



Turf Power™

RESEARCH REVIEW

Turf Power Research

To determine the effects of Turf Power on turfgrass health and rooting; and analysis of the microbial content in Turf Power.

Kerns, 2016

Objective: To determine the effects of Turf Power on turfgrass health and rooting; and analysis of the microbial content in Turf Power

Location:

North Carolina State University

Treatments:

Four field trials were conducted to determine the effects of Turf Power on turfgrass health and rooting. For the creeping bentgrass plant health trial, an 'A-1' creeping bentgrass putting green mowed at 0.135 inches was used. For the bermudagrass plant health trial, a 'Champion' ultradwarf bermudagrass putting green mowed at 0.135 inches was used. Plots were rated for turfgrass quality (TQ) on a 1-9 scale (1= dirt, 6= acceptable and 9=perfect), NDVI (Normalized Difference Vegetation Index) and disease severity (DS) (when disease developed) every two weeks throughout the summer months.

Evaluation:

Analysis of microbial content of Turf Power, aliquots of the material were diluted into sterile water. Dilutions ranged from concentrated product to a 10⁶ dilution. The various dilutions were plated on to four different media that allows for quantification of general bacteria, fungi, actinomycetes and florescent pseudomonads. Colonies were counted 48 and 96 hours after plating to determine counts of the organisms listed below.

Microorganism	Colony Forming Units
General Bacteria	1.8 x 10 ⁷
Fluorescent Pseudomonads	5.6 x 10 ³
Fungi	7.8 x 10 ⁴
Actinomycetes	5.5 x 10 ⁶

Table 1. Enumeration of microbial organisms in Turf Power using a spread plate dilution method. Data presented is the estimated number of colonies of each microbial group based on counts from each dilution performed. The limitation here is only those organisms that will grow in culture are counted. Presumably there could be many more that cannot be cultured.

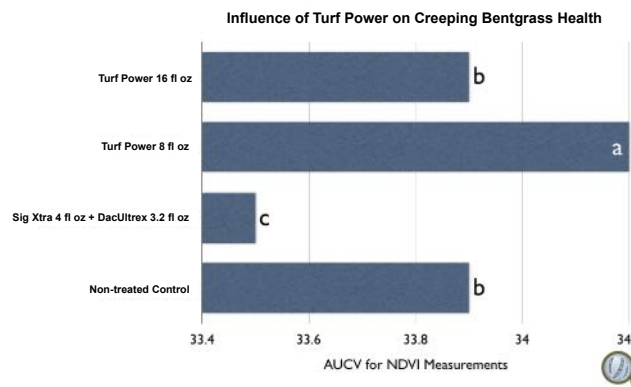


Figure 1. Influence of Turf Power on creeping bent grass health. All NDVI measurements taken throughout the summer are summarized as Area Under the Curve Values on the X-axis. Bars with the same letters are not statistically different according to Fisher's Protected LSD.

Conclusion:

In the two health studies it was very interesting that the Turf Power treatments showed significantly higher NDVI readings, especially in the creeping bentgrass study. NDVI is used as another measure of turfgrass quality and in our experience we have never seen NDVI separate out this well before. Therefore a higher number would equal a plant that is more tolerant of stress.

The plating experiment demonstrates that Turf Power has enough microbial material in it to have an effect in turfgrass systems. Turfgrass systems typically have 10⁷ or 10⁸ bacterial cells in soil and 10⁵ fungal cells in soil. Therefore Turf Power actually is competitive when making these applications, but based on the microbial status of each site the product may take a year or two before desirable results are observed.

Research completed under marketing name Worm Power Turf

