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...for better, safer Sports Turf

EDITORIAL

When will it ever end?

I recently had a call from a sports turf manager about a new "all weather" sports field which had water on the surface following heavy rains during September. The field was constructed in an area of relatively heavy soils overlying bedrock at one meter. The soil material was excavated to bed rock and filled with pit run sand which was capped with a root zone sand, devoid of organic material and top soil. No drainage was installed. As predicted this saucer full of sand soon filled with water.

This is one of many, many examples of sports fields designed and constructed without the architect and the contractor having knowledge of the basic requirements of sports field construction. The price for the errors they make is carried by the sports field manager in future years and the citizens of the municipality who pay the taxes to correct the mistakes.

For decades there was an art in the building of a successful sports field. In some cases the "artist" was successful; in many the "art" was a disaster. Over the last twenty years the science of soil physics, water flow and agronomy has been used to design a system which has a high success rate in guaranteeing an "all weather" field. In most cases the costs over the long run are similar.

When will the scientist replace artist? When will the administrator and politician consult the sports turf manager before handing over the tax payers money? When will this waste end?

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PRESIDENT'S MESSAGE

It is once again a pleasure to extend warm greetings to all Sports Turf Association members. I hope everyone enjoyed a safe summer and had much success with their sports field programs. Here in southern Ontario, aside for a few precious weeks in August when the sun shone brightly for an extended period, I am sure keeping mowing cycles on schedule was the primary challenge for most turf managers over the past few months. As we enter Fall, it seems the moist weather again will have a continuing impact on our fields, maintenance programs and schedules.

In August the STA was pleased to support the Field Day held at the Guelph Turfgrass Institute. The program and turnout were superb and Pam Charbonneau is to be congratulated on a wonderful day. Our Executive Secretary was present, promoting the Association, selling field guides and speaking with prospective members.

Your Directors have been working on finalizing the program for the upcoming Turfgrass Symposium to be held once again at the Regal Constellation Hotel. Again this year we will hold our Annual Meeting during the Symposium, followed by a special 10th Anniversary Dinner. It promises to be an exciting evening so please plan to join us along with many Past Presidents, Directors and Honourary Members. At the dinner, the STA will honour our Turf Management Short Course scholarship winners. More details will follow in the near future. Please remember when registering for the Symposium to check off the box which identifies you as a member of the Sports Turf Association.

In mentioning the Turfgrass Symposium, it reminds me that at this time of year many managers and supervisors are preparing budgets for 1997 and once again, in most cases, budgets will be the same or lower than 1996. Funds for training and education are usually precious and easily pared down even further by senior management staff. We are constantly asking staff to work harder, smarter, and more efficiently. "We must be more creative, be more competitive, and use our existing funds even wiser to gain the maximum benefit this year" is an often used statement to rally the troops. How can we motivate our staff without giving them the proper tools to improve and enhance their work so they are competitive?

One of the educational tools we can provide is by sending *front line* operational staff to seminars such as the Symposium. Even if it is only for a day, giving an educational opportunity to one of the staff will be one of the soundest economic investments of 1997. This year during the inevitable rounds of budget cuts, lobby your senior administrators that training and education is an area you simply *CANNOT AFFORD* to reduce. These days it is almost impossible to reward staff with salary and benefit increases; at least we can offer them an opportunity to enhance their skill and knowledge level so they can work more effectively, efficiently and most importantly - feel better about themselves.

Good luck with Fall sports turf maintenance and renovation programs.

Wishing you better, safer sports turf

Christopher Mark
President

Risk Management for Play and Sports Facilities

Ralph G. Hildebrand
Assistant City Solicitor
City of Surrey, B.C.

Risk management is more than eliminating risks.
If the sole purpose of risk management was to eliminate the risk of injury, the most successful risk management programs would be ones which kept people out of the parks and playgrounds and ensured that no one used any recreational equipment.

INTRODUCTION

There are various ways of managing risks. The most obvious way of managing risk is to refrain from engaging in the "risky" undertaking. Secondly, policies and procedures can be adopted to identify risks and minimize their effect. Thirdly, the responsibility for the risk can be diverted to another party.

Risk management occurs within the context of tort law and occupiers liability. In most cases the primary issue is whether the allegedly wrongful conduct was appropriate or reasonable. However, it is small consolation that the "offender" is only required to act reasonable since, when the matter proceeds to court, what is reasonable will be evaluated with the wisdom of hindsight. Thus, for example, while it does not seem appropriate to leave a lawn mower running while you pick up paper in the immediate vicinity, in **Whaling v. Ravenhorst (1977) 16 OR (2d) 61 (Ont CA)** the defendant was held liable in the case where the lawn mower was briefly left unattended where children were playing while the operator picked up paper just 30 feet away.

DEFINITION

What is Risk Management:

Risk management is a modern buzz word which connotes to many the concept of risk elimination.

Many employees seek assistance of corporate counsel for risk management advice either out of fear of being caught in a bureaucratic squeeze (passing the buck) or out of general concern about risks. However, invariably their request is that the corporate counsel miraculously ascertain how the risky activity can be taken in a manner which avoids all exposure to lawsuits.

A working definition of risk management that I will adopt here is, "the management of the risk relating to your undertaking and managing your undertaking to avoid unnecessary risks." In my mind, therefore, risk management can be boiled down to common sense. However, to have common sense it is necessary to sensitize yourself to what risks your undertaking is exposed to and what considerations you should bear in mind when looking at those new found areas of concern.

What is common sense and how common is it?

The assessment of a risk is basically a 3 step process:

1. Identify the risk.
2. Assess the risk in terms of its severity and probability.
3. Determine what steps should be taken to reduce or eliminate the risk.

Identifying the risk is simply the process of developing an eye for risky aspects of your business. It should be noted that a successful risk management program will entail a program of sensitizing the staff to risk management.

When assessing a risk, a risk manager should consider the nature of the risk and weigh it against the costs of avoiding that risk. The courts are influenced to a large degree by the nature of the risk that they are confronted with within the context of the costs of avoiding the risk. In other words, if an injury of a severe nature is likely to occur and could be avoided with very little effort or money, the courts will be more likely to find liability.

CAVEATS

Risk management is not a be all and end all.

What business are you in?

While it is honourable and desirable to create a safe environment for your clients and employees, this goal must not completely detract from the overall mission of the corporation.

All Things In Moderation!

It is possible to go overboard. For example, if someone comes to your premises to provide you with a volunteer service, such as painting Christmas decorations on your windows, while a risk management program would acknowledge that there are certain risks related to the activity (falling paint, falling painters, etc.) it would be unreasonable to require extensive waivers, indemnities and insurance provisions.

It is likely you will be sued at some time; It is only a question of time.

It is arguable that in the increasingly self-centred society people are more in tune with what they can get than what they can give. The result is a greater concern with rights than with responsibilities. At the end of the day people are always looking for someone else to blame when something goes wrong.

So for example, when a person recently broke into a City of Surrey outdoor pool by climbing over a six foot high chain-link fence, climbed on the roof of the changing room building, ran off the roof, diving headfirst over 20 feet of concrete and then broke his neck when he hit the pool bottom, the City was given notice he would be seeking compensation for negligently allowing him to break into the pool area. He argued that the City was aware that break-ins occurred and that people were diving off the roof and did nothing to prevent it.

In another case the plaintiff was injured when he drove his motorcycle off an embankment of the defendant's land. He was trespassing on the land and injured himself when the trail he was riding on suddenly ended. The sand he was driving on had been stockpiled on the site by the

owner and had remained relatively unmoved during the previous months. During the week of the accident the owner of the property moved some of the sand and did not erect a sign to warn trespassers that the configuration of the property had changed. The plaintiff successfully sued the occupier for creating the hazard.

One of the most difficult concepts for most risk managers is the idea that their corporation may be held responsible for the stupidity and misbehaviour for which people bring harm upon themselves **[Jacobsen v Kinsmen Club of Nanaimo (1976), 71 DLR (3rd) 227 (BCSC)]**. The defendant was held liable when patrons of the curling rink injured themselves when the steel girders they had climbed on in a drunken state collapsed. The defendant had warned then regarding the activity but had taken no additional steps to prohibit or prevent reoccurrences of beam climbing.

But, the reasonability of the defendant's behaviour will be judged on its own merits. If one knows that others are inclined to act in a careless way while on your property, you must take reasonable efforts to minimize the possibility of resultant harm. The occupier will be responsible for the foreseeable folly of others.

Image:

An area of risk management which is frequently overlooked is the image of the corporation. The maintenance standard will create an image which will, in an intangible way, affect how an area is used by the majority of the users of the facility. It will also affect the way the users (and employees) consider a defect in maintenance. It is common for plaintiffs to comment that they proceeded with a lawsuit because it appeared that a party allegedly responsible did not seem to care about risk that caused their injury or harm.

Image is coupled with staff manners, attitudes and common courtesy. Ordinarily this is reflected in the speech, dress, and personal commitment of the employees. This should be true of all staff. The promotion of good "image" is not the responsibility of one person. It is a group effort which is integral to risk management.

Pride in workmanship is integral to risk management. Quality personnel may well constitute the single most indispensable component in an effective risk management program. You can have the best facilities, equipment, programs and procedures, but without competent staff, they can be next to useless. [Saari v Sunshine Riding Academy Ltd.(1967), 65 DLR (2d) 92 (Man. QB)]. The court found the defendant liable, despite an abundance of waivers and warning signage when employees failed ta ascertain a risk and ensure that it did not materialize. On the other hand, an employee who "owns" his job and the product of his labour is an effective employee if properly trained and encouraged. Moreover, in light of the fact that the employees will be responsible for the day to day operation of the risk management program, it is imperative to their "buy in" that they be given an opportunity to be involved in creating it.

Inspection Procedures and Checklists (Paper Hell):

Checklists are often viewed as a nuisance. In court, however, a properly completed checklist may be the only "independent" evidence that a defendant can present which proves it acred reasonably in the maintenance of its premises.

A checklist should be designed with input from those who are going to use them. A multiple use checklist can be a guide to work requirements and work schedules, a reference point for time lost, staff assignments, staff accountability, clarification of duties and evidence in litigation.

All list makers should beware of overpapering employees. There is a saturation point on lists. A checklist program should be complete enough to ensure an adequate defense to most claims. In addition it is better to have a few lists that are used than unused lists. An unused checklist will indicate that while particular care was recognized as being required, there is no record of its status at the relevant time. This may lead to a presumption that the work did not take place.

Recreation checklist possibilities include:

1. General Work Schedule
2. Maintenance Equipment Inventory
3. Material Inventory
4. Emergency Equipment Checklist
5. Play Equipment Safety Checklist
6. First Aid Equipment Checklist
7. Signs: Words/Design/Installation Checklist
8. Play Safety Checklist
9. Vandalism, Theft, Robbery Report Form
10. Motor Vehicle Checklist
11. Water Safety Checklist
12. Storage Safety Checklist
13. Accident Reporting Form
14. Electrical/Lighting Checklist
15. Insurance/Agreements/Amendments Checklist
16. Trail/Track Checklist
17. Special Competition Checklist
18. Outdoor Program Checklist

Work Volume:

Work volume is also a factor in risk management. For municipalities and other government institutions, work volume, limited resources and policy determinations on the use of limited resources can constitute a defense to a claim. Therefore, in the case of a tree pruning program which operated on a limited budget, the B.C. Ministry of Highways was not liable where it could prove that it had a system of inspection but simply could not deal with all the trees in its jurisdiction **[Swinnammer v. Ministry of Highways & Transportation]**.

This type of defense does not exist for private corporations. It is no defense to the negligent undertaking of a task to say you did not have the money, time or personnel to do it properly.

A work volume issue also arises in the context of overuse of a facility. If too many people are using a facility so that it cannot be supervised properly, the operator will be liable for failing to limit access to the facility. In addition, when work volume is high, staff may take shortcuts to try to get the job done, increasing risk exposure in the process. Proper risk management, therefore, will consist of a determination in advance of the limits of the physical and human resources.

How does the law affect you:

Our examination, herein, is an examination of how the law of torts and occupier's liability affects the every day operation of a sports or recreation facility.

While it is true that to some degree everyone involved in recreation has responsibility for his or her own safety and the safety of others, the real issue is, what form does this responsibility take and to what degree is it owed to others.

Negligence:

Negligent conduct is conduct which involves neglect or failure to act with the care that would normally be expected in

the circumstances. Negligence is composed of the following elements: a duty requiring conformity to a certain standard of conduct, failure to conform to this required standard of care, material injury to the interests of the injured person, a reasonable connection between the defendant's conduct and the resulting injury.

Liability may also arise in the sports and recreation context as a result of the defendant position of occupier. In British Columbia the **Occupier's Liability Act** sets out the standard of care of the owner of premises. Under the **Act** the occupier of property is required to take reasonable steps to prevent injury to those who are reasonably using the premises.

Counterbalanced against the purportedly negligent conduct of the defendant is the plaintiff's own conduct. Plaintiffs who voluntarily accept the risks of the activity such as being hit by a puck escaping a hockey rink, or a baseball hit out of a ball park, or have contributed to the injury by skiing without keeping the proper lookout or have contracted out of the right to sue in tort by waivers found in tickets, etc., may have damages reduced or denied.

In the sports and recreation context there is also some room for motives and rules of the game. Therefore, in recreation such as golf, the player assumes the normal risks of the game. However, one does not expect to have the golf ball driven directly at one. In the case **Ratcliffe v. Whitehead(1993) 3 WWR (Man KB)**, the plaintiff, while playing golf, lost her eye as a result of being stuck by a golf ball played by the defendant. The defendant had "sliced badly" on the 8th tee and ended up playing across the 7th. Someone on the 7th invited him to play through (he was standing in the middle of the fairway) but the plaintiff just walked up and was hit by another bad slice.

The judge wrote "If it were to be found that it is a risk incidental to the game to have balls driven directly at one, it would, to say the least, interfere with the alleged pleasure and healthfulness of the game. The person playing a golf ball should be scrupulously careful and not hit anybody, and if he does, the onus of making an explanation showing the care and caution he took is much the same as though he had thrown a stone or fired a gun"

An injury from a golfer playing on an adjacent fairway is considered a normal risk. In the case **Ellison v. Rogers (1968) 1 OR 501 (HC)**, a golfer who normally slices, hooked the ball off the first tee into the eye of the player on the tee of the 4th green. Once the plaintiff proved he was struck by a ball driven by the defendant, the onus of proof shifted to the defendant to prove that the accident was not the result of negligence or intent on his part. The defendant satisfied the burden as he was a persistent slicer and expected to slice on this occasion. There was no reason for him to foresee he would hook or any reason to hail as the rules of the game permitted him to proceed if the fairway in front of him was clear.

The club's liability as an occupier of land was only there **re** an unusual danger or trap. There was no unusual danger or trap here. Parallel, contiguous fairways are common on golf courses. In considering the layout of this course it was significant that 80% - 85% of golfers sliced rather than hooked. It is a normal risk of the game assumed by all those who play or venture onto a golf course. The action of the golfer is a risk for which the occupier of the golf course is liable if it is a normal risk of the game. The court notes "Mr. Lamb explained the difference in the stroke that produces a hook or a slice. Despite these apparently simple adjustments 85% of golfers still slice."

But the golf club can be liable if it is reasonable to expect that the play will occasionally interfere with others. In the case **Castle v. St. Augustine's Links, Ltd and Chapman (1922) 38 TLR 615** a ball had been driven from a fairway which parallels a road, onto the road. The ball was sliced and hit a vehicle on the road. Damages were claimed against the golf club in nuisance, viz. in maintaining the course in proximity to the road without giving warning to passing traffic. The directors knew, or ought to have known, that balls driven from the tee frequently landed on the road, even though there was no specific complaint. Also the slicing of balls was a probable activity of golfers.

What duty do I owe to children?

Children may be plaintiffs as well as defendants in matters of responsibility and liability. As plaintiffs, children enjoy more protection and require a higher standard of care from defendants. Generally speaking an owner or occupier must not expose children to potentially dangerous things which may be irresistibly attractive to them. To constitute an allurement or trap, the condition or object must be both fascinating and injury causing.

The onus is on the occupier to know the dangers that the premises present to children. The circumstances of each case determines the effect and expense required of each occupier to make the premises safe. Such effort and expense may depend on the social habits of the neighbourhood, (the play activities of the children and the supervision of the adults), the financial resources of the occupier, the nature of the premises or the reasonableness of guarding against children on the property.

On the other hand, a child is expected to conform to the standard appropriate for normal children of similar age and experience **[Jones v. BC School Dist. No.71 (1981) 221 (BSSC)]**. In this case the school district was held not liable for injuries sustained by a school boy who injured himself on a trampoline after being given instruction and showing an ability to do the manoeuvre contemplated based on prior activities.

What About Volunteers?

Volunteers play an important role in society, and recreational programs in particular lend themselves to volunteer participation. With the current trend to reduced budgets, parks and recreational facilities must increasingly depend on volunteer support. There has to be a blending of the work force and the volunteer force. It is important to match talent to duty, etc. The working staff needs to understand that the volunteers are an integral part of the operation.

The organization retaining the assistance of volunteers needs to determine an advance the role and duties of volunteers. Failure to do so will result in poor utilization of the volunteers and probably a loss of good will. The issue, however, is what level of expertise is required of volunteers who assist in the recreation program.

"... it is in the interest of society that voluntary efforts directed towards promoting excellence and safety in any field of endeavour are to be encouraged. If the standard expected from a non-profit organization is put to high, such organizations may depart the field" **[Smith v. Horizon Areo Sports Ltd. (1982) 130 DLR (3rd) 91 (BCSC)]**.

This would suggest that there may be a lower duty of care placed on an organiza-

tion utilizing volunteers. However, there are cases which would indicate that the duty of care of an occupier of lands is the same whether the occupier is a volunteer organization or a "for profit" organization **[Wessel v. Kinsman Club of Sault Ste. Marie (1982) 37 OR (2d) 481 (HC)]**. In addition, there will be requirement that there be a level of training which is commensurate with their duties.

Environmental Issues:

I do not intend to address environmental concerns here in any depth. However, there are two primary points which should be considered: (a) the extent of current environmental liability, and (b) the nature of that liability.

Liability for environmental issues is not something which only affects the company for which you work, it can dent your own pocket book. The Supreme Court of Canada has recently ruled that where directors of a company are held to be personally liable for the pollution created by their company, the company can not indemnify the directors for the payment of the fines.

Second, with the increasingly high standards of pollution legislation, such as the **Environmental Protection Act,** it is mandatory for staff to keep abreast of environmental concerns. Thus, for example, while in the past the optimizing of turf fertility while minimizing fertilizer use has not been a high priority, environmental concerns about the use of agricultural chemicals has increased to the point that it is now mandatory for turf managers to be sensitive to chemical contamination **[Reghetti, T.L. Plant Analysis for Turfgrass, The Turf Line News, Dec/Jan, 1995/96]**. Thus, part of good risk management in the environmental area must include a reduction in chemical use for pest control and fertilization through Integrated Pest Management which is not a no chemicals program but a methodology of control strategies. The standard of conduct is set out in the recent literature which you should be reviewing and assimilating for application to your responsibilities as a turf manager.

Nelson and Johnston stated that the increased environmental awareness of the public over the past decade has created a need for turfgrass managers to become knowledgeable about the environment and to manage accordingly **[C.N. Nelson & W.J. Johnston. Maximizing Biological Potential of Turf, The Turf Line News, Dec. 1995 - Jan. 1996]**. This is not only good business practice, it is also good risk management. The turfgrass manager must understand water pollution (both surface and ground), wildlife habitat, urban development, wetlands and historical sites. This leads inexorably to a need for comprehensive ecosystem management measures.

The articles in the literature will be used in court against you.

Nuisance:

Nuisance is an area of liability where there is no personal injury but rather an invasion of an occupier's interest in the use and enjoyment of land. A nuisance occurs where some activity of the defendant prevents the plaintiff from enjoying his land or causes some danger to the land. The most obvious issue here is the issue of toxic chemicals, etc. However, a nuisance is also created by stray golf balls finding their way onto adjacent property or roads

The case of **Segal v. Derrick Golf & Winter Club (1977) 4 WWR 101 (Alta TD)** was a situation in which the golf course was built and then the plaintiffs moved into a house. The 14th hole approach led directly to the plaintiff's house. There had been some futile attempts to remedy the situation. The plaintiffs claimed in trespass for the going on their property and in nuisance for the golf balls. The golf course was not liable for the former but was liable for the latter and an injunction was issued. A similar situation arose in the Australian case of **Lester-Travers v. Frankston, (1977) VR 2.** "I know of no basis on which it can be said that the interests of golfers, whether they are playing on a municipal golf course or any other kind of golf course, are superior to the right of the occupier of premises to the undisturbed use and enjoyment of such premises. If cricket cannot be played on a ground without creating a substantial risk, then it should not be played there at all."

Parks and Playgrounds:

The cases are of two types, those that deal with the physical characteristics of the park or playground including its grounds and equipment, and those concerning the acts or omissions of the staff, etc.

Failure to Inspect Grounds:

Where a danger is not discovered by an occupier liability will arise when an injury occurs as a result of the danger. In **Hertzog v Winnipeg (City) (1990) 2 WWR 177 (Man. QB)** the plaintiff broke his leg in a park on a hazard which had not been discovered by the City's maintenance crew. The lack of discovery arose from the fact that there was no system for checking the grounds for hazards. Similarly in **Kelemen v. Delta (May 1991) BCSC** liability was awarded because of failure to inspect a swing in a public park.

On the other hand, a proper, and documented, inspection system will be a good defense to a claim premised on negligent maintenance. In **Vanna v. Kamloops (1992) 2 WWR 759 (BCSC)** a case of improper installation of equipment was claimed. The two year old child had fallen onto a concrete pad in which playground equipment was embedded. The municipality had carefully inspected the playground, thus it was not liable. Accidents happen when small children are not closely supervised.

The inspection program does not have to be extreme but it must be reasonable. In **Gaw v. Porte Industries Ltd.** the plaintiff tripped in a hole on the defendant property. The court held that the occupier could not be required to complete minute inspections of the area, however, it was expected to complete sufficient inspections to discover a two foot hole near a well used pathway.

An occupier is not required to complete underwater inspections. In **Schab v. Alberta (1984) 57 Ar 321 (Alta. QB)** the plaintiff cut his foot on an underwater hazard in the form of a broken pipe which the occupier was not aware of. The court held that the defendant failure to carry out the underwater inspection did not constitute a breach of the province's duty of care.

Hazardous Conditions:

What constitutes a hazard in any given case may differ depending on the surrounding conditions, the normal standard of care, the reasonableness of the maintenance requirement which would have eradicated the hazard in question and what the court had for breakfast the morning of the trial. For example in **O'Conner v. Gousee (1989) RRA (Ca Que)** a golf cart on a fair way struck an obstacle. In **Flint v. Edmonton Country Club ltd. (1981) 26 AF 391 (QB)0** a regular golfer at the club did not use reasonable care in tripping over a fence around the tee off area. Likewise in **Sum-**

mers v. Niagara Parks Commission (1945) OR 326 (HC) a golfer should have been aware of the danger of bricks falling from an old fort on a golf course. Thus sand in a beach changing/shower room is not an unusual hazard **[David-Trempe v. Canada (1986) 7 FTR 302 (Fed. TD)]**, nor is it unusual for steps at a rural resort to be somewhat less than perfect where it was found there was no breach of Occupiers' Liability when the plaintiff slipped on outdoor steps at a rural resort **[Alderson v. North Pender Holding Ltd. (Aug. 11, 1987) (BCSC)]**. However when the occupier fails to install handrails on the improperly constructed stairs **[Crerar v. Dover (1984) 3 WWR 236 (BCSC)]** or warn of the design of the stairs **[Migus v. Club Med Ltd. (Dec. 7, 1983)]** liability will follow.

Negligent Design of Premises:

While frequently premises are designed by professional architects and engineers, reliance on paid professionals will not necessarily constitute a defense. Risk management entails a review of design at the construction stage and subsequently to ensure that it is sufficient to create a safe recreational area. Thus designing a recreation facility in which the playground was located adjacent to a baseball diamond was ruled a negligent design as it was reasonably foreseeable that there was a danger of persons in the playground being hit on the head by baseballs **[Long v. Mount Pearl Town (1983) 41 NFLD & PEI 209]**.

Some sports such as tennis, which are played in parks or park-like settings, can involve occupiers' liability when the court is of poor design or maintenance, even though the player may be partially liable. Thus in **Stone v. Victoria (affd) 43 BCLR (2d) 118 (BCCA)** the park was held liable when the design was such as to cause a hazard. However, here the player's knowledge that the tennis court was six feet shorter than usual as well as having a curb at the end constituted contributory negligence. In **Burough v. Kapuskasing (1987) 60 OR (2d) 727 (Dist. Ct.)** a player assumed the risk of playing on a court where there were cracks in the surface which released the town from its duty under the Occupier's Liability Act. Also in **Zaitozow v. Vancouver (1976-77) BCD Civ. (BCS)** the player should have examined the surface of the court before starting to pay as obvious repairs had been made with asphalt strips.

Supervision:

In public parks, as opposed to schools, there is generally no duty to supervise the activities of park users **[see Desaultels v. Regina (city) (1941) 3 DLR 804 (Sask. KB)]**. however, once supervision is undertaken, there is a duty to ensure that it is done in a non-negligent manner. This is particularly true of children.

Insurance Protection:

As part of risk management, recreation organizations must identify and assess all risks of injury to people and loss or damage to property which could ultimately affect the organization's success or viability. Once these risks have been properly considered, the organization can take action as set out above to either eliminate or reduce them or to insure against and budget for the possible consequences of the remaining risk. Part of that process is obtaining insurance for the operation.

It is important that time be spent with the insurance agent advising the agent of the nature of the operation and the activities. This will ensure that appropriate coverage is being obtained and should it not be obtained, that action can be taken against the agent for negligent advice.

Signage:

A sign in a dressing room which indicated "No Diving" was not sufficient when there was no notice posted in the pool area **[Arseneau v. Fredericton Motor Inn Ltd. (1984) 59 NBR (2nd) 60]**.

A sign posted at a horse stable that stated, "You enter premises and ride at your own risk" and "Notice: all riders using horses do so at their own risks" was not sufficient in the absence of clear wording to the effect that they are not liable for negligent acts **[Collins v. Richmond Rodeo Riding Ltd. (1996) 55**

ONTARIO TURFGRASS SYMPOSIUM

January 7 - 9, 1997
Constellation Hotel, Toronto

When you receive this Sport Turf Manager you probably will have received a brochure outlining the program for Ontario's Premier Turf Education and Trade Show. Now is the time to fill out your application form and cheque and put it all in the mail. Be sure to indicate your membership in the sports Turf Association.

Why attend? For a starter - to hear Ron MacLean of Hockey Night in Canada relate his experiences covering the 1996 Olympics!

For your personal advancement - to learn from Dr. Steve Baker of the Sports Turf Institute in Bingley, U.K., discuss the latest developments in root zone construction and drainage principles. Or listen to him outline the principles of the measurement of playing field quality. If you are contemplating the development of an IPM program for your organization be sure to hear Dr. Linda Gilkeson of the BC Ministry of the Environment.

Don't forget the Trade Show of over 100 exhibitors just down the hall. There will be some new piece of equipment, gadget or material which can help you in the turf program for your organization.

Last, but not least, meet old friends and swap ideas. It is an educational experience called "networking."

WWR 289 (BCSC)].

On the other hand a sign stating "Diving at your own risk - Depth, 6 feet" was sufficient, even though the depth ranged from 1 1/2 to 5 feet, on the basis that the plaintiff executed a dive which would not have been safe even if the depth had been 6 feet **[D'Auteuil v. Beausejour Investment Ltd. (1961) 37 WWR 156 (Man. CA)]**.

Waiver Forms:

A waiver form is also an effective measure to avoid liability. However, a waiver form must clearly set out the purpose of the form, the fact that the party executing the form understands it and the terms of the release. Frequently, waivers are deemed to be insufficient because they fail to clearly state that the party executing the form agrees that the potential defendant is not liable even if he is negligent. Therefore, in **Delaney v. Cascade River Holidays Ltd. (1983) 44 BCLR 24 (BCCA)** a passenger on a rafting trip was given a life jacket which, to the defendant's knowledge, would not provide enough flotation. The plaintiff had signed a liability release form which was clearly worded to cover even negligence on the part of the defendant. The defendant was not liable in the circumstances.

On the other hand, children cannot waive their rights to seek compensation for an injury sustained at a recreation facility **[Crawford v. Ferris (1953) OWN 713 (Ont. HC)]**. This does not mean the waiver should not be obtained. While a minor cannot be bound by a contract, evidence arising from the execution of the waiver can be used to establish that the child voluntarily assumed the risk.

CONCLUSIONS

Risk management is a growing industry. As the courts consider more bizarre cases the efforts of risk managers must be incrementally increased to deal with the imaginative plaintiff's counsel. However, a good system of risk management does not have to go overboard or eliminate altogether the activities that the corporation is involved in. Moreover, a good system of checklists, waiver execution and insurance will insure that the corporation is not brought to its knees by "one false step".

[An address to the 1996 WCTA Conference, Victoria, BC. Reproduced with permission from The Turf Line News]

GTI HILITES

In the June, 1995, issue of the Sports Turf Manager an article appeared on endophyte alkaloid production in turfgrass. Prof. Bowley of the Crop Science Dept. at the U. of G. had started a project investigating the production of alkaloids by endophytic fungi in turfgrass species, a production which may make the turfgrass resistant to damage by above ground feeding insects such as the chinch bug.

Having refined the analytical procedures required to quantify the presence of the alkaloids produced by the fungus, Prof. Bowley examined the occurrence of these alkaloids in four common varieties of ryegrass and four varieties of tall fescue (Table 1). Endophyte was detected in all tillers examined of the four perennial ryegrass varieties in 1995 at all sampling dates. On the other hand, endophyte infection of tall fescue tillers was lower than in ryegrass throughout 1995, although the infection increased from 56% of the tillers in June to 75% infection by August.

Whereas all varieties of perennial ryegrass had infected tillers at all dates the same held true for only one variety of tall fescue - Mustang II. The concentration of the fungi in the tillers was also higher in all the varieties of ryegrass than in the tall fescue.

Prof. Bowley feels it may be possible to utilize the turfgrass-endophyte association to effect insect control in perennial ryegrass but that possibility is less promising in tall fescue. The latter is interesting since the original reports of alkaloid production by endophytic fungi was reported in tall fescue which lead to a rejection of tall fescue by grazing animals.

This research has significant implications in the economics afforded by reducing insecticide use and the environmental issues associated with man-produced chemicals to control insect damage to turf. It would appear the next step in this interesting research would be to acquire data to confirm the perennial ryegrass varieties have resistance to heavy chinch bug attack under field conditions.

Table 1: The percent of infected tillers and the density of fungal hyphae from four varieties of ryegrass and of tall fescue at the Guelph Turfgrass Institute in 1995.

SPECIES	VARIETY	INFECTION			COUNTS / MICROSCOPE FIELD		
		June	July (%)	Aug.	June	July (No. / field*)	Aug.
Perennial Ryegrass	APM	100	100	100	2.8	2.5	2.6
	Cutter	100	100	100	1.9	2.0	2.2
	Pinnicale	100	100	100	2.1	1.5	1.6
	Yorktown II	100	100	100	2.3	2.1	2.2
Tall Fescue	Jaguar II	25	38	50	0.3	0.1	0.1
	Mustang II	100	100	100	1.5	0.8	1.2
	Pixie	25	38	50	0.1	0.1	0.1
	Rebel 3D	75	88	100	1.0	0.2	0.5

* microscopic field

UNDERSTANDING TURF MANAGEMENT

Pest Management

The 21st in a series by
R.W. Sheard, P.Ag.

Pest management is an all inclusive term applied to the prevention and control of infestations of weeds, insects and diseases in turf. The materials used for their control are often grouped together under the generic name of pesticides. The material required for control of a weed, an insect or a disease, however, is most often a specific chemical, targeted at a specific pest. In addition the list of available chemicals for the control of a specific pest is ever changing as research brings new products to the market place. Therefore this article will not deal with specific recommendations, but rather, the broad principles of pest management.

Practices which tend to encourage vigorous turf growth are the turf managers first line of defence against pests, whether they be weeds, insects or diseases. These practices must include fertilization, irrigation, mowing, core cultivation and overseeding with the most appropriate turf species.

Insects and diseases are generally not common in athletic turf with the exception of bowling greens, but can occur from time to time. Good cultural practices such as adequate, but not excessive nitrogen and irrigation, will help to prevent infestations. Nevertheless, when they do occur the correct, early diagnosis and implementation of the necessary control strategies can eliminate most problems.

Specific descriptions of insect and diseases and current recommendations for control procedures are available from most provincial agricultural agencies, for example, O.M.A.F.R.A. Pub. #162, "Turfgrass Diseases and Insect Pests" and Pub. #364, "Recommendations for Turfgrass Management."

Most weeds cannot compete with healthy, dense turf. Thus those practices which encourage a dense turf will discourage weed infestation. Unfortunately intensive play on athletic fields, particularly during the slow growth periods of early spring and late fall, encourages the invasion of weed species, necessitating control strategies.

Chemical control, however, may be required for broad leaf weeds such as dandelions, plantain, black medic, chickweed and knotweed. Chemical control is also available for crabgrass. The timing of application, rates and type of chemical to use are available on the product label and in the above mentioned publication.

A troublesome grass weed in older bluegrass stands is bent grass. At regular mowing heights for bluegrass, the bentgrass has minimal shear strength and is ripped out very easily by the running athlete. A degree of control may be obtained by vertical mowing followed by overseeding and topdressing.

One of the major problems in intensively managed, regularly irrigated turf under high nitrogen fertility for which there is no chemical control is annual bluegrass. This weed grass is found throughout North America.

The tear or shear resistance of the shallow rooting system is greatly inferior to the rhizomatous root system of Kentucky bluegrass. It suffers injury from low temperature, ice cover, freeze-thaw cycles, wind desiccation, and winter disease. High summer temperatures cause heat stress and it is prone to summer diseases.

Annual bluegrass is a prolific seed producer under most mowing heights. Since light promotes seed germination, initial invasion tends to occur in patches of turf that have opened up through injury. Once established, it is very competitive, producing new leaves, tillers and adventitious roots more rapidly than most competitive bluegrass cultivars.

The control of annual bluegrass is through competition from the more desirable species. Management is critical. Mow at the maximum height permitted for the sport involved. Avoid excessive nitrogen fertilization and irrigation. Maintain relatively low levels of phosphorus fertilization. Core aerate to minimize compaction and overseed with turfgrass species which are competitive in nature.

The control of annual bluegrass, for which there is no simple chemical solution, is an excellent example of a relatively new concept of pest management. Since Rachel Carson wrote "The Silent Spring" there has been a movement to reduce, even restrict the use of chemicals for weed, insect and disease control. The concept of side-line to side-line chemical application on a rigid calender date basis has given way to a "spray if needed, when needed, where needed" program.

The program has become known as ***Integrated Pest Management*** **(IPM).** It might be suggested that IPM means Intelligent Pest Management. The goal of IPM is to generate a decision making approach for the suppression of pest, whether they are weeds, insects or diseases, in effective, economical and environmentally safe ways.

The key to a successful IPM program is monitoring (scouting) - identifying and recording the location and extent of the pest. The individuals who are responsible for the monitoring program must be familiar with the identification and life cycle of the pest(s) they are dealing with. They must take, preserve, analyze and review records taken on a regular timetable.

Some suggestions for a scouting program are:

1) Establish the key weeds, insects or diseases which may require control.
2) Set up a suitable recording sheet which includes a check list for all relevant information, including management factors such as mowing, aeration, fertilization, irrigation, and a map with an overlying location identifying grid.
3) Establish an action threshold value above which the pest becomes a prob-

lem for your particular turf situation.

4) Establish a scouting pattern for walking the field and follow the same pattern consistently.
5) Establish a frequency of scouting which requires a knowledge of the pest life cycle
6) Have consistency in personnel conducting the scouting program.
7) Evaluate the pest treatment selected to determine its degree of success and modify the scouting procedure or treatment as appropriate.

The action threshold is an important part of an IPM program. It is the frequency of occurrence of the pest in question which can be tolerated by a turf situation before control action by chemicals must be taken. The action threshold is a guideline which should take into consideration the type and use of the turf. One juvenile dandelion per square meter in a soccer field may be of no concern whereas ten knotweed plants per square meter in centre field should call for treatment.

The type of control may not necessarily suggest a chemical application. Healthy turf may be the appropriate and most economical solution. **Cultural Control** through mowing. fertilizer use, irrigation, thatch management, for example should be given first consideration. In the above case compaction may be the cause which may be alleviated in the long term by core cultivation and overseeding.

Biological Control is gaining importance and currently there is a great deal of research is being directed toward developing control agents for turf pests. Biological control refers to the use of a predatory or pathogenic organism to control a pest. For many years the bacteria, *Baccillus thuringiensis,* (BT) has been use for the control of spruce budworm and gypsy moth. In the turf area, the research noted in GTI Hilites in this issue on endophytic fungi in perennial ryegrass may become a common control measure for chinch bug. While biological control is still in its infancy, the turf manager must be aware of these developments through the various educational programs which are available to him.

Chemical Control is still an important part of any pest control program. It should be used, however, only when a pest is present in sufficient level to cause turf damage. Nevertheless there are guidelines which can reduce the amount which needs to be applied. Some are:

1) Apply the treatment at that time in the life cycle of the pest when it is most susceptible.
2) Spot treatment when a pest is restricted to an isolated area.
3) Use a properly calibrated and adjusted sprayer.
4) Apply the chemical at the recommended rate under optimum weather conditions for its action.
5) Select a chemical with the lowest mobility in the soil and persistence in the environment.
6) Alternate chemicals to reduce the build up of pest resistance through mutations.

A IPM program for turf for any organization will evolve with time and experience. The management of the program must be committed on a long term basis to make the program work. All staff involved in turf management for an organization using IPM should be aware of the purpose of the program and continually be updated on its success and requirements. Senior administration and the public must be "on side" and realize that in extreme cases it may require such drastic action as reconstruction of a facility.

For assistance in establishing an IPM program the Ontario Ministry of Agriculture, Food and Rural Affairs has released a video called *"Integrated Pest Management for Turf."* The video may be purchased for $18.00 through the Guelph Turfgrass Institute, 328 Victoria Rd. South, Guelph, ON. N1H 6H8.

Turf Management for Root Growth

While top growth may enhanced the aesthetic appearance of turf for sport, it is the root growth which provides stability to the total system.

The principle function of the root system of a plant is to absorb water and nutrients. A secondary function is to anchor the plant. For the sports turf manager the secondary function is of prime importance in resisting the tear or shear of the plant from the soil material by the cleat on the athletes shoe. Management of the turf to maximize the strength and depth of the root system, therefore, becomes of prime importance to him.

Root growth is influenced by environmental factors beyond the control of the turf manager, such as soil temperature and day length. The maximum and minimum temperatures for root growth are lower than for shoot growth. While optimum top growth of bluegrass may occur at 21°C, optimum root growth of the same species will be at 15°C. Fortunately the shading effect of the top growth will often result in a temperature gradient of this degree between air temperature and soil temperature.

Root growth continues to occur in the soil until the ground is frozen. Thus dormant nitrogen applications are successful due to continued root activity, although top growth has ceased and mowing has stopped in the late fall. The rate of root growth increases as the day length increases in the spring and falls off as the days become shorter in the fall.

The factors which influence root growth that the sports turf manager has a degree of control over are soil physical conditions, fertilizer use, mowing and irrigation.

Soil Physical Conditions

The most significant soil physical condition affecting root growth is compaction. Compaction acts in two ways in reducing root growth. The first is the reduction of non capillary pore space which impedes the movement of oxygen to the root and the discharge of carbon dioxide from the root zone. The second, which is combined with the reduction in oxygen supply, is the physical impediment of root penetration through the soil mass. Research has demonstrated that roots may grow at oxygen concentration 1\20th that found in the atmosphere, thus the primary effect of compaction on root growth is the physical impediment to root growth and the build up of carbon dioxide and other gases.

Drainage is another soil physical condition affecting root growth. Again restriction of aeration due to the non capillary pores becoming filled with water results in a lack of oxygen supply to the roots. Not only is surface compaction serious but compacted layers at depth can lead to temporary perched water tables which restrict the depth of rooting above the compacted layer.

Fertilizer Use

A part of fertilizer use is the modification of soil pH. The optimum pH for turf production is 5.5 to 7.0. pH values greater than 7.0 are seldom detrimental to root growth until the pH levels are in excess of 9.0. Values below 5.5, however, are most damaging to the grass root system due to the increase in solubility of manganese and aluminum which have a severe toxic effect on the root system.

Nitrogen is the key element in the production of grass species and a positive

response to increasing rates of application of nitrogen are generally observed. This positive response does not continue indefinitely because at a certain point there becomes insufficient carbohydrate produced by photosynthesis to convert all the available nitrogen to protein. At this point there is a distinct suppression of root growth and depth and carbohydrate reserve storage. Likewise rhizome and stolon growth are reduced. At the same time there may be no discernable reduction in top growth.

Phosphorus increases root development. Due to the low solubility of phosphorus in soil and the restricted downward movement from surface applications, phosphorus may be restricted to the surface one or two inches. Therefore, the full effect of phosphorus on root development, particularly for deep rooting may be lost. Thus in the construction of new facilities it is important to mix adequate phosphorus in the root zone material before putting it in place.

Potassium also influences root development, particularly the branching of the root system. It also plays a role in synthesis of carbohydrate required for root growth.

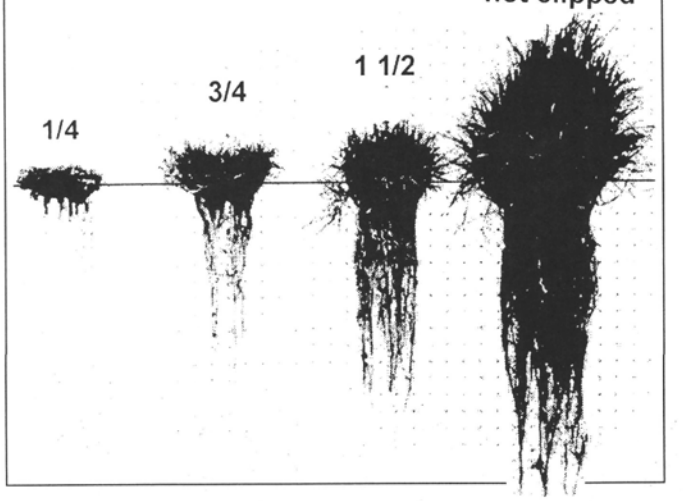
Mowing

The cutting height used for a given sport use is a compromise between the demands of the specific game involved and the physiological principles that influence the health and vigour of the turf species.

Few turfgrass species tolerate continued mowing below 10 mm or maintain adequate turfgrass uniformity and sod cover at cutting heights above 100 mm. Close mowing not only reduces the density and depth of the fibrous root system, it also reduces the rate of rhizome and stolon elongation (Fig.1).

Cutting height has a greater effect on root growth and carbohydrate reserves than cutting frequency. Minimal effect on root

Fig. 1: The influence of cutting height on the root growth of Kentucky bluegrass (Courtesy of Elliot C. Roberts, The Lawn Institute)



growth occurs when less than 1/3 of the total leaf area is removed. This rule of thumb establishes the frequency of mowing; the higher the cut, the less frequent the mowing. Bentgrass maintained at less than 10 mm may need daily mowing, whereas bluegrass mowed at 100 mm may need mowing every 7 to 10 days.

Irrigation

Frequent, light irrigation has been known to cause shallow rooting. At the inception of a water stress there is an increase in root growth, however, as the plant approaches a wilting condition photosynthetic activity declines with a corresponding reduc

Root Growth

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tion in root growth. This relationship between water supply and root growth suggests that the turf manager would be advised to allow the root zone to dry to near the wilting condition before irrigation Water budget systems for scheduling irrigation can prevent over irrigation while giving guidance for when wilting may occur.

The rhizomatous Kentucky bluegrass has a more rapid recuperative potential than most other cool season grasses following a period of moisture or heat stress.

Longevity

The longevity of root life varies with species from less than six months to a maximum of two years. Kentucky bluegrass tends to retain its root system for more than one year, whereas perennial ryegrass, the fescues and the bentgrasses will replace their root system at least once each year. Roots originating in the fall live longer than roots initiated in the spring. Roots associated with flowering tillers usually die shortly after seed set. Rhizome and root initiation stops within 24 hours after severe defoliation and does not become significant until shoot growth recovery is well advanced.

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