

SPORTS TURF - RESEARCH AND MAINTENANCE AROUND THE WORLD

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Those charged with care of turf on football and other playing fields are concerned with three major areas. These are: the condition of the grass, the firmness and uniformity of footing from a playing standpoint, and color and grooming from a spectator's standpoint. The condition of athletic field turfgrass always reflects past management practices. Good or bad management shows up to a greater extent in the spring of the year than at any other time except perhaps on color television.

Play: From a playing standpoint, good athletic field turfgrass should be tough, wear-resistant and not easily torn by cleats. It should be soft and resilient enough to prevent abrasions when players fall, yet firm enough to permit good footing. It should be clipped short enough to prevent hanging of cleats, yet tall enough to ensure healthy plant growth and rapid recovery when torn by shoe cleats. A good healthy and vigorous stand of bermudagrass, or bermudagrass overseeded with ryegrass, clipped between 3/4 and 1-1/2 inches in height will meet these qualifications.

Firmness and uniformity of footing are usually present if the condition of the turfgrass is satisfactory. But, with or without good grass, a firm, even and resilient footing is absolutely necessary and should be mandatory on all playing fields. Skinned areas of baseball infields provide the necessary firmness and resilience. The same general techniques and procedures may be employed to assure good footing on football fields. Players recover from skin abrasions relatively easily - certainly more easily than from twisted knees and ankles. Dust may be controlled on bare areas by the use of water. Turf cover is, of course, preferred.

Spectator Appeal: With the advent of color telecasting of major sporting events, field color and grooming have taken on new significance. Spectators have come to expect uniformity and compatibility of color. Color is important from an aesthetic standpoint and, right or wrong, is apparently one of the major criteria by which the general public judges the quality of turf.

Poor Fields: Good turfgrass conditions: firm, uniform footing and a pleasing color, are characteristics of a good football field. Poor fields are also readily recognized under most circumstances. Annual weeds, undesirable grasses and clover often make up the major portion of the vegetation. The center of the field often is bare and the soil is bumpy, uneven and usually compacted and poorly aerated. Compacted and poorly aerated soil supports only shallow-rooted, tender grasses that are easily torn by cleats during play. Injury to players, particularly around the ankles and knees, is more likely to happen on this type of turf.

Sports Field Research: Penn State has been evaluating "hardness" of playing surfaces by using a Klegg impactor equipped with electronic controls.

University of Missouri, is in the process of establishing an off-campus

sports research facility.

In Great Britain, the Sports Turf Research Institute at Bingley-St. Ives founded in 1927, is the world leader in sports turf research. Dr. Peter Hayes is the Director.

Let me read excerpts from one of their recent publications. It is a summary of some of their recent research and of their instrumentation.

"Although standards exist in many sports for the size of the playing area, the markings within the playing area and even the players' footwear and clothing, there are few recommendations on how the surface should play. Judgments on the suitability of the surface are usually left to the discretion of the referee, the umpire or the groundsman. This contrasts markedly with rules concerning the implements used in sports such as the laws governing the weight, circumference and inflation pressure of a football, the rebound height of a tennis ball when dropped onto concrete or the degree of bias of a level green bowl.

"Researchers, advisors and practitioners in the sports turf industry have developed certain guidelines regarding the construction and maintenance of playing surfaces. These guidelines are usually based on subjective opinions and are often trial and error solutions. Sports turf research has been dominated by measurements of grass and root zone characteristics and until the mid-1970 few assessments were made of factors of direct concern to the player; for instance, how a ball bounces on the surface or how the surface feels to fall onto.

"In a review of the drainage of amenity turf, Ward (1983) recommended that a series of reproducible measures be devised to assess the suitability of a playing surface for a given sport. This need is not just for purposes of research but also in the area of sports turf practice.

"As a result of Ward's research and the publication of three reports on playing quality test method and standards for artificial sports surfaces (Sports Council 1984) the Sports Council commissioned a four-year project by the Sports Turf Research Institute in 1983 to develop playing quality test methods and standards for natural turf. This report details the research made on behalf of the Sports Council.

"The important playing characteristics of surfaces for Association Football, bowls, tennis, cricket, rugby and hockey are reviewed in the report. Once the important factors were identified, test apparatus designed to simulate the physical actions of ball/surface interactions (i.e., ball bounce, ball roll and surface friction and spin) and player/surface interactions (i.e., surface hardness and the degree of "grip" or traction available to the player) were constructed. Other equipment to measure associated factors that affect playing quality, such as surface evenness, ground cover and sward height were also used. The report describes the test equipment that has been developed.

"The project concentrated on Association Football and level green bowls with the two aims of: (a) proposing standards of playing quality for football and (b) comparing the playing performance of sand carpet,

sand/soil ameliorated, slit-drained, pipe-drained Association Football pitches and pitches sited on native soil with no in-built drainage system.

"Pilot studies in the winter 1984/85 for football and spring 1985 for bowls rejected some tests of playing quality because they either provided little additional information about the playing quality of the turf or were unreliable for use outdoors. Sampling strategies were also modified.

"Playing quality is the suitability of a playing surface for a given sport as measured by electronic and mechanical tests or as perceived by players. All of the sports discussed in this report originated on natural turf and it is likely that many of the characteristics of these sports evolved from the experience of playing on turf".