Soil Technologies Corp.
Research and Development Department

Research Report

Date: September 2021

Title: Evaluation of Armorex and Bac-Pack for Sting and Lance Suppression and Turf Improvement

Location: Cheraw State Park Golf Course
Cheraw, SC

Principal Investigators: Dr. Bruce Martin

Crop: Turfgrass **Cultivar:** Bermuda 'TifEagle'

Abstract:
The purpose of this trial was to evaluate the effect of Armorex[1] and Bac-Pack[2] on the quality of turfgrass with above threshold counts of nematodes. Randomized turfgrass plots with moderate to high nematode pressure received treatments with Armorex and Bac-Pack and were compared with untreated plots. Of the five replicates, four had above threshold counts of sting and lance and one had low lance and high sting. To evaluate each plot, nematode assays were performed, rooting depth and quality were assessed from soil samples, and turfgrass was observed and rated for color, density, and quality.

Methods:
Randomized 3 x 10 ft turfgrass plots with moderate to high nematode pressure received the Armorex and Bac-Pack protocol and were compared with untreated plots.

Treatment Schedule	
April 23	Armorex 7.35 fl oz/1000 ft^2
April 30	Bac-Pack 0.75 fl oz/1000 ft^2
May 14	Bac-Pack 0.75 fl oz/1000 ft^2
May 21	Armorex 7.35 fl oz/1000 ft^2
May 28	Bac-Pack 0.75 fl oz/1000 ft^2
June 4	Bac-Pack 0.75 fl oz/1000 ft^2

[1] Armorex is an OMRI listed, minimum risk pesticide manufactured by Soil Technologies Corp. in Fairfield, Iowa.
[2]Bac-Pack is an OMRI listed microbial inoculant manufactured by Soil Technologies Corp. in Fairfield, Iowa.

Nematode assays were performed at the beginning of the trial by taking four soil cores per plot in a diagonal across the long axis of each plot and bulking. Cores were taken to a depth of four inches and were assayed the day after sample collection. At the end of the trial, two soil samples were taken from each plot to measure the depth of rooting and for a visual root quality rating.

Results:

Results from this trial suggest that Armorex and Bac-Pack treated plots scored higher ratings in color, density, and overall quality compared to the untreated group. Moreover, the roots in Armorex and Bac-Pack treated turfgrass had an average root length of 3.6 inches compared to an average of 2.07 inches root length in the untreated group. Below are graphs demonstrating the results for each data point.

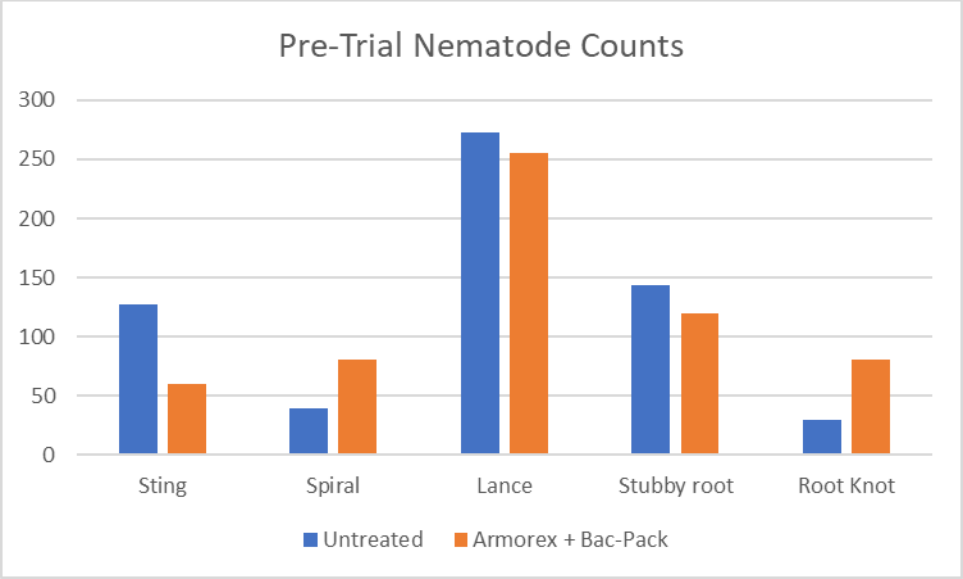

Figure 1. Pre-Trial Nematode Counts

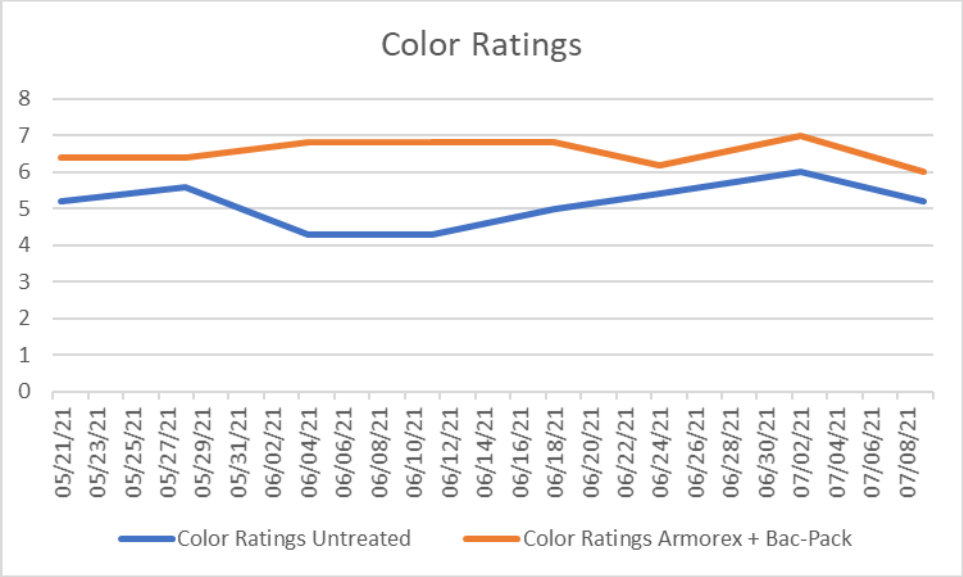

Figure 2. Color Ratings per Treatment

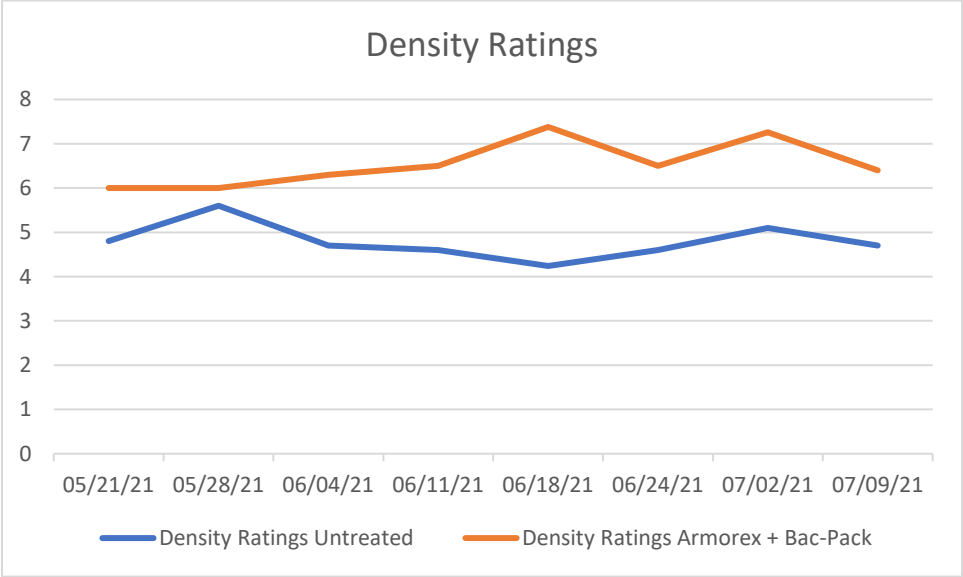

Figure 3. Density Ratings per Treatment

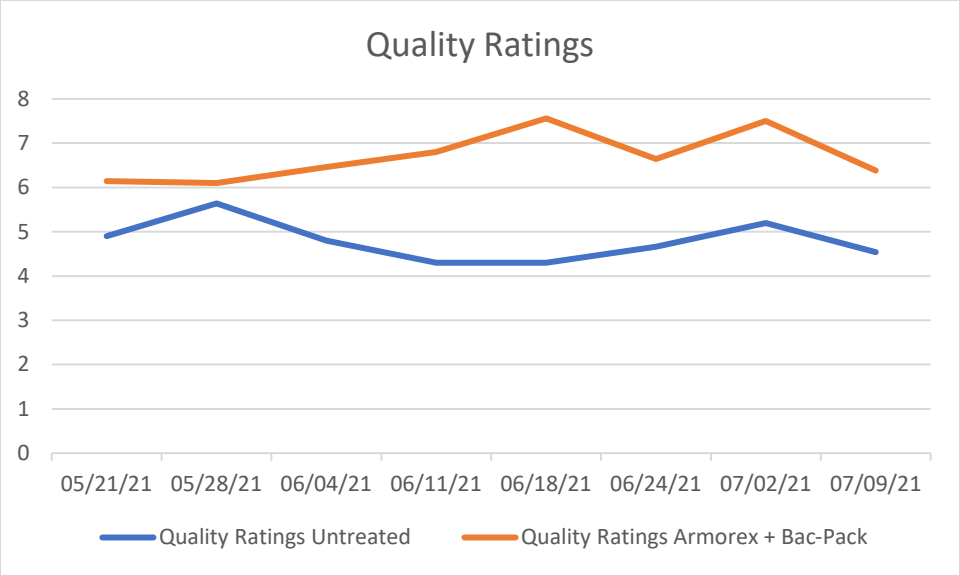

Figure 4. Quality Ratings per Treatment

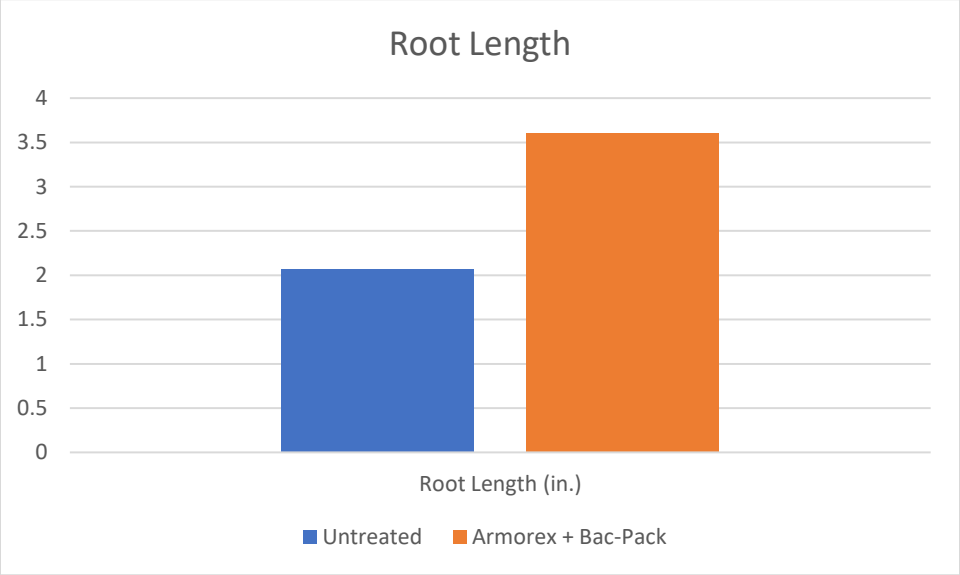

Figure 5. Root Length per Treatment

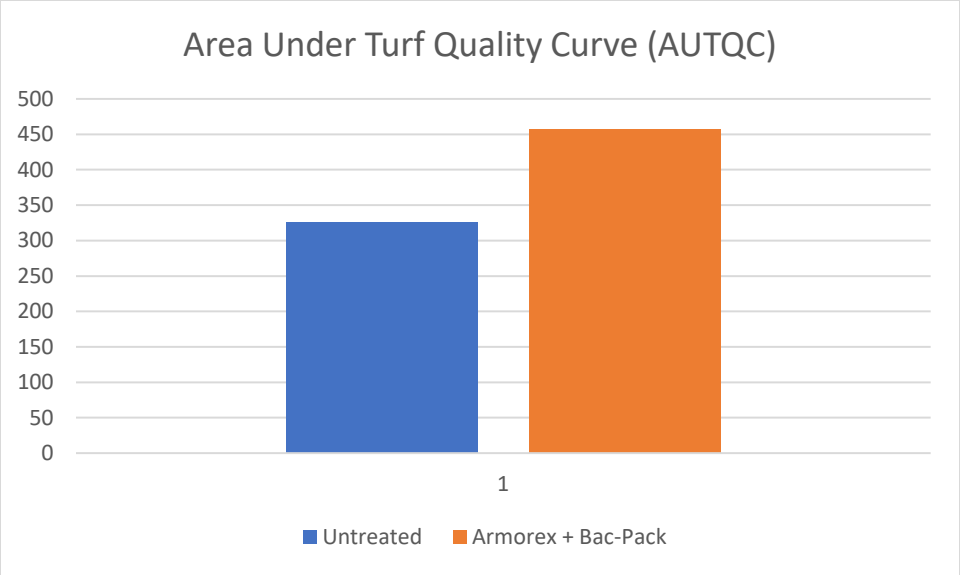

Figure 6. AUTQC per Treatment

Untreated **Armorex +Bac-Pack**

Figure 7. Untreated Plot vs. Armorex + Bac-Pack Treated Plot

Untreated **Armorex + Bac-Pack**

Figure 8. Untreated Plot vs. Armorex + Bac-Pack Treated Plot

Figure 9. Roots of Untreated and Armorex + Bac-Pack Treated Plots

Conclusions:

Results from this trial indicate that the Armorex and Bac-Pack protocol improved the overall quality of turfgrass experiencing moderate to high nematode infestations compared to untreated plots. The main reason to apply a nematicide is to suppress nematode feeding, reduce nematode pressure, and to allow the crop to yield adequately or for turf to have aesthetic and functional quality. With this being the primary goal, applications of Armorex and Bac-Pack yielded results that exceeded the expectations of the principal investigator.