Effects of Urban Fertilizer Ordinances on Water Quality

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Abstract

…Urban watersheds include extensive turfgrass plantings that are associated with anthropocentric attitudes toward landscapes. Native and construction-disturbed urban soils often cannot supply adequate amounts of nitrogen (N) and phosphorus (P) for the growth and beauty of landscape plants. Hence, fertilization of landscape plants is practiced. Mismanaged fertilization and irrigation practices represent a potential source of nutrients that may contribute to water quality impairment. This review focuses on turfgrass fertilization practices and their impacts on urban water quality. Research results show that fertilization during active growth periods enhances turfgrass nutrient uptake efficiencies. The major concern regarding the fertilization of turfgrass and landscape plants in urban watersheds, therefore, is selecting the proper combination of fertilizer rate, timing, and placement that maximizes nutrient utilization efficiency and reduces the risk for nutrient loss to water bodies.

Conclusions: ….The major concern regarding the fertilization of turfgrass and landscape plants in urban watersheds therefore, is selecting the proper fertilizer rate that maximizes nutrient utilization efficiency and reduces the risk for nutrient loss to water bodies.

In addition to selecting the correct fertilizer rate, cultural practices (e.g., the types of fertilizer used, fertilizer timing and placement, etc.) can potentially impact water quality. Research shows that soluble fertilizers may enhance potential leaching losses compared with slow-release sources, especially when soluble fertilizers are applied at excessive rates. Combinations of CRFs (controlled release fertilizers) and soluble fertilizers appear to be a good approach to achieving healthy turfgrass and minimizing the potential for nutrient losses. Research also documents the importance of applying N and P fertilizer when the grass is actively growing, when it has the greatest capacity to use fertilizer. Fertilizer applied outside of the active growth period for either cool- or warm-season turfgrass leads to increased potential for nutrient losses. Many studies demonstrate that properly fertilized and irrigated turfgrass results in significantly reduced leaching and runoff losses.