

LAWN CARE TECHNOLOGY FOR SPORTS TURF

The success of professional lawn care across the country indicates that technical expertise is available for application to sports turf management. And, there is no question about the need to improve the safety of playing surfaces, particularly for young athletes just getting started. Often school boards and municipal recreation leaders fail to improve sports turf quality because of not knowing where to start.

This article is intended to provide you with some insight regarding sports turf maintenance problems and related technology for solving these problems. In order to know what we're dealing with, it's necessary to discuss use characteristics of sports turf before considering five management areas of critical importance: soils, irrigation, grasses, pest control and grooming.

Use Characteristics

Of all turfgrass, sports turf is presented with the most difficult and stressful conditions for growth. First of all, game play causes wear that is physically abusive to turfgrass plants. They are cut and torn from the sod as a natural consequence of foot traffic and player impact. Second, game play causes soil compaction that weakens grass roots and limits recuperative potential of individual plants. Third, game schedules and field use are such that the recovery time needed for turf revitalization is severely limited. Field renovation must be looked at as a continuing practice throughout the entire play period, thus taking advantage of any and every opportunity to make repairs and to improve growth conditions for the grass. In addition, it is not always easy to identify who the decision makers are. Time wasted in obtaining approval for essential maintenance and renovation practices is time lost that can never be

replaced. The net result is lost opportunity and generally a continuation of turf deterioration at a time when the safety of young athletes may well be in jeopardy. Sports turf and playground liability is becoming more and more a fact of life as technical information for field improvement becomes more readily available. There is no longer excuse for negligence in the culture of natural grass for sports playing surfaces.

Further, a wide range of cultural practices can be scheduled for field improvement. Costs will vary considerably from location to location and depending on the nature of the work to be accomplished. However, economics of sports turf construction, maintenance and renovation is more favourable than the economics of compensation for injuries to young athletes.

Finally, before attempting to make a poor field better, determine if in fact there is a good chance that you can be successful. Many fields are so intensively used that there is little chance for grass or even weeds to survive. Such fields are losing propositions at best and may involve you in legal settlements when positive results are not obtained. In these instances, either a lessening of the number of events scheduled or an expansion of play field acreage is required.

Now that you've considered the unique use characteristics of sports turf and have determined who the sports turf decision makers are, it's time to check on how soils, irrigation, grasses, pest control and grooming can work to enhance your successful sports grounds management.

Soils

Soil condition on sports fields can make or break you. In order for gras-

ses to grow well, soil must be graded so that surface drainage moves water away from intensive play areas towards the side lines. Water that collects in depressions anywhere on a field will weaken grass in that area and ultimately result in turf failure. From 12 to 18 inches of crown in the center of a football field is about right. For other types of play areas, an equivalent slope is desirable for movement of excess surface water.

Then, the soil must have a sufficiently porous texture to allow water to drain down through the profile. A good sandy loam soil is ideal. Unfortunately, it's not a simple matter to add sand to a heavy or fine textured soil and make it function like a natural sandy loam. Tons of sand are required and the mixing with existing soil is labour intensive as several 3 to 4 inch layers must be rototilled in one at a time. The alternative is removal of existing soil and replacement with an artificial root zone mixture prepared off-site.

Heavy soils are often more effectively modified with organic matter than with sand. Once turf is established on these soils, the continuation of root growth and decomposition year in and year out helps to maintain as favourable soil conditions as are possible. Any cause of turf failure disrupts this process and reestablishment is generally difficult.

A word about topdressing. Sports turf is in need of frequent topdressing to level the field and heal scars from heavy use. Always use a topdressing that is the same as that in the rootzone or one that is more sandy. Never use a topdressing that has more silt and clay than is present in the rootzone soil. Water will move from a more sandy soil with large pore spaces into a less sandy soil with smaller pore spaces, but it will not move readily from a heavier

finer textured soil into a lighter coarse textured soil. Improperly topdressed lawns and sports fields are wet near the surface and shallow rooted. These conditions are disastrous for playing field surfaces.

Since use of play fields compacts the soil so that pore spaces are smaller and internal drainage of water slowed along with exchange of fresh air into the soil, core cultivation, slicing and spiking are desirable practices. Schedule these mechanical operations whenever growth conditions favour root development [cool, moist conditions in the north and warm, moist conditions in the south]. Use all three procedures. Core cultivation opens up holes and removes plugs; these may be broken up and returned as topdressing. Slicing develops slits or grooves in the turf and soil that intercept water and allow for deeper penetration of air and water. Spiking breaks up surface compaction that otherwise seals off the soil and slows down infiltration of water, air and nutrients. Generally, it is difficult to find time to over-do these three practices. The soil is a dynamic living entity that provides support, moisture and nutrients for the turf. In order to get the most from the soil at hand, know both physical and chemical properties. Maintain soil test information files and use this information in prescribing lime and fertilizer applications. Not only is it important to make growth conditions favourable for turfgrasses, but also for billions of soil organisms that live within the rootzone and work to create an environment that has active biodegradation properties. Such soils are necessary in the safe and effective use of all pesticides.

Up to this point, we have assumed that the field has been well constructed with suitable soil or sand rootzone and that drainage tile have been placed properly with catch basins and outlets that remove excess water at acceptable rates. This

may not be the case, and if so, there is little that can be done in field maintenance that will overcome the liabilities of poor or inadequate construction. Your field management efforts are not likely to yield satisfactory results. However, one renovation practice sometimes helps. Try constructing narrow trenches 3 to 4 inches wide and 3 to 4 feet deep from goal line to goal line. Position these from 5 to 10 feet apart and connect the ends with tile lines along the bottom so that drainage water is carried away from the play area. Fill the trenches with coarse sand and leave them open at the top. Grass will spread over the sand so that it will not be visible. Do not add soil to the top of the trenches; this will seal them off so they will not function.

Irrigation

Sports turf that must rely on natural rainfall for water is likely to be poor in quality most of the time. Sports turf that is over-watered because of the improper use of an excellent irrigation system will be poor in quality all of the time. Needed for excellent quality sports turf is a well designed manual or automatic system that is used as needed and as determined by an experienced lawn care professional. Many sports fields have limited prospects for improvement because of the lack of irrigation water. Fertilizers, pest control chemicals and other cultural practices have little chance of working if water is the limiting factor. The use of just enough water at the proper time will enhance the effectiveness of all other practices utilized in turf management.

Grasses

Sports turf can never be made better than the potential for excellence provided by the grass or grasses present in the field. In the north, the basic turfgrass should be either Kentucky bluegrass or turf type tall fescue. Use one or more of the new named varieties that feature im-

proved vigour, and better resistance to diseases and insects. With Kentucky bluegrass, the new named varieties of fine fescue and perennial ryegrass may also be used. Generally turf type tall fescues are seeded by themselves without other grasses. Avoid use of bentgrasses that spread by above ground stolons and tend to tear out as large divots under heavy traffic.

In the south, bermudagrasses are used most for sports fields. New improved cultivars are propagated mostly by vegetative means. New improved seeded bermudagrasses are now under development and will be available within a year or two. Since all warm season grasses go dormant in the fall and remain in that state throughout the winter and early spring, they must be overseeded in the fall with cool season grasses in order to provide a good stable playing surface. Annual and perennial ryegrasses are used as well as blends of perennial ryegrasses and mixtures of perennial ryegrasses and other grasses.

Overseeding techniques have been standardized for use with both cool and warm season turf. Where turf is thin because of intensive use, pregerminated seed mixed with topdressing can be applied directly, watered and even cleated in by practice or game play. Any plants that can be established will improve playing conditions. Where large areas are thin, slit seeding with mechanical devices that enhance seed to soil contact are recommended.

For lawn care professionals the use of pregerminated seed is the most effective means for introducing the best turfgrasses into an existing stand of sports turf.

For copies of Lawn Institute Special Topic Sheets listing turfgrass best suited for sports turf in your location, send a self-addressed stamped number ten envelope to: The Lawn Institute, Post Office Box 108, Pleasant Hill, Tennessee 38578.

Pest Control

Sports turf, because of the stressful conditions under which it is grown, and the weakening effect of these conditions, requires frequent use of pesticides. Proper timing of treatments and use of most effective pesticides for local conditions is important.

The necessity for monitoring weed development and scheduling pre and postemergence applications of herbicides is a fact of life. Seldom are sports turfgrasses sufficiently vigorous to crowd out weeds without the help of herbicides. The same chemical formulations that work well on local lawns will also be effective on sports turf.

Grooming

Sports turf requires mechanical mowing and grooming, not only to produce as healthy a turf as possible, but also to provide aesthetic appeal for spectators. Mowing height and frequency are determined by the type of grass and the use of the turf on the field. Cool season grasses are generally cut at from 1 1/2 to 2 inches. Warm season grasses are closer cut — 3/4 to 1 inch. Grass should be cut frequently and clippings may be removed or left on the field, depending on how well the field is groomed.

In addition to mowing, fields may be combed, raked, dragged or thinned in order to maintain the degree of vigour and growth compatible with development of highest quality ground cover.

Summary

The lawn care professional has an excellent opportunity to be of service in the management of sports turf. This opportunity is perhaps better in some parts of the country than in others. An appreciation for the value of fine turf and its use in the enhancement of playground and sports field safety is important.

As an entry into this area of specialized turf management, get to know the condition of the grounds you are interested in. Learn who the decision makers are and what it will take to initiate a successful program. In doing this, use technical information available to you from a wide variety of sources. For a start, you may wish to obtain copies of the following materials:

Athletic Fields — Specification Outline, Construction and Maintenance; 30 pages; \$1.50., Cooperative Extension Service, The Pennsylvania State University University Park, PA 16802

Athletic Field Construction and Maintenance [AG-BU 3105] 16 pages; \$1.00., Cooperative Extension Service, University of Minnesota, St. Paul, MN 55108

Construction and Maintenance of Natural Grass Athletic Fields; [PNW 0240]; 27 pages; \$1.50., Cooperative Extension Service, Oregon State University, Corvallis, OR 97331

by **Eliot C. Roberts**
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We Get Letters...

Dear Mike:

Would you please indicate the names of some magazines that might be useful to our members and how they may be obtained.

Jim Galbraith
University of Western Ontario

Dear Jim:

The following is a list of publications that usually have articles on Sports Turf. Most are free of charge. Thanks for the suggestions.

The Editor.

Southern Turf Management
345W Hancock Avenue
Athens, Georgia 30601
U.S.A.

Pro Turf Magazine
14111 Scottslawn Road
Marysville, Ohio 43041
U.S.A.

Grounds Maintenance
P.O. Box 12901
Overland Park, Kansas 66212
U.S.A.

Park Maintenance
P.O. Box 1936
Appleton, Wisconsin 54913
U.S.A.

Landscape Management
7500 Old Oak Boulevard
Cleveland, Ohio 44130
U.S.A.

Golf & Sportsturf
P.O. Box 156
Encino, California 91426
U.S.A.

The Lawn Institute
P.O. Box 108
Pleasant Hill, Tn. 38578
U.S.A.

Lawn & Landscape Magazine
4012 Bridge Avenue
Cleveland, Ohio 44113
U.S.A.

Lesco News
20005 Lake Road
Rocky River, Ohio 44116
U.S.A.

Turf & Recreation Magazine
103-1520 Rand Avenue
Vancouver, British Columbia
V6P 3G2

"Green's Maintenance Book" — \$13.00
Lawn Bowls Canada Boulingrin
708-1600 James Naismith Drive
Gloucester, Ontario
K1B 5N4