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.

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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 serveral weeks can drown grub and mole cricket eggs and prevent hatching.

The blizzard of March 13, 1993,

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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. *Do not use Oftanol more than two consecutive years in the same areas;* 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-treament irrigation directions. Treat late in the day.
Sod webworms	B.t. products **Crusade 5G or Mainstay **Diazinon Dursban Turf Insecticide or Pageant DF Proxol 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 souith, 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 Proxol **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. *Do not use Oftanol more than two consecutive years in same site.*	Irrigate the day before treament to move grubs up in the soil. Follow label watering instructions.
Billbugs adults	**Diazinon Dursban or Pageant Dylox or Proxol 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	*baits:* Affirm, Ascend, Amdro, Award or Logic *contact mound treatments:* **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

WARM INSECT *from page 33*

occured when tawny mole cricket mating flights had begun in many parts of the Southeast.

Coupled with a spring drought, these early season conditions influenced egg laying and egg hatch. In 1993, in many areas, there was no distinct "peak" tawny mole cricket hatch, and hatching extended well into July.

The spread of imported fire ants is limited by cold weather. Fire ant reproductives (males and females that reproduce) fly, mate and queens form new colonies primarily in the spring and fall after rain showers.

A cool, extremely wet or very dry spring may delay new colony development until conditions are more favorable.

Chemical control—Mapping areas of pest activity may narrow both treatment areas and amount of pesticide needed. Grubs and mole crickets usually reinfest the same "preferred sites" each year.

Timing is at least as important as the insecticide you choose. Most pest activity is influenced by soil and air temperature, moisture and life stage. So keep monitoring records: when insects first hatch, species and life stage, damage, and an overall evaluation of the turf quality.

Subsurface placement of some insecticides results in the same level of mole cricket and grub control with half the rates of surface applications.

Improvements continue for placing both liquid and granular insecticide below the soil surface for treatment of mole crickets and grubs. Subsurface placement of some insecticides results in the same level of control with half the rates of surface applications.

With subsurface applications, you have:

- fewer surface residues, which decrease the potential for runoff and human exposure;
- less potential for ULV breakdown; and
- placement close to the pests provides control with less product.

Saturated and poorly drained soil, however, and extremely hot and humid weather influence the effectiveness of liquid injection applications.

Remember also that the pH of the spray water may influence the effectiveness of any insecticide spray applications. Some insecticides—like trichlorfon (Proxol or Dylox) acephate (Orthene) and isazophos (Triumph)—break down in high pH water. Use a commercial buffer to lower the pH of the water to 5.5 to 6.0 before adding one of these insecticides.

Pre-treatment irrigation may make the difference between success and failure during dry, hot periods. Pre-treatment watering does not replace watering after insecticides are applied. Rather, it moves soil pests closer to the surface, making contact with the insecticide more a possibility.

New products include:

- **Turplex** bioinsecticide (azadirachtin), registered for control of surface-feeders (Scotts ProTurf).
- **Vector WG** *(s. glaseri)* for white grub control; **Vector MC** *(s. riobravis)* for mole cricket control (Lesco).
- Mole cricket infecting nematodes (Biocontrol).
- **Exhibit** *(s. carpocapsae)* contains parasitic nematodes for control of billbugs, cutworms and sod webworms (Ciba T&O), as does **Vector TL** (Lesco).
- **Merit** (imidacloprid) is registered for turf (except on sod farms) and landscapes, including white grub control (Miles).
- **Scimitar** for control of several surface-feeders, chinch bugs and mole crickets (Zeneca).
- **Mainstay** (fonofos) for control of grubs, mole crickets, billbugs and others (Lesco).
- **Dylox** is now available as 6.2 formulation (AgrEvo, formerly NorAm).
- **Pageant DF** is a dry, flowable chlorpyrifos product. **Talstar** has received several state registrations (24c's) for fire ant, or fire ant and mole cricket control (FMC).

—Pat Cobb is professor of entomology at Auburn University, Ala.

CULTURAL CONTROL

Integrating a cultural pest management program is neither easy nor inexpensive, but on-going industry research indicates that it can be a viable option to offer customers.

A knowledge of pest history at a site and knowledge of potential insect pests specific to location are important only in the context of frequent inspection of the turf. Proper fertilization, mowing and water use promote healthy turf which can recover quicker from pest damage. Thatch management may discourage development of some pests or enhance pesticide performance when properly timed treatments are necessary.

COOL DISEASE *from page 26*

prediction system for brown patch on perennial ryegrass has recently been developed at the University of Maryland.

Forecasts based on environmental conditions can help apply fungicides only when they are needed. They are particularly useful for extending spray intervals and eliminating applications when conditions approach, but do not quite reach those necessary for a severe disease outbreak.

They can help take the guess work out of fungicide applications and provide scientifically-based documentation for application decisions.

Genetic resistance—Breeding programs continue to offer new turfgrass cultivars with improved disease resistance. Where disease problems occur repeatedly, consider overseeding with blends and mixtures of improved cultivars. As with many kinds of biocontrol, genetic existence usually works for a single disease problem. That is why blends and mixtures are usually the most appropriate approach to healthy turfgrass. Genetic resistance is most effective when it is integrated with cultural practices and the judicious use of fungicides.

—Dr. Schumann is an associate professor of turf pathology at the University of Massachusetts, Amherst.