



PLANT PATHOLOGY SERIES

# TIMELY INFORMATION

## Agriculture & Natural Resources

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### **Off-The-Shelf Fungicides and Bactericides for use in Home Landscapes For the Control of Diseases on Annuals, Perennials, and Woody Plants**

Austin Hagan (ahagan@acesag.auburn.edu)  
Extension Plant Pathologist and Professor  
Department of Entomology and Plant Pathology

The 1996 Food Quality Protection Act has had a tremendous impact on the registration status of many fungicides, especially those products that are used in the home landscape, lawns, and gardens. When a risk assessment for a fungicide or other pesticide is conducted now, potential exposure to residues resulting from non-food uses is given the same weight as residues on food. Previously, that was not the case. To comply with FQPA guidelines, the high-exposure uses of some effective fungicides were removed from product labels or their registrations were voluntarily cancelled. The most noticeable fungicide casualties of regulatory action were chlorothalonil, which lost its residential turf label, and the no longer manufactured triforine. Immunox and Systemic Fungicide are possible replacements for chlorothalonil and to a lesser extent triforine. However, neither of these products has the broad label of the old chlorothalonil formulations but both are effective alternatives to triforine.

This is not an exhaustive list of the fungicides and bactericides now marketed for use in Alabama residential landscapes for the control of diseases on annuals, perennials, and woody plants. The fungicides listed in this publication are, however, marketed by well-known distributors at numerous retail outlets around the state. If anyone knows of a fungicide(s) that was not included in this publication and available in their county, please send a copy of the label to me.

ALABAMA A&M AND AUBURN UNIVERSITIES, AND TUSKEGEE UNIVERSITY, COUNTY GOVERNING BODIES AND USDA COOPERATING

The Alabama Cooperative Extension System offers educational programs, materials, and equal opportunity employment to all people without regard to race, color, national origin, religion, sex, age, veteran status, or disability.

| Fungicide   | Target Disease and Host                             | Application Rate/<br>gallon of water | Comments  |
|---|---|--------------------------------------|---|
| Blackspot and Powdery Mildew Control<br>ferti-loam®<br>[a.i. copper hydroxide]    | Black spot and powdery mildew on rose               | 1½ tsp                               | <b>Foliar Spray:</b> Begin applications at first sign of disease and repeat applications every 7 to 14-days as needed. Shorten interval during periods of frequent rains or when conditions favor rapid disease development. Refer to label for additional information on use rates and possible phytotoxicity. <b>Note:</b> this product is also labeled for use on home lawns. See label for target diseases and application instructions.        |
|   | Botrytis blight on azalea, bulbs, and chrysanthemum |                                      |   |
|   | Bacterial leaf spot on begonia, carnation, and ivy  |                                      |   |
|   | Fire blight and scab on pyracantha                  |                                      |   |
|   | Powdery mildew on azalea                            |                                      |   |
|   | Cercospora leaf spot on azalea                      |                                      |   |
| Daconil®<br>Hi-Yield®<br>[a.i. chlorothalonil]                                    | Black spot and blossom blight on rose               | 6 Tbs                                | <b>Foliar Spray:</b> Apply every 7-days from leaf out to the first hard frost in the fall. May burn the leaves of ‘Double Delight’ and other roses when applied on hot, sunny summer days. May be used on other flowers, perennials, and woody plants. Also labeled for use on vegetables and fruit trees. Refer to label.  |
|   | Iris leaf spot and Botrytis blossom blight          | 6 Tbs                                | <b>Foliar Spray:</b> Apply when symptoms first appear in spring and repeat every 7- to 10-days as needed.   |
|   | Powdery mildew on zinnia                            | 9 Tbs                                | <b>Foliar Spray:</b> Apply when symptoms first seen and repeat every 7- to 14-days. Should also control Alternaria leaf spot on zinnia.   |
| Daconil 2787 Multi-Purpose Fungicide®<br>Ortho Products®<br>[a.i. chlorothalonil] | Petal blight and dieback on azalea                  | 2¼ tsp                               | <b>Foliar Spray:</b> Apply to drip every 7- to 14-days until conditions no longer favor disease. For control of powdery mildew diseases, make first application at first sign of disease on leaves and repeat at 7- to 14-day intervals. For control of black spot on rose, apply Daconil 2787 from bud break until the first hard frost in the fall every 7 days. When the weather is cloudy and wet, shorten the interval between sprays. See the |
|   | Scab, Cedar-apple rust, and leaf spot on crabapple  |                                      |   |
|   | Dogwood anthracnose on flowering dogwood            |                                      |   |
|   | Anthracnose on Euonymus                             |                                      |   |

| Fungicide   | Target Disease and Host  | Application Rate/<br>gallon of water | Comments  |
|---|--|--------------------------------------|---|
|   | Cedar quince rust and Fabraea leaf spot on flowering almond, quince, cherry and hawthorn | 2¼ tsp                               | additional instructions on the timing of applications of Daconil 2787. Also, this fungicide is cleared for use on selected vegetables. See label for additional instructions on target crops and diseases.  |
| Rhizoctonia web b light on holly                                |  |                                      |   |
| Cercospora leaf spot on hydrangea                               |  |                                      |   |
| Didymellina leaf spot and Botrytis blight on iris               |  |                                      |   |
| Leaf blister and anthracnose on oak                             |  |                                      |   |
| Phytophthora and Botrytis blight on petunia                     |  |                                      |   |
| Entomosporium leaf spot on photinia                             |  |                                      |   |
| Leaf spot on poplar   |  |                                      |   |
| Cercospora leaf spot on privet                                  |  |                                      |   |
| Scab on pyracantha  |  |                                      |   |
| Black spot and Botrytis blight on rose                          |  |                                      |   |
| Anthracnose on sycamore   |  |                                      |   |
| Powdery mildew on viburnum                                      |  |                                      |   |
| Powdery mildew on zinnia  |  |                                      |   |
| Fire Blight Spray<br>ferti-loam®<br>[a.i. streptomycin sulfate] | Fire blight on bearing and non-bearing apple, pear, and pyracantha.                      | ¾ level tsp                          | <b>Foliar Spray:</b> Rate is equivalent to 8 ounces per 100 gallons of water. For control of fire blight, apply every 3 to 4 days during bloom and every 5 to 7 days after bloom when weather conditions favor disease spread. High rates of Fire Blight spray may damage the leaves of some target plants. |

| <b>Fungicide</b>   | <b>Target Disease and Host</b>   | <b>Application Rate/<br/>gallon of water</b> | <b>Comments</b>  |
|--|--|--|--|
| RosePride Funginex®<br>Ortho Products®<br>[a.i. triforine] | Powdery mildew and Black spot on rose  | 1 Tbs  | <b>Foliar Spray:</b> For control of black spot on rose, apply Funginex from bud break until the first hard frost in the fall every 7 days. To prevent control failures due to resistance, alternate applications of Funginex with a chlorothalonil fungicide like Daconil or Halt. |
|  | Rust on oxalis and poplar  |  | <b>Foliar Spray:</b> Apply at first sign of disease on leaves and repeat applications of Funginex every 7 to 10 days until conditions no longer favor disease.   |
|  | Petal blight on azalea and rhododendron  |  | <b>Foliar Spray:</b> Apply when flower buds begin to show color and again after 7 days.  |
|  | Control of Entomosporium leaf spot on photinia   | 1 Tbs  | <b>Foliar Spray:</b> Begin applications as new leaves unfurl and repeat applications at 7- to 10-day intervals until the new growth matures in late summer. If weather in fall is wet, continue applications of Funginex.  |
|  | Powdery mildew on azalea, begonia, planetree, crape myrtle, dahlia, euonymus, lilac, phlox, photinia, snapdragon, and zinnia | 1 Tbs  | <b>Foliar Spray:</b> Apply at first sign of disease on leaves and repeat applications of Funginex every 7 to 10 days until conditions no longer favor disease.   |
| Halt®<br>ferti-loam®<br>[a.i. thiophanate-methyl]          | Azalea petal blight  | 1½ tsp                                       | <b>Foliar Spray:</b> Apply as buds show color and repeat every 7- to 10-days until blooms fall. <b>Note:</b> Halt is also cleared for use on home lawns. See label for target diseases, treatment rates, and application timing.   |
|  | Powdery mildew control on annual and perennial flowers, ground covers, deciduous and evergreen trees and shrubs.             | 2½ tsp                                       | <b>Foliar Spray:</b> Apply when needed at 7- to 10-day intervals and make no more than 4 applications per year.  |
|  | Black spot of rose   | 2½ tsp                                       | <b>Foliar Spray:</b> Apply to roses at first sign of disease and repeat every 7-days as needed.  |

| Fungicide                                       | Target Disease and Host   | Application Rate/<br>gallon of water | Comments   |
|---|---|--------------------------------------|--|
|   | Botrytis flower blight of annuals and perennial flowers.  | 2½ tsp                               | <b>Foliar Spray:</b> Apply when conditions favor disease and target plant in bloom. Repeat treatment as needed 7- to 10-days.  |
|   | Iris leaf spot  |                                      | <b>Foliar Spray:</b> Apply when symptoms are first seen and repeat applications as needed every 7- to 10-days.   |
|   | Leaf rust on crabapple  |                                      | <b>Foliar Spray:</b> Apply every 10- to 14-days as needed. Effectiveness against this disease is questionable.   |
|   | Scab on crabapple and pyracantha  |                                      | <b>Foliar Spray:</b> Apply when symptoms first appear and repeat at 7- to 10-day intervals as needed.  |
|   | Phomopsis twig blight on juniper  |                                      | <b>Foliar Spray:</b> Apply in late spring and early summer every 7- to 10-days.  |
|   | Stem, Crown, and Root rots of annuals and perennial flowers, ground covers, deciduous and evergreen trees and shrubs. | 2½ tsp                               | <b>Soil Drench:</b> For control of rot diseases caused by <i>Botrytis</i> , <i>Fusarium</i> , <i>Myrothecium</i> , <i>Rhizoctonia</i> , <i>Thielaviopsis</i> , <i>Cylindrocladium</i> , and <i>Sclerotinia</i> fungi. Apply in enough water to wet media or soil around the roots of plant. Repeat treatment every 21 to 28 days as needed to control disease. |
|   | Bulb, Corm, and Rhizome rot of daffodil, gladiolus, iris and similar flowers.   | 2½ tsp                               | <b>Bulb and Corm Dip:</b> For the control of <i>Fusarium</i> and <i>Penicillium</i> rots. Dip immediately after digging and cleaning for 30 minutes in a warm dip (80 to 85°F). Dry bulbs and then store in cool dry space.  |
| Immunox®<br>Spectracide®<br>[a.i. myclobutanil] | Black spot, powdery mildew on rose.   | 2 T<br>(1 fl oz)                     | <b>Foliar Spray:</b> Apply every 7-days from leaf out in the spring until the first hard frost in the fall. <b>Note:</b> Also labeled for use on home lawns. Refer to label for target diseases and application rates.   |
|   | Rust on flowering quince  |                                      | <b>Foliar Spray:</b> Apply in early spring as needed.  |
|   | Petal blight and powdery mildew on azalea, mountain laurel, and rhododendron.   | 2 T<br>(1 fl oz)                     | <b>Foliar Spray:</b> For petal blight control, apply when buds show color and repeat every 7 days until blooms fall. For powdery mildew control, apply at first sign of disease and repeat every 7-to 14-days as needed.   |

| Fungicide  | Target Disease and Host   | Application Rate/<br>gallon of water | Comments   |
|--|---|--------------------------------------|--|
|  | Cercospora leaf spot and powdery mildew control on hydrangea, leucothoe, privet and zinnia.                                   |                                      | <b>Foliar Spray:</b> At first sign of symptoms, apply 7- to 14-day interval as needed to control disease.  |
|  | Powdery mildew control on crape myrtle, dahlia, elm, euonymus, lilac, oak, and sycamore.                                      |                                      | <b>Foliar Spray:</b> For control of anthracnose and scab, begin applications at leaf-out and repeat applications every 7- to 14-days until early summer. Shorten interval during periods of wet weather. Powdery mildew can be controlled by starting fungicide applications when symptoms first appear in May and repeat every 7- to 14-days as needed. |
|  | Anthracnose and powdery mildew control on flowering dogwood   |                                      |  |
|  | Scab on firethorne (pyracantha)   |                                      |  |
| Liquid Fungicide<br>ferti-loam®<br>[a.i. chlorothalonil]   | Black spot and blossom blight on rose   | 6 Tbs                                | <b>Foliar Spray:</b> Apply every 7-days from leaf out to the first hard frost in the fall. All formulations of chlorothalonil may burn the leaves of 'Double Delight' and other roses, particularly when applied on hot, sunny summer days. <b>Note:</b> Also cleared for use on some vegetables. See label for registered target crops and diseases.    |
|  | Leaf spot and Botrytis blossom blight on iris.  | 6 Tbs                                | <b>Foliar Spray:</b> Apply when symptoms first appear in spring and repeat every 7- to 10-days as needed.  |
|  | Powdery Mildew on zinnia  | 9 Tbs                                | <b>Foliar Spray:</b> Apply when symptoms first seen and repeat every 7- to 14-days. Should also control Alternaria leaf spot on zinnia.  |
| RosePride®<br>Orthenex® Insect &<br>Disease Control<br>[a.i. triforine + acephate +<br>resmethrin] | Powdery mildew control on rose, crape myrtle and selected annual and perennial flowers (see product label for complete list). | See label for use instructions.      | <b>Spray Can:</b> Spray directly on leaves and repeat treatment every 7- to 10-days. Formulations also contains an insecticide to control various mite and insect pests. May be used outdoors on houseplants.  |

| <b>Fungicide</b>  | <b>Target Disease and Host</b>  | <b>Application Rate/<br/>gallon of water</b> | <b>Comments</b>  |
|---|---|--|--|
| Systemic Fungicide<br>ferti-loam®<br>[a.i. propiconazole] | Powdery mildew on crabapple, rose,<br>crape myrtle, calendula, and delphinium.  | 1-3 Tbs<br>(½ to 1½ fl oz)                   | <b>Foliar Spray:</b> Apply at first sign of disease and repeat every 14 days. See label for instructions concerning application rate on specific ornamentals.  |
|   | Black spot on rose  | 2 Tbs<br>(1 fl oz)                           | <b>Foliar Spray:</b> Apply beginning at leaf out and repeat applications weekly until the first hard frost.  |
|   | Rust and scab on crabapple  | ½ Tbs  | <b>Foliar Spray:</b> Apply at first sign of disease and repeat as needed during the spring.  |
|   | Dogwood anthracnose   | 1 Tbs  | <b>Foliar Spray:</b> Apply every 14 days from leaf-out until early July every 14 days.   |
|   | Entomosporium leaf spot on photinia   | 3 Tbs<br>(1½ fl oz)                          | <b>Foliar Spray:</b> Apply at leaf-out and repeat every 10- to 14-days until new leaves mature.  |
|   | Ray blight on chrysanthemum   | 2 Tbs  | <b>Foliar Spray:</b> Apply every 7-days.   |
|   | Leaf spot on Sweet William (Dianthus)   | 1 Tbs<br>(½ fl oz)                           | <b>Foliar Spray:</b> Apply every 14-days in spring as needed.  |
| Ultra-Fine Oil<br>SunSpray™                               | For control of powdery mildew on<br>annuals and perennial flowers, ground<br>covers, deciduous and evergreen trees<br>and shrubs. | 2½ to 5 Tbs                                  | <b>Foliar Spray:</b> Apply at first sign of disease on leaves and repeat treatment every 1 to 2 weeks. To check for phytotoxicity to oil treatments, apply to foliage of one target plant at mid-day. Does not control leaf spot and blight diseases. When used regularly, suppresses mite and insect pests on target plants. Considered an ‘organic pesticide’. |