i> | 4 | abco | abc |
| Sovran 50WDG | 7969-154 | kresoxim-methyl | 12 | acf | cfk |
| Streptrol | 55146-80 | streptomycin | 4 | acfl | cef |
| Sulforix Lime Sulfur | 66196-3-72 | lime sulfur | 48 | efghijl | efghj |
| Syllit FL | 55260-6 | dodine | 48 | acfhij | efghj |
| T-methyl 70W WSB | 66330-301 | thiophanate-methyl | 48(E) | acf | efgj |
| Tebuzol 45DF | 70506-113 | tebuconazole | (E) | acfh | acfh |
| Thiolux Jet | 100-1138 | sulfur | 24 | acfh | efg |
| Thiophanate Methyl 85WDG | 72167-10-66222 | thiophanate-methyl | 12(E) | acf | cfk |
| Thiram Granuflo | 45728-21 | thiram | 24 | acfj | cfk |
| Tilt | 100-617 | propiconazole | 12 | acfh | cfhk |
| Topsin M 70WP | 73545-11-70506 | thiophanate-methyl | 48 | acefgi | efgi |
| Topsin M WSB | 73545-16-70506 | thiophanate-methyl | 48 | acefgi | efgj |
| Topsin M 4.5FL | 73545-13-70506 | thiophanate-methyl | 48 | acefgi | efgj |
| Triadimefon 50DF | 264-737-45728 | triadimefon | 12 | acfjo | cfjk |
| §Trilogy | 70051-2 | neem extract | 4 | acf | cfk |
| Vanguard WG | 100-828 | cyprodinil | 12 | acf | cfk |
| Vintage SC | 10163-275 | fenarimol | 24 | dfghij | dfghj |
| Wettable sulfur | 5905-289 | sulfur | 24 | acf | cfk |
| Ziram 76DF | 4581-140-82695 | ziram | 48 | abchl | bchk |

Table 17.2.3 Growth Regulators

| Product | EPA Reg. No. | Common Name | REI (hrs) | Applicator | Early Entry |
|-------------------|---------------|------------------------|-----------|------------|-------------|
| | | | | PPE | PPE |
| Amid-Thin W | 5481-426 | NAD | 48 | abc | bck |
| Apogee | 7969-188 | prohexadione Ca | 12 | afc | cfk |
| Ethrel | 264-267 | ethephon | 48 | acfh | efghj |
| Exilis Plus | 62097-9-82917 | BA | 12 | acfhi | abch |
| Fruitone L | 5481-541 | NAA | 48 | acf | cdefh |
| Maxcel | 73049-407 | BA | 12 | acf | cfk |
| Novagib | 62097-7-82917 | GA ₄₊₇ | 4 | acfhij | abch |
| Perlan | 62097-6-82917 | GA ₄₊₇ + BA | 4 | acfhi | abch |
| §Pro-Gibb 4% | 73049-15 | GA ₃ | 12 | acfh | cfhk |
| §Pro-Gibb Plus 2X | 73049-16 | GA ₃ | 4 | abc | bck |
| Pro-Vide PGR | 73049-3 | GA ₄₊₇ | 12 | acfh | cfhk |
| §Pro-Vide 10 SG | 73049-409 | GA ₄₊₇ | 12 | acfh | cfhk |
| Promalin | 73049-41 | GA ₄₊₇ + BA | 4 | abch | bck |
| ReTain | 73049-45 | AVG | 12 | abc | bck |

Table 17.2.3 Growth Regulators

| Product | EPA Reg. No. | Common Name | REI (hrs) | Applicator PPE | Early Entry PPE |
|--------------|--------------|------------------------|-----------|----------------|-----------------|
| RiteSize | 55146-86 | BA + GA ₄₊₇ | 12 | ach | bchk |
| RiteWay | 71368-60 | BA | 12 | acfh | cfhk |
| Tre-Hold RTU | 5481-452 | NAA | 12 | acfh | cfhk |
| Typrus | 55146-85 | GA ₄₊₇ | 24 | acfh | cdfh |
| Typy | 55146-78 | BA + GA ₄₊₇ | 24 | dfghim | abch |

Key:

- a..... Long-sleeved shirt & long pants
b..... Waterproof gloves
c..... Shoes plus socks
d..... Coveralls over short-sleeved shirt & short pants
e..... Coveralls over long-sleeved shirt & long pants
f..... Chemical-resistant gloves; refer to label for specifics
g..... Chemical-resistant footwear & socks
h..... Protective eyewear
i..... Chemical-resistant apron when cleaning equipment, mixing or loading
j..... Chemical-resistant headgear for overhead exposure
k..... Coveralls
l..... Dust/mist filtering respirator (MSHA/NIOSH approval no. prefix TC-21C)
m..... Respirator with either an organic vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval no. prefix TC-23C) or a canister for pesticides (MSHA/NIOSH approval no. prefix TC-14G)

- n..... Face shield for mixing and loading
o..... Dust/mist filtering respirator (NIOSH approved) with any N, R, P or HE filter
p..... Dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, and P-95
q..... NIOSH approved respirator with any R, P, or HE filter
PPE..... Personal protective equipment
REI..... Re-entry interval
(E)..... Refer to label for details of restricted entry interval
psthvst.... Post-harvest use only
§..... Potentially acceptable in certified organic programs
*..... Restricted-use pesticide; may be purchased and used only by certified applicators, or used by someone under the supervision of a certified applicator.

17.3 Spray Mixture Compatibility Notes

Read the label for specific crops or situations. Compatibilities may be changed by certain adjuvants, different formulations, combinations of more than two materials, and environmental factors such as temperature and humidity.

- Unless otherwise noted on the label, use soon after mixing, preferably in systems with continuous agitation.
- Physical compatibility: Although there may be no chemical incompatibility between the active ingredients of 2 given pesticides, some formulations of these products may not be physically compatible. This is particularly true when mixing at high concentrations and when mixing wettable powders with emulsifiable concentrates. It is recommended that a small batch of a proposed mixture be prepared before making tank combinations, to check for unacceptable physical reactions.

17.3.1 Suggested Mixing Sequence

Always mix different spray materials in the following order, starting with:

1. water soluble bags (WS)
2. water dispersible granules and dry flowables (WDG, DF)
3. wettable powders (WP)
4. liquid flowables (L, F, FC)
5. sprayable concentrates (S, SC, LC)
6. emulsifiable concentrates (EC)
7. surfactants, oils, and adjuvants Do not add oils, surfactants, or emulsifiable concentrates prior to dry formulations, or lumping may occur.

17.4. Tree Fruit Reference Materials.

Univ. of Massachusetts Fact Sheets

Online at: extension.umass.edu/fruitadvisor/fact-sheets

| | |
|--------|---|
| F-101R | Controlling Growth of Apple Trees |
| F-114R | Limb Positioning |
| F-116R | Maintaining a Balance Between the Top and Bottom of Apple Trees |
| F-118R | Thinning Apples Chemically |
| F-119R | Foliar Calcium Sprays for Apples |
| F-124 | Nutrient Recommendations for Apples |
| F-126 | Prebloom Nutrient Applications for Apple Trees |
| F-127R | Apogee – A New Growth Retardant for Apples |
| F-128 | Expansion of the Apple Harvest Season |
| F-129A | Late-season “Rescue” Thinning with Ethephon |
| F-130 | Apple Tree Pruning and Training (English & Spanish) |
| F-131 | Enhancing Return Bloom of Apple |
| F-133 | An Annual Fireblight Management Program |
| | Predicting Delicious Storage Scald |
| F-200 | Peach Leaf Curl |
| | Block-specific Spray Calibration Worksheet |
| | Dogwood Borer in Dwarf Apples |
| | Reducing Apple Scab Risks and Saving Scab Sprays |

Univ. Maine Publications

| | |
|--|--|
| Orchard Fruit Pest Management - applicator training manual | |
| Planting and Early Care of Fruit Trees | www.umext.maine.edu/onlinepubs/htmlpubs/2411.htm |
| Renovating Old Apple Trees | www.umext.maine.edu/onlinepubs/htmlpubs/2409.htm |

Univ. Vermont Fact Sheets

Online at: orchard.uvm.edu/

| |
|--|
| IPM 'Quick' Summary for Monitoring Apple Arthropod Pests |
| IPM Checklist for Vermont |
| Key Arthropods and Diseases Affecting Apples: A Synopsis |
| Apple Orchard Information for Beginners |

Newsletters & Periodicals

| | |
|---------------------------------------|--|
| Healthy Fruit Newsletter (UMass) | extension.umass.edu/fruitadvisor/publications/healthy-fruit |
| Fruit Notes (UMass) | umassfruitnotes.com |
| Apple Pest Report Newsletter (UMaine) | pmo.umext.maine.edu/apple/AppPestReport.html |
| Apple IPM News (UVM) | orchard.uvm.edu/uvmapple/pest/ |

Websites

- NEWA, current weather and pest forecast information, newa.cornell.edu/
- Pesticide labels and MSDS sheets for most registered pesticides: www.cdms.net/manuf/manuf.asp [NOTE: The labels at this site may or may not contain state-specific restrictions.] Also appleipm.com
- PRONewEngland: pronewengland.org Links to university, government, private sector pest management contacts, state pesticide registrations, fact sheets, and other online pest management information for the six New England states.
- Rhode Island Apple IPM: www.uri.edu/research/ipm
- Rhode Island Fruit Growers website: www.rifruitgrowers.org
- Rhode Island product registration: state.ceris.purdue.edu/hlm/ri.htm
- UMaine Apple IPM: pmo.umext.maine.edu/apple/ Links to fact sheets, apple pest report newsletter, and updated weather-driven pest phenology models of use to commercial and hobbyist apple growers in Maine.
- Maine State Pomological Society www.maineapples.org Apple lore, orchard locations in Maine.
- UMass Fruit Advisor: umassfruit.com Provides resources for commercial tree- and small-fruit growers, including access to archives of *Healthy Fruit*, *Berry Notes*, and *Fruit Notes*, various fact sheets, videos, and other useful information for fruit growers.
- UConn IPM: www.ipm.uconn.edu Provides timely information on fruit pests and other fruit topics including meeting announcements and the online version of Crop Talk, a newsletter for commercial fruit and vegetable growers.
- Univ. Vermont's OrganicA: www.uvm.edu/organica/ A resource for organic apple production in New England.

- Univ. Vermont's Apple Program: orchard.uvm.edu A website for commercial apple growers in Vermont.
- For listing of New York State research and extension publications: www.nysaes.cornell.edu/hp/publications.html
- Up-to-date listing of maximum residue levels (MRLs; i.e., pesticide residue tolerances) for countries that import U.S. fruits and vegetables; mrldatabase.com
- For listing and purchase of PALS Publishing publications: palspublishing.cals.cornell.edu
- Northeastern IPM Center Tree Fruit IPM Working Group: www.northeastipm.org/working-groups/tree-fruit

Cornell Tree Fruit IPM Fact Sheets

Online at: www.nysipm.cornell.edu/factsheets/treefruit/

A series of fact sheets developed for insect and disease pests of tree-fruit crops. These outline the biology, monitoring, and management of various pests and include color photographs to aid in identification.

Insect IPM Fact Sheets

| | |
|--------------|--|
| 102GFSTF-I1 | Pear Psylla. 1978. |
| 102GFSTF-I2 | Codling Moth. 1996. |
| 102GFSTF-I3 | Plum Curculio. 1980. |
| 102GFSTF-I4 | Green Fruitworm. 1980. |
| 102GFSTF-I5 | Obliquebanded Leafroller. 1980. |
| 102GFSTF-I6 | Peachtree Borer. 1980. |
| 102GFSTF-I8 | Apple Maggot. 1991. |
| 102GFSTF-I9 | Spotted Tentiform Leafminer. 1980. |
| 102GFSTF-I10 | European Red Mite. 1980. |
| 102GFSTF-I11 | Rosy Apple Aphid. 1980. |
| 102GFSTF-I12 | San Jose Scale. 1980. |
| 102GFSTF-I13 | White Apple Leafhopper. 1980. |
| 102GFSTF-I14 | Dogwood Borer. 1985. |
| 102GFSTF-I15 | Cherry Fruit Fly & Black Cherry Fruit Fly. 1988. |
| 102GFSTF-I16 | Woolly Apple Aphid. 1988. |
| 102GFSTF-I17 | Oriental Fruit Moth. 1988. |
| 102GFSTF-I18 | Beneficial Insects. 1989. |
| 102GFSTF-I19 | Redbanded Leafroller. 1989. |
| 102GFSTF-I20 | European Apple Sawfly. 1991. |
| 102GFSTF-I21 | Tarnished Plant Bug. 1991. |
| 102GFSTF-I22 | Comstock Mealybug. 1991. |
| 102GFSTF-I23 | Predatory Mites. 1995. |
| 102GFSTF-I24 | American Plum Borer. 1997. |
| 102GFSTF-I25 | Phytophagous Mirid Bugs. 1998. |
| 102GFSTF-I26 | Apple-Boring Beetles. 1999. |

Disease IPM Fact Sheets

| | |
|--------------|---|
| 102GFSTF-D3 | Fire Blight. 1994. |
| 102GFSTF-D4 | Powdery Mildew of Apple. 2004. |
| 102GFSTF-D5 | Cedar Apple Rust. 1981. |
| 102GFSTF-D6 | Black Knot of Plum. 1992. |
| 102GFSTF-D7 | Phytophthora Root and Crown Rots. 1992. |
| 102GFSTF-D8 | Cherry Leaf Spot. 1993. |
| 102GFSTF-D9 | Apple Scab. 1993. |
| 102GFSTF-D10 | Brown Rot of Stone Fruits. 1993. |
| 102GFSTF-D11 | Sooty Blotch and Flyspeck. 1994. |
| 102GFSTF-D12 | Perennial Canker. 1995. |

Mammal IPM Fact Sheets

| | |
|-------------|----------------------------------|
| 102GFSTF-M1 | Meadow Vole and Pine Vole. 1988. |
|-------------|----------------------------------|

Cornell Extension Bulletins

| | |
|--------|--|
| IB 219 | Orchard Nutrition Management. 1991. hdl.handle.net/1813/3305 |
| IB 221 | Predicting Harvest Date for Apples. 1992. hdl.handle.net/1813/3299 |
| IPM207 | Apple IPM. 1999. nysipm.cornell.edu/publications/apple_man |

Cornell's Scaffolds Newsletter

Online at: www.nysaes.cornell.edu/ent/scaffolds/

Cornell Food and Life Sciences Bulletins

Online at: www.nysaes.cornell.edu/pubs/fls/

| | |
|---------|---|
| FLS 50 | Green Fruitworms. 1974. |
| FLS 58 | Growth Stages in Fruit Trees - From Dormant to Fruit Set. 1976. |
| FLS 92 | Biology and Control of <i>Cytospora</i> Fungi in Peach Plantings. 1982. |
| FLS 95 | Blister Spot of Apple. 1982. |
| FLS 108 | Diagnostic Keys for Diseases of Apple, Peach and Cherry. 1984. |
| FLS 116 | Chemical Thinning of Apples. 1986. |
| FLS 117 | Peach and Nectarine Varieties in New York State. 1986. |
| FLS 118 | Preventing Decomposition of Agricultural Chemicals by Alkaline Hydrolysis in the Spray Tank. 1986. |
| FLS 123 | Basing European Red Mite Control Decisions on a Census of Mites Can Save Control Costs. 1988. |
| FLS 124 | Insects Associated with Apple in the Mid-Atlantic States. 1988. |
| FLS 127 | Sweet and Tart Cherry Varieties: Descriptions and Cultural Recommendations. 1989. |
| FLS 128 | Effects of Ground Cover Manipulations on Pest and Predator Mite Populations on Apple in Eastern NY. 1989. |
| FLS 142 | Fruit Pest Events and Phenological Development According to Accumulated Heat Units. 1993. |
| FLS 143 | Sampling Second Generation Spotted Tentiform Leafminer. 1993. |
| FLS 158 | New York Integrated Fruit Production Protocol for Apples. 2006. |

PALS Publishing Publications (palspublishing.cals.cornell.edu)

NRAES-169 Tree Fruit Field Guide to Insect, Mite and Disease Pests and Natural Enemies of Eastern North America. 2006.

Brown Marmorated Stink Bug Fact Sheets and Links

Eastern NY Brown Marmorated Stink Bug Project: hudsonvf.cce.cornell.edu/bmsb1.html

Maryland: www.hgic.umd.edu/content/brownstinkbug.cfm

New Jersey: njaes.rutgers.edu/stinkbug/

Northeastern IPM Center: www.northeastipm.org/working-groups/bmsb-working-group/bmsb-information/

Pennsylvania: ento.psu.edu/extension/factsheets/brown-marmorated-stink-bug

USDA with cooperators Stop BMSB www.stopbmsb.org

UMass Brown Marmorated Stink Bug: ID and Biology, Monitoring, Management

<https://extension.umass.edu/fruitadvisor/brown-marmorated-stink-bug>

Spotted Wing Drosophila Fact Sheets and Links

Identifying *Drosophila suzukii* - Oregon Department of Agriculture

www.oregon.gov/ODA/PLANT/docs/pdf/ippm_d_suzukii_id_guide10.pdf?ga=t

How to Identify the Spotted Wing Drosophila Fly - Oregon State University (video)

www.youtube.com/watch?v=fxHhMRh9gnI

Recognizing Fruit Damaged by Spotted Wing Drosophila (SWD), *Drosophila suzukii*

[www.ars.usda.gov/SP2UserFiles/person/41853/PDF/articlesandinfo/Damage by SWD_2.pdf](http://www.ars.usda.gov/SP2UserFiles/person/41853/PDF/articlesandinfo/Damage%20by%20SWD_2.pdf)

UMass Spotted Wing Drosophila: extension.umass.edu/fruitadvisor/spotted-wing-drosophila

Recognize Fruit Damage from Spotted Wing Drosophila (SWD) - Oregon State University

horticulture.oregonstate.edu/system/files/em9021.pdf

Getting Ready for Spotted Wing Drosophila: Understanding Risks for Small Fruit Crops and Current Management Options - (Webcast with Dr. Greg Loeb, Cornell University)

breeze.cce.cornell.edu/p65wch1dipm

Spotted Wing Drosophila - Michigan State University

www.ipm.msu.edu/swd.htm

Spotted Wing Drosophila: A New Threat To Tender Fruit And Berry Crops – OMAFRA

www.omafra.gov.on.ca/english/crops/facts/pest-alert-swd.htm#id

Spotted Wing Drosophila - Oregon State University

horticulture.oregonstate.edu/group/spotted-wing-drosophila

www.ipm.ucdavis.edu/IPMPROJECT/workshop-spottedwing_drosophila.html

swd.hort.oregonstate.edu

17.5 Diagnostic and Analytical Services

To submit samples for insect or disease diagnosis or plant identification, contact:

UConn Home & Garden Education Center
Ratcliffe Hicks Building, Room 4
1380 Storrs Rd., Unit 4115
Storrs, CT 06269-4115
(860)486-6271 or toll-free 1-877-486-6271
www.ladybug.uconn.edu

Plant Disease Information Office
The Connecticut Agricultural Experiment Station
123 Huntington Street, P.O. Box 1106
New Haven, CT 06504
(203) 974-8601
www.ct.gov/caes/pdio

UMaine Coop. Ext. Insect & Plant Disease Diagnostic Lab
Pest Management Office
491 College Avenue
Orono, ME 04473
Insect Inquiries: 207-581-2963
Disease Inquiries: 207-581-3883
umaine.edu/ipm/ipddl/

UMass Plant Diagnostic Lab
101 University Drive, Suite A7
Amherst, MA 01002
413-545-3208
ag.umass.edu/diagnostics

UNH Cooperative Extension Insect Identification
G28 Spaulding Hall
38 Academic Way
Durham, NH 03824
603-862-3200
extension.unh.edu/Agric/AGPDTS/ArthroID.htm

UNH Cooperative Extension Plant Diagnostic Lab
G37 Spaulding Hall
38 Academic Way
Durham, NH 03824
603-862-3200; FAX 603-862-2717
extension.unh.edu/Agric/AGPDTS/PlantH.htm

URI Plant Clinic
3 East Alumni Ave.
Cooperative Extension Education Center
Kingston, RI 02881
401-874-2900
www.uri.edu/ce/ceec/plantclinic.html

UVM Plant Diagnostic Clinic
201 Jeffords Hall
63 Carrigan Dr.
University of Vermont
Burlington, VT 05405
802-656-0493
www.pss.uvm.edu/pd/pdc

To submit soil or leaf tissue nutrient analysis samples, contact:

Connecticut Agricultural Experiment Station
Slate Laboratory
P.O. Box 1106
New Haven, CT 06504
203-974-8521
www.caes.state.ct.us/Soiloffice/soiltesting.htm

UConn Soil Nutrient Analysis Laboratory
6 Sherman Place, U-102
University of Connecticut
Storrs, CT 06269-5102
860-486-4274
www.soiltest.uconn.edu

UMaine Analytical Laboratory
Maine Soil Testing Service
5722 Deering Hall
University of Maine
Orono, ME 04469-5722
207-581-3591 or 207-581-2945
anlab.umesci.maine.edu/

UMass Soil & Tissue Testing Laboratory
West Experiment Station
682 North Pleasant Street
University of Massachusetts
Amherst, MA 01003
413-545-2311
soiltest.umass.edu

UNH Cooperative Extension Soil Testing Program
Spaulding Life Science Center, Room G28
38 Academic Way
Durham, NH 03824
603-862-3200
extension.unh.edu/Agric/AGPDTS/SoilTest.htm

UVM Agriculture and Environmental Testing Laboratory
262 Jeffords Hall
63 Carrigan Drive
Burlington, VT 05405
802-656-3030
www.uvm.edu/pss/ag_testing/

17.6 Extension Faculty and Staff

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17.6 Extension Faculty and Staff

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17.6 Extension Faculty and Staff

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| VERMONT | | |
| Terence Bradshaw Dept. of Plant and Soil Science University of Vermont Burlington, VT | Tree fruit culture, management, and IPM | 802-922-2591 tbradsha@uvm.edu |
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