

"Green is Beautiful"

Ontario Golf Superintendents Association

54 HERNSHAW CRESCENT — ETOBICOKE, ONTARIO M9C 3M4 — TELEPHONE 622-9929



"Next Meeting"

WESTVIEW GOLF CLUB

HOST: KEITH NESBIT

DATE: TUESDAY,

AUGUST 12th, 1980

MEETING: 9:00 a.m. - 10:00 a.m.

GOLF: 10:00 a.m.

GUEST SPEAKER: KEITH NESBIT

COST: \$5.00 Per Person

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MEETINGS 1980

Date	Course	Host
Tuesday, August 12	Westview Golf Club	Keith Nesbit
Wednesday, September 10	Dukes "Lawn 'Arama"	
Tuesday, September 16	Orillia Golf Club - Pro-Super	
Thursday, September 18	C.G.S.A. - Fall Field Day	
Monday, September 29	Dalewood Golf Club (McClumpha Tournament)	Dan Ardley
Tuesday, October 14	Bayview Golf Club	Jim Wyllie
October 29-30	G.C.S.A.A. Seminar "Landscape I"	
November 15	Christmas Party, Lambton Golf & Country Club	
Tuesday, December 2	Aurora Highlands - Annual Meeting	Whitey Jones

IN THE NEXT ISSUE

Results of:

- 1) President, Greenschairman, Superintendent Day.
- 2) O.G.S.A. Turf Grass Research Tournament.
- 3) Meeting at Westview Golf Club.

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GALT FIELD DAY

On Thursday, June 12, 1980, our Superintendents toured a fine conditioned golf course and the ever improving Turf Plots of the University of Guelph.

The guest speaker was Dr. Tom Fisher from the University of New Hampshire. He spoke on Tradition of Golf Courses.

The days golf winners are as follows:

Gross -

1st	Bruce Vollett	74	2nd	Dan Ardley	76
3rd	Bill Bowen	76	4th	Bill Fach	77
5th	Graham Shouldice	77	6th	Hugh Kirkpatrick	77
7th	Bob Heron	78	8th	Barry Endicott	78

Net -

1st	Whitey Jones	64	2nd	Carmin DeCorso	66
3rd	Shorty Jenkins	67	4th	Bob Brewster	67
5th	Ron Wilczynski	69	6th	Blake McMaster	69
7th	Ted Ellis	70	8th	Ken Nelson	70

Assistants -

Gross -

1st	Bruce Berger	72	2nd	Warren Vout	78
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Net -

1st	Graham Walker	66	2nd	Ric Reids	70
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Guests -

Gross -

1st	Rod Hermitage	73	2nd	Sandy Forbes	75
3rd	Dave Gourlay Jr.	77	4th	Dave Keith	78

Net -

1st	Chuck Eagleson	66	2nd	Neil Acton	68
3rd	Dennis Murr	70	4th	Doug Nisbet	70

Joe Reid, won closest to the hole on #11 with the first shot of the day.

A special prize for the "Hidden Hole" was awarded to Paul Scenna, ironically enough, a worthy recipient.

GCSAA BULLETIN

McLoughlin Named Executive Director—The appointment of James E. McLoughlin, Executive Director of the Metropolitan Golf Association, to the position of GCSAA Executive Director was announced this week by Melvin B. Lucas Jr., CGCS, GCSAA President.

"The Executive Committee has deliberated at great length over the selection of a person to head GCSAA. We evaluated our history and looked toward our future. We are pleased and confident that the choice is one that will bring a new dimension to GCSAA and the golf world," Lucas said in making the announcement.

GCSAA Fall Seminars Scheduled—Two GCSAA fall seminars in Toronto, Ont., and Springfield, Mass. have been announced by Palmer Maples Jr., CGCS, GCSAA director of education.

The Toronto seminar, Landscape I Design Theory, is scheduled for Oct. 29-30. Instructors will be William R. Nelson, professor of horticulture and landscape architecture, the University of Illinois, Champaign-Urbana, and C. E. McNinch, director of independent study, the University of Guelph, Ontario.

The Massachusetts seminar, Pesticide III Insects, is scheduled for Nov. 19-20. Dr. Harry Niemczyk, professor of entomology, the Ohio Agricultural Research and Development Center, Wooster, will be the instructor.

Maples said that plans for other GCSAA seminars in other parts of the country are incomplete at this time. For further information on the Toronto and Springfield seminars, contact GCSAA Headquarters, 1617 St. Andrews Dr., Lawrence, Kan. 66044.

ANAHEIM TO HOST 1981 CONFERENCE

The 1981 GCSAA International Turfgrass Conference and Show, Jan. 25-30 in Anaheim, Cal. will include a joint educational meeting with the USGA Green Section, the return of the popular golf course tour and an expanded schedule of conference functions.

Because both GCSAA and USGA will be meeting at the same time in California, the two organizations have agreed to co-host one education session, scheduled for Jan. 29 in the Anaheim Convention Center, site of most of GCSAA's conference and show activities. No theme has been determined for the joint session, although Palmer Maples Jr., CGCS, GCSAA director of education, said that it would be related to GCSAA's general conference theme, "Meeting Golf's Challenge Efficiently."

GCSAA's conference activities will begin with a pre-conference golf tournament at Industry Hills Golf Course near the conference site. Practice rounds will begin Jan. 21, with tournament play Jan. 22-23.

Several one and two-day seminars will be offered Jan. 24-25, followed by the opening session on Monday, Jan. 26, and general sessions throughout the week. A ribbon-cutting ceremony will kick off the Turfgrass Trade Show Tuesday, morning.

One of the most popular activities from past conferences has been returned to the 1981 program. A tour of the 36-hole Industrial Hills complex has been scheduled for Friday morning, Jan. 30.

Two unique social functions have been added to the 1981 conference schedule. A special "GCSAA Family Fun Day" at Disneyland Amusement Park is scheduled for Friday after the close of conference activities, and negotiations are now underway to purchase a block of tickets for a Harlem Globetrotters basketball game sometime during the conference week.

The Anaheim Convention Center, one of the largest in the country, is located within walking distance of several convention hotels as well as Disneyland. Several theme parks, museums and other tourist attractions also are close by. The combination of valuable educational opportunities, social activities, sun and fun for the entire family promises to make GCSAA's 52nd International Turfgrass Conference and Show one to remember.



Guest Speaker—Dr. Tom Fisher



Norm McCollum—University of Guelph



Group Picture



Rod Hermitage—Green Cross Low Gross Winner



Dan Ardley Presents Whitey Jones with Prize



Roger Ince—\$200 O.G.S.A. Scholarship from St. Thomas



Dr. C. W. Switzer—University of Guelph



Graham Walker—Ass't Supt. Galt Country Club



Harry Cudney—\$100 Scholarship Horticulture Apprenticeship at Humber College



Malcolm McNeil Presenting O.G.A. Scholarship to John Gall

GREENHILLS

By Al Draper

I would like to first of all give you a short history of Greenhills.

Prior to 1975 Greenhills has been closed down for five years. In 1975 a group of businessmen got together and decided to re-open the Club. During the Summer of 1975 and Spring of 1976 they refurbished the existing 9-hole Executive Course, built 5 Outdoor and 5 Indoor Tennis Courts.

In the Spring of 1976 they opened the Facility. Following the good response of 1976 in the Spring of 1977 they built 3 more Indoor Tennis Courts.

In August of 1977, construction began on an 18-hole par 70 Golf Course. I (Al Draper) arrived at Greenhills in December of 1977, and the Golf Course was 2/3 completed. Everything looked good for opening in the Summer of 1978.

Well during my interview I was told that Greenhills was built in a flood plain. Never having worked on a Golf Course near a flood plain, I was rest assured I could cope with the problems associated with this situation.

Well, in the Spring of 1978 I saw what a flood could do to a newly seeded Golf Course!

50% of the Course was under water, nearly all the seed was lost in the flood. Many greens were damaged and/or required rebuilding. This, of course, meant delaying opening until 1979.

During 1978, I gained a lot of experience in Golf Course Construction and Green Installation in particular. This brings me to the subject in all cases the procedure used for construction is based on the amount of money available to build the Golf Course.

In our case we are on a limited budget. This is the procedure used to build the greens at Greenhills:

Our Greens are 80% sand and 20% peat. The materials used were washed concrete sand ranging in size from .05 mm to 1 mm and the peat was in a peat muck form. After obtaining suitable materials the green site would be stripped of all top soil. The subsoil would be shaped to conform to the green surface contours. Making sure there was surface drainage in at least three directions.

The moundings and green surroundings would be shaped at the same time. Next the sand was dumped in front of the green and using a bulldozer and blade, it was spread to a uniform depth of 12" over the sub-base contour.

Following this the green surface would be roughly levelled using a gill pulverizer.

Next the peat was applied to the surface using a York Rake or just spreading it by hand to a depth of 1" to 2". Next it was Roto-tilled to a depth of 6"-8" in at least five different directions. After this it was brought to a final grade using a gill pulverizer.

Now it was ready for seed bed preparation. This can be accomplished by using a steel dragmat or raking by hand.

Next a fertilizer high in Phosphorus was applied and finally the PennCross Seed @ 11B/1000 ft.² with a drop spreader.

The final and probably the most important operation is to roll the entire green surface using an empty roller. Now water was applied at approximately two-hour intervals at 3-5 minute settings during the day. This was kept up until germination was detected and then water requirements were judged on a daily basis.

Fertilizer requirements are very high in the first year. We applied 9 lbs. of N 51B Phosphorus and 71B of Potash Fungicides on a curative basis during the first year. We used Daconil, 1991 and Arrest.

We started cutting our greens at 4½ to 5 weeks after planting. The height of cut we started with was 3/8" after we started to see a turf cover form we lowered it to 5/16". This height was maintained until we had the greens putting true and a good cover had formed. We then lowered the height to 1/16"/week until we reached the desired height of 3/16".

Overall sand greens provide a good putting surface with a healthy root system in a relatively short period of time. This leaves you with a green that has good surface drainage and requires minimum maintenance over an extended period of time.

The main reason I have gone to sand top dressings at Greenhills is due to the flood plain conditions. After the water goes down in the Spring, we are left with a layer of silt 3/16" thick over all the greens in the flood plain. This is not enough to physically remove because it settles into the thatch layer. In order to rectify this problem we double aerify these greens in the Spring and apply sand at the rate of 15 ft.²/1000 ft.

First of all when considering sand top dressing look at all the pros and cons. I would say that if your present system is working stick with it. Once you change to sand top dressing you cannot go back.

When searching for a suitable sand start at least two months prior to the time you will require it.

BOOKLETS

After contacting many gravel pits in our area I finally found one that could economically produce a sand to our specifications. This material would pass a #16 mesh and be retained on a #50 mesh. The sand must range between .05 and 1 mm. Ideally 100% of the sand should be in the .25 mm range.

We applied the sand using a drop spreader on a Truckster or a Lely. Every 2-3 weeks during the heavy growth period in May, June and September. The rate we used was 5-6 ft.³/1000 ft.².

The main advantage of sand top dressing for me are:

- Ease of application
- Low labour requirements
- Little interruption in play
- A truer putter surface
- More consistency between individual greens.

I cannot see any reduction or increase in disease incidence due to sand top dressing.

THE EFFECTS OF PESTICIDES ON EARTHWORMS

By Drs. Alan Tomlin and Gerald Stephenson

Research Scientist, Pesticide Ecology, London Research Institute, Agriculture Canada
and

Associate Professor, Dept. of Environmental Biology, OAC, University of Guelph

As you are probably aware, the soil and turf team with animal life, the most obvious specimens of which are earthworms. There are 19 species of earthworms in Ontario, only two of which are native to North America. The remaining species are primarily European, and were probably imported in potted plant stock over the past 4 centuries. Any native Canadian fauna that might have existed was exterminated by glaciation. Of the 19 Ontario species only about 7 species are likely to be found on or around golf courses. Of these, the best known is the dew worm or night crawler, frequently harvested from golf courses as a bait worm for fishing.

Although on golf greens the dew worm may be considered a pest (because of its casting mounds), it, and the other species of worms found in turf help maintain turf quality where turf cultivation is impractical. Earthworms provide drainage and aeration for soil, assist in decomposing organic matter (reduce thatch), improve soil crumb structure, and mix mineral and organic components of soil.

Earthworms, particularly the dew worm, have varying susceptibilities to the wide array of chemicals which are used by golf supts. In both field and laboratory tests, it has been demonstrated that the fungicide benomyl is particularly toxic to earthworms; it is at least as toxic as many of the most potent insecticides to earthworms. We have found that in laboratory and field tests a single 1 lb/acre (1.12 kg/ha) treatment of Benlate 50 (R) WP sprayed onto the turf causes significant reduction in earthworm populations. At double that rate (2 lb/acre or 2 consecutive one pound applications) 90% of the worms are killed. If the worms are not subjected to further benomyl applications, their populations return to normal within a year. If the soil is subjected to benomyl treatments over several years, earthworm populations will be reduced even further, and reinvasion by worms from untreated areas will be slower.

Benomyl is also somewhat toxic to some beneficial soil arthropods. However, we have found that benomyl applications to turf result in a net increase in these beneficial arthropods probably because some of their predators are more susceptible to the benomyl. Similar observations have been made with several insecticides.

Benomyl residues in soil normally break down quite rapidly. Even following a treatment at 4 lb/ha, within 3 months, residues are virtually undetectable. We have found that an annual treatment of benomyl at 4 lb/ha for 4 years does engender a "background" soil residue of 0.001 ppm.

Fungicides are generally considered "safer" than insecticides, but in the case of earthworms and benomyl, this is not so. Care should be exercised in its application, particularly if the golf course is anticipating income from dew worm harvesters. Usually, however, because of the relatively high cost of benomyl (and pesticides generally) it is usually only applied to greens, whereas worm harvesting takes place on the fairways.

Some insecticides are quite toxic to earthworms. Chlor-dane is so toxic that it is often used to control earthworm populations in lawns and on sport fields. The following brief table (Table 1) ranks several other insecticides in increasing order of toxicity;

Insecticide	Rate Kg AI/ha	% Reduction in No. of earthworms
Dursban EC	2.24	21.2
Lannate 90 SP	3.40	28.5
DDT E.C.	5.60	36.3
Furadan F	3.40	42.6
Sevin WP	2.24	59.8
Thimet 10G	3.40	91.8
Counter 15G	3.40	92.9
Furadan 10G	5.60	93.6

There does appear to be some tendency for granular formulations of insecticides to be more toxic than other formulations. This probably only applies to worms that feed on the surface (night crawlers); this behaviour increases their body surface exposure to the granules or they might even ingest the granules.

Actually, granular formulations of herbicides, often mixed with fertilizers, which were introduced several years ago to golf courses, have also been found, in laboratory tests, to be toxic to the dew worm. There is also strong circumstantial field evidence to suggest that bait worm harvesters have had their yields substantially reduced at golf courses using these granular formulations.

Of sprayed herbicides only Dacthal had adverse effects on earthworms, and then only on worms living in the upper soil layers; these effects had disappeared within a year and the deep-dwelling dew worm was unaffected. The following table lists several herbicides and their effects on the earthworm Allolobophora caliginosa, a worm living in upper soil profiles.

Herbicide	Rate(kg/ha)	Allolobophora caliginosa populations/m ²			
		after 3 wks.		after 12 months	
		No	wt(gms)	No	wt
Betasan	15.0	57 a	10.5 a	38 a	10.8 a
Dacthal	15.0	34 b	5.1 b	36 a	9.6 a
Dicamba	0.5	56 a	9.5 a	38 a	9.9 a
2, 4-D	1.0	61 a	12.3 a	37 a	7.4 a
Mecoprop	1.0	61 a	11.8 a	34 a	8.1 a
2, 4, 5-T	1.0	54 a	13.3 a	30 a	8.2 a
Control	—	58 a	12.0 a	37 a	9.9 a

a, b - numbers followed by the same letter are not significantly different from one another.

In general, benomyl, Furadan(R), Thimet(R), Counter(R), possibly granular formulations of herbicides and Dacthal should be used with care or not at all where earthworms are desirable. Conversely, on greens, where earthworms may be considered a pest, these compounds may be used to advantage.

PREFIX DEFINITIONS

Names of multiples and sub-multiples of the units are formed by means of the following prefixes:

	Prefix	Symbol
1 000 000 000 000	TERA	DA
1 000 000 000	GIGA	G
1 000 000	MEGA	M
1 000	KILO	K
100	HECTO	DA
10	DEKA	D
0.1	DECI	D
0.01	CENTI	C
0.001	MILLI	M
0.000 001	MICRO	U
0.000 000 001	NANO	N
0.000 000 000 001	PICO	P

CONVENIENT CONVERSION FACTORS FOR METRIC EQUIVALENTS

Multiply the unit on the left by the factor shown to find the metric equivalent listed on the right. To convert metric to Canadian measure, or U.S.A. in several instances, reverse the direction and divide the unit on the right by the factor to find the equivalent on the left.

TO CONVERT FROM

Length	To	Multiply by	Metric Symbol
Inches	Centimetres	X 2.54	CM
Feet	Centimetres	X 30.48	CM
Feet	Metres	X 0.305	M
Yards	Metres	X 0.91	M
Miles	Kilometres	X 1.61	KM

AREA

Square Inches	Square Centimetres	X 6.45	CM ²
Square Feet	Square Metres	X 0.093	M ²
Square Yards	Square Metres	X 0.84	M ²
Acres	Hectares	X 0.405	HA

VOLUME

Cubic Inches	Cubic Centimetres	X 16.39	CC
Cubic Feet	Litres	X 28.32	L
Cubic Yards	Cubic Metres	X 0.76	M ³
Fluid Ounce (Canadian)	Millilitres	X 28.41	ML
Fluid Ounce (U.S.A.)	Millilitres	X 29.57	ML
Pints (Can.)	Litres	X 0.57	L
Quarts (Can.)	Litres	X 1.14	L
Gallons (Can.)	Litres	X 4.55	L
Gallons (U.S.A.)	Litres	X 3.79	L
Bushel (8 gal. Canadian)	Litres	X 36.37	L
Cubic Feet	Cubic Metres	X 0.0283	M ³

MASS (Weight)	To	Multiply by	Metric Symbol
Ounces Avdp.	Grams	X 28.35	G
Pounds	Kilograms	X 0.454	KG
Short Tons	Tonnes	X 0.91	T

TEMPERATURE

Degrees Farenheit	Degrees Celsius	°F-32x0.56	°C
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PRESSURE

Pounds per Sq. Inch (PSI)	Kilopascals	X 6.89	KPA
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POWER

Horsepower	Watts	X 745.7	W
Horsepower	Kilowatts	X 0.75	KW

SPEED

Feet per Second	Metres per Second	X 0.30	M/S
Miles per Hour	Kilometres per Hour	X 1.61	KM/H

(All units for conversion on this page are Canadian measures)

TO CONVERT FROM

Large Area Agricultural Proportions

Ounces per Acre	Grams per Hectare	X 70.00	G/HA
Fluid Ounces per Acre	Millilitres per Hectare	X 70.21	ML/HA
Pounds per Acre	Kilograms per Hectare	X 1.12	KG/HA
Pints per Acre	Litres per Hectare	X 1.41	L/HA
Quarts per Acre	Litres per Hectare	X 2.81	L/HA
Gallons per Acre	Litres per Hectare	X 11.23	L/HA
Bushels per Acre	Litres per Hectare	X 89.80	L/HA
Plants per Acre	Plants per Hec.	X 2.47	

MISCELLANEOUS PROPORTIONS

Area Rates	To	Multiply by	Metric Symbol
Ounces per 1000 sq. ft.	Grams per 100 sq. metres	X 30.51	G/100M ²
Pounds per 1000 sq. ft.	Grams per 100 sq. metres	X 488.2	G/100M ²
Pints per 1000 sq. ft.	Litres per 100 sq. metres	X 0.61	L/100M ²
Gallons per 1000 sq. ft.	Litres per 100 sq. metres	X 4.89	L/100M ²

LIQUID/SOLID CONCENTRATIONS

Ounces per gal.	Grams per litre	X 6.25	G/L
Ounces per 100 gallons	Grams per 1000 litres	X 62.5	G/1000L
Gallons per 100 gallons	Litres per 100 litres	X 1.00	L/100L
Ounces per 1000 cu. ft.	Grams per 100 cu. metres	X 100.0	G/M ³
Pounds per 1000 cu. ft.	Kilograms/100 cu. metres	X 1.6	KG/M ³

SPECIAL NOTE: AQUATIC PESTICIDES

Volumetric Basis: 1 mL per cubic metre of water = 1 ppm
Weight Basis: 1 gram per cubic metre of water = 1 ppm

McCLUMPHA TOURNAMENT

"FUN DAY"

PLACE: DALEWOOD GOLF CLUB

HOST: DAN ARDLEY

DATE: MONDAY, SEPTEMBER 29, 1980

- DRAW PRIZES
- PUTTING CONTEST

"BRING YOUR ASSISTANT"

SUPPORT THE

**"ONTARIO TURFGRASS
RESEARCH FOUNDATION"**

ALL DONATIONS ARE TAX DEDUCTIBLE