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2002 Guide for Home Garden, Landscape and Lawn Fungicides

John E. Watkins
Extension Plant Pathologist

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### Home Garden Vegetables

#### General Purpose Fungicides for Foliar Leaf Spots and Blights
*(Days required between last application and harvest)*

**• Contact Fungicides**

<table>
<thead>
<tr>
<th>Fungicide</th>
<th>Vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chlorothalonil</strong></td>
<td>Dry beans (42)</td>
</tr>
<tr>
<td></td>
<td>Snap beans (7)</td>
</tr>
<tr>
<td></td>
<td>Crucifers (0)</td>
</tr>
<tr>
<td></td>
<td>Carrots (0)</td>
</tr>
<tr>
<td></td>
<td>Celery (7)</td>
</tr>
<tr>
<td></td>
<td>Sweet corn (14)</td>
</tr>
<tr>
<td><strong>Maneb</strong></td>
<td>Dry onion and green onion (7)</td>
</tr>
<tr>
<td></td>
<td>Potatoes (14)</td>
</tr>
<tr>
<td></td>
<td>Tomatoes (5)</td>
</tr>
<tr>
<td><strong>Mancozeb</strong></td>
<td>Asparagus (rust) - (apply after harvest)</td>
</tr>
<tr>
<td></td>
<td>Corn, sweet and popcorn (7)</td>
</tr>
<tr>
<td></td>
<td>Dry onions (7)</td>
</tr>
<tr>
<td></td>
<td>Cucurbits (5)</td>
</tr>
<tr>
<td><strong>Liquid copper</strong></td>
<td>(apply in the evening when cooler)</td>
</tr>
<tr>
<td></td>
<td>Snap and dry beans (0)</td>
</tr>
<tr>
<td></td>
<td>Celery (0)</td>
</tr>
<tr>
<td></td>
<td>Cucurbits (0)</td>
</tr>
<tr>
<td></td>
<td>Beets (0)</td>
</tr>
<tr>
<td></td>
<td>Crucifers (0)</td>
</tr>
</tbody>
</table>

**• Organic Fungicides**

<table>
<thead>
<tr>
<th>Fungicide</th>
<th>Vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neem Oil</strong></td>
<td>(apply in morning or evening)</td>
</tr>
<tr>
<td></td>
<td>All vegetables (0)</td>
</tr>
<tr>
<td><strong>Sulfur</strong></td>
<td>(apply in the evening when cooler)</td>
</tr>
<tr>
<td></td>
<td>Snap and Dry Beans (0)</td>
</tr>
<tr>
<td></td>
<td>Pears (0)</td>
</tr>
</tbody>
</table>

**• Other Products**

<table>
<thead>
<tr>
<th>Product</th>
<th>Vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bordeaux Mixture</strong></td>
<td>(apply in the evening when cooler)</td>
</tr>
<tr>
<td></td>
<td>Potatoes (0)</td>
</tr>
<tr>
<td></td>
<td>Tomato (0)</td>
</tr>
</tbody>
</table>
Home Garden Fruits

Tree Fruits and Nut Trees
(Days required between last application and harvest)

• Broad Spectrum Contact Fungicides

Bordeaux Mixture (dormant and early sprays)
   - Apples (do not apply after 1/4 inch green stage)
   - Pears (apply during bloom period)
   - Apricots, plums, sour cherries (early cover spray; do not use on Japanese plums)
   - Pecans (when catkins show)

Chlorothalonil (early sprays)
   - Apricot, nectarine, peach (bloom stage)
   - Cherry and plum (delayed dormant spray just before bloom, full bloom, petal fall)

Lime Sulfur (early spray)
   - Apples and pears (cluster bud and pre-bloom)
   - Cherries and plums (cluster bud and pre-bloom)

Captan (pre-bloom and cover sprays)
   - Apple (7)
   - Cherry and peach (14)

Neem Oil (cover sprays; apply in morning or evening)
   - All fruits (0)

Ferbam (pre-bloom and cover sprays)
   - Apples and pears (7)

Liquid Copper (early sprays)
   - Sour cherries (bud, bloom, petal fall)
   - Peaches (late dormant to pink bud)

• Tree Fruit Systemic Fungicides

Propiconazole*
   - Apple*
   - Cherry

*(Apply only to non-bearing trees that will not produce fruit for at least one year.)

Myclobutanil
   - Apple (14)
   - Apricots (0)
   - Cherry (0)

Pecan

Walnut

Peaches (0)

Plums (0)

Dormant Treatments for Peach Leaf Curl

Bordeaux Mixture

Lime Sulfur

Ferbam

Liquid Copper
Small Fruits
(Days required between last application and harvest)

• Broad Spectrum Contact Fungicides

Bordeaux Mixture
Grapes (pre-bloom, post-bloom, mid summer)
Strawberry (apply up to harvest)

Maneb (early cover sprays)
Grapes (do not apply within 66 days of harvest)

Lime Sulfur (dormant and early sprays)
Grapes (new shoots 4-6 inches)
Raspberries and blackberries (new shoots 8-12 inches)
Currants and gooseberries (before and after bloom)

Captan (pre-bloom and cover sprays)
Strawberries (14)
Grapes (14)

Mancozeb (66) (early cover sprays)

Ferbam (pre-bloom and cover sprays)
Grapes (7)

Liquid Copper (early sprays)
Raspberries and blackberries (0)
Grapes (0)
Strawberries (0)

Home Landscape Ornamentals

General Purpose Fungicides for Foliar Diseases
of Bedding Plants and Perennial Flowers

• Contact Fungicides

Chlorothalonil - wide host range
Maneb - wide host range
Mancozeb - wide host range
Neem Oil - all bedding plants and perennials
Sulfur - apply in evening when cooler; wide host range
Captan
Chrysanthemums
Ferbam
Snapdragons
Carnations
Chrysanthemums

Peony
Tulip
### Liquid Copper
- Philodendron
- Begonia
- Chrysanthemums
- Gardenia
- Pachysandra

**Bordeaux Mixture** (early and cover sprays)
- Iris
- Chrysanthemum
- Lilies
- Dahlias
- Tulips

### Systemic Fungicides
- **Bayleton** - wide host range
- **Propiconazole**
  - Chrysanthemums
  - Delphinium
  - Snapdragons
  - Sweet William
- **Triforine (Funginex)** - wide host range
- **Myclobutanil** - wide host range

### General Purpose Fungicides for Foliar Diseases of Roses and Shrubs

#### Contact Fungicides
- **Chlorothalonil**
  - Azalea
  - Dogwood
  - Euonymus
  - Firethorn (Pyracantha)
  - Flowering Almond and Quince
- **Maneb**
  - Dogwood
  - Rose
- **Mancozeb**
  - Azalea
  - Dogwood
  - Euonymus
  - Firethorn (Pyracantha)
  - Flowering Almond and Quince
  - Holly
  - Oregon - Grape (Mahonia)
  - Privet
  - Viburnum
  - Rose

**Neem Oil** (apply in morning or early evening)
- All shrubs and roses

**Sulfur** (apply in evening when cooler)
- All shrubs and roses

**Captan**
- Azalea
- Rose

**Ferbam**
- Rose
Liquid Copper (apply in evening when cooler)
  Azalea
  Cotoneaster
  Euonymus

Bordeaux Mixture (one to three early sprays)
  Barberry
  Boxwood

*Systemic Fungicides*

Bayleton - wide host range

Thiophanate - methyl
  Azalea
  Firethorn (Pyracantha)
  Rose
  Rhododendron

Propiconazole
  Rose
  Dogwood

Triforine (Funginex)
  Azalea
  Euonymus
  Lilac

Myclobutanil - wide host range

*Specialty Treatments*

Peony Blights (Early spring)
  Bordeaux Mixture (Botrytis)
  Maneb (Botrytis and Phytophthora)
  Mancozeb (Botrytis and Phytophthora)
  Ferbam (Botrytis)

Bulb, Corm and Rhizome Dip Treatments
  Thiophanate-methyl

Soil Drench Treatments
  Thiophanate-methyl

Powdery Mildews
  Bayleton
  Neem Oil
  Sulfur (apply in the evening when cooler)
  Triforine (Funginex)
  Propiconazole*

Fire Blight (Bloom period)
  Streptomycin Sulfate

*See host list for propiconazole in the section under "Bedding Plants and Perennial Flowers" and "Roses and Shrubs."
Home Landscape Trees

Fungicides for Use on Evergreen Diseases

**Pines**

* Sphaeropsis Tip Blight
  (opening of shoot buds and again in two weeks; third week of April and first week of May)
    - Bordeaux Mixture
    - Liquid Copper
    - Thiophanate-methyl (systemic)

* Needle Blight (new needles emerging and again in three weeks; early and late May)
  - Liquid Copper

* Brown Spot Needle Blight (new growth 1/2 - 2 inches and repeat in three to four weeks)
  - Mancozeb
  - Chlorothalonil

* Gall Rust (early summer and again in two weeks)
  - Bayleton (systemic)

**Juniper and Cedar**

* Cedar Apple Rust (July and August application)
  - Bordeaux Mixture
  - Bayleton (systemic)
  - Liquid Copper
  - Myclobutanil (systemic)

* Phomopsis Stem Blight
  - Mancozeb
  - Thiophanate-methyl (systemic)

* Cercospora Needle Blight (when new growth starts in spring, repeat monthly to September)
  - Liquid Copper
  - Mancozeb

**Spruce**

* Rhizosphaera Needle Cast (new growth 1/2 - 2 inches and repeat in three to four weeks)
  - Bordeaux Mixture
  - Chlorothalonil

**Fir**

* Swiss Needle Cast (Douglas Fir) (new growth 1/2 - 2 inches and repeat in three to four weeks)
  - Chlorothalonil
  - Mancozeb

* Needle Rust (apply every 21 days in May-June)
  - Myclobutanil (systemic)
  - Bayleton (systemic)
  - Propiconazole (systemic)

* Rhabdocline Needle Cast (new growth 1/2 - 2 inches and repeat in three to four weeks)
Shade Tree Anthracnose, Leaf Spots; Leaf Blister and Rusts

• Broad Spectrum Contact Fungicides
  - Bordeaux Mixture (bud break)
  - Lime Sulfur (bud break)
  - Chlorothalonil (bud break)
  - Liquid Copper (bud break; cover sprays as needed)
  - Mancozeb (leaf expansion; cover sprays as needed)

• Systemic Fungicides
  - Bayleton (powdery mildews and rusts; cover sprays when leaves expanded)
  - Thiophanate-methyl (bud break; cover sprays as needed)
  - Propiconazole (oak leaf spot; cover sprays as needed)
  - Myclobutanil (rusts and powdery mildews; cover sprays as needed)
  - Triforine (Funginex) (popular rust; every 14 days July - September)

Flowering Trees — Crabapple, Hawthorn, Ornamental Pears

• Rusts, Scab, Leaf Spots
  - Chlorothalonil (green tip; cover sprays in May)
  - Lime Sulfur (bud swell; early cover sprays)
  - Bayleton (systemic; green tip; cover sprays in May)
  - Thiophanate-methyl (Crabapple rust) (systemic; green tip; cover sprays in May)
  - Mancozeb (green tip; cover sprays in May)
  - Propiconazole (systemic; green tip; cover sprays in May)
  - Myclobutanil (systemic; pre-bloom; bloom, petal fall)

• Fire Blight
  - Streptomycin Sulfate (bloom period)

Home Lawn Fungicides

• Leaf Spot and Melting Out
  - Contact Fungicides (every seven days during May)
    - Mancozeb
    - Maneb
  - Systemic Fungicides (every 14 days during May)
    - Thiophanate-methyl

• Necrotic Ring Spot*
  - Systemic Fungicides (irrigate into root zone)
    - Thiophanate-methyl (April 15-30 and again May 15-30)
• Dollar Spot
  Contact Fungicides (every seven days on an as needed basis)
  Mancozeb
  Systemic Fungicides (every 14-21 days on an as needed basis)
  Benomyl
  Propiconazole
  Thiophanate-methyl
  Myclobutanil

• Powdery Mildew
  Systemic Fungicides (every 14-21 days on an as needed basis)
  Propiconazole
  Triadimefon
  Myclobutanil

• Brown Patch
  Contact Fungicides (every seven days on an as needed basis)
  Mancozeb
  Maneb
  Systemic Fungicides (every 14-21 days on an as needed basis)
  Benomyl
  Propiconazole
  Thiophanate-methyl
  Triadimefon
  Myclobutanil

• Summer Patch*
  Systemic Fungicides
  (In May when soil temperature at 2 inches is 65°F; repeat in 30 days; irrigate into root zone)
  Thiophanate-methyl
  Triadimefon
  Myclobutanil

• Rust Diseases
  Contact Fungicides (every 7-14 days July-September as needed)
  Mancozeb
  Maneb
  Systemic Fungicides (every 21-28 days July-September as needed)
  Propiconazole
  Thiophanate-methyl
  Triadimefon
  Myclobutanil

• Stripe Smut
  Systemic Fungicides (apply twice in early spring and again in early autumn)
  Myclobutanil
  Propiconazole
  Thiophanate-methyl

*Note: Application Methods for Necrotic Ring Spot and Summer Patch
For wettable powders, emulsifiable concentrates, flowables or dry flowables apply in at least 5 gal water/1000 square feet, or wash fungicides off of the leaves and into the root zone with a light irrigation (1/8 - 1/4 inch). Apply granular products when the turf is dry, then irrigate with 1/2 inch water.
Home Garden and Landscape Fungicide Brand Names

• Contact Fungicides

Bordeaux Mixture
  Acme Bordeaux Mixture
  Black Leaf Bordeaux Powder
  Dragon Bordeaux Mixture

Captan
  Acme Liquid Fruit Tree Spray
  Dragon Fruit Tree Spray
  Dragon Captan Wetable
  Dragon Rose and Flower Dust
  Earl May Fruit Tree Spray
  Ortho Home Orchard Spray
  American Captan Garden Fungicide
  Security Captan Garden Spray
  Green Up Captan Garden Spray
  HiYield Captan 50% WP Fungicide
  Bonide Fruit and Ornamental WP
  ferti-lome Fruit Tree Spray

Chlorothalonil
  Acme Multi-Purpose Fungicide
  Ortho Multi-Purpose Fungicide Daconil 2787 Plant Disease Control
  Bonide Liquid Fungicide Daconil 2787
  Earl May Fung-onil Multi Purpose Fungicide
  Bonide Fung-onil Multi Purpose Fungicide
  Dragon Daconil 2787
  ferti-lome Broad Spectrum Liquid Fungicide
  Pennington Multi-Purpose Fungicide
  Security Fungi-Gard
  ferti-lome Tripple Action Insecticide-miticide-fungicide

Ferbam
  Security Ferbam Fungicide
  Dragon Ferbam Wetable Fungicide

Mancozeb
  Green Light Broad Spectrum Mancozeb Fungicide
  Bonide Mancozeb Flowable with Zinc
  Bonide Mancozeb Vegetable and Ornamental Fungicide
  Dragon Mancozeb Disease Control
  Acme Lawn and Ornamental Fungicide

Maneb
  Acme Maneb Tomato and Vegetable Fungicide
  Earl May Tomato Blight Control
  Earl May Tomato and Vegetable Dust
  Earl May Rose and Flower Dust (Maneb + Sevin)
  Early May Bug Dust (Maneb + Sevin)
Liquid Copper (Copper Hydroxide, Copper Oleate, Copper Salts)
- Bonide Liquid Copper Fungicide
- Bonide Copper 4E Fungicide
- Dragon Copper Fungicide
- ferti-lome Blackspot Powdery Mildew Control
- Acme Copper Fungicide
- Dragon Tomato and Vegetable Dust
- Hi Yield Copper Fungicide
- American Copper Fungicide
- Black Leaf Liquid Copper Fungicide

Lime Sulfur
- Acme Lime Sulfur Spray
- Bonide Oil and Lime Sulfur Spray
- Ortho Dormant Disease Control Lime-Sulfur Spray
- Early May Lime Sulphur Spray

Sulfur
- Dragon Wetable or Dusting Garden Sulphur
- ferti-lome Dusting Sulfur
- ferti-lome Rose, Flower and Vegetable Dust
- Safer Garden Fungicide
- Ortho Garden Sulfur Dust
- Bonide Sulfur Plant Fungicide
- Bonide Liquid Fungicide
- Green Light Wettable Powder

Specialty Organic Products
- Natural Guard Nematode Control (Chitin)
- Green Light Powdery Mildew Killer (Neem Oil)

Agricultural Antibiotics
- Bonide Fire Blight Spray (Streptomycin Sulfate)
- ferti-lome Fire Blight Spray (Streptomycin Sulfate)

*Systemic Fungicides*

**Benomyl**
- American Benomyl Systemic Fungicide
- Acme Benomyl Systemic Fungicide for Lawns
- Bonide Benomyl Lawn Fungicide Granules
- Hi Yield Benomyl
- Hi Yield Benomyl Systemic Fungicide
- Security Benomyl Spray

**Propiconazole (Banner)**
- ferti-lome Liquid Systemic Fungicide

**Thiophanate-methyl**
- Green Light Fung-Away II Systemic Lawn Fungicide
- Green Light Systemic Fungicide Disease Control
- Dragon Systemic Fungicide 3336
- ferti-lome Halt Systemic Rose, Flower, Lawn, Ornamental Fungicide
- Bonide Bonomyl Systemic Fungicide
- Scotts Fungo Systemic Fungicide
- Scotts Lawn Fungus Control

**Myclobutanil**
- Spectrum Spectracide Immunox Multi-Purpose Fungicide
Triadimefon (Bayleton)
Green Light Fung-Away Systemic Fungicide
Green Light Fung-Away Systemic Lawn Fungicide Spray
Bonide Lawn Fungicide with Bayleton
Bonide Bayleton Systemic Fungicide
HiYield Lawn Fungicide Granules

Triforine
Ortho Rose Pride Funginex Rose and Shrub Disease Control Concentrate
Ortho Rose Pride Orthonex Insect and Disease Control Concentrate
Ortho Rose Pride Orthonex Insect and Disease Control

Note: The labels for specific products may differ somewhat with the different brand names of that product, so the home gardener should check the product label before buying a product.

This list is presented for information only and no endorsement is intended for products listed nor criticism meant for products not listed. Consult the product label before buying and using a specific fungicide.