the principles of proper sports field management are imbedded in science, the application and utilization of those principles remains an art form acquired through experience. Science provides the explanations for why infield mixes and soils react the way they do. Experience allows for discretion and the ability to utilize this resource given your site-specific circumstances. Science provides the ASTM Standard Guide for Construction and Maintenance of Skinned Areas in Sports Fields (Publication F-2107-01). Experience gives the Sports field manager the discretion to utilize and relate this information to his or her individual site-specific conditions to optimize durability, playability and safety of the infields under his or her control.

Education is key. Whether it is a short course provided by Rutgers or a field day provided by SFMANJ, education is key in both acquiring and utilizing information and resources at your disposal.

Proper sports field maintenance is a balancing act dictated by both the positive and negative influences exerted on your field.

Effective utilization of resources, minimizing negative impact, maximizing positive influence, optimizing time allocation, these are all responsibilities of the sports field manager.

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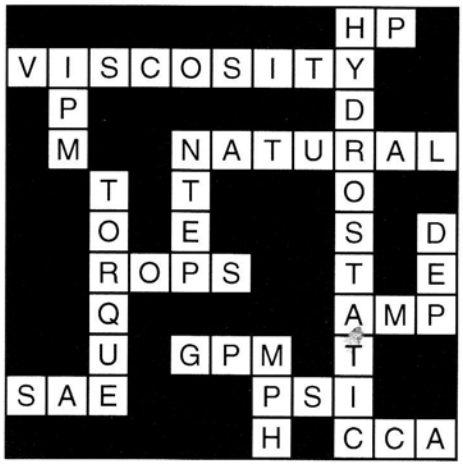
Answer for Last Issue's Puzzle



Field Design & Usage

***by Pam Sherratt & John Street**

The topic of **field usage** is something that comes up regularly. Dr. Dave Minner from Iowa State has been conducting national field surveys for the last few years with the aim of correlating the condition of a field with the amount of events it hosts. The data collected from field managers across the USA has ranged anywhere from 10-650 events per year.

Research carried out by STRI (Baker 1992) also identified different levels of use that fields could withstand and suggested the following:

1. The more sophisticated the construction of a natural turf drainage system, the more artificial the field, and the less able it is to buffer against mismanagement. Technical management in turn must be improved in conjunction with a total commitment by ground staff as drainage becomes more specialized.

2. If the natural soil drainage is poor, then installation of pipe drains only is not worthwhile except as a first step for schemes to be superimposed upon it.

3. Slit drained fields are the most cost-effective form of field provision examined, provided their installation is accompanied by correct management and a life span of at least seven years is achieved without major reinvestment.

4. If slit drained fields need to be re-slit at intervals of less than approximately seven years, the cost per hour of use is comparable with or even greater than that for a sand carpet field.

5. Suspended water table fields are the most expensive forms of field provision. In addition, the potential cost of floodlighting and irrigating these pitches is considerable and should not be ignored in the cost-effectiveness evaluation. At intensities of use expected of other designs they provide an excellent but expensive playing surface. They cannot maintain grass cover at intensities of use which would make them cost-effective and over-use creates major maintenance problems.

6. In the short-term, sand carpet and suspended water table fields can only really be justified from a financial point of view if play has to be guaranteed irrespective of the weather (except snow and frost).

In January 2004, the STRI published another article on this subject. The summary is as follows:

* **Undrained or basic drained fields** that rely upon the nature of the local soil for drainage could support 1-2 hours per week of adult play (50-80 games per season). Any more might compromise field quality. Amount of rainfall will also heavily influence this number (i.e. a sandy soil field will accommodate more play than a clay loam field before grass cover is lost and surface drainage rates fall).

* **Slit-drained fields** are designed whereby the water bypasses the native soil, so that the local soil has less of an influence on drainage rates. The slits are usually 3ft apart, running perpendicular to installed drain pipe, and backfilled with clean sand. These fields can accommodate 6 hours adult play per week (95-125 events per season). A slit-drained field will cost more to install and requires a certain level of management - in particular, an annual sand topdressing program has to be initiated to make sure that the slits are not *capped off* over time.

* For even higher levels of use, **sand cap or suspended water table** constructions are required. These can accommodate 8-9 hours of adult use per week. These fields cost more money (100-160K) and require a higher level of maintenance, which is sometimes not feasible for high school or parks & rec areas.

* All of these figures are based upon a high standard of field maintenance appropriate to the type of construction. Annual coring/deep tining, sand topdressing, appropriate slit tining, regular mowing, and occasional fertilizer applications are the minimum that need to be budgeted for, alongside any drainage improvement. A key requirement on any field that drains well is an irrigation system.

Note: they considered junior usage to cause far less field damage, so hours of play could be increased by 50% for junior use.

RESOURCES:

An informative publication, explaining each of these field designs, including diagrams, has been put together by **SPORT ENGLAND** . The PDF document can be viewed &/or printed off at http://www.sportengland.org/downloads/Naturalturf.pdf.

References: 2004-03-22 *Gibbs, R. J.; Adams, W. A.; Baker, S. W. Case studies of the performance of different designs of winter games pitches. II. Cost-effectiveness. Journal of the Sports Turf Research Institute. Vol. 68, June 1992, p. 33-49. Beggs, E. Winter Games Pitches - How Many Games? STRI Bulletin, January 2004.* ◆