HEALTHY TURF DEVELOPMENT THROUGH RESPONSIBLE PHOSPHOROUS APPLICATION

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With concerns of water qualities continuing to be an issue in various parts of the country, many people are demanding that phosphate-free fertilizers be applied to their lawns. Although there have been suggestions that nutrient run-off from fertilizers on home lawns is the culprit, these suggestions ought to be approached with caution.

Phosphorous is an essential nutrient for healthy turf development and is contained in every cell of living turf. The application of phosphorous to turf has a proactive effect on topical growth, rooting, and root branching and is critical during the early stages of grass seed establishment and development[1]. The responsible application of phosphorus ought to be looked upon as a component of IPM (Integrated Pest Management) in an effort to maintain optimum turf grass health thus reducing potential pest invasions. Without the application of trace amounts of phosphorous through fertilizers, deficiencies may begin to appear in turf. Signs of phosphorous deficiency include reductions in turf density and turf root growth, reddening or yellowing of leaf margins, and death of mature leaves[2]. It must be noted that all soils have some phosphorous in reserve. Although these reserves may be adequate, turf may still suffer from a phosphorous deficiency, as the natural release of phosphorous from the soil may be limited due to environmental conditions[3].

Research conducted by the Department of Soil Science at the University of Wisconsin-Madison concluded that the banning of phosphorous applications to turf grasses does not significantly reduce lake algae growth[4].

The movement of phosphorous to water bodies is associated with soil erosion; this is one of the key factors to increased algae growth. Phosphorous readily bonds to fine soil particles. These fine particles are easily eroded by water and wind thus potentially carrying the phosphorous to lakes and rivers[1]. Maintaining healthy turf grasses may be part of the solution in reducing wind and water soil erosion. Healthy turf will minimize wind and water erosion through its increased root mass. Healthy turf can have up to 90% of its weight in it roots. This extensive root system helps stabilize the soil thus reducing wind and water erosion[5].

With phosphorus bound to fine soil particles, any soil erosion can result in the movement of phosphorous. Homeowners who maintain healthy turf, through regular applications of synthetic fertilizers containing phosphorous, help in the reduction of phosphorous pollution by preventing wind and water soil erosion. By maintaining a healthy lawn homeowners enable the phosphorous that they apply to be absorbed and utilized by turf.

Therefore, failure to maintain quality turf cover through fertilization carries the risk of increasing amounts of soil erosion in urban environments.

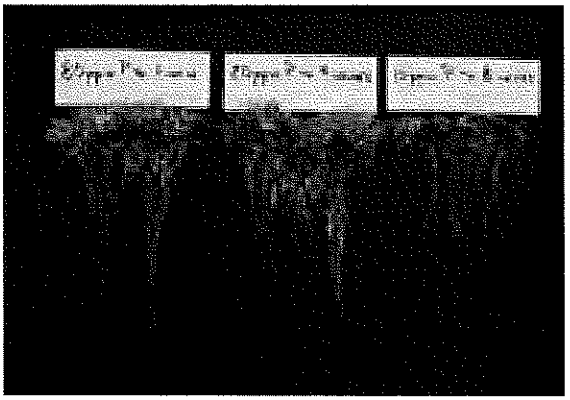

Figure 1. The above photo demonstrates the importance of phosphorous application. The turf in the centre and to the left are phosphorus sufficiency, indicated by the extensive root development while the turf on the right is phosphorous deficient[6].

Figure 2: A healthy root system will also result in healthy shoots. The turf in the centre and to the right are phosphorous sufficient, indicated by the lush green top growth while the turf on the left is phosphorous deficient[6].

References supplied upon request

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