1987 TIMING STUDY WITH MOCAP 10G AND TURCAM 2.5G FOR MOLE CRICKET DAMAGE CONTROL* (ALABAMA)

Name, No. Treatments	Rate/Treatment lb AI/acre	Arrow length indicates damage control effectiveness JUNE**	JULY	AUGUST	SEPT.
Mocap, 2	5	→	→	→	
Turcam, 2	2	- - - →	→	→	
Mocap, 2	5		→	→	→
Turcam, 2	2		→	→	
Mocap, 1	10		. . . →		
Mocap, 2	5			→	→
Turcam, 2	2			→	
Mocap, 1	10			. . . →	

*Damage evaluated weekly (Rating system 0-9; Cobb and Mack, 1988)
**Newly hatched nymphs observed June 2.

on "sandy" soils, so use is limited in many areas where mole crickets are a major problem.

Two strains of parasitic nematodes, furnished by Biosis of Palo Alto, Calif., show promise in controlling or suppressing mole crickets.

Field tests in Alabama the past two years and in South Carolina last year resulted in "cautiously optimistic" damage control on frequently-irrigated turf. The nematodes tested have been exempt from registration by EPA. Further testing will try to identify optimum establishment requirements, refine application techniques and discover proper timing.

Cool-season turf-type fescue and ryegrass varieties are being grown farther south. Most of these are endophyte-infected grasses, and show some resistance to damage by surface feeding insects.

Timing

Timing of insecticidal control continues to be a key factor in determining the extent to which controls work. Timing studies this past year indicated that Mocap or Turcam granules applied to smaller, newly-hatched mole cricket nymphs in June and July worked more effectively to control damage than August applications when larger nymphs were present.

Even treatments of half rates of Mocap applied in June and July gave longer acceptable damage control than full rate treatment in August.

Guidelines

To determine correct timing, life cycles of important pests must be understood. The following information suggests seasonal control strategies for common Southern turf insect pests, including some suggested insecticidal controls.

However, every turf manager's situation has characteristics all its own. Turf professionals should know their situations better than anybody else. (There is no substitute for frequent turf inspection!) **LM**

The comments herein should be used as guidelines fir development of control strategies for Southern turf pests. No endorsement of specific products is intended.

The spittlebug nymphs infest areas of turf with thatch accumulation and high humidity.

High pressure injection can give excellent residual control of mole crickets.

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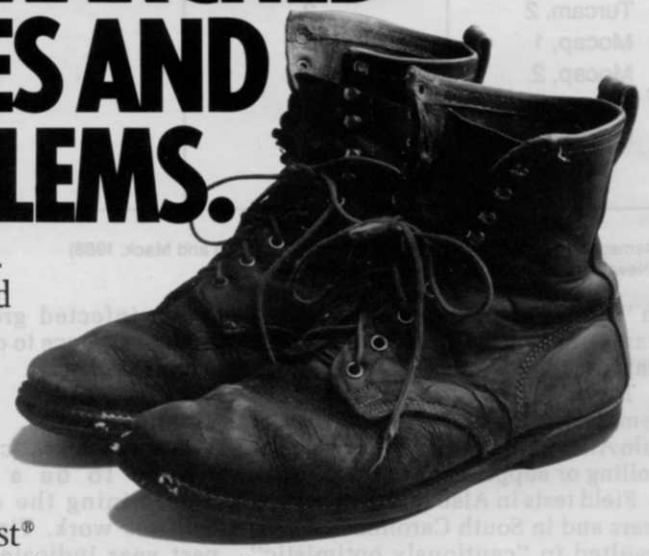

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CONTROL CALENDAR

Late Winter (March)

Chinch bugs and billbugs—In southern Florida, the southern chinch bug is active throughout the year. In other southern areas, chinch bugs and billbugs become active during warm days in late winter. Most varieties of St. Augustinegrass and occasionally Bermudagrass are more likely to be infested by chinch bugs.

Zoysia and Bermudagrasses may be attacked by the hunting billbug. Billbug adults and overwintered chinch bug adults become active during sunny days of late winter or early spring. When summer damage from chinch bugs and/or billbugs is expected, treatment controls adults before eggs are laid. If spring is early, these applications may be needed as early as mid-March. During a late spring, applications may need to be delayed until the last week of March.

However, in most cases, treatment can be delayed until damage signs first appear in June. Retreatment for chinch bugs in middle to late summer may be necessary if reinfestation from adjacent untreated areas occurs.

Preventative treatments may not be successful in southern Florida where the southern chinch bug has multiple generations and is resistant to most organophosphate insecticides in some areas. Replacing susceptible turf with Floratam St. Augustinegrass, a variety resistant to the southern chinch bug, or non-host grasses, will usually provide natural control in Florida.

Grubs—The larvae of this group of pests normally overwinter deep in the soil. If spring comes early, grub activity can be expected along with skunks, raccoons and armidillos tear up the turf searching for the grubs. Moles, who feed on grubs and earthworms, also become active at this time. Late March treatments in more southerly areas may be effective in controlling grubs before they pupate. Warm-season grasses may outgrow spring damage unless severe turf loss has occurred.

Mole crickets—Mole crickets have extended their range from Florida and eastern Georgia into southern Louisiana, eastern Texas and up the East Coast into the Carolinas. Timing of treatments is critical and varies from one area to another.

The tawny and southern mole crickets are the primary pest species. Except for southern Florida, both have one generation per year. Mole crickets become active in March from north central Florida throughout their range in the Gulf States after overwintering in the ground as adults or nymphs. Tunneling damage takes place at night in moist soil and increases as mole crickets become more active. Both mole cricket species begin spring mating flights in late March. In most areas, March treatment is seldom required.

In years when overwintered mole crickets tunnel earlier than normal, treatment has been used with some success. Generally, such applications are better made later in the year when young nymphs are present. Rolling, fertilizing as recommended, and irrigation help keep grass roots in contact with the soils and growing in areas where tunneling damage is observed. Such practices have been successful in some turf areas in speeding the recovery of tunneled areas of warm-season grasses. Care should be taken, however, in rolling areas where compaction is a serious problem.

Spring (April-May)

Chinch bugs and billbugs—As warm days of spring approach, chinch bug and billbug adult movement increases rapidly. Generally, egg laying begins the first week of April on warm-season turf.

Generally, application of insecticides to prevent buildup of chinch bug and billbug populations should be completed by mid-April in the South. Such applications are

The fall armyworm attacks newly established turf from mid-September through October.

The timing of mole cricket treatments is critical in preventing development from egg to adult.

made before significant numbers of eggs are laid. This time may vary as much as a week or more depending on the spring weather. When this approach is not used and southern chinch bugs are detected in May, treatment provides control. In areas with three to five chinch bug generations, turf surrounded by infested, untreated host plants may require one or two retreatments at six-week intervals.

Grubs—Overwintered grubs usually return to the surface and begin feeding on turfgrass roots by early April. Increased activity and damage from birds, moles, skunks, armadillos and raccoons foraging on grubs can also be expected. Feeding by birds, other animals and grubs continues through April.

Infestations of such grubs can also be controlled during early April by spot or general treatment. Treatment should be delayed until grubs are in the top one inch of soil. Irrigation or rainfall should follow such applications. Although milky spore disease products for control of Japanese beetle grubs may be applied anytime there is no frost in the soil, spring is a good time for such applications in areas where Japanese beetle grubs are numerous. The soil is open and frequent rains move the disease spores into the soil and thatch. It should be noted that only the Japanese beetle grub will be affected by milky spore.

Mole crickets—Damage increases in April from north central Florida throughout the southern areas of the Gulf States. Mating and dispersal flights continue as egg laying and hatching begin.

Early spring treatments are sometimes needed in areas that were severely damaged last fall, if overwintered mole crickets are still present. Small damaged areas can be rolled or otherwise packed down so that the turf roots are reconnected with the soil. Early spring damage is due primarily to tunneling. Mole cricket feeding at this time is minimal.

To determine cricket presence, pour soapy water (2 tbs. liquid dishwashing detergent in 1 gal. water) on turf areas where infestation is suspected. Crickets will usually surface in three to 15 minutes (longer in cool weather). Irrigate soap-flushed areas afterwards to avoid sun-scald damage to the grass.

Infested areas should be monitored weekly by soap flushes to determine the presence and abundance of newly-hatched mole cricket nymphs. Nymphs usually hatch in central Florida during April and May. Farther north and west, hatching begins in May and continues through June. Residual treatments and treatments with toxic baits should be made when nymphs are present.

Sod webworms—Overwintered larvae of the sod webworm begin feeding as soon as the grass begins to grow. Usually damage is insignificant, but areas that do not green up may be infested. These areas often have probe holes from starlings feeding on the larvae. Sod webworm larvae can be flushed with soapy water.

In warm-season areas, webworm larvae pupate during late March and early April. Moth flights begin in April in southernmost areas.

Young larvae are usually present about two weeks after the spring moth flight peaks, so treatment of young larvae can be done in May in some areas.

Damage from the burrowing sod webworm may be evident in late May in the South. Rubbing a hand over turf suspected of being infested exposes larval burrows that are covered with a web flap and grass clippings.

When necessary, a wide range of insecticides may be used for control.

Cutworms—Moths of cutworms begin laying eggs on golf course greens and other turf areas in the spring. These eggs hatch, producing larvae that feed on grass blades during the night.

While visible damage is uncommon on home lawns, damage can be significant on golf course greens in May. Cutworm moths seem to prefer egg laying in aerification holes. Therefore, feeding damage by larvae is often associated with the area around the aerification hole.

Black, granulate and variegated cutworm moths become active in March and April in the South. Larvae are present on turf, especially on golf greens and tees. Damage can become evident as early as mid-April. By May, the larvae are large enough to cause severe damage.

To control these pests, apply an insecticide late in the afternoon and allow night feeding cutworms to contact and feed on the treated foliage. Irrigation following liquid application is therefore not advisable unless specified on the product label.

Fire ants—Fire ants are spreading across much of the South. These ants inflict painful stings to man and animals, making them more a "people problem" than a grass problem. They begin establishing new mounds during warm, wet days of spring. During this time, ants are active near the surface of mounds and workers are actively foraging for food.

New mounds may not be visible above the turf surface at this time. Areas heavily infested with old mounds and the less-visible new mounds can be treated broadcast. Individual mound treatments can be made in less infected areas or in areas that are reinfected as the season progresses.

Read the label for specific directions for mound treatment. Do not disturb the mound before or during treatment.

Summer (June-August)

Chinch bugs and billbugs—Southern chinch bugs are not usually a problem in well-irrigated turf or during summers when rainfall is plentiful. Southern chinch bug damage first appears during the dry periods of June and July. Damage may continue through the summer and into the fall because of overlapping generations.

A wide range of insecticides may be used at label rates to control existing infestations. Floratam St. Augustine, a chinch bug-resistant variety, has been a primary turf variety grown in more southern coastal areas and Florida where southern chinch bug is a problem. However, reports indicate that chinch bug feeding has occurred on Floratam in some locations in south Florida.

Billbug grubs are usually large enough to be found in the soil by late June. Areas of turf where adult billbug activity has been observed earlier should be examined routinely. Zoysia and Bermudagrasses are especially susceptible to infestation. Turf that does not hold together, does not respond to fertilization normally or appears to be drought-stressed in spite of irrigation may be infested. If drought conditions exist, water prior to and after treatment.

Grubs—Beetle flights continue and often peak in June, although the time flights occur varies from year to year. Japanese beetle flights occur mainly from middle to late May and June. Brown May or June beetle flights often follow heavy rains in late May and June. New generation grubs of most southern species can be found by middle to late August.

Check areas that were grub-damaged in the spring or in the spring or in previous

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WARM-SEASON*	LATE WINTER (Mar.)	SPRING (Apr.-May)	SUMMER (June-Aug.)	FALL (Sept.-Oct.)
(SOUTHERN) CHINCH BUGS	In southern Fla. where resistance is a problem, use Pydrin, Pounce or Baygon as labeled for Fla. Replace susceptible turf with resistant or non-host varieties to provide natural control. In other areas, overwintered adults can be treated if they become active in March with diazinon (4 lbs. AI/acre), Dursban (1 lb. AI/acre) or Oftanol (2 lbs. AI/acre).	Application to prevent population build-up should be made by mid-April. Diazinon (4 lbs. AI/acre), Dursban (1 lb. AI/acre) or Oftanol (1-2 lb. AI/acre) provide control.	Control existing populations with Dursban (1 lb. AI/acre), diazinon (4 lbs. AI/acre) or Oftanol (1-2 lb. AI/acre) when damage signs appear. Southern chinch bugs are not as severe a problem in well irrigated turf.	Late summer applications usually make fall treatments unnecessary.
BILLBUGS	Treatment at this time can be done if adults are numerous and active. Use diazinon (4 lbs. AI/acre), Dursban (1 lb. AI/acre) or Oftanol (1-2 lb. AI/acre).	Treat when adults are active to prevent population buildup. Diazinon (4 lbs. al/acre), Dursban (1 lb. AI/acre) provide control.	Treat billbug grubs with Oftanol (2 lbs. AI/acre) if not used in spring; diazinon (5 lbs. al/acre) Turcam (2 lbs. AI/acre). Triumph 4E (restricted—home lawns only, not on "sandy" soils—2 lbs. AI/acre/season). Irrigate following application; also before if drought exists.	If necessary, treat with diazinon, Turcam, Oftanol or Dylox/Proxol as in summer.
GRUBS	Control with insecticides usually does not extend to new generation in July and August.	Infestations can be controlled during early April by spot or general treatment with Turcam (2 lbs. AI/acre), Proxol/Dylox (8 lbs. AI/acre) or diazinon (5 lbs. AI/acre). Mocap granules (5 lbs. (AI/acre) can be used on golf courses and sod farms. Triumph 4E on home lawns only, not on "sandy" soils (restricted use, up to 2 lbs. AI/acre/season) Sevin (1.5-2 lbs. AI/acre) or Orthene 75S (1.5-2 lbs. AI/acre, unirrigated after treatment) is effective on green June beetle grubs; Sevin (8 lbs. AI/acre) against other grubs. Irrigate after treatment. Milky spore can be applied in early April for Japanese beetle control in areas where the grubs are numerous.	New generation grubs present in late July or by mid-August can be controlled with Proxol/Dylox (8 lbs. AI/acre); Turcam (2 lbs. AI/acre); Oftanol (2 lbs. AI/acre); diazinon (5 lbs. AI/acre); or Mocap granules (commercial turf only at 5 lbs. AI/acre). Triumph 4E (restricted use, home lawns, not on "sandy" soils, up to 2 lbs. AI/acre/season). Sevin SL (8 lbs. AI/acre) is effective against most grubs; Sevin SL (1.5-2 lbs. AI/acre) or Orthene 755 (1.5-2 lbs. AI/acre, unirrigated after treatment) is effective against green June beetle grubs. Water immediately after treatment, also before treatment during dry summers.	Treatments are effective as late as mid-October. Irrigate first if soil is dry, then again after treatment.
SOD WEBWORMS	Treatment is not appropriate at this time.	Use diazinon (4 lbs. AI/acre), Dylox/Proxol (3.5 lbs. AI/acre), Dursban (1 lb. AI/acre), or Sevin (6-8 lbs. AI/acre) in April when larvae are present. Warm season grasses outgrow moderate damage, so treatments can be delayed until summer.	Make application to infested turf when larvae are present or two weeks after peak moth flight. Use diazinon (4 lbs. AI/acre), Dursban (1 lb. AI/acre), Dylox/Proxol (3.5 lbs. AI/acre) or Sevin (6-8 lbs. AI/acre).	Treatment in early September may reduce population for next season.
CUTWORMS	Treatment usually is not appropriate at this time.	Use Dursban (1 lb. AI/acre), Dylox/Proxol (3-8 lbs. AI/acre) or Sevin (2-4 lbs. AI/acre). Apply late in the afternoon. Do not irrigate unless specified on label.	Although cutworms in the South are usually a spring problem, if summer infestations occur, treat as directed for spring.	Treatment usually is not necessary at this time.

MOLE CRICKETS	Timing of treatments is critical and varies in different areas. In years when activity of overwintered mole crickets resumes early, treatment with Orthene 755 (3.5 Al/acre) or Turcam (2 lbs. Al/acre) is sometimes effective. Extensive treatment should be delayed until young nymphs are present. Rolling, fertilizing and irrigating warm-season grasses helps tunneled turf to recover.	Monitor infested turf weekly with soap flushes to determine presence and number of young nymphs. For short-residual treatment of overwintered crickets in April use Turcam (2 lbs. Al/acre, irrigate after treatment); or Orthene 75S (2-3 lbs. Al/acre) on wet turf, unirrigated after late afternoon treatment, provides quick knockdown. Baits are effective in central Florida in May when young nymphs are present. Begin monitoring damaged areas for newly-hatched nymphs.	For residual control, use Oftanol (2 lbs. Al/acre) or Mocap granules (10 lbs.) or Turcam (2.5 G, 2 lbs. Al/acre) on young nymphs. Irrigate immediately. Baits are effective from central Florida northward during summer. Baits available are Baygon 2% (½ lb./1000 sq. ft.): .5% Dursban (150 lbs./acre or two applications of 75 lbs./acre three weeks apart); malathion 2% (100 lbs./acre or two applications of 50 lbs./acre three weeks apart). Irrigate several hours before bait applications, and do not irrigate afterwards. Orthene 75S (2-3 lbs. Al/acre) can be used during summer, applied on irrigated turf late in the day and unwatered overnight. Triumph 4E (home lawns only, up to 2 lbs. Al/acre/season) can not be used on "sandy" soils.	Sprays of Turcam (2 lbs. Al/acre) or Orthene 75S can be used in areas where outbreaks occur and may have to be repeated several times. Mocap granules (10 lbs. Al/acre, commerical turf only) may be used, but don't use either more than once per season. Do no expect excellent late-season control if earlier measures have not been taken.
TWO-LINED SPITTLEBUG	Treatment is not appropriate at this time.	Treatment usually not necessary at this time. Dethatching turf when appropriate may reduce populations.	Mow, irrigate several hours or the day before treating infested turf. Spray with diazinon (4 lbs. Al/acre) or in less thatchy turf with Dursban (1 lb. Al/acre). Use at least 10 gal. water/1000 sq. ft.	Re-treatment is usually unnecessary. Treat in pested areas in September if necessary as described for summer.
FALL ARMYWORM	Treatment is not appropriate at this time.	Populations usually do not develop until summer.	Treatments are most effective in early morning or late afternoon. Use diazinon (4 lbs. Al/acre), Dursban (1 lb. Al/acre), or Proxol/Dylox (1-3 lbs. Al/acre).	Apply as directed for summer. Fall armyworms may be a greater problem in Sept.-Oct. than earlier.
FIRE ANTS	Treatments are less effective when soil temperatures are low.	Area treatments when new mounds being established in heavily infested areas with Amdro bait (1.5 lbs. bait/acre), Pro-Drone bait (.88 lb. bait/acre), Logic bait (1-1.5 lbs. bait/acre) Affirm bait (1 lb. bait/acre) or Oftanol (.05 lb. Al/1000 sq. ft.) are effective. Mound treatments in less infested areas include various diazinon or Dursban formulations; Orthene 75S dust (2 tsp./mound); or MC-96 mound fumigant (2 fl. oz./mound).	Treat mounds as they appear with various formulations of diazinon or Dursban; Orthene 75S dust (2 tsp./mound) or MC-96 (2 fl. oz./mound).	Apply controls to mounds or areas early in the morning or late in the day, as described for spring and summer. Area treatments with baits may be done in heavily-infested areas. Irrigate dry areas or wait until rain before treating if drought conditions exist.
SCALE INSECTS	Treatment is not effective.	Chemical control for ground pearls is not effective at any time of year. Proper fertilization, disease controls and adequate irrigation is the best defense.	To control Rhodegrass scale, apply diazinon (5 fl. oz./1000 sq. ft./25 gal. plus wetting agent). Retreatment is usually necessary.	Treat as directed with diazinon for summer.

*See accompanying text for details; always follow label directions.

years. Although grubs will be small in August, they can still be found in infested areas. Extreme heat and drought during the summer may cause some grubs to move deeper in the soil. Under such conditions, irrigate several hours before treatment. A thorough soaking afterward is also advisable.

Mole crickets—Egg hatching diminishes in late June, and newly-hatched nymphs of both species feed voraciously. Tunneling damage suddenly becomes obvious in July as the nymphs grow larger. Because of the potential for sudden damage at this time, turf areas should be inspected several times a week during this period.

Bait formulations are effective in controlling mole cricket nymphs from June through August in the area from central Florida north and west through the Gulf States. Baits work best in eastern Georgia during spring and fall. Bait applications usually must be repeated one or more times.

Mole crickets are more active at night in moist soil. Turf should be irrigated several hours before baits are applied. Delay application until later in the day, and do not irrigate for two to three days thereafter.

Residual control of mole crickets may vary with location, irrigation and amount of rainfall. In some cases, Oftanol has not performed as effectively as expected, nor as consistently as it once did in these same locations. Residual controls work most effectively on younger mole cricket nymphs. Treatments should be watered immediately. Residual controls should be applied in June or July.

Less residual treatments include sprays with Orthene 755. Turf should be irrigated before treatment and Orthene sprays applied late afternoon or evening. Turf should then be allowed to dry before further irrigation.

Orthene sprays seem to be more effective on mole cricket nymphs that are at least two weeks rather than newly-hatched nymphs. Orthene sprays in 1987 seemed most effective in the mid-Gulf States from mid-July through September.

Sod webworms—Most sod webworms complete at least three generations a year with overlapping generations toward the end of the season.

Damage is most severe from late June through August. In southern Florida where the tropical sod webworm is active throughout the year, damage is most severe in late summer and fall.

Hybrid Bermudagrasses are favored by sod webworms, but damage occurs on other warm-season grasses. Webworm damage to Bermudagrass often superficially resembles symptoms of some diseases. Flushes of soapy water can be used to determine the presence of sod webworm larvae.

Insecticide applications should be made when larvae are present and/or one to two weeks after peak moth flights from infested turf.

Retreatment may be needed, depending upon the location and number of generations.

Two-lined spittlebug—Spittlebug nymphs (immatures) are primarily lawn pests, but recently damage to other turf areas has been reported. Any area with thick turf, thatch accumulation and high humidity is susceptible to spittlebug damage. Nymphs that hatch in the spring from overwintered eggs usually cause no noticeable damage until June or later. Adult spittlebugs are especially attracted to and damage Japanese hollies and may move from these shrubs to surrounding turf to lay eggs. The two generations have a year overlap so that by late summer all stages may be present.

Infested turf may develop yellow spots or larger areas in which the grass eventually dies. This damage is caused by spittlebug nymphs extracting sap from grass plants located in "spittle" masses deep within the turf. If population density is great, the spittle masses that surround nymphs may result in "squishy" feeling turf when walked on, somewhat as if shaving from underneath.

Thatch control may disrupt the humid environment necessary for spittlebug development. Infested areas should be irrigated before treatment. Clippings should be collected and destroyed.

Fall armyworm—In the South, summer always means the arrival of the moths of this migratory pest. Although in mild winters fall armyworms may overwinter along the Gulf Coast, it is generally believed that the moths are blown in on winds from Central and South America. Several generations occur each season, one about every five weeks. Generations overlap in the fall.

Lush, green Bermudagrasses are preferred. By late June, fall armyworm damage to turf has usually been reported along the Gulf Coast. Damage is seldom permanent, unless drought and/or heat stress follow.

Fall armyworms may feed anytime during the day but are most active in the early morning and late evening.

Treatment is most effective at these times. During hot, mid-day hours, larvae may retreat into the thatch.

Fire ants—Fire ants are more difficult to control during hot, summer days because they are deeper in the soil. However, during rainy periods, they may become active and establish new mounds. Treatments during these months should be applied early in the morning before the heat of the day. Treat mounds as they appear.

Scale insects—Although Rhodegrass scale is present in Gulf Coast areas throughout the year, damage becomes most pronounced during the hot, dry days of summer. Bermudagrass and St. Augustinegrass are preferred hosts, but other grasses are also infested. Repeated treatments are required for control to be effective.

Ground pearls are scale insects that live in the soil throughout the year, sometimes eight to 10 inches deep. In the spring, eggs hatch producing nymphs that feed throughout the summer by piercing turf roots and extracting plant fluids.

Chemical control for ground pearls has not been effective at any time of year. Damage is most severe during summer months when the turf is stressed from heat and drought.

Centipedegrass is especially susceptible to damage, particularly when weakened by over-fertilization or drought. Proper fertilization, disease control and adequate irrigation to maintain healthy turf is the best defense.

Fall (Sept.-Oct.)

Chinch bugs—Damage by the southern chinch bug may continue in untreated areas. Late summer applications of insecticide usually make fall treatment unnecessary.

Grubs—Most species of grubs are in the third of their three stages of development and are feeding actively. When soil temperatures decrease in late October, and November, the larvae burrow deeper into the soil to overwinter. Severely cold winters have little effect on survival.

Treatments of existing grub infestations can be accomplished as late as mid-October, using standard grub insecticides. Treatment after this time may or may not kill the grubs before they move deeper into the soil to overwinter.

If the soil is dry, irrigation before treatment is advisable. Whenever treatment is applied, the grubs should be in the top one to two inches of soil.

Mole crickets—Mole crickets fly again in the fall, but no egg laying is known to occur at this time. The crickets are large and difficult to control in the fall. Damage becomes more severe as turf growth slows and cricket size increases. Some insecticides may work too slowly for adequate control of large crickets in October. Residual insecticides such as Mocap and Oftanol are less effective than when applied in late June or July. Orthene 755 can be used effectively into October most years, but toxic baits become ineffective by October in most areas.

Sod webworm—Except for the most southern areas where development is continuous, sod webworm larvae present in September will overwinter. Areas treated earlier in the season may be reinfested by this time. Treatment in early September may reduce the next season's population.

Fall armyworm—Fall attacks on newly-established turf from mid-September through October may result in damage that will not recover with fall fertilization. This forces the turf to enter winter in a stressed condition.

If needed, apply controls early in the morning or late in the day when fall armyworms are most active.

Fire ants—Hot, dry periods in September and October may make fire ant control difficult. Once rain begins, fire ants become active and may be effectively controlled with mound treatments. Area treatments may be desirable in heavily-infested areas with baits. **LM**

Pat Cobb, Ph.D., has been at Auburn University for 11 years, she received her B.S. degree from Huntington College and her M.S. and Ph.D. from Auburn.

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4. The rear-mounted, 2000 rpm PTO (Power Take Off) lets you do all of the above.

5. Our optional turf tires,† specially designed for the Terrapro, are even gentler on your turf.

6. Switch to our handy hand-held sprayer in tight spots.

Time saving tip: When you're not mowing or spraying, use the Terrapro to get quickly from one part of the course to another. (To prevent unseemly hot rodding by your crew, lock the dual-range transmission in low.)

Optional tip: Attach our optional Hydraulic Power Unit† to the PTO for driving aerators, post hole augers, hydraulic rakes and the like.**

Final tip: Call 1-800-331-6060, ext. 685, for your nearest dealer.

YAMAHA
We make the difference.

*Warning: Use of certain chemicals may cause injury and property damage. Read sprayer owner's manual and follow chemical label directions.

180 day limited warranty. Warranty terms are limited. See your Yamaha dealer for details. Dress properly for your ride with a helmet, eye protection, long sleeved shirt, long trousers, gloves and boots. Designed for off-road, operator use only. This product is to be used by one person only. Yamaha and the Specialty Vehicle Institute of America encourage you to ride safely and respect fellow riders and the environment. For further information regarding the SVIA rider course, please call 1-800-447-4700. Do not drink and drive. It is illegal and dangerous. **Hydraulic tools available from hydraulic tool manufacturers. †Available in May, 1988.

Circle No. 158 on Reader Inquiry Card

THE TIME MACHINE

That's what the busy businessman is asked to be on a daily basis. If your 'time machine' is sputtering along, here are some tips designed to get it hitting on all eight cylinders again.

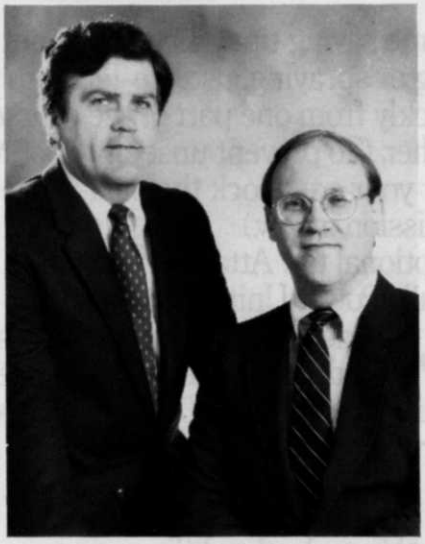
by Rudd McGary and Ed Wandtke

MANAGEMENT IN BUSINESS

One of the most common complaints in the green industry is the lack of time available to complete all the tasks involved with being in business. This is particularly true at the beginning of the season. This is the time when everything comes at you all at once and there never seems to be enough time to get everything done. Here are some ideas that may help you get a little more control of your time. They won't help you do your job, but at least they will help you cope with time.

1. Set priorities. There must be some set of priorities for the tasks you are expected to perform. Some tasks are needed for the running of the organization. Make sure you attend to these first. Write down a ranking of those tasks which are the most important and make sure that you keep coming back to those as you have free time.

2. Look at the tasks you have to do to let others do their jobs. First make sure that you know which ones are critical for other people to complete their jobs. Try to get these done early in the day. This way, they won't be as likely to call you during the day to ask questions about information they need to get their jobs done.



Wandtke and McGary are senior consultants with All-Green Management Associates in Columbus, Ohio. Dr. McGary focuses on marketing and managenent issues. Wandtke focuses on operations and financial questions.

3. Delegate jobs that can be done by others. A lot of managers, particularly in small companies, feel that they are the only ones capable of doing most tasks. Usually, this isn't true. You should make a list of work for the day and then decide whether or not you personally have to do them all. Most of the time, you don't.

4. Keep a pen and some paper by the phone. If you find that you spend a great deal of time on the phone, you will find that the pen and paper help. When someone calls, write down the reason for the call. Keep that in front of you as you talk and you will be able to keep the conversation to the point. Most people will tell you why they are calling in the first 30 seconds. Write this down and keep working on it.

5. Keep a timer by the phone. The pen and paper will help, but if you put a timer by the phone, you'll start saving time on each call. Get yourself a three- or five-minute timer and you can learn to get off the phone in a short period of time. Most phone conversations take too long. By forcing yourself to recognize the time spent on the phone, you can get some of it back.

Most people will tell you why they are calling in the first 30 seconds.

6. Learn to say "no." If you're in your office or on the way to do something that needs to be done and someone asks if you have a few minutes to talk, say "no." Then give them the reason and a time when you will be available. By making sure you complete your most important tasks, you'll get your job done more effectively. People will understand that you are just trying to do the most important tasks for the day.

7. Put agendas together for any formal meetings. If you have to meet with others in the organization and the meeting is pre-planned, have an agenda. Make sure that each section of this meeting is timed, and stick to it. A lot of time is lost in meetings when there is no timing attached to a given topic. The meetings have a tendency to go on and on and generally accomplish about the same as a meeting that takes one-half the time.

8. Write down what you have to accomplish in the course of the day. If you can anticipate, to some extent, how much you have to do, you may find that you actually get it done. In addition to writing down what you have to do, write down how long it should take. This requires discipline, but if you want to get some time back, you should get used to doing it.

Summary

Most of time management deals with being aware of the places where time slips out of your control. By looking at the eight ideas above, you will have better control of your time and be aware of the various tasks that you have to perform. There is no one way to be sure of total time management. But by going through a variety of disciplines, you may find that you have better control of your time and are able to do your job better and more efficiently. **LM**