CHALKBOARD

TIPS FROM THE PROS

BACK TO BASICS FOR SAFETY

By Edmund Birch

Historically speaking, state, city, county, and school administrators have not devoted the same concern to sports field maintenance as they have to other areas of physical plants. This is most often reflected in a sports field's maintenance budget. Even when a field generates some revenue, it is rarely enough to support proper maintenance.

As sports field managers under these circumstances, we face a problem. How do we maintain a field on a limited budget so that it is safe for young athletes? The answer is: Go back to the basics.

Sports field management is like a large, seven-link chain. Each link supports the other, and as the saying goes, no chain is stronger than its weakest link. The following are the seven basic links in the chain which lead to a safe, healthy sports field.

Variety—We must know if the turfgrass variety we want to use is well adapted to the conditions of our area, such as temperature, wind, humidity, and moisture. For example, in conditions which are favorable for disease activity it is ideal to plant grasses with high disease resistance.

Each turfgrass variety has a different tolerance to adverse soil conditions such as compaction, poor drainage, drought, or salinity. If such soil conditions cannot be at least partially corrected, choose a turf that is best able to withstand these conditions.

Soil Preparation—Physical conditions of the soil environment can determine the extent and health of the root system. Remember, roots will neither grow where it is too dry nor where it is too wet. They only grow where the soil-air-moisture-nutrient conditions are favorable. Roots do not seek water—they grow in response to favorable moisture conditions.

Like people, roots cannot walk through "walls" but require "doors" to pass through and space in which to move. They need channels in which to grow, and these channels also permit water and air to infiltrate soils. Structureless silt and clay soils, as well as compacted soils, can severely restrict root development and growth.

Mowing—While mowing is a very basic operation, it affects most other turfgrass cultural practices. These practices are highly interrelated. A simple change in mowing height, for example, usually requires adjustment in the frequency and intensity of irrigation and fertilization.

Seven Basic Links In The Chain To Safe Sports Fields

1. *Turfgrass Variety*
2. *Soil Preparation*
3. *Mowing*
4. *Irrigation*
5. *Fertilization*
6. *Aeration*
7. *Pest Control*

For certain turf types such as bermuda, the highest quality of cut can be obtained with reel mowers, which must be maintained and operated properly. Poor reel mower adjustments and dull cutting surfaces result in tearing and bruising leaves, which turn gray and then brown at the tips, and can eventually result in stunted turf growth.

Utility turf, such as bahia, is often tall and has tough seed stalks. For this reason, most utility turfs are cut with rotary mowers. The cut may not be as sharp as that of reel mowers, but it is acceptable for utility turf cut above two inches, providing that the cutting edges are sharp and the blades are in balance.

Mowing height is crucial. The "effective mowing height" is the height of the grass immediately after mowing. Since mowers ride atop compressed turfgrass shoots, the effective height will be slightly higher than the mower's mechanical height setting. But when the ground is soft, the mower may sink in enough to cause the effective mowing height to be the same as or lower than the mower's mechanical height setting.

Mowing frequency and intervals are related to the number of days between successive mowings. Frequency can vary from daily mowing to several mowings per growing season. Infrequently-mowed turf is more coarse and open than turf mowed more frequently. For moderately to intensely cultural turfs, the One-Third Rule is generally accepted: Remove no more than one-third of the vertical shoot growth per mowing.

To encourage upright growth of grass shoots, mowing direction should be varied with successive mowings. Mowing in alternate directions is an important practice for controlling grain. Failure to change mowing direction can result in compaction and ruts in the soil.

Irrigation—Time of day for irrigation can often mean the difference between success or failure in growing grasses. Watering during the morning hours is advisable, as water pressure is the greatest, wind interference is minimal, and disease potential is low.

Water runoff is a waste of a valuable, diminishing natural resource. There are several ways to reduce this waste of water during irrigation. Better soil preparation will permit the soil to accept the water more easily. Application of water at lower rates while maintaining an even distribution, and repeat cycling, can also help conserve this precious commodity.

Frequency of irrigation is determined by many conditions, such as temperature, soil texture, porosity, type of use, vigor of the grass, and the type of sprinkler system. Duration of irrigation depends primarily on the type of sprinkler system and root depth. Soil probes can be of great assistance in determining when to water.

There is little justification for the common practice of scheduled irrigation, which can often lead to overwatering. A large number of turfgrass problems can be traced to overwatering practices.

Why do we overwater? The answer, simply, is that no one wants to underwater.

Fertilization—Fertilization ranks with mowing and irrigation as a primary determinant of turfgrass persistence and quality. There are mineral elements in soil that are considered vital for plant growth. The amount of these elements varies considerably in different soils. The annual amount of fertilizer to be used varies not only with the specific nutrient, but also with certain environmental factors. Soil tests should be used in determining nutrient requirements and developing a fertilization program.

Ineffectiveness of fertilization programs can usually be traced to one or more of the following:

• pH—This greatly affects nutrient availability.
• Timing—For warm-season grasses, high fertilization rates during the growing season mean increased mowing and thatch.
• Balance—Whenever there is an imbalance among nitrogen (N), phosphorous (P), and potassium (K) the nitrogen can be taken into the plant but not utilized, and is therefore ineffective.
• Microorganisms—An active microbiological population must be maintained. This requires nitrogen and decomposable organic matter in the soil, in addition to air and water.

Aeration—The optimum time for core aeration is when the turfgrass is growing vigorously and is not subject to severe stress. Aeration releases gases from the soil and facilitates the drying of wet soil. It also stimulates root growth in the hole and improves turfgrass response to fertilizer.

Pest Control—A turfgrass pest is any organism that causes deterioration in the appearance or functional use of turf. Pests include insects, weeds, disease-causing organisms, and other destructive organisms. The proper use of pesticides and herbicides is part of a sound cultural program that ensures high-quality turf.

Pesticides vary in the hazards associated with their use and should only be applied by qualified applicators. These applicators should know the relative hazards posed by exposure and understand the words "Caution," "Warning," or "Danger-Poison." They should know the lethal dosages of the chemicals they apply, and use them accordingly. In short, chemical applicators should be *alert and informed*, so that they read labels, wear proper protective equipment, and never change containers. To effectively control turfgrass pests, avoid waste, and abide by rules set down by the Environmental Protection Agency, these chemicals must be applied uniformly and at proper rates, as dictated by the product's label.

As the sports turf manager, you should establish annual, flexible schedules for fertilization, preemergence herbicides, postemergence herbicides, disease control, nematode control, and insect control. Pesticides, insecticides, and herbicides should be carefully inventoried. Records as to where the chemicals are being applied and at what rate should also be kept.

Safe, healthy sports fields can be maintained on a limited budget. The key to success is going back to basics by attending to each of the seven links in the sports field management chain. It is always a shame when some young athlete is injured or even crippled because of an improperly maintained field. It is much easier to prevent a sports injury than repair one.

Editor's Note: Edmund Birch is supervisor of maintenance for the Broward County, FL, School District.

COLLEGE OFFERS TURF PROGRAM

A two-year sports turf manager curriculum will be offered by Cuyamaca College in El Cajon, CA, beginning this fall. The program consists of classes in horticulture, plant pest and disease control, soils, principles of irrigation, landscape construction, and golf course and sports field management.

A subcommittee composed of key members in the golf course and sports turf industry was formed last year by the Ornamental Horticulture Advisory Committee of Cuyamaca College to explore the feasibility, procedures and requirements of a sports turf manager program at the El Cajon, CA, campus. After a year of research and discussion, objectives of the program, as well as course requirements were finalized. The total program was approved by the District Board of Directors and Curriculum Committee, and is now offered in 1989-1990 Cuyamaca College Course Catalogue.

Those interested in the program can contact: Cuyamaca College, Dept. of Ornamental Horticulture, 2950 Jamacha Rd., El Cajon, CA 92019.