Sports Field Of The Year

Proud Of Your Field?

Want to Show Off Your Hard Work?

SFMANJ is inaugurating an annual New Jersey "field of the year" contest.
Individual awards will be presented to the school, and parks/recreation ***Sports Field of the Year***

Entering is easy, send to:
SFMANJ Contest, Po Box 370, Annandale, NJ 08801
Entries must be received by September 30, 2005

Eligibility:
*two categories; School or Parks/Recreation fields only
*current member of SFMANJ
*natural grass fields

Send:
*color photos of your natural grass field (10 maximum)
*name of facility and location
*name of owner
*your name, position and contact number

Criteria for awards:
*playability and appearance of the playing surfaces
*based on photos and a site visit by the SFMANJ Award Committee
*feel free to have sports groups in your photo

Awards:
Winners will be honored with a plaque at New Jersey Turf Grass Expo in December 2005 and be interviewed for a feature article in SFMANJ "UPDATE" (Also receive a two-night stay at Taj Mahl, Atlantic City and three days of education)
Note:
*photos will not be returned and may be used on SFMANJ website and promotional settings. ◆

Aerification and Repair of Athletic Fields

by James A. Murphy*

Regular aerification of the turf and soil is necessary on athletic fields subjected to intense traffic, especially for soils that are highly susceptible to severe compaction. Effective aerification requires the use of equipment capable of extracting ½- to 1-inch diameter soil cores to a depth of at least 2 to 3 inches. Frequency of aerification is determined by the intensity of field use and severity of compaction. High-priority fields that receive intensive use will most likely benefit from two to four aerification treatments per season. The fall and spring seasons are the best timing for this procedure. Removing the cores or working the cores back into the turf minimizes the objections to the soil cores brought to the turf surface. Soil cores can be broken up and re-incorporation into the turf through verticutting or drag-matting the cores. Soil cores dried to the proper moisture content will be easier to break-up and work back into the turf.

Deep Subsurface Aerification. Many old athletic fields that were established on soils that are highly susceptible to compaction will benefit from deep subsurface areification, which will create ½- to 1-inch diameter holes to a soil depth of 6 to 16 inches. This aggressive form of aerification can alleviate deep compaction of the soil, thereby improving water drainage, as well as infiltration and turf performance. The equipment needed is expensive to purchase, however, it can be readily contracted from local vendors. Cost for contracting will vary; but it is commonly priced for pennies per square foot of field area. Treatment with deep aerification equipment has sufficiently improved many older sports turfs and, as a result, helped avoid the high costs of reconstruction. It is important to note that deep aerification will not solve compaction problems associated with improper construction practices (i.e., severely compacted subgrades that limit drainage of water).

Repair. Many factors can contribute to a weakening or loss of turf. But intensive use is often the primary factor associated with severe loss of turf, particularly on finer-textured soils with slow drainage. A good turf can be restored on worn-out fields through renovation procedures, except for the cases that requiring reconstruction (initial construction was incorrect). Renovation may involve eliminating weed infestations, applying lime and fertilizer, aerifying, overseeding/silt-seeding with a mixture of appropriate turfgrasses, verti-grooving, and dragging/brushing to mix the seed with the soil. Because of rapid establishment and excellent wear tolerance, the improved turf-type perennial ryegrasses or turf-type tall fescues should be considered for overseeding or reseeding mixtures. Refer to Rutgers Cooperative Extension publications FS108, "Renovation of Turf," and FS989 and FS990, "Perennial Ryegrass and Tall Fescue Varieties for New Jersey," respectively, for more information. Renovation is an effective means of introducing seed into an existing turf without destroying the existing grasses, grade, or contour. It will not, however, solve drainage problems, which require partial or complete reconstruction. Late summer through early fall is the best time for repairs. Where the field is actively used for football, the procedure can be successfully performed in late fall or early winter; success for this timing is dependent on soil and weather conditions. Early spring would be the next best time for renovating football fields. Where use of the field cannot be restricted to permit adequate establishment of a new seeding, sod should be considered for the establishment of a turf. Please refer to Rutgers Cooperative Extension publications FS105, FS684, and FS738 for more detailed information. These can downloaded for free at http://www.rce.rutgers.edu/pubs/category.asp?cat=5

* Dr. James Murphy is the Extension Specialist of Plant Biology & Pathology, Cook College, Rutgers University ◆

Calendar of Events

Sat. May 21 from 9am to noon - Snyder Research & Extension Farm – Lawn Care Clinic
Topics include lawn mower races, how to mow less, weed control, selecting grass seed, over seeding demonstration, and fertilizing and lining large lawns. Reg. first 150 attendees. $8. Call to register 908-713-8980

August 3rd - Rutgers University/SFMANJ unites to bring you Lawn/ Landscape/Trade Show 8-9am & Equipment Demonstration Field Days. Adelphia Research Farm Reg 7:00am; Lawn & Landscape Section –Tours begin 9am; Lunch provided. Watch for flier

June 3rd - District I meeting held at Sussex Tech, Rt. 94, Sparta Topic: Softball Infield conversion. Be prepared for a hands-on experience. Sponsored by E&M Golf, Total Control Inc., Lofts/Pennington Seed Lunch provided $15 members, $25 non-members. Watch for flier. ◆

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afternoon or early evening (wind and evaporation are problems).

When and how do you irrigate? Please send me your thoughts and comments so that we might establish a forum on this topic. donsavard@msn.com

* Don Savard is a Certified Sports Field Manager, Vice President of SFMANJ and Director of Athletic

Ann Waters of the (PCP) is taking a new position.

Ann Waters of the New Jersey Department of Environmental Protection Pesticide Control Program of is taking on a new position as an Area Planner with the Office of Smart Growth, within the Department of Community Affairs effective April 18, 2005.

Counties came to rely upon Ann's knowledge and expertise in the application of the PCP regulations in her delivery of CORE curricula across the State. Her work with applicators made it a lot easier for them to want to comply with the regulations. She also reviewed the entire Pesticide Applicator Training Website that was constructed to meet the 2001 changes to the PCP regulations.

Ann was appointed a founding member of the Advisory Committee and has been instrumental in reviewing all major documents that we have released concerning NJDEP pesticide regulations. Ann provided leadership for School IPM to succeed in New Jersey. This included her work on 'The Model Plan for School IPM for New Jersey Schools. ◆

Continued from page 5

off roots close to the soil surface. The voracious feeding of the larger late 2nd stage and 3rd stage grubs, when combined with hot and dry conditions, can result in quick and extensive loss of turf from late August through mid-October. All cool-season and many warm-season grasses are susceptible to white grubs. Being alert to the signs and symptoms of white grub infestations will help avoid unexpected loss. Early signs of a white grub infestation include gradual thinning, yellowing, wilting in spite of adequate soil moisture, and the appearance of scattered, irregular dead patches. The patches grow and may join together until large turf areas are affected. Due to the grubs' tunneling activity, infested turf feels spongy underfoot and can be pulled up easily, exposing the C-shaped white grubs. Secondary, often more severe, damage can be caused by vertebrate predators (e.g., crows, skunks, raccoons), that tear up the turf to feed on the grubs.

Early detection, sampling and monitoring, damage thresholds

Mid- to late August, when the grubs are primarily 2nd instars, is the time to monitor for potentially damaging white grub populations. The only way to accurately determine the presence of white grubs is through examining the upper 3-4" of soil under the turf. Most conveniently turf/soil plugs are sampled with a standard golf course hole cutter (4.25" diam ~ 0.1 ft2). More tedious is the use of an oversized hole cutter (6" diam ~ 0.2 ft2; "turf mender") or cutting a square-foot sample with a flat-blade spade. The plugs can be broken up and examined on the spot (preferably on a tray). To improve sample survival, split the soil end of the sample first into halves and then quarters and smaller pieces to reveal the grubs that typically will occur near the thatch-soil interface. Record the number, species (check raster pattern with a hand lens), and life stages on a data sheet or map. Place the soil back in the hole and replace the sod cap. Irrigate to promote turf recovery especially when dry. Because white grub populations have a patchy distribution, several samples should be taken in a grid pattern. Rarely does an entire turf area require treatment.

To save time and effort, sampling can be concentrated on suspected infestation areas, high risk or low tolerance areas, or areas with a history of grub infestations. If historical information is not available and/or a more accurate idea of grub distributions is necessary, mapping and surveying is the thing to do. Using graph paper, prepare a general map of the turf area including landmarks. Mark sampling spots at 6-10 feet (lawns) or 10-20 feet (sports fields) apart in a grid pattern. At each spot take a sample and record number, species, and stage of grubs found (also record 0s!). Experienced samplers can process about 20 samples per hour.

To determine whether treatment is required, transform the grub numbers into 'per ft2'-values and compare to damage thresholds. Most published damage thresholds lie in the range of 6-10 (Japanese beetle, oriental beetle, European chafer) and 15-20 (Asiatic garden beetle) grubs per ft2. However, damage thresholds vary considerably with grass species, management type, and climatic conditions. In well-maintained tall fescue plots I have repeatedly observed grub densities in the range of 30 to 60 grubs per ft2 without any signs of turf damage. With experience, turf managers should develop their own range of thresholds for the various turf

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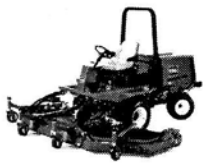

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areas they are responsible for.

Preventative white grub control

The arrival of new insecticide chemistry with long residual activity in the soil in the last few years has added preventative applications as an option in the management of white grubs. The 2 insecticides presently on the market, Merit, a neonicotinoid, and Mach2, an insect growth regulator, can be applied as early as late May and June, respectively, to provide season-long white grub control. If applied that early, various other insect pest can also be controlled (Merit and Mach2: billbugs, annual bluegrass weevil, greenbugs; Mach2: cutworms, sod webworms) or at least suppressed (Merit: chinch bugs). If white grubs are the primary targets, the optimal application time for Merit and Mach2 is June/July when the female beetles are laying eggs. At this time, control efficacy against many white grub species is typically in excess of 90%. As the larvae hatch and go through their 3 larval stages, they become less susceptible to these insecticides (and other insecticides). Applications against the 3rd larval stage in September are not recommended.

Oriental beetle is very susceptible to Merit but MACH2 has only provided 50-60% control on average and should be applied right around peak egg-laying activity. Japanese beetle is very susceptible to Merit and Mach2, and even mid-September applications can still provide around 70% control. Applications after mid-August, however, may not kill the grubs quickly enough to avoid impending damage. Masked chafers are less susceptible to Merit, and where this species prevails, applications should be done during egg laying (June-July) and at the highest label rate. The European chafer appears to be less susceptible to Mach2 and Merit, and applications should be done during the egg laying period (June) and at the highest label rate. The Asiatic garden beetle appears to be immune to Mach2 and Merit.

The obvious disadvantage of preventative applications is that they have to be done before white grub populations can be estimated through soil sampling. Thus, preventative applications are often applied to areas that would need only partial or no control at all. This increases the cost of grub management, resistance development, and may in the long-term dramatically reduce populations of natural enemies by depriving them of prey or hosts. Smart turfgrass manager will restrict preventative applications to high-risk areas, i.e., areas with extremely low damage threshold and tolerance, areas with a history of white grub infestations, and areas with high beetle activity (egg-laying) in June-July.

Curative white grub control

If soil sampling has revealed white grub populations, areas with densities above treatment thresholds or ongoing damage may need to be treated. This curative control approach works best if applied while the grubs are still smaller (i.e., mid August to early September). Monitoring and sampling helps optimize application timing and restrict treatments to areas that actually have high grub populations. Once the grubs have reached the 3rd instar, they are much harder to control. Spring applications (late April through May) are generally the least effective and rarely justified because the grass can outgrow most grub populations. Only extremely high grub populations, unduly stressed turf, or digging grub predators can cause damage at this time. Any necessary treatments need to be applied before the grubs pupate. Due to the annual life cycle of the grubs, areas that had no damaging infestation or were successfully treated in the previous late summer/fall, will not need treatment in the following spring.

For best results with any insecticide, mow the turf and rake out dead grass and thatch before treatment. This will reduce the amount of insecticide bound up by surface debris. Irrigate with 0.5-1" water immediately after treatment (or timely rainfall) to leach the insecticide into the root zone where the grubs are feeding. Irrigation also increases insecticide contact by drawing the grubs closer to the surface. If the soil is very dry, pre-treatment irrigation 1 day before treatment will also increase efficacy by bringing grubs closer to surface and reducing thatch binding and evaporation of liquid treatments. However, do not apply soil insecticides to saturated soil. Also, granular formulations need to be applied to dry grass to allow the granules to sift down into the thatch. Liquid and granular applications are usually equally effective, however, granular formulations may be more forgiving if post-treatment irrigation is delayed.

Successful treatments typically kill 75-90% of the grubs but product performance varies with soil type, thatch thickness, and grub species. Therefore, evaluate treatments and keep record of product performance. While speed

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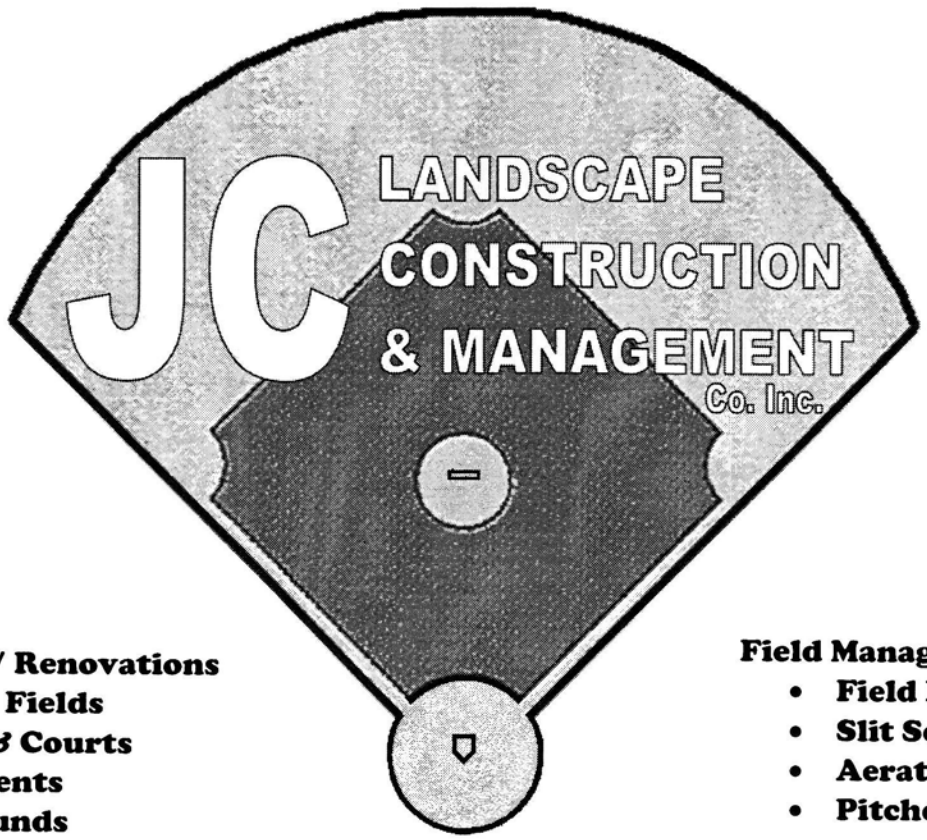

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References Available Upon Request

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of kills varies with insecticides, soil insecticide applications never work overnight. Affected grubs usually turn yellow or brown within a week of treatment. Wait at least 1-2 weeks before evaluating. But don't wait longer than 3 weeks to allow for a follow-up treatment if the 1st treatment was ineffective. In the latter case, don't apply the same product again at a rate exceeding the label rate. Rather try a different compound. While development of grub resistance to insecticides is unlikely with the presently used short-residual insecticides, some grub control failures can be caused by enhanced microbial degradation of the insecticide, especially after repeated insecticide use. Avoid unnecessary applications and alternate insecticides.

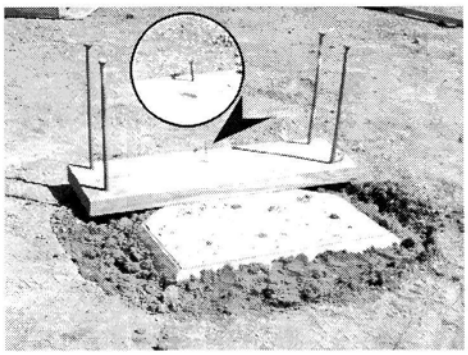
The range of insecticides available for curative white grub control has already and will continue being effected by the implementation of the Food Quality Protection Act of 1996. Among the organophosphates, only trichlorfon (Dylox) and diazinon (Diazinon) are still available. However, Diazinon production and retail sale is supposed to stop in August 2003. Diazinon may also not be very effective against Japanese beetle grubs. Of the carbamates, only carbaryl (Sevin) is still available but generally does not seem to provide good white grub control. Presently available nematode products for grub control contain the species Heterorhabditis bacteriophora, Heterorhabditis megidis, or Steinernema glaseri. These nematodes can be very effective against Japanese beetle and masked chafer grubs, but are not effective against grubs of oriental beetle, Asiatic garden beetle, or European chafer. While these nematode products have to be handled and stored with more care than chemical insecticides (you are dealing with living organisms!), they have the advantage of no reentry interval due to their non-toxicity. Use of the halofenozide (Mach2) and imidacloprid (Merit) is generally not recommended for curative control. While they

may still provide good overall curative control depending on grub species (see above), their speed of kill is too slow to prevent impending turf damage.

* Dr. Albrecht M. Koppenhöfer is the Assistant Extension Specialist in Turfgrass Entomology, New Jersey Agricultural Experiment Station, Cook College, Rutgers University ◆

Continued from page 10

Drive a nail 1" or 2" from the edge, centered on the board from end to end. Allow the nail to protrude through the bottom of the board ¼" or so. File or round the point of the nail to eliminate danger of being stuck by the point of



the nail. Position the board with the nail contacting the home plate at the apex and stabilize the board utilizing landscape spikes. The nail can then be used as a connecting point for your string or tape measure, which can be pulled in any direction from that point.

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