

October 2002

Green is Beautiful

The Official Publication of Ontario Golf Superintendents' Association

Alex McClumpha Memorial Tournament

1st Annual O.G.S.A. Assistants Tournament

Super of the Year!

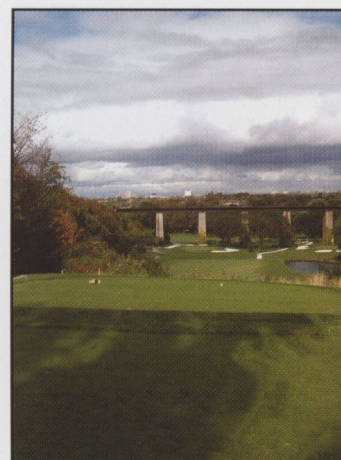
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COVER PICTURE

Weston Golf & Country Club
Weston, Ontario

Hole #2

Photo by Mark Prieur

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*OGSA is committed to
serving its members,
advancing their profession,
and
enriching the quality
of golf
and its environment.*

President's message

CGSA to Manage 2004 Conference and Show

It's now official! After months of careful consideration, the OGSA board has negotiated a one year deal to have the CGSA run our conference and show in 2004. It was felt that the CGSA has the staff, knowledge and the experience to manage our conference with the benefit of also knowing the ins and outs of the golf and turf industry. It's a win-win situation for both parties and it's great to see dollars spent to run a conference remain within the turf business. No venue has been selected as of yet for 2004, but all agree, the registration fee will remain reasonable and that a change from the Regal Constellation Hotel is essential.

The OGSA also approved the agreement to co-host the joint conference with CGSA, when the Canadian conference returns to Toronto in 2005.

1st Annual OGSA Assistants' Tourney A Success

The inaugural Assistants' Tournament, held at the Whirlpool Golf Club in September, was an outstanding success. The weather was great and the course was in excellent condition, providing all who participated an enjoyable day. For full details and photos of the event see page 17.

Keep InformedBe a Cyber Super!

Over 150 members have signed up to have OGSA correspondence and news bulletins delivered directly to their email addresses. Stay in the loop and be the first to hear about ground breaking regional news in the Turf business. Simply email Dorothy at ogsa@gti.uoguelph.ca and say "include me in OGSA's email correspondence"



Jim Flett
Muskoka Lakes
Golf & Country
Club



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	YEAR 2002	
	Average	Actual
January		
(rain)	18.5 mm	14.6 mm
(snow)	32.3 cm	31.4 cm
(total)	45.6 mm	46.2 mm
February		
(rain)	20.8 mm	29.6 mm
(snow)	25.9 cm	7.0 cm
(total)	45.5 mm	38.4 mm
March		
(rain)	35.1 mm	44.1 mm
(snow)	19.9 cm	17.6 cm
(total)	56.9 mm	61.3 mm
April		
(rain)	56.0 mm	88.8 mm
(snow)	7.3 cm	12.2 cm
(total)	64.0 mm	103.3 mm
May		
(rain)	65.8 mm	80.7 mm
(snow)	0.1 cm	0.0 cm
(total)	65.9 cm	80.7 mm
June		
(rain)	68.9 mm	59.6 mm
July		
(rain)	76.6 mm	59.0 mm
August		
(rain)	84.2 mm	11.6 mm



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Canadian Golf Superintendents Association news

by Bob Burrows
Rosedale Golf Club



The CGSA Fall Field Day Classic tournament at Nicklaus North on September 23rd was sold-out, and with good reason. The whole day was absolutely outstanding. Thanks to the event organizers, co-sponsors and especially, the Toro Company for hosting the reception. To continue with the success of this event, mark September 15th, 2003 on your golfing calendar, when we move to "Legends on the Niagara" for the next tournament.

The three days of pre-tournament Board meetings were quite busy, with a full agenda, including a long-range planning session with a facilitator. The most relevant initiatives were discussions regarding the development and delivery of a National Marketing campaign to promote our profession to members and non-

members alike, as well as developing a seminar program, which is aligned with our National Occupation Standards. Watch for the results of our IPM/BMP survey in the very near future.

I will be hosting a seminar on Friday, November 22 near Pearson Airport with Bob Sexton and his timely seminar "Managing Up: Strategies for influencing Boards, Committees, and Managers". Plan to attend, and bring your assistant or your General Manager perhaps. This seminar awards GCSAA accredited CEU's and also conforms to our own National Occupational Standards. Watch your mail for the brochure.

Congratulations to Mr. Gary Stadnek of Red River College for winning the Toro Future Superintendents award, and to Mr. Pelino Scenna of Burlington Golf Course for winning the Score Superintendent of the year award. Mr. Bob Wick, Executive Director of the WCTA, will receive the John B. Steele Distinguished Service Award. **Well done gentlemen!**

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Turfgrass management research at the GTI

by Dr. Julie Dionne, Assistant Professor Turfgrass Management
University of Guelph jdionne@uoguelph.ca

A new research project funded by the OGSA

Entomopathogenic nematodes : an alternative to pesticides to control turfgrass insect pests on golf courses in Ontario



For more than a decade it has been clear that sustainable agriculture and horticulture, which includes managed turfgrass, will need to include reduced reliance on pesticides and increased use of integrated techniques which include natural pest control. While IPM has a proven value in safe and sustainable turf management, there is an ongoing need to add to the array of tools that are integrated

there. This is particularly true with respect to the development of low risk alternatives to current pesticides in an IPM context. With the increasing concern about pesticides, deregistration of some chemistries (e.g. organophosphate and carbamate insecticides) and the potential for complete bans by municipalities, the ability to develop and recommend effective alternatives is critical. The importance of alternative, reduced risk methods has become critical in the context of the recent Supreme Court decision and impending municipal bans on pesticide use.

Biopesticides based on a nematode-bacteria complex have shown promise as a method of controlling several turfgrass pests. These biopesticides have many advantages in an urban setting. Entomopathogenic nematodes are environmentally friendly and do not harm vertebrates. Nematodes kill pests quickly, and they can be introduced in a water solution using the conventional sprayers used by turf managers. There is some evidence of the potential for these nematodes to control cutworms, black turfgrass ataenius. Little information is available on the control of the emerging pest crane fly larvae commonly called leatherjacket with nematodes. Moreover, the specific recommendations for the use of nematodes to effectively control insect pests on golf courses in Ontario is currently lacking.

The main objective of our research project is to determine the efficacy of entomopathogenic nematode agents in management of crane fly larvae commonly called leatherjacket (*Tipula* sp), black cutworm (*Agrotis ipsilon*), and black turfgrass ataenius larvae (*Ataenius spretulus*) under both environmentally controlled (laboratory) and field (golf course) conditions in Ontario. More specifically, we will :

- Assess the susceptibility of crane fly larvae, black cutworm, and black turfgrass ataenius larvae to different species of entomopathogenic nematodes in the laboratory.
- Determine the efficacy of entomopathogenic nematode treatments to control crane fly larvae, black cutworm, and black turfgrass ataenius larvae on golf courses.
- Develop recommendations for the use of entomopathogenic nematodes on golf courses in Ontario.
- Survey for naturally present entomopathogenic nematodes on golf courses.

This research project focuses on delivery of non-chemical control measures and the reduction of pesticides inputs into turfgrass insect pests management program for golf courses. This project will provide specific recommendations for the use of entomopathogenic nematodes for control of major turf insect pests on golf courses. It will help the implementation of this biological control in an IPM context. This research will ultimately contribute to reduced pesticide use in urban landscapes and golf courses.

This 2 years research project is part of a collaborative effort involving the participation of the Department of Plant Agriculture at the University of Guelph and The Guelph Turfgrass Institute (Julie Dionne and Louis Simard), Agriculture and Agri-Food Canada at Saint-Jean-sur-Richelieu (Guy Bélair), and the Ontario Golf Superintendents' Association.



Simard, 2001



Simard, 2001

Tipula
(*Tipula* sp.)

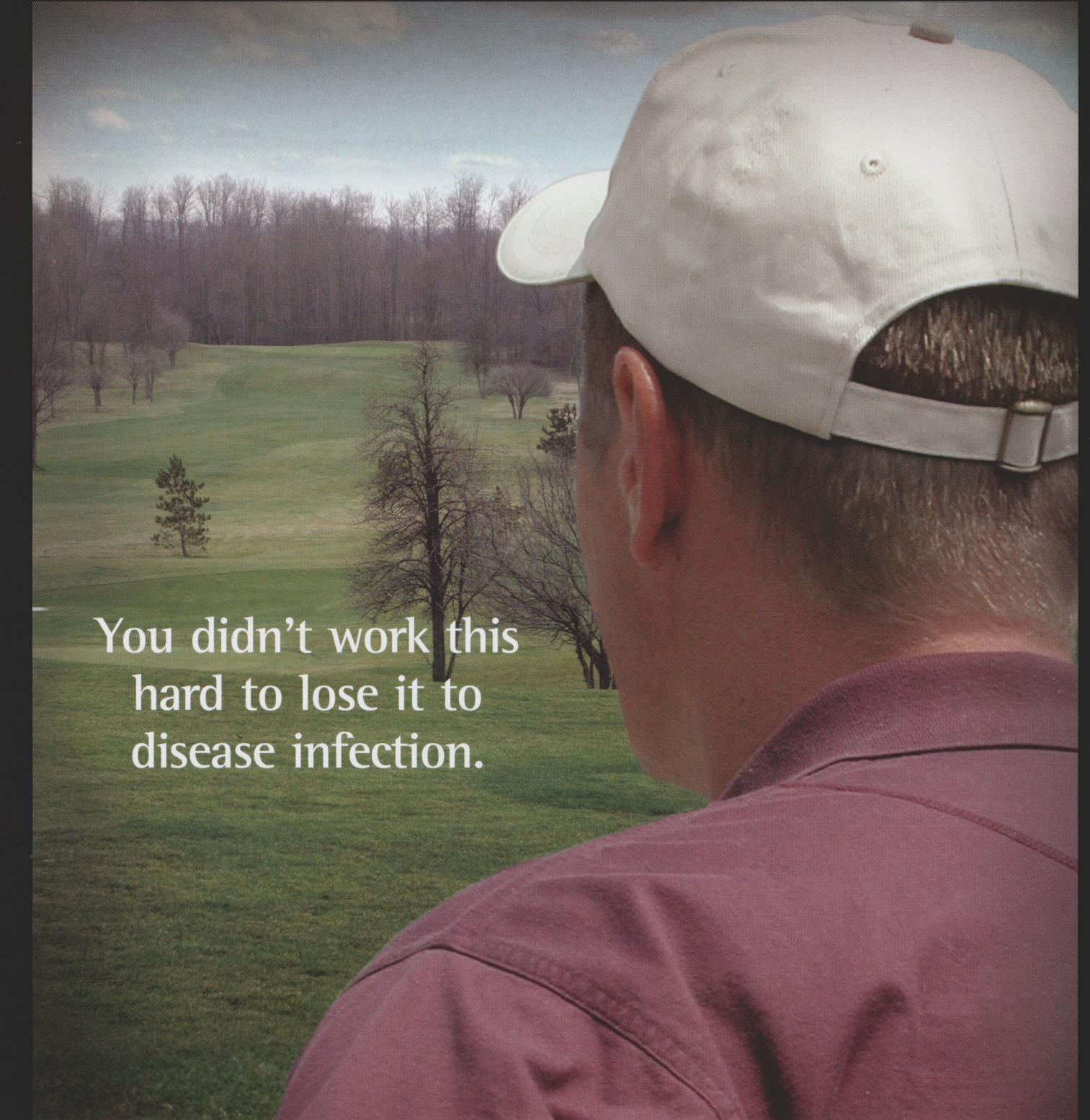


Simard, 2001



Simard, 2001

Black turfgrass ataenius
(*Ataenius spretulus*)

A man wearing a white baseball cap and a maroon polo shirt is shown from the back, looking out over a lush green golf course. The course is dotted with several trees, some of which are bare, suggesting a late autumn or early winter setting. The background shows a line of trees under a cloudy sky.

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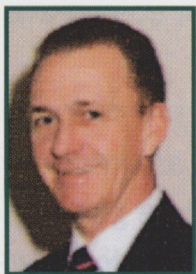
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The referee

by Bob Leggitt
Rules Chairman, G.A.O.



This quiz works on the relief rules from 23 to 28 and is intended to get people to read the definitions which helps to understand the rules.

1. The stroke and distance penalty is the only option to a player in which of the following?

- A) Ball unplayable, ball lost in an obstruction.
- B) Lost ball through the green, ball out of bounds.
- C) Lateral water hazard, casual water interference.
- D) Embedded ball, obstruction interference.

2. If a player locates their original ball after playing a ball that was not announced as a provisional ball, they may still complete the hole with the original ball without penalty.

- A) True
- B) False.

3. A player is not entitled to clean their ball if it is lifted for lying on the wrong putting green.

- A) True
- B) False.

4. A player is allowed to take relief without penalty from interference by which of the following?

- A) Casual water in a water hazard.
- B) Out of bounds fence.
- C) Burrowing animal hole in a bunker.
- D) Ball unplayable in a tree stump.

5. According to Rule 25-1b, a player is entitled to relief without penalty from:

- A) A tree stump.
- B) Casual water visible on the putting green when the player walks beside the line of putt.
- C) Soft, mushy earth.
- D) Overflow from a water hazard.

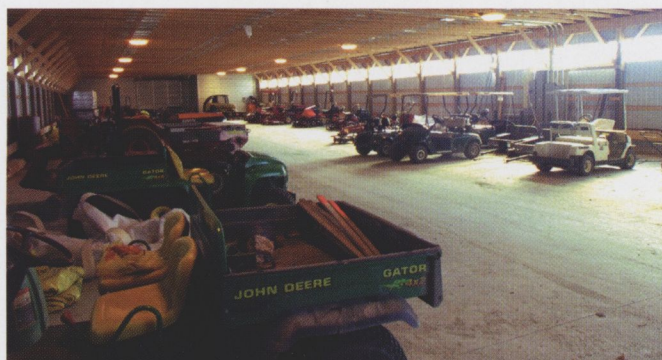
Answers on page 13.



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Health & safety

ROAD SAFETY

by Doug Johnson,
SAFETAID and Health and Safety Consulting
First Aid and Safety Supplies and WHMS Training

The importance of safe driving was driven home last week

There had been a light rain.

I was stopped at a traffic light and looked in the rear view mirror to see a vehicle sliding towards a van stopped behind me. Fortunately I had left enough room in front of my vehicle so that I could move ahead without moving into the intersection. I avoided getting rear-ended by the van after it was hit by the car. A very quick reinforcement of my defensive driving habits!

How many of you, as supervisors or employers, have ever taken the time to discuss defensive driving with your management team or your workers?

How many of you have taken a defensive driving course in the last three years?

Do you understand your responsibilities when it comes to the operation of vehicles on the public road, by your employees?

Think about the questions I am posing.

Are you aware that if you ask a worker to take their vehicle to complete an errand on your behalf, as the employer or supervisor, that you are responsible for how they drive?

Did you ever think of the consequences if your worker was killed or injured while completing the errand? What would the consequences be if they were to injure or kill a third party?

Are you aware that when a worker is operating, either your vehicle or their own vehicle on club business, they are subject to the same rules that would apply if they were actually on club property?

Think about this for a moment. You ask a worker to do an errand. They rush to get the job done. They have a bad accident. There is a court case. What is your defence? Have you done everything that you reasonably could do to ensure that your worker understood the complete operation of either their vehicle or your club vehicle?

Have you ever had your workers show you that they know how to operate the vehicle? Or have you trusted that just because they have a driver's license that they are competent enough to drive on the public road?

Be aware that a driver's license is their permission to drive. It does not necessarily mean that they are competent on every type of vehicle that they are given to drive.

Remember that when you asked them to drive your maintenance equipment you put them through a rigorous training program to ensure that they knew how to handle the equipment and complete the job. Have you done this for your road vehicles also?

Winter will soon be upon us and the driving conditions get worse. Are you and your club prepared? Has your club ever thought about promoting safe driving?

Take a moment to review your work practices and ensure that you are taking every reasonable precaution to ensure the safety of your workers.

Enjoy the autumn. *Drive safely!*

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Cyber super

by Mark Prieur, Assistant Superintendent
Markland Wood Country Club



Where Am I going?

With the golfing season coming to a close very soon, the need to travel (or should I say the itch?) becomes a tradition in the "off-season." Going to various conferences, short courses, golfing or travel destinations can be a little frustrating when you do not know exactly where it is that you are supposed to be or how long it

will take you to get there. Non-members of CAA will find www.mapquest.com very useful due to the fact that it is free.

At the home page you will be prompted to enter as much information about the destination as you know. This can be as specific as the intersection or as vague as the city or state (province). From here, MapQuest will find the locale you are looking for and the immediate surrounding area. Here is where it gets fun, the map now can be zoomed, panned (east or west, north or south), even emailed to someone if you need to hook up with them when you get there. There is also a scale on each map to indicate distances that will aid in travel time calculations. The map can also be printed so you can have a hard copy. (I used the print button on the Explorer taskbar instead of the site's print key due to a software conflict but it printed anyway.)

MapQuest even remembers your last search map that you created the last time that you visited.

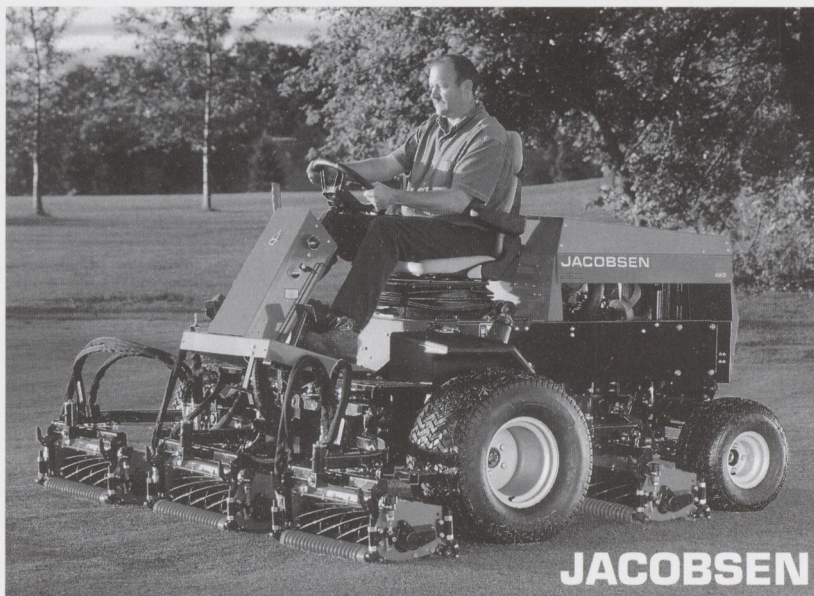
What site would be complete without a few pop-up ads? Beware the Orbitz and KOA Kampground pop-ups (or just use the Alt-F4 key to close them before they load). Other features include directions to the location that you specified in a text format, aerial photos (of some areas) longitude and latitudes and a map legend. Maps can also be downloaded and saved for future use. This site should definitely be bookmarked.

Another site of interest is www.maps.yahoo.com. The area called "Driving Directions" can be used as a start-finish map. Enter the start (by either address or city) and then enter the finish (the same way) and yahoo spits out exact directions to the destination complete with driving time and a distance calculation. (For example "Turn right on Bloor Street and drive 4.2 kms.") Not only is this site free, it is fairly quick considering the information it must compile. The only warning is it may not always be the shortest route to your destination. Construction, non-existing roads or newly developed areas may skew travel times. Having said that, "Examine your map carefully and plan your own route." is what my Dad used to say.

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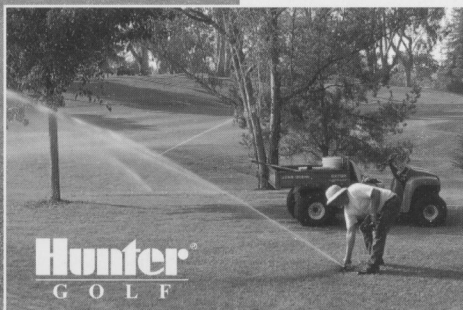
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Off the fairway

PRIORITIES FOR THE FALL GARDEN

by Daisy Moore



Experts continue to profess that fall is an ideal time for gardening. Despite all the efforts of marketing experts, the media and gardening gurus, many gardeners do not follow suit. This

might be because of fatigue or a feeling that the season is lost. I am not one of those gardeners and I encourage all of you to venture out into the garden while there is still time.

There is little difference in allowable garden activities in the fall versus the spring. The major difference in the seasons is that the cut off point for spring activities is the heat, whereas the cut off point for fall activities is the cold. Roots are still actively growing in order to store nutrients and water for winter survival and spring growth. The soil is warm and moist, making it an ideal time to work with outdoor plants.

Trees, shrubs and perennials can all be planted in the fall. Nurseries will often sell these plants at a discount in order to avoid the expensive over-wintering procedure, especially with trees. Those that are left unsold will often be transplanted into larger containers to be sold for a higher dollar the following spring. Check with a local nursery or grower and ask about their inventory of plants. If you are looking to create a habitat, screen a green from a tee or to simply gussy up the place, now is the time to find out what's available and get values. My garden designs often revolve around available plants. I prepare the bed, have ideas in mind about which plants would be suitable and then make my decisions based on what I see and find.

Transplanting and dividing plants within your existing gardens is ideally done in the fall. The soil is generally easy to work with and the active root growth of the plants will quickly repair any root injury which occurred during the digging process. The equipment you need when dividing and transplanting includes a sharp spade or shovel, tags to mark the plants and a wheelbarrow full of compost or organic material. After removing or dividing a plant, re-place the divot with a compost/soil mixture. Plant spring flowering bulbs in the gaps you have created for an increased efficiency of the job. Use the compost to amend the soil in the new area where you are planting. Composted manure, composted grass clippings and leaf litter are all valuable additions to the garden beds.

It is a good idea to spend a bit of time with each of your plants prior to winter freeze-up. Remove any weeds which may have germinated late in the season and invaded the soil near or even over top of a perennial. I find that weeds will often invade the early flowering perennials which die back in the summer. If left unchecked, robust growers such as dandelions or burdock will kill the perennial underneath.

Surround each perennial, tree or shrub with a generous supply of compost, manure or other organic material. This will add life to the soil and assist in promoting a healthy environment for beneficial soil micro-organisms. Bonemeal or fertilizers containing higher Potassium and Phosphorous can also be added at time of planting. Steer away from using turf fertilizers, generally, in garden beds. The tendency towards higher nitrogen with turf blends can lead to imbalance with flowering plants.

Whether, and how much to cut down the

dead flowers and stems of perennials, is mostly a matter of taste. Many dead flower stalks are attractive when left and allowed to show through the snow. Ornamental grasses, hydrangea, rudbeckia and mullein are a few examples of plants which should be left un-cut due to their ornamental appeal in winter. I would not recommend cutting any perennial down to the ground level. Leaving a few inches of stubble will help to attract snow cover which will protect and insulate the roots. The stubble, combined with the compost, will also give you an indication where the plants are after the snow melts.

Bulbs, as was mentioned, can be planted as you divide and transplant perennials. Consider the flowering time and colour of the perennial and plant a bulb which would be a good companion to that. Evening primrose, a rapid spreader in need of constant dividing, can be underplanted with crocus or daffodils to give an early flower show. The primrose leaves will then disguise the foliage of the bulbs after they have ceased flowering. Ornamental onions are perfect companions to peony or artemisia.

There is lots to be done in the garden in the fall both to keep the garden attractive in the late season as well as to do jobs which will save you time in the spring. Get as much done now as possible because somehow the activities surrounding the growing of grass take priority when the gun goes off in the spring. Do your best to work around the labour shortage caused by staff going back to school. Hire a gardener, if you don't already have one, and you will be glad you did.

Visit my website: www.daisymoore.com.
Listen to my radio gardening show, "Daisy Moore on Gardening",
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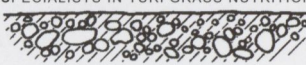


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Ontario Turf Research Foundation 2002 Annual Fundraising Golf Tournament

Many people from the golf industry gathered on a beautiful August day at the Royal Woodbine Golf Club to help support turf research, enjoy a great day of

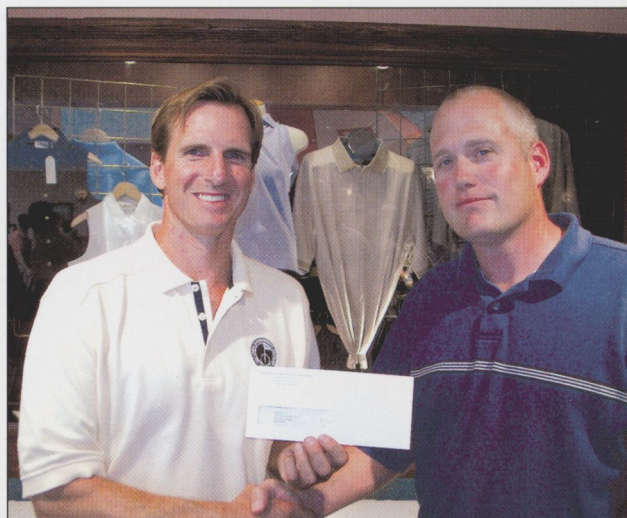
golf and camaraderie. The Royal Woodbine is a Michael Hurzdan creation. It is Etobicoke's gem, recognized for challenging the best of shot makers.

Thanks to Robert Cowan, golf course superintendent and his staff, the course was in fine shape, despite the dry, summer weather, for the day's event.

Photos by D. Hills



Royal Woodbine Golf Club



Jim Flett, presenting OGSA cheque to Chris Dew



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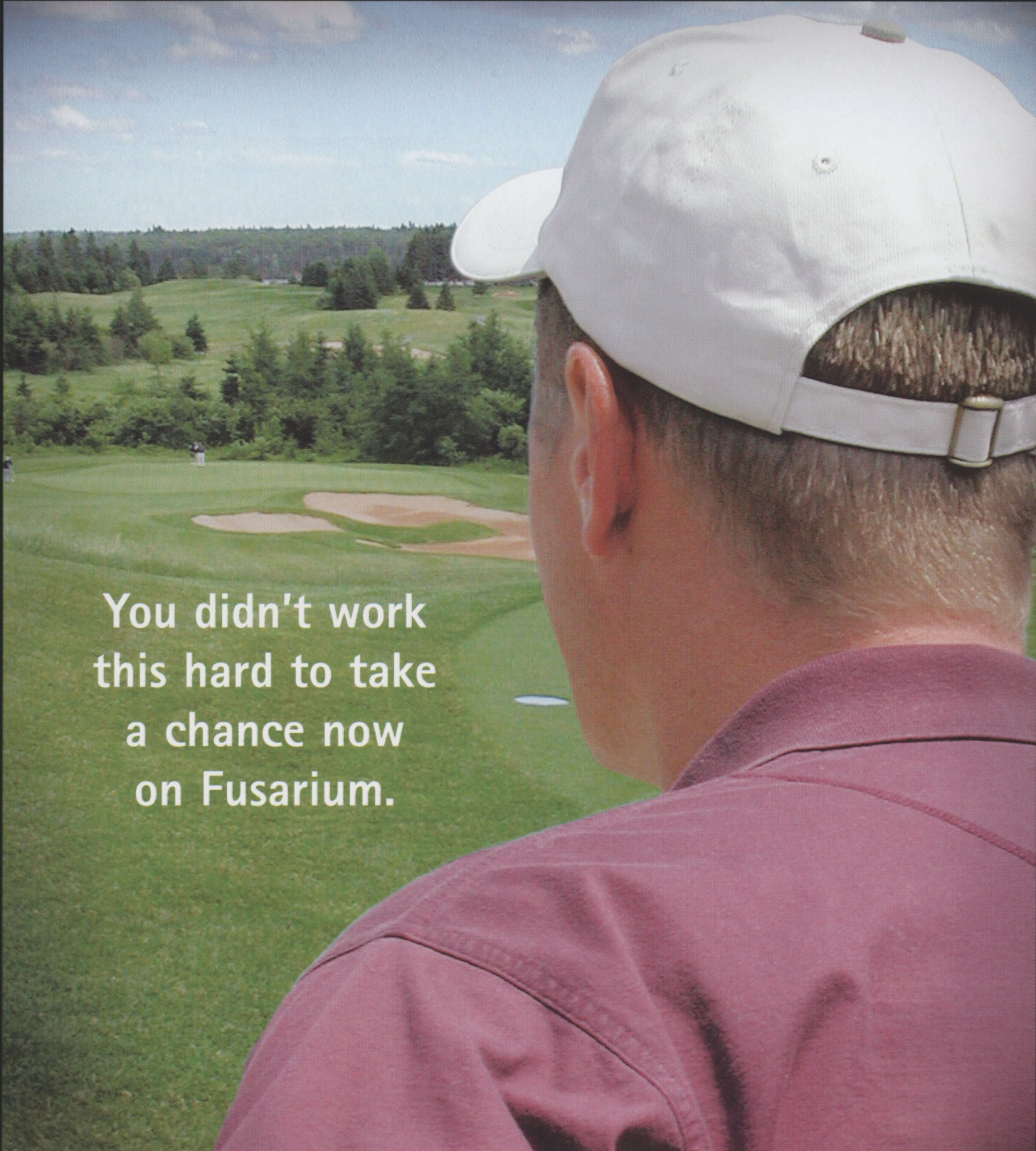
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The referee - Quiz answers

- 16- B Rule 27-1
- 17- B Rule 27-2a
- 18- B Rule 25-3b
- 19- C Rule 25-1b(ii)
- 20- D Dec 25/2



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Golf course highlight

Weston Golf & Country Club

50 St. Phillips Road
Weston ON M9P 2N6

Golf Course Superintendent: Ron Ackermann

Email: westonturf@bellnet.ca

website: www.westongolfcc.com

COURSE PROFILE

WHAT COUNTY IS YOUR CLUB LOCATED IN?

Toronto

IS YOUR CLUB PRIVATE, SEMI PRIVATE, PUBLIC, RESORT, MUNICIPAL?

Private Club

SIZE OF MEMBERSHIP?

700 members

NUMBER OF ROUNDS?

30,000

TYPICAL OPENING AND CLOSING DATE?

April 15th to November 30th

NAME OF SUPERINTENDENT?

Ron Ackermann

HOW MANY YEARS HAVE YOU BEEN A SUPERINTENDENT?

11 years

HOW MANY YEARS HAVE YOU BEEN AN O.G.S.A. MEMBER?

16 years

HOW MANY YEAR ROUND STAFF?

6

HOW MANY SEASONAL STAFF?

30

HOW MANY MECHANICS AND ASSISTANTS?

1 mechanic, 1 assistant (Owen Russell)

HOW MANY GARDENING STAFF?

2

COURSE STATISTICS

HOW MANY HOLES?

18

WHAT IS THE YARDAGE FROM BACK TEES AND FORWARD TEES?

6728 back tees; 5105 forward tees

WHAT IS THE SIZE AND LENGTH OF DRIVING RANGE AND RANGE TEE?

Range 200 yards and tee: 12,000 square feet

HOW MANY BUNKERS?

77

HOW MANY PONDS, AND/OR HOW MANY TIMES DOES WATER COME INTO PLAY?

2 ponds, 1 small creek

WHO WAS THE ORIGINAL ARCHITECT?

Willie Park Jr.

WHAT WAS THE YEAR OF ORIGINAL CONSTRUCTION?

1915

WHAT MAJOR TOURNAMENTS HELD?

Canadian Open, 1955 Winner: Arnold Palmer

WHAT IS THE SIZE OF YOUR MAINTENANCE SHOP?

Very Modest

WHAT TYPE OF IRRIGATION SYSTEM?

Rainbird heads (10 years old) Toro Controls (new)

WHAT IS THE SIZE OF THE GREENS, TEES AND FAIRWAYS?

Greens: 3 acres

Tees: 2.5 acres

Fairways: 22 acres

WHAT IS YOUR PREDOMINANT GRASS?

Bentgrass / Poa Annula

HOW MANY USGA GREENS AND HOW MANY LOAM GREENS?

1 USGA greens, 18 Loam greens

WHAT IS THE PREDOMINANT SOIL TYPE?

clay

LONG RANGE PLANS

WHAT LONG RANGE PLANS FOR RENOVATION DO YOU HAVE IN THE NEXT FIVE YEARS?

In development process



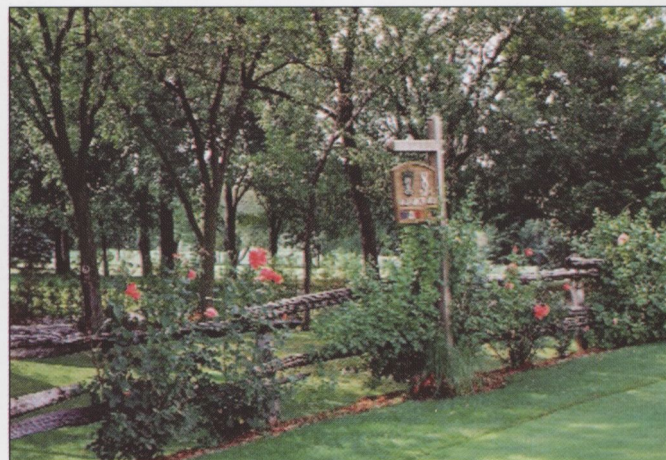
Hole 6 This is another green that slopes back to front and is extremely fast. A mid iron second shot to below the hole can make a birdie a possibility, an up and down from either side of the green is difficult. Par here is well earned.



Hole 4

A beautiful little par three bunkered on all sides. Plays anywhere from a five to an eight iron with the wind usually against you.

Photo's from Weston G&CC Website.



Hole 8 • A short, little monster to a well bunkered green. Only two pin areas here - lower level left side and upper level right side. The right side requires a more precise shot to a smaller green area, whereas the left side pin placement has yielded many twos and aces. This hole can make you work very hard for a par.

57th Annual Alex McClumpha Memorial Tournament

Photo's by Mark Prieur

Despite the promise of high winds and rain, the day was perfect for the members and guests who gathered to wrap up the OGSA golf season at Weston Golf and Country Club, on October 7th.

Our host superintendent, Rob Ackermann, who by the way, is just completing his first season at Weston, had pulled out all the stops, and presented us with an immaculate course with the greens running fast and true. While driving through the unique rolling terrain, you

forgot that the course was located in the heart of Toronto, surrounded by towering buildings and major highways; we were totally engulfed by beauty and tranquillity.

Highlights of the evening included the presentation of a plaque by Paul Scenna to Rob Ackermann, our host superintendent, thanking him and all the staff at Weston Golf & Country Club for a wonderful day. Ron Craig of Turf Care Products presented Bruce Burger with the George Darou Trophy, which is presented each year to the

Senior (over 50 yrs of age) Low Gross Score. David Svab received the Stained Glass Award for the best Low Gross Score. Of course we had the traditional draw for the Texas Mickey and as well this year, a digital camera.

As usual, our Associate members came through with an abundance of donated prizes for the event. Whether you received a prize or not, everyone was a winner, as we went home after a day of great golf, great food, and great company!



Ron Craig from Turf Care presenting Bruce Burger with the George Darou Trophy. Bruce has won this award 2 years in a row.



Paul Scenna presenting Robert Ackermann with plaque



David Svab 1st Gross winner

The winners of the tournament

Flight "A"

(Superintendents and Assistant Superintendents)

Finish	Score	Winner
1 st Low Gross	79	Dave Svab
2 nd Low Gross	80	Bruce Burger
3 rd Low Gross	81	Paul Brown
1 st Low Net	68	John Parker
2 nd Low Net	69	Neil Tandan
3 rd Low Net	70	Craig Senior

Longest Drive #1 Dave Svab
Closest to the Hole #11 Kevin Wingerden

Flight "B"

(Associate Members and Guests)

Finish	Score	Winner
1 st Low Gross	75	Trevor Hunter
2 nd Low Gross	78	Brian Rosenberg
3 rd Low Gross	81	Tim Trimper
1 st Low Net	68	Bob Grisenthwaite
2 nd Low Net	70	Victor Peters
3 rd Low Net	70	Jason Harris

Longest Drive #14 Trevor Hunter
Closest to the Hole #8 Brad Bergin

1st Annual O.G.S.A. assistants tournament

Photos and article by Neil Tandan, 2nd Assistant
Donalda Club

Tuesday, September 24th marked the kickoff of the 1st Annual Assistants Golf Tournament. The host course was Whirlpool Golf Club in Niagara Falls. With a full field of 100 golfers – including 1st Assistants, 2nd Assistants, Technicians, and Distributor Representatives – from near and far, a good day was well in the making.



1st Low Gross Winner: Jamie Cooper (Prince Lee Acres)
Congratulated By Scott White Donalda Club

Whirlpool impressed all those playing in the tournament with the charm of its Stanley Thompson design, the manicuring of its turf and sand traps, and the brilliant floral displays at almost every turn. With the Niagara River Gorge only metres away from the 18th tee, the temptation to tee one up and “grip-it-and-rip-it” over the gorge was strong indeed!

The tournament format was individual gross and net scores. Prizes were awarded for the top four finishers in the ‘low gross’ and ‘low net’ categories as well as

for ‘closest-to-the-hole’ and for ‘longest drive’. The steady breeze and challenging course set-up made good scores well earned on this day. Congratulations to Jason Cooper (Prince Lee Acres), who won 1st Low Gross with a score of 77! The winner for 1st Low Net was Jamie Goodrow (Hamilton G&CC) with a 65. Nice one! The remainder of the impressive prize table was awarded via blind draw.

Following the golf, players were able to relax and enjoy each others company and conversation in the clubhouse. Hopefully everyone gained some insight through the exchange of ideas and philosophies during this ‘informal education’ time. Impressive appetites were more than satisfied with the prime rib buffet which included a wide selection of side dishes, salads, and dessert. Even the vegetarians were looked after!

Many thanks must go to all those involved with making the event such a success. First and foremost, thanks to Dave Agnew, Andrew McQuillan, and their staff for providing an excellent golf course. Anyone who played that day can attest to putting some very FAST greens! Thanks also to the people on the inside – namely the Pro Shop and Banquet Staff – who took care of everything from scoring to providing the wonderful dinner. The prize table this

day was certainly a hot topic of discussion and a big ‘Thank You’ goes out to all the Associate OGSA Members who so generously donated gifts. Finally, a pat on the back to Dorothy Hills of the OGSA, who shared a great deal of experience with these event organizing “rookies”!

It’s great to see the return of an industry event geared towards Assistants and Technicians. Not only does it help to build personal and professional



relationships, but participation in the event is another encouraging sign of the health and interest of the turf industry in Ontario. With the continued support of the OGSA, the distributors, and all you ‘Non-Superintendents’ (Ha!), the future of this tournament as an annual affair is bright.



1st Low Net Winner: Jamie Goodrow (Hamilton G&CC)
Congratulated By Scott White Donalda Club



Floral Display Near Clubhouse

Golf course superintendent of the year

The Canadian Golf Superintendents Association of the Year Award is a prestigious acknowledgement of a superintendent's "body of work" for a person who is nominated by his peers, selected by previous winners and endorsed by the CGSA Board of Directors. That person is then saluted by all the key people in the golf industry at the Score Golf Awards each year.

We are proud to announce that this year's recipient of this distinguished award is Pelino (Paul) Scenna, OGSA member and superintendent of Burlington Golf and Country Club.

"Mr. Scenna is the consummate professional."
Quote from Paul Lawrence, President, Burlington Golf and Country Club.

Few superintendents symbolize the best of the profession as does Pelino, who has served as President of the Ontario and Canadian Golf Superintendents Associations and has also served other associations including the Western Ontario Golf Superintendents Association and the Golf Course Superintendents Association of America, as a member in good standing. He is also a founding member of the Ontario Turfgrass Research Foundation and was instrumental in the development of that program. He has also been involved with the development of educational programs at the University of Guelph and Seneca College for many years.

Pelino is dedicated to the superintendent's profession and been a CGSA member since 1969, and has attended the Canadian conference each and every year since, for a total of 30 consecutive years.

"Early in his career Pelino realized the importance of image and professionalism in our development years, and has spent years promoting this in our industry. We are better because of that"

Quote from Mark Piccolo, Superintendent of Galt Country Club.

Working for 38 years as a superintendent, he started his career at the Galt Country Club in 1963 and stayed there for 21 years before moving to the Burlington Golf and Country Club, in 1985. Eight of his assistants have moved on to become superintendents in their own right. He has also mentored six individuals who have become either assistant superintendents or now work in some other turf related position.

"Much of my success thus far, and any success I have in the future, I will owe, in large part to Pelino. I cannot think of a better example of excellence in our industry."

Quote from Tom Brain, Assistant Superintendent, Burlington Golf and Country Club.

In 1970, Pelino attended the first turfgrass short course at the University of Guelph and later in 1975, he returned for a one week refresher course. He has achieved Master Superintendent status. He has given back to the education community by serving on the turf program advisory board at Seneca College for five years and at Humber College for three. He also helped develop the University of Guelph turf program and short course and served four years on their advisory committee. Pelino Scenna is well regarded by his peers and is often



sought out for his advice. He has made presentations to students as well as to fellow superintendents, and has spoken on his experiences and knowledge in Italy, Great Britain and throughout Canada.

"I think we all know the generous spirit, the hearty grin and laugh, the dynamism, the 'fun to be around' guy that Pelino is."

Quote from Dr. J.L. Eggers Professor Emeritus, University of Guelph.

Pelino Scenna is extremely proud of his role as Superintendent and takes equal pride in touting CGSA and its importance to all superintendents. He has served the association on many committees in the



past and continues today to serve on the CGSA Group RRSP (pension) committee protecting members' interests.

He has been called "a superintendent's best friend". Not only does he maintain an exceptionally well-maintained course of his own, but is constantly looking for ways to improve and experiment with various grasses and irrigation and maintenance practices to show by example how to practice his profession. He looks for and administers unique methods of controlling pests and other aspects of maintaining a golf course. People visit him to see his golf course and he is generous in sharing advice and commentary on other superintendent's courses.

Pelino epitomizes the work ethic, commitment and dedication to his employer. The high standards he sets for the Burlington Golf and Country Club have impressed not only his own members, but his course has been named as one of the top three best maintained golf courses by Score Golf Magazine. The Burlington Golf and Country Club in the past two years was selected to host major

events such and the LPGA event in 2000 and the Ontario Senior Ladies Championships in 2001.

"Pelino has a passion for your industry. His work ethic, communication skills and attention to detail are impeccable."

Quote from Trevor Fackrell, Head Professional, Burlington Golf and Country Club.

Pelino is a devoted family man. He has two sons, Mark and Paul. Both of these boys grew up on the golf course and when they were young it was not uncommon to see Pelino and the boys driving around checking out the course in the evening. I know Pelino is immensely proud of his two sons and today both of them have followed in their dad's footsteps and become successful in the turf industry. And with talking to Pelino over the years, he always tells how grateful he is to have the love and support of his wife Diane who has allowed him to pursue a career that he truly loves.

"His pride in his work, his family and his course and his loyalty to all of these are indeed rare attributes to find in one person"

Quote by B. Sparks, General Manager, Donalda Club.


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Pesticide Exposure and Human Health (Part Two)

by Donna L. Houghton, Ph.D., Technical Registration Manager, Toxicology; Syngenta Crop Protection Canada, Inc., September 26th, 2002

Note: There was a typographical error in Part One of this article that appeared in the August issue of "Green is Beautiful".

The acronym for "Lethal Concentration 50%" is "LC₅₀", not "LD₅₀". "LD₅₀" refers to "Lethal Dose 50%".

In this article, the second of a three part series, we will address the concept of risk and the allegation that pesticide exposure is responsible for an increase in cancer incidence. Readers are encouraged to review Part One, which appeared in the April issue, for background information prior to reading this article. Part Three, which will appear in the next issue, will address the subjects of pesticide exposure and asthma, neurological effects in children, and endocrine (hormone) disruption. Please note that references for the complete three part series are footnoted in the text and a detailed listing is available from "Green is Beautiful" Magazine.

The Concept of Risk/Hazard

Unfortunately, a large portion of the problem we are facing today with cries from the general public for a ban on the use of pesticides for urban uses, is related to misconceptions about risk. All activities in which we participate carry a certain element of risk. However, the public's perception of risk is distorted because people haven't been taught about risk. Risk perception has more to do with a combination of the frequency with which the risk is taken (familiarity with the activity), the level of control a person has over the risky situation, how much pleasure they derive from it, and an unconscious decision to accept certain risks because the benefit incurred outweighs the risk, than it does the magnitude of the risk. For example, many people feel perfectly safe driving a car but unsafe when flying; when in reality, the risk of being seriously or fatally injured in a car accident is far greater than being injured or dying in a plane crash.

Most of you reading this article probably drink coffee, drive cars, ride bicycles periodically, and enjoy the occasional alcoholic beverage. Some of you are smokers. Many of you enjoy being out in the sun and don't always wear sunscreen, and many have used a cell phone while driving. The purpose of presenting this lengthy list of activities is to point out that people take risks everyday, whether they are driving to work, crossing the street, riding a bike, smoking a cigarette or consuming alcoholic beverages. Each of these activities has a significant level of risk associated with it, and each bears a much greater health risk than you will ever incur from exposure to pesticides used on turf. Unfortunately, academia and the chemical industry have not effectively communicated

the concept of risk to the general public. Putting risk into perspective is critical for the public to understand that pesticides can be used safely with minimal risk to human health.

In 1982, Scientific American published a paper that ranked various activities according to their annual contribution to the number of deaths in the US¹. A listing of the top ten, in order of the most hazardous activities to the least hazardous, conveys just how distorted the public's perception of risk truly is. The most hazardous activity that a person can partake in, is smoking. More people die of tobacco-related illnesses than any other cause. The remaining top 10 in order are: use of alcoholic beverages, motor vehicles, handguns, electrical power, motorcycles, swimming, surgery, x-rays and railroads. Cycling ranked 13th, fire fighting and police work ranked 16th and 17th respectively, use of contraceptives 18th, vaccinations 25th, and "pesticides" ranked 28th.

Certainly, each time a pesticide is handled there is some level of risk. "Risk" is a function of the inherent toxicity of a substance and the exposure one has to it.

$$\text{Risk} = \text{Toxicity} \times \text{Exposure}$$

Looking at this simple math equation, if the value for exposure is zero (no exposure), what happens to risk? It becomes zero. The most toxic substances known to human beings can be handled safely, with minimal risk, if there is *little or no exposure*. Alternatively, there can be considerable risk involved in handling a compound that *isn't very toxic* if exposure is high enough. By keeping one, or both, of these factors as close to zero as possible, the risk involved in handling and using pesticides can be minimized. Pesticide label directions are designed to do just that.

Occupational and Bystander Exposure

Scientists measure "exposure" and determine the amount of pesticide that is absorbed into the body, because this represents the internal dose. This internal dose is then compared to doses used in the animal studies discussed in Part One of this article. There are three main routes of exposure into the body:

- Ingestion (oral exposure)

- Contact (dermal exposure)
- Inhalation (respiratory exposure, what is breathed in)

Most occupational and bystander exposures to turf pesticides are a result of exposure through the skin (dermal exposure) or lungs (respiratory exposure).

In 1992, Harris and Solomon investigated exposure to bystanders entering areas where the turf had been treated with the commonly used herbicide 2,4-D². Exposure was measured by analyzing urine for residues of 2,4-D. Exposures occurring 1 hour after herbicide application were well below health protection guidelines and 24 hours after spraying, no chemical exposures were measurable. Dislodgeable residues from the treated turf fell from 8% to 1% during that period. The "rule of thumb" is that, if treated surfaces are dry, exposure is reduced and is minimal. No detectable residues were found in the urine of 20 volunteers with the exception of 3 people who were barefoot, wearing shorts and contacted turf within one hour of application (which is against label directions). *No detectable residues were found in the urine of volunteers exposed to treated turf 24 hours after application.* At recommended application rates, exposure to turf sprayed with 2,4-D should present little risk to humans. Children should never contact treated turf until it is dry, and should never be in the vicinity during application.

A second study by the same lead authors examined exposure of homeowners making their own applications of 2,4-D, and exposure of household bystanders³. Residues were not detected in the urine of the bystanders. The only homeowner applicators that had 2,4-D in their urine were those who failed to wear protective gear and had experienced spills of the liquid concentrate or had excessive contact with the diluted mixture (residues ranged from non-detectable to 0.0071 mg/kg bodyweight, which is very low).

In 2001, Stephenson et al. measured homeowner applicator and bystander exposure to liquid and granular (plus fertilizer) formulations of chlorpyrifos (Dursban) applied to turf⁴. Urine was collected over a 96 hour period beginning immediately after application. Of 40 bystander study

participants, only 4 had trace levels of chemical metabolites detected in their urine and only 1 had residues above the lowest quantifiable concentration (25 ug/L). (Note: The term "trace" means the metabolite was detected but the quantity was so low that an accurate measurement could not be obtained.) This was expected given the chemical properties of chlorpyrifos and the fact that only 1.5 to 3% of the chlorpyrifos applied is dislodgeable immediately after application and less than 0.1% is dislodgeable 1 day after application^{5,6}. Only 1 of 10 applicators who wore personal protective equipment (PPE) had trace levels of metabolites in his urine following application of the granular formulation, while 3 of 10 applicators who did not wear PPE had detectable residues in their urine (1 trace and 2 quantifiable). Of 11 volunteers wearing PPE and applying the liquid formulation, 2 had trace residues and 3 had quantifiable residues in their urine. Certainly the use of protective clothing reduced the extent of exposure. (Note: Dursban is no longer registered for domestic home and garden uses, the reasons for which are beyond the scope of this article; however, commercial formulations are available for use on golf courses, industrial sites, sod farms, ornamental plantings and highway medians.)

Many people are concerned about their pets contacting treated turf. In 1991, a widely publicized study suggested a relationship between canine malignant lymphoma (CML) and exposure to 2,4-D^{7,8}. The study was highly criticized by experts for its design, as well as its analysis and interpretation of the data. Unfortunately, once incorrect information is released to the media, it is very difficult to refute or correct. The study data was reanalyzed by researchers at Michigan State Veterinary College who demonstrated that the data did not confirm a dose-response relationship between 2,4-D use and CML, or even a significant association between the two⁹. Studies are not available for all pesticides used on turf; therefore, owners should keep their pets indoors during pesticide application and until the turf is dry. As can be seen from the studies discussed, very little pesticide is dislodged from treated turf, particularly 24 hours after application.

Pesticides and Cancer

There has been a growing concern that exposure to pesticides, either through food residues or when applied to home interiors, turf and gardens, may be a major cause of various types of cancer. Concern has been

fuelled by some epidemiology studies of pesticide manufacturers, applicators and farmers who have had high exposures, and that are suggestive of an association with certain types of cancers such as prostate cancer and Non-Hodgkin's Lymphoma (NHL). There are many studies suggesting pesticide exposure increases cancer risk in these populations and many indicating no effect. These studies have been plagued by small sample sizes (small numbers of study participants) which reduces the statistical power of a study, and flaws inherent in using questionnaires to obtain exposure data rather than actual sample analysis because the studies are "retrospective" in nature; in other words, the study participants who have already been diagnosed with cancer are asked to recall what they were exposed to 15 to 20 years earlier. The reason that exposures 15 to 20 years earlier are important is that there is a latency period between the time the causal exposure occurs and development of the disease. For many cancers, the latency period is close to 20 years. Obtaining accurate responses on a questionnaire is extremely difficult, if not impossible. In addition, few epidemiology studies have accounted for confounding exposures to other compounds, including medications, diesel fuel etc.

Prior to discussing the results of epidemiology studies on pesticide exposure and cancer, it is critical for the reader to understand what causes cancer and to become familiar with cancer incidence rates. Basically, cancer is caused by the failure of the body's immune system to repair mutations (damage or errors) in our DNA that in turn cause processes in the body's cells to go awry. DNA is the molecule we have in each of our cells that carries our own unique genetic code and also is responsible for cell division. In a healthy individual, cells continually die and are replaced. Every time a cell divides and reproduces itself, there is an opportunity for an error to be made when the DNA duplicates. Every day, our bodies repair millions of mutations, most of which are naturally occurring. This is one of the roles of our amazing immune system. As we age, our DNA repair mechanisms start to falter and mutations that can lead to the growth of a tumour go uncorrected. Consequently, the *annual number of newly diagnosed cancer cases increases as the population ages*. Cancer can also be caused as a result of exposure to an external stimulus that is extremely toxic to cells. If many cells are killed, the body increases the rate of cell division of the remaining cells to try and compensate for the loss. With an increase in the rate of cell division, comes an increased risk that an error will be made

when duplicating the DNA. In the end, it all comes down to a failure of our immune system to repair damage to DNA, whether the mutations are caused by a chemical, ultra-violet (UV) radiation from the sun, exposure to cigarette smoke or cancer causing viruses etc.

If pesticide exposure is contributing to an increase in cancer, this should be reflected in age-adjusted cancer incidence rates over time. The graphs and data presented in this article are from "Canadian Cancer Statistics 2002", produced by the Canadian Cancer Society, the National Cancer Institute of Canada, Statistics Canada, Provincial/Territorial Cancer Registries and Health Canada¹⁶. You can review this information and more at www.cancer.ca. On entering the website, select Research and Statistics, then Statistics, Canadian Cancer Statistics 2002 report. (Note, the 2001 report is also displayed on the website). More specific data was obtained from Cancer Surveillance On-Line <http://cythera.ic.gc.ca/dsol/cancer/>¹⁷ (except where noted, see references provided).

Canadian demographics are changing. The Canadian population is increasing and so is the average age of the population. As a result, the overall number of newly diagnosed cases is increasing because there are more people around to develop cancer and because the disease is more prevalent in older people. In order to remove aging and population increases as confounding factors in cancer statistics, all cancer data is standardized for age and presented as the number of new cases (incidence), or deaths (mortality), per 100,000 of the population. This allows data to be compared from year to year without population increases and average age of the population complicating the issue. Figures 1 and 2 depict the effect of standardizing for age on the incidence numbers per 100,000 of the population in males and in females, respectively. These graphs also demonstrate that the age standardized incidence rate (ASIR) for all cancers combined has been relatively flat over the years. While the data presented are from 1973 to 1998, the data prior to 1984 are not entirely accurate due to changing diagnostic criteria and inconsistencies in cancer registry reporting. Inclusion of these data gives the impression that cancer incidence was increasing during this time, which may not be true. The data from 1984 to 1998 are much more reliable. The data from 1999 to 2002 are estimated values as the actual numbers have not yet been published.

If we look at the age standardized

Pesticide Exposure and Human Health (Part Two) continued...

incidence rates of various types of cancers individually (Figures 3 and 4), we can see that, for most cancers, the incidence has been flat or decreasing in both sexes since about 1983. The only cancers for which increases appear to be occurring are thyroid (not shown on graph), lung, NHL and breast cancer in women, and NHL, thyroid (not shown on graph), and prostate cancer in men. (The increase in melanoma among older men and women will not be specifically addressed here as this is believed to be due to UV exposure.) These trends are also apparent in the average annual percent change in cancer incidence and mortality (1991 – 1998) for men and women (Figures 5 and 6). One trend not apparent from these graphs is the increase in the incidence of testicular cancer in men aged 20 – 49 years. Looking at these specific cancers individually, several comments can be made. (Note: Lung cancer in women will not be specifically addressed as it is widely acknowledged that tobacco use is responsible for the increased incidence of this disease.)

Thyroid cancer

Thyroid cancer is more prevalent in women than men. An increased incidence of thyroid cancer between 1984 and 1998 has indeed been observed in women 20 – 49 years of age. The magnitude of this increase has not, however, been observed in males of similar age; the increase in males has been small during the same time period. It is interesting to note that the incidence of this type of cancer took a jump between 1991 and 1995 in both sexes and most age groups *suggesting* improved detection of this type of lesion; however, this does not explain the dramatic increase among women compared to men. In the early 1990s, the increased use of fine-needle aspiration biopsy may account for a portion of this increase. Incidence of thyroid cancer rises slowly with age. Many studies have linked exposure to radiotherapy directed to the neck region during childhood with a significantly increased risk of thyroid cancer. External exposure during adulthood and internal exposure to therapeutic or diagnostic doses of radioactive iodine, however, do not appear to increase risk. Changes in iodine intake may increase the incidence of some types of thyroid cancer and decrease the incidence of others. Diet may play a role, with consumption of vegetables (e.g. cruciferous) conveying some level of protection. Due to the difference in incidence between men and women, hormonal factors may be responsible. While

studies have been conducted to assess a possible relationship between thyroid and breast cancers, the associations demonstrated have been weak, study sample sizes small and the conclusions not always consistent.

Non-Hodgkin's lymphoma (NHL)

The incidence of non-Hodgkin's lymphoma (NHL) has increased in both sexes of the 20 – 49 year old age group between 1984 and 1998, with the incidence, as well as the percentage increase, being greater in males than females. The risk of NHL increases with age. Patients treated with radiation therapy for other cancers are at increased risk of developing NHL, and those treated with both radiation and chemotherapy are at even greater risk. Epstein-Barr virus has been associated with some uncommon types of NHL. HIV is a risk factor for NHL and the incidence among AIDS patients is much higher than in the general public; consequently, any increase in the incidence of HIV and AIDS will result in a concomitant increase in the incidence of NHL. Since the incidence of HIV and AIDS is rising more rapidly among men than women, it would be expected that a greater increase in the incidence of NHL in men would be observed.

Several epidemiology studies have concluded associations between exposure to phenoxy herbicides such as 2,4-D and MCPA, which are commonly used in agriculture and on turf, and the development of NHL^{18, 19, 20, 21}. The majority of these studies have not measured exposure directly and failed to account for concomitant exposures to potential carcinogens (e.g. diesel fuel, prescription drugs) and exposure to oncogenic viruses found or suspected to play a role. In some studies, associations were found with certain occupations only; however, more research is required on this subject because definitive conclusions cannot be drawn from the epidemiology studies currently available.

Breast Cancer

The increased incidence of breast cancer in women may be due to lifetime exposure to estrogen which stimulates both normal and abnormal breast cell development²². Lifestyle changes such as having fewer children, giving birth at a later age and a reduction in the duration of breast-feeding or not breast-feeding at all, increase lifetime exposure to endogenous estrogen. High fat diets and genetics (BRCA1 and BRCA2 genes) also play a role. The use of oral

contraceptives and hormone replacement therapy have been implicated as causal factors; the former by allowing women to delay pregnancy until a later age and the extent of the latter being dependent on the duration of treatment in addition to other factors. A portion, but not all, of the increase in incidence can be attributed to improved diagnostic techniques (the increased use of mammography). Apparent from Figure 3, is that the increase in the incidence of breast cancer seems to be paralleling an increase in the incidence of lung cancer in women suggesting an association between the two diseases. While the incidence of lung cancer in males has declined due to a reduction in smoking among men, the incidence of lung cancer in women is still on the rise. The number of smokers in the female population has not declined to the same extent as among males, which would explain this statistic.

Prostate Cancer

The incidence of prostate cancer among men rose very slowly from 1984 to 1988 (Figure 4). The dramatic increase in the incidence of this cancer between 1989 and 1993 can be explained by improved diagnostic techniques – primarily the use of Prostate Specific Antigen (PSA) testing. The increase in incidence occurred just after this new technique was introduced. There has been a subsequent decline in incidence since 1993, as existing cases were diagnosed. This is truly indicative of an increase due to improved diagnostics. Risk factors include a family history of prostate cancer, high fat diet and vitamin D deficiency. Findings in epidemiology studies of occupation and prostate cancer risk have suggested a slightly increased risk among farmers, athletes, power plant workers, firefighters, workers in leather processing industries and soap/perfume manufacturing; however, the casual risk factors have not been confirmed^{23, 24, 25}.

Testicular Cancer

The incidence of testicular cancer has increased steadily in men aged 20 – 49 from approximately 6 cases per 100,000 of the population in 1984 to 8.5 cases per 100,000 in 1998. Incidence among men aged 50 and over has been flat to slightly declining (actual number of cases is low at approximately 1 – 2 per 100,000 each year). The main risk factors for testicular cancer are cryptorchidism or undescended testicle(s) and a family history of the disease, suggesting a genetic component. Approximately

14% of the diagnosed cases occur in men with cryptorchidism. There is an increased incidence among men with white collar or professional occupations as opposed to those who would be involved in manufacturing or spraying pesticides. This observation suggests socioeconomic status or lifestyle may be associated with the disease. It does not suggest that pesticide exposure is responsible. Exposure to "endocrine-disrupting chemicals" has been suggested as a possible contributing factor; however, it has not yet been demonstrated that the level of exposure the average public incurs to such chemicals originating from a variety of sources, including those that are natural, is sufficient to cause such a response.

Childhood Cancers

There has been a great deal of publicity suggesting that the incidence of childhood leukemia is increasing and that pesticides are responsible. Actually, the *incidence of leukemia in children is not increasing in Canada* or in the US. Incidence of leukemia in Canadian boys has remained relatively flat around a mean of 4.6 cases per 100,000 during the period from 1984 to 1998. Incidence has also been relatively stable among girls (approximately 3.9 cases per 100,000) during the same period. The incidence of leukemia peaks in children 1 to 4 years of age at approximately 8 cases per 100,000 and declines afterwards to approximately 2.5 cases per 100,000 in children 10 to 14 years of age.

Epidemiology studies suggesting an association between pesticide exposure and childhood leukemia are flawed due to small sample sizes and lack of statistical power, recall bias (asking a mother after her child has been diagnosed with cancer to remember what she was exposed to during her pregnancy and what her baby was exposed to after birth), failure to quantitatively measure exposure to pesticides and report the identity of those pesticides, estimating exposure from birth certificate data or parental occupational title instead of actual sample measurements, and failure to control for confounding factors such as other exposures, just to name a few.

In 1998, Zahm and Ward of the US National Cancer Institute published a review paper summarizing data in the literature on pesticide exposure and cancer risk in children²⁶. Their paper states that, while the studies reviewed were limited by a lack of pesticide exposure information, small sample sizes and the risk of recall bias (plagued by memory and other complicating factors), the risks reported were greater

than those reported for pesticide exposed adults suggesting that children may be more sensitive to the carcinogenic effects of pesticides. (Note: The results could also indicate that parents more readily implicate pesticides when questioned about their child's exposure, compared to their response regarding their own exposure.) The authors concluded that, future research must include better methods for quantifying exposure to pesticides, investigation of the possibility of genetic-environmental interactions etc. These are reasonable suggestions. The authors also concluded that reducing or eliminating pesticide exposure has the potential to prevent at least some childhood cancers. This is one conclusion that many scientists believe is a "leap" considering the weaknesses of the studies cited.

A year later, 5 researchers from the same institution published a review paper that concluded that increases in childhood cancer can be explained by improved diagnostic techniques²⁷. Linet et al. examined incidence and mortality patterns among 14,540 children under the age of 15 years that were diagnosed with cancer from 1975 to 1995. They concluded that there was no substantial change in incidence for the major pediatric cancers and rates have remained relatively stable since the mid-1980's. The modest increases that were observed for brain/central nervous system (CNS) cancers, leukemia and infant neuroblastoma, were confined to the mid-1980's. Linet et al. stated that this pattern suggests that increases likely reflect diagnostic improvements or reporting changes that occurred during this period.

The subject of pesticide exposure and children's cancer risk is an emotional one and determining whether or not a relationship exists is quite complicated²⁸. Even researchers from the US National Cancer Institute have differing opinions on the subject; however, those who believe that there is a connection concede that exposure has not been well defined and that the available studies investigating pesticide use and the development of pediatric cancers have many additional flaws including small sample sizes and case-control bias. More research is required; however, in the meantime we should reduce the exposure of children to pesticides by ensuring label directions are followed, not reduce the use of pesticides. As was seen from the Harris and Solomon (1992), and Stephenson et al. (2001) data, applying the correct application rate of a turf pesticide, and restricting contact with treated turf for a 24 hour period will result in non-detectable residues

among bystanders, which translates to no detectable exposure to individuals contacting treated turf²⁴.

(Note: The leading cause of death among Canadian children is not cancer – it is injuries²⁹. Many of these "accidental" deaths are preventable. Injury mortality statistics include deaths due to unintentional injuries such as motor vehicle accidents and falls, in addition to deaths due to suicide and assault (including child abuse). In 1996, 16 deaths per 100,000 occurred in people under age 20 due to injuries. This is equivalent to 30.5% of all deaths in this age group.) The greatest impact we could make regarding threats to child health would be to find methods of reducing the number of fatalities due to injuries.

Conclusions of Scientific Review Panels and Authors of Review Papers on the Subject of Pesticides and Cancer

In 1997, the National Cancer Institute of Canada's Advisory Committee on Cancer Control (ACOCC) addressed the issue of public exposure to pest control products to determine whether a significant level of risk existed that would necessitate the Canadian Cancer Society changing its priorities which are currently focused on tobacco control strategies. ACOCC established an Ad Hoc panel on pesticides and cancer³⁰. While the Ad Hoc panel concerned itself primarily with pesticides used in the agricultural scenario, the published conclusions of this panel were that:

- No association was found between pesticide use and cancer
- Several factors may reduce cancer rates:
 - Reduction in smoking
 - Increased consumption of fruits and vegetables
 - Control of infections
 - Avoiding intense exposure to sunlight
 - Increasing physical activity
 - Reducing alcohol consumption

The following year, world-renowned epidemiologist, Sir Richard Doll reviewed the published literature on potential causes of cancer and drew conclusions very similar to those of the Ad Hoc panel³¹. He concluded that smoking, alcohol, pharmaceutical products, infection, electromagnetic radiation (ionizing, UV, lower frequency), occupation, industrial products, pollution (air, water, food), physical inactivity, reproductive hormones and dietary factors (not pesticide related) were all causes of cancer. Smoking and dietary factors were considered the most important, responsible for approximately 30%, and 20 to 50% of fatal

Pesticide Exposure and Human Health (Part Two) continued...

cancers, respectively. Occupation, industrial products and pollution (including pesticides) combined, were thought to be responsible for a total of 3 to 4% of all fatal cancers. Doll stated that there is no sound, scientific evidence to suggest that pollution from all sources, including pesticides, is a significant cause of cancer.

The 9th Report on Carcinogens, published in 2000 by the US Dept. of Health and Human Services/National Toxicology Program, listed over 50 compounds *known to be human carcinogens*³². Not one pesticide was included on this list. The criteria used to define "Known" were that "there is sufficient evidence of carcinogenicity from studies in humans which indicates a causal relationship between exposure to the agent, substance or mixture and human cancer...."

On the list are items such as aflatoxins produced by a fungus that grows on nuts, alcohol, asbestos, arsenic, coal tar, diethylstilbestrol (DES), tobacco smoking,

environmental tobacco smoke, smokeless tobacco, exposure to UV light from solar radiation, sun lamps and tanning booths, crystalline silica and tamoxifen. Tamoxifen is a drug used very successfully to combat breast cancers that grow in response to estrogen. Tamoxifen also increases the risk of endometrial cancer, a form of uterine cancer, which is why it is listed; however, the risk of developing endometrial cancer is so small in comparison to the benefit gained among women with breast cancer that the drug is widely used and will not be banned. Things come full circle to risk vs benefit.

The major causes of cancer listed in the "9th Report" were:

- Smoking
- Dietary imbalances, *insufficiency of many micronutrients, insufficient consumption of fruits and vegetables*
- Hormonal factors, *primarily influenced by lifestyle*
- Chronic infections, *mostly in developing nations*
- Inflammation
- Genetic factors

In 1987, Ames et al. developed a ranking of carcinogenic substances to provide insight into the real risks that threaten our quality and length of life³³. Often the threat to our health is not from rigorously tested products like pesticides, but from other substances to which we have unconsciously accepted the risks involved for the benefits obtained. Table 1 lists a few of the substances Dr. Ames has ranked using his Human Exposure/Rodent Potency (HERP) Index. We test carcinogens on animals not humans and measurements are expressed as the rodent carcinogenic potency. To relate a product's carcinogenic potential in rodents to its carcinogenic potential in humans, the Rodent Carcinogenic Potency values are converted to HERP values. The higher the HERP % the greater the carcinogenic risk to humans. As you can see, the carcinogenic potential of beer and coffee are far greater than that of Lindane, an organochlorine insecticide or chlorothalonil, a fungicide that is commonly used on turf.

Table 1. HERP Percentage Values for Common Substances

Daily Exposure	Carcinogenic Component	HERP %
Beer (257 g)	Ethyl alcohol	2.8
Coffee (13.3 g)	Caffeic acid	0.1
Bacon (100 g)	Diethylnitrosamine	0.003
Lindane, daily dietary intake	Lindane	0.000001
Chlorothalonil (Daconil), daily dietary intake	Chlorothalonil	0.00000001

Conclusions

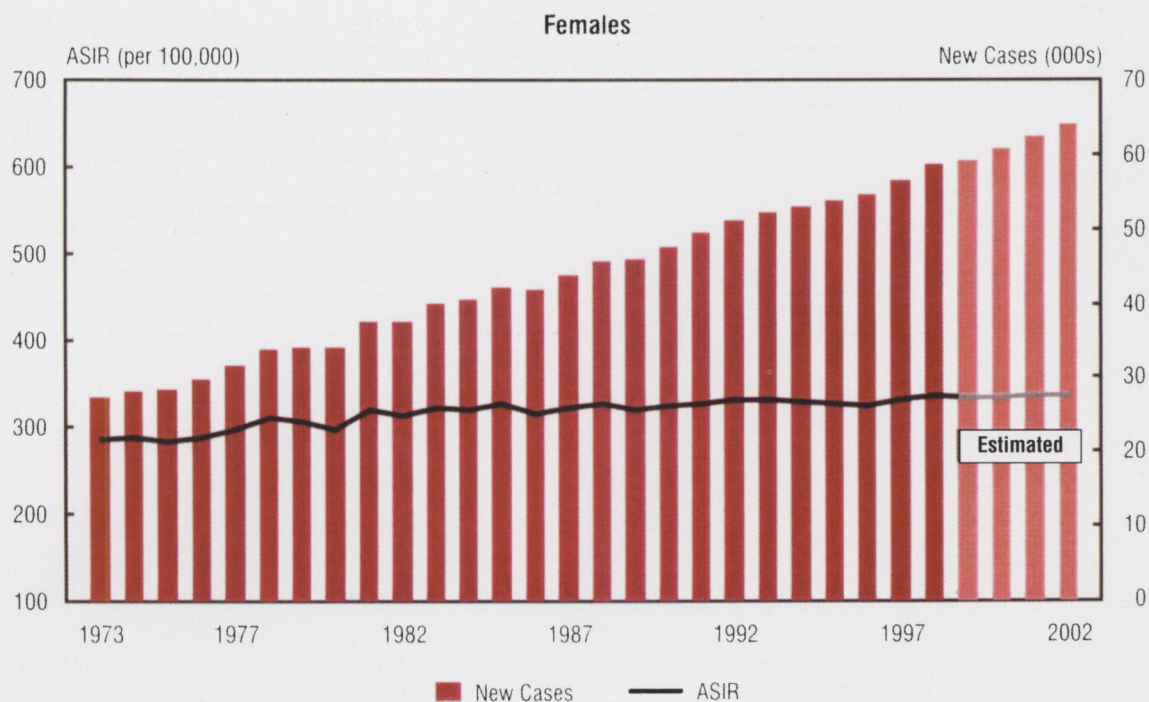
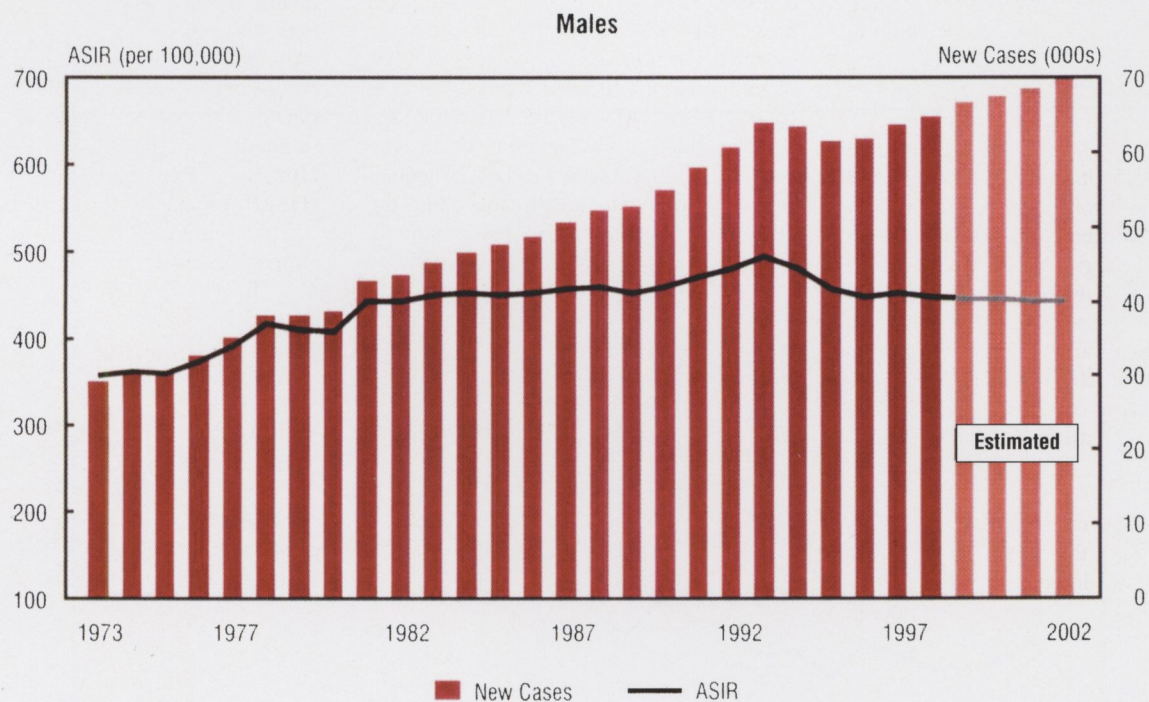
Reviews of sound, scientific, peer-reviewed data, indicate that allegations suggesting occupational and bystander exposure to pesticides is associated with increased cancer incidence, is currently *unfounded*. Unfortunately, the media's presentation of possible associations has created an irrational fear about pesticides among the general public.

As mentioned in Part One of this article, any pesticide ban approved by a municipality is a political decision based on emotion and not one based on sound science. This fact should be clearly communicated to the constituents of the municipalities involved.

... Part 3 of this article that will address allegations that pesticide exposure causes asthma, neurological effects in children and disruption of hormone systems, will appear in the next issue...

Figures 1 and 2

New Cases and Age-Standardized Incidence Rates (ASIR) for All Cancers, Canada, 1973-2002

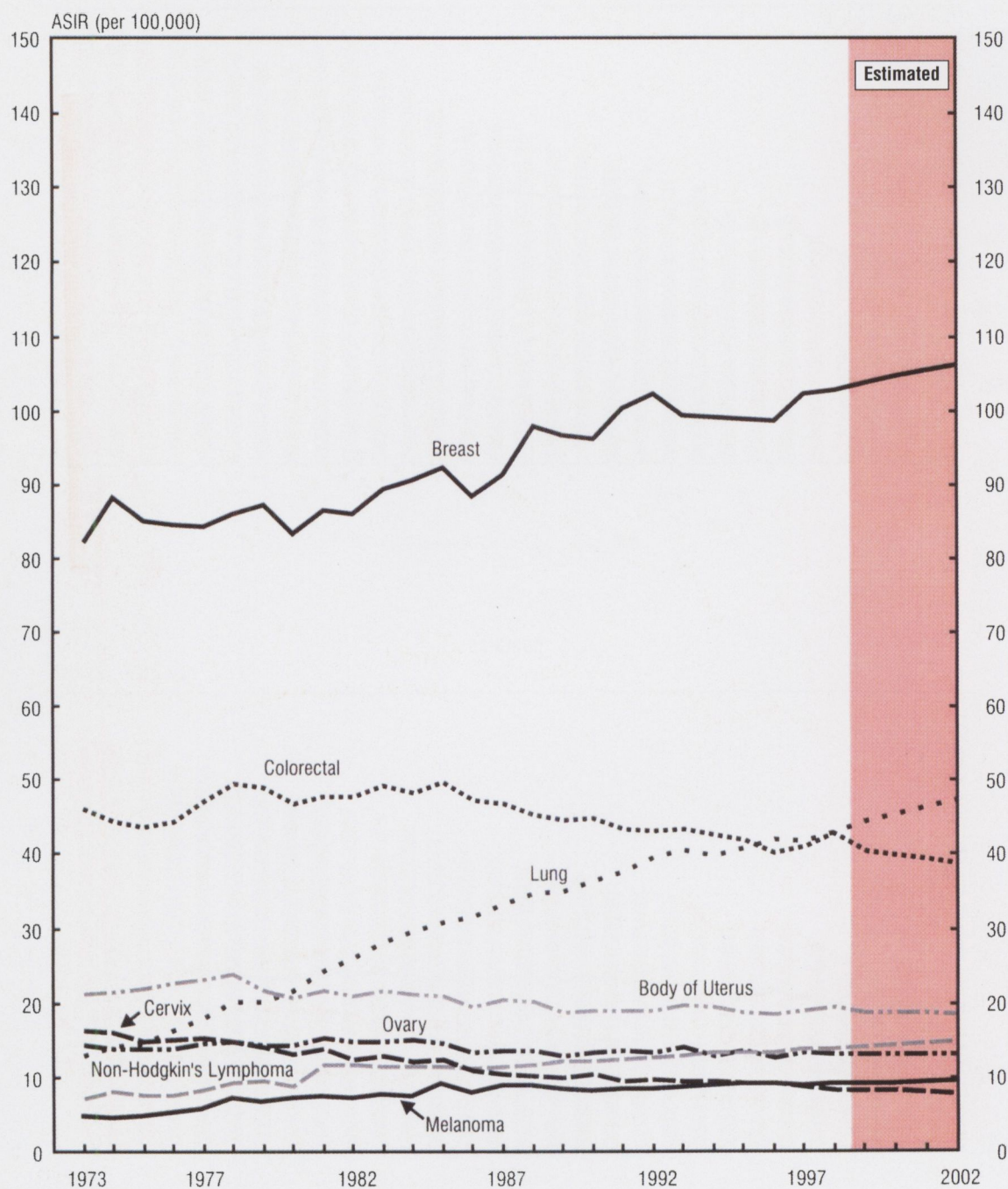


Note: All cancers exclude non-melanoma skin cancer (ICD-9 173). Rates are standardized to the 1991 Canadian population.

Source: Surveillance and Risk Assessment Division, CCDPC, Health Canada

Figure 3

Age-Standardized Incidence Rates (ASIR) for Selected Cancer Sites, Females, Canada, 1973-2002

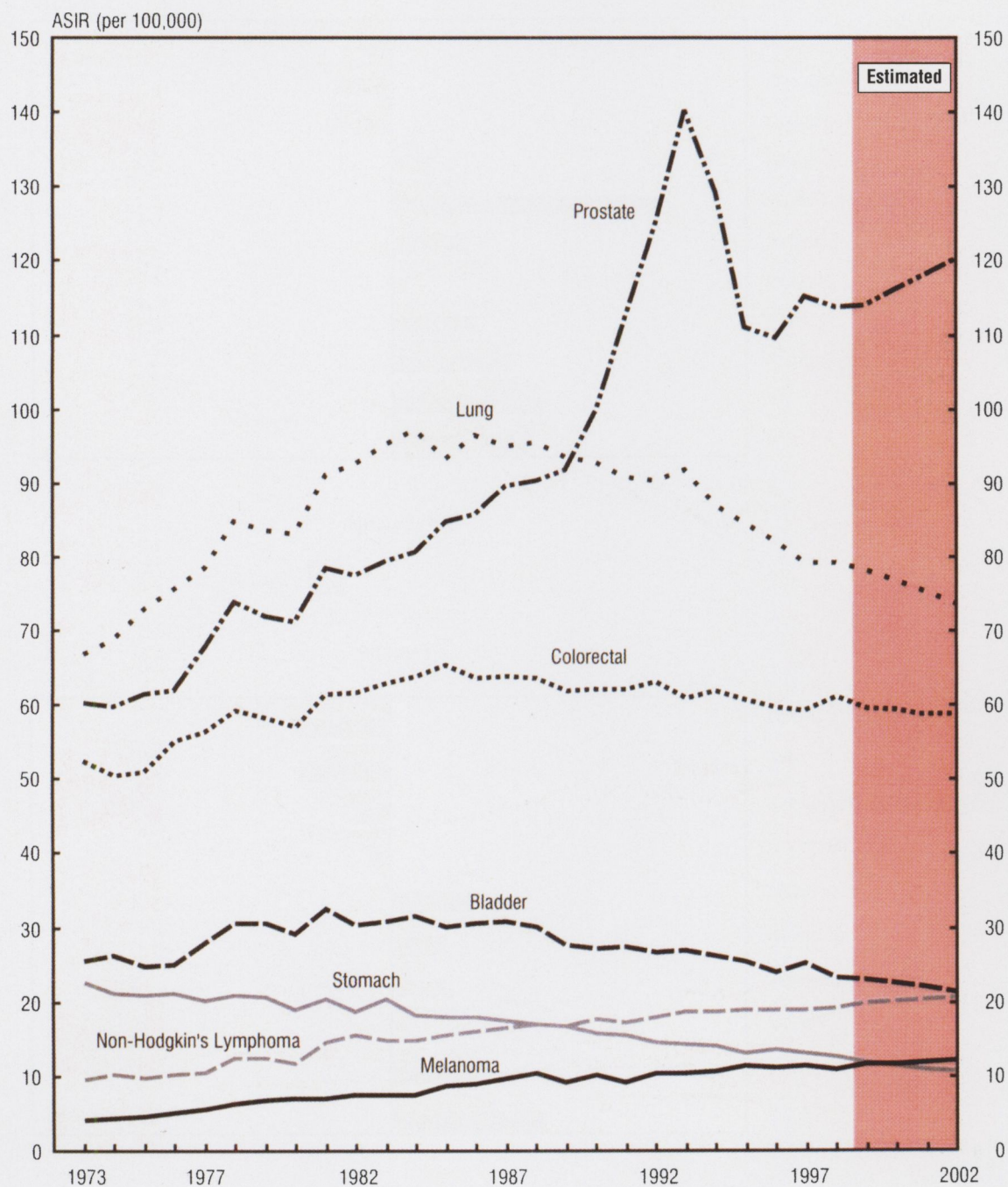


Note: Rates are standardized to the age distribution of the 1991 Canadian population. See Table 8.1 for data points.

Source: Surveillance and Risk Assessment Division, CCDPC, Health Canada

Figure 4

Age-Standardized Incidence Rates (ASIR) for Selected Cancer Sites, Males, Canada, 1973-2002

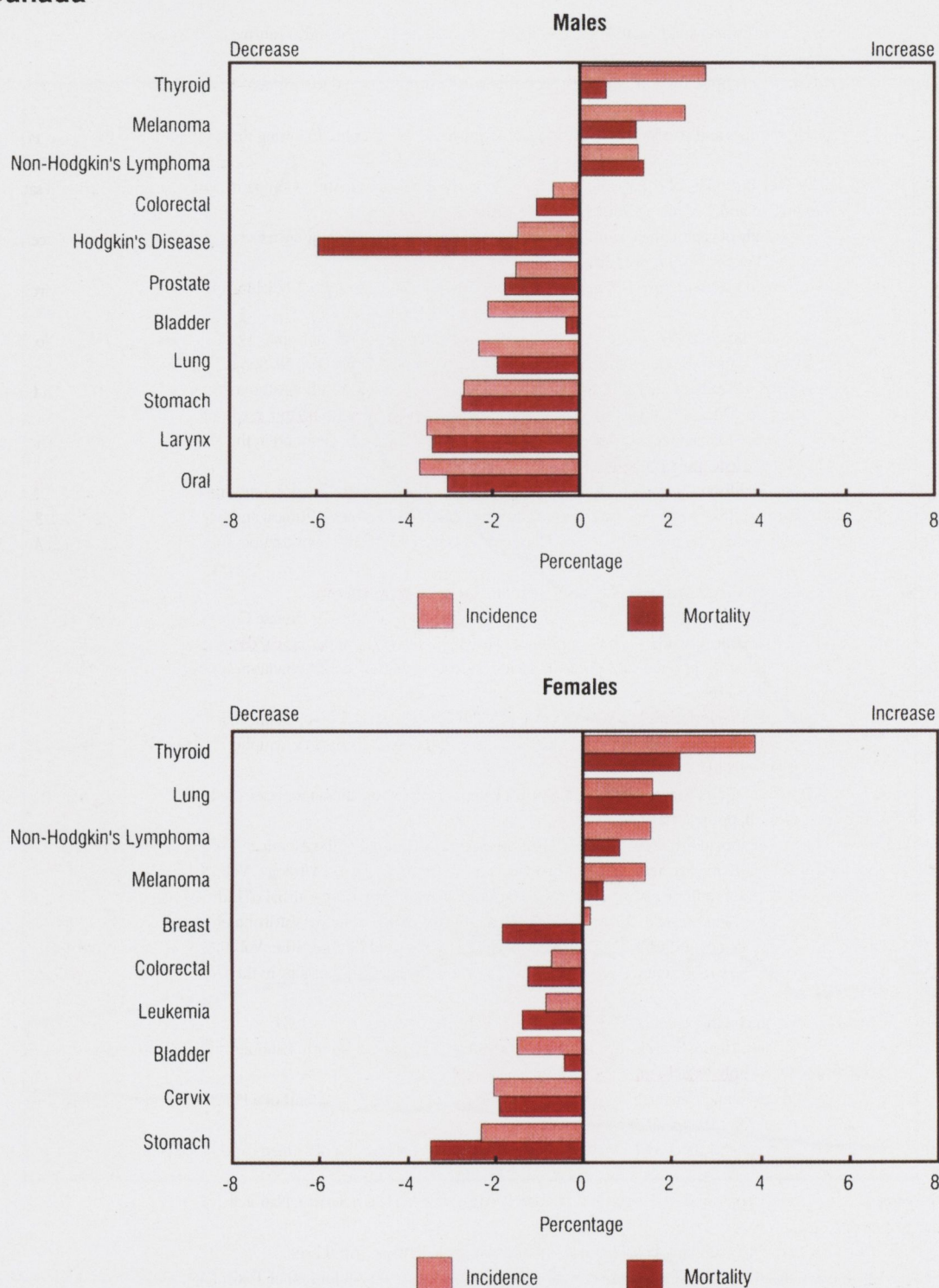


Note: Rates are standardized to the age distribution of the 1991 Canadian population. See Table 7.1 for data points.

Source: Surveillance and Risk Assessment Division, CCDPC, Health Canada

Figures 5 and 6

Average Annual Percent Change (AAPC) in Age-Standardized Incidence (1991-1998) and Mortality (1991-1998) Rates for Selected Cancer Sites, Canada



Note: See Table 9 for percent change for all sites. Sites are ranked in decreasing order of incidence.

Source: Surveillance and Risk Assessment Division, CCDPC, Health Canada

Pesticide Exposure and Human Health (Part Two)

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Turf or consequences

by Doug Breen, Superintendent
Conestoga Golf Course

At this year's Canadian Open, I was standing beside the eighteenth hole when Neil Lancaster made me (and every other recreational golfer in Canada) as giddy as a bunch of schoolgirls at a Backstreet Boys' appearance. You know; when they do one of those "intimate and interactive" things at MuchMusic and every screaming, crying, hyperventilating teenage girl in Toronto cuts school and takes the subway downtown to faint at the feet of the boy band, which happens to be the flavour of the month. That's exactly how we all felt when an honest to goodness professional golfer played the hole the way I would have. Left, lefty, chip, chip, putt, putt, putt, whoops, there goes a couple hundred grand I could have used.

To his credit, after slicing his way into every Canadian Open highlight reel for the next ten years, the affable golfer was quick to laugh and shrug it off as just the way it goes. I've seen an awful lot of otherwise reasonable people, who, after blowing a hole in an ordinary Saturday morning penny ante match, launch into a tantrum that would shock Charles Manson.

The golf spectator, all those people were outside the ropes with me, is an unusual breed of cat, but they are clearly the same people we deal with on a day to day basis on our courses. They left garbage everywhere, in crotches of trees, next to signs, or just dropped it in the rough. They walked wherever and whenever they wanted. It was a full time job for the hundreds of volunteers just to keep the spectators from wondering into places where they would not certainly be killed. There's a whole subculture of people who yell "it's in the hole" or "you're the man" after every swing, just to see if they can hear their voice on TV when they get home and watch the tape. Some idiot actually yelled "it's in the hole" on the tee of a par 5. These are not people who get a lot of dates.

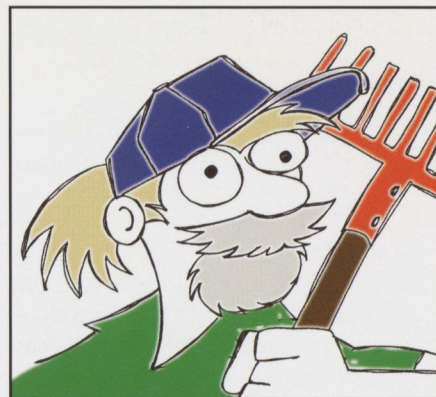
There was a member of the grounds crew assigned to follow the last group around to remove flags, tee blocks or anything else that could be stolen by the crowd. It was just like me after the Kitchener-Waterloo Truck Driver's Association tournament. I saw one guy actually cutting a piece of sod out of the rough to add to his lawn at home. I overheard him telling his companions that his backyard is a quilt of

cereal bowl sized hunks of turf from every tournament he's ever been to.

The marshals were quite different from ours. There must have been a hundred of them, and I didn't see a single one in the rough looking for balls or reading the newspaper on the first tee. I did follow two of them on a twenty mile hike down into a valley and back up a mountain just to end up 100 yards from where we started just because I assumed they knew where they were going. Maybe they were like our marshals after all.

One group of people we don't usually deal with are the TV crews. These folks carry themselves with all the style and charisma of an unemployed carney and ensure that there is a non-stop hum of golf carts and minor injuries to spectators. They're like a bad wedding photographer whose goal is to capture the moment with little or no regard for those actually living in the moment. There are eight million signs telling us that we're not allowed to carry cell phones, pagers, or radios in the gallery. I always assumed that this was to avoid distracting the golfers, but now I'm sure it's just to avoid interference with the ones that every single TV crew member has ringing, buzzing or crackling constantly.

Which brings me to the semi-fossilized RCGA members, who each apparently



have their own golf cart. Now I know that it was hotter than the third level of Haiti out there, but whoever made the decision that no jackets were required should have realised that a sleeveless undershirt showing through a white sweaty dress shirt is not the world's most professional look. It would seem to me that as long as John Daly had to walk and play golf in long pants and a collared shirt, they could have ridden on a cart in a jacket.

Compliments to the Superintendent and crew at Angus Glen, the course looked terrific. Also, kudos to the RCGA for moving the Canadian Open around, allowing us to showcase to the world, both the quality and the quantity of fine courses in this country. And one last note for any of you planning to attend next year's tournament, even if you own more than one bell telephone, that will not get you into their private tent - trust me.

"So it's decided then,
we fund this year's retreat
with proceeds from the
sale of golf balls we
find "inspecting" the
naturalized areas."



Hear, Hear!

Absolutely

TURFTOONS

BY Doug BREEN

Looking back

FIFTEEN YEARS AGO TO-DAY

by Barry Endicott,
Nobleton Lakes Golf Club

The Board of Directors of the OGSA in 1987 were as follows: **Robert Kennedy** (pres.), Garden City, **Thom Charters** (vice.), Islington, **Barry Endicott** (past pres.), Millcroft, **Rhod Trainor**, St. Thomas, **Neil Acton** (editor), Brooklea, **Ron Heesen**, Beachgrove, **Gordon Nimmo**, Sarnia, **Scott Dodson**, Chedoke, **Ed Farnsworth**, Deerhurst, **Mark Hagen**, Wyldewood, **Dave Gourlay** (jr.), Toronto Ladies and **John Taylor**, Twenty Valley. The office secretary was **Cindi Charters**.

On the move: **Thom Charters** moved from Islington to Weston, **Jerry Richard** from Brooklea (assistant) to Toronto Golf Club (assistant), **Dave Gourlay**, Toronto Ladies to Beacon Hall, **Brian Guthro**, Tyandaga to Riverside, **Bernie Martin** (assistant), Ancaster to Tyandaga, **Ken Seims**, Mississauga (assistant) to Islington, **Charlie Terry**, Siddal to Cranberry Village, **John Anderson**, Owen Sound to IBM, **Nancy Pierce**, Univ. of Guelph to Toronto, **Stewart Mills**, Ancaster to Essex, **Don McFaul**, Glen Abbey to Ancaster, **Steve Stasnya** (assistant), Beach Grove to Owen Sound. **Gavin Kellogg** moved to Bowmanville and **Jim Sutton** replaced him at Elliot. **Nigel Rennie** and **Al Schwemler** moved to the Board of Trade as assistants.

New members: **Bruce Clark**, Midland,

Mike Cote, Bottonville, **Andrew Masek** (f), Oakdale, **Robert Field** (f), Burlington, **Gary Roos** (f), Oakdale, **Steve Sherwood** (f), Bridgewater, **Ken Siems** (b), Islington, **Larry Brassard** (e), **Robert Michel** (f), Rosedale, **Pat Hebert** (b), Roseland and **Gord Thompson**, Meadowbrook.

The Georgian Bay Superintendents Association had another successful season with meetings at Brooklea, **Neil Acton**, Circle Pine, **Ray Richards**, Horseshoe Valley, **John Hughes**, Blue Mountain, **Kim Hanley** and **Barrie, Ed Doda**. The \$15.00 fee included golf, dinner and prizes.

The GCSAA International Conference and Show was held in Phoenix, **Ron Heesen**, Beachgrove, **Bob Heron**, Mississauga and **Gordon Witteveen**, Toronto Board of Trade, presented talks. **Dave Gourlay Sr.** was the recipient of the Distinguished Service Award. **Craig Evans** and **Ted Ellis** received their Certified Status (CGSA).

The Ontario Turfgrass Symposium was held at the University of Guelph with over 200 in attendance. **Jerry Richard**, **Doug Hoskins**, **John Bennett** and **Tom McBroom** gave talks on construction projects they have been involved with.

The OTRF Fundraising Tournament was held at the National, **Ken Wright**, with the

barbecue being held at the Toronto Board of Trade, **Gordon Witteveen**. The organizing committee, headed by **Doug Suter**, raised \$18,000.

An "Official Launch Reception" was held at the Credit Valley Golf Club to introduce the Guelph Turfgrass Institute Research and Information Centre. Hosted by the OTRF guests included **Clare Rennie**, OMAF, **Al Ruggles**, OGA, **Des Rice** OTRF Director. **Annette Anderson** was introduced as the Turf Extension Specialist. The 6,345 square foot building will cost \$800,000 and should be open next year.

The 14th Annual President, Greenchairman Tournament was held at Oakdale hosted by **Paul Dermott**. The top 3 winning teams were 1. The National 106, 2. Weston Golf Club 104 and 3. Bay of Quinte 102.

Dean Morrison was the president of the CGSA and **Barry Briton** was the vice president. **Ted Bishop** of Niagara Falls received the OGSA Scholarship upon graduating from the ODH course at the University of Guelph. **Kimmo Salonen**, York Downs, hosted the Canadians Seniors Ladies Championship.

In memorium, Mr. Loyde Reilly, a life member of the OGSA, passed away on September 5th.

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