how seedlings respond to

Phosphorus

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Phosphorus availability can be critical in the development and growth of Kentucky bluegrass seedlings. As little as 0.07# phosphoric acid (P_2O_5) per 1000 sq. ft. will cause a seedling growth response on phophorus deficient soils. In studies conducted by the Research Division, O. M. Scott and Sons, tests were run in the greenhouse to determine the phosphorus requirement of turfgrass seedlings for optimum growth and development.

Initial testing revealed that in the absence of phosphorus there was no response to added nitrogen or potassium during the first 14 days after application. In the following 92 days, growth occurred but yields were very low. In Fig. 1, you can see, also, that growth was excellent at both phosphorus rates during the first 14 days. However, final yields were greater at the higher phosphorus rate.

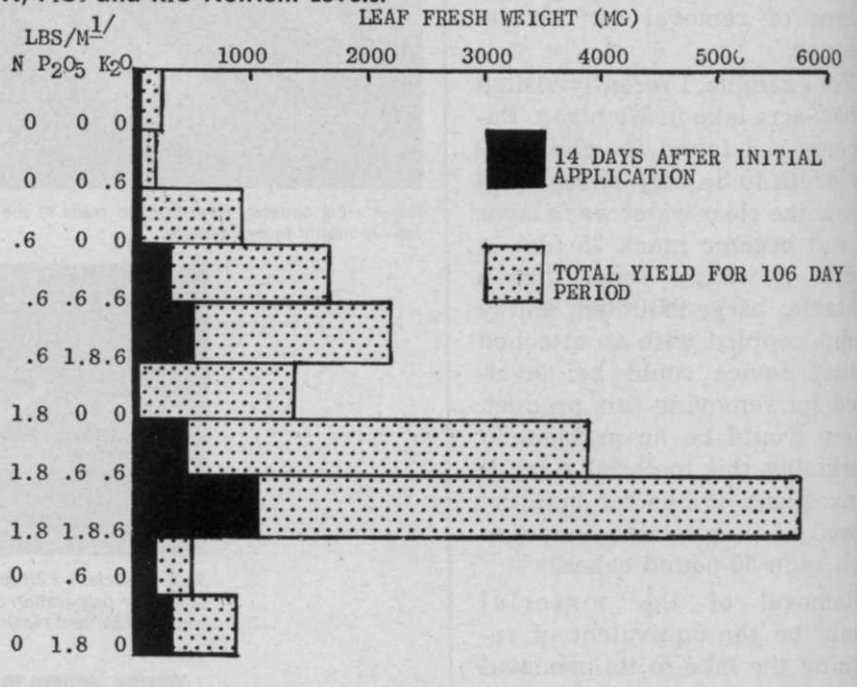
The first tests also showed that a 3-1-1 ration of N, P_2O_5 and K_2O produced much more growth for the 15 week test period than a 1-3-1 ration on a phosphorus deficient soil. The two ratios had given nearly equal results during the first two weeks.

Further tests were begun to discover the least amount of applied phosphorus that will stimulate growth in seedling bluegrass. The plants were grown in a phosphorus deficient sandy loam which had been treated with 0.035# to 0.60# P_2O_5/1000 sq. ft. Rapid growth occurred with the application of 0.07# or more.

The affect of KPO_3 (potassium metaphosphate) and KH_2PO_4 (potassium phosphate mono basic) as sources of phosphorus was examined also. Their citrate solubilities were 65% and 100%, respectively. The test showed that the phosphorus source had little influence on the pattern of seedling response, however, KH_2PO_4 produced slightly higher yields. (Figure 2).

Other experiments showed seedlings responding to added phosphorus on soils varying in phosphorus availability. (0.23 to 0.66# available phosphorus/1000 sq. ft.). Plants grown on soils with high levels of available phosphorus demonstrated a moderate response to additional phosphorus during the first two weeks of growth after applica-

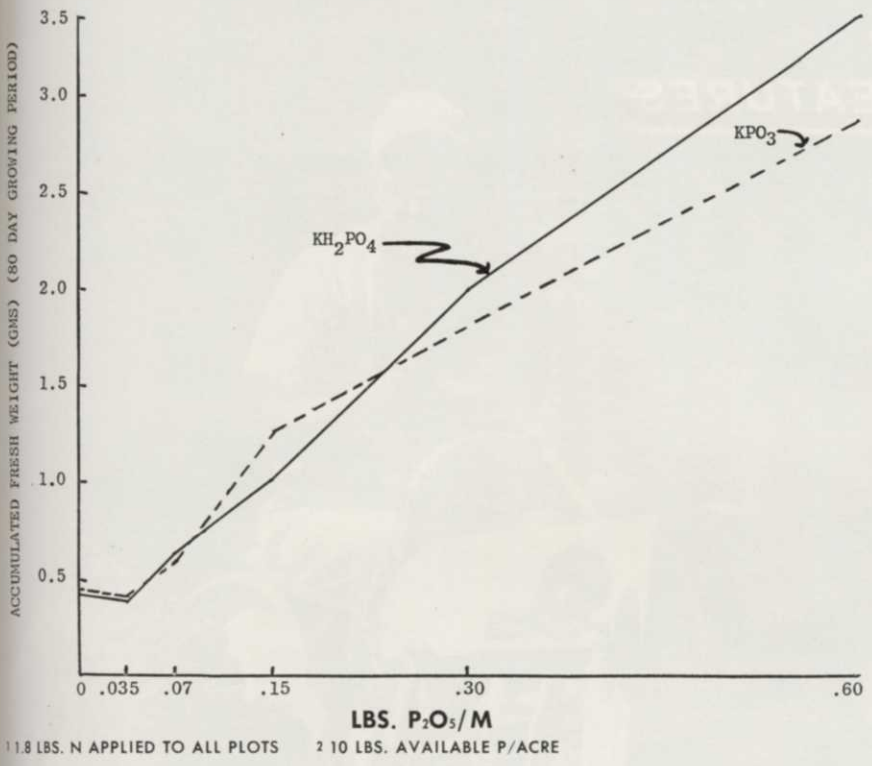
Figure 1. Fresh weight of Bluegrass Leaf Tissue As Influenced by Various N, P_2O_5 and K_2O Nutrient Levels.[2]



1/ P & K APPLIED 8-11-66, N APPLIED ON 8-11 & 11-11-66

2/ SOIL ANALYSIS: AVAILABLE P/A: 100 LBS, TOTAL P: 04%
AVAILABLE K/A 342 LBS, SOIL PH 7.0 FLORIDE: 0.35%

Figure 2. Phosphorus Uptake and Leaf Tissue Fresh Weight of Bluegrass As Influenced by Various Rates and Sources of Phosphorus.[1,2]



1 1.8 LBS. N APPLIED TO ALL PLOTS 2 10 LBS. AVAILABLE P/ACRE

tion. Later growth was not notably affected.

In conclusion, these studies indicate the optimum level of available P_2O_5 for the development of healthy, vigorous Kentucky bluegrass. Even on soils with relatively high amounts of available phosphorus, a positive growth response occurs when additional phosphorus is applied, and a sturdier stand of bluegrass may be obtained.

Fungus Can Kill Maple Leaf Tissue

Anthracnose, a fungus that kills leaf tissue on maple and other hardwood trees, has been detected in Minnesota, says Joe Vargas, University of Minnesota research assistant in plant pathology.

Dark spots—large, small, circular or irregular—or dead areas on leaves may indicate fungus injury. On sugar maples, anthracnose is detected by large green-brown or red-brown areas along leaf veins. Affected Norway maples display purple to brown diseased tissue along leaf veins. On Japanese maples, the leaf often becomes blackened and shriveled.

Vargas says anthracnose spreads rapidly after rains. While the disease does not always seriously damage a tree, it does mar its appearance. Anthracnose can also defoliate and weaken trees, making them more susceptible to winter injury.

Vargas recommends zineb, captan, and some mercurial compounds for control of the disease. The first spraying should be in the spring when leaves begin to unfold, the second 2 weeks later. In case of an unusually wet year, trees should be sprayed again in summer. Fertilizer used as a supplementary measure will improve the vigor of trees weakened by repeated anthracnose attacks.

For more information, ask your local county agent for U. S. Dept. of Agriculture Home and Garden Bulletin No. 81.

Meeting Dates

Symposium and Field Trip, Spring Dead Spot of Bermuda, University of Georgia, Tour begins at Capitol City Country Club, Atlanta, Ga., then to University at Athens at 8:00 p.m., June 11.

Turfgrass Sprinkler Irrigation Conference, University of California Extension Conference Center, Lake Arrowhead, Calif., June 21-23.

Purdue-Michigan State Weed Day, Purdue University Agronomy Farm, Lafayette, Ind., June 25.

Tri-County Chapter, California Landscape Contractors' Association, 17th Annual Convention, Ojai Valley Inn and Country Club, Ojai, Calif., June 25-29.

Landscape Seminar, Associated Landscape Contractors of America, Inc., for Michigan and Ohio, Dearborn Inn, Dearborn, Mich., July 13.

American Association of Nurserymen, Annual Convention and Trade Show, Chase-Park Plaza Hotel, St. Louis, Mo., July 13-17.

Georgia Seedsmen's Association, Annual Convention, Stuckey's Carriage Inn, Jekyll Island, Ga., July 14-15.

National Fertilizer Solutions Association, 1968 NFSA Round-Up, Regency Hyatt House, Atlanta, Ga., July 25-26.

Lawn and Utility Turf Growers Field Day, Rutgers University, College of Agriculture and Environmental Science Campus, New Brunswick, N. J., July 30.

Golf and Fine Turf Growers Field Day, Rutgers University, College of Agriculture and Environmental Science Campus, New Brunswick, N. J., July 31.

Indiana Association of Nurserymen, Summer Meeting, Imperial House Motel, Columbus, Ind., Aug. 7-8.

Midwestern Nurserymen's Summer Meeting, Zelenka Evergreen Nursery, Grand Haven, Mich., August 13-14.

1968 Turfgrass Field Day, Pennsylvania State University, Joseph Valentine Turfgrass Research Center, Campus, noon August 21-noon August 22.

Hawaii 4th Annual Turfgrass Management Conference, Punahou School Campus, Honolulu, Hawaii, August 21-24.