

Introduction

Beginning Fall 2021, UGA AESL will begin offering a soil test mapping service as a value added service to support the soil testing program. These tools were developed based on feedback from clients and agents about the need for soil variability mapping to support precision agriculture applications. Soil mapping uses statistical analysis and geographically referenced data to create maps of the distribution of chemical and physical parameters across a field. This information then allows users to identify the spatial trends in soil characteristics and serves as the foundation of variable-rate fertilizer and lime applications.

At this time, maps will be created for the major soil chemical parameters tested in the routine soil test, including pH, lime recommendation, P and K. Maps for Mg and Ca will also be included if the relevant recommendations exist. The figure below shows an example map of soil pH. In addition to the maps, clients will also be provided with the geospatial files created during the process, which will allow them to work with a local consultant, fertilizer dealer, and/or applicator to conduct the variable-rate fertilizer and lime applications.

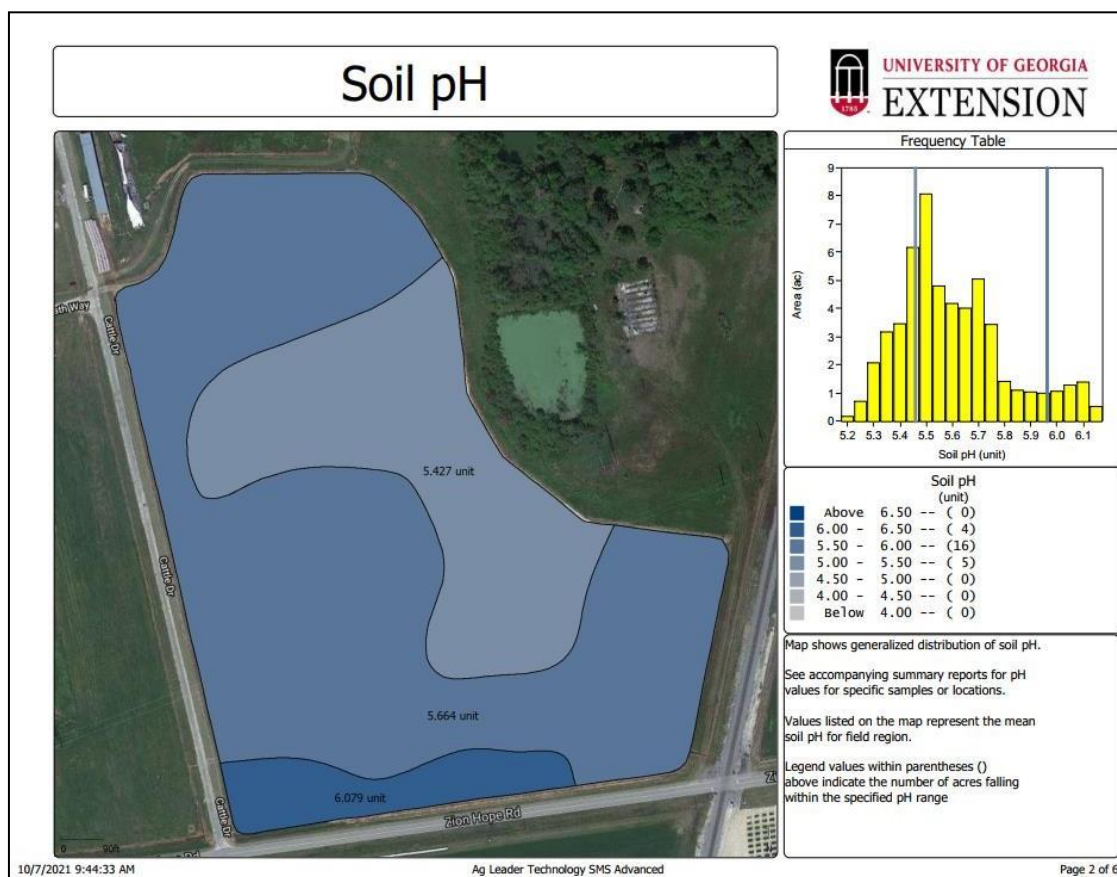


Figure. Example map showing the distribution of soil pH across a field.

Costs: *At this time, there will be no additional fee associated with the mapping service.* However, this will be re-evaluated at a later date once this service becomes established in the lab's normal operations.

Sampling Instructions

Soil mapping relies on the ability to collecting sufficient samples across a field to identify underlying spatial differences in soil characteristics. To do this, a field is typically subdivided into smaller management zones or grids and sampled at a higher frequency (1-5 acres per sample) compared to traditional soil sampling. The more samples per field, the more relevant the information. Ideally, there should be **at least 5** soil samples per field, regardless of size. For more information about precision soil sampling, see [UGA Extension Bulletin 1208](#).

Step #1: Use a precision farming or other geo-referencing software package to identify field boundaries, subdivide field into management zones or grids, and identify sampling locations.

Don't have access to a commercial mapping software? Follow these instructions ([Link](#)) to create a field boundary and sampling location map using Google Earth Pro (**free software**).

Step #2: Navigate to each sampling point and collect a composite sample from the area surrounding the target sampling location. Each samples should be placed in an individual marked bag with a unique sampling identification (sample number).

Step #3: Submit the samples to county extension office, sending all files directly to the lab.

*The quality of the maps produced is severely compromised when four or fewer samples are collected from a given field. For more accurate soil maps, be sure to collect at least 5 samples per field.

Soil Bag Information: Grower name, Field ID, and Sample #:

----FILL TO THIS LINE----

NAME **Farm Name**

ADDRESS _____

CITY _____

ZIP CODE **Field ID**

CROP _____

SAMPLE NUMBER _____

COUNTY NAME

Sample #

----FILL TO THIS LINE----

NAME **Iron Horse**

ADDRESS _____

CITY _____

ZIP CODE **1261**

CROP _____

SAMPLE NUMBER _____

COUNTY NAME

1

----FILL TO THIS LINE----

NAME **JPC**

ADDRESS _____

CITY _____

ZIP CODE **Pivot 6**

CROP _____

SAMPLE NUMBER _____

COUNTY NAME

1

Submission Requirements

These samples are to be handled differently from other soil samples submitted to the lab for analysis. First, *these samples will not be entered into the data transfer system*. Instead, below is a list of four items that are required in order for the lab to process these samples and create soil maps. Please include the sample submission form with the soil samples when mailing to the lab. The sample identification list, field boundary/ management zone map, and sampling locations map should be emailed directly to soiltest@uga.edu.

1. Completed [Soil Mapping Submission Form](#), mailed with samples to the lab
2. Completed [Sample Identification List](#), emailed to the lab
3. Field boundary or zone map file in .shp, .kml, or .kmz format (see example sampling map in sampling instructions section for details)
4. Sampling location file in .shp, .kml, or .kmz format (see example sampling map in sampling instructions section for details)

*.shp files actually include four individual files types; .shp, .shx, .prj, and .dbf. All four of these file types must be included for each .shp file submitted (i.e. boundary & sample locations).

Reports

After completing the analysis, the lab will email the client and submitting county a unique link ([Example Report Link](#)), which can be used to access the reports, maps, and mapping program files. This link will be client specific and will be updated with additional files each time new samples are submitted by the client. The normal soil reports will also be available through data transfer. For more information about the program, please email soiltest@uga.edu.