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The Glasshouse – Ornamental Disease Control Handbook
Michigan State University Extension Service
Christine Taylor Stephens, Department of Botany and Plant Pathology
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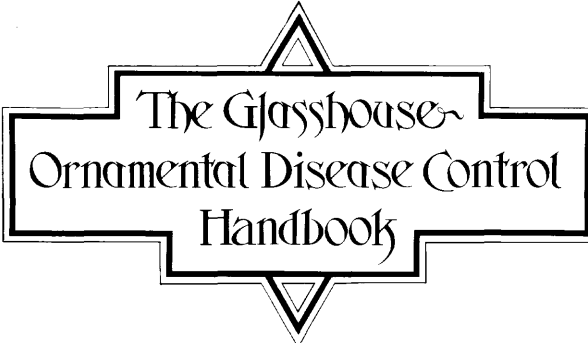
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The Glasshouse Ornamental Disease Control Handbook





The Glasshouse Ornamental Disease Control Handbook

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Introduction

There are a number of pathological and physiological disorders that affect ornamental plants grown in the greenhouse. Careful management of the environment and a vigorous program of sanitation are essential in disease avoidance. Chemicals are also one of the important means of controlling the plant pathogens. The major groups grown in Michigan greenhouses and their major disease problems are listed in this bulletin. Whenever possible, chemical control recommendations are made. In certain cases, effective chemicals are not available or are not registered for that particular use. In the appendix, a number of physiological disorders of ornamental plants and remedies are listed. Since diseases and physiological disorders can often be confused, please check this appendix frequently.

Warnings

Materials and rates of application listed in this publication are based on the latest information available at the time this publication went to press. Supplemental information will be disseminated, as the need arises, usually through the offices of County Extension Agricultural Agents. The information here is for educational purposes only. References to commercial products or trade products is made with the understanding that no discrimination is intended and no endorsement by the Cooperative Extension Service is implied. Some of the more hazardous pesticides are on the Restricted Use Pesticide (RUP) list. You will need to be certified by the Michigan Department of Agriculture in order to buy and use these RUP's.

POISONING EMERGENCY

- A physician should always be contacted for diagnosis and treatment of a suspected poisoning. Do not try to handle it yourself.
- The nearest Poison Treatment Center should be contacted for advice if there is any delay in reaching a physician.
- Have the pesticide container at hand when you call the center so that you can clearly identify the pesticide to them.
- Follow their advice fully and get the patient to a physician as soon as possible.
- Fire and police or sheriff units can provide assistance. Contact them if you need help.



POISON TREATMENT CENTERS

In case of emergencies, the following list of poison treatment centers in Michigan will help you contact the nearest source of help that specializes in the treatment of poisoning.

Toll-free numbers are available in Detroit, Grand Rapids, Kalamazoo, and Marquette.

ADRIAN

Poison Control Center
Emma L. Bixby Hospital
818 Riverside Ave. 49221
(517) 263-2412

ANN ARBOR

Poison Control Center
University of Michigan
Medical Center
1405 E. Ann St. 48109
(313) 764-5102

BATTLE CREEK

Poison Control Center
Community Hospital
183 West 49016
(616) 963-5521

BAY CITY

Poison Control Center
Bay Medical Center
100 15th St. 48706
(517) 894-6589

BERRIEN CENTER

Berrien General Hospital
Deans Hill Rd. 49102
(616) 471-7761

COLDWATER

Poison Control Center
Community Health Center
of Branch County
274 E. Chicago St. 49036
(517) 278-7361 ext. 342

DETROIT

Poison Control Center
Children's Hospital of Michigan
3901 Beaubien Blvd. 48201
(313) 494-5711
1-800-462-6642

Poison Control Center
Mount Carmel Mercy Hospital
6071 W. Outer Dr. 48235
(313) 864-5400 ex. 416

ELOISE

Poison Control Center
Wayne County General Hospital
Maryland Rd. 48132
(313) 722-3748
or 274-3000 ext. 6231
nights and weekends

- I. In the event of any gross environmental contamination by pesticides, such as an accidental spill or fire, contact:

Michigan Department of Agriculture
(517) 373-1087

- II. For information in your area regarding disposal of chemicals and pesticides, contact:

Fred Kellow
(517) 373-6620
(Michigan Dept. of Natural Resources,
Solid Waste Disposal)

- III. In the event of an accident on highway, railway or waterway, involving chemicals, contact:

CHEMTREC
(24 hours a day — 7 days a week)
(800) 424-9300

FLINT

Hurley Hospital
6th Ave. and Begole 48502
(313) 766-0111
1-800-572-5396

GRAND RAPIDS

West Michigan Poison Center
Blodgett Memorial
Medical Center
1840 Wealthy, S.E. 49506
1-800-442-4571
(within 616 area code)
1-800-632-2727
(out of 616 area code)

St. Mary's Hospital
201 Lafayette, S.E. 49503
(616) 774-7854

HANCOCK

Portage View Hospital
200-210 Michigan Avenue 49930
(906) 482-1122 ex. 209

HOLLAND

Poison Control Center
Holland Community Hospital
602 Michigan Ave. 49423
(616) 396-4661

JACKSON

Poison Control Center
W.A. Foote Memorial Hospital
205 N. East Ave. 49201
(517) 788-4816

KALAMAZOO

Midwest Poison Control Center
1521 Gull Rd. 49001
(616) 383-7070

Great Lakes Regional Poison
Control Center
Bronson Methodist Hospital
252 E. Lovell St. 49006
(616) 383-6409
1-800-442-4112

LANSING

Poison Control Center
St. Lawrence Hospital
1210 W. Saginaw St. 48914
(517) 372-5112 or 372-5113

MARQUETTE

Poison Control Center
Marquette General Hospital
425 W. Fisher St. 49855
1-800-562-9723

MIDLAND

Poison Control Center
Midland Hospital
4005 Orchard Dr. 48640
(517) 631-7700 ex. 304

PETOSKEY

Little Traverse Hospital
416 Connable
(616) 347-7373

PONTIAC

Poison Control Center
St. Joseph Mercy Hospital
900 Woodward Ave. 48053
(313) 858-3000

PORT HURON

Poison Control Center
Mercy Hospital
Poison Control Center
Port Huron Hospital
1001 Kearney St. 48060
(313) 987-5555 or 987-5000 ex. 214

SAGINAW

Poison Control Center
Saginaw General Hospital
1447 N. Harrison Rd. 48602
(517) 755-1111

TRAVERSE CITY

Poison Control Center
Munson Medical Center
Sixth and Madison 49684
(616) 941-1131
(616) 947-6140 ex. 300

Pesticide Safety Tips

- Always read the label before buying or using pesticides. Use pesticides only for the purpose(s) listed and in the manner directed.
- Pesticides that require special protective clothing or equipment should be used only by trained, experienced applicators.
- Do not apply more than the specified amount of pesticide. Overdoses can harm you, the consumers, and the environment.
- Keep pesticides away from food and dishes.
- Keep children and pets away from pesticides and sprayed areas.
- Do not smoke or eat while applying pesticides.
- Avoid inhalation of pesticides.
- Never spray outdoors on a windy day.
- When you mix pesticides, do it carefully to avoid splashing.
- Avoid breaks or spills of pesticide containers.
- If you spill a pesticide on your skin or on your clothing, wash with detergent and water and change your clothing immediately.
- Store pesticides under lock in the original containers with proper labels. Never transfer a pesticide to a container that would attract children, such as a soft-drink bottle.
- Dispose of empty containers safely. Refer to your dealer for directions for disposal of specific containers. Wrap single containers of home use products in several layers of newspaper, tie securely and place in a covered trash can. Never burn boxes or sacks. In the case of farm or ranch use, single containers may be buried where water supplies will not be contaminated. Dispose of large quantities in special incinerators or special landfills.
- Wash with soap and water after using pesticides, and launder clothes separately from other laundry before wearing again.
- If someone swallows a pesticide, check the label for first aid treatment. Call or go to the doctor or the hospital immediately and keep the pesticide label with you.

EQUIVALENTS — ABBREVIATIONS

1 fl oz	= 2 Tbsp	= 6 tsp
1 cup	= 8 fl oz	
1 pt	= 16 fl oz	= 32 Tbsp
1 qt	= 2 pt	= 32 fl oz
1 gal	= 4 qt	= 128 fl oz
1 lb	= 16 oz	

B means Bait

D means Dust

EC means Emulsifiable Concentrate, or Emulsion

F means Flowable

G means Granule

L or LC means Liquid Concentrate

LS means Liquid Solution

RUP means Restricted Use Pesticide

S means Sprayable

SC means Suspension Concentrate

SP means Soluble Powder

W or WP means Wettable Powder

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

**Restricted Use Pesticide (RUP) formulations of these toxicants are available only to certified applicators.



AFRICAN VIOLET *(See Appendix, page 62, for physiological problems.)*

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
Powdery Mildew	Bayleton 25	winter: 1 oz/50 gal; summer: 2 oz/50 gal	at disease appearance	every 30 days	foliar spray, exceeding label rates for quantity or time interval may shorten flower stalks
	*Milban EC	32 fl oz/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal 1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Karathane WD	4 to 6 oz/100 gal (2 Tbsp/12.5 gal)	at disease appearance	every 7 to 10 days	foliar spray
Crown & Root Rot (<i>Pythium</i> & <i>Phytophthora</i>)	Subdue 2E	0.5 to 2 fl oz/ 100 gal/400 to 800 sq ft (1 to 2 pt/sq ft)	at planting	every 6 wk	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	3 to 10 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Truban 25% EC	4 to 8 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Lesan 35%	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate on small plants and after initial drench
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft 2.5 lb/300 gal to 1,000 sq ft	preplant preplant	once once	dust, soil incorporation drench
Root Rot (general)	Banrot	6 to 12 oz/100 gal (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

**Restricted Use Pesticides (RUP); formulations of these toxicants are available only to certified applicators.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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AFRICAN VIOLET, Continued

Root Rot (general)	Orthocide 50 W	2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

Viruses, best control is disease-free cuttings



AGERATUM

Damping off Stem and Root Rot (general)	Banrot	4 to 8 oz/100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

Damping off (<i>Pythium</i>)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft 1 to 2 pt/sq ft	at planting	every 6 wk	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25% EC	3 to 4 oz/100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench

Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

Powdery Mildew	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
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*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
AGERATUM, Continued					
Powdery Mildew	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Grey Mold (Botrytis)	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)



AGLAONEMA

Damping off Root & Stem Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Captan 50W	0.2 to 0.4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50W	4 to 5 oz/1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Damping off Root & Stem Rot (Pythium)	Subdue 2E	0.25 to 0.5 fl oz/100 gal/800 sq ft 1 to 2 pt/sq ft	at planting	every 6 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
	Truban 5G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	8 to 12 oz/100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Truban 25% EC	4 to 8 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Terrazole 35% WP	bedding plants: 2 to 3 oz/50 gal/400 sq ft	at seeding & at transplant	1 to 2 months	soil drench
		pot plants: 1.5 to 5 oz/50 gal (0.5 pt/6" pot)	after potting	every 2 to 3 months	soil drench
Damping off Root & Stem Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
AGLAONEMA, Continued					
Damping off, Root & Stem Rot (<i>Rhizoctonia</i>)	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench



AJUGA

Damping off (<i>Rhizoctonia</i> , <i>Sclerotinia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	drench



ALYSSUM

Damping off (general)	Banrot	4 to 8 oz/100 gal/ 800 sq ft 1 gal/8 sq ft	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (<i>Pythium</i>)	Truban 5G	5 oz/cu yd soil mix	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25% EC	3 to 4 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench, phytotoxic on some varieties

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
ALYSSUM, Continued					
Damping off (<i>Rhizoctonia</i>)	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

Downy Mildew, no registered chemical control

Club Root, no chemical control



ANTHERIUM (See Appendix, page 62, for physiological problems.)

Root Rot (general)	Captan 50W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Truban 5G	5 oz/cu yd soil mix	preplant	once	soil incorporation
	Truban 30% WP	bedding plants: 4 to 6 oz/100 gal (1 gal/8 sq ft)	at seeding	every 4 to 8 wk	soil drench
		pot plants: 8 to 12 oz/100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Truban 25% EC	4 to 8 oz/100 gal/ 400 sq ft	at planting	every 2 to 3 months	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly planted areas	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
	Terrazole 35% WP	bedding plants: 2 to 3 oz/50 gal/ 400 sq ft	at seeding & at transplant	1 to 2 months	soil drench
		pot plants: 1.5 to 5 oz/50 gal (0.5 pt/6" pot)	after potting	every 2 to 3 months	soil drench
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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ANTHERIUM, Continued

Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray



APHELANDRA (See Appendix, page 62, for physiological problems.)

Root Rot (general)	Captan 50W	0.2 to 4 lb/ 1,000 sq ft	preplant	once	dust
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Subdue 2E	0.4 to 1.2 fl oz/ 100 gal/400 to 800 sq ft (1 to 2 pt/sq ft)	at planting	every 2 to 3 months	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	weekly	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 2 wk	dust (fumigant)

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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ARALIA (See Appendix, page 62, for physiological problems.)

Damping off Stem & Root Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Captan 50W	0.2 to 0.4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50W	4 to 5 oz/1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Damping off Stem & Root Rot (<i>Pythium</i>)	Lesan 35 WP	0.25 to 0.5 lb/50 gal/400 sq ft	after plants are set	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
Damping off Stem & Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/1,000 sq ft	preplant	once	soil drench
Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray



ASTER (Chinese)

Aster Yellows, best control is to control leafhoppers

Fusarium Wilt, best control is sanitation

Root Rot (general)	Banrot	4 to 8 oz/100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
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*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
ASTER (Chinese), Continued					
Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (Pythium)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft 1 to 2 pt/sq ft	at planting	every 6 wk	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/100 gal (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

Rust, no registered chemical control



AZALEA (See Appendix, page 62, for physiological problems.)

Grey Mold (Botrytis)	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
Flower Spotting (fungal)	Zyban	1.5 lb/100 gal	at disease appearance	every 7 days	foliar spray

Exobasidium leaf galls, no registered chemical control

Root Rot (Pythium & Phytophthora)	Subdue 2E	1 to 2.4 oz/100 gal/400 to 800 sq ft of bed area	at potting	every 2 to 4 months	soil drench
	Aliete	6.5 to 13 oz/cu yd	at potting	once	soil incorporation
		1 to 2 lb/100 gal/ 1,000 cu yd	at disease appearance	monthly	drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 25% EC	4 to 8 oz/100 gal/ 400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
AZALEA, Continued					
Root Rot (<i>Pythium</i> & <i>Phytophthora</i>)	Lesan 35% WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at potting	every 2 to 4 wk	soil drench, use 0.25 lb rate on seedlings after initial drench
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	preplant	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50 WP	1 Tbsp/gal	preplant	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	preplant	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft 2.5 lb/300 gal/ 1,000 sq ft	preplant preplant	once once	dust soil drench
Root Rot (general)	Banrot	6 to 12 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	preplant only	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	preplant only	soil drench
	Orthocide 10	1.5 to 2 lb/ 1,000 sq ft	preplant	preplant only	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	preplant only	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	preplant only	spray
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	preplant only	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	preplant only	dust, soil incorporation



BEGONIAS (Seed and Tuberous)

Damping off, Crown & Root Rot (general)	Banrot	4 to 8 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/sq ft)	at planting	every 6 wk	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
BEGONIAS (Seed and Tuberous), Continued					
Root Rot (<i>Pythium</i>)	Subdue 2E	0.5 to 2 fl oz/ 100 gal/800 sq ft	at transplant	every 1 to 2 months	soil drench
	Truban 30% WP	4 to 6 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at planting	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp /gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft 2.5 lb/300 gal/ 1,000 sq ft	preplant preplant	once once	dust, soil incorporation soil drench
Grey Mold (<i>Botrytis</i>)	Ornalin	1 to 1.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 2 wk	dust (fumigant)
Powdery Mildew	**Milban EC	32 fl oz/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Karathane WD	4 to 6 oz/100 gal (2 Tbsp/ 12.5 gal)	at disease appearance	every 7 to 10 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Actidione PM	5 Tbsp/gal	at disease appearance	every 7 days	foliar spray
Bacterial leaf spot	Kocide 101	1 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray



CACTI (See Appendix, page 62, for physiological problems.)

Root Rot (general)	Banrot	6 to 12 oz/100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

**Restricted Use Pesticides (RUP); formulations of these toxicants are available only to certified applicators.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
CACTI, Continued					
Root Rot (general)	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (Pythium)	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft 2.5 lb/300 gal/ 1,000 sq ft	preplant preplant	once once	dust soil drench



CALADIUM

Tuber Rot (*Fusarium*), no effective chemical control

Tuber Rot (Rhizoctonia)	Benlate	1 lb/100 gal 1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Banrot WP	6 to 12 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Benomyl 50% WP	1Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
Tuber Rot (Sclerotinia)	Benlate	1 lb/100 gal 1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench

Dasheen Mosaic Virus, no chemical control



CALCEOLARIA

Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

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Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
CALCEOLARIA, Continued					
Root Rot (general)	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	3 to 10 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)

Verticillium Wilt, no effective chemical control



CALENDULA

Grey Mold (<i>Botrytis</i>)	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Powdery Mildew	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Karathane WD	4 to 6 oz/100 gal (2 Tbsp/12.5 gal)	at disease appearance	every 7 to 10 days	foliar spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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CALENDULA, Continued

Fungal Leaf Spot, no registered chemical control

Rust, no registered chemical control

Viruses, no chemical control

Aster Yellows, best control is to control leafhopper



CAMELLIA

Root Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	3 to 10 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Grey Mold (<i>Botrytis</i>)	Zyban	1.5 lb/100 gal	at disease appearance	every 7 days	foliar spray
	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal 1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Fungal Leaf Spots (<i>Phylosticta</i> , <i>Cercospora</i>)	Zyban	1.5 lb/100 gal	at disease appearance	every 7 days	foliar spray
	*Fore	1.5 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

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Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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CAMELLIA, Continued

Crown Gall	*Gallex	as labeled	at disease appearance	every 4 to 6 months if galls persist	paint
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CARNATION

Root Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Subdue 2E	bedding plants: 0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/sq ft)	at planting	every 6 wk	soil drench
		pot plants: 0.5 to 2 fl oz/ 100 gal/400 to 800 sq ft (1 to 2 pt/sq ft)	at planting	every 6 wk	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/100 gal (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25% EC	4 to 8 oz/100 gal/ 400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Rust	Bayleton 25 Turf & Ornamental	winter: 1 oz/50 gal; summer: 2 oz/50 gal	at disease appearance	every 30 days	foliar spray, excess rates may shorten flower stalks

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
CARNATION, Continued					
Rust	Dithane Z-78	1.5 lb/100 gal (1 Tbsp/gal)	at disease appearance	every 7 to 10 days	foliar spray
	Captan 50 W	2 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Captan 80 WP	1.25 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Captan 50 WP	8 teaspoons/gal	at disease appearance	every 7 to 10 days	foliar spray
Fusarium Wilt	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal 1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
Alternaria Leafspot	Dithane Z-78	1.5 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	*Fore	1.5 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Captan 50 W	2 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Captan 80 WP	1.25 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Captan 50 WP	8 teaspoons/gal	at disease appearance	every 7 to 10 days	foliar spray
	Kocide 101	1 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
Grey Mold (Botrytis)	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Daconil 2787 F	2 pt/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
	Zyban	1.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Kocide 101	1 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray



CELERY

Leaf Spots, no registered chemical control

Damping off (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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CELOSIA

Damping off (general)	Banrot	4 to 8 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/100 gal (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25% EC	3 to 4 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

Fungal Leaf Spot, no registered chemical control



CHRISTMAS CACTUS (See Appendix, page 62, for physiological problems.) (*Zygocactus*)

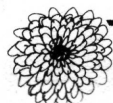
Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal /1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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CHRISTMAS CACTUS, Continued

Root Rot (general)	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Sclerotinia</i> , <i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench



CHRYSANTHEMUM (See Appendix, page 62, for physiological problems.)

Stem & Root Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Stem & Root Rot (<i>Pythium</i>)	Subdue 2E	0.5 to 2 fl oz/ 100 gal/400 to 800 sq ft (1 to 2 pt/sq ft)	at planting	every 6 wk	soil drench
	Truban 5 G	10 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	3 to 10 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Truban 25% WP	4 to 8 oz/100 gal/ 400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 months	soil drench
	Terrazole 35%	bedding plants: 2 to 3 oz/50 gal/ 400 sq ft	at seeding & at transplant	1 to 2 months	soil drench
		pot plants: 1.5 to 5 oz/50 gal (0.5 pt/6" pot)	after potting	every 2 to 3 months	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
CHRYSANTHEMUM, Continued					
Stem & Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	drench
	*Terraclor 75	2 lb/1,000 sq ft 2.5 lb/300 gal/ 1,000 sq ft	preplant preplant	once once	dust, soil incorporation soil drench
Grey Mold (<i>Botrytis</i>)	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 7 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787 F	2 pt/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Kocide 101	1 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
	Botran 75 W	0.5 to 0.75 lb/ 100 gal	at disease appearance	every 7 to 14 days	foliar spray
Powdery Mildew	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
	Bayleton 25 Turf & Ornamental	winter: 1 oz/50 gal; summer: 2 oz/50 gal	at disease appearance	every 30 days	foliar spray, excess rates may shorten flower stalks
	Karathane WD	4 to 6 oz/100 gal (2 Tbsp/12.5 gal)	at disease appearance	every 7 to 10 days	foliar spray
	**Milban EC	32 fl oz/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Actidione PM	5 Tbsp/gal	at disease appearance	every 7 days (every 3 to 5 days, if severe)	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
Alternaria Leaf Spot	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Daconil 2787 F	2 pt/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
	*Fore	1.5 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

**Restricted Use Pesticides (RUP); formulations of these toxicants are available only to certified applicators.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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CHRYSANTHEMUM, Continued

Bacterial Wilt (<i>Erwinia chrysanthemi</i>)	*Agri-Strep	50 ppm	preplant	once	soak basal ends for 6 hours
Fusarium Wilt	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	preplant	drench every 2 to 4 wk	soak cuttings 10 to 15 min & drench soil
	Tersan 1991	1 lb/100 gal	preplant	drench every 2 to 4 wk	soak cuttings 10 to 15 min & drench soil
	Benomyl 50% WP	1 Tbsp/gal	preplant	drench every 2 to 4 wk	soak cuttings 10 to 15 min & drench soil

Verticillium Wilt, no effective chemical control



COLEUS

Damping off (general)	Banrot	4 to 8 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (Pythium)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft	at planting	every 4 to 8 wk	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30 WP	4 to 6 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at planting	every 4 to 8 wk	soil drench
	Truban 25% EC	3 to 4 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Damping off (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Grey Mold (Botrytis)	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
COLEUS, Continued					
Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 gal/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)

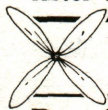
Bacterial Leaf Spot, no registered chemical control



COSMOS

Powdery Mildew	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray

Aster Yellows, best control is to control leafhoppers



CRUCIFERS

Damping off (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation



CUCURBITS

Damping off (<i>Pythium</i>)	Lesan 70% WP	3 oz/100 lb of seed	preplant	once	seed treatment
Damping off (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

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Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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CUCURBITS, Continued

Damping off (general)	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

Powdery Mildew, no registered chemical control

Grey Mold (<i>Botrytis</i>)	Botran 75	1 lb/100 gal	at disease appearance	weekly	foliar spray from ground up
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CYCLAMEN (See Appendix, page 62, for physiological problems.)

Grey Mold (<i>Botrytis</i>)	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	soil drench
	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	soil drench
	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	soil drench
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	soil drench
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	soil drench
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)

Erwinia Soft Crown Rot, no effective chemical control



CROCUS, DAFFODIL, HYACINTH, NARCISSUS (See Appendix, pages 62-63, for physiological problems.)

Root Rot (<i>Pythium</i>)	Lesan 35 WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at transplant	every 2 to 4 wk	soil drench
Bulb Rots (<i>Rhizoctonia</i> , <i>Penicillium</i> , & <i>Fusarium</i>)	Benlate	1.66 lb/100 gal (2 Tbsp/gal)	preplant	once	dip for 15 to 30 min
	Benlate DF	1.1 lb/100 gal	preplant	10 to 15 min in 80 to 85°F. solution	dip, once
	Tersan 1991	1.66 lb/100 gal (2 Tbsp/gal)	preplant	once	dip for 15 to 30 min
	Benomyl 50 WP	2 Tbsp/gal	preplant	once	dip for 15 to 30 min
	*Mertect 340-F	30 fl oz/100 gal	preplant	once	dip for 15 to 30 min
	*Terraclor 75	3.25 to 6.5 lb/ 1,000 sq ft	preplant	once	dust, soil surface, soil incorporation
Grey Mold (<i>Botrytis</i>)		3 lb/4.85 gal	preplant	once	dip, 5 min
	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray, use on Narcissus only
	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp /gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.



DAHLIA

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
Powdery Mildew	Karathane WD	4 to 6 oz/100 gal (1 Tbsp/gal)	at disease appearance	every 7 to 10 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Fusarium and Verticillium Wilt, no registered chemical control					
Root Rot (general)	Banrot	4 to 8 oz/100 gal 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/100 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (Pythium)	Truban 5 G	5 oz/cu yd of soil mix	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25 EC	3 to 4 oz/100 gal (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate on seedlings after initial drench
Root Rot (Rhizoctonia)	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench

Dahlia Mosaic Virus, no effective chemical control

TSWV (Tomato Spotted Wilt Virus), no effective chemical control

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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DIEFFENBACHIA (See Appendix, page 62, for physiological problems.)

Damping off (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Captan 50 W	0.2 to 0.4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Subdue 2E	0.4 to 1.2 fl oz/100 gal/400 to 800 sq ft (1 to 2 pt/sq ft)	at planting	every 2 to 3 months	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	8 to 12 oz/100 gal 400 sq ft	at planting	every 2 to 3 months	soil drench
	Truban 25% EC	4 to 8 oz/100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate on seedlings after initial drench
	Terrazole 35%	bedding plants: 2 to 3 oz/50 gal/400 sq ft	at seeding & at transplant	1 to 2 months	soil drench
		pot plants: 1.5 to 5 oz/50 gal (0.5 pt/6" pot)	after potting	every 2 to 3 months	soil drench
Root Rot (<i>Rhizoctonia</i>)	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/1,000 sq ft	preplant	once	soil drench
	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
Anthraxnose	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray



DRACAENA (See Appendix, pages 62-63, for physiological problems.)

Root Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Captan 50 W	0.2 to 0.4 lb/1,000 sq ft	preplant	once	dust, soil incorporation

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
DRACAENA, Continued					
Root Rot (general)	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (Pythium)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Lesan 35 WP	0.25 to 0.5 lb/100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench
Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/1,000 sq ft	preplant	once	soil drench
Grey Mold (Botrytis)	Ornalin	0.75 to 1 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787 F	2 pt/100 gal	pre-transplant	every 7 to 10 days as needed	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	pre-transplant	every 7 to 10 days as needed	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
Anthracnose	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
	Daconil 2787 F	2 pt/100 gal	pre-transplant	every 7 to 14 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	pre-transplant	every 7 to 14 days	foliar spray



EGGPLANT

Damping off and Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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EGGPLANT, Continued

Damping off and Root Rot (general)	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

**FERNS** (See Appendix, page 63, for physiological problems.)

Grey Mold (Botrytis)	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal	at disease appearance	every 10 to 14 days	soil drench
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	soil drench

**FICUS** (See Appendix, page 63, for physiological problems.)

Root Rot (general)	Banrot	4 to 8 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at planting & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

Root Rot (Pythium)	Lesan 35 WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at transplant	every 2 to 4 wk	soil drench
	Truban 25% EC	4 to 8 oz/100 gal/ 400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation

Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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FICUS, Continued

Root Rot (<i>Rhizoctonia</i>)	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

Anthracnose, no registered chemical control

**FLOWERING TOBACCO**

Downy Mildew, no registered chemical control

Alternaria Leaf Spot, no registered chemical control

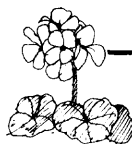
Powdery Mildew	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/100 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
Root Rot (<i>Rhizoctonia</i>)	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench

**FUCHSIA** (See Appendix, page 63, for physiological problems.)

Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
FUCHSIA, Continued					
Root Rot (general)	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (Pythium)	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Grey Mold (Botrytis)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)



GERANIUM (See Appendix, page 63, for physiological problems.)

Damping off Root & Stem Rot (general)	Banrot WP	bedding plants: 4 to 8 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
		pot plants: 6 to 12 oz/100 gal/400 sq ft	after potting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
GERANIUM, Continued					
Damping off Root & Stem Rot (<i>Pythium</i>)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/8 sq ft)	at planting	every 6 wk	soil drench
	Truban 5 G	bedding plants: 5 oz/cu yd of soil	preplant	once	soil incorporation
		pot plants: 10 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% EC	bedding plants: 4 to 6 oz/100 gal/800 sq ft	at seeding & at transplant	every 4 to 12 wk	soil drench
		pot plants: 3 to 10 oz/100 gal/400 sq ft (0.5 pt/6" pot)	after potting	every 4 to 12 wk	soil drench
	Truban 25% EC	bedding plants: 3 to 4 oz/100 gal/800 sq ft	at seeding & at transplant	every 4 to 8 wk	soil drench
		pot plants: 4 to 8 oz/100 gal	after potting	every 4 to 12 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft (0.5 pt/6" pot)	newly seeded areas	every 2 to 4 wk	soil drench
Damping off Root & Stem Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Grey Mold (<i>Botrytis</i>)		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Daconil 2787 F	2 pt/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	every 7 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Botran 75 W	0.5 to 0.75 lb/ 100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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GERANIUM, Continued

Rust	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Daconil 2787 F	2 pt/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Bayleton	1 to 2 oz/50 gal	at disease appearance	every 7 to 14 days	foliar spray
	Plantvax 75 W	1.6 to 2.4 oz/10 gal	at disease appearance	every 2 wk	foliar spray, maximum of 4 treatments

Bacterial Leaf Spot, Stem Rot, no chemical control, buy clean stock



GERBERA

Root Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (Pythium)	Truban 5 G	10 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	3 to 10 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Truban 25% EC	4 to 8 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/1,000 sq ft	preplant	once	soil drench
Grey Mold (Botrytis)	Ornalin	0.75 to 1 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

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Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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GERBERA, Continued

Grey Mold (<i>Botrytis</i>)	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Powdery Mildew	Karathane WD	4 to 6 oz/100 gal (2 Tbsp/12.5 gal)	at disease appearance	every 7 to 10 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray

**GLOXINIA** (See Appendix, page 63, for physiological problems.)

Stem, Crown & Root Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Stem, Crown & Root Rot (<i>Pythium</i>)	Truban 5 G	10 oz/cu yd of soil	preplant	once	soil incorporation
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal	at planting	every 2 to 4 wk	soil drench
Stem, Crown & Root Rot (<i>Rhizoctonia</i>)	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench

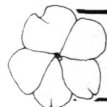
**HYDRANGEA** (See Appendix, page 63, for physiological problems.)

Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Daconil 2787 F	2 pt/100 gal	at disease appearance	every 7 to 14 days	foliar spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
HYDRANGEA, Continued					
Grey Mold (<i>Botrytis</i>)	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
Powdery Mildew	Karathane WD	4 to 6 oz/100 gal (2 Tbsp/12.5 gal)	at disease appearance	every 7 to 10 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray

Ring Spot Virus, no chemical control



IMPATIENS

Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
Damping off, Crown and Root Rot (general)	Banrot	4 to 8 oz/100 gal (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (<i>Pythium</i>)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/sq ft)	at planting	every 6 wk	soil drench
		0.5 to 2 fl oz/ 100 gal/800 sq ft	at transplant	every 1 to 2 months	soil drench

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
IMPATIENS, Continued					
Damping off (<i>Pythium</i>)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at planting	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	once	soil drench
Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench



IRIS

Grey Mold (<i>Botrytis</i>)	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787 F	1.5 pt/100 gal	at bud break	every 7 to 14 days	foliar spray
		2 pt/100 gal	at disease appearance	every 7 to 14 days	foliar spray
Basal Rot (<i>Fusarium</i> , <i>Rhizoctonia</i> , <i>Sclerotinia</i>)	Benlate	1.33 lb/100 gal (2 Tbsp/gal)	48 hours after digging	once-soak 15 to 30 min in warm dip (80 to 85° F)	dip
	Benlate DF	1.1 lb/100 gal	preplant	once-soak 10 to 15 min in warm dip (80 to 85° F)	dip
	Benomyl 50% WP	2 Tbsp/gal	48 hours after digging	once-soak 15 to 30 min in warm dip (80 to 85° F)	dip
	Tersan 1991	1.66 lb/100 gal (2 Tbsp/gal)	48 hours after digging	once-soak 15 to 30 min in warm dip (80 to 85° F)	dip
	*Terraclor 75% WP	3 lb/4.85 gal	48 hours after digging	once-soak 5 min in 75% concentration	dip
		3.25 to 6.5 lb/ 100 sq ft	preplant	once	soil surface, mix in upper 6 to 7 inches



IVY (See Appendix, pages 63-64, for physiological problems.)

Root Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
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*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
IVY, Continued					
Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (Pythium)	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
Bacterial Leaf Spot	Kocide 101	1 lb/100 gal (1 Tbsp/gal)	at disease appearance	every 7 to 14 days	foliar spray, can discolor leaves of some varieties
Grey Mold (Botrytis)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
Fungal Leaf Spots, no registered chemical control					
Powdery Mildew	Bayleton 25 Turf & Ornamental (Grape Ivy only—Avoid extensive application)	winter: 1 oz/50 gal; summer: 2 oz/50 gal	at disease appearance	every 30 days	foliar spray
	*Milban EC (Grape Ivy only)	32 fl oz/100 gal	at disease appearance	every 10 to 14 days	foliar spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

**Restricted Use Pesticides (RUP); formulations of these toxicants are available only to certified applicators.

(continued next page)



KALANCHOE *(See Appendix, page 64, for physiological problems.)*

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
Crown & Stem Rot (general)	Banrot WP	6 to 12 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Crown & Stem Rot (Pythium)	Truban 25% EC	4 to 8 oz/100 gal/ 400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench
Crown & Stem Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
Powdery Mildew	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	**Milban EC	32 fl oz/100 gal	at disease appearance	every 10 to 14 days	foliar spray
					foliar spray
Crown Gall	*Galltrol-A (bacterial inoculant)	1 plate:1 gal (unchlorinated)	preplant	once	dip



LABELIA

Damping off (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

**Restricted Use Pesticides (RUP); formulations of these toxicants are available only to certified applicators.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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LABELIA, Continued

Damping off (general)	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (<i>Pythium</i>)	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench



LETTUCE

Crown Rot (<i>Sclerotinia</i>)	Botran 75 W	5.33 lb/100 gal	at disease appearance	single application	soil drench
Grey Mold (<i>Botrytis</i>)	Botran 75 W	2.66 lb/100 gal/ acre	at disease appearance	at transplant and when half mature	foliar spray
Damping off (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation



LILIES

Root Rot (general)	Banrot WP	6 to 12 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
Root Rot (<i>Pythium</i>)	Subdue 2E	0.5 to 1 fl oz/ 100 gal	at planting	once	soil drench
	Truban 30% WP	3 to 10 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

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Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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LILIES, Continued

Root Rot (<i>Pythium</i>)	Truban 5 G	10 oz/cu yd soil mix	preplant	once	soil incorporation
	Truban 25% EC	4 to 8 oz/100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
	Terrazole 35% WP	bedding plants: 2 to 3 oz/50 gal/400 sq ft	at seeding & at transplant	1 to 2 months	soil drench
		pot plants: 1.5 to 5 oz/50 gal (0.5 pt/6" pot)	after potting	every 2 to 3 months	soil drench
Root Rot (<i>Rhizoctonia</i>) <i>Penicillium</i> & <i>Fusarium</i>)	Benlate	1.33 lb/100 gal (2 Tbsp/gal)	preplant	once	dip
	Tersan 1991	1.66 lb/100 gal (2 Tbsp/gal)	preplant	once	dip
	Benomyl 50% WP	2 Tbsp/gal	preplant	once	dip (15 to 30 min)
	*Mertect 340-F	30 fl oz/100 gal	preplant	once	dip (15 to 30 min)
	*Terraclor 75	3.25 to 6.5 lb/1,000 sq ft	preplant	once	dust, on soil surface
		7.5% concentration (3 lb/4.85 gal)	preplant	once	dip bulbs for 5 min

Viruses, no chemical control available

**MARIGOLDS** (See Appendix, page 64, for physiological problems.)

Damping off Lower Stem & Root Rot (general)	Banrot	4 to 8 oz/100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (<i>Pythium</i>)	Subdue 2E	0.25 to 0.5 fl oz/100 gal/800 sq ft	at planting	every 6 wk	soil drench
		0.5 to 2 fl oz/100 gal/800 sq ft	at transplant	every 1 to 2 months	soil drench
	Truban 5 G	5 oz/cu yd of soil	at seeding & at transplant	every 4 to 8 wk	soil incorporation
	Truban 30 WP	4 to 6 oz/100 gal/800 sq ft	at seeding & at transplant	every 4 to 8 wk	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
MARIGOLDS, Continued					
Damping off (<i>Pythium</i>)	Truban 25 EC	3 to 4 oz/100 gal/ 800 sq ft	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Damping off Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft 2.5 lb/300 gal/ 1,000 sq ft	preplant preplant	once once	dust, soil incorporation soil drench
Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray, use only on African marigolds, not French marigolds
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 2 wk	dust (fumigant)

Fusarium Wilt, no effective chemical control

Bacterial Leaf Spot (*Pseudomonas*), no effective chemical control

Aster Yellows, control leafhopper



NASTURTIIUM

Bacterial Leaf Spot (*Pseudomonas*), no effective chemical control

Fungal Leaf Spot, no registered chemical control

Beet Curly Top Virus, no effective chemical control

Tomato Spotted Wilt Virus (TSWV), no effective chemical control

Aster Yellows, best control is to control leafhopper



NEPHTHYTIS

Damping off, Root & Stem Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
NEPHTHYTIS, Continued					
Damping off Root & Stem Rot (general)	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off, Root & Stem Rot (<i>Pythium</i>)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	bedding plants: 4 to 6 oz/100 gal (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
		pot plants: 3 to 10 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Truban 25% EC	4 to 8 oz/100 gal (1 gal/8 sq ft)	at planting	every 2 to 3 months	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Damping off, Root & Stem Rot (<i>Rhizoctonia</i>)	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench



ONION

Damping off (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation



ORCHID (See Appendix, page 64, for physiological problems.)

Black Root (<i>Pythium</i>)	Truban 5 G	10 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	3 to 10 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench

Leaf Blight (*Phytophthora*), no registered chemical control

Viruses, best control is using disease-free material

Soft Rot, no chemical control

Anthrachnose, no registered chemical control

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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PACHYSANDRA

Stem Rot	*Fore	2 lb/50 gal/ 5,000 sq ft	at disease appearance	5 sprays, every 10 to 14 days	foliar spray
	Kocide 101	1 lb/100 gal	at disease appearance	every 7 days	soil drench
Leaf Blight	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
	Kocide 101	1 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray



PANSIES

Damping off (general)	Banrot	4 to 8 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (<i>Pythium</i>)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/sq ft)	at planting	every 6 wk	soil drench
		0.5 to 2 fl oz/ 100 gal/800 sq ft	at transplant	every 1 to 2 months	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25% EC	3 to 4 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
PANSIES, Continued					
Powdery Mildew	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Anthracnose and other Fungal Leaf Spots	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
	*Fore	1.5 lb/100 gal (1.5 Tbsp/gal)	at disease appearance	every 7 to 10 days	foliar spray
Grey Mold (Botrytis)	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Downy Mildew, no registered chemical control					



PEPEROMIA

Root & Crown Rot (general)	Banrot WP	6 to 12 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root & Crown Rot (Pythium)	Subdue 2E	0.4 to 1.2 fl oz/ 100 gal/400 to 800 sq ft (1 to 2 pt/sq ft)	at planting	every 2 to 3 months	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30 WP	8 to 12 oz/ 100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Truban 25% EC	4 to 8 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Terrazole 35% WP	bedding plants: 2 to 3 oz/50 gal/ 400 sq ft	at seeding & at transplant	1 to 2 months	soil drench
		pot plants: 1.5 to 5 oz/50 gal (0.5 pt/6" pot)	after planting	every 2 to 3 months	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
PEPEROMIA, Continued					
Root & Crown Rot (<i>Pythium</i>)	Lesan 35 WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
Root & Crown Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft 2.5 lb/300 gal/ 1,000 sq ft	preplant preplant	once once	dust, soil incorporation soil drench
Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray

Fungal Leaf Spot, no registered chemical control

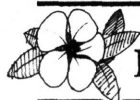
Viruses, cannot be controlled chemically—use disease-free stock



PEPPERS

Damping off (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

Bacterial Leaf Spot, no effective chemical control



PERIWINKLE

Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
PERIWINKLE, Continued					
Root Rot (general)	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	drench, use 0.25 lb rate on newly seeded areas
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Grey Mold (<i>Botrytis</i>)	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Fungal Leaf Spots	Kocide 101	1 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray



PETUNIA (See Appendix, page 64, for physiological problems.)

Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	every 7 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 2 wk	dust (fumigant)
Damping off, Crown and Root Rot (general)	Banrot	4 to 8 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
PETUNIA, Continued					
Damping off, Crown & Root Rot (general)	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal/ 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (Pythium)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 25 EC	3 to 4 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench, soil incorporation

Alternaria Leaf Spot, no registered chemical control



PHILODENDRON (See Appendix, page 64, for physiological problems.)

Damping off (general)	Banrot WP	pot plants: 6 to 12 oz/ 100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Banrot	bedding plants: 4 to 8 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at planting & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (Pythium)	Subdue 2E	0.4 to 2 fl oz/ 100 gal (1 to 2 pt/6" pot)	at planting	every 2 to 3 months	soil drench
	Truban 5G	5 oz/cu yd of soil	preplant	once	soil incorporation

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
PHILODENDRON, Continued					
Damping off (<i>Pythium</i>)	Truban 30% WP	8 to 12 oz/ 100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Terrazole 35% WP	bedding plants: 2 to 3 oz/50 gal/ 400 sq ft	at seeding & at transplant	1 to 2 months	soil drench
		pot plants: 1.5 to 5 oz/50 gal (0.5 pt/6" pot)	after potting	every 2 to 3 months	soil drench
	Truban 25% EC	4 to 8 oz/ 100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Bacterial Leaf Spot	Kocide 101	1 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray, use in con- junction with maneb & zinc, 1.2 lbs/100 gal



PHLOX

Powdery Mildew	Actidione PM	5 Tbsp/gal	at disease appearance	weekly	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
Damping off (general)	Banrot WP	4 to 8 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
Damping off Root Rot (<i>Pythium</i>)	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Damping off Root Rot (<i>Rhizoctonia</i>)	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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PHLOX, Continued

Damping off Root Rot (<i>Rhizoctonia</i>)	Benomyl 50% WP	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benlate DF	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench

**PILEA** (See Appendix, page 64, for physiological problems.)

Damping off Root Rot (general)	Banrot WP	6 to 12 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Damping off Root Rot (<i>Pythium</i>)	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30 WP	8 to 12 oz/ 100 gal/400 sq ft	at planting	every 2 to 3 months	soil drench
	Truban 25% EC	4 to 8 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Terrazole 35% WP	bedding plants: 2 to 3 oz/50 gal/ 400 sq ft	at seeding & at transplant	1 to 2 months	drench
		pot plants: 1.5 to 5 oz/50 gal (0.5 pt/6" pot)	after planting	every 2 to 3 months	drench
	Lesan 35 WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench
Damping off Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

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Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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PILEA, Continued

Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray

**POINSETTIA** (See Appendix, page 64, for physiological problems.)

Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, work into top 3 to 4 inches of soil
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, work into top 3 to 4 inches of soil
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, work into top 3 to 4 inches of soil
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, work into top 3 to 4 inches of soil
	Orthocide 5	2.25 to 4 lb/ 1,000 sq ft	preplant	once	dust, work into top 3 to 4 inches of soil
Root Rot (<i>Pythium</i> & <i>Phytophthora</i>)	Subdue 2E	0.5 to 2 fl oz/ 100 gal/400 to 800 sq ft (0.5 pt/6" pot)	at potting	reapply after 6 wk	drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	mix granules with soil
	Truban 30%	3 to 10 oz/ 100 gal/400 sq ft	at potting	reapply at 4 to 12 wk intervals	soil drench
	Truban 25% EC	4 to 8 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at potting	make only one application at 0.5 lb rate. Use 0.25 lb rate at 2 to 4 wk intervals thereafter.	soil drench
	Phaltan 50 W	2 lb + spreader/ 100 gal (1 pt/8" pot)	at planting	10 days	soil drench
	Folpet 50 WP	2 lb + spreader/ 100 gal (1 pt/8" pot)	at planting	10 days	drench
Root Rot (<i>Rhizoctonia</i>)	*Terraclor 75%	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at potting	every 2 to 4 wk	soil drench or heavy spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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POINSETTIA, Continued

Root Rot (<i>Rhizoctonia</i>)	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at potting	every 2 to 4 wk	soil drench or heavy spray
	Benomyl 50% WP	1 Tbsp/gal	at potting	every 2 to 4 wk	soil drench or heavy spray
	Banrot WP	6 to 12 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at potting	4 to 12 wk interval	soil drench
Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray until drip
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days. Shorten to 7 days when conditions favor disease development.	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days. Shorten to 7 days when conditions favor disease development.	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days. Shorten to 7 days when conditions favor disease development.	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)

Bacterial Stem Rot, no effective chemical control**Temik Tip Burn, (Apply Temik according to label)****PORTULACA**

Damping off (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (<i>Pythium</i>)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/100 gal (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded area	every 2 to 4 wk	soil drench



PRIMULA (See Appendix, page 64, for physiological problems.)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
Grey Mold (<i>Botrytis</i>)	Ornalin	0.75 to 1 lb/ 100 gal	When conditions for disease development prevail	every 10 to 14 days	foliar spray until drip
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Bacterial Leaf Spot, no registered chemical control					
Anthrachnose	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	1 lb/100 gal (1 Tbsp/1 gal)	at disease appearance	every 10 to 14 days	foliar spray
Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench or heavy spray
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench or heavy spray
	*Terraclor 75%	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	at planting	once	soil drench
Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Lesan 35 WP	pot plants: 0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
		bedding plants: 0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench

Rust, no registered chemical control

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.



RIEGER BEGONIA *(See Appendix, page 64, for physiological problems.)*

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
Root Rot (general)	Banrot WP	6 to 12 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 12 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot Crown Rot (Pythium)	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	3 to 10 oz/100 gal (0.5 pt/6" pot)	at transplant	every 4 to 12 wk if necessary	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	at transplant	every 2 to 4 wk	soil drench
Root Rot Crown Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Grey Mold (Botrytis) Blight Stem Rot	Ornalin	0.75 to 1 lb/ 100 gal	When favorable weather conditions prevail	every 10 to 14 days	foliar spray until drip
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 2 wk	dust (fumigant)
Powdery Mildew	Karathane WD	4 to 6 oz/100 gal (2 Tbsp/12.5 gal)	at disease appearance	every 7 to 10 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Actidione PM	5 Tbsp/gal	at disease appearance	every 7 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray

Bacterial Leaf Spot, no effective chemical control

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.



ROSE (See Appendix, page 65, for physiological problems.)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
Powdery Mildew	Bayleton 25 Turf & Ornamental	winter: 1 oz/50 gal; summer: 2 oz/50 gal	at disease appearance	every 30 days	foliar spray, excess rates may shorten flower stalks
	**Milban	32 oz/100 gal	at disease appearance	every 10 to 14 days	foliar spray to drip, sensitivity on some varieties
	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Karathane WP	4 to 6 oz/100 gal (2 Tbsp/3 gal)	at disease appearance	every 5 to 7 days	foliar spray, do not apply at temperatures over 90°F.
	Actidione PM	2 Tbsp/gal Rambler: 5 Tbsp/gal; 1 Tbsp/gal as protectant	at disease appearance	every 7 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Triforine EC	10 to 12 fl oz/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Kocide 101	1 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
Grey Mold (Botrytis)	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787	1 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Daconil 2787 F	1.5 pt/100 gal	at bud break	every 7 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	every 7 days	foliar spray
	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Botran 75 W	0.5 to 0.75 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
Black Spot	Daconil 2787	1 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	every 7 days	foliar spray
	Captan 50 W	2 lb/100 gal	at disease appearance	every 7 to 10 days	foliar spray
	Captan 50 WP	8 teaspoons/gal	at disease appearance	every 7 to 10 days	foliar spray
	Captan 80 WP	1.25 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Kocide 101	1 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
Crown Gall	Galltrol-A (bacterial inoculant)	1 plate/gal (unchlorinated)	preplant		dip once

Cankers (Coniothyrium & others) no registered chemical control

**Restricted Use Pesticides (RUP); formulations of these toxicants are available only to certified applicators.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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ROSE, Continued

Rust	*Dithane Z-78	0.5 lb/100 gal (1 Tbsp/gal)	at disease appearance	every 7 days	foliar spray
	Actidione PM	2 Tbsp/gal Rambler: 5 Tbsp/gal	at disease appearance	every 7 to 10 days	foliar spray



SALVIA (See Appendix, page 65, for physiological problems.)

Damping off Root Rot (general)	Banrot WP	4 to 8 oz/100 gal/ 800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off Root Rot (Pythium)	Subdue 2E	0.5 to 2 fl oz/ 100 gal/800 sq ft	at transplant	every 1 to 2 months	soil drench
		0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/sq ft)	at planting	every 6 wk	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25% EC	3 to 4 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Damping off Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Grey Mold (Botrytis)	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
SALVIA, Continued					
Grey Mold (<i>Botrytis</i>)	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Powdery Mildew	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray



SCHEFFLERA

Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Lesan 35 WP	bedding plants: 0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
		pot plants: 0.25 to 0.5 lb/ 100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
	Subdue 2E	0.4 to 1.2 fl oz/ 100 gal/400 to 800 sq ft (1 to 2 pt/sq ft)	at planting	every 2 to 3 months	soil drench
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

Oedema, best control is to reduce watering in cool, cloudy weather

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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SNAPDRAGON

Damping off (general)	Banrot	4 to 8 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (Pythium)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/sq ft)	at planting	every 6 wk	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25% EC	3 to 4 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Damping off (Rhizoctonia)	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
Rust	*Fore	1.5 lb/100 gal (0.5 Tbsp/gal)	at disease appearance	every 7 to 10 days	foliar spray
	*Dithane M-22	1.5 lb/100 gal (1.5 Tbsp/gal)	at disease appearance	every 7 to 10 days	foliar spray
Powdery Mildew	Karathane WD	4 to 6 oz/100 gal (2 Tbsp/12.5 gal)	at disease appearance	every 7 to 10 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray

Verticillium Wilt, no effective chemical control

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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STATICE

Root Rot Crown Rot (general)	Banrot WP	6 to 12 oz/ 100 gal/400 sq ft (0.5 pt/6" pot)	at planting	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/100 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot Crown Rot (<i>Pythium</i>)	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Root Rot Crown Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Grey Mold (<i>Botrytis</i>)	Chipco 26019	1 to 2 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Ornalin	0.75 to 1 lb/ 100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Daconil 2787 F	1.5 pt/100 gal	at bud break	every 7 to 14 days	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
Fungal Leaf Spots	Daconil 2787 F	1.5 pt/100 gal	at bud break	every 7 to 14 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray

Aster Yellows, best control is to control leaf hoppers

STOCK



Bacterial Rot (*Xanthomonas*), no effective chemical control

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
STOCK, Continued					
Damping off Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/100 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation	
Damping off (Pythium)	Lesan 35 WP	0.25 to 0.5/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Damping off (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
2.5 lb/300 gal/ 1,000 sq ft		preplant	once	drench	
Downy Mildew, no registered chemical control					
Grey Mold (Botrytis)	Benlate	0.5 lb/100 gal (1 to 2 pt/sq ft)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
Alternaria Leaf Spot	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
Club Root, no effective chemical control					
White Rust, no effective chemical control					
Verticillium Wilt, no effective chemical control					

STRAWFLOWER



Fusarium Stem Rot, no effective chemical control

Aster Yellows, best control is to control leafhopper; use disease-free planting material



SUCCULENTS (See Appendix, page 65, for physiological problems.)

Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
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*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
SUCCULENTS, Continued					
Root Rot (general)	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (Pythium)	Lesan 35 WP	0.25 to 0.5 lb/50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
		0.25 to 0.5 lb/100 gal (0.5 pt/6" pot)	at planting	every 2 to 4 wk	soil drench, use 0.25 lb rate after initial drench
Root Rot (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/1,000 sq ft	preplant	once	soil drench
Powdery Mildew	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray



TOMATOES (See Appendix, page 65, for physiological problems.)

Damping off (general)	Captan 50 W	0.2 to 0.4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (Rhizoctonia)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
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TOMATOES, Continued

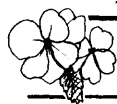
Damping off (<i>Rhizoctonia</i>)	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
Grey Mold (<i>Botrytis</i>)	Exotherm Termil		at disease appearance	every 2 wk	dust (fumigant)
	Botran 75 W	1 lb/100 gal	at disease appearance	weekly	foliar spray from ground up
	Benlate DF	0.33 to 0.66 lb/ 100 gal	at disease appearance	every 14 days	foliar spray



TULIPS (See Appendix, page 65, for physiological problems.)

Grey Mold (<i>Botrytis</i>)	Ornalin	1 to 1.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
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Viruses, no chemical control; use disease-free plant material



VERBENA

Damping off (general)	Banrot WP	4 to 8 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (<i>Pythium</i>)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/sq ft)	at planting	every 6 wk	soil drench
	Truban 5 G	5 oz/cu vd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/100 gal (1 gal/8 sq ft)	at planting & at transplant	every 4 to 8 wk	soil drench
	Truban 25% WP	3 to 4 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at planting	every 4 to 8 months	soil drench
Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench

*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

(continued next page)

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
VERBENA, Continued					
Grey Mold (<i>Botrytis</i>), Powdery Mildew	Zyban	1.5 lb/100 gal	at disease appearance	every 7 days	foliar spray
	Benlate	0.5 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Exotherm Termil		at disease appearance	every 14 days	dust (fumigant)
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray



VINCA

Damping off Root Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Root Rot (<i>Pythium</i>)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/sq ft)	at planting	every 6 wk	soil drench
		0.5 to 2 fl oz/ 100 gal/800 sq ft	at transplant	every 1 to 2 months	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30 WP	4 to 6 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25 EC	3 to 4 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench
Root Rot (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench



ZINNIAS

Damping off Stem Rot (general)	Banrot	4 to 8 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
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*Materials commercially used in greenhouses, but not yet legally registered for greenhouse use.

Disease	Material	Formulated Rate	When To Apply	Frequency	How To Apply, Remarks
ZINNIAS, Continued					
Damping off Stem Rot (general)	Captan 50 W	0.2 to 0.4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Captan 80 WP	1.25 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 10	1.25 to 2 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 50 W	4 to 5 oz/ 1,000 sq ft	preplant	once	dust, soil incorporation
		2 lb/100 gal at 15 gal/1,000 sq ft	preplant	once	soil drench
	Orthocide 7.5	2.5 lb/1,000 sq ft	preplant	once	dust, soil incorporation
	Orthocide 5	2.5 to 4 lb/ 1,000 sq ft	preplant	once	dust, soil incorporation
Damping off (<i>Pythium</i>)	Subdue 2E	0.25 to 0.5 fl oz/ 100 gal/800 sq ft (1 pt/sq ft)	at planting	every 6 wk	soil drench
	Truban 5 G	5 oz/cu yd of soil	preplant	once	soil incorporation
	Truban 30% WP	4 to 6 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Truban 25% EC	3 to 4 oz/ 100 gal/800 sq ft (1 gal/8 sq ft)	at seeding & at transplant	every 4 to 8 wk	soil drench
	Lesan 35 WP	0.25 to 0.5 lb/ 50 gal/400 sq ft	newly seeded areas	every 2 to 4 wk	soil drench, use 0.25 lb rate at seeding
Damping off (<i>Rhizoctonia</i>)	Benlate	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench, possible phytotoxicity on some varieties
	Benlate DF	0.66 lb/100 gal	after transplant	every 2 to 4 wk	soil drench
	Benomyl 50% WP	1 Tbsp/gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	Tersan 1991	1 lb/100 gal (1 to 2 pt/sq ft)	at planting	every 2 to 4 wk	soil drench
	*Terraclor 75	2 lb/1,000 sq ft	preplant	once	dust, soil incorporation
		2.5 lb/300 gal/ 1,000 sq ft	preplant	once	soil drench
Powdery Mildew	Actidione PM	5 Tbsp/gal	at disease appearance	weekly	foliar spray
	Benlate	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Benlate DF	0.33 lb/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	**Milban EC	32 fl oz/100 gal	at disease appearance	every 10 to 14 days	foliar spray
	Benomyl 50% WP	1 Tbsp/2 gal	at disease appearance	every 10 to 14 days	foliar spray
	Tersan 1991	0.5 lb/100 gal (1 Tbsp/2 gal)	at disease appearance	every 10 to 14 days	foliar spray
	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Daconil 2787 F	1.5 pt/100 gal	at bud break	every 7 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray
Alternaria Leaf Spot	Daconil 2787 (W-75)	1.5 lb/100 gal	at disease appearance	every 7 to 14 days	foliar spray
	Zyban	1.5 lb/100 gal	at disease appearance	weekly	foliar spray

Bacterial Leaf Spot, no effective chemical control

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**Restricted Use Pesticides (RUP); formulations of these toxicants are available only to certified applicators.

APPENDIX — Plant Physiological Problems.

	Symptoms	Cause	Control
AFRICAN VIOLETS	Brown spots on leaves or ring spots	cold water	use tepid water
	pale green leaves, long stalks, leaf edges curled	cold temperature	minimum 60°F
	bleach, burn on foliage	high light	shade in summer; 800 to 11,000 fc ideal
	yellowing leaves	low humidity	raise the humidity
ANTHERIUM	yellow leaf edges, brown leaf tips, curled foliage	cold, dry air	minimum 60°F in winter; keep humidity up
APHELANDRA	leaf drop	cold, dry air	keep moist, minimum 55°F in winter
	brown leaf tips	low humidity	mist, keep humidity up
ARALIA	shriveled leaves	high light, low humidity	shade in summer, raise humidity
	yellowing leaves, leaf drop	overwatering	watch watering
	pale spotted leaves, brown brittle leaf edges	underwatering	watch watering
	yellowing leaves, leaf drop	high temperature	avoid temperatures above 70°F
AZALEA	leaf drop	overwatering, under-watering, poor drainage, nutrient deficiency	correct watering, use well drained soil and use NPK 3:1:1 at 200 ppm N and 1 watering between each fertilization
	chlorosis	iron deficiency, too wet, cold	temperature 65°F, watch watering, use iron chelates
	foliage burn	high soluble salts, nematodes	watch soluble salts
CACTI	excess elongation, malformed	low light in summer or warm winter	maintain 50-55°F winter, need greater light intensity in the summer
	shriveled stem, tip rot below	overwatering in winter	decrease water in winter, keep on dry side
CHRYSANTHEMUM	crown bud	not enough short days, high temperatures, low light, cuttings too long	apply proper conditions for flowering for the variety
	neckiness	stem below bud elongated	use B-9, 1 to 3 days after disbud
	yellow top leaves	pH too high	keep pH at 6.2 to 6.4
	yellow leaves	cutting held too long, high soluble salts	maintain proper fertilization, plant cuttings quickly
CYCLAMEN	yellowing foliage	hot, dry air, underwatering, high light	keep 62 to 64°F. at night, shade in summer: 1,000 fc maximum, water correctly
	crown soft, plant collapses	overwatering, corm planted too deeply	plant corm with top showing, water correctly
DAFFODIL	bud abortion at gooseneck stage	bullnose	force bulbs at 61 to 63°F
DIEFFENBACHIA	wilted, yellow, lower leaves	low winter temperatures, drafts	minimum 60°F winter, avoid drafts
	leaf drop	cold, dry air, drafts	same as above
	brown leaf edges	lack of water	check watering
	bleached, washed out leaves	excessive sunlight	provide some shade
DRACAENA	bleached patches on leaves	excessive sun	shade partially
	brown spots on leaves	underwatering	keep moist at all times
	yellow lower leaves	old age, soluble salts, overwatering	leaves normally die after two years, but can also indicate problems

	Symptoms	Cause	Control
DRACAENA, Continued			
	soft leaves, curled brown edges	too cold	minimum 55°F winter temperature, avoid drafts
	yellow edges, brown tips	underwatering, drafts, low humidity	keep moist, avoid drafts and raise humidity
FERNS	brown spots, yellowing beginning at base of frond	high temperatures	temperature at 60 to 70°F
	bleached appearance, scorch marks	excessive sun	shade in the summer
	bleached appearance, weak growth	low nutrients	fertilize the plant
	dying back	dry soil or air	control watering
FICUS	leaf drop on rubber plants	overwatering	provide proper amounts of water
	leaf drop on fig trees (acclimatization)	low light levels	needs ample light
	leaf drop	low temperatures, excess fertilizer	not less than 55°F, and provide proper fertilization
	yellow edges, loss of lower foliage	underfertilization	provide proper fertilization
	dry shriveled leaves	low humidity, underwatering	watch watering and raise humidity
FUCHSIA	defoliation	too hot, too dry	correct the environment
	loss of lower leaves	lack of light, underwatering	provide adequate light and water properly
	bud abortion	poor watering, high heat, low light, dry air	correct the environment
GERANIUM	yellow leaf margins	cycocel injury	apply proper amounts of the chemical, disappears with time
	petal shattering	high ethylene levels on seed varieties	spray with silver thiosulfate
	yellowing, drying of leaves from edges, wilt	drought stress	water correctly
GLOXINIA	premature budding on small plants	late transplanting, too hot, dry, high light, lack of nitrogen	transplant quickly, water well, maintain adequate humidity, 65 to 70°F night temperature, shade in summer (2,000 to 2,500 fc), use 100 ppm nitrogen 15-15-15
	buds turn black or brown	overfertilization, low humidity, low temperatures, low light, irregular watering	use fertilization recommended above, raise humidity, 65 to 70°F nights, 2,000 to 2,500 fc optimum, water on schedule
HYACINTH	flower stalk separates from the basal plate—spitting	freezing	keep bulbs from freezing
	flower stalk falls over after elongation	inadequate calcium, translocation problem if kept cold too many weeks and forcing temperatures too high	use 1,000 to 2,000 ppm ethephon when shoots are 3 to 4 inches long or color shows
HYDRANGEA	blind wood (no buds)	poor light, early storage, early defoliation, too low temperatures	follow growing schedule carefully, need high light levels for initiation, defoliate on time
	chlorosis	low iron, poor roots	use FeSO ₄ 3 lb/100 gal drench, may also need magnesium
IVY	brown, dry, leaf edges, spindly growth	too warm, spider mites	lower temperature, spray with miticide (kelthane) to control mites

(continued next page)

	Symptoms	Cause	Control
IVY, Continued			
	leaves all green on variegated varieties, leaves undersized, spindly growth	low light	raise light levels
	brown tips, stunted growth	low humidity, spider mites	raise humidity, spray with miticide
KALANCHOE	yellowing, cupping of leaves at budding	improper lighting	proper lighting—start under short day and change to long day lighting
LILIES	leaf scorch, leaf tips	high phosphorus ('Ace' more sensitive), fluoride in water	use low P
	bud abortion	high ethylene, low light, high temperatures	strict temperature control, higher light in winter, no ethylene sources
	yellowing, light green upper leaves	high pH, high phosphorus	pH 6.5 to 7.0, use low P fertilizer
MARIGOLDS	bud abortion	high day temperatures, low night temperatures, ethylene damage	control temperatures, use silver thiosulfate
	lack of flowering, bronze foliage	pH too low	raise pH
ORCHID	brown, hard, dry spots on leaves, droopy growth	sun scorch, low light, or incorrect watering	shade from the sun, need 10 to 15 hours light per day, keep moist, use tepid water
PETUNIA	bud abortion, tip dieback and fasciation	overwatering (ethylene effect)	water correctly, use well drained soils
PHILODENDRON	brown, dry tips and edges	dry air	raise humidity
	small pale leaves	lack of light	raise light levels
	brown, dry leaves leading to leaf drop	too hot	keep 65°F
	yellowing leaves	overwatering, under-fertilization	avoid keeping soil saturated, feed properly
	yellow leaves, brown dry spots	underwatering	water correctly
PILEA	brown tips and edges, discoloration	low light or sudden drop in temperature	not less than 50°F winter, raise light levels
	leaves wilted, discolored, rotted, drooping	overwatering	decrease watering
POINSETTIA	leaf drop	excessive drying, injured roots from fertilizer, draft	watch soluble salts, avoid drafts, temperature 65°F nights, water well
	leaf crippling	rapid temperature rise and decrease in humidity at same time	maintain low humidity at night
	latex eruption	low temperature, high humidity, high soil moisture causes cells to erupt	avoid this combination
	split bracts	floral initiation followed by a vegetative period, buds fail to develop	proper scheduling, control of day length
	premature cyathia drop, tip burn, edges burned	possibly too much Temik on leaves	apply Temik according to label
PRIMULA	chlorosis	lack of iron	use chelated iron
RIEGER BEGONIA	oedema (water soaked blisters on surface of leaf become corky, leaves yellow and drop)	excessive water in leaves	don't overwater, lower humidity
	heat delay	night temperatures greater than 75°F	grow at 62 to 65°F

	Symptoms	Cause	Control
ROSE	wilting while wet	soluble salts	leaching
SALVIA	yellow lower leaves, browning turns black and falls off	wilt damage	avoid water stress—plants are very susceptible
SUCCULENTS	elongated, misshapen stems	high water in winter, low light in summer	decrease water in winter, increase light
	sudden leaf drop	cold water or underwatering	use tepid water
	leaves wilted, discolored brown dry spots	overwatering in winter, underwatering in summer	keep very hot in winter, increase watering in summer
TOMATOES	purplish stems, low fruit yield	cold injury	seedling temperature 60 to 75°F
	epinastic curvature	ethylene damage	check for an ethylene source (i.e. heaters)
TULIPS	bud abortion	high temperatures, high ethylene, water stress, lack of ventilation in storage	control forcing temperatures, water adequately, ventilate in storage, temperatures 63°F night time and 68°F day time
	blindness (no buds)	very large bulbs	don't use bulbs greater than 12 to 13 cm
	flower stalk falls over after elongation	inadequate calcium, translocation problem if kept cold too many weeks and forcing temperatures too high	force at temperatures below 68°F, use 2 lb/100 gal $\text{Ca}(\text{NO}_3)_2$ when put into greenhouse

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