

THE EFFECT OF ORGANIC & INORGANIC FERTILIZERS on the Quality of Kentucky Bluegrass Turf and Soil Chemical Properties 2010-2015

by Pamela Sherratt, Dr. John Street and Emily Horner
Dept. of Horticulture & Crop Science
Ohio State University

Objectives: To compare the quality response of Kentucky bluegrass (*Poa pratensis*) following the application of fertilizer with various nitrogen (N) sources and to monitor soil chemical and physical changes over time.

Introduction

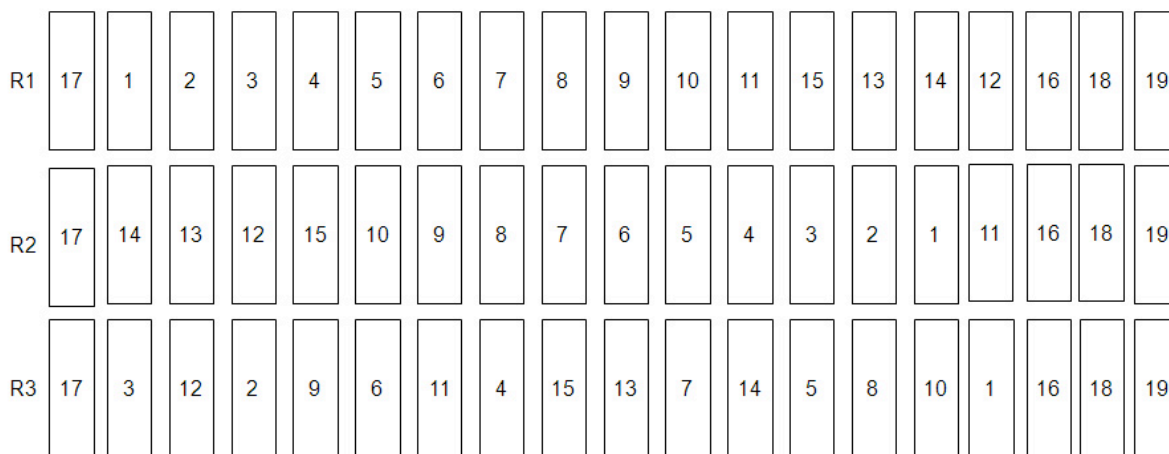
One of the most critical things that we do in turfgrass management is to fertilize the turf to maintain a healthy sward and to prepare the turf so that it can withstand traffic and recuperate from it. It is the role of the turf manager to determine turf fertilizer needs based on annual soil tests and by having a clear understanding of how fertilizers work.

In addition to understanding the complexities of fertilizer types, rates and timings, turf managers may also be working with products in the future that do not contain phosphorus. Another trend in fertilizer management is the desire of some homeowners and public facility administration to move away from synthetic fertilizers in favor of natural organic fertilizers. Natural fertilizers are derived from sources such as manure or compost and they typically do not have nitrogen contents higher than 8%. Natural fertilizers cost more money per lb. of nitrogen than synthetic sources and they are reliant upon soil temperatures for release. Still, there is a belief that natural sources not only feed the turf, but that they can improve the soil health in a turfgrass system. Natural fertilizers that contain organic material may help to improve a soil's bulk density and nutrient status overtime, which will be monitored in this study.

Measurements:

- Quality: Visual quality (color and density) is rated on a scale of 1-9, with 1 representing poorest and 9 representing best. The visual assessment is based on NTEP Guidelines (www.ntep.org).
- Soil Chemical Properties.
 - o Some of the fertilizers do not contain all of the macro nutrients P or K needed for sustained turf growth, so

OLCA Fertilizer Study 2010-2015



Treatments

- 1 Urea 46-0-0
- 2 EcoSentinal 5-2-4
- 3 Nature Safe 10-2-8
- 4 Nature's Helper 2-1-1
- 5 Spring Valley Pro 20-2-5
- 6 Sustane 5-2-10
- 7 Milorganite 5-2-0
- 8 Corn Gluten 10-0-0
- 9 Comtil Plus 3-2-1 @ ¼" depth, 2 x year
- 10 Advanced Turf Solutions 22-3-11

- 11 Advanced Turf Solutions 22-0-5
- 12 Andersons 37-0-0
- 13 Spread it & Forget it 35-0-10, 1 x year (2lbs N)
- 14 Spread it & Forget it 35-0-10, 2 x year (1lb N)
- 15 Untreated Check
- 16 Chickity-Doo-Doo 5-3-2.5
- 17 Stadium Scarlet @ ¼" depth 2 x year
18. Easy Flo 1.5-0.25-0.75
19. Coffee grounds @ ¼" inch depth 2 x year

Details:

Native soil, mixed sward
Plot Size: 3' x 6' w/ 6" borders
Start Date: May 2010
Location: SW of Sports Turf
Trtm Freq: Every 8 weeks unless otherwise stated
All treatments, except 9, 14, 17, 18 and 19 applied at 1 lb. nitrogen/M
Mowed at 3", Clippings returned

it will be interesting to see what effects no P or K has on the quality of the turf over time.

- o Organic matter content, pH, cation exchange capacity, and available nutrients are also monitored.
- o Levels of phosphorus over soil depth, particularly with the manure and sewage based composts, will be monitored.

Preliminary Findings:

- Plots had excellent quality year-round.
- Compost treatments – increase % Organic Matter in soil.
- Stadium Scarlet – had some surface debris present.
- Biosolids significantly increase soil P levels in the soil.
- There was no significant increase in CEC (cation exchange capacity) with fertilizers, to this point in the study.
- Low N organic treatments had more dollar spot incidence on the plots.

Once soil results are completed and data compiled from 2014 samples, a final comprehensive report will be made and forwarded to OLCA.



Figure 1: The effects of various fertilizers on the spring green-up of Kentucky bluegrass turf. Photograph taken 3/30/2011.

Sponsored by The Ohio Lawn Care Association
(ohiolawn.org)

DIAGNOSING LAWN & LANDSCAPE PROBLEMS – Sending Samples to the OSU Plant & Pest Clinic

by Joe Rimelspach
Department of Plant Pathology
The Ohio State University

As a member of OLCA you are eligible to have up to 3 FREE samples diagnosed per year at The Ohio State University – C. Wayne Ellett Plant & Pest Diagnostic Clinic. It is a unique diagnostic facility which integrates expertise in plant pathology, entomology, agronomy and natural resources and a comprehensive service of plant disease and pest (insect) identification. This is a great service offered to the members of OLCA.

When sending in samples **MAKE SURE YOU INCLUDE ONE OF THE 2014 OLCA FREE SAMPLE VOUCHERS.** This needs to be included to insure fees are waived.

TURFGRASS SAMPLES TO:

OSU/CWEPPDC
201 Kottman Hall
2021 Coffey Rd
Columbus, OH 43210
Ph: (614) 292-5006
Fax: (614) 292-4455
Email: ppdc@osu.edu
Website: ppdc.osu.edu

SAMPLES OF TREES, SHRUBS, INSECTS, ETC ... SENT TO:

OSU/CWEPPDC
8995 East Main Street Building #23
Reynoldsburg, OH 43068
Ph: (614) 292-5006
Fax: (614) 466-9754

To see a step by step video on how to submit a sample, please visit the following web sites:
Submitting a residential turf sample: www.youtube.com/watch?v=3lcbu6fCGYk

Also visit the OSU Turf Pathology Program site, <http://turfdisease.osu.edu/> or The Department of Plant Pathology's web site at <http://plantpath.osu.edu> for more information of plant diseases.