

THE ENVIRONMENTAL ISSUES FACING THE TURFGRASS INDUSTRY

On November 5, 1990, the Guelph Turfgrass Institute sponsored a one day symposium on this subject. Over 270 turf managers and industry representatives heard seven excellent speakers cover many aspects of the issues. The theme for the symposium is best stated by an extract from the announcement brochure:

"In particular, the turfgrass industry has come under extreme pressure to re-evaluate its responsibilities because of its high public profile and because most turfgrass production has, in the past, used high inputs of fertilizer, water and pesticides. We as an industry have begun to reevaluate our production strategies in keeping with our concerns and those of the public about the environment."

Ms. Shelly Harris reported on a two year study of a home owner, bystander and commercial applicator exposure to 2,4-D. Where dry formulations were used one in eleven applicators showed minimal exposure regardless of whether or not protective garments were used. On the other hand, where liquid formulations were employed, eight out of nine showed exposure. Similar results were observed with professional applicators. *The main factor in the observed exposure was the work habits of the applicator.* For example, an applicator wore protective garments and gloves while spraying, but then removed the gloves to roll up the applicator hose. No bystanders showed any detectable 2,4-D nor was 2,4-D detected within the residences during or after the spraying.

Prof. Paul Voroney discussed the role of fertilizer use on turf as a potential environmental pollutant. Of the elements found in turf fer-

tilizer, only nitrogen and phosphorus were considered pollutants. The possibility of phosphorus from fertilizer applied to turf becoming a pollutant was extremely remote for two reasons. The first is that erosion of soil particles from a sod area is extremely low. The second is migration of phosphorus ions downward to the water table through mineral soils does not occur due to its chemical reactions with the soil.

The potential for nitrogen pollution is of some concern. Regardless of how it is added to the soil, nitrogen will be converted to nitrate-nitrogen through the action of ever present bacteria. If not absorbed by the root system of the turf it is subject to leaching to the ground water. EPA regulations stated that drinking water shall not contain more than 10 ppm of nitrate nitrogen. He reported that studies by the Institute had shown less than 2% of the nitrogen applied to sand based systems showed up in the drainage water. The secret to controlling this source of pollution is management; *match the supply of the nitrogen to the demand for the nitrogen by the grass.*

Prof. Martin Petrovic of Cornell University enlarged on the nitrogen problem. He traced the various routes which nitrogen may take once added to the soil, such as uptake by the plant, storage in the soil and thatch, gaseous losses to the atmosphere or leaching to the ground water. Again management was the key issue. He suggested avoiding application from late September to early May as 75% of the precipitation received during that period goes to the ground water. He also suggested lower rates as required

by older stands as less nitrogen is being tied up in the organic phase of the soil.

The management of low maintenance turf was discussed by Prof. Don White of the University of Minnesota. Low maintenance requires intelligent management and a full knowledge of the growth habits of grass and ability to optimize those growth habits. Proper soil conditions, drainage, cutting height and use of nitrogen were ingredients for optimizing growth habits. He suggested no nitrogen before July 1 and an application in the late fall. Not more than one pound/1000 sq. ft. of nitrogen should be applied at any one time.

Biological control of diseases and weeds will be no easier to develop than chemical control according to Prof. Greg Boland of the University of Guelph. The time from conception to market with fungicides ranges from 5 to 15 years and the success rate is 1/5,400 items tested. There are ten steps a pesticide must go through, whether chemical or biological, before reaching the consumer. They are selection, characterization, evaluation, specificity, efficacy/toxicity, formulation, enhancement, commercial production and registration. The final step alone can delay a product for 2 to 3 years and the biological systems face the same problems at all steps as chemicals.

Ms. Ivy Wile of M.O.E. discussed some ministry thoughts on pesticides. She posed the question: "should pesticides be used for cosmetic purposes?". Some people are looking for a total ban. The uninformed consider the risk perception as real and do not relate to statements of actual risk. The environmental concerns "expert"

sometimes receive a better hearing from the ministry than University faculty.

One member of the audience summed up the day by saying, "How does one develop public awareness? — we are a group in a bubble, one talking to the other."

By attending conferences such as this by the Guelph Turfgrass Institute, becoming knowledgeable of the environment, then talking to our neighbour, we can break out of the bubble.

Lime field markings burn athletes at Windsor high school

Kitchener-Waterloo Record,
September 27, 1990

A separate school playing field marked with a lime powder that burned several football players last week should never have been used, an occupational health expert says.

Fifteen players complained of burns Friday and four were treated in hospital after the game between Holy Names and W.D. Lowe separate secondary schools.

Larry Girard of the Occupational Health Information Service said lime reacts violently with water.

It was raining during Friday's game and when the players tried to wash off the irritating white powder in the showers, it made matters worse, Girard said.

A fact sheet on lime calcium oxide provided by the service warns that moisture on the skin "increases the possibility of corrosive tissue damage," or chemical burns.

It advises not to rinse the affected area with water and recommends only oil or grease be used to remove the substance.

"What was it? That's what I'd like to know," said Darren Dixon, 18, a W.D. Lowe running back who has burns on both legs.

WE GET LETTERS

Dear Michael,

First of all, please allow me to commend you on a very informative publication. I have come across articles that are very insightful in respect to the football community as a user group.

As part of Football Ontario's mandate, the association is extremely active in promoting safety through a variety of risk management initiatives. One of which focuses on a safe playing environment. Since you have specific expertise in this area your assistance would be greatly appreciated.

We would like to make coaches and administrators aware of the most basic principles of turf management and give them an understanding of what should be their minimum expectations for a safe field.

Football Ontario, as a sport governing body is often asked to provide developers with information about football fields. Occasionally requests concerning the annual cost of maintenance and upkeep have been received. Could you provide Football Ontario with a sample budget for annual maintenance?

Also, in respect to Football Ontario's risk management initiatives, we are trying to draft a master facility design to encourage any future developers to adhere to. Your input in this respect would be invaluable.

Sincerely,

Ed Slabikowski, Technical Director
Football Ontario

Dear Mr. Slabikowski:

Thank you for your letter addressed to Mr. Mike Bladon to which I have been asked to reply.

In response to your request for an estimate of the cost of annual maintenance of a football field, Mike has put together a cost estimate based on his experiences as Superintendent of Grounds for the University of Guelph (see this issue "Cost Estimates"). This field is maintained at an average to above average level, comparable to those fields having seating for 2000 - 5000 spectators. Other practice and inter-mural fields would receive a lower level of maintenance, particularly in the area of mowing.

Regarding your master facility design to encourage developers to use, we are presently in the final stages of writing a booklet on Sports Turf Construction and Maintenance which may assist you.

On behalf of the Association I would express a desire to work closely with your association in developing improved, safer sports fields, whether they be for football, baseball or lawn bowls. If you would desire a meeting I am sure that myself and one or more of our Directors would be available.

Have a good day.

R.W. Sheard, P. Ag.
Executive Secretary