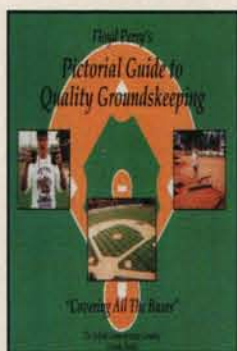


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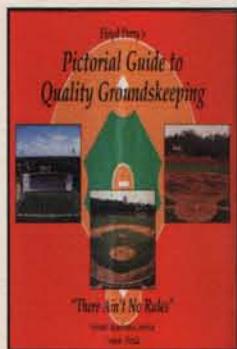
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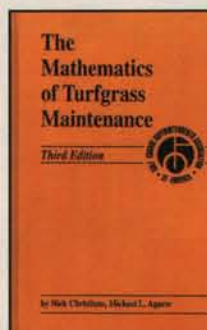
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States to provide estimates for the entire sports turf industry. The blue line on Figure 8 shows the number of survey responses to budget questions by type of facility. The pink line is the number of active STMA members by facility type, and the yellow line is the projected number of U.S. sports turf management facilities which totals 28,714. For this chart, "turf management facilities" is a centralized budgeting and turf management entity (e.g., a city's Department of Parks & Rec).

Financial impact

Ever guess what impact the sports turf industry delivers to the U.S. economy? \$2 billion? \$5 billion? Try more than \$11 billion annually!

The survey collected budget data from turf managers for personnel, materials, equipment, and all other expenses. Figure 9 delineates each budget item further by facility type. The Other Schools facility type represents the largest impact at \$5.2 billion, followed closely by Parks & Rec at \$4.9 billion.

Managed acres

Another measure of growth is the projected number of acres under professional sports turf management (see Figure 10). An estimated 6,825,758 acres or 10,663 square

miles are currently under management in the U.S. This is equivalent to 8.7 times the size of Rhode Island. One fact that jumps out is the acreage of "Non-Athletic" area maintained by turf managers serving Other Schools and Parks & Rec facilities. If "non-Athletic" areas were removed from the equation, the area under management is still three times the size of Rhode Island.

Managed fields

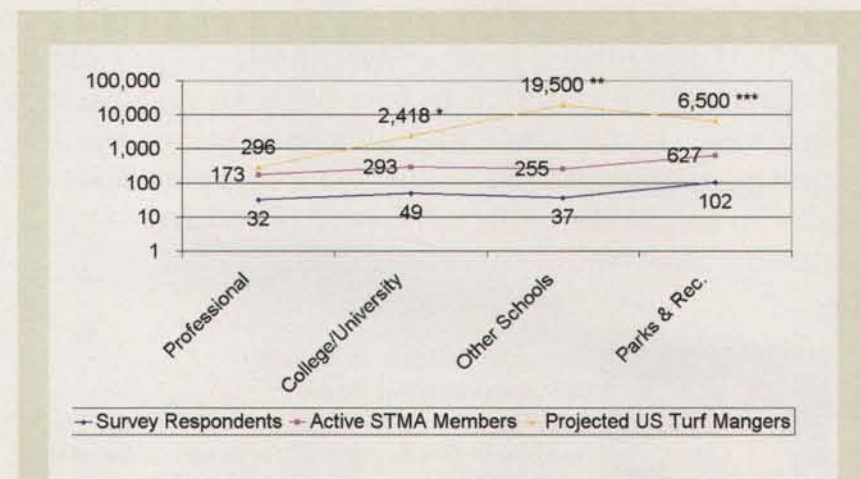


Figure 8 (Projected Number of US Sports Turf Management Facilities)

Note: * This figure is from the Bluebook of College Athletics, Athletic Publ. Co.
 ** This figure is from the National Directory of High School Coaches, Ath. Publ. Co
 *** Estimate from National Parks and Recreation Association

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Also staggering is that nearly 500,000 fields are under the care of professional sports turf managers (see Figure 11). With that many fields, it is easy to understand the \$11+ billion annual budget required to maintain top quality. Other Schools facilities encompassed 61.9% of all fields, followed by Parks & Rec (35.0%), College/University (3.0%) and Professional (0.1%). An interesting trend is that Soccer fields are first or second on the "to do" list for Parks & Rec and Other Schools, but were lower priorities for College/University and Professional facility types. Is Soccer merely a recreational sport or is it a sport in transition that will require additional fields at College/University and Professional facilities? It's a trend to track.

Employment projections

The STMA survey doesn't predict how many turf managers it takes to screw in a light bulb, but it does help project how many full-time employees are required to maintain America's sports fields. One survey question asked for the "average labor hours per week required to maintain your facility." From the sum of those responses we were able to project 122,188 employees, at various experience levels, are necessary to "get the job done." New math? Not really. The "Average Weekly Hours" is the sum of weekly hours at each facility within a facility type (e.g. for Professional facility types this was 255 hours). To project the "Total Number of Hours," take the "Average Weekly Hours" (255) multiplied by "N" (296), or 75,480. This number is the total hours for 1 week for each Facility Type nationwide.

To annualize that, multiply 75,480 by 50 weeks or 3,774,000, the total number of hours at all Professional Facility Types nationwide. Assuming there are 2,000 hours per annual full-time employee, we divide "Annualized Hours" by 2,000 to arrive at the "Required Number of Employees" (1,887) for U.S. Professional Facility Types.

Projection summary

The four projection charts, when combined, help us understand the depth and breadth of the sports turf industry. All told, 28,714 facilities maintain more than 775,124 fields, spend more than \$11

billion annually, and employ 167,737 individuals to nurture 10,663 square miles of area. While these are projected numbers, they are the most accurate estimate of the industry's financial and employment data to date. STMA is in a position to redefine the industry. It's not just about watering and mowing grass! The economics revealed above serve notice that the

industry is doing well and will continue to do well as America continues to be a sporting nation.

ST

Rich King analyzed the survey data and wrote this article. He is special projects coordinator for Trusty & Associates, STMA's management company.

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Fire ant control:

When, how, and why to apply insecticide

BY ANDREA FRASSONI



Probably no insect has caused as much damage and personal injury in the United States over the past 20 years as the red imported fire ant. If you live and work in the southern U.S., fire ants are likely the toughest insect you face. Fire ants are a serious threat on sports turf and other grassy areas.

A single fire ant colony may have as many as 100 queens, each capable of laying up to 1,500 eggs per day for as long as 7 years. The average colony houses 100,000 to 500,000 workers. Fire ant mounds are commonly found in open sunny areas. Although they may look large on the surface, this is just a small portion of the entire nest, which can extend 20 feet into the ground and stretch out more than 8 ft. in all directions.

In the U.S., more than \$1 billion is spent on fire ant control every year. Unfortunately, much of that is wasted on ineffective treatments. Getting the best results requires choosing the right insecticide and timing the application correctly.

Weather matters

Like all insects, fire ants need a certain level of moisture, and they can't tolerate excessive heat or cold. Their intolerance to cold is the reason fire ants are only a problem in the southern states. Conversely, extreme heat and their need for moisture are the reasons fire ants seem to disappear during hot, dry conditions. In such weather,

they burrow deeper into the ground. It might appear that they have left the turf, however, they're only waiting for better conditions to appear at turf surface.

Insecticides applied at times like these will be less effective, because fewer ants will contact them. Even when ants are actively foraging, traditional contact insecticides typically reach only 10% of the members of a colony.

Fire ants are most likely to be active on and near the surface of the soil when the temperatures are moderate and surface moisture is present. This is the time to apply insecticides. See sidebar, "Chemical control methods" for additional information about treatment options. Ideal conditions are most likely to be present November through March. Applications made in the springtime are most likely to control the highest percentage of queens, because this is the time when the majority of new queens are mating.

Fire ant behavior can also be manipulated for control purposes. For example, irrigation is just as effective at bringing ants to the surface as rainfall. If temperatures are in the appropriate range, but the weather has been dry, timing an insecticide

application to follow thorough watering or irrigation may be effective.

ST



Fire ants are destructive and dangerous insects that cause property damage and demand control.

Andrea Frassoni is a writer with FCF Schmidt, which represents Chipco Professional Products, makers of TopChoice one-treatment insecticide and FireStar granular bait.

Chemical control methods

Individual mound treatments selectively control red imported fire ants. They generally require more labor and monitoring than other methods, and are not suggested for heavily infested areas.

Mound drenching is when an insecticide is diluted and spread into and around the mound and surrounding area. The mound is broken open and the insecticide is poured directly into the galleries. Mound drenches may involve handling insecticide concentrates, thus requiring a professional for application.

Applied in the middle to late afternoon, **dusts** must be used only when the soil is not excessively wet or dry, when rain is not expected, and irrigation can be delayed for 24 hours. Dusts leave surface residue. Often dusts are applied to the mound, but the mound is not the customary entry/exit point for fire ants, making this application ineffective.

Baits take several weeks to eliminate a fire ant colony. During hot weather it is best to apply in the late afternoon or early evening. Baits must be kept dry. If it rains within a day

of application, it will have to be reapplied.

Large fire ant mounds can be eliminated through **fumigants**. Only those professionals who have been specially trained should apply fumigants.

Broadcast treatments involve applying an insecticide over a large area rather than on specific mounds. One advantage of broadcast treatments is that newer colonies may be controlled before mounds even appear on turf. However, baits dissolve when they become wet making them useless.

Topdressing a baseball field

BY HENRY T. WILKINSON

Topdressing describes the application of a structural material to the top layer of turf. A structural material is one that is not solubilized rapidly in water; examples are soil conditioners, sand, and soil. Fertilizers and pesticides are examples of non-structural materials that are also applied to the top of turf. Topdressings benefit your field several ways:

1. Improve the quality of the turf surface.

Topdressings fill the voids or uneven spots in a field, thus making it more uniform. Balls will roll true, and athletes will run more efficiently.

2. Protect the turf crowns. When balls hit them or feet tear and stomp them, turf crowns are weakened or killed; when the crown is damaged, the turf will thin and then die. Topdressing will surround the crowns and give them some protection from damage.

3. Improve the soil's porosity and reduce the organic thatch. Turf requires an abundance of soil pores for growth. These pores should be big enough to allow roots, water, and air movement. As turf grows, it forms a large

“Topdressing benefits will be realized when you add small amounts over several years”

amount of organic matter that supports the crowns and the upper part of the roots. The dead organic matter (thatch) is most beneficial for baseball if it is about 5/8 in. If the organic matter is thinner than that, the turf will be hard and jolting to the athletes' feet. If it is thicker than this it will start to impede water and fertilizer movement through the turf root zone, resulting in wet, shallow roots. The rate at which thatch forms depends on both the variety of grass used and turf growth speed. Topdressing the turf will incorporate structural materials into the thatch. This will improve the rate of thatch degradation and maintain better soil porosity.

Do I need to use topdressing?

Most baseball fields can be improved by topdressing. Both the skinned area and the turf areas will benefit.

To keep the skinned area in the best possible condition you will need to topdress. The skinned area of a baseball field is often built using heavy-textured clay, and

then a soil clay amendment is worked into the top few inches to achieve a desired surface. It is difficult to give specific recommendations for adding more ceramic conditioner to a skinned area, because each field is managed for the preferences of the home team.

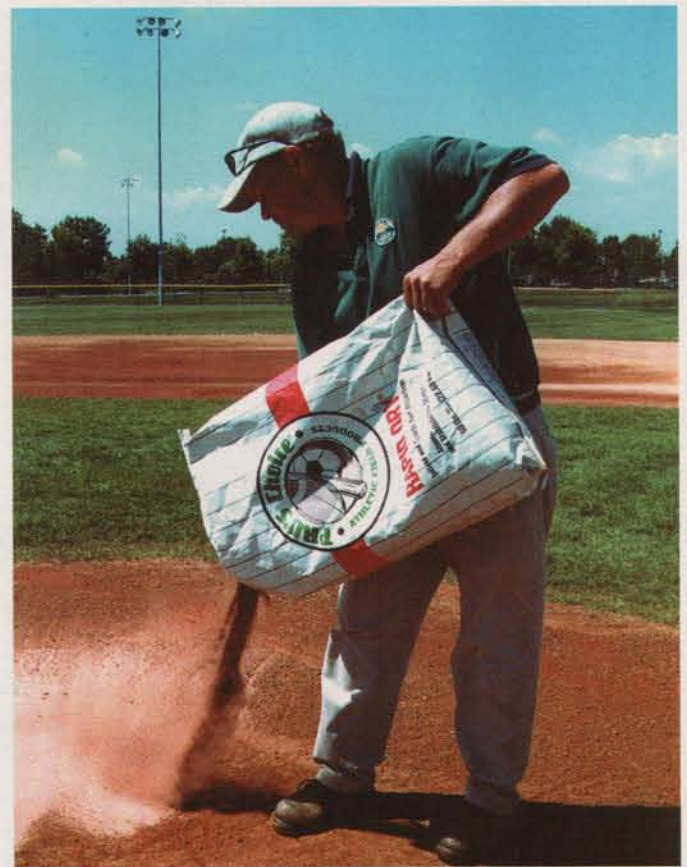
The surface of a skinned area should be almost 100% soil clay amendment. Your choice will depend on what the team and you want. How often your field should be topdressed is a decision that you must make based on the manageability of the skinned area. When you are struggling to keep the skinned area smooth or supple for the movement of either the athlete or the ball, topdress. You will probably add 2-4 bags each time you topdress, and you will need to topdress about once or twice a month.

When you apply the soil amendment, make sure you not only spread it out to maintain a uniform surface, but rake it into the top inch of the soil. You want to achieve a gradient of clay and soil amendment in your skinned area. This will help you manage the water you add to the skinned area to achieve the desired playing surface.

Ceramic conditioners will dry out the skinned area and cause it to become hard and crack. You must add water to the skinned area to achieve a great playing surface. The only way to know how much and how often to water a skinned area is to practice.

Topdressing baseball turf can help your turf and produce a great playing surface. You will want to review the information on how to use products for constructing a baseball root zone. Topdressing with any calcined clay can lead to problems if you use it improperly.

Never topdress a turf area with a structural material containing more than 40% ceramic conditioner. The more clay soil amendment you add, the greater the chance of stressing your turf. However, if you follow the recommended rate, you will safely achieve an excellent turf surface. The maximum limit is 40%, but the generally recommended rate is 30%. The rest of the material in the topdressing should be the same material that the turf is growing in. For example, if your field was built on the existing soil, then add 30% or less ceramic conditioner to the same soil. If your field was built with sand, then add 30% soil amendment to the same kind of sand.



Each skinned area is different, and you may want to customize your surface for (or against) a player.

How much topdressing should be applied?

For a single application of topdressing, add enough to achieve a layer 1/8-in. thick or less. Never add more than a 1/8-in. layer of any structural topdressing per single application.

How often should a field be topdressed?

This depends on many factors, including how much play the field gets, how fast the grass is growing, and the type of grass you have. In general, an aggressive topdressing program would include applications once per month while the grass is growing. Further, a topdressing program will achieve the greatest benefits when done for the life of the field. However, even one application per season will provide some benefits.

ST

Henry T. Wilkinson is a professor at the University of Illinois who has extensive experience designing and building natural grass sports fields. This article appears courtesy of Pro's Choice, 800-648-1166.



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Prograss herbicide is an ideal Poa annua control product, says Chipco, because as a selective herbicide, it is both root and shoot absorbed, providing both pre- and postemergence control of Poa annua. This flexibility of application allows for Poa control during its germination and growth periods, any time from late summer through fall.

Applying Prograss in a customized program including non-chemical control techniques such as aerifying will achieve the best results in Poa control. Such a program should be determined based on the turf species and varieties being treated, as well as the percentage and location of Poa infestation.

Applications in the fall will coincide with the germination and growth periods and will control Poa before it can begin competing with the turfgrass.

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NEW LABEL FOR MEDALLION®

Syngenta Professional Products' Medallion (fludioxonil) fungicide recently received a new label from the EPA for control of pink snow mold and the more difficult to manage gray snow mold for lawn and golf turf management; and for the control of Rhizoctonia, Cythrodium, Fusarium and Sclerotium on landscape ornamentals.

When the mercury-based products for control of pink and gray snow mold were taken off the market a few years back, superintendents were left with limited options for protecting their turf against these diseases.

As many turf managers have experienced, a case of snow mold during the winter months can mean dead turf the next year. Aside from the eyesore that is created, you ultimately have to spend more time and money reseeding and resodding.

"When applied at 0.5 oz per 1000 sq. ft. in the fall before snow cover, Medallion gives turf managers the just-in-time protection against snow mold that they've needed," says Dr. Mike Agnew, Syngenta field technical manager for turf.

Although Medallion is a contact fungicide, research in the Pacific Northwest, the Northeast and the Rocky Mountains shows that it actually controls the disease in the thatch and near the surface of the soil, delivering sound preventive disease control.

Medallion also is an excellent tank-mix partner with Banner MAXX®. "The Medallion/Banner MAXX combination offers a broader spectrum and higher level of control for a longer period of time. This is particularly true for snow mold and summer patch," said Agnew.

"Medallion also provides good control of leaf spot, dead spot of bentgrass, brown patch, summer patch and yellow patch, among other turf diseases."

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Bayer Corp./800-842-8020
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PREPPING TURF IN THE WINTER

With the cold of the winter months upon us, two goals are deep within each landscape professional. First, preparation for a green beginning to the new season. Second, keeping warm. Depending on where you are your problems may vary.

Ron Parron of Barnes Nursery, Huron, OH, tells of his arch nemesis—clover, ground ivy, spotted spurge, and black medic. "Those four are my biggest headaches when dealing with turf throughout the year," he says.

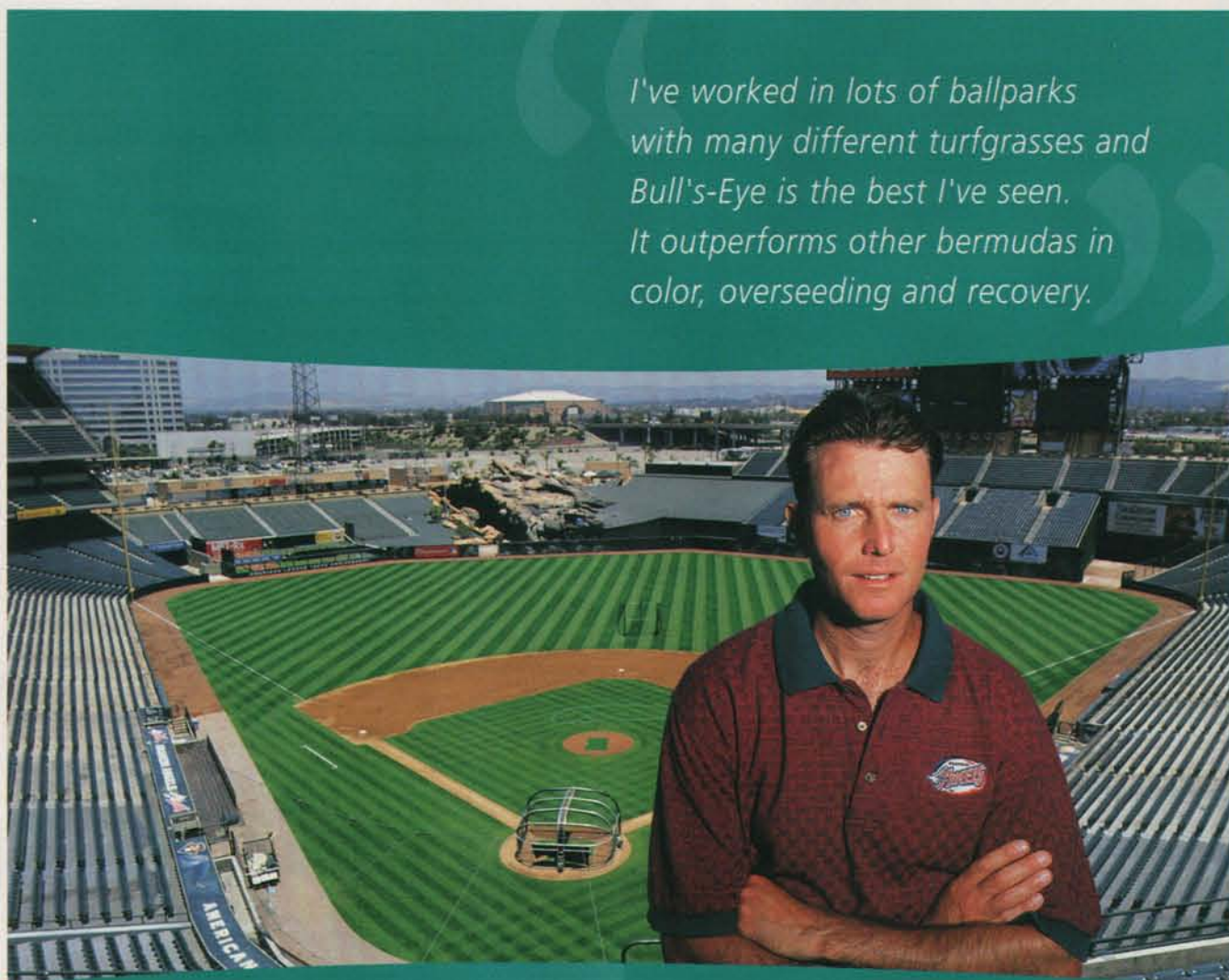
Parron used Strike Three ULTRA. He says, "Strike Three ULTRA showed amazing results on alleviating the turf of clover and ground ivy . . . absolutely amazing."

After discovering Strike Three ULTRA, Parron was armed and ready to battle a field that lay untreated for more than 2 years. "There was more yellow than anything in that field, covered in dandelions, but when I was through, the field was green," Parron says.

Mark Slavik of ProSource One says, "Spraying a herbicide early in the season is a key element to controlling weeds for the entire season."

Slavik recommends Strike Three ULTRA as a viable option for eliminating spurge, oxalis and clover. "With Strike Three ULTRA you have one product, no mixing, that quickly disposes of tough-to-control weeds," he says.

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Nematac S is a nematode-based bio-pesticide formulated in a water-dispersed carrier that is applied as a high vol-

ume spray. It is based on a specific beneficial nematode called *Steinernema scapterisci* that was identified as a pathogenic parasite by the University of Florida.

Exclusively licensed by MicroBio, a UK based company, the beneficial nematodes in Nematac S become active when applied to a soil profile and use mole crickets as hosts. The microscopic nematodes enter inside the mole crickets and release lethal bacteria. The mole cricket becomes a food source for the nematodes, which will reproduce and continue to attack the mole crickets infesting the turf. The nematodes in Nematac S attack only insects so they will have no ill effects on plants.

First introduced in the United States from Central America through ports in Florida, mole crickets quickly spread throughout the southeastern US and recently have begun showing up as far west as Texas. The mole crickets can grow to 3 in. in length and cause considerable damage to turf by burrowing into the soil and eating the roots of grasses. As a result, the grass dies and is replaced by weeds that readily infest and take over an entire area. The mole crickets are especially problematic at golf courses, sod farms, and park areas.

Nematac S does not pose the environmental risks associated with many of the current products being used, such as runoff into water basins or possible toxicity issues for applicators and other people coming in contact with the treated area.

Becker-Underwood/800-232-5907

For information, circle 163

**CONTROL CRABGRASS
WITH ONE APPLICATION**

Postemergence herbicides like Acclaim Extra are a necessity when controlling crabgrass outbreaks. Applications will eliminate crabgrass that still appears after preemergence treatment; and often you can avoid a preemergence application altogether by making postemergence treatments as crabgrass appears. A well-timed application provides effective crabgrass control for an entire season, says the manufacturer.

Acclaim Extra is absorbed primarily through weed foliage. Properly timed, it is one of the only postemergence herbicides that controls crabgrass in one application without damaging turf, making it the standard for postemergence crabgrass control.

Acclaim Extra won't affect overseeding. It can be used anytime during the growing season, providing effective crabgrass control from seedling to the five-tiller stage, especially at the tiller, stage of growth, when crabgrass becomes most evident in turf.

Chipco/800-438-5837

For information, circle 162



Acclaim Extra

HERBICIDE

ACTIVE INGREDIENTS:
Glyphosate (as salt) (100% a.i.) 2.5 (2.5) 2.5 (2.5) 2.5 (2.5)
INERT INGREDIENTS:
TOTAL 2.5 (2.5) 2.5 (2.5) 2.5 (2.5)

KEEP OUT OF REACH OF CHILDREN
CAUTION

EPA Reg. No. 433-930 EPA Est. No. 041639-CAI-001

NET CONTENTS: 2.5 Gallons

chipco

AGENTS: ENVIRONMENTAL SCIENCE LLC LP
10000 10000 10000