

**Soil Quality Enhancement Activity – SQL15 –Utilize the soil health nutrient tool to assess soil nutrient pools**



**Enhancement Description**

Use a soil health nutrient tool to assess soil nutrient pools for soil health.

**Land Use Applicability**

Cropland, Pasture

**Benefits**

The new soil health nutrient tool is a set of soil test procedures that comprehensively integrate soil nutrient recommendations with soil biological traits. Soil biology is more involved in the supply of crop and/or forage nutrient needs than previously believed. Studies show less than 50 percent of the nitrogen in harvested plant parts can be attributed to added fertilizers. The other sources of the nutrients are biological N-fixation, microbial oxidations and natural weathering. Soil microbes mediate many of the important nutrient transformation processes and nutrient-plant transactions. Failure to measure potential nutrient pools means farmers and ranchers may over-fertilize potentially impacting both soil and water quality.

**Conditions Where Enhancement Applies**

This enhancement applies to all crop and pasture land use acres.

**Criteria**

Annually collect soil samples and have samples analyzed by a lab using the USDA Soil Health Nutrient Tool method.

1. Sampling procedure
  - a. Take 15-25 core samples randomly from each identified field. Mix samples thoroughly and save enough to fill a 1 quart Ziploc bag.
  - b. Consider previous crop row spacing and fertilizer placement, avoid over sampling in these areas
  - c. Collect core samples to a depth of 6 inches
    - i. Long term no-till field should be sampled to a depth of 4 inches
2. Sampling equipment
  - a. Use a stainless steel soil-sampling probe
    - i. Shovels can be used if they are rust free and clean
    - ii. The sweatless soil sampler, as described by Oklahoma State University, is a good alternative to achieve uniform depth and mixing of samples  
<http://soiltesting.okstate.edu/sweatless-soil-sampler/PT2003-6SweatlessSoilSampler.pdf>



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3. Handling
  - a. Samples DO NOT need to be air dried prior to shipping, but should not be saturated either
  - b. Label sample and include the following information:
    - i. Name
    - ii. Email
    - iii. Phone
    - iv. State field located
    - v. County/Parish field located
    - vi. FSA Tract number
    - vii. FSA Field Number
    - viii. Land use- cropland, pasture
4. Ship Samples to:
  - a. Any laboratory capable of performing the Haney Soil Health Nutrient Test.
  - b. Contact your local NRCS Field Office for a list of available labs.

### **Adoption Requirements**

This enhancement is considered adopted when the land use acre and its contiguous field acres have a soil health tool report.

### **Documentation Requirements**

1. A map showing fields where samples were collected.
2. Copy of the Soil Health Tool Report

### **References**

Brinton, W.R., Haney, Rick. 2013. Solvita CO<sub>2</sub>-Burst Respiration: A Rapid Means to Gauge Soil Biological Activity and Potentially Mineralizable Nitrogen. International Symposium on Soil and Plant Analysis, ISSPA, New Zealand

Doran, J. 1997. Soil Respiration Test Comparisons, University of Nebraska, USDA ARS

Fanzluebbbers, A.J., Haney, R.L., Hons, F.M., and Zueberer, D.A. Determination of soil microbial biomass and nitrogen mineralization following rewetting of dried soil. Soil Science Society of America Journal 60:1133-1139. 1996

Harmel, R.D. 2013. Initial Field Evaluation of the Agro-Economic Effects of Determining Nitrogen Fertilizer Rates with a Recently Developed Soil Test Methodology. Open Journal of Soil Science 3:91-99 (USDA ARS)

USDA 1999. Soil Respiration Test Guidelines, Soil Quality Institute, USDA ARS



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Ohio NRCS CSP Job Sheet Supplement  
Activity SQL15

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Below is a list of soil testing labs that have been confirmed to be capable of conducting the Soil Health Nutrient Tool (Haney Test). There are a number of labs across the country that offer the Slovita test only (respiration measurement), while a good test it does not do the complete nutrient assessment that the Haney Test does. Make sure that producers selecting the SQL-15 get the correct test. This enhancement is to use the “Haney Test” and the recommendation that are generated as a result of this test are to be used to compare with traditional soil testing and tri-state recommendations. The primary short-term benefit of this enhancement is educational in nature and should not be used to justify nutrient applications in excess of the tri-state recommendations.

Ward Labs: Nebraska  
4007 Cherry Ave.  
P. O. Box 788,  
Kearney, NE 68848-0788  
Telephone: 800-887-7645 or 308-234-2418  
Fax: 308-234-1940  
<https://producers.wardlab.com/default.aspx?ReturnUrl=%2f>

Brookside Labs: Ohio  
200 White Mountain Drive  
New Bremen, OH 45869  
Phone: 419-977-2766  
Fax: 419-977-2767  
<http://www.blinc.com/ag.htm>

Woods End Lab: Maine  
290 Belgrade Road  
P.O. Box 297  
Mt Vernon, ME 04352 USA  
Phone: 800-451-0337 or 207-293-2457  
<https://woodsend.org/>

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A&L Labs, Memphis, Tennessee  
2790 Whitten Road  
Memphis, TN 38133  
800-264-4522 901-213-2400  
Fax: 901-213-2440  
<http://www.allabs.com/>

Midwest labs: Nebraska  
13611 B St.  
Omaha, NE 68144  
402-334-7770  
<https://www.midwestlabs.com/>

Agvise Laboratories  
604 Hwy 15 West  
P.O. Box 510  
Northwood, ND 58267  
701-587-6010  
<http://www.agvise.com/>

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