

(Dollar Spot cont'd.)

water on the leaves that absolutely is necessary for dollar spot to develop. Rapid leaf drying can be accomplished by allowing good air flow and reducing shade over the turf. Lastly, biological controls are starting to appear in research tests. The use of organic amendments has shown some encouraging results. The basis for this effect could be a combination of nutrition and microbial suppression of the dollar spot fungus. In another technical report, several different fungi, that also live in turf, have been used to reduce dollar spot disease severity. Keep your eyes open for more developments on this.

The Times, They Are A Changin!

by Don Spier

During the past fifteen years, the public's view of plant protectants has changed from a passive awareness, to an "anti-pesticide" perception. I believe that some golf course superintendents are changing their pest control programs in response to the increased environmental pressures. I also believe that further changes will be necessary, to insure that the golf course superintendent has effective management tools to work with in the future.

Basic manufacturers, such as Ciba-Geigy, are also aware of the public's views on pesticides. Most trends in our industry are now driven by environmental issues. We as manufacturers of plant protectants, believe that a pro-active stance must be taken regarding the safe, effective use of our products. Part of this pro-active stance is to provide the golf course superintendent with products, formulations, and packaging that are environmentally sound. Providing biological alternatives, is another way the basic manufacturers can be pro-active regarding environmental issues.

Products that are more active, requiring less active ingredient per acre, are becoming the norm. Flowables, dry flowables, and emulsifiable concentrates have replaced most wettable powders. Soon gels and tablets may be available. Water soluble packets, and returnable close system containers are now being used. All of these formulations and package systems meet environmental needs by providing increased worker safety, reducing rinsates, and reducing landfill solid waste. Over the next decade, a number of biological alternatives will be available to the golf course superintendent.

Many golf course superintendents are taking a "wait and see" approach to the alternatives mentioned above. Having talked to university professors and regulatory experts, I believe that the time to use these products, package systems, biologicals, and formulations is now! By using these products now, the golf course superintendent is taking a pro-active stance on the environmental issues that concern the public, and his club members. I realize that some of these alternatives require changes in application methods, and may be more costly; however, isn't one of the jobs of the golf course superintendent to make recommendations to his directors that protect their club from liability, and provide his workers with the highest possible degree of safety?

The times, they are a changin! The public has changed, the manufacturers are changing. And, the golf course superintendent should consider change.

Another Court Decision

by Dave Blomquist, Naperville C.C.

A recent court decision may cast a dark cloud over golf courses in the near future. The Supreme Court has ruled that local community decisions may overrule a federal standard for pesticide applications. This means that uninformed individuals may enact laws that seriously affect the way we manage our golf courses. Pesticides have been under scrutiny for several years now. Television and print media have wrongly blamed pesticides for everything from a simple headache to cancer. Fact: Pesticides have been used in substantial amounts for nearly 50 years, and there is no evidence from analysis of cancer patterns that pesticide residues are responsible for any cancers in adults or children.

Alar, a man-made plant growth regulator used on apples, was targeted by a group led by Meryl Streep. Their claim was that it is harmful to children when they eat treated apples. Fact: Alar caused cancer in laboratory mice only when they were given levels **four million** times greater than any human exposure.

Because uninformed groups are affecting law makers, the cost of getting a potential pesticide to market is skyrocketing. NCC spends \$30,000+ annually to protect the turf from fungus and insects. That cost goes up each year. Many materials that were in use on a regular basis have been banned making it much more expensive and difficult to maintain your golf course. If this irresponsible lobbying continues, the game as we know it today will change as there is no way we can provide the conditions we now have without pesticides.

If there are any questions or comments about this issue, please feel free to call me at 355-9807. I would love to discuss this with you.

Editor's comment: (Dave Blomquist wrote this article for his club's monthly newsletter).

Earthworms

Earthworms (*Annelida* and *Oligochaeta*) are perhaps the best known of soil macroorganisms. Again, depending on how favorable soil conditions are, there may be as many as 70,000 per 1000 square feet of root zone. Frequent counts of 20 earthworm casts per square foot in the spring are noted. Ten earthworms per cubic foot of soil can have a favorable influence on soil conditions.

Earthworm casts in a years time may amount to as much as 40 pounds of soil deposited on the surface for each 1000 square foot of root zone. These casts are greatly enriched in comparison with the surrounding soil. For example, the nitrate content of casts can be increased by over 300 percent; the phosphorus content may be increased by over 600 percent and the potassium content by over 1000 percent. Calcium and magnesium increases are usually less; i.e., 40 percent for calcium and 200 for magnesium. These increases in plant nutrients come about through the ingestion of soil by the worm. It conditions the soil as it passes through its system, thus bringing about this enrichment.