TURF MAINTENANCE TO PROTECT WATER QUALITY

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Most citizens of the Great Lake Basin are very concerned about the quality of water and consider our water resources to be one of the most valuable aspects of the area. As a result, a great deal of effort is directed toward understanding, maintaining, and improving the quality of water in the Great Lakes Basin and these efforts will continue to escalate into the next century. Maintaining turfgrasses on lawns, parks, and golf courses are often implicated as counterproductive to water resources. Turf inputs of fertilizer and pesticides have been accused of contaminating groundwater as they leach through the soil profile and to degrade surface water through runoff from turfed areas.

Several important research projects have been conducted recently which have investigated the potential for pesticides and fertilizers to move past the turf growing zone and into the water. From this research, we can begin to construct some broad conclusions on managing turf in a manner that will reduce the potential for inputs to move past the turf. First, let's summarize the leaching studies. One of most important concepts from this research is that a turfgrass growing system creates a dense and vibrant environment. The amount of leaves, stems and roots that occupy the soil surface surpasses most other agricultural growing systems and the thatch area is home to large numbers of living creatures that impact the movement of materials into the soil. In most studies, nitrogen fertilizers and a few pesticides were detected past the turf zone in very small amounts. The amount collected was relative to the environmental and management conditions including the turf density, soil type, rate of application, and the amount of water present.

The area of surface runoff has also provided some interesting research. Turgrasses used in these studies demonstrated a robust ability to slow the movement of water, dramatically reduce soil erosion, and trap contaminants within the turf zone. In some cases, turf care products were shown to move off the treated area in small amounts. Movement depended on the slope, soil type, amount of water present in the soil, application rate, and amount of water applied directly after application of fertilizer and pesticides. I expect that more runoff research will be conducted in the future to further describe runoff dynamics in turf.

In all cases however, the potential for movement of turf inputs can be controlled through swift management practices. These practices involve the recognition of environmental and site conditions that increase the potential for off-site movement. Making adjustments to lower the potential for movement by changing practices is the key to protecting water resources. You should be able to evaluate any site you manage and recognize its sensitivity to impacting water. The most important site conditions are the soil type (gravel, sand, loam, clay), slope, proximity to water (surface and ground), turf density, drainage, general growing conditions (light, wind, etc.), and the use of the site. On more sensitive sites, adjust by using products with lower water solubility, choose lower rates, use buffer zones close to water, and pay special attention to the application process. In all cases, always keep turf products off of impervious surfaces such as driveways, sidewalks, parking lots etc. Following these simple concepts can greatly reduce the potential for turf management products from degrading water resources.