

CUTTING EDGE

DISEASE CONTROL

Join the thousands of turf management professionals who have armed themselves with LESCO Touché® Flowable Fungicide.

"We have a lot of resistant dollar spot in our area. Touché is a great product to have in your arsenal."

-Charlie Engster
City of Blue Ash Golf Course
Cincinnati, OH

"We've had great results with Touché. The length of brown patch control is excellent."

-Scott Jennings
Wallingford Country Club
Wallingford, CT

"I like the concentrated formulation. It makes container disposal a lot easier."

-Roger Taylor
Eagle Ridge Golf and Tennis Club
Fort Myers, FL

"Touché provides really good results with broad spectrum control at an attractive price. What more could you ask of a fungicide?"

-Bruce Denning
Trumbull Country Club
Warren, OH

Since its introduction in 1991, LESCO's Touché Flowable Fungicide has become the product of choice for turf professionals.

Lawn care operators, golf course superintendents and university researchers have proven Touché's effectiveness against major turf diseases. Touché offers preventive and curative control of leaf spot, brown patch, dollar spot, red thread and both pink and gray snow mold. Touché offers extended residual control — up to 28 days from a single application.

Touché is available in gallon and pint size containers. Its concentrated flowable formulation simplifies mixing and measuring, reduces container handling, and makes storage and disposal easier.

For more information on Touché, contact your LESCO Sales Representative, stop in at one of LESCO's 90 Service Centers, or call (800) 321-5325 (In Cleveland, 333-9250).

LESCO

20005 Lake Road, Rocky River, Ohio 44116

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Table 2.

Scientific and trade names of turfgrass fungicides

Scientific name	Contact/Systemic	Common trade name
captan	C	Captain 80WP
chloroneb	C	Pro-Turf Fungicide V, Teremec SP, Terraneb SP
chloroneb + thiophanate methyl	C+S	Pro-Turf Fungicide IX
chlorothalonil	C	Echo, Daconil 2787, Thal-o-nil
cyproconazole	S	Sentinel
ethazol	C	Koban, Terrazole
fenarimol	S	Rubigan
fenarimol + chlorothalonil	S+C	Twosome
flutolanil	S	Prostar
fosetyl-al	S	Aliette
iprodione	S+C	Chipco 26019 Chipco Flo, Proturf Fungicide X
mancozeb	C	Dithane, Fore Fore Flo, Mancozeb
maneb	C	Maneb, Maneb Plus Zinc
metalaxyl	S	ProTurf Pythium Control, Subdue
metalaxyl + mancozeb	S+C	Pace
PCNB	C	PCNB, ProTurf FF II, Penstar, Terraclor
propamocarb	S	Banol
propiconazole	S	Banner
thiophanate-methyl	S	Cleary's 3336, Fungo, ProTurf Systemic Fungicide SysTec 1998
thiophanate-methyl+ chlorothalonil	S+C	ConSyst
thiophanate-methyl + mancozeb	S+C	Duosan
thiram	C	Spotrete, Thiram
triadimefon	S	Bayleton, Lebanon Turf Fungicide, ProTurf Fungicide
triadimefon + metalaxyl	S	ProTurf Fungicide VII
triadimefon + thiram	S+C	ProTurf Fluid Fungicide II
vinclozolin	S	ProTurf Fluid Fungicide III, Curalan, Touche, Vorlan

Not all products are available in all states. Some products available only to licensed pesticide applicators. This list is presented for information only. No endorsement is intended for products listed, nor criticism meant for products not mentioned.

Source: Dr. Schumann

Disease control in warm-season grasses

Turfgrass disease is caused by fungi, bacteria, viruses or nematodes.

Balance chemical applications with cultural controls, in the interest of efficiency and economy.

by Bruce Martin, Ph. D.,
Clemson University

■ The wide variety of warm-season turfgrass diseases makes it imperative that chemical applications be based on correct diagnosis, in the interest of efficiency and economy.

Turf managers should strive to use integrated systems of disease management compatible with good turf horticultural practices. Pesticide applications should only be used to supplement the overall integrated pest management system.

Brown patch—Caused by *Rhizoctonia* fungi, brown patch is most commonly caused by *R. solani*, although other species have been implicated. Overall, brown

patch is the most common and damaging warm-season turf disease. It attacks bermuda, St. Augustinegrass, centipede-grass and zoysia.

Its symptoms appear in spring, as the turfgrass breaks out of dormancy, or in the fall, as the turfgrass nears dormancy.

Individual patches of diseased turf may develop to 20 or more feet in diameter. Shoots along the outer border of patches usually are yellow due to rotted leaf sheaths near the soil surface.

Control practices include good drainage and judicious irrigation practices. Avoid high nitrogen fertilization at those times when the disease is likely to appear. Several labeled fungicides provide good control when applied on a preventive fall schedule when symptoms first appear.

The new fungicide, Prostar, has shown

Disease control products for warm-season grasses

DISEASE	FUNGICIDE	Oz./1000	Interval (Days)
BROWN PATCH (warm-season turf)	Daconil 2787F	3-11	7-14
	Daconil 90WDG	1.75-6.5	7-10
	Prostar 50WP	2-3	14-21
	Bayleton 25WP	1-2	15-30
	Banner 14.3 EC	2-4	10-21
	Rubigan AS	1.5	7-14
	Chipco 26019 50WP	1.5-2	14-21
	Chipco 23.3%F	3-4	14-21
	Fore 37%F	6.4	7
	Fore 80WP	4	7
	Terraclor 75WP	16	21-30
	Terraclor 10G	7.5 lb.	21-30
	Curalan DF	1-2	14-28
	Clearys 3336 50WP	2	7-10
DOLLAR SPOT	Daconil 2787F	3-11	7-14
	Daconil 90WDG	1.75-6.5	7-14
	Banner 14.3EC	0.5 to 2	7-28
	Bayleton 25WP	1-2	30
	Curalan 50 WP	1-2	21-28
	Curalan DF	1-2	21-28
	Rubigan AS	0.75-1.5	14-21
	Chipco 26019 50WP	1.5-2	14-21
	Chipco 26019 23.3% F	3-4	14-21
	Fore 80WP	6-8	7-14
	Clearys 3336 50WP	1	14-28
	Vorlan DF	1-2	14-28
	Vorlan Flo	1-2	14-28
SPRING DEAD SPOT	Rubigan AS	4-6	Sept.-Oct.-Nov.
GRAY LEAF SPOT	Daconil 22787F	3-11	7-10
	Daconil 90WDG	1.75-6.5	7-10
	Banner 14.3%EC	2	14
LEAF SPOT	Daconil 2787F	3-11	7-10
	Daconil 90WG	1.75-6.5	7-10
	Chipco 26019 50WP	1.5-2	14-21
	Chipco 23.3%F	2-4	14-21
	Banner 14.3%EC	1-2	14-28
	Curalan 50WP	1-2	14-28
	Curalan Flo	1-2	14-28
	Vorlan DF	1-2	14-28
	Vorlan Flo	1-2	14-28
	Fore 37%F	6.4	7-14
Fore 80WP	4	7-14	
PYTHIUM DISEASES	Aliette 80WP	4-8	14-21
	Koban 30WP	2-4.5	5-10
	Subdue 2e	1-2	10-21
	Subdue 2G	12.5-25	10-14
	Banol 6E	1.3-4	7-21
FAIRY RINGS	Prostar 50WP	6	30
NEMATODES	Mocap 10G	4.6 lb.	6 months
	Nemacur 10G	2.3 lb.	6 months
	Nemacur 3E	9.7 fl. oz.	6 months

NOTE: Oz./1000 = ounces applied per 1000 sq. ft.

Source: Dr. Martin

promise for brown patch control.

Dollar spot—Dollar spot occurs on bermudagrass, zoysiagrass and occasionally centipedegrass and St. Augustinegrass. Favored by warm, humid weather, it is more severe on nitrogen-deficient turf

with dry soil.

On closely mowed turf, patches of about one to two inches in diameter develop. On higher cut turf, patches may exceed five or more inches in diameter.

continued on page 40

Insect control, South

Using a variety of techniques is best for consistent control of insect pests in the southern U.S.

by Pat Cobb, Ph.D.,
Auburn University

■ The big three—grubs, mole crickets and fire ants—continue to pose the most problems for landscape managers in warm-season areas, particularly in the Southeast.

Your own most important turf insect pest depends on your location and the grasses you manage. Mole crickets are considered primary pests in Florida, south Georgia and Gulf states in the Southeast. Grubs and fire ants are of great importance in Texas; chinch bugs in Louisiana; grubs in California.

To cope with these insects and others, landscape managers are relying more on diversified control techniques. Besides the standard chemical controls, turf professionals continue to increase their efforts to culturally and biologically manage insect pests.

Insect pest management on turf in the South is a year-round job. Although actual control efforts can extend from March through November in some areas, most southern turf managers consider insect control to be a part of a total management scheme for growing grass.

Each year brings with it a unique set of conditions that contribute to the development of turf pest problems.

Seasonal influence—Spring rains or drought can greatly influence pest populations.

Insect eggs, such as those of soil pests, need some moisture to survive. Excess moisture, (saturated soil), however, over a period of several weeks can drown grub and mole cricket eggs and prevent hatching.

The blizzard of March 13, 1993,
continued on page 61

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You already know that Primo® can reduce your fairway mowings by up to one-third.

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It's all possible with Primo for turf growth management. Because Primo makes grass grow half as fast. And the cost of applying it is more than recouped by your lighter mowing schedule.

Contact your authorized Primo distributor or Ciba sales representative to learn more about how Primo can help you save time.

Because, as they say, time is money.



Always read and follow label directions.

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Insecticides for warm-season turf

INSECT PEST	INSECTICIDES*	TIMING	APPLICATION
Mole crickets	**Crusade 5G; Mainstay Mocap 10G; Oftanol 2 or 5G Orthene TT & O Pageant DF; **Triumph 4E Turcam 2.5G; Dursban bait	Map spring tunneling activity for treatment when nymphs hatch. <i>Do not use Oftanol more than two consecutive years in the same areas</i> ; apply Oftanol no later than when hatching begins. Crusade/Mainstay, Mocap and Turcam should be applied 4-6 weeks after first hatch. Apply Pageant two weeks after first observed hatch; Orthene or Dursban bait, 6-8 weeks after first hatch.	Irrigate the day before treatment or as lab recommends if dry conditions exist. Follow label for post-treatment irrigation directions. Treat late in the day.
Sod webworms	B.t. products **Crusade 5G or Mainstay **Diazinon Dursban Turf Insecticide or Pageant DF Prolox or Dylox Orthene TT&O **Tempo 2 **Triumph4E	Tropical sod webworm is the major species in Florida, and has spread in some seasons along the Gulf Coast into south Texas. In Florida, populations usually do not build up until June in the south, July in central and August in northern Florida and mid-coastal areas.	Delay mowing or irrigation for 24 hours after treatment or as label specifies.
Two-lined spittlebugs	**Diazinon Orthene TT&O Pageant DF	Treat when nymphs are present in spittle masses in the turf. Infestations usually begin in shady areas.	Water before treatment. Dethatching when recommended may improve control and disrupt spittlebug habitats. Treat late in the day.
Chinch bugs	**Crusade 5G or Mainstay **Diazinon Dursban Turf Insecticide Oftanol Orthene TT&O Pageant DF Scimitar **Tempo 2 **Triumph 4E	Replace turf with resistant or non-susceptible variety. More a problem in dry weather. Monitor St. Augustinegrass weekly, concentrate on sunny areas. Spot treat infested areas if possible.	Granules may be effective in heavily thatched turf.
Grubs	**Crusade 5G or Mainstay **Diazinon Dylox or Prolox **Mocap 10G Oftanol **Merit **Triumph 4E Turcam 2.5G	Summer treatments are best; most pest species have hatched by early to mid-August. Grub treatments may be effective through early fall, depending on location, species and soil moisture conditions. Map areas suspected to be infested and spot-treat to reduce treated areas. <i>Do not use Oftanol more than two consecutive years in same site.</i>	Irrigate the day before treatment to move grubs up in the soil. Follow label watering instructions.
Billbugs adults	**Diazinon Dursban or Pageant Dylox or Prolox Sevin **Triumph 4E	Treat when adults are numerous in early summer.	Follow label watering instructions carefully.
larvae	Exhibit **Merit **Triumph 4E	Treat in late March-April or July-August when larvae are present.	
Ground pearls	none	Follow recommended fertilization, irrigation, mowing, disease and nematode practices. Grass will in many cases "outgrow" damage.	n/a
Imported fire ants	<i>baits:</i> Affirm, Ascend, Amdro, Award or Logic <i>contact mound treatments:</i> **Diazinon; Dursban; Orthene fire ant products.	Apply baits in afternoons when worker ants are seen foraging. Do not disturb mounds before treatment.	For high traffic areas, apply bait broadcast. If Affirm or Award is used, treat visible mounds with a contact insecticide 2-3 days later.

*Some recommended insecticides

Label restriction: **Mocap 10G is labelled for commercial turf (golf courses, sod farms) only. **Diazinon** is not labelled for use on golf courses or sod farms. **Triumph 4E** is restricted to certain soil types and several application techniques must be followed. It is labelled for use on lawns, sod farms and golf courses (only tees, greens and aprons). A maximum of one application per year is permitted to the higher surface insect rate and a maximum of two applications per year at least 60 days apart for the lower surface insect rate. **Tempo** is for home lawns only. **Merit** is not for sod farm use. **Crusade** is for golf courses and sod farm use. Check all labels to confirm site usage.

Source: Dr. Pat Cobb

Fulfs Alkaligrass The Only Proven Alkaligrass.

Fulfs Alkaligrass does what no other grass can do: it grows where higher salt contents would kill other grasses.

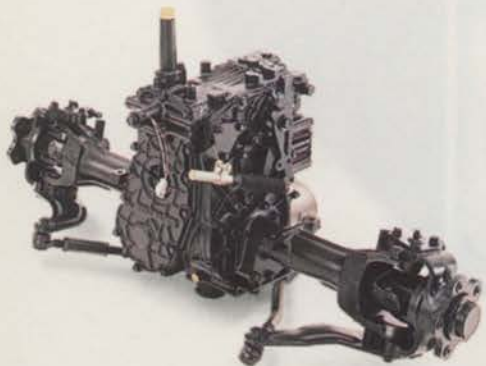
In fact, university research confirms that **Fulfs Alkaligrass** is one of the most salt-tolerant grasses in the world. Yet it maintains a dark green color and can be seeded alone or with other grasses. It can be maintained at a mown height of between 1/2 inch and 2 inches. In unmown areas it will remain less than 16 inches tall with seedheads.

Fulfs Alkaligrass is perfect for areas that are highly alkaline or saline, such as along roadbeds where road salt can wipe out other species. **Fulfs Alkaligrass** will dominate the salty areas but become less aggressive as the salt concentration decreases.

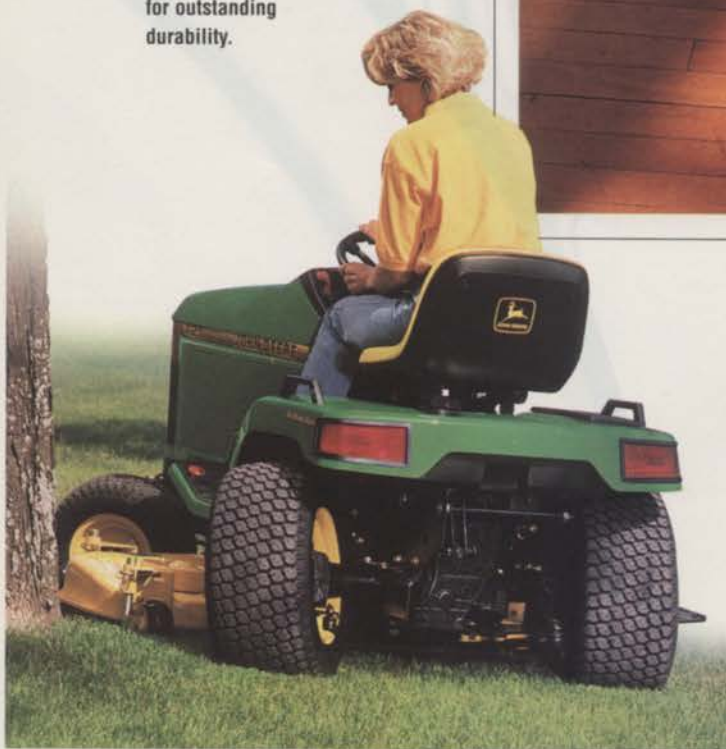
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Graceful. Agile. Precise. The qualities that make a great ballerina are the same qualities that make the 400 Series Lawn and Garden Tractors outstanding performers.

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Liquid-cooled engines with full-pressure lubrication make for a powerful, consistent performance throughout the toughest routines.

And for even more of an encore, the 400 Series come in three models and go with over 25 attachments.

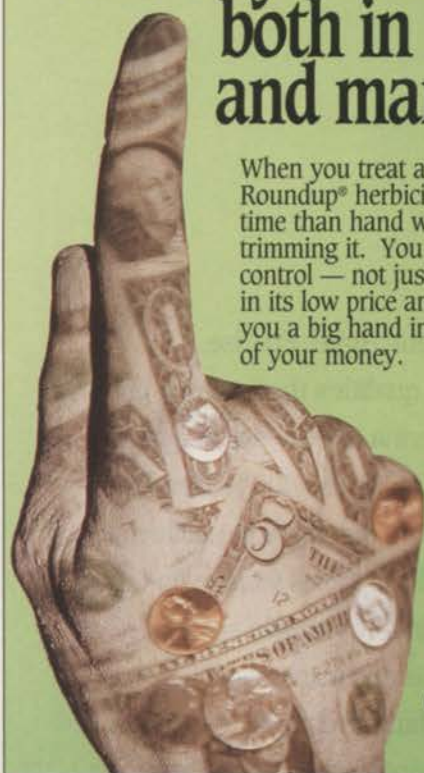
So the next time you want to see beauty and grace in action, talk to your John Deere dealer about a versatile 400 Series Lawn and Garden Tractor. Ask for a demo today. Or call 1-800-503-3373 for the name of a dealer near you.



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DISEASE WARM from page 26

Characteristic leaf lesions are tan with distinct reddish-brown or purplish margins. Leaves may become girdled.

Practices that reduce disease severity include using balanced fertility, early morning irrigation (when needed) during periods of high humidity, and regular mowing at the correct height of cut. Several fungicides provide good control, but are generally unnecessary in lawns.

Spring dead spot—Spring dead spot occurs in transition zone areas of the United States. It is common in Piedmont and mountain areas in the Carolinas and Georgia, but rare in the coastal regions of these states. Several fungi have recently been implicated as possible causal agents of this disease.

Dead circular areas of turf two or three feet in diameter are present in the spring as the bermudagrass breaks dormancy. Patches may occur in circles with healthy grass in the center, giving a "doughnut" appearance, and may persist over the summertime. Patches of diseased turf may persist for several years.

Generally, the disease develops in three- to six-year-old turf. Excess thatch, late summer nitrogen applications, and low temperatures in winter have been implicated as predisposing factors for spring dead spot development.

Maintain a balanced fertilization program and proper thatch management and avoid high rates of late summer nitrogen applications. Some control has been obtained with Rubigan applications made in September and October.

Gray leaf spot—Gray leaf spot appears in hot, humid weather. It's more severe in newly-established turf, in shady spots with poor air flow. It is commonly found in St. Augustinegrass.

Infections occur on all above-ground plant parts and begin as small brown spots with a distinct brown to purple border surrounding the infected tissue. Lesions may become numerous and expand to completely consume leaves and girdle stolons. Prolonged disease may leave turf looking scorched.

Improve air movement and light penetration and irrigate as needed during early morning hours to promote maximum drying during the day. Avoid high nitrogen fertilization during those periods favorable for disease development.

Daconil has given good chemical control.

Leaf spot—*Bipolaris sorokiniana* causes leaf, crown and root disease of bermudagrass and zoysiagrass during warm, wet weather in mid-summer. The diseases start as leaf spots, and may progress to crown and root rots. *Exserohilum rostrata* has been reported to cause a leaf spot of St. Augustinegrass and bermudagrass. Centipedegrass infection is rare.

On bermudagrass or zoysiagrass, small brown lesions appear on leaf blades and sheaths and may expand to larger irregular straw-colored lesions. Gradual browning and thinning occurs over a period of weeks or months.

Avoid high nitrogen fertilization and watering practices that provide long periods of wet or humid conditions.

Roundup® points the way to environmental stewardship.



The benefits of Roundup® herbicide extend beyond traditional trim and edge work. It's also being used to restore wildlife habitats. So when it comes to treating sensitive sites, Roundup gives you a big hand.

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