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Survey of Fungicides Available for Homeowners in Lee County, Florida: November 2008

Active Ingredient (Common name)	Fungicide Family	Brand/Trade Name	Plant Diseases (Insects/Mites) Controlled
Captan	Phthalimide (group M4*)	Hi Yield, Captan Fungicide 50% WP	Fruits, Vegetable Seeds, and Ornamentals Diseases: Botrytis flower blight; brown rot blossom blight. (<i>Monilinia</i>); brown rot blossom/twig blight (<i>Monilinia fructicola/M. laxa</i>); botrytis rot; bulb rot; corm rot; fruit molds/rots; rust; damping-off; damping-off (cuttings); seed rot; black spot of rose (<i>Diplocarpon rosae</i>); brooks fruit spot (<i>Mycosphaerella pomi</i>); fruit spot (<i>Mycosphaerella</i>); leaf spot (<i>Alternaria</i>)
Fungicide: Captan Insecticides: Malathion, Carbaryl	Phthalimide (group M4)	Bonide, Fruit Tree Spray	Fruit Trees, Ornamentals Flowers, Evergreens, Strawberries Diseases: Such as black spot; downy mildew; brown rot; Coryneum blight and others Insects and Mites: Aphids; mites; scales; mealybugs; flea beetles and many more
Chlorothalonil	Chloronitrile (group M5)	Garden Tech, Daconil	Flowers, Vegetables, Shrubs, Fruit and Shade Trees Diseases: Rusts; powdery mildew; downy mildew; Anthracnose; Botrytis; leaf galls
Chlorothalonil	Chloronitrile (group M5)	Southern AG, Liquid Ornamental and Vegetable Flowable Fungicide	Turf, Ornamentals, Bulbs, Foliage Plants, Conifers, many types of Vegetables, and certain Trees and Orchard Crops. Diseases: Dollar spot; brown patch; melting out; gray leaf spot; red thread; Anthracnose; copper spot Ornamentals: Leaf spots; foliar blights; powdery mildew; rust; scab Vegetables: Rust; Botrytis; Anthracnose; downy mildew; Alternaria; blights; blotches
Copper	Inorganic (group M1)	Hi-Yield, Bordeaux Mix Fungicide	Fruits, Vegetables, Shrubs, Trees, and Flowers Diseases: Anthracnose ; Botrytis blight; Coryneum blight; blights; twig blight (<i>Diplodia</i>); twig blight; leaf blights; needle blights; blotch; dieback; black canker (<i>Physalospora</i>); scab (<i>Venturia</i>); downy mildew; black rot (<i>Physalospora</i>); leaf spots; bacterial leaf spot
Copper ammonium complex	Inorganic (group M1)	Southern AG, Liquid Copper Fungicide	Many Fruits, Vegetables, Turfgrasses, Live Oak and Ornamentals Diseases: Many bacterial and fungal leaf spots, rust, blights. Also controls algae in turfgrass and moss in live oaks
Copper octanoate (Copper Soap)	Inorganic (group M1)	Natural Guard, Copper Soap Liquid Fungicide	Roses, Fruits, and Vegetables Diseases: Powdery mildew; rusts; black spot; late blight
Dimethyl Thioallophanate	Thioallophanate	Ferti-Lome Halt Systemic	Roses, Fruits, Lawns, Ornamentals Diseases: Red thread; stem blight; rust

This survey was conducted at several garden centers in Lee County by Master Gardener Dick Dutton. Products were available as of November 2008. Not all products are available at all garden centers in the county. Some of the products can be purchased on line.

Mono and Di Potassium Phosphite	Inorganic (group M1)	Organic Laboratories, Excel Systemic Fungicide	Turfs, Fruit Trees, Ornamentals, and Flowers. Diseases: Pythium and Phytophthora (responsible for root rot); leaf and stem blights; leaf spots; rusts; powdery mildew; downy mildew
Mancozeb	Ethylene bis-dithiocarbamates (EBDC) (group M3)	Southern Ag, Dithane M45	Vegetables and Ornamentals Diseases: Cercospora leaf spot; Anthracnose; Botrytis blight; Fusarium leaf spot; Rhizoctonia blight; Gloeosporium leaf spot; Dactylaria leaf spot; Phytophthora leaf spot; Alternaria blight; downy mildew; early blight; late blight; gray leaf spot; leaf mold; Septoria leaf spot; Phytophthora fruit rot
Myclobutanil	Demethylation inhibitors (sterol inhibitors) (group 3)	Ferti-Lome, F-Stop	Lawns and Turfs Diseases: Dollar spot; Anthracnose; Fusarium blight; brown patch of turf/grasses (<i>Rhizoctonia</i>); large patch of zoysia (<i>Rhizoctonia solani</i>); melting out; red thread (pink patch) (<i>Corticium fuciforme</i>); summer patch (<i>Phialophora graminicola</i>); crown rot; take-all (<i>Gaeumannomyces</i>); rust; leaf smut (<i>Urocystis</i>); copper spot of turf grasses (<i>Gloeocercospora/Ramulispora sorghi</i>); dollar spot (<i>Sclerotinia</i>); gray leaf spot; leaf spot; leaf spot (<i>Septoria</i>); necrotic ring spot (<i>Leptosphaeria</i>); zonate eye spot (<i>Helminthosporium</i>)
Myclobutanil	Demethylation inhibitors (sterol inhibitors) (group 3)	Immunox Lawn Disease Control	Lawns and Ornamentals Diseases: Black Spot; rust; powdery mildew; downey mildew; anthracnose; Botrytis; scab; twig and tip blight; brown patch; copper spot; dollar spot; leaf spot; crown rot; leaf smut; summer patch
Myclobutanil	Demethylation inhibitors (sterol inhibitors) (group 3)	Spectracide, Immunox Fungicide	Roses, Lawns, Flowers, Trees, Ornamentals Diseases: Anthracnose; black spot; blight; brown patch; copper spot; crown rot; dollar spot; leaf smut; leaf spot; melting out; necrotic ring spot; powdery mildew; red thread; rust; scab; spring dead spot; summer patch.
Fungicide: Myclobutanil Insecticide: Permethrin	Demethylation inhibitors (sterol inhibitors) (group 3)	Spectracide Immunox Insect Disease Multi-Purpose	Roses, Shrubs, Lawns Diseases: Black spot; rust; powdery mildew; scab; Cercospora leaf spot Insects: Aphids; bagworms; beetles; budworms; exposed thrips; fall webworms; mealybugs; spider mites; whiteflies; sod webworms; mole crickets; cutworms
Neem Oil (Neem is sold as an insecticide and fungicide)	Biological	Ferti-Lome, Triple-Action Plus	Fruits, Vegetables, Shrubs, Trees, and Flowers Diseases: Anthracnose; flower blight; twig blight; tip blight (<i>Sirococcus</i>); scab; downy mildew; powdery mildew; rust; needle rust (<i>Melampsora farlowii</i>); <i>Botrytis</i> spp.; black spot; leaf spot Insects and Mites: Ticks, spider mites; leafrollers; leafminers; earwigs; fleas; thrips; beetles; weevils; fungus gnats; squash bugs; stink bugs; scales; whiteflies; aphids; leafhoppers; mealybugs; ants; cabbageworms; webworms; loopers; tent caterpillars; armyworm; squash vine borer; tomato hornworm; cockroaches; grasshoppers; crickets
Neem Oil Insecticide: Pyrethrin + Piperonyl Butoxide	Biological	Green Light, Neem II	Fruits, Nuts, Herbs, Spices, Roses, Flowers, and Shrubs Diseases: Black spot; powdery mildew; rust; Anthracnose Insects and Mites: Spider mites; aphids; whiteflies
Neem Oil Insecticides: Pyrethrins + Piperonyl Butoxide	Biological	Green Light, Fruit Tree Spray	Fruit Trees Diseases: Powdery mildew; brown spot; downy mildew; Anthracnose; rust; leaf spot; Botrytis; scab; and flower, twig, and tip blight Insects and Mites: Aphids; armyworms; beetles; leafminers; leafrollers; loopers; mealybugs; scales; spider mites
Neem Oil	Biological	Green Light, Rose Defense	Roses and Ornamental Plants Diseases: Black spot; powdery mildew; rust Insects and Mites: Spider mites; aphids; scales; whiteflies

Neem Oil	Biological	Schultz Garden Safe Fungicide	Roses, Flowers, Houseplants, Ornamental Trees and Shrubs, Fruits and Vegetables Diseases: Black spot; powdery mildew; rust Mites: Eggs, larvae, adults of spider and rust mites
Propiconazole	Demethylation inhibitors (sterol inhibitors) (group 3)	Ferti-Lome, Liquid Systemic Fungicide	Roses, Flowers, Lawns, Trees, and Shrubs Diseases: Brown patch; dollar spot; powdery mildew; red thread; anthracnose; stripe smut; black spot; rust; leaf spot; needle rust
Sesame Oil	Biological	Organic Laboratories, Organocide	Vegetables, Fruits, Nuts, Vine crops, Herbs, Spices, Ornamentals, Turfs, Landscape plants, Interior plants, Bulbs, and Flowers. (some plants in the Euphorbia family (crown of thorns) have shown some sensitivity) Diseases: Black spot; rust; powdery mildew Mites: Eggs, larvae, adults of spider and rust mites
Fungicide: Sulfur Insecticide: Pyrethrin	Sulfur (group M2)	Neudorff Bonide, Citrus, Fruit, Nut Orchard Spray	Citrus, Fruit, Nuts Diseases: Scab; powdery mildew; rust; blight; brown rot Insects and Mites: Aphids; mites; leafhoppers; caterpillars; whiteflies; spittlebugs; mealybugs; scales; thrips; psyllids; plant bugs; fruit flies; earwigs
Fungicide: Tebuconazole Insecticides: Imidacloprid, Tau-Fluvalinate	Demethylation inhibitors (sterol inhibitors) (group 3)	Bayer Advanced, Insect, Disease and Mite Control	Roses, Flowers, Houseplants, Groundcovers, Vines, Ornamentals, Shrubs, and Trees Diseases: Black spot; leaf spots; petal blight; powdery mildew; rust; scab Insects and Mites: Aphids; armyworms; bagworms; beetles; boxelder bugs; budworms; cankerworms; caterpillars; chinch bugs; cucumber beetles; cutworms; earwigs; flea beetles; fungus gnats; grasshoppers; lace bugs; leaf-feeding beetles; leaf-feeding caterpillars; leafhoppers; leafminers; loopers; mealybugs; midges; mites, pillbugs; plant bugs; psyllids; rose midges; rose slugs; sawflies; scale insects (crawler stages); sowbugs; spider mites; spittlebugs; stink bugs; thrips; two-spotted spider mites, viburnum leaf beetles; webworms; weevils (including adult root weevils); whiteflies
Fungicide: Tebuconazole Insecticide: Imidacloprid	Demethylation inhibitors (sterol inhibitors) (group 3)	Bayer Advanced, Rose and Flower Care	Roses and Flowers Diseases: Black spot; rust; powdery mildew Insects: Aphids; lace bugs; leaf beetles; leafhoppers; mealybugs; psyllids; thrips; whiteflies
Tebuconazole	Demethylation inhibitors (sterol inhibitors) (group 3)	Bayer Advanced, Disease Control	Roses, Flowers, and Shrubs Diseases: Black spot; leaf spots; petal blight; powdery mildew; rust; scab
Thiophanate-methyl	Benzimidazoles (group 1)	Scotts, Lawn Fungus Control	Lawns Diseases: Brown patch; dollar spot; leaf spot; pink patch; red thread; stripe smut; copper spot; Anthracnose
Thiophanate - Methyl	Benzimidazole (group 1)	Southern AG, Thiomyl	Annual and Perennial Flowers, Trees and Shrubs Diseases: Anthracnose; Fusarium blight; black spot; Botrytis; dollar spot; large brown patch, and other diseases on ornamentals and turf
Thiophanate-, Thioallophanate	Benzimidazoles (group 1)	Cleary, 3336f	Turfs and Ornamentals Diseases: Rusts; powdery mildew; Anthracnose; Botrytis, scab; brown patch; copper spot; dollar spot; summer patch; red tread; southern blight; Fusarium blight; leaf spot; black spot; stripe smut; twig blight; canker
Triadimefon	Demethylation inhibitors (sterol inhibitors) (group 3)	Bayer Advanced, Fungus Control	Lawns Diseases: Anthracnose; brown patch; copper spot; dollar spot; powdery mildew; red thread; rust; stripe smut; summer patch

Triadimefon	Demethylation inhibitors (sterol inhibitors) (group 3)	Southern AG, Turf Fungicide Granular (Bayleton Fungicide)	Turfs Diseases: Rusts; powdery mildew; Anthracnose; Botrytis; scab; brown patch; copper spot; dollar spot; summer patch; red tread; southern blight; Fusarium blight.
Triforine	Demethylation inhibitors (sterol inhibitors) (group 3)	Ortho, Rose Pride: Rose & Shrub Disease Control	Roses and Listed Ornamentals Diseases: Black spot; powdery mildew; rust
Fungicide: Triforine Insecticides: Acephate, Resmethrin	Demethylation inhibitors (sterol inhibitors) (group 3)	Ortho, Orthenex	Roses, Flowers, Shrubs and Shade Trees (For use on non-edible plants only) Diseases: Black spot; rust on roses; powdery mildew Insects and Mites: Aphids; whiteflies; armyworms; bagworms; budworms; Cuban laurel and flower thrips; Diabrotica beetles; lace bugs; leafminers; leafhoppers; leaf tiers; mealybugs; two spotted and red mites; oleander caterpillars; rose midge; scales; spittlebugs

*Fungicides within the same group have similar chemistries and similar biochemical modes of action within fungal cells. It is prudent to rotate fungicides from different classes to avoid the development of fungicides resistance. Generally speaking, chlorothalonil, mancozeb, and inorganic fungicides have not shown any tendencies to develop resistance.

Glossary

Blight	A disease characterized by general and rapid killing of leaves, flowers and stems.
Blotch	A disease characterized by large and irregular in shape, spots or blotches on leaves, shoots and stems.
Canker	A necrotic, often sunken lesion on a stem, branch or twig of a plant.
Dieback	Progressive death of shoots, branches and roots generally starting at the tip.
Fungicide	A compound toxic to fungi
Leaf Spot	A self-limiting lesion on a leaf. Fungal leaf spots may be round and yellow but generally turn to brown as they age. Bacterial leaf spots may be angular, usually confined by the veins, water-soaked in appearance, and turn gray and tan as they age.
Mildew	A fungal disease of plants in which the mycelium and spores of the fungus are seen as a whitish growth on the host surface.
Mold	Any profuse or woolly fungus growth on damp or decaying matter or on surfaces of plant tissue.
Necrotic	Dead and discolored
Rust	A disease giving a “rusty” appearance to a plant and caused by one of the Uredinales (rust fungi).
Scab	A roughened crustlike diseased area on the surface of a plant organ. A disease in which such areas form.
Smut	A disease caused by the smut fungi (<i>Ustilaginales</i>); it is characterized by masses of dark, powdery and sometimes odorous spores.

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