

Diseases

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The conditions under which many floral and foliage crops are produced, i.e., high humidity, low light intensity, and frequent watering, are favorable for the development of fungal and bacterial diseases. If insects are uncontrolled in the greenhouse, viruses can become a major problem. Nematodes may be introduced on infected plant material or unsterilized soil.

Sanitation in propagation and growing will reduce the incidence of disease. Soil-less culture, healthy plant material, clean containers and benches, and pathogen-free water are important considerations. Plant culture on wire benches will avoid soil-borne pathogens. Most fungicides are protectants and require frequent reapplication. Early correct identification of causal agents is important in preventing heavy disease losses and avoiding improper use of pesticides.

Table 5.1 - Common Diseases and Chemical Control Options

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
African Violet	Decree 0.70-1.5 lb; fenhexamid	Spray 7- to 14-day intervals.
Botrytis blight (Gray mold)	Touche (50% EG) 0.5-1.0 lb vinclozolin	Foliar preventative 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative 0.75 to 1.0 lb on a 14-day interval.
Phytophthora root rot	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
	Subdue Maxx 0.5-1.0 fl oz mefenoxam	Apply in 100 gal of water over 400 to 800 sq ft (1.0 pt/sq ft). For soil depth greater than 4 inches apply 1.5 to 2.0 pts solution/sq ft. Repeat at 1- to 2-month intervals. Irrigate to thoroughly wet soil after application. For Subdue 5G do not apply rate of 9 oz more often than once every 6 weeks.
	FenStop 7.0-14.0 fl oz fenamidone	Drench 1.0 to 2.0 pt/sq ft and repeat at a 28-day interval if necessary.
	Banol (66.5%) 20.0-30.0 fl oz propamocarb hydrochloride	Treat soil at 3-week to 3-month intervals.
Powdery mildew	Strike (25% WDG) 2.0-4.0 oz; triadimefon	Apply at 7- to 14-day intervals.
	Sythane (40% WSP) 4 oz; myclobutanil	Apply at 10- to 14-day intervals.
	Triact 70 0.5-1.0 gal, neem oil	Apply every 14 days.
Ageratum	Decree 0.70-1.5 lb; fenhexamid	Spray 7- to 14-day intervals.
Botrytis blight (Gray mold)	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	Apply at 7- to 14-day intervals.
	Exotherm (Termil) 3.5 oz/1000 sq ft chlorothalonil	Fumigate every 7 to 14 days.
Powdery mildew	Sythane (40% WSP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Strike (25% WDG) 2.0-4.0 oz; triadimefon	Apply at 7- to 14-day intervals.
	Triact 70 0.5-1.0 gal; neem oil	Apply every 14 days.
Root Rot (<i>Pythium</i>)	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
	Subdue Maxx 0.5-1.0 fl oz mefenoxam	Drench at seeding (soil 2 to 3 inches deep). Mix Subdue with 100 gal of water and apply 1 pt of solution/sq ft. Transplanting mix 0.5 to 2.0 fl oz with 100 gal of water and apply 1 pt solution/sq ft or 1.5 to 2.0 pt for soil depth greater than 4 inches. Do not apply rates of 1.5 to 2.0 fl oz more often than once every six weeks.

5-2 Floral Crops: Diseases

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Ageratum Root rot (<i>Pythium</i>) (cont.)	Terrazole (35% WP) 3.0-10.0 oz etridiazole	Apply on 400 sq ft or saturate the soil medium, such as 1/2 pt/6-inch container.
	Banol (66.5%) 20.0-30.0 fl oz propamocarb hydrochloride	Treat soil at 3-week to 3-month intervals.
Root rot (<i>Rhizoctonia</i>)	Medallion (50% WP) 1 packet fludioxonil	Drench at 3- to 4-week intervals.
	Chipco 26019 (50% WP) 0.4 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	Apply 1.0 to 2.0 pt/sq ft every 14 days.
Annual Vinca (Madagascar periwinkle) Phytophthora blight	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
	Subdue Maxx 0.5-1.0 fl oz mfenoxam	Drench at seeding (soil 2 to 3 inches deep). Mix Subdue with 100 gal of water and apply 1 pt of solution/sq ft. Transplanting mix 0.5 to 2.0 fl oz with 100 gal of water and apply 1 pt solution/sq ft or 1.5 to 2.0 pt for soil depth greater than 4 inches. Do not apply rates of 1.5 to 2.0 fl oz more often than once every six weeks.
	FenStop 7.0-14.0 fl oz; fenamidone	Spray plants at a 28-day interval.
Azalea (Rhododendron) Botrytis blight (Gray mold)	Chipco 26019 (50% WP) 1.0-2.0 lb iprodione	Spray every 10 to 14 days.
	Daconil Weather Stik 2.0 pt Concorde (54% SST) 1.3 pt chlorothalonil	Spray every 7 to 10 days during wet weather. Apply at early bloom.
	Exotherm (Termil) 3.5 oz/1000 sq ft chlorothalonil	Fumigate every 7 to 14 days.
	Touche (50% EG) 0.5-1.0 lb; vinclozolin	Repeat every 10 to 14 days.
Cylindrocladium root rot	OHP 26 GT 1.0 qt; iprodione	Dip cuttings for 5 minutes prior to planting.
	Cleary 3336-WP 0.8 lb thiophanate methyl	Drench Cleary 3336 on the surface of growing medium to prevent disease development. Repeat at 2- to 4-week intervals during disease pressure.
	Fore Rainshield NT Fore WSP Rainshield Dithane T/O Rainshield NT Dithane WF Junction (15% DF) 1.5 lb; mancozeb	Apply in a full coverage spray every 7 to 10 days while flowers are opening spray ground under bushes and into open flowers.
	Terragard, 50 W triflumizole	Soil drench 6.0 to 8.0 oz or 1-1 1/3 tps/gal on propagation beds. On established plants apply a drench at 6.0 to 12.0 oz or 1.0 to 2.0 tsp/gal.
Ovulinia flower blight	Daconil Weather Stik 2.0 pt Concorde (54% SST) 1.1 pt chlorothalonil	Spray every 7 to 10 days. Apply at new leaf emergence.
	Strike (25% WDG) 8.0-16.0 oz triadimefon	Begin applications at the expanded bud stage.
	Cleary 3336-WP 0.5 lb thiophanate methyl	Apply as flowers open. Repeat every 4 to 6 days as needed during disease periods.

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Azalea Ovulinia flower blight (cont.)	Fore Rainshield NT	Apply in a full coverage spray every 7 to 10 days while flowers are opening also spray ground under bushes.
	Fore WSP Rainshield Dithane T/O Rainshield NT Dithane WF Junction (15% DF) 1.5 lb; mancozeb	
Powdery mildew	Banner Maxx 2.0-4.0 fl oz propiconazole	Apply at 2- to 3-week intervals.
	Cygnus (50%) 1.6-3.2 oz Kresoxim-methyl	Apply every 10 to 14 days.
	Strike (25% WDG) 2.0-4.0 oz triadimefon	Apply to run-off when mildew first appears.
	Sythane (40% WSP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Triact 70 0.5-1.0 gal; neem oil	Apply every 14 days.
Phytophthora shoot blight	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
	FenStop 7.0-14.0 fl oz; fenamidone	Spray plants at a 28-day interval.
	Aliette (80% WDG) 2.5-5.0 lbs fosetyl-AI	Apply as a spray to wet, repeat at monthly intervals.
Phytophthora root and crown rot	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
	Terrazole (35% WP) 8.0 oz etridiazole	Container & Bed grown Plants: Mix 8 oz with 100 gal of water/400 sq ft or apply in sufficient amount to saturate the soil mixture such as 0.5 pt/6-inch pot. Irrigate immediately with additional water equal to at least half the volume of the fungicidal drench for improved soil penetration of the fungicide. Repeat at 4-week intervals if necessary.
	Subdue Maxx 0.6-1.3 fl oz mefenoxam	Apply 1.0 pt solution/sq ft. For soil depth greater than 4 inches apply 1.5 to 2.0 pts solution/sq ft.
	Aliette (80% WDG) 0.4-0.8 lb fosetyl-AI	Apply as a drench with 100 gal of water/400 sq ft (2 pt solutions/sq ft) or 0.5-0.8 lb (8.0 to 12.8 oz)/cubic yard of potting soil at transplanting.
	Banol (66.5%) 20.0-30.0 fl oz propamocarb hydrochloride	See African Violet.
	FenStop 7.0-14.0 fl oz; fenamidone	Drench 1.0 to 2.0 pt/sq ft and repeat at a 28-day interval if necessary.
	Septoria leaf spot	Cleary 3336-F 12.0-16.0 fl oz or 1 tsp/gal; thiophanate methyl
Bedding various flowering plants	Soil Gard (12% G) 1.0-1.5 lb/cubic yd microbial / (biocontrol)	Mix with soilless media before seeding/plants.
Damping-off, <i>Rhizoctonia</i> , <i>Pythium</i>	Captan (50% WP) 2.0-4.0 lb captan	Apply at 7- to 10-day intervals.
	Terrazole (35% WP) 3.5-10.0 oz etridiazole	Apply at 4- to 12-week intervals.

5-4 Floral Crops: Diseases

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Begonia Botrytis flower spot (Gray mold)	Fore Rainshield NT Fore WSP Rainshield Dithane T/O Rainshield NT Dithane WF Junction (15% DF) 1.5 lb; mancozeb	Apply in a full coverage spray every 7 to 10 days while flowers are opening spray ground under bushes and into open flowers.
	Touche (50% EG) 0.5-1.0 lb vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
	Exotherm (Termil) 3.5 oz/1000 cu ft chlorothalonil	Fumigate every 7 to 14 days.
	Cleary 3336-F 12.0-16.0 fl oz thiophanate methyl	Spray every 10 to 14 days.
Powdery mildew	Rubigan 3.0-5.0 fl oz; fenarimol	Apply at 10- to 14-day intervals.
	Sythane (40% WSP) 4.0 oz; myclobutanil	Apply at 10- to 14-day intervals.
	Strike (25% WDG) 2.0-4.0 oz	Spray every 7 to 14 days. Follow label instructions. Spray triadimefon to run-off when mildew first appears.
	Triact 70 0.5-1.0 gal; neem oil	Apply every 14 days.
Pythium root rot	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
	Terrazole (35% WP) 3.0-10.0 oz etridiazole	Apply on 400 sq ft or saturate the soil medium, such as 0.5 pt/6-inch container.
	Subdue Maxx 0.6-1.3 fl oz; mefenoxam	See African Violet.
	Aliette (80% WDG) 1.25-4.0 lb fosetyl-AI	Apply as a foliar spray. Do not exceed one application every 30 days.
	Banol (66.5%) 20.0-30.0 fl oz propamocarb hydrochloride	See African Violet.
	FenStop 7.0-14.0 fl oz; fenamidone	Drench 1.0 to 2.0 pt/sq ft and repeat at a 28-day interval if necessary.
Black-eyed Susan (rudbeckia) Septuria leaf spot	Daconil WeatherStik 2.0 pt Concord (54% SST) 2.0 pt chlorothalonil	Apply at 7- to 10-day intervals.
	Downy mildew	
Downy mildew	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 to 10 days.
	FenStop 7.0-14.0 fl oz; fenamidone	Spray plants at a 28-day interval if necessary.
	Cactus Root rot (<i>Rhizoctonia</i>)	Cleary 3336-F 12.0-16.0 fl oz thiophanate methyl
Chipco 26019 (50% WP) 0.4 lb; iprodione		Apply 1.0 to 2.0 pt/sq ft every 14 days.
Caladium Various tuber rots	Cleary 3336-F 12.0-16.0 fl oz 2 tsp/gal Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Dip tubers in solution prior to planting.
	Chipco 26019 (50% WP) 0.4 lb Sextant (23.3%) 1.0 lb; iprodione	Dip tubers in solution prior to planting.
Pythium root rot	Subdue Maxx 0.5-1.0 fl oz; mefenoxam	See African Violet.
	Banol (66.5%) 20.0-30.0 fl oz propamocarb hydrochloride	Treat soil every 3 weeks to 3 months.
	FenStop 7.0-14.0 fl oz; fenamidone	Drench 1.0 to 2.0 pt/sq ft and repeat at a 28-day interval if necessary.

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Calendula powdery mildew rust	Rubigan 3.0-5.0 fl oz; fernalimol	Apply at 10- to 14-day intervals.
	Sythane (40% WSP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Strike (25% WDG) 2.0-4.0 oz triadimefon	Apply as a spray at 14- to 21-day intervals.
	Banner Maxx 2.0-4.0 fl oz propiconazole	Apply every 14 to 21 days.
	Triact 70 0.5-1.0 gal neem oil	Apply every 14 days.
Carnation (<i>Dianthus</i>) Alternaria blight	Daconil Weather Stik 1.4 pt Concorde (54% SST) 1.4 pt chlorothalonil	Apply every 7 to 14 days.
	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb iprodione	Apply as a spray every 10 to 14 days.
	Maneb 80 (80% WP) or Maneb Plus Zinc F4 Fungicide (37% F) 1.0-1.5 lb maneb	Begin when new growth starts. Repeat weekly.
Botrytis flower spot (Gray mold)	Chipco 26019 (50% WP) Sextant (23.3%) 1.0-2.5 lb iprodione	Spray every 10 to 14 days.
	Exotherm (Termil) 3.5 oz/1000 cu ft chlorothalonil	Fumigate every 7 to 14 days.
	Cleary 3336-WP 0.8 lb thiophanate methyl	Spray every 7 to 14 days.
	Touche (50% EG) 0.5-1.0 lb vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
Fusarium stem rot	Cleary 3336-WP 0.8 lb Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Heavy spray or drench during cool, moist conditions.
Rhizoctonia stem rot	Chipco 26019 0.4 lb; iprodione	Apply 1.0 to 2.0 pt/sq ft every 14 days.
	Terraclor (75% WP) 0.5 lb; quintozene	Apply 1.0 pt of solution/sq ft or 100 gal to 800 to 1000 sq ft.
Chrysanthemum Botrytis blight (Gray mold)	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	Apply every 10 to 14 days.
	Cleary 3336-WP 0.8 lb thiophanate methyl	Spray every 10 to 14 days under normal weather.
	Cleary 3336-F (4.5 F) 10.0 fl oz or 0.75 tsp/gal; thiophanate methyl	Apply as foliar spray every 7 to 14 days.
	Daconil Weather Stik 2.0 pt Concorde (54% SST) 2.0 pt; chlorothalonil	
	Touche (50% EG) 0.5-1.0 lb or 2.0 tsp-1.0 tbsp/gal; vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
	Cygnus (50%) 1.6-3.2 oz Kresoxim-methyl	Apply every 10 to 14 days.

5-6 Floral Crops: Diseases

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Chrysanthemum (cont.) Powdery mildew	Rubigan 3.0-5.0 fl oz; fenarimol	Apply at 10- to 14-day intervals.
	Strike (25% WDG) 2.0-4.0 oz triadimefon	Spray to run-off when mildew first appears.
	Triact 70 0.5-1.0 ga; neem oil	Apply every 14 days.
Puccinia horiana white rust	Strike (25% WDG) 2.0-4.0 oz triadimefon	Control of this rust consists of avoiding wetting of the foliage when watering and spraying with Bayleton when disease is first observed. If not controlled, cut back plants to the ground, gather all plant material and debris and incinerate. Spray Bayleton to run-off when rust first appears.
	Sythane (40%WSP) 4.0 oz; myclobutanil	Apply at 10- to 14-day intervals.
Mycosphaerella ray blight	Banner Maxx 2.0-4.0 fl oz propiconazole	Apply at 14-day intervals.
	Daconil Weather Stik 1.4 pt Concorde (54% SST) 1.4 pt; chlorothalonil	Apply at transplant of cuttings.
	Chipco 26019 (50% WP) 1.0-2.0 lb or 1.0-2.0 tbs/gal Sextant (23.3%) 1.0-2.5 lb; iprodione	Apply as a spray every 10 to 14 days.
Pythium root rot	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply at 7-day intervals.
	Subdue Maxx 0.5-1.0 fl oz; mefenoxam	See African Violet.
	Terrazole (35% WP) 4.0 oz etridiazole	Retreat bedding plants with etridiazole at 4- to 8-week intervals. Retreat container plants at 4- to 12-week intervals.
	FenStop 7.0-14.0 fl oz fenamidone	Drench 1.0 to 2.0 pt/sq ft and repeat at a 28-day interval if necessary.
	Banol (66.5%) 20.0-30.0 fl oz propamocarb hydrochloride	Treat soil every 3 weeks to 3 months.
Rhizoctonia root rot	Soil Gard (12% G) 1.0-1.5 lb/cubic yd microbial / (biocontrol)	Mix with soilless media before seeding/plants.
	Captan (50% WP) 2.0-4.0 lb captan	Apply at 7- to 10-day intervals.
	Terrazole (35% WP) 3.5-10.0 oz etridiazole	Apply at 4- to 12-week intervals.
Rhizoctonia	Medallion (50% WP) 1 packet fludioxonil	Drench at 3- to 4-week intervals.
	Chipco 26019 (50% WP) 0.4 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	Apply 1.0 to 2.0 pt/sq ft every 14 days.
	Cleary 3336-WP 0.8 lb thiophanate methyl	Apply 1.0 to 2.0 pt/sq ft every 14 days.
Septoria leaf spot	Cleary 3336-WP 0.8 lb thiophanate methyl	Apply at weekly intervals when a new shoot growth begins. Cover lower leaf surfaces completely. Apply thiophanate methyl at 10- to 14-day intervals.
	Daconil Weather Stik 1.4 pt chlorothalonil	Spray chlorothalonil every 7 to 14 days. Apply at transplanting of cuttings.

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Cineraria Powdery mildew (<i>Erysiphe cichoracearum</i>)	Strike (25% WDG) 2.0-4.0 oz or 0.5-1.0 tsp/gal; triadimefon	Spray to run-off when mildew first appears.
	Triact 70 0.5-1.0 gal neem oil	Spray every 14 days.
Cyclamen Botrytis leaf blight (Gray mold)	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb	Spray every 10 to 14 days.
	Touche (50% EG) 0.5-1.0 lb vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
	Cleary 3336-WP 0.8 lb thiophanate methyl	Apply every 10-14 days and reduce humidity.
Daylily Leaf streak	Cleary 3336 WP 1.5 lb Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Repeat at 7- to 14-day intervals.
	Sythane (40% WSP) 4.0 oz; myclobutanil	
Rust	Synthane (40% WSP) 4.0 oz myclobutanil	Repeat every 7 to 14 days.
	Daconil Weather Stik 2.0 pt Concorde (54% SST) 1.4 pt chlorothalonil	
	Banner Maxx 2.0-4.0 fl oz; propiconazole	Apply at 2- to 3-week intervals.
	Heritage 1.0-4.0 oz; azoxystrobin	Apply every 1 to 4 weeks.
Foliage Plants Pythium root rot	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Spray every 7 days.
	Terrazole (35% WP) 12.0 oz etridiazole	Use well-drained growing medium. Sanitation, above ground benches. Avoid overhead watering. Drench at 4-week intervals.
	Subdue Maxx 0.5-1.0 fl oz; mefenoxam	
	Aliette (80% WDG) 0.4-0.8 lb fosetyl-Al	Apply as a drench with 100 gal of water/400 sq ft (2.0 pt solutions/sq ft) or 0.5 to 0.8 lb (8.0 to 12.8 oz)/cu yd of potting soil at transplanting.
	Banol (66.5%) 20.0-30.0 fl oz propamocarb hydrochloride	Treat soil every 3 weeks to 3 months.
	FenStop 7.0-14.0 fl oz fenamidone	Drench 1.0 to 2.0 pt/sq ft and repeat at a 28-day interval if necessary.
Geranium Botrytis leaf blight (Gray mold)	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	Spray every 10 to 14 days.
	Decree 0.7-1.5 lb; fenhexamid	Spray at 7- to 14-day intervals.
	Compass 2.0-4.0 oz	Spray every 7 to 14 days.
Bacterial blight		Purchase clean stock plants. Practice good sanitation procedures.
	Cleary 3336-WP 0.8 lb thiophanate methyl	Apply thiophanate methyl every 10 to 14 days under normal weather. Complete sanitation, keep humidity low, and avoid splashing water and drips. Remove old plants and burn affected parts. Spray Daconil during cool moist conditions.

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Geranium (cont.) Bacterial blight	Daconil Weather Stik 2.0 pt Concorde (54% SST) 1.4 pt chlorothalonil	Apply thiophanate methyl every 10 to 14 days under normal weather. Complete sanitation, keep humidity low, and avoid splashing water and drips. Remove old plants and burn affected parts. Spray Daconil during cool moist conditions.
Pythium blackleg or black rot	Touche (50% EG) 0.5-1.0 lb vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
	Terrazole (35% WP) 3.0-10.0 oz etrizadiazole	Apply 0.5 pt/6-inch container. Sterilize rooting media, pots, and benches with steam-flow sanitation program.
Rhizoctonia root and stem rot	Chipco 26019 (50% WP) 0.4 lb Sextant (23.3%) 1.0-2.5 lb iprodione	Apply 1.0 to 2.0 pt/sq ft every 14 days.
	Cleary 3336-WP; 0.8 lb thiophanate methyl	Apply as a drench or heavy spray (1.0 to 2.0/sq ft) after transplanting into containers or propagation beds.
Rust	Systhane (40% WSP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Daconil Weather Stik 1.4 pt Concorde (54% SST) 1.4 pt chlorothalonil	Apply during cool, moist conditions.
	Strike (25% WDG) 2.0-4.0 oz triadimefon	Spray at first sign of disease.
	Triact 70 0.5-1.0 gal neem oil	Apply every 14 days.
Powdery mildew	Triact 70 0.5-1.0 gal neem oil	Apply every 14 days.
	Strike (25% WDG) 2.0-4.0 oz triadimefon	Spray to run-off when mildew first appears.
	Systhane (40% WP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Cygnus (50%) 1.6-3.2 oz Kresoxim-methyl	
Gerbera Botrytis blight (Gray mold)	Decree 0.7-1.5 lb; fenhexamid	Apply at 7- to 14-day intervals.
	Cleary 3336-WP (50% WP) 0.8 lb Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Spray every 10 to 14 days to run-off.
	Touche (50% EG) 0.5-1.0 lb or 2.0 tsp-1.0 tbsp/gal; vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
Powdery mildew (<i>Erysiphe cichoracearum</i>)	Strike (25% WDG) 2.0-4.0 oz or 0.5-1.0 tsp/gal; triadimefon	Spray to run-off when mildew first appears.
	Triact 70 0.5-1.0 gal neem oil	Apply every 14 days.
Root/stem rot (non-water molds)	Medallion (50% WP) 1 packet fludioxonil	Drench at 3- to 4-week intervals.

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Gerbera (cont.) Root/stem rot (<i>Pythium</i> and <i>Phytophthora</i>)	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
	Terrazole (35% WP) 3.0-10.0 oz etrizadiazole	Apply as a drench at 0.5 pt/6-inch pot at 4- to 12-week intervals.
	FenStop 7.0-14.0 fl oz; fenamidone	Drench 1.0 to 2.0 pt/sq ft and repeat at a 28-day interval if necessary.
Gladiolus Botrytis blight	Fore Rainshield NT Fore WSP Rainshield Dithane T/O Rainshield Dithane WF Junction (15% DF) 1.5 lb; mancozeb	Apply at a 7- to 14-day interval.
	Cleary 3336-WP 0.8 lb Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Apply as a spray plus sticker-spreader just as first flowers show color. Repeat at 10- to 14-day intervals.
	Daconil Weather Stick 2.0 pts Concorde (54% SST) 1.4 pt; chlorothalonil	Apply as a spray with a sticker-spreader on a 10-day interval.
	Touche (50% EG) 0.5-1.0 lb vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
Fusarium basal rot (<i>Fusarium oxysporium</i> <i>F. gladioli</i>)	OHP 26 GT 2.0 qt; iprodione	Dip corms for 5 minutes prior to storage.
	Mertect 340-F (42.28%) 30 oz thiabendazole	Use as a corm dip within 48 hours after digging. Suspension temperature should be 55° to 75°F.
	Cleary 3336-F 12.0-16.0 fl oz Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Soak cleaned corms for 15 to 30 minutes in a warm dip (80° to 85°F.) within 48 hours of digging. Dry corms after treatment.
Leaf and flower spot (<i>Curvularia lunata</i>)	Cleary 3336-WP 0.8 lb Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Apply as a spray with a sticker-spreader on a 10-day interval.
	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	Spray every 10 to 14 days.
	Maneb 80 (80% WP) 1.5 lb maneb	Begin when flower spikes develop. Repeat 2 to 3 times at weekly intervals.
Impatiens Rhizoctonia stem rot	Chipco 26019 (50% WP) 1.0-2.0 lb iprodione	Do not use iprodione as a drench treatment on Impatiens. Apply as a foliar spray on a 7- to 14-day interval.
	Cleary 3336-F 12.0-16.0 fl oz or 1.0 tsp/2 gal water Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Apply as a drench or heavy spray at the rate of 1.0 to 2.0 pts/sq ft.
Impatiens necrotic spot virus	Transmitted by thrips feeding	See insect control section on thrips control.
Iris Botrytis blight	Junction (15% DF) 1.5 lb mancozeb	Apply at a 7- to 14-day interval.
	Soft rot	Disinfect tools when cutting rhizomes. Avoid overwatering. Rotate with resistant plants if damage is severe.
Kalanchoe Botrytis blight	Touche (50% EG) 0.5-1.0 lb or 2.0 tsp-1.0 tbsp/gal; vinclozolin	Apply every 10 to 14 days.
	Powdery mildew	See African violet.

5-10 Floral Crops: Diseases

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Lily Botrytis blight	Fore Rainshield NT Fore WSP Rainshield Dithane T/O Rainshield Dithane WF Junction (15% DF) 1.5 lb; mancozeb	Spray at a 7- to 14-day interval.
	Chipco 26019 (50% WP) 1.0-2.0 lb iprodione	Spray every 10 to 14 days.
	Decree 0.7-1.5 lb; fenhexamid	Apply at 7- to 14-day intervals.
	Touche (50% EG) 0.5-1.0 lb; vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
	Daconil Weather Stik 2 pt Concorde (54% SST); chlorothalonil	Spray every 7 to 14 days. Apply at prebloom.
	Exotherm (Termil) 3.5 oz/1000 cu ft chlorothalonil	Fumigate every 7 to 14 days.
	Cleary 3336-WP 0.8 lb thiophanate methyl	Spray every 10 to 14 days.
Penicillium and Fusarium bulb rot	Cleary 3336-F 12.0-16.0 fl oz Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Soak cleaned bulbs for 15 to 30 minutes in warm dip (80° to 85°F), preferably within 48 hours after digging.
	Touche (50% EG) 1.5-2.0 lb vinclozolin	Dry bulbs after treatment. A fungicide for Pythium should be added.
	Mertect 340-F (42.28%) 30.0 fl oz thiabendazole (TBZ)	Use a bulb dip. Suspension temperature should be 55° to 75°F.
Root rot complex (<i>Pythium</i> spp. and <i>Rhizoctonia solani</i>)	See Chrysanthemum.	
Narcissus Bulb rot	See Gladiolus <i>Fusarium</i> basal rot.	
Pansy Botrytis blight	Decree 0.7-1.5 lb; fenhexamid	Spray at 7- to 14-day intervals.
	Fore Rainshield NT Fore WSP Rainshield Dithane T/O Rainshield NT Dithane WF Junction (15% DF) 1.5 lb; mancozeb	
	Daconil Weather Stik 2.0 pt chlorothalonil	Spray every 7 to 10 days.
	Cleary 3336-F (4.5 F) 10.0 fl oz Cleary 3336-WP (50% WP) 0.8 lb thiophanate methyl	Apply every 10 to 14 days.
Root rot (<i>Rhizoctonia</i>)	Touche (50% EG) 0.5-1.0 lb; vinclozolin	Apply every 10 to 14 days.
	Medallion (50% WP) 1 packet fludioxonil	Drench at 3- to 4-week intervals.
<i>Sclerotinia</i> , <i>Fusarium</i> , and <i>Thielaviopsis</i>	Systhane (40% WSP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Cleary 3336-F 12.0-16.0 fl oz Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Apply as a drench at 1.0 to 2.0 pts/sq ft.
	Hurricane, 1 packet/gallon water fludioxonil and mefenoxam	Drench this solution into one cubic yard of potting mix before seeding or transplanting.

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Pansy (cont.) Phytophthora root/crown rot	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
	FenStop 7.0-14.0 fl oz; fenamidone	Drench 1.0 to 2.0 pt/sq ft and repeat at a 28-day interval if necessary.
	Subdue Maxx 0.5-1.0 fl oz mefenoxam	Apply in 100 gal of water over 400 to 800 sq ft (1.0 pt/sq ft). For soil depth greater than 4 inches apply 1.5 to 2.0 pts solution/sq ft. Repeat at 1- to 2-month intervals. Irrigate to thoroughly wet soil after application. For Subdue 5G do not apply rate of 9 oz more often than once every 6 weeks.
	Banol (66.5%) 20.0-30.0 fl oz propamocarb hydrochloride	Treat soil at 3-week to 3-month intervals.
Petunia Phytophthora root/crown rot	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
	Subdue Maxx 0.5-1.0 fl oz mefenoxam	Apply in 100 gal of water over 400-800 sq ft (1.0 pt/sq ft). For soil depth greater than 4 inches apply 1.5 to 2.0 pts solution/sq ft. Repeat at 1- to 2-month intervals. Irrigate to thoroughly wet soil after application. For Subdue 5G do not apply rate of 9 oz more often than once every 6 weeks.
	FenStop 7.0-14.0 fl oz; fenamidone	Drench 1.0 to 2.0 pt/sq ft and repeat at a 28-day interval if necessary.
	Banol (66.5%) 20.0-30.0 fl oz propamocarb hydrochloride	Treat soil at 3-week to 3-month intervals.
Fungus root rot (<i>Rhizoctonia</i> and <i>Fusarium</i>)	Terrazole (35% WP) 3.5-10.0 oz etr Diazole	Apply every 4 to 12 weeks.
Botrytis blight	Decree 0.7-1.5 lb; fenhexamid	Spray at 7- to 14-day intervals.
	Fore Rainshield NT Fore WSP Rainshield Dithane T/O Rainshield NT Dithane WF Junction (15% DF) 1.5 lb; mancozeb	
	Daconil Weather Stik 2.0 pt chlorothalonil	Spray every 7 to 10 days.
	Cleary 3336-F (4.5 F) 10.0 fl oz Cleary 3336-WP (50% WP) 0.8 lb thiophanate methyl	Apply every 10 to 14 days.
	Touche (50% EG) 0.5-1.0 lb; vinclozolin	Apply every 10 to 14 days.
Poinsettia Botrytis blight	Daconil Weather Stik 2.0 pts Concorde (54% SST) 1.4 pt chlorothalonil	
	Chipco 26019 (50% WP) 1.0-2.0 lb iprodione	Spray every 10 to 14 days.
	Touche (50% EG) 0.5-1.0 lb or 2.0 tsp-1.0 tbs/gal vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
	Cleary 3336-WP 0.8 lb Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Spray every 10 to 14 days.

5-12 Floral Crops: Diseases

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Poinsettia Botrytis blight (cont.)	Exotherm (Termil) 3.5 oz/1000 cu ft chlorothalonil	Fumigate every 7 to 14 days. Do not apply when foliage is wet or when temperature is above 75°F.
Root rot complex (<i>Rhizoctonia solani</i> , <i>Pythium</i> spp., and <i>Thielaviopsis basicola</i>)	Cleary 3336-WP (50% WP) 1.0 lb Fungo 50 AGC 12.0-16.0 oz thiophanate methyl + Terrazole (35% WP) 3.0-10.0 oz or 0.5 pt/6-inch pot etridiazole	Cleary 3336 will not control <i>Pythium</i> . However, a mixture of Cleary 3336 and Terrazole applied every 4 weeks will prevent root rot caused by most soil-borne fungi.
Rhizoctonia leaf blight	Medallion (50% WP) 1-2 packet fludioxonil	Spray only before bract formation and at 7- to 10-day intervals in greenhouses and closed structures.
	Terraguard 50W 4.0-8.0 oz; triflumizole	Controls <i>Rhizoctonia</i> as a drench at 3- to 4-week intervals.
	Fungo 50 AGC 12.0-16.0 oz Cleary 3336-WP 0.8 lb thiophanate methyl	Spray every 10 to 14 days.
Rose Botrytis blight black spot	Decree 0.7-1.5 lb; fenhexamid	Apply every 7 to 14 days.
	Cleary 3336-WP (50% WP) 0.8 lb Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Apply as a spray at 10- to 14-day intervals.
	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	Apply as a spray at 10- to 14-day intervals.
	Daconil Weather Stik 2.0 pt Concorde (54% SST) 1.3 pt chlorothalonil	Repeat at 7- to 14-day intervals.
	Touche (50% EG) 0.5-1.0 lb vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
	Cygnus (50%) 1.6-3.2 oz Kresoxim-methyl	
Powdery mildew	Systhane (40% WSP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Strike (25% WDG) 2.0-4.0 oz triadimefon	Spray to run-off when mildew first appear.
	Terraguard 50W 4.0-16.0 oz triflumizole	Apply at 7- to 14-day intervals as needed. Use higher rate on existing initial infection.
	Cygnus (50%) 1.6-3.2 oz; Kresoxim-methyl	
Snapdragon Botrytis blight	Decree 0.7-1.5 lb; fenhexamid	Apply every 7 to 14 days.
	Daconil Weather Stik 2.0 pts Concorde (54% SST) 1.4 pt chlorothalonil	Repeat on a 7- to 14-day interval.
	Fungo 50 AGC 12.0-16.0 oz Cleary 3336-WP 0.8 lb; thiophanate methyl	Spray every 10 to 14 days.
	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Snapdragon Botrytis blight (cont.)	Exotherm (Termil) 3.5 oz/1000 cu ft chlorothalonil	Fumigate every 7 to 14 days.
	Touche (50% EG) 0.5-1.0 lb vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
Downey mildew	Alude 1.0-2.0 qt Vital 2.0-4.0 pt; phosphite	Apply every 7 days.
Rust	Banner Maxx, 2-4 fl oz; propiconazole	Apply every 14 to 21 days.
	Strike (25% WDG) 2.0-4.0 oz triadimefon	Spray to run-off when rust first appears.
	Sythane (40% WSP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Triact 70 0.5-1.0 gal; neem oil	Apply every 14 days.
	Cygnus (50%) 3.2-6.4 oz Kresoxim-methyl	
Powdery mildew	Sythane (40% WSP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Triact 70 0.5-1.0 gal; neem oil	Apply every 14 days.
	Cygnus (50%) 1.6-3.2 oz Kresoxim-methyl	
	Strike (25% WDG) 2.0-4.0 oz triadimefon	Spray to run-off when mildew first appears.
Rhizoctonia root rot	Medallion (50% WP) 1 packet fludioxonil	Drench at 3- to 4-week intervals.
	Chipco 26019 (50% WP) 0.4 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	Apply 1.0 to 2.0 pt/sq ft every 14 days.
	Cleary 3336-F (4.5 F) 20.0 fl oz thiophanate methyl	
Tulip Botrytis blight (Gray mold)	Fore Rainshield NT Fore WSP Rainshield Dithane T/O Rainshield NT Dithane WF Junction (15% DF) 1.5 lb; mancozeb	Spray at a 7- to 14-day interval.
	Touche (50% EG) 0.5-1.0 lb vinclozolin	Foliar preventive: 0.5 to 0.75 lb on a 10- to 14-day interval. Foliar curative: 0.75 to 1.0 lb on a 14-day interval.
	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb iprodione	Spray every 10 to 14 days.
Fusarium and Penicillium bulb rot	Cleary 3336-F 12.0-16.0 fl oz Fungo 50 AGC 12.0-16.0 oz thiophanate methyl	Soak cleaned bulbs for 15- to 30-minutes in warm dip (80° to 85°F). Dry bulbs after treatment.
	Mertect 340-F 30.0 oz thiabendazole (TBZ)	Dip bulbs 15- to 30-minutes at 55° to 75°F.

5-14 Floral Crops: Diseases

Table 5.1 - Common Diseases and Chemical Control Options (cont.)

Plant Disease	Fungicide & Formulation; Rate/100 gal	Remarks
Zinnia Alternaria blight	Chipco 26019 (50% WP) 1.0-2.0 lb Sextant (23.3%) 1.0-2.5 lb; iprodione	Spray every 10 to 14 days.
	Fore Rainshield NT Fore WSP Rainshield Dithane T/O Rainshield NT Dithane WF Junction (15% DF) 1.5 lb; mancozeb	Spray every 10 to 14 days.
	Maneb 80 (80% WP) or Maneb Plus Zinc F4 Fungicide (37%) 1.0-1.5 lb maneb	Spray every 10 to 14 days.
Bacterial blight		Purchase clean stock plants. Practice good sanitation procedures.
Powdery mildew	Rubigan 3.0-5.0 fl oz fenarimol	Spray every 10 to 14 days.
	Sythane (40% WSP) 4.0 oz myclobutanil	Apply at 10- to 14-day intervals.
	Cygnus (50%) 1.6-3.2 oz Kresoxim-methyl	Apply at 10- to 14-day intervals.
	Daconil Weather Stik 1.4 pt chlorothalonil	Treat at 7- to 10-day intervals at first sign of disease.
	Strike (25% WDG) 2.0-4.0 oz triadimefon	Spray every 7 to 10 days.
	Terraguard 50W 4.0-8.0 oz triflumizole.	Foliar spray at weekly intervals.
	Triact 70 0.5-1.0 gal neem oil	Apply every 14 days.