Nitrogen and phosphorus effects on turfgrass grown on a phosphorus deficient soil

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Professional turf applicators have reduced or eliminated phosphorus from their fertilization programs based on the assumption that soil phosphorus levels are supplying adequate amounts of phosphorus to the turf. The research will be conducted for three years to investigate the effects of phosphorus fertilization programs on turfgrass performance, and monitor soil and plant tissue nutrient levels to determine the impact of the programs. 2005 is the second year of the trial. The nitrogen treatments are 2, 3.2, and 4.25 lbs. N/1000 $ft.^2$/yr. The low, medium, and high nitrogen treatments will be applied over 2, 4, and 6 applications, respectively. Nitrogen will be applied using a formulation containing 25% of slow and 75% of fast release nitrogen sources that are representative of typical home lawn fertilizers. The phosphorus treatments are 0, 0.5, and 1.0 lbs. P_2O_5/1000 $ft.^2$. Phosphorus will be applied using mono-potassium phosphate (0-52-34). Phosphorus will be applied according to the application schedule for the nitrogen treatments. Potassium will be applied using muriate of potash (0-0-60) to all plots according to soil test recommendations and to balance the potassium applied from phosphorus treatments. Turf color and quality will be recorded weekly using a scale of 1 to 9 (1=worst, 6=acceptable, and 9=best). Soil and tissue samples will be taken to analyze N, P, and K every month and two weeks, respectively. Grass clippings will be collected every two weeks, dried, and weighed.

Results from 2004 indicate that the low N rate treatment had acceptable color and quality ratings without high clipping yields. The high N rate treatment consistently had the highest color and quality ratings but also had very high clipping yields in comparison to the low and medium N rate treatments. Overall, there was no effect of phosphorus on color, quality, or clipping weights during 2004.

This research is funded by the Michigan Turfgrass Foundation, Project GREEEN, and Lesco.