

SPORTS TURF

Newsletter

VOLUME 3
ISSUE 3

SEPTEMBER
1990



...for better, safer Sports Turf

EVENTS CALENDAR

September 17 — NWTA Conference, Rippling Springs Oregon.

November 5 — 3rd Annual CTI Educational Symposium. Contact Mira Soni (519) 824-4120 ext. 3814.

December 4 — 3rd Annual Sports Turf Association Conference, University of Guelph. Contact Mira Soni (519) 824-4120 ext. 3814.

December 9-12 — Canadian Turfgrass Conference, Montreal Convention Centre. Contact CGSA (416) 249-7304.

O.M.A.F. TURF HOTLINE

(519) 767-1211

PRESIDENT'S MESSAGE

How quickly August has come and gone! This season has been different again, we have had no prolonged drought, most areas have had sufficient moisture mixed with some hot and cool temperatures. Still, our soccer and baseball fields, bowling greens and cricket pitches will all be showing the wear placed on them by ever increasing use. It is a good time to evaluate how your overall turf maintenance program is helping your sportsfields survive these busy times.

Our Field Day was once again a success. The weather was very obliging and beautiful. The complex facilities for our meetings were excellent. The attendance at our informative talks was near capacity. The exhibits and demonstrations provided a good opportunity to obtain new knowledge. I know if you attended, you found it a worthwhile day.

The highlight of this issue of the newsletter is a profile on Dr. Bob Sheard, whom we welcome as our first executive secretary! Bob will take over most of the administrative duties. Please contact him for any of your concerns at (519) 763-9431. We are very pleased to have him join us.

Lastly, a good place to obtain more knowledge to improve your sports turf, will be our December Conference in Guelph, Ontario. Please make plans to attend.

See you there.

Bruce Calhoun

IN THIS ISSUE

Profile on Executive Secretary	2
Maintenance Tips on Bowling Greens	3
Positive Impact of Turf	6
We Get Letters	8



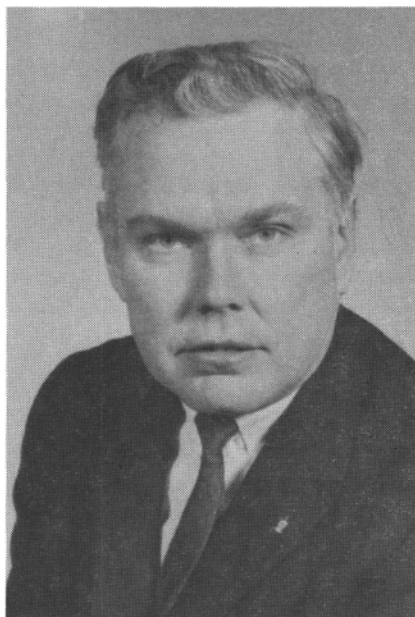
EDITORIAL

The Sports Turf Research Institute situated in Bingley, Yorkshire, England is in its 61st year, and started as a Greenskeeping Advisory Board. It now advises about 1/2 of the 2,000 golf courses in the British Isles. Its most important work is in the area of sportsfield improvements. Using a research team and facilities S.T.R.I. will do anything from a feasibility study right through the tendering process, to providing on-site supervision of the construction. Then advise on management and maintenance of the finished product. The staff at S.T.R.I. also conduct courses for groundskeepers and greenskeepers, lecture at conference/workshops at home and abroad. Most play on soccer (football) fields is during the winter or rainy season S.T.R.I., through research, has designed the "Sand Pitch Profile" system. This system stays free draining and provides an excellent playing surface year round.

My wife and I had a guided tour of the 5 Hectare site and were impressed with both the modern building and the amount of research being conducted. We were shown a cultivar testing program where 150 different cultivars are under scrutiny. Next, a study of irrigation construction and nutrition of golf courses. Three irrigation treatments were used which included overwatering, underwatering and replacement of the water lost through evapotranspiration. The trial included different types of construction from normal topsoil greens, to a sand green and then one constructed to U.S.G.A. sand/soil specifications. We then looked at a study to determine the cost effectiveness of different types of drainage. After this we were shown the work being done on ball response, ball roll, compaction tests using a Stimpmeter and traction using a studded disc. These tests

Profile:

INTRODUCING OUR EXECUTIVE SECRETARY!! R.W. [Bob] Sheard



Bob was raised on a mixed grain — livestock farm in Southeast Saskatchewan. He received his post secondary education at the Univ. of Sask., the Univ. of Toronto [O.A.C.] and Cornell University in Agronomy, Plant Physiology and Statistics.

Bob spent over 36 years at the O.A.C. where his primary interests were in forage production, particularly those aspects dealing with fertilizer use and was responsible for a significant upgrade in the recommendations for

phosphorous and potassium for forages. He also did considerable work on nitrogen fertilization of forage grasses.

The latter study led to his interest in turf production where he pioneered the work on sulphur-coated urea in Canada. Recommendations for late fall nitrogen use also evolved from these studies.

In 1979 he constructed a set of sand-based micro greens at the Cambridge Research Station for research in water use and fertilizer practices for turf on pure sand. He was associated with the development of several playing fields which were built on this on this principle.

In 1981 he served as Local Arrangements Chairman for the 4th International Turfgrass Research Conference and was Editor of the conference proceedings. From 1968 to 1986 he taught soil science and plant nutrition to the annual Guelph Turf Managers Short Course. Other duties, however, necessitated that he relinquish his turf interests for a time.

Bob is married to the former Gladys White of Dundalk and they have two sons; Bill, a geologist, and John, a geographer.

News Release:

**SPORTS TURF MANAGERS
ASSOCIATION NAMES
DALE F. KELLER, JR. AS ITS
NEW EXECUTIVE DIRECTOR**

Sports Turf Managers Association
P.O. Box 94857
Las Vegas, Nevada 89193
(702) 739-8500

were conducted on both artificial and natural turf, and notable differences were shown.

Bruce Shank of sportsTURF magazine mentions a workshop for groundskeepers of baseball

fields or stadia, are we ready for this here? Let us have your suggestions or letters, this is your forum for airing problems with sports turf. We will all learn from sharing viewpoints.

MAINTENANCE OF BOWLING GREENS

By
Michael J. Bladon,
Past President
Sports Turf Association

Internationally, lawn bowling is one of the oldest recreational pursuits. It was played in Rome, Greece and Egypt. Records show that a bowling green has existed in Southampton, England, since before 1611 and is still being played on, further that an annual competitive event has been scheduled on this green since 1776. In the Southern hemisphere, it was played in Hobart, Tasmania, in 1845 and in South Africa in 1882, and is quite popular in New Zealand and Canada. In the greater metropolitan area of Sydney, Australia, there are over 1,200 lawn bowling clubs and in Johannesburg, South Africa, the parks department maintains 66 public bowling greens.

Assuming that most, who read this article, are knowledgeable of the game, I will instead describe some of the maintenance practices associated with bowling. The first priority for every greenskeeper should be, of course, the development and maintenance of the playing surface itself, aiming to produce as high a standard as possible within the limitations of time, labour and monies available. Many clubs operate on very small budgets. I will not discuss the maintenance of ditches, banks and surrounding areas—although these are equally important to the overall location.

* **Check Levels** — Prior to the start of the season, it is wise to check the level of the green using surveying equipment. This is the first step to ensure a smooth, level and firm surface so the bowls will run true and to maintain the “pace

of the green”. The speed or “pace of the green” is measured in the number of seconds it takes an experienced bowler to roll the ball approximately 90 feet. Once levels are obtained, this will indicate where top dressing is needed. If not, uneven areas or runs can result and the bowl does not run true. A board 3-4 m long is useful to do this type of levelling, then the rest of the green can be drag matted to disperse the topdressing material.

* **Topdressing** — Improves the efficiency of mowing. More effective than rolling, as rolling compacts the soil, causing drainage problems, and limits air and water movement in the soil. In a free draining sand, topdressings can help with surface drainage when used with aeration practices. The area to be topdressed should have some growth and conditions should be dry, so as not to smother the grass plants. The greenskeeper should have a good knowledge of the physical make-up of his soil to ensure the proper mix is applied. On a newly-constructed green, it is wise to keep a stockpile of the original mix on hand if space allows for this operation. On sands, the current particle size should be adhered to (check original specifications). If soil is heavy, sands may be applied but very gradually over several years to the depth of the aeration holes, 3-4". No topdressing should be applied at more than 1/16 of an inch at one time although, if money is there, it may be applied more often. It is always spread following aeration and thatch removal, and should be distributed with a drag mat. As mentioned before, the exact proportions of your topdressing mix would be determined by the soil on site.

* **Thatch** — Is a tightly intermingled layer of living and dead stems, leaves and roots of turfgrass that develops between the layer of green vegetation and the soil surface. Thatch is probably the biggest headache the greenskeeper has to deal with. Too much creates a slow green and decreases the overall green quality. It causes shallow rooting, poor penetration of fungicides, insecticides and fertilizers and affects overseeding practices as seed strays in this layer and does not make contact with the soil. Hence, poor germination. To control thatch, a vertical mower is often used, this machine verticuts and prunes below the mowing height, so some thatch, matted grass, plant runners and longer leaves are thinned. The blades of the mower should be set so they make soil contact but do not penetrate. When the season is finished, they can be reset so they penetrate about 1/4" into the soil. Mow from corner to corner of the green on a 45° angle with very little overlap. Then, a leaf blower or rakes may be used to blow debris to one side of the green for disposal. This particular operation should always be done about two days prior to play and is best done in early morning. Verticutting is usually done every two weeks throughout the growing season, depending on the condition of the green. It helps increase the playing speed of the green. Always enter and leave the green over ramps. Do not attempt during high temperatures.

* **Core Cultivation** — The next operation which follows verticutting is more cultivation or aeration. This process helps to relieve compaction in the 1-2" of soil. It improves air exchange and water in filtration to the rootzone. Compaction is due to the amount of

play a green receives, the use of light rollers and, lastly, the mower — often a Scott-Bonner — which weighs some 350 lbs. The aprons of the green in particular receive a large amount of foot traffic. The cores may then be windrowed using the attachment on the aerator or, if the right consistency and material, may be drag matted over the area as top dressing. After these last two operations, the green should be watered thoroughly.

* **Mowing** — Mowing is the most important job the greenskeeper will do, as this is what determines the green speed or "pace of the green"—this and some light rolling allows the bowl to run fast, freely and with the desired draw for either backhand or forehand. Bowling greens as a group are mown more closely than putting greens. A height of 3 mm or 1/8" during July and August is common while, the rest of the season, the green is usually kept at 5mm or 3/16" above the soil. The finest quality greens are achieved through daily mowings. The mower, most commonly used, is the electrically-powered Scott-Bonner, which is capable of the extremely close cutting heights required.

The secret is to maintain a sharp mower and to backlap with a grinding compound weekly to maintain that edge.

The mowing pattern should consist of mowing corner to corner (45° angle), changing the direction of the pattern each time you mow (eg. south/east to north/west, followed by north/east to south/west). Twice a month, mow in a north/south and east west direction, but not before a major tournament or special event as mowing in this direction will alter the draw of the green when bowled. No matter the direction, allow for a 50 per cent overlap on

each pass of the greens mowed. The green apron should be mowed in a direction that is parallel to the playing ditch, to a width of at least three times the mower width. If the club has sufficient area, a small sod nursery is useful to replace bare areas of the green. If this is not possible, then sod may be cut from the corner of the green and then seed cut out area down.

* **Fertilizer** — A fertilizer program for this year is one that should result from soil tests taken last autumn. A minimal program is important in order to keep

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down thatch accumulation and excessive shoot growth, which cannot be tolerated on bowling greens. Usually a 4:1:2 ration fertilizer is recommended (Lawn Bowls Canada) such as 20-5-10. Another method for determining nitrogen needs of bowling greens is to multiply the number of growing months x .36 kg (.72 pounds) of nitrogen per 92m² (1,000 sq. ft.). Tissue analysis is available from the Land Resource Science Department at the University of Guelph to find phosphorous, potash and trace elements required. Greens made of soil usually require between 3-4 lbs. of nitrogen per 1,000 sq. ft. per season. Information on soil testing by accredited agencies may be obtained from your county OMAF (Ontario Ministry of Agriculture and Food) office. Also

available, are soil sample boxes and forms.

* **Sand Greens** — Turfgrass nutrition studies have been done on sands in California. In these tests, nitrogen, phosphorous, and sulphur were always found to be deficient. Research indicates superphosphate 0-20-0 can be used to add a relatively large amount of phosphorous and sulphur. This material does not leach rapidly nor injure plants. (Leaching is the removal of materials by solution within the soil).

Nitrogen is a problem because most forms are soluble in water and soon leach from the sands. Some of these forms would be nitrates ammoniacals and ureas, as well as most nitrogen mixes and blends. For an effective program, these have to be applied frequently. Once the turfgrass is established, a 1/2 lb. per growing month gives very good sod. Natural organic fertilizers are not as soluble, they're called slow release, and are useful because of less leaching and foliage burning is minimal. They last longer, so less interruption of play. They are more expensive (OMAF publication 383).

Best method, is to use a broadcast spreader; fill away from turfgrass area so no damage to turf will result. It is desirable to split the amount of fertilizer required so that you cover the green twice. Once north/south, once east/west. Spreading distances can be noted by using markers at each end of the green to minimize overlap. Best to fertilize once dew has been removed and then water in after application.

* **Weed Control** — Cuts down on bumpiness caused by many broad-leaved weeds. If not a serious problem, they can be removed with a dandelion digger or knife, roots and all. Most bowling greens will also be plagued by some of the

grasses such as annual bluegrass and crabgrass. These can be controlled with pre-emergent herbicides (Ontario Ministry of Agriculture and Food Publication 529). Here again, attention should be paid to the directions on the label. 2, 4D will damage bent grass lawns. Mecoprop is good but best applied in the fall or cooler weather. Application of pesticides requires a licence and posting of your green is necessary 24 hours in advance of spraying. Contact the Ministry of Environment in your area. Have a contractor spray when required.

* **Disease Control** — Can often be a problem. One of the best preventions, where possible, is to avoid planting large shade trees, or buildings such as pavilions too close to the green or landscape plantings. Irrigation should not be left so puddling occurs. Aerifying and thatch removal programs will help alleviate some fungus diseases. However, most greenskeepers will tell you a winter snow mould can be controlled with a preventive fungicide October-November, depending on location, prior to first snowfall and again if green is bare during mid-winter.

* **General Maintenance** — Should include irrigation. Many greens have underground pop up systems controlled by moisture sensors or tensiometers. Many clubs have to pay for water. Most of the wear on bowling greens occurs on the ends. Scheduled movement of the rink markers two feet or more laterally will help to distribute traffic and result in more uniform wear. The practice of alternating the direction of play from north/south to east/west is also helpful at times. A general rule of thumb is to apply 1" of water per week but this can vary as to soil type, mowing heights, temperatures and scheduling between play.

Earthworms have not been mentioned and, although have some beneficial efforts such as breaking down the thatch layer, aeration and some relief to compaction, are otherwise considered a nuisance. The cast are spread by machinery and bowlers. The mud is an ideal environment for undesirable broad-leafed weeds. The casts can also cause an uneven turf surface, which can affect play. Earthworms cannot tolerate acid conditions so even the use of previously-mentioned superphosphate will discourage them or a sulphate iron. Pick up clippings, dethatching and aeration will also help, as they ingest organic matter as their food supply. Chemicals do not give lasting control since Chlordane was banned.

Bambooning, dragging a hose or brooming is useful each day to remove dew. Syringing in hot weather will help during hot dry periods. Most important is to obtain a calendar of bowling events, so maintenance can be completed around these functions — to avoid conflict.

As Edgar R. Haley states in his book, *The Construction of a Bowling Green*, "the given draw should be exactly the same on every rink or green. Such a state can be confidently expected on a properly constructed and properly maintained green."

Good luck to you all.

Acknowledgements to Bill Harding, North York Parks for his helpful information.

New Publication

Recreational Fields — 'A Guide to Site Selection, Construction and Maintenance.' Copies may be purchased by contacting R.W. Daniels, Ph. D. at the Nova Scotia Agricultural College, Truro, N.S. B2N 5E3. Cost is \$12.95 (\$10.00 plus \$2.95 for shipping and handling).

PRODUCT UPDATE

Kentucky Bluegrass Variety

Alene, a Kentucky bluegrass variety, has a medium-dark genetic colour and improved disease resistance. The grass normally germinates in seven to ten days. This rapid growth is particularly useful for renovation and erosion prevention. In 40 days after planting, Alene can be expected to produce 12 tillers for each seedling.

NORMAC SEED CO.

PRODUCT UPDATE

Bentgrass Sod Information Kit

Growing high-quality bentgrass sod for golf greens is different than growing sod for other areas on the golf course. Production methods are unique. There are special requirements for drainage, rootzone mixes, and other management techniques after the seed has emerged.

The kit deals with all aspects of high-quality bentgrass sod production, from developing a proper rootzone mix to harvesting and shipping. Superintendents with bentgrass nurseries will find the kit useful in many ways.

SEED RESEARCH OF OREGON, INC.

New Publication

'Turf Grass Problems in the Prairie Provinces.' Publication 1767E. Contact: Carl E. Lynn, B.S.A., P.Ag., Information officer (Extension and Public Relations).

THE POSITIVE IMPACT OF TURF

A turf has numerous, important functional purposes as well as being attractive. These important dimensions that contribute to our quality-of-life are too often overlooked.

FUNCTIONAL BENEFITS

- Soil erosion control — vital resource protection.
- Dust stabilization
- Heat dissipation — temperature moderation
- Noise abatement
- Glare reduction
- Reduced runoff of precipitation
- Ground water recharge
- Entrapment and biodegradation of organic chemicals
- Atmospheric pollution control — particulate/chemical
- Conversion of carbon dioxide emissions
- Safety in vehicle operation/equipment longevity
- Facilitates security for key installation
- Reduced fire hazard
- Reduced noxious pests — insects, snakes and rodents

Erosion, mud and dust stabilization

Turfgrasses serve as an inexpensive, durable ground cover. Perennial turfgrasses offer one of the most cost effective methods to control wind and water erosion of soil that is very important in eliminating dust and mud problems around homes, factories, schools, and businesses; as well as protecting our valuable non-renewable soil and water resources.

One of the key mechanisms by which turfs control soil erosion is through a superior capability to essentially absorb or trap and hold runoff water. A healthy turfed lawn absorbs rainfall 6 times more

effectively than a wheat field and 4 times better than a hay field; being exceeded in this important function only by a virgin forest (Watschke). This attribute is certainly important in enhancing ground water recharge.

The water use rate of turfgrasses is lower than most trees and shrubs.

Heat dissipation

The overall temperature of urban areas may be as much as 10 to 12F warmer than nearby rural areas. Lawns through the cooling process of evapotranspiration serve an important function in dissipating the high levels of heat generated in urban areas.

Very strong contrast can be shown in terms of comparative dissipation of radiant energy from typical urban surfaces such as asphalt, concrete, bare soil, and turfs (Beard and Johns, 1985); as well as from bare soil and artificial turf.

A football field has the cooling capacity of a 70 ton air conditioner.

The cooling effect of irrigated turfs and landscapes can result in energy savings via reducing the energy input and allied costs required for the mechanical cooling of interiors of adjacent homes and buildings (Johns and Beard, 1985).

Noise and glare reduction

Turfs reduce noise, glare, and visual pollution problems. The rough surface characteristics function in noise abatement (Cook and Van Haverbeke) as well as in multi-directional reflection that reduces glare. Thus, turfs lower the harshness of unwanted noise and lessen the visual stresses of glare.

A grassed area of 70 feet distance on a roadside can abate obtrusive vehicle noises by 40%.

Pollution Control

The dense plant canopy of mowed turfs is very effective in the entrapment of water and airborne particulate materials, as well as in absorbing gaseous pollutants. The high degree of water runoff that occurs from impervious surfaces in urban areas carries many pollutants in the runoff. Turfgrasses offer one of the best known systems for catchment of the runoff plus the pollutants, if proper landscape designs are used.

The extensive fibrous root system of turfgrasses contributes substantially to soil improvement through organic matter additions. In this process, a diverse large population of soil micro-flora and fauna are supported. These same organisms offer one of the most active biological systems for the degradation of trapped organic chemicals and pesticides. Thus, this turf-ecosystem is important in the protection of ground water quality.

Nuisance pest and pollen control

Regularly mowed residential lawns reduce problems of nuisance pests such as snakes, rodents, mosquitoes, and chiggers, plus allergy-related pollens produced by many weedy species. As these small animals seek haven in taller grass at locations more distant from the house, they also are less likely to invade the home.

The diverse ecosystem of the grass lawn serves as a source of food for birds.

Economic contributions

Quality turfs are of economic importance in that they contribute to

increased property values and commercial appeal. Similarly, a well groomed lawn surrounding a factory or business is an asset in conveying a favourable "we care" impression to employees and the general public.

American consumers spent an estimated \$3.5 billion on outdoor power equipment products in 1987.

From a monetary standpoint, the turfgrass industry contributes in excess of US \$30 billion annually to the United States Economy (Cock-erham and Gibeault).

Security

Roadside turfs are important in highway safety, as well as erosion control, in that they function as a stabilized zone for emergency stop-page of vehicles.

Turfs are utilized for soil and dust stabilization around airfield run-ways in order to prolong the operating life of engines. Smaller airstrips utilize turfgrasses as the runway surface itself.

RECREATIONAL BENEFITS

- Enhances physical health of participants
- Serves as a safety cushion against impact injury
- Provides a low cost surface for outdoor sport and leisure activities
- Even home lawn care offers physical exercise

Many outdoor sports and recrea-tional activities utilize turfgrasses, including archery, badminton, baseball, cricket, croquet, field hockey, football, golf, hiking, horse racing, horseshoes, lawn bowling, lawn tennis, lacrosse, polo, rugby, shooting, skiing, soccer, softball, track and field, and volleyball.

Turfs provide a low cost cushion-ing effect that reduces injuries to the participants, particularly in the more active contact sports such as

football, rugby, and soccer (Gramckow). Turfs feel good to walk on. This resiliency con-tributes to healthy legs.

Artificial turfs have not duplicated the cushioning effect of turfgrasses and thus offer less safety to par-ticipants.

Turfgrasses offer the least expen-sive, safest form of outdoor surface for sports and recreation.

Also there is the entertainment dimension that spectators derive from sporting competitions played on turfs. The enjoyment and benefits of improved physi-cal/mental health derived from recreation and leisure activities on turfs are vital to a contemporary society, especially in densely popu-lated urban areas.

Home lawn owners derive the benefits of both physical exercise and therapeutic relaxation from the stresses of the work-place via activities involved in the actual care and grooming of lawns. There is great satisfaction in creating beauty within the landscape.

While some scorn its needs, others find lawn maintenance require-ments an excellent opportunity to enjoy reasonable exercise and a healthy mental diversion.

• Therapeutic value

Better quality of life, especially in densely populated urban area-Thomas Jefferson wrote that com-munities "should be planned with an eye to the effect made upon the human spirit by being continually surrounded by a maximum of beauty.

Turfs provide beauty and attrac-tiveness that enhance the quality of life for human activities. These benefits are magnified when com-bined within the total landscape of trees, shrubs, and flowers.

How we see vegetation in our sur-rounding is basic to social stability and harmony. Ugliness is costly. Cities can be very dismal without green turfs in parks, beside boulevards, and surrounding homes and business. The result is a loss of productivity, more suscep-tibility to anxieties and mental dis-ease.

The clean, cool, natural green of turfs provides a pleasant environ-ment in which to live, work, and play. Such aesthetic values are of increasing importance to the dig-nity of the human spirit and the mental health of urban residents because of a rapid paced lifestyle and increasing urbanization.

Calories are burned and muscles toned via many activities:

Task/Activity	Calories burned per hour
Digging	516
Mowing	458
Weeding	295
Raking	222

ORNAMENTAL BENEFITS

- Compliments flowers, shrubs, and trees
- Enhances beauty and aesthetics
- Improves mental health
- Improves social harmony
- Improves work productivity

Properly maintained lawns and recreational turfs (1) contribute a diverse array of benefits that make turfgrasses one of the best friends of the urban environmentalists and (2) greatly enhance our quality of life.

We Get Letters

Christopher Mark,
Superintendent,
Grounds and Vehicles,
University of Guelph

Dear Chris:

I would like to thank you for the opportunity of speaking to your group. The Association is remarkable in their interest and knowledge. I was surprised and pleased to be asked substantive questions; this happens all too rarely, as many groups seem to be shy in questioning a speaker.

I hope to return to the area, and spend some time at Guelph; it has been a Mecca for sports turf long before the States was doing much in that regard.

Thank you again.

Very truly yours,

Judith Ferguson Gockel
President, Agri-Systems of Texas, Inc.
Tomball, Texas 77375

Attention: Mr. Michael Bladon

I thought I would take the liberty to enclose a list of publications that are produced by Cushman Manufacturing:

Thatch and Compaction,
Lawn Aeration,
Lawn Overseeding

I will forward the information from our offices.

Yours very truly,

Dick Raycroft, Field Sales Manager
G.C. Duke Equipment Ltd.
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THE TURFGRASS SPECIALISTS

MEMBER NEWS

DOL Brothers has introduced the DB OV 200 commercial overseeder. It will overseed 20 acres a day.

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