

Warm-season turfgrass insect management:

looking ahead to 1997

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No matter where you are located in the United States and regardless of the turf types you manage, weather plays a significant role in determining which pests you will see, where they occur, and the severity of these infestations. Unusual weather often creates unusual pest problems.

The summer of 1996 was unusually wet over many areas of the southeastern United States; particularly in the Carolinas. One tropical depression

tipedegrass, and extensive plantings of hollies in landscape (a host for spittlebug adults).

Despite this general increase in the abundance of spittlebugs we have seen in recent years, we were not prepared for such high numbers in many areas during 1996. High populations were observed on many species of both cool and warm-season grasses. This phenomenon appeared to be a reflection of a wet, cooler-than-normal summer. Does this mean twolined spittlebugs will be a serious problem in 1997? It's difficult to predict this pest for the summer season. Undoubtedly, higher-than-normal populations of spittlebugs overwintered, but we don't know if this will translate into above-normal populations this summer. Be prepared and scout centipedegrass frequently for this pest.

The southern chinch bug is a pest of St. Augustinegrass particularly in hot, dry weather. Despite rainfall that in some areas was more than twice the normal average, we observed damage from chinch bugs. In fact, we saw some of the heaviest infestations we had observed in the past five years. Was this contrary to our accepted understanding of chinch bug outbreaks? Yes, it certainly was, but it also emphasized the need to continually monitor turfgrass despite what conventional wisdom might tell you. Time spent monitoring the turf helps avoid surprises. The same could be said for bermudagrass mites which also prefer hot, dry weather. Wet weather doesn't mean you can forget about them.

White grubs are generally less of a problem in areas of warm-season turf compared to the cool-season zones, particularly the Northeast. However, wet soil during July and August of 1996 may contribute to more grubs this spring. The adult beetles of white grubs generally lay their eggs in late June through July. These eggs must be laid in moist soil that remains moist throughout the development of



Although white grubs aren't usually a major pest threat in the southeast, be alert for them this season because of a wet 1996 season.

and two hurricanes hit North and South Carolina from mid June to mid September plus above normal rainfall occurred every week in between. Short-term we observed significantly higher numbers of twolined spittlebugs, particularly in centipedegrass.

Spittlebug summer

In general, the twolined spittlebug problem has been increasing on warm-season turfgrasses over the past 10 years. This may be due to the increasing population in the South, the increased use of cen-

CONTROL OF WARM-SEASON INSECT PESTS

the very small first stage grubs. If the soil is dry the eggs don't hatch or the very small, newly-hatched grubs die.

Many areas in 1996 had enough rainfall to keep the soil moist during this critical period for egg and grub survival. As a result we probably had above average survival of white grubs over a wider area (especially non-irrigated areas) and those above average numbers overwintered to damage turf in the spring. This may well be reflected in the number of moles attracted to turf areas to feed on these grubs. It may also result in more beetles, such as Japanese beetles to feed on certain ornamental plantings during 1997.

New products for 1997

The past few years have been good to those in turfgrass pest management since a number of new products have reached the marketplace and provide us with additional tools for effective control. Some of these products have been what the EPA's Official Pesticide Programs consider to be safer, reduced risk. In fact, during 1996, the EPA noted that more than half of the new active pesticide ingredients registered are so classified and this continues a several year trend.

Last year we saw the introduction of Merit (imidacloprid) for use in grub control in turf and more recently we have seen good success in mole cricket management. This product has been popular not only in its effectiveness, but also due to its acceptable toxicity profile for non-target organisms. Chipco Choice (fipronil) was also introduced into the mole cricket control market available through contracted custom application and has offered a very effective tool for managing this serious pest.

Recently several synthetic pyrethroids have or are being registered for turf insect use and these include Scimitar, Mavrik, Astro, Talstar, and Tempo. Many turfgrass managers appreciate the low use rates and low mammalian toxicity of the products, but they are relatively toxic to fish. Other products such as Cruiser bioinsecticide (entomogenous nematodes) for grub con-

INSECT PEST

Cutworms, armyworms

Hosts

all warm-season grasses

Damage

Generally clip turf off at soil level. Severe infestations may leave large bare areas where turf has been consumed.

Control Practices

- *use "soap flush" to detect
- *treat late in day
- *do not mow and remove clippings for 1-3 days
- *entomogenous nematode products available
- *may be present from early spring to late fall

INSECT PEST

Fire ants

Hosts

all warm-season grasses

Damage

Create unsightly mounds which may also damage mowing equipment. Painful stings of concern in high traffic areas.

Control Practices

- *best controlled in spring and fall when workers are actively foraging for food.
- *mound treatments generally most effective, but are labor-intensive
- *controls must be continued once program is started (fire ants will return at higher levels if treatments are stopped)
- *do not disturb mounds during treatment
- *use baits prior to contact insecticides to allow workers to return bait to mound

INSECT PEST

Mole crickets

Hosts

prefers bahiagrass and

close-cut bermudagrass

Damage

Extensive tunneling is unsightly. Root feeding causes dieback, thin spots.

Control Practices

- *use "soap flush" to detect
- *treat in June/July as soon as eggs hatch
- *follow-up treatments usually necessary
- *entomogenous nematode products available
- *look for adult activity in March/April to define areas of high risk for egg hatch

INSECT PEST

Ground Pearls

Hosts

most commonly attacks bermudagrass and centipedegrass

Damage

yellowing and then complete dieback of turf with no new regrowth the following season

Control Practices

- *no known effective control measures
- *practice good turf management to increase turf tolerance
- *irrigate during dry weather

INSECT PEST

Southern chinch bugs

Hosts

all warm-season grasses prefers St. Augustinegrass

Damage

Feeding results in turf becoming yellow and eventually turning reddish-brown.

Control Practices

- *avoid over-fertilizing
- *manage thatch
- *irrigate during dry spells
- *apply pesticides with plenty of water
- *multiple treatments often necessary

INSECT PEST

Twolined spittlebugs

Hosts

all warm-season grasses

Damage

Results in yellowing of

infested turf and severe infestation have noticeable unsightly "spittle masses".

Control Practices

- *control adults on ornamentals like hollies
- *treat on cloudy days when possible, since spittlebugs are higher up on turf
- *begin monitoring in early summer

INSECT PEST

White grubs

Hosts

all warm-season grasses

Damage

Grubs feed on roots and cause drought stress and turf dieback. May attract moles, skunks, etc. which damage turf searching for grubs.

Control Practices

- *attracted to low-cut, highly-maintained turf
- *dig squares of sod 4-6" deep in late August to detect small grubs
- *treatments most effective in late August/early September
- *avoid ornamentals attractive to adult stages of Japanese beetles or green June beetles

INSECT PEST

Bermudagrass mites

Hosts

only bermudagrass

Damage

Initial yellowing of leaf tips, followed by shortening of internodes causing a tufted growth. May die under severe infestations.

Control Practices

- *irrigate during dry spells
- *proper fertilization helps turf outgrow damage
- *Resistant cultivars Floratex, Midiron, and Tifdwarf
- *multiple treatments often necessary

control and Turplex (azadirachtin) are examples of recent introductions of biological materials that help meet a growing demand for such products.

More recently, a new product scheduled for release in 1997 has been receiving a lot of attention. It's a product resulting from a joint venture with Rohm and Haas and American Cyanamid. The new product halofenozide (Mach2) is an insect growth regulator. This product is effective against all stages of grubs and like Merit has a favorable environmental profile.

DowElanco has introduced a new class of insecticides into the turf market with Conserve SC. This product is classified by the manufacturer as being in the Naturalyte class and is derived from a naturally-occurring organism. The EPA has placed Conserve under expedited review for registration as a "Reduced Risk" insect man-

agement product. Its activity is primarily limited to caterpillars attacking turf.

A bacterium is also under development that may offer an effective biological control for white grubs. This new strain of *Bacillus thuringiensis* has shown good efficacy in university studies.

As always it will be interesting to see what 1997 brings us in the way of turfgrass insect problems. The good news is that regardless of what the year brings we have a good selection of products to help us manage those situations and new



Twolined spittlebugs, if conditions allow, can damage centipede turf. Turfgrass managers in the south should scout for them.

products on the horizon that promise to make it even easier. **LM**

PRODUCTS FOR CONTROL OF WARM-SEASON INSECT PESTS

Southern chinch bug:

bendiocarb (Turcam, Dycarb); ethoprop (Mocap); cyfluthrin (Tempo, Decathlon); permethrin (Astro); diazinon; chlorpyrifos (Dursban); isofenphos (Oftanol); isazofos (Triumph); fonofos (Crusade, Mainstay); lambda-cyhalothrin (Scimitar, Battle); acephate (Orthene); fluvalinate (Mavrik)
Timing: apply as needed during hot, summer months.

Thorough coverage is critical. Irrigate immediately after application of granules. Avoid over-fertilizing.

Leafhopper/twolined spittlebugs:

acephate (Orthene); bendiocarb (Turcam, Dycarb); chlorpyrifos (Dursban); diazinon; carbaryl (Sevin); isazofos (Triumph); fluvalinate (Mavrik).

Timing: begin monitoring and treat damaging populations in early summer.

Cutworms, armyworms:

azadirachtin (Turplex); lambda-cyhalothrin (Scimitar, Battle); acephate (Orthene); carbaryl (Sevin); diazinon; isofenphos (Oftanol); chlorpyrifos (Dursban); fluvalinate (Mavrik); cyfluthrin (Tempo, Decathlon).

Timing: monitoring/treatment may be necessary in early spring-late fall.

Mole crickets:

chlorpyrifos (Dursban bait); propoxur (Baygon bait); carbaryl (Sevin bait); bendiocarb (Turcam, Dycarb); chlorpyrifos (Dursban); isofenphos (Oftanol); fonofos (Crusade, Mainstay); acephate (Orthene); ethoprop (Mocap); fluvalinate (Mavrik, Battle); entomogenous nematodes (Vector MC, others); imidacloprid (Merit).

Timing: soap flushes to monitor egg hatch. Treat nymphs in early summer.

White grub:

bendiocarb (Turcam, Dycarb); diazinon; isofenphos (Oftanol); isazofos (Triumph); fonofos (Crusade); ethoprop (Mocap); imidacloprid (Merit); entomogenous nematodes (Cruiser) trichlorfon (Proxol, Dylox).

Timing: treat small grubs in late summer and fall for best control.

Ground pearls:

No known effective chemical controls. Follow proper turf management practices and irrigation.

Not all trade names are mentioned, and the ones listed are used as examples. No endorsement of product is intended nor does omission of any product imply criticism.