**Bio-fertilizer Study on ‘TifWay’ 419 Bermudagrass Fairway**

**Green-Up Data 2013**

**Investigators:**

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**Location:**

Clemson University Turfgrass Research Park

**Turfgrass:**

‘TifWay’ 419 Bermudagrass

 -maintained as golf course fairway

 -1/2” height of cut

**Treatments:**

3 Fertilizers with Bio-product included

 -2lb N + Bio/1000ft2

 -1.5lb N + Bio/1000ft2

 -1lb N + Bio/1000ft2

1 Control fertilizer without Bio-product

 -1.5lb N Control/1000ft2

**Experimental Design**

 -Factorial

 -4 fertilizer treatments x 3 replications = 12 plots

**Spring Green-Up**

 Spring green up data can provide information on residual nitrogen in the soil, resulting from the previous year’s application of fertilizers. Since bermudagrass becomes dormant in the winter in this area, no fertilizer is applied during the winter months. A quick green-up response in the spring is desired because the brown dormant turf is not aesthetically pleasing to the golfers or home owners.

 Spring green-up data was collected from March 19 through April 25, when the first application of fertilizer was applied. Data was collected weekly rating the plots on a 1-9 scale, with 1 being completely dormant turf and 9 being complete green-up.

 Table 1 demonstrates spring green-up of response of the Bio-fertilizer treatments plus the control of 1.5lb N on TifWay bermudagrass for March 19 through April 25. The data shows through the month of March treatments did not significantly affect the green-up response of the bermudagrass. As the weather becomes slightly warmer in April, a treatment affect can be seen, as there are significant differences in green-up between treatments. April 3 showed 2lb N Bio had the most green-up compared to the other treatments, with the 1.5lb N Control was significantly lower than the other three treatments. The next three rating weeks showed a similar pattern, where the Bio-fertilizer treatments had significantly higher green up than the Control treatment. Also, there is a gradual increase of green-up through the month of April for all treatments as the weather becomes warmer. But the Bio-fertilizer treatments reveal a quicker green-up response compared to the control treatment (Figure 1).

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| **Table 1: Spring Green-Up (2013) by Week for Bio-fertilizer on ‘TifWay’ 419 Bermudagrass Fairway: 1-9 Scale (1=complete dormant, 9=complete green-up; > or = 6 as acceptable turf quality)** |
|  |
|  Treatment **March 19 March 27 April 3** |
| ---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------- |
|  **2lb N Bio** 1.33 **A** 1.33 **A** 3.00 **A** |
|  **1.5lb N Bio** 1.66 **A** 1.66 **A** 2.00 **B** |
|  **1lb N Bio** 1.33 **A** 1.33 **A** 2.00 **B** |
|  **1.5 N Control** 1.00 **A** 1.00 **A** 1.00 **C** |
| \*Means separated with Student’s t (α = 0.05), treatments with same letter are not significantly different  |
| within week. |

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| **Table 1 Continued: Spring Green-Up (2013) by Week for Bio-fertilizer on ‘TifWay’ 419 Bermudagrass Fairway: 1-9 Scale (1=complete dormant, 9=complete green-up; > or = 6 as acceptable turf quality)** |
|  |
|  Treatment **April 9 April 17 April 25** |
| ---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------- |
|  **2lb N Bio** 3.66 **A** 5.66 **A** 7.66 **A** |
|  **1.5lb N Bio** 3.33 **A** 5.33 **A** 7.33 **A** |
|  **1lb N Bio** 3.33 **A** 5.00 **A** 7.33 **A** |
|  **1.5 N Control** 2.00  **B** 3.33  **B** 5.66 **B** |
| \*Means separated with Student’s t (α = 0.05), treatments with same letter are not significantly different  |
| within week.. |

**Preliminary Conclusions**:

 Spring Green-Up for the Bio-fertilizer study in 2013 revealed that response of turf fertilized with Bio-fertilizer significant increased compared to the control. This result suggests that there is residual nitrogen in the soil from the previous year’s fertilizer applications. The shorten green-up time shown in this study for the Bio-fertilizer treatments compared to the control, is desirable in many situations as turf managers want to make the transition from dormant turf to lush green grass as quickly as possible.

Note: April 25th data were valid because the plot readings were taken in the morning and the first fertilization was applied in the later afternoon on the same day.