

Use of Soybeans as Fertilizer for Turf and Landscape Areas

Mike Score and Dr. Kevin W. Frank

MSU Extension and Department of Crop and Soil Sciences

Farmers in Washtenaw and Lenawee Counties have used grant funds from Project GREEN, SARE, and EMPACT to explore the use of ground soybeans for turf and landscape fertility management.

In 2000, research plots were set up in Ann Arbor, Michigan. The plot site had no history of soil fertility management. Treatments within the study compared use of soybeans with chemical fertilizers. Summary of first year results showed that ground soybeans performed equal to, or better than chemical fertilizers. Advantages of using soybeans include local production, safety of products for people and pets, reduced phosphorous loading of soil, a single annual application, and no risk of chemical burn from over-application. Disadvantages were related mainly to the quantity of material that had to be handled during fertilizer application, and difficulties of matching variable particle size with suitable fertilizer spreaders.

In 2001 we are conducting two new studies. At Willow Golf Course in Wayne County we are looking at how different rates of application affect turf growth. At the MSU Hancock Turfgrass Research Center we are comparing different soybean application rates with urea, and with a slow release chemical fertilizer. The plots at Willow Golf Course suggested that applications resulting in 2 to 4 pounds of N per 1,000 sq. feet of turf developed good to excellent turf ratings. Lower rates led to unsatisfactory responses. Extended hot, dry conditions led to dormancy across the plots. Plot observations will resume this fall when we will evaluate turf recovery from drought where different application rates were used. At the Hancock Turfgrass Research Center early results show that both 2 and 4 pound N rates provide excellent turf quality. We will monitor the plots to measure duration of turf excellence resulting from the different treatments.

In a less quantitative study we have begun evaluating use of ground soybeans for fertilizing vegetable gardens and ornamentals. Observations suggest that soybeans perform equal to or better than chemical fertilizers when appropriate rates are used.

Ground soybeans have a fertilizer analysis of (6-0.2-1.2). In order to apply a standard turf management application of 4 pounds N per 1,000 sq. ft., 70 pounds of soybeans per 1,000 sq. ft. are required. At this rate phosphorous application is limited to .14 pounds per 1,000 sq. ft. This low rate responds well to current interests in fertilizer use that minimizes impacts on surface water quality.

For more information on this soybean product development project contact Mike Score, MSU Extension Agent at (734) 997-1678, ext. 2619 or scorem@msue.msu.edu