

## Chemicals for Plant Disease Control at Home



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Retailers and consumers can become confused when trying to find a particular product to control a plant disease. The problems often arise when a specific chemical is recommended for controlling the disease, but the chemical is sold under a variety of trade names.

When a plant expert recommends that a certain chemical be used for plant disease control, he or she often refers to it by its common name. But not all product labels list the ingredients by their common names. Instead, they use chemical terminology. Consumers can become confused when trying to find a chemical that was recommended by its common name but is listed on the product labels by its chemical term.

Besides the problem of identifying the right products, homeowners also face a declining number of disease-control products that are available in small packages. To get what they need, homeowners may eventually have to buy chemicals in larger quantities. This poses several problems:

- Larger packaging instructions seldom give rates in quantity per gallon, but instead in quantity per acre.
- Larger size containers cost more (even though the cost per unit used is less).
- Adequate space for storing excess chemicals may not be available.

To help consumers and retailers identify the products used to control plant diseases in Texas, a list of chemicals and the products available to homeowners is provided below. A survey was made to identify the chemical companies whose products are most commonly found in retail outlets in Texas.

Not included are products normally packaged for agricultural use, even though some of these products are stocked in certain retail outlets. For example, copper hydroxide can be purchased in 2-pound bags under the trade name Kocide 101, but only the products sold in smaller quantities are listed here.

Homeowners can more easily determine what to buy if they understand what information is included on the product labels. Listed on every product label is the name of the active ingredient, which is the chemical that acts against the disease. The law requires that each product label include the chemistry terminology of the active ingredient. This terminology describes the chemical makeup of the compound.

Because chemical names are long and cumbersome to pronounce, each chemical has been assigned an official common name. For most people, it is easier to use the common name rather than the chemical name. Manufacturers are not required to put the common name on the label, but some do.

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**Examples:**

Common Name	Chemical Name
<del>chlorothalonil</del>	<del>Tetrachloroisophthalonitrile</del>
triadimefon	1-(4-chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazo-1-yl)-butanone

Four tables are included in this publication to help homeowners and retailers distinguish among the products available:

- Table 1 lists common chemical names and the corresponding chemical name for each active ingredient.
- Table 2 lists all trade name products and product manufacturers for each chemical.

Combination products, those containing more than one chemical, are included. In most cases, the additional chemicals are insecticides. Table 2 also indicates whether a product can be used on at least one vegetable, one fruit or turf and/or one ornamental. Refer to the product labels for specific crops and instructions.

- Table 3 lists each product by company or brand name, with a reference number to Table 2. If you know the product name, use Table 3 to determine its location in Table 2, where the active ingredient is listed. Table 3 also serves as a reference to the various products sold under a given brand name.
- Table 4 lists the companies that formulate products under the various brand names.

**Table 1. Chemicals for control of plant diseases.**

Common Name	Chemical Name
1. captan	N-trichloromethylthio-4-cyclohexene-1,2-dicarboximide
2. chitin (organic)	(Poly-N-acetyl-D-glucosamine)-Protein
3. chlorothalonil	tetrachloroisophthalonitrile
4. copper ammonium complex	exact formula not known
5. copper hydroxide	copper hydroxide
6. copper salts	copper salts of fatty and resin acids
7. copper sulfate	copper sulfate pentahydrate
8. fosetyl-al	aluminum trio (O-ethyl phosphonate)
9. lime sulphur	calcium polysulfide
10. mancozeb	A coordination product of zinc ion and manganese ethylene bisdithiocarbamate
11. maneb	manganese ethylene bisdithiocarbamate
12. myclobutanil	alpha-butyl-alpha 4-(chlorophenyl)-1 H-1,2,4 triazole-1-propanenitrile
13. neem oil (organic)	clarified hydrophobic extract of neem oil
14. PCNB	pentachloronitrobenzene
15. Potassium bicarbonate	potassium bicarbonate
16. Propiconazole	1-(2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-ylmethyl)-1H-1,2,4-triazole
17. Quaternary ammonium compound	various forms of N-alkyl ammonium chloride
18. streptomycin sulfate	streptomycin sulfate
19. sulphur	sulphur
20. thiophanate methyl	dimethyl 4, 4'-O-phenylenebis (3-thioallophanate)
21. thiram	tetramethylthiuram disulfide
22. triadimefon	1-(4-chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4 triazo-1-yl)-butanone
23. triforine	(N,N'[1,4 piperazinediyl]bis (2,2,2 trichloroethylidene) ]bis[formamide])

**Table 2. Trade and brand names of products containing the chemical ingredients listed in Table 1.**

(*V = Vegetable; F = Fruit; T/O = Turf/Ornamental)				
Common Name/Trade Name	Brand Name	V*	F*	T/O*
<b>1. Captan</b>				
a. Captan Fungicide	Hi-Yield	seed tr	X	X
b. Captan Fruit and Ornamental	Bonide		X	X
<b>Captan combination products</b>				
c. Rose & Flower Dust (captan + methoxyclor + malathion)	Green Light			X
d. Fruit Tree Spray (captan + malathion)	Ferti-lome		X	
e. Liquid Fruit Tree Spray (captan + methoxyclor + carbaryl + malathion)	Dexol		X	
f. Fruit Tree Spray (captan + methoxyclor + carbaryl + malathion)	Bonide		X	X
g. Rescue (captan + carbaryl + malathion)	Martin's		X	X
<b>2. Chitin</b>				
a. Nem-A-Cide Nematode Control	Hi-Yield	X	X	X
<b>3. Chlorothalonil</b>				
a. Multi-Purpose Fungicide-Daconil	Ortho	X	X	X
b. Liquid Fungicide	Ferti-lome	X		X
c. Daconil Lawn, Vegetable and Flower Fungicide	Hi-Yield	X		X
d. Fung-onil Concentrate	Bonide	X	X	X
e. Fung-onil (Ready-To-Use)	Bonide	X	X	X
f. Bravado Fungicide	Monterey	X	X	X
<b>Chlorothalonil combination products</b>				
g. Triple Action (chlorothalonil + diazinon)	Ferti-lome			X
h. Rose Spray (chlorothalonil + diazinon)	Ferti-lome			X
<b>4. Copper Ammonium Complex</b>				
a. Liqui-Cop	Monterey	X	X	X
<b>5. Copper Hydroxide</b>				
a. Blackspot Powdery Mildew Control	Ferti-lome			X
b. Copper Fungicide	Hi-Yield	X	X	X
<b>6. Copper Salts</b>				
a. Liquid Copper Fungicide	Bonide	X	X	X
<b>7. Copper Sulfate</b>				
a. Bordeaux Mix Fungicide	Hi-Yield	X	X	X
b. Bordeaux Fungicide	Dexol	X	X	X
c. Copper Dust or Spray	Bonide	X	X	X
<b>8. Fosetyl-Al</b>				
a. Monterey Aliette	Monterey			X

**Table 2. Trade and brand names of products containing the chemical ingredients listed in Table 1. (continued)**

		(*V = Vegetable; F = Fruit; T/O = Turf/Ornamental)			
Common Name/Trade Name	Brand Name	V*	F*	T/O*	
<b>9. Lime Sulfur</b>					
a. Lime-Sulfur Spray	Bonide		X	X	
b. Lime Sulphur Spray	Hi-Yield		X	X	
c. Oil & Lime Sulfur Spray	Bonide		X	X	
<b>10. Mancozeb</b>					
a. Broad Spectrum Mancozeb Fungicide	Green Light	X	X	X	
b. Mancozeb Plant Fungicide	Bonide	X		X	
<b>11. Maneb</b>					
a. Maneb Garden Fungicide	Hi-Yield		X	X	
<b>12. Myclobutanil</b>					
a. Immunox Multi-Purpose Fungicide	Spectracide		X	X	
b. Immunox Lawn Disease Control Systemic Fungicide Concentrate	Spectracide			X	
<b>Myclobutanil combination products</b>					
c. Immunox Multi-Purpose Fungicide + Insect Control (myclobutanil + permethrin)	Spectracide			X	
d. Immunox Multi-Purpose Insect + Disease Control (aerosol)	Spectracide			X	
<b>13. Neem Oil</b>					
a. Neem Concentrate	Green Light	X	X	X	
b. Fruit, Nut & Vegetable Spray	Green Light	X	X		
c. Rose Defense	Green Light			X	
d. Powdery Mildew Killer	Green Light	X	X	X	
<b>14. PCNB</b>					
a. Terraclor Granular Fungicide	Hi-Yield			X	
b. Turfcide 10G	Uniroyal			X	
c. Turfcide 400 (Liquid)	Uniroyal			X	
<b>PCNB combination products</b>					
d. Azalea, Camellia, Crepe Myrtle Spray (PCNB + malathion)	Ferti-lome			X	
e. Fungicide for Brown Patch (PCNB + fertilizer)	Ferti-lome			X	
<b>15. Potassium Bicarbonate</b>					
a. Remedy	Bonide	X	X	X	
<b>16. Propiconazole</b>					
a. Systemic Fungicide	Ferti-lome			X	
b. Lawn Disease Control	Ortho			X	
<b>17. Quaternary Ammonium Compounds</b>					
a. Consan 20	Hi-Yield			X	
b. Consan Triple Action 20	Parkway			X	

**Table 2. Trade and brand names of products containing the chemical ingredients listed in Table 1. (continued)**

		(*V = Vegetable; F = Fruit; T/O = Turf/Ornamental)			
Common Name/Trade Name	Brand Name	V*	F*	T/O*	
<b>18. Streptomycin Sulfate</b>					
a. Fire Blight Spray	Ferti-lome		X	X	
<b>19. Sulphur</b>					
a. Wettable Dusting Sulphur	Green Light	X	X	X	
b. Dusting Sulphur	Ferti-lome	X	X	X	
c. Wettable Dusting Sulphur	Hi-Yield	X	X	X	
d. Sulfur 90W	Monterey	X	X	X	
e. Garden Fungicide	Safer	X	X	X	
f. Sulfur Fungicide	Bonide	X	X	X	
<b>Sulphur combination products</b>					
g. Rose, Flower and Vegetable Dust (sulphur + rotenone)	Ferti-lome	X		X	
<b>20. Thiophanate Methyl</b>					
a. Systemic Fungicide	Green Light			X	
b. Halt Systemic Fungicide	Ferti-lome			X	
c. Lawn Fungus Control	Scotts			X	
d. Bonomy Turf and Ornamental	Bonide			X	
<b>21. Thiram (combination product)</b>					
a. Bulb Dust (thiram + methoxychlor)	Bonide			X	
<b>22. Triadimefon</b>					
a. Fung-Away (Systemic Lawn Fungicide Spray)	Green Light			X	
b. Fung-Away (Systemic Fungicide)	Green Light			X	
c. Fung-Away (Systemic Lawn Fungicide-Granular)	Green Light			X	
d. Lawn Fungicide Granules	Hi-Yield			X	
e. Fungus Control for Lawns	Bayer Advanced			X	
f. Fungi-onil Lawn Disease Control	Bonide			X	
<b>23. Triforine</b>					
a. Rose Pride Funginex	Ortho			X	
<b>Triforine combination products</b>					
b. Rose Pride Orthenex (triforine + acephate + vendex )	Ortho			X	
c. Rose Pride Orthenex (aerosol) (triforine + acephate + resmethrin)	Ortho			X	

**Table 3. Index to plant disease control products in Table 2.**

<b>Brand Name</b>	<b>Product Name</b>	<b>Reference Table 2</b>	
Bayer Advanced Lawn	Fungus Control for Lawns .....	22-e	
Bonide	Bonomyl Turf and Ornamental .....	20-d	
	Captan Fruit and Ornamental .....	1-b	
	Liquid Copper Fungicide .....	6-a	
	Copper Dust or Spray.....	7-c	
	Fung-onil Concentrate .....	3-d	
	Fung-onil (Ready-to-Use).....	3-e	
	Fung-onil Lawn Disease Control .....	22-f	
	Lime Sulfur Spray .....	9-a	
	Mancozeb Plant Fungicide .....	10-b	
	Oil & Lime Sulfur Spray.....	9-c	
	Remedy .....	15-a	
	Sulfur Fungicide .....	19-f	
	<b>Combination products</b>		
	Bulb Dust (thiram + methoxychlor) .....	21-a	
Fruit Tree Spray (captan + malathion + methoxychlor + carbaryl).....	1-f		
Dexol	Liquid Fruit Tree Spray.....	1-e	
	Bordeaux Fungicide .....	7-b	
Ferti-lome	Blackspot Powdery Mildew Control .....	5-a	
	Dusting Sulphur .....	19-b	
	Fire Blight Spray.....	18-a	
	Halt Systemic Fungicide .....	20-b	
	Liquid Fungicide.....	3-b	
	Systemic Fungicide .....	16-a	
	<b>Combination products</b>		
	Rose, Flower and Vegetable Dust (Sulphur + Rotenone) .....	19-g	
	Azalea, Camellia, Crepe Myrtle Spray (PCNB + malathion) .....	14-d	
	Fruit Tree Spray (captan + malathion) .....	1-d	
	Triple Action (chlorothalonil + diazinon) .....	3-g	
	Fungicide for Brown Patch (PCNB + fertilizer).....	14-e	
Rose Spray (chlorothalonil + diazinon) .....	3-h		
Green Light	Broad Spectrum Mancozeb Fungicide .....	10-a	
	Fung-Away (Systemic Lawn Fungicide Spray) .....	22-a	
	Fung-Away (Systemic Fungicide) .....	22-b	
	Fung-Away (Systemic Lawn Fungicide-Granular) .....	22-c	
	Systemic Fungicide .....	20-a	
	Wettable Dusting Sulphur .....	19-a	
	Neem Concentrate .....	13-a	
	Fruit, Nut and Vegetable Spray.....	13-b	
	Rose Defense .....	13-c	
	Powdery Mildew Killer.....	13-d	
	<b>Combination products</b>		
Rose & Flower Dust (captan + methoxychlor + malathion) .....	1-c		
Hi-Yield	Daconil Lawn, Vegetable and Flower Fungicide .....	3-c	
	Lawn Fungicide Granules .....	22-d	
	Lime Sulphur Spray .....	9-b	
	Maneb Garden Fungicide .....	11-a	
	Terraclor Granular Fungicide.....	14-a	
	Wettable Dusting Sulphur .....	19-c	
	Nem-A-Cide Nematode Control .....	2-a	
	Copper Fungicide .....	5-b	
	Captan Fungicide .....	1-a	
	Bordeaux Mix Fungicide .....	7-a	
Consan 20 .....	17-a		

**Table 3. Index to plant disease control products in Table 2. (continued)**

<b>Brand Name</b>	<b>Product Name</b>	<b>Reference Table 2</b>
Martin's	Rescue (captan + carbaryl + malathion) .....	1-g
Monterey	Bravado Fungicide .....	3-f
	Monterey Aliette .....	8-a
	Liqui-Cop .....	4-a
	Sulfur 90W .....	19-d
Ortho	Rose Pride Funginex .....	23-a
	Multi-Purpose Fungicide - Daconil .....	3-a
	Lawn Disease Control .....	16-b
	<b>Combination products</b>	
	Rose Pride Orthenex (triforine + acephate + vendex®) .....	23-b
	Rose Pride Orthenex (aerosol) (triforine + acephate + resmethrin) .....	23-c
Parkway	Consan Triple Action 20 .....	17-b
Safe	Garden Fungicide .....	19-e
Scotts	Lawn Fungus Control .....	20-c
Spectracide	Immunox Multi-Purpose Fungicide .....	12-a
	Immunox Lawn Disease Control Systemic Fungicide Concentrate .....	12-b
	<b>Combination products</b>	
	Immunox Multi-Purpose Fungicide + Insect Control (myclobutanil + permethrin) .....	12-c
	Immunox Multi-Purpose Insect + Disease Control (aerosol) (myclobutanil + permethrin) .....	12-d
Uniroyal	Turfcide 10G .....	14-b
	Turfcide 400 (liquid) .....	14-c

**Table 4. Companies offering fungicides in small packages.**

<b>Brand Name</b>	<b>Address</b>
Bayer Advanced Lawn	Bayer-Pursell LLC 1500 Urban Center Drive Birmingham, AL 35242 <a href="http://www.bayeradvanced.com">www.bayeradvanced.com</a>
Bonide	Bonide Products, Inc. 6301 Sutliff Rd. Oriskany, NY 13424 <a href="http://www.bonideproducts.com">www.bonideproducts.com</a>
Dexol	Value Garden Supply 9100 W. Bloomington Freeway, Suite 113 Bloomington, MN 55431 <a href="http://www.valuegardens.com">www.valuegardens.com</a>
Ferti-lome Hi-Yield	Voluntary Purchasing Group, Inc. P O Box 460 Bonham, TX 75418

**Table 4. Companies offering fungicides in small packages. (continued)**

<b>Brand Name</b>	<b>Address</b>
Green Light	Green Light Company P O Box 17985 San Antonio, TX 78217-0985 <a href="http://www.greenlightco.com">www.greenlightco.com</a>
Martin's	Control Solutions, Inc. 5903 Genoa Red Bluff Pasadena, TX 77502 <a href="http://www.controlsolutionsinc.com">www.controlsolutionsinc.com</a>
Monterey	Lawn and Garden Products, Inc. P O Box 5317 Fresno, CA 93755 <a href="http://www.montereylawngarden.com">www.montereylawngarden.com</a>
Ortho Scotts	Ortho Business Group, A Division of the Scotts Co. 14111 Scottslawn Road Marysville, OH 43041 <a href="http://www.scotts.com">www.scotts.com</a>
Parkway	Parkway Research Corp. 13802 Chrisman Rd. Houston, TX 77039 <a href="http://www.parkwayresearch.com">www.parkwayresearch.com</a>
Safer	Woodstream Corporation 69 N. Locust St. Lititz, PA 17543 <a href="http://www.victorpest.com">www.victorpest.com</a>
Spectracide	United Industries Corp. P O Box 142642 St. Louis, MO 63114-0842 <a href="http://www.spectrumbrands.com">www.spectrumbrands.com</a>
Uniroyal	Uniroyal Chemical Company, Inc. Benson Road Middlebury, CT 06749



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Produced by Agricultural Communications, The Texas A&M University System  
Extension publications can be found on the Web at: <http://texaserc.tamu.edu>

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Issued in furtherance of Cooperative Extension Work in Agriculture and Home Economics, Acts of Congress of May 8, 1914, as amended, and June 30, 1914, in cooperation with the United States Department of Agriculture. Chester P. Fehlis, Deputy Director, Texas Cooperative Extension, The Texas A&M University System.