

## Turfgrass Cultivars and Nitrate Leaching

The concerns for nitrate leaching into groundwater are well known throughout the turfgrass industry. As a result of significant research efforts, we understand the importance of soil types, fertilizer sources, and other management practice influences on nitrate leaching.

A potentially important issue regarding nitrate leaching is the influence of turfgrass cultivar. Researchers at the University of Rhode Island evaluated ten cultivars each of Kentucky bluegrass, perennial ryegrass, and tall fescue on a silt loam soil for seasonal nitrate leaching.

Three- one pound applications of nitrogen were supplied in April, June and November in a blended source of 50% water soluble and 50% synthetic slow release nitrogen. Plots received sufficient irrigation and rainfall to encourage leaching events.

Results indicated that all species demonstrated significant cultivar differences regarding nitrate leaching, with all levels measuring less than half that allowed by the health advisory limit. Specifically, while some cultivars of Kentucky bluegrass had significantly lower nitrate leaching levels, as a species, Kentucky bluegrass was always higher than perennial ryegrass, and both higher than tall fescue as a species. This could be related to the expansive root system known to develop by tall fescue cultivars or general uptake efficiency. Interestingly, the researchers observed seasonal differences in the species relative to nitrate leaching that could be related to root activity under cooler temperatures. For example, bluegrass will reduce root activity in the summer, leaving it vulnerable to late season leaching events with a reduced root mass.

Conclusions of this study are that genetic variability exists between species and cultivars for nitrate leaching, moderate nitrogen rates generated very low potentials for nitrate leaching, even under excessive moisture, and seasonal differences exist for species and cultivars related to nitrate leaching. These types of experiments will continue to be important as the industry is challenged on the judicious use of energy intensive inputs and more precise management is required. (from; Liu, H., R.J. Hull, and D.T. Duff. 1997. Comparing cultivars of three cool season turfgrasses for soil water nitrate concentration and leaching potential. *Crop Sci.* 37:526)

## Educating the Homeowner

The commercial turfgrass industry regularly bears the majority of the public's negative perception of pesticide use and environmental quality. Yet, national statistics indicate that over 75% of all inputs applied in turf management are done so by the homeowner. Therefore, as an industry an important role could be to instruct the homeowner on the proper use of inputs and to more clearly explain the use of inputs in a commercial situation.

Extension personnel at Montana State University, conducted a survey to learn current pest management practices of homeowners, knowledge levels and opinions, areas of interest, and preferred methods of learning. Demographic information concluded that most homeowners in the study were on average 50 yrs of age, with 14 yrs of schooling, roughly split evenly between male and female, and 46% live in urban areas of greater than 10,000 people.

Clearly, the greatest source for information by the homeowners in this study is "stores that sell supplies" (56%), followed by nursery and greenhouses (46%), then friends or relatives (39%), extension service (37%), and seventh on the list was pest control specialists (10%). Most pest identification at the home is done by the homeowner themselves (63%) with extension personnel and professionals used a combined 18%!

Sixty-one percent (61%) of homeowners apply pesticides only when a problem is apparent, with 37% of these homeowners making two or three applications per year. Interestingly, when purchasing pesticides, 64% responded that they seldom or never received instruction for sales personnel on pesticide use. Greater than 50% of the homeowners sought methods of controlling pests without pesticides with 46% interested in learning how to keep pesticides out of the groundwater. In general the authors of the study felt that Montana residents used pesticides responsibly, yet, only a third wear long-sleeves and rubber gloves, suggesting a discrepancy between label instructions and action. Still, 53% of the respondents felt that pesticides were safe when used according to the label.

One of the most fascinating aspects of the study is the differences in where the homeowner is exposed to the information, their awareness, and the effectiveness of the information. The newspaper was perceived as a regular source for information (62%), followed by the library (50%),



## Scanning the Journals

*A review of current journal articles*

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3

## Ten Things

continued from page 10

the importance of communication and employee involvement

Managers should show confidence in their decision making ability. Allow employees to make mistakes even if you do not agree with what decisions were made. Discuss how problems might be approached in a different fashion in the future. Provide continuous support and encouragement to employees so that they feel confident as they tackle difficult jobs.

Employees want policies and expectations in writing. Consider developing an employee handbook if you don't already have one. Expectations on job duties and performance levels should be included in the handbook and they should be reviewed with employees on a regular basis. Employees also want to know what the limits are. What behaviors are grounds for discipline and discharge? When discipline and discharge policies have been laid out for the organization employees expect their peers who break the rules to be disciplined accordingly. Employees who break the rules and are not disciplined can affect the morale of the entire staff and employees in general will lose respect for management's attempt to instill order and discipline in the organization.

People want problem employees dealt with decisively and quickly. Employees who play by the rules resent their peers who do not and expect

management to not tolerate behavior that takes away the effectiveness of the business.

Employees want to know how they are doing. The manager should become a coach to improve job performance and provide continuous feedback. Use of praise and recognition to encourage a positive work ethic is important. Provide feedback to develop a working environment that encourages employee motivation for peak job performance.

People are the reason for business success. Spend part of each day looking at ways to fulfill employee expectations and they will be far more likely to help you as a manager to fulfill yours.

People want their employers to recognize that they have a life outside of work. Flexible hours and time off are two things employees value highly. The flexibility to attend a child's ball game may be valued more highly than monetary compensation. People want their employers to be fair and consistent with the treatment of all employees.

Managers should create a culture of continuous improvement. Do employees have easy access to information relating to their work? For example if an employee is responsible for cost control then he/she should have access to information on current expenses.

THOMAS R. MALONEY  
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continued from page 3

extension publications (40%), then TV (31%), etc. Keep in mind none of these were identified as primary places where the homeowner actually received the information, and information received from sales people was rated as the least effective source!

Finally, it is clear that people seek pest information only when a problem arises, making timing for newspaper articles critical. In addition, the availability and convenience of retail outlets position them as unique educational opportunities for reaching an elusive and persnickety audience—the homeowner. (from; *Lajeunesse, S.E., G.D. Johnson, and J.S. Jacobsen. 1997. A homeowner survey-outdoor pest management practices, water quality awareness, and preferred learning methods. J. Natural Res. and Life Sci. Educ. 26:43.*)

## Turfgrass Problems Bugging You?



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# 11