

Nature Safe[®] research

University research data

R-18

Nitrogen release rates of organic fertilizers

Test conducted by:

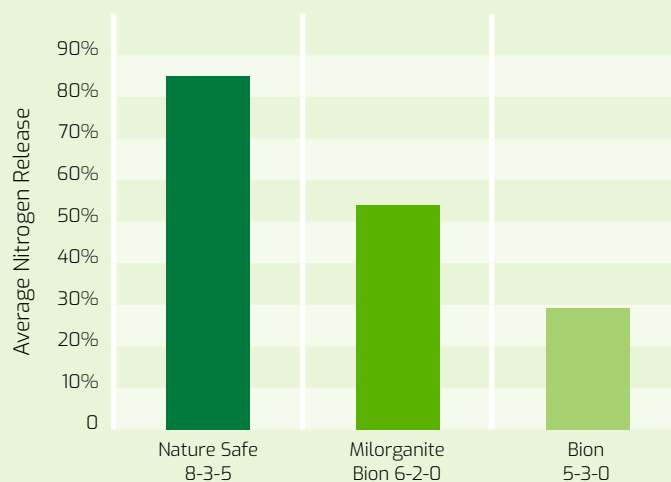
North Carolina State University, Dr. Charles Peacock

Introduction and procedures

The objective of this study was to compare nitrogen mineralization rates between various types of organic fertilizers. Nature Safe 8-3-5 (constructed plant and animal meals), Milorganite 6-2-0 (sewage sludge) and Bion 5-3-0 (a hog manure by-product) were added to bulk soil at a rate equivalent to 136 kg N ha (2.77 lbs. N per 1000 square feet) and incubated at 91.4°F or 33°C for 10 weeks. Additional phosphorus and potash were added to assure equivalent N, P, K ratios. Soil was tested every two weeks and analyzed for total inorganic N. Field plots were also arranged in a completely randomized block design with 4 replications. Turf quality was measured based on density and color. The test was replicated the following year to insure efficacy.

Test results

Final results of the two test periods were averaged. Nature Safe 8-3-5 had an average release of 85% of total N, Milorganite released approximately 53% and Bion less than 30%. The average release of N in Nature Safe 8-3-5 was significantly more consistent and predictable (variation of 14%) over the two year study. Milorganite had the greatest variability between the two years (22%). A more active soil ecosystem may also accelerate N release as seen when comparing data taken in June versus August. Turf quality was also measured at various points throughout the testing. Nature Safe 8-3-5 consistently maintained good to excellent turf quality in comparison to other fertilizers.



Conclusion

In this study Nature Safe released more completely and consistently than the other organic products tested. Consistent timing and magnitude of Nitrogen release is important for turf managers to maximize fertilizer efficiency, while preventing environmental contamination.