

## IMPOSSIBLE, YOU SAY? REAL TURF INDOORS

Many people don't remember that the original turf used in Houston's Astrodome was natural.

In the mid-'60s when the Astrodome was completed, hybrid bermudagrass was sodded under the translucent dome. In the beginning, the stadium sported a lush, green natural grass field that grew quite well. However, when baseball players began complaining that they couldn't see fly balls because of the glare and bright sunlight streaming in through the dome's sky windows, the windows were darkened to appease them. As a result, the light reaching the natural grass surface was severely reduced. With the added stress placed on the surface with both baseball and football, the grand experiment was ended and the natural grass scrapped.

### The forerunner

The preceding series of events led Judge Roy Hofheinz, who owned the Astrodome, to contact Monsanto and 3M, who at the time were under a Ford Foundation grant to develop synthetic playground surfaces for inner-city schools. Finally, in 1966, a synthetic turf surface was introduced and installed by Monsanto in the Astrodome.

This was the first major installation of a synthetic turf, the forerunner of hundreds of similar installations. From this point forward, it has been assumed that natural grass cannot and will not grow in the environment of a domed or closed stadium.

### Setting the stage

Twenty-five years ago, the situations and conditions of natural grass athletic fields were at an all-time low. The grounds personnel who cared for natural grass athletic facilities were undertrained, received meager budgets for field maintenance, had to cope with severely over-used facilities, mud, bare surfaces, hard ground, compaction, poor drainage, antiquated grass varieties, haphazard irrigation systems and much more. Turfgrass science, soil technology and drainage engineering lagged far behind the demands of the user, the expectations of the general public and the need of those working in the field. There was no new natural grass concept available to sell.

The stage was set for something new and different. So in the door came synthetic surfaces with all the solutions to the previous problems. Iron-

ically, however, that brought a new set of problems: player injuries, high maintenance costs, high replacement costs and hard, hot abrasive surfaces.

Today, the technology and expertise is available to grow natural grass inside a domed stadium. It would require a stadium with a retractable roof similar to Toronto's Skydome.



**Dr Kent Kurtz is a professor at Cal Poly-Pomona and a special advisor to the Rose Bowl.**

The capability to start a natural grass indoors and have it ready for the baseball season and use it through the football season is possible with current knowledge. The roof would need to be open half-days during the grass's prime growing season (daily 9 a.m. to 3 p.m.) and could be closed for events. All events of major proportion (motocross, trade shows, etc.) could be scheduled for between football and baseball seasons. The turf could be allowed to go dormant or be terminated after the football season, and then replaced in time for the baseball season.

This would be similar to what several major outdoor stadiums experience each year after motocross and major off-road events. Anaheim Stadium, the Los Angeles Memorial Coliseum and the Rose Bowl completely re-work, re-establish and resod their playing field surfaces following motocross and/or off-road events. The event promoter assumes the expense of putting the field back in playing condition. Less destructible events such as concerts, circuses or religious events could be held on

the field during the playing season just like the outdoor stadiums do by covering the grass with a geotextile cover (polyester fabric) to protect the grass.

### The light problem

To achieve the light necessary to grow grass indoors would require supplemental lighting. Supplemental lights can be installed in units or gangs which could move back and forth or around as needed. They could be monitored by a computer which would control all environmental conditions within the domed stadium.

This would be comparable to the technology currently available in the Indianapolis Hoosier Dome. The Hoosier Dome has over 800 light fixtures, generating over 1 million watts. Its roof conditions are constantly monitored by a weather and computer station. The roof is equipped with an automatic snow melting system. Sensors on the roof measure wind velocity, moisture and temperature; when any of these sensors indicates a change, hot air is discharged to melt the snow. Domed stadium lighting to reach acceptable brightness levels to grow natural grass could function in a similar manner.

### Other systems

In many natural grass surfaces today, soil sensors tell sprinklers when to water the grass or when not to water the grass. They tell electric heat cables and hot water pipe systems when to warm up the soil for optimum turf growth or when not to warm up the soil.

We can grow grass indoors in greenhouses. Why wouldn't or couldn't dome stadiums be similar to greenhouses? Modern greenhouses are equipped with fully automatic, environmentally-controlled systems to grow plants. The technology is available, the equipment is available, the people to manage natural grass in a domed stadium are available. Now all that is needed is a domed stadium to show the world that it will work.

Synthetic turf can be put on and off a domed stadium surface. But this is a very tedious and time-consuming job. Natural grass is less costly and much less expensive to maintain.

—Dr. Kent Kurtz □