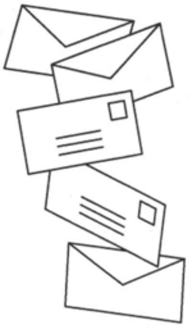

Letters

Safety on the Job

Dear Mrs Schneider,

Further to our conversation, I am enclosing a copy of a letter which we have written to all our customers concerning the Department of Labour requirement as set out in the Occupational Health and Safety Act with regard to any self-propelled vehicle weighing over 1500lbs, *or* having a rating of more than 20hp. This legislation dictates that equipment as described above must be equipped with a ROPS (Roll Over Protection Structure) assembly and seat belt accessories.

We have contacted the Ontario Golf Superintendents Association, Landscape Ontario and other provincial turf agencies with a view to have them include an article on this most important legislation. We believe that information concerning this matter would be of prime interest to the readership of *Sports Turf Manager*.

We are enclosing a copy of the legislation and we believe that, with the material we have provided, there may be sufficient information for an article. If we can be of any help to you, please call us.

Yours very truly,
R. N. Duke, President
G. C. Duke Equipment Ltd.

Editors note: We thank Richard Duke for drawing this info to the attention of our readers. While the legislation is not new, there are still many people out there who are not aware of it or who are not conforming. In the summer months many young people are asked to operate these machines with very little background experience or on the job training. It is the responsibility of your organization, as an employer, to ensure that any equipment in your fleet conforms to the Act.

Ecolite: An International Success Story

Hello Sonja,

This letter is in regard to the information on Ecolite usage received from Dr. Brian Holl who heads up the Pacific Turfgrass Research Program (see Guest Editorial, page 4). Dr. Holl's report supports the Sports Turf Association's commitment to producing better activity fields while reducing overall maintenance costs.

The use of Ecolite is also a sound environmental commitment. Sand based fields with 10% Ecolite in the top 6 inches of profile will produce less than 2% leachate.

This Canadian story reconfirms the success stories we are receiving from all over the U.S.; however, we never anticipated that the functionality of this mineral would be changed by longitude or latitude.

This natural mineral has been used in agriculture in other countries for over a hundred years. Your readership might enjoy reading this new information on an extremely old science.

Ron Bruce
Enviro-pure Products Inc.

Words to Live by ...

Integrity grows as you connect your head with your heart, your heart with your behaviour.

—*Blaine N. Lee*

Cultivate the habit of attention and try to gain opportunities to hear wise men and women talk. Indifference and inattention are the two most dangerous monsters that you ever meet. Interest and attention will insure you an education.

—*Robert A. Millikan*

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The President's Message

continued from page 1

Manager arrives, we will be ready to announce the new Executive Secretary with an introduction at the AGM this coming January.

Speaking of new, I wish to congratulate our Newsletter Editors, Mike Bladon and Harold Van Gool, and our publisher, New Paradigm Communications, on the improvement to the design and layout of the *Sports Turf Manager*. Since its inception, our Sports Turf newsletter has always been a first rate publication. However, since we are launching into our second decade of service to our members and the turf industry, it was decided the newsletter could use a makeover in terms of appearance, style and presentation. We would be most interested in any comments on the new look. Please do not hesitate to give us a call at the STA, or drop us a line at the GTI office.

Finally, I extend sincere appreciation to everyone who have renewed their membership for another year. I understand we are ahead of last year's pace which is fantastic. Thank you once again for renewing your commitment and sharing our vision in promoting the benefits of proper athletic field maintenance and construction for the enhancement of sports fields, and most importantly, the improved safety for all athletes, both young and old.

Have a great fall season.

Wishing you better, safer Sports Turf.

—*Christopher Mark*

PLEASE NOTE

The articles written within do not necessarily reflect the views of the Sports Turf Association.

Did You Know?

In the spirit of our 10th Anniversary we will be sharing with our members some highlights of the Association's history.

- ✔ In 1988, two Honourary Life Memberships were awarded to James Boyce of Agro-Consulting and Norman Rothwell, President of Rothwell Seeds. Both individuals have made significant contributions to the turfgrass industry.

- ✔ Our first Field Day with a Sports Turf flavour was held at Alumni Stadium at the University of Guelph in June of 1988. Organized by Pat Tucker and Mike Bladon, it was here that the Sports Turf Association was officially launched. Until then, few people in the industry had heard of it. Subsequent field days were held in Etobicoke, Markham, Oakville, the University of Western Ontario, London, Kitchener, the GTI, and Hamilton.

- ✔ In 1990 we hired our first Executive Secretary as the administrative work was increasing. Dr. Bob Sheard came on staff and proceeded to get our Association business in order. He also helped to edit and produce several videotapes related to sports turf, and set up a marketing program.

- ✔ In 1989 it was decided that we needed a guide for Canadian turf conditions. Coordinated by Pat Tucker, then Head of Grounds at the University of Guelph, experts were gathered to write the separate parts of the book. Pat later resigned after tiring of cajoling people into meeting deadlines, etc. In 1991, *An Athletic Field Managers Guide* was published, and art work and printing/marketing were completed by our Executive Secretary. In this same year we held our annual conference at the University of Guelph.

Content Deadline for December Issue
October 17, 1997

Renovation and Rejuvenation: A Sports Field Experience

The main field at Thunderbird Stadium on the University of B.C. campus is an older, native soil field with a crowned surface. Prior to 1996, the field was the recipient of erratic management and subjected to extensive wear and compaction as a result of a diversity of events from rock concerts to rugby matches. The field has been topdressed and/or amended with a variety of soil materials over the years and shows considerable variation in the root zone profile. In-ground irrigation was installed in approximately 1995-96. Since 1992, the centre of the field, which is subject to the most wear, has been resodded three times. On the last occasion, the area was excavated slightly and refilled with a composted material prior to laying the new sod. As this subsurface material continued to decompose, the central crowned area settled and formed a concave depression between the hash marks which was highly water retentive.

In late fall 1996, the field was used for an intensive football tournament over a three-day period during which it rained almost continuously. Following this damage, the field was clearly in need of major renovation. The area between the football hash marks for two thirds of the length of the field was heavily worn, compacted and inadeqately drained. Heavy wear had also compacted the soil and removed most of the turf from the east sideline. Renovation of the field using big roll sod was considered, but was precluded by fiscal constraints and equipment availability.

In view of the success that had been reported in restoration of sports fields in New Mexico using the zeolite product Ecolite, we made a proposal to the UBC athletic facilities for a demonstration program to attempt field renovation using an aggressive aeration and Ecolite topdressing strategy. The program was constrained by the scheduled use of the field for a variety of events starting in mid-March through to the end of summer, including football, rugby, soccer, ultimate Frisbee and four music concerts, as well as being leased for use as a backdrop for two film productions. The longest period without a major event during this time was approximately five weeks.

In March the field was verti-drained and topdressed with Ecolite. As soon as conditions permitted, the central area of the field was overseeded with a perennial ryegrass blend. The cool wet weather which followed seeding provided poor growing conditions and the field responded slowly. With improved weather, the poorest central areas of the site were overseeded again. In June the centre of the field was core aerated and topdressed with Ecolite. An additional topdressing of sand was used to begin restoration of the original crowned level. Throughout this period (March to June), the field continued to be used for scheduled events which included music concerts, football, two major rugby tournaments and two film crews. Despite this use, and pattern and weather conditions which did not facilitate the renovation process, the field now appears to have excellent cover and the majority of the area is of consistent quality, both visually and functionally. There remains a recalcitrant region in the central area of the field where turf cover is still below acceptable quality and where the soil profile is not yet stabilized. The underlying composted material has produced a localized "bog" which will require further aggressive attention. However, this area is much less extensive than the original damaged portion of the field. Two additional deep tine aerations are scheduled to be carried out after concerts in mid-July and in late August. The central areas will receive a 100% Ecolite (90:10) mixture. Some additional overseeding in the central problem area using perennial ryegrass may be undertaken in late August if warranted.

While it is too early to make any definitive statement about the value of this approach to renovation, it is clear that the stadium field has been significantly improved over its previous state. We will continue to monitor the field to evaluate short term success in addressing the remaining problem area in the central part, and the longer term impact of the Ecolite topdressing on wear tolerance, water and fertility management on this facility. From our observations to date, Ecolite incorporation into the soil profile has contributed to a significant improvement in field quality.

—F. Brian Holl, Ph.d., P.Ag., Professor
Pacific Turfgrass Research Program
Reprinted by permission

Ground Breaking *at* The Canadian Baseball Hall of Fame

On August 24, 1997, in St. Mary's, Ontario, Pat Gillick, former General Manager of the Toronto Blue Jays, and John McHale, retired head of the Montreal Expos, turned the sod for the Canadian Baseball Hall of Fame—a museum and a stadium.

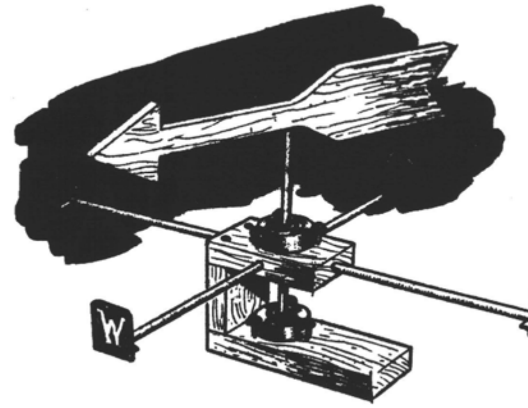
The project is being built on 13 hectares of land leased from the St. Mary's Cement Company for 30 years. Total cost for the Canadian Baseball Hall of Fame will be $11 million dollars over three stages to keep pace with fundraising. The first phase involves developing a 7,500 seat ball field and an interim museum. The new ball diamond must be seeded in September to be ready for the official launch next June 4th. That is the date of the 160th anniversary of the first recorded baseball game in North America, which took place in Beachville near St. Mary's. Between 300,000 and 400,000 visitors are expected annually.

10th Anniversary Field Day *at* Woodbine Racetrack

If you didn't make it out to our 10th Anniversary Field Day, you missed a great event consisting of an exceptional tour of the turf and track facilities by Sean Gault, an imposing array of speakers, and an exciting evening at the races!

The speeches covered all facets of sports turf and were not confined to discussions of turf racetracks for thoroughbreds. Terry Quinn, President of the Canadian Soccer Association, commented on the tremendous growth of soccer in Canada—more than 600,000 young people are currently playing in leagues. He also talked about the Association's plans for the World Cup Games that will take place in Canada early in the 21st century. Dr. Jack Eggens, who always relates well to his audience, spoke on grass for turf tracks and indicated some of the problems that exist. Dr. Bob Sheard discussed construction of the track and water relations on sand based fields and greens. And, lastly, Andrew Gaydon spoke on the irrigation system at Woodbine and on the technology available to turf managers and to parks to control not only irrigation, but also locking of gates, switching off field lighting from an office, etc. Due to space restrictions, these talks will be seen in future issues of the *Sports Turf Manager.*

Many stayed for a buffet dinner served at trackside and a chance to watch the thoroughbreds race. The evening rain did not dampen peoples' enthusiasm for a most worthwhile experience. Hope to see you next time at the races!



Is The Weatherman Always Wrong?

DR. TERRY GILLESPIE
UNIVERSITY OF GUELPH

Weathermen are constantly criticized and bear the brunt of numerous jokes because the weather at any given hour in the day is not what the radio or TV said it would be. Are they so off base, or is there a reason for their apparent errors?

In most cases the answer is timing. Weather systems are constantly moving in a generally west to east direction, but their rate of movement is subject to change. They may speed up or slow down, intensify or dissipate. The weatherman is not always able to estimate these underlying factors accurately so rain forecast for this morning may not arrive till late afternoon or light showers may turn into steady drizzle.

Understanding the way weather systems move and how to interpret local signs by observing wind direction, cloud patterns and temperature will enable you to adjust the timing of the forecast for your locale and thus adjust your turf management program. This article describes the basics of weather systems as they affect the local weather.

The "prevailing westerlies" that emerge from a description of global-scale circulations are, in reality, a sequence of travelling pressure cells (see Figure 1). These cells are delineated and tracked by drawing lines called *isobars* which join together locations with equal (*iso*) barometric (*bar*) readings on a *ground level* weather map. The resulting pattern is a series of distorted "bull's eyes" that are labelled as having relatively high (H) or relatively low (L) pressure at their centres. By observing several weather maps in a series, we discover that these cells normally move with a strong west-to-east component. Also, a glance at a home barometer suggests that lower pressures accompany "stormy" weather, while higher pressures suggest the weather will be "fair". To understand why these relationships hold, let's begin by examining individual pressure cells in more detail.

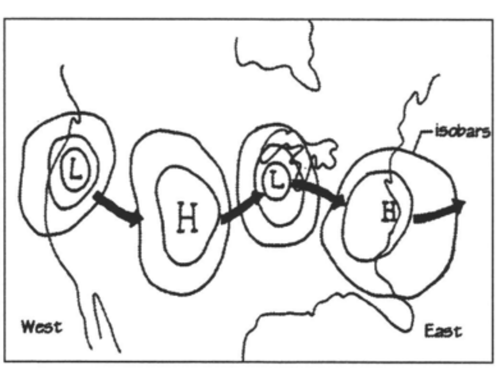


Figure 1: The regular progression of high and low pressure cells from west to east in the prevailing westerlies.

The near-surface pressure cells are mainly a feature of the lowest 4 km of the *troposphere* (from the Greek for "turning sphere"), which is a layer which extends to about 10 km above the earth. In the troposphere the average temperature *decreases* with elevation. "Weather" is confined to the troposphere because more than 90% of the world's water vapour lives in the layer, where it undergoes phase changes from gas to liquid or to solid that we experience as clouds and precipitation.

Our discussion will venture very little into the next layer, the stratosphere, which extends from 10 km to 50 km above the earth. Surprisingly, this layer warms with elevation. The warming results from absorption of ultra-violet solar radiation by the stratospheric ozone, which protects life near the earth's surface from the damaging effects of this radiation.

Low and High Pressure Cells

Figure 2a shows the wind pattern for a stylized low pressure system. Air moves in a gigantic, counter-clockwise, inward-spiralling pinwheel. Intuition might suggest that air should flow directly into a hub of low pressure like the spokes of a wheel, but this expectation is modified by the spinning of the earth. We must recall that we are observing the weather as we ride on a huge merry-go-round named Planet Earth. If you were to pitch a ball from the centre of a merry-go-round directly toward a catcher riding on the outer edge, the catcher would perceive that the ball had travelled a curved path which caused the ball to fly by behind him. In reality, the ball took a straight path and the catcher moved, but an observer stuck to the merry-go-round sees the motion as a curved path. You would also miss your target if you threw a ball from outside of a merry-go-round directly toward the centre, or from the outside toward another person sitting on the outside, but one-quarter of the circle ahead of you. Weather observers are stuck to the spinning earth, so we perceive the air motions (the wind) as curved trajectories which always twist to the right when we stand with our back to the wind.

What becomes of the air that makes its way toward lower pressure? It cannot escape through the ground or disappear, so the inward spiralling must have a slow drift upward. Whenever air drifts upward, it encounters ever-lowering pressure, and therefore expands. Expansion is a cooling process, and eventually this cooling results in condensation which produces cloud and precipitation. Here we have discovered a fundamental rule of meteorology ... ***unsettled weather is associated with regions of rising air.***

If air is constantly spiralling out of a region of high pressure near the ground (Figure 2b) where does this air come from? You may have guessed by now that this pressure system must be accompanied by a slow downward drift of air, which results in compression because the pressure increases as the ground is approached. Compression produces slight warming, which discourages condensation and suppresses cloudiness. ***Settled weather is associated with regions of sinking air.***

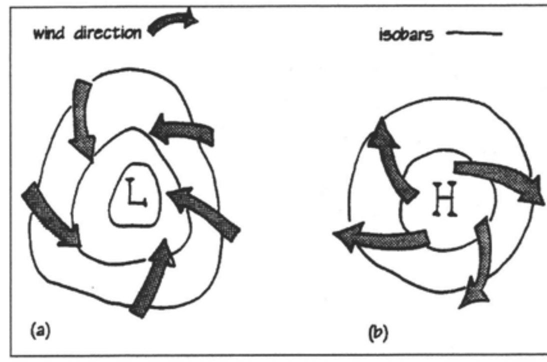


Figure 2: Winds spiralling counter clockwise into a low cell and clockwise out of a high cell.

Air Streams and Weather Fronts

The winds near the ground in a typical low pressure cell can be seen as three air streams (Figure 3). A *cool air stream* rides in on the easterlies ahead of the cell's centre, accompanied by vigorous pressure (barometric) falls as lower pressure approaches. A *warm air stream* flows up from the south. Moving west of the cell, we find strong rising pressures bursting in from the northwest on the wings of a *cold air stream* as the whole pressure system moves off toward the east.

The cold air stream west of a low pressure cell pulls a fresh, chilly blob of polar air out of the northwest, and drives it against the west flank of the warm air stream. The temperature difference between these two streams is large, so the dense, heavier polar air wedges under the tropical air. Enhanced vertical lifting occurring along this collision zone usually results in a band of aggravated weather. In summer we see showers from heavy *cumulus* (lumpy) clouds, or even thunderstorms from *cumulonimbus* (lumpy and dark) clouds. In winter, precipitation is from less vigorous *nimbostratus* (dark and layered) clouds. Crossing this zone results in a quick wind shift into the cold air stream, so it is called a *cold front* (Figure 3). Figure 4 illustrates the undermining and lifting of the warm air mass as a cold front approaches. The cool air stream typically brings *stratocumulus* cloud (a layer of lumpy cloud). Check any introductory weather text for pictures of cloud types.

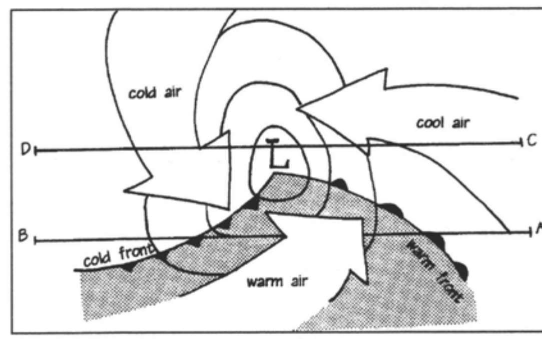


Figure 3: Air streams in a low pressure cell.

The east winds of the cool air stream in advance of a low pressure cell do not tap the depths of the polar air. Therefore, when the warm air stream attacks the south flank of the cool air stream ahead of a low cell, only sometimes is there a sufficient temperature contrast to form a front. If the contrast is strong enough, warm air will slide up over the cool, and this lifting will provide additional cloud and precipitation. The typical cloud sequence starts with wispy *cirrus* (mare's tails) followed by *altostratus* clouds (middle level of troposphere and layered, produces "ground glass sun") and then precipitation begins to fall from nimbostratus clouds. The zone where the flow shifts from the cool to the warm air stream is called a *warm front* (Figure 3). Figure 5 illustrates the rising of the warm air over the cool air mass and the resulting cloudiness and chance for precipitation.

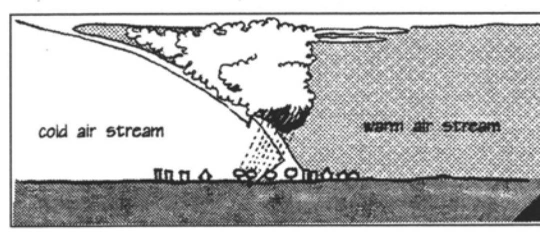


Figure 4: A cross section of a typical cold front that pushes under a warm air mass, forcing the warm and lighter air upward, resulting in condensation, cloudiness and precipitation (often heavy storms) as the air is rapidly cooled.

A strong low pressure cell may collide the warm air stream vigorously with both the cold air west of the cell, and the cool air to the east. In this case, the enhanced cloud and precipitation caused by both fronts will be clearly visible on satellite images.

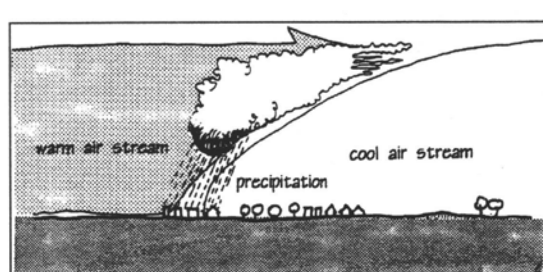


Figure 5: A cross section of a typical warm front overriding cool air resulting in cloudiness and precipitation.

Sometimes only a cold front is visible because the contrast between the cool and warm air streams is too weak.

High pressure areas, with their *outward spiralling winds,* push air mass borders away from their centres. Thus, fronts do not generally exist in the heart of high cells. A high cell is typically tucked into the burst of polar air behind a strong low. From that location, the eastern half of this cell feeds the cold air stream of the low to the east, while its western half blends into the cool air stream of the next low to the west (Figure 6).

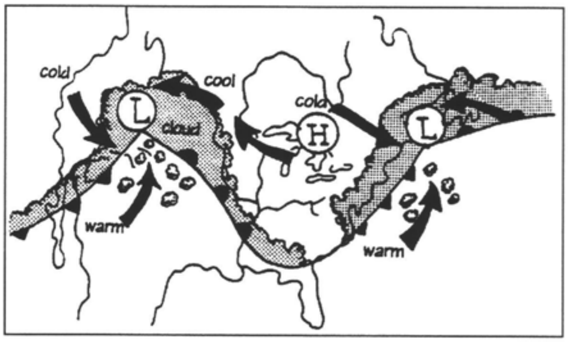


Figure 6: A typical weather map showing the highs and lows, areas of cloudiness and potential precipitation and the wind direction.

As a cell of low pressure with well developed cold and warm fronts moves by to the north of your location, the resulting sequence of weather events can be seen by following along line A - B in Figure 3 (remember you are stationary while point A in the weather mass moves east until point B is over you). Easterly winds of the cool air stream at A will be accompanied by increasing cloud and a falling barometer. Precipitation is likely as the warm front approaches, but this will diminish or cease as the warm front passes and you note a shift to warm southerly winds. After a period in the warm air stream, the cold front will approach with its band of heavy weather. Then the cold air stream will bluster from the northwest and the pressure will rise quickly. As the low cell moves eastward and is replaced by higher pressure, the weather will settle by the time position B is reached.

If the low cell moves by to the south of your location, you will travel along line C - D in Figure 3. Cloud and precipitation will develop in the cool easterly air stream as the system approaches. Gradually the wind will back around to the northwest as you blend into the cold air stream, but you will never enjoy the warm air mass which is confined south of the fronts. Finally, higher pressure will settle the weather again as you approach position D.

ACKNOWLEDGEMENT

The Sports Turf Association appreciates the permission to use Figures 1 - 6 from Robert D. Brown and Terry J. Gillespie, *Microclimatic Landscape Design*, John Wiley & Sons, New York, 1995.

WEATHER FORECASTING SKILLS

How can the knowledge presented in these pages be used by you to fine tune your management decisions?

Let us suppose the weather forecast at noon was for hot and humid with thunderstorms this evening, clearing and sunny tomorrow with northwest winds. The temperature forecast is for 32C this afternoon dropping to 18C overnight. The night was warm and humid and when you arrived at work, and the wind was still southerly. You had planned a seeding operation today, should you proceed?

The assessment of the forecast is that an approaching cold front has slowed up and the potential for heavy rains or thunderstorms still exists. Seeding this morning may be subject to heavy washing and erosion. Best wait for those cool northwesterlies

The forecast at noon was for increasing cloud this afternoon with light rain overnight. The temperature is forecast for 15C overnight, with a high of 28C tomorrow afternoon. Southeasterly winds will shift to the southwest tomorrow. The rain had started by the time you left work, and at sundown mild breezes were blowing from the south. You had planned a weed spraying program tomorrow, should you proceed?

The assessment of the forecast is a warm front has arrived earlier than expected. You may proceed with your spraying program with due caution for drift caused by the strengthening southerlies.

Note: In both cases, the forecast of weather events was correct, but the timing was off. Plan your program, listen to the forecasts, observe the local weather conditions and be prepared to change your plans.

GTI HILITES

Water Availability in Sand Root Zones

Introduction

The availability of water to turf species growing on sand root zone mixes has generally been estimated from laboratory procedures using small cores and pressure inducing apparatus. The development of Time Domain Refractometry (TDR) procedures has allowed the direct measurement of soil moisture content, *in situ*, on a volume basis. GTI researchers, R.W. Sheard, D. E. Elrick and Peter von Bertoldi of the Dept. of Land Resource Science, U. of G., used this new technique for measuring soil moisture to examine the dry-down of the U.S.G.A. greens at the Turfgrass Institute during 1995 and 1996.

It is hypothesised that the United States Golf Association - Greens Sections (U.S.G.A.) design for the root zone mix will rapidly drain excess water following rainfall or irrigation so that within hours a moisture content at apparent field capacity can be achieved. The U.S.G.A. specifications recommend the use of 40 mbars (millibars) to represent the apparent field capacity. It may be more appropriate, however, to use a tension of 30 mbars which is the tension exerted by the 30 cm of sand overlying the pore size discontinuity created by the "choker" layer of course sand used in the U.S.G.A. design. The wilting point for the sand root zone is assumed to be 100 mbars as that is the point beyond which there is very little change in the moisture content of the sand mix as the tension is increased. The available water in the sand root zone mix, therefore, would be defined as the moisture content between 30 mbars and 100 mbars.

Data does not exist, however, to confirm under field conditions that the apparent field capacity for turfgrass growing on U.S.G.A. designed greens exists at 30 mbar and that moisture stress will occur at 100 mbars tension.

In contrast, under normal soil conditions, the plant available water, also defined as the water held between apparent field capacity and the permanent wilt point; is that held between 330 mbars and 15,000 mbars. Obviously these limits do not apply to U.S.G.A. greens. Irrigation is recommended when 50% of the available water has been consumed.

This report summarizes the TDR data collected on a bent grass green during an extended dry period in two seasons, 1995 and 1996. The objective was to monitor the moisture content as the green was allowed to dry-down and to relate the moisture content to visual signs of moisture stress and the laboratory determined moisture constants.

Results:

Initially the green was saturated with water as indicated by the free flow of water from the tile system. TDR measurements were commenced as soon as the irrigation was stopped. The moisture profile confirms that the moisture content, particularly in the upper 5 cm was near saturation or 0 mbars tension. The data also show that there was very little change in moisture content after three hours of drainage and that all the excess water had been removed from the U.S.G.A. root zone mix within six hours of saturation of the root zone. The data further indicate that the appropriate tension for apparent field capacity should more appropriately be set at 20 mbars.

TDR measurements were made at least twice each day over the following 10 days during which no rain occurred and no irrigation was applied. Visual observations for moisture stress were recorded. The first observable symptoms were observed late on the fourth day in 1995 and on the fifth day in 1996. Symptoms of moisture stress increased each day thereafter; however, even at ten days, water stress had not reach a non-reversible point and was eliminated within 24 hours of irrigation.

The point at which incipient moisture stress was observed coincided with a moisture tension of approximately 30 mbar, reached between day 4 and 5. Therefore the plant available water in the sand root zone mix may be considered to be that held between 20 and 30 mbars. It may be calculated that the amount of plant available water held in the root zone was equivalent to 14.4 mm of water. The average evapotranspiration over the four days, therefore, was 3.5 mm. Using these two limits would avoid the arbitrary correction to irrigate when 50% of the available water had been consumed.

Although there may be a slight indication of a perched water table at the end of the first day, the vertical orientation of the moisture profiles suggest a true perched water table does not exist.

Furthermore, the vertical profile indicates water was consumed uniformly over the entire 30 cm of root zone material. Although it was observed that roots extended the full 30 cm, the main mass of roots was still concentrated in the upper 15 cm. It must be assumed that the capillary rise of water was sufficiently rapid to replenish the water to where the main mass of roots was found.

In conclusion, the GTI researchers found the U.S.G.A. specifications for the sand root zone mix to be very efficient in providing for the storage of available water for grass. When recharged through rainfall or irrigation to apparent field capacity (20 mbars tension) a properly selected root zone mix may be expected to provide sufficient water for optimum growth for at least four days. This information applies to all sites using the U.S.G.A. design: greens, tees, sports fields, race tracks, etc.

Selecting Bluegrass Cultivars

Kentucky bluegrass is the preferred species for use in most sports field situations. However, when a new field is being seeded or an overseeding operation is planned the sports field manager is in a dilemma as to which variety he should select.

There are over three dozen bluegrass varieties in the list of bluegrass seeds available from suppliers in Ontario (see *The Sports Turf Manager*, Jan. 1997). Which one should he select? He can develop his own ranking by examining the data presented in the annual Research Reports of the Guelph Turfgrass Institute. Ranking tends to fluctuate within ranking each year so it is best to check at least three years of the reports. He can call the OMAFRA turf specialist at the GTI or use the advice of his favourite seed dealer.

Unlike field crops which can be quantitatively ranked on the basis of measurable yield, turf species are qualitatively ranked by one or more observers on the basis of subjective parameters such as density, texture and colour. The personal preferences and the training and experience of the observers have a significant impact on the rating of the variety.

Prof. Steve Bowley of the Crop Science Dept., U. of G., devised a novel system, a fashion show for bluegrass, which he used at the 1996 GTI Field Day. Dr. Bowley removed the names from one replicate of the 1994 bluegrass variety trial and replaced them with numbers. Visitors to the field were allowed to nominate one plot that was, in their estimation, the "best looking" variety. A total of 150 ballots were received and the results were tabulated as a percentage of the total ballots received.

The results show that Ascott, Unique and Julia were considered the "best looking" by the greatest number of field day visitors in August, 1996 (Table 1). The three varieties had an overall rating of 8.1, 7.8 and 7.1, respectively, by Prof. Bowley's staff as reported in the 1996 GTI Progress Report (pp. 21). The next three "best lookers", Bartitia, Asset and Allure were ranked 8.0, 7.4 and 5.6, respectively,