A CLOSER LOOK AT THE CONTROVERSY: ARTIFICIAL OR NATURAL?

Leading athletic field experts claim a place for artificial turf. But, like George Toma of the Kansas City Royals, most would opt for natural grass, given the chance.

by Jerry Roche, executive editor

Though turf experts continue to prefer natural grass athletic fields, they say 'higher-ups' seem more willing to drop big dollars on artificial surfaces.

Contrary to what many athletic turf managers would like to believe, there *is* a place in sports for synthetic turf. At least, so says George Toma.

Toma is field director for the Kansas City Royals Baseball Club and an advisor to the National Football League.

"There are places for both surfaces," Toma says. "Artificial turf can be used in domes, places like high schools where there's a lot of traffic or maybe in colleges or in city parks. The thing I emphasize is that you have the money within 8 to 10 years to replace that turf.

"Your magazine ran an article about how five-year-old artificial turf is about as hard as asphalt (see chart). So either you have the money to replace the turf or the kids are playing on concrete. And how many high schools or colleges have the money to replace artificial turf when it gets hard?"

Toma believes that a misconception exists among field administrators, who hold the purse strings.

He recently consulted with a school system in Texas that had 36 athletic fields and wanted to install two artificial fields. "Now, what good would two artificial fields do for a couple million dollars when they could take that money and improve those 36 fields to be just as good as artificial turf?" he asks. "Grass grows good in Texas...there's just never any money for grass, but millions for artificial turf.

"If you could tell your superiors

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. Ironically, 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 experince 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 re-sod 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 destructable 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.

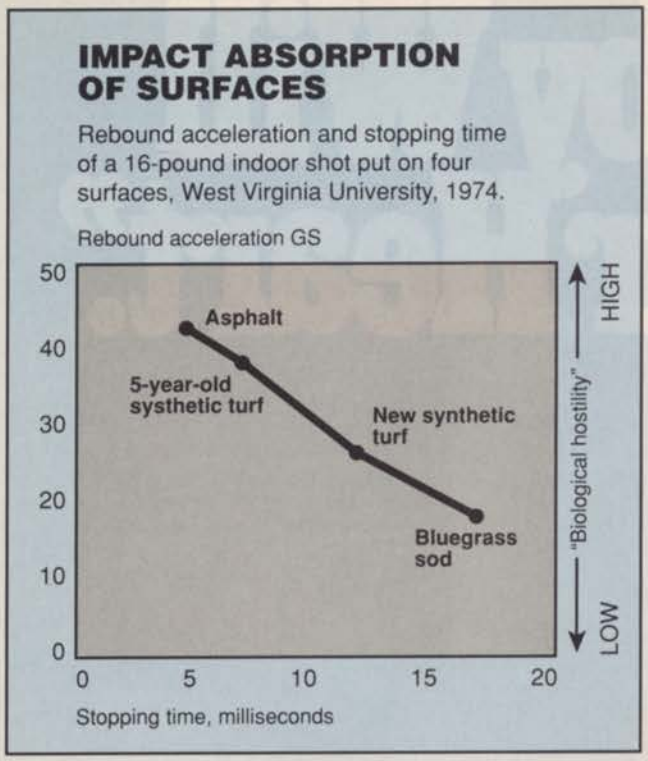
Other systems

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*□



you're putting in artificial turf and then put in natural grass, you'd get all the money you'd want."

Kurtz concurs

Dr. Kent Kurtz of Cal Poly Pomona, an advisor to the Rose Bowl and L.A. Coliseum, says that "when you have too many teams and too many activities, artificial is the only answer. And it's silly to consider natural turf indoors. It's possible to grow grass inside, but it's limited to athletics and not for trade shows and all the other stuff."

Toma says part of the problem in dealing with athletic turf surfaces is lack of concern.

"Many times, our turf programs have to start with the stadium managers, athletic directors, coaches and owners," he notes. "Then, too, the only time they become concerned is when it's rainy and too wet, there are too many injuries, or the turf doesn't look good for the big game.

"The answer is to get them thinking and understanding our soil, turf and equipment problems."

Toma sees public perception as standing in the way of more natural turf fields.

"People take natural turf for granted," he observes. "You see better fields in high school and college than you do in the pros nowadays. But if we can convince the public, natural grass will be back."

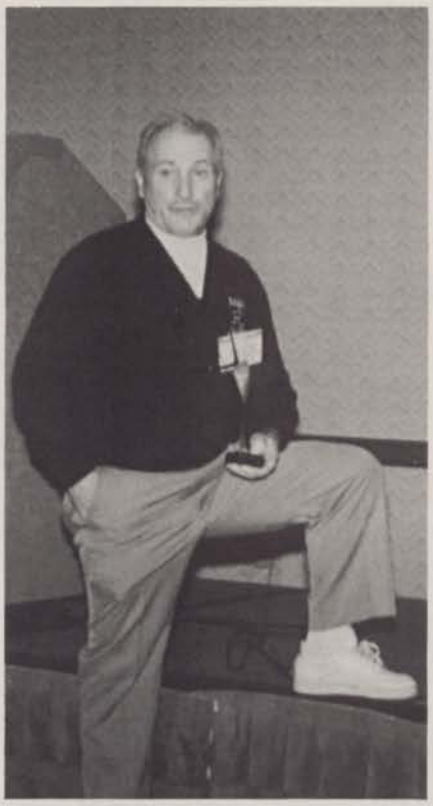
Hot stuff

Toma believes high-traffic fields are more suited to artificial turf, but that natural turf is the best alternative in most situations. One of the biggest problems with the former is surface temperature.

"When the air temperature is 100 degrees (in sunlight), the temperature with synthetic turf is 140 to 160 degrees," he says, "while the temperature with natural grass is 95 degrees."

One of the more apparent problems with artificial turf is the beating bodies take. Kent Falb, trainer for the Detroit Lions, believes that the increased traction afforded by the carpet transmits more stress to ankles, knees, hips and backs.

"The injury rate and severity of injuries is about the same on either surface," says Falb. "But the big difference is a significant increase in general body soreness (on artificial). I look at the number of athletes in the whirlpool, steam room and sauna, and I see an increased consumption of aspirin."



Toma: "If your people don't give a damn about the natural grass, they aren't going to give a damn about the artificial grass."

Though artificial-surface practice fields allow all-weather play and prepare players for games on artificial surfaces more efficiently, there are precautions.

"If practice is held on artificial grass," Falb says, "require players to wear sneakers, and ask the coach to cut down on practice time and practice intensity."

Beware ice

While many of the nation's artificial surfaces are in warmer climates, Toma thinks the synthetic fiber is more suited for northern climes.

"Where grass doesn't do good like in the transition zone or far north, you can put in artificial turf," he says. But Toma also warns, "you have to cover artificial turf for college or high school football games. You can push snow off it, but if you don't have a cover and get an ice storm, no way you're going to play in the snow. At Royals Stadium recently, we could've had a hockey game because the field froze over."

The biggest problem with artificial surfaces is installation technique, Toma firmly believes.

"I'm not against artificial turf, but I sure am against poor artificial turf installations," he emphasizes. "If you're going to pay one to two million dollars for an installation, it should be a pool table. I'm pleading with artificial turf companies to have better installations. A lot of times, they experiment with our money. Then you've got problems. I hate to say this, but in the past we have protected artificial turf companies from the public like we protect child molesters.

"They aren't going to try to improve unless somebody puts a finger on them. People not in the artificial turf business simply don't know what to look for."

The crew's the thing

Artificial or natural, the field is only as good as the maintenance crew, according to Toma.

"If you had a good natural grass field and you switched over to artificial turf, you'll have a good artificial field, if the installation is good. If you had a poor natural grass field and switched over to artificial turf and the installation was good, you would still have a bad field.

"Natural grass taught our kids pride, and they have pride in their artificial turf. If your people don't give a damn about the natural grass, they aren't going to give a damn about the artificial grass." **LM**