

FUNGICIDES FOR SOIL DISEASES

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Soil diseases are difficult to detect and control, especially after the crop has been planted. By attacking the roots and lower stem they have a chance to damage plants before they are discovered. However, once diagnosed, a fungicide has to be selected that will control the specific disease or complex of diseases. Years ago "blanket recommendations" could be made but now FIFRA guidelines must be followed. The following is a fungicide-disease chart for selecting control materials as quoted from the FIFRA manual.

Disease	Fungicide	Benomyl ¹	Benlate ²	Dexon ³	Terraclor ⁴	Truban ⁵
Cylindrocladium			x			
Fusarium		x	x			
Phytophthora		x		x		x
Pythium		x		x		x
Rhizoctonia		x	x		x	
Sclerotinia			x		x	
Thielaviopsis		x	x			
Verticillium			none			

1 BANROT (Thiophanate-methyl and ethazol)
(Topsin[®]M and Truban)

ORNAMENTAL AND NURSERY CROPS--Damping-off and stem rot caused by Fusarium, Pythium, Phytophthora, Rhizoctonia and Thielaviopsis species:
Use one of the following:

1. For asters, balsam, celosia, marigold, petunia, salvia, snapdragon, verbena and zinnia bedded in soil 2-3 inches deep, use 4.0-8.0 ounces/100 gallons of water/800 square feet of bed area. Irrigate immediately with 50 or more gallons of water/800 square feet.

2. For boxwood, chrysanthemum, geranium, pitosporum and poinsettia in beds or containers, use 6.0-12.0 ounces/100 gallons. Apply to saturate soil mixture (about 0.5 pint/6 inch pot). Make first application at time of bedding or potting and repeat at 1-3 month intervals if necessary.

2 BENOMYL (Benlate)

FLOWERS AND ORNAMENTALS (plant drench)--Botrytis, Fusarium, Rhizoctonia and Sclerotinia stem, crown and root rots on herbaceous annuals, perennials, and bedding plants; Cyliandrocladium and Thielaviopsis rots on woody ornamentals such as azaleas, conifers, poinsettias and rhododendrons: Use 0.5 pound actual/100 gallons (1.0 tablespoon of 50 percent product/gallon)^a as a drench or heavy spray to plants after transplanting into beds or containers. Apply 1-2 pints/square foot of bed or container surface.

a Equal to 1 lb. 50 WP/100 gallons.

3 DEXON

BULBS, FLOWERS, SHRUBS, TREES--Damping-off, root rot (Phytophthora, Pythium): For bedding plants (soil 2-3 inches deep) use 1.25 to 2.8 ounces actual/50 gallons/400 square feet^b. For benched plants (soil 6 inches deep) use 4.2 to 8.4 ounces actual/100 gallons/400 square feet. Additional applications at 4.2 ounce rate and apply at 4 week intervals. For potted plants, use 1.4 to 2.8 ounces actual/100 gallons. Apply 0.5 pint/6 inch pot. Apply additional applications at 1.4 ounce rate at 2-4 week intervals.

4 TERRACLOR (PCNB)

AFRICAN VIOLETS, BEGONIAS, CARNATIONS, CHRYSANTHEMUMS, POINSETTIAS, SNAP-DRAGONS AND SIMILAR BEDDING PLANTS--stem rot (Rhizoctonia): 65.0 pounds actual^c as wettable powder or dust/acre. Mix into top 2 inches of soil or use 82.0 pounds actual^d/300 gallons/acre as a soil drench before planting.

CALENDULA, LARKSPUR, SNAPDRAGON, SWEET PEAS--stem rot (Sclerotinia): 100 pounds as wettable powder in sufficient water or as a dust/acre. Apply 1 week before planting. Mix to a depth of 4 inches.

b 7-16 oz. 35 WP/100 gallons.

c This is 2 lbs. 75 WP/1000 sq. ft. It is in contrast to Connecticut and Cornell recommendations of 1 1/4 lbs./1000 sq. ft. (in 125 gallons) and California, 1 lb./1000 sq. ft.

d A 2 1/2 lb./1000 sq. ft. rate.

BEDDING PLANTS (Alyssum, calendula, celosia, chrysanthemum, dahlia, dianthus, marigold, pansy, petunia, salvia, snapdragon, vinca, verbena and zinnia--Damping-off, rots due to Phytophthora, Pythium: Use 3 to 4 fluid ounces of formulation (25 EC)/100 gallons/400 square feet of bed area, with soil 2-3 inches deep.

CONTAINER AND BEDGROWN PLANTS (Arctostaphylos, carnation, ceanothus, chrysanthemum, Easter lily, geranium, poinsettia, rhamnus, rhododendron and southern pine--Damping-off, root and stem rots (Phytophthora, Pythium): Use one:

1. 0.75-3.0 ounces actual of 30-35 WP/100 gallons^f, applying sufficient amount to saturate soil (100 gallons/400 square feet or 0.5 pints/6 inch pot).

2. For African violets, chrysanthemum, geranium, and rhododendron use 4.0 to 8.0 fluid ounces of product 25% EC/100 gallons/400 square feet of bed, or apply in sufficient water to saturate the soil (0.5 pint/6 inch pot).

TROPICAL FOLIAGE PLANTS (Aglaonema, Anthurium, Chinese evergreen, dieffenbachia, nephthytis, peperomia, pilea, pothos, philodendron--Damping-off, root and stem rot (Phytophthora, Pythium): For pot planting, use 0.3 to 0.6 ounces actual (25% EC)/100 gallons^g. Apply 0.5 pint/6 inch pot or sufficient amount to saturate soil.

e 10 to 20 oz. 30 WP/250 gallons/1000 sq. ft.

f 2.5-10 oz. 30 WP/100 gallons/400 square feet or 8 oz./6 inch pot.

g 1.2-2.4 fluid oz. 25 EC/100 gallons, apply 8 fluid oz./6 inch pot. This quote from the FIFRA regulations is in conflict with the Mallinckrodt label for Truban which specifies 4-8 oz. Truban 25 EC per 100 gallons of water when applied at 8 fluid oz./6 inch pot.