

microbial activity compared to the fairway area, allowing for breakdown and release of nutrients and other antagonistic compounds.

Other than fertility, the darker colour of the compost may have had an impact on spring soil warming, increasing turfgrass growth rate or stimulating microorganism growth and activity. A heating effect may have stimulated earlier activity of mycorrhizae, thus increasing nutrient availability to turf. In addition, the heavy compost layer may have held more water than the lighter rate, increasing water availability to turf.

Compost is becoming a more established and accepted means of suppressing plant diseases.

On fairway height creeping bentgrass, fertilizer treatments were not significantly different from compost treatments in their ability to promote early spring green-up on most rating dates. In this case, the effect of compost on green-up may have been more of a nutrient effect. A heating effect may have been less of a factor as compost may have been more rapidly incorporated into thatch, falling deeper into the stand (25 mm), which may have shaded it from early spring sunlight. Compared to the green location, the fairway height was exposed to winds and also developed increased ice cover, which may have increased desiccation and lessened microbial competitive capabilities.

Summary

Compost is becoming a more established and accepted means of suppressing plant diseases, including pink and grey snow mould in turfgrass. With the added benefit of promoting early spring green-up, use of compost seems like a win-win situation for sports turf managers. ♦

Adapted by Pam Charbonneau, Turfgrass Specialist, Ontario Ministry of Agriculture and Food, from an article written by Jeanine Boulter, Univ. of Guelph, Laboratory Services Division, for *Greenmaster Magazine*, Vol. 37, No. 2, April/02. Boulter is currently working as a microbiologist at the Univ. of Guelph.

Study Looks at Injuries with Artificial Turfgrass

TYPES AND CAUSES OF INJURIES IN CANADIAN FOOTBALL PLAYERS

NEW YORK (Reuters Health), June, 2003. A five-year study of Canadian university football players suggests that playing on an artificial surface rather than natural grass may increase a football player's risk of injury.

Artificial turf is often preferred over grass because of its durability and lower maintenance costs. Also, unlike grass, the surface does not vary according to environmental conditions, while grass can be wet or dry, hard or soft or even frozen depending on the weather.

In the current study, however, the risk of injury was as much as two times higher when the game was played or practiced on artificial turf rather than natural grass, study author Dr. Willem H. Meeuwisse and his colleagues report.

Future studies should take into consideration factors such as the players' shoe type and position, history of injury and the environmental temperature, according to Meeuwisse and his colleagues.

But the type of playing surface was not the only thing that contributed to the football player's risk of injury, the researchers report in the *American Journal of Epidemiology*.

Players injured in the past were more likely to experience an injury in the future. In fact, those with a prior neck injury were five times more likely to experience a subsequent injury, the report indicates.

In light of this finding, Meeuwisse, of the University of Calgary in Alberta, Canada, told Reuters Health that it is important that injuries be treated and players be fully rehabilitated to reduce their risk of future injury.

The players' injury risk also increased with every year of participation in the sport. Men who were approaching their fifth year of playing football, for example, were more likely to be injured than less experienced players. This was true even when the authors accounted for the players' history of injury, the report indicates.

The reason for the increased injury risk among veteran players is unknown.

The athletes, in general, were 10 times more likely to be injured during games than during practice.

Overall, the injury risk factors identified in the current study may not be generalizable to different age groups and play levels since the study participants represented "survivors" who did not experience any career-ending injuries, the researchers note.

The study was conducted from 1993 to 1997 among varsity men's football players in the Canada West Universities Athletic Association. ♦

— *American Journal of Epidemiology* 2003;157:825833
(reported by Charnica E. Huggins)

