

Soil Health Testing for NRCS CEMA 216

To meet the requirements for CEMA 216, at least one test in each of 5 indicator categories must be performed (1. soil aggregate stability, 2. soil organic carbon, 3. microbial activity, 4. labile carbon, and 5. bioavailable nitrogen). Various labs may offer these and other tests in different packages which may be eligible for funding, and producers are responsible for confirming that lab packages meet their specifications.

Standard soil health indicator methods:

1. **Soil aggregate stability:** wet macro-aggregate stability (preferred) or image analysis (alternate) or Cornell sprinkler infiltrometer (alternate)
2. **Soil organic carbon:** dry combustion (preferred) or loss on ignition/soil organic matter (alternate)
3. **Soil respiration/microbial activity:** 24 hour CO₂ respiration (preferred) or 96 hour/4 day CO₂ respiration (alternate)
4. **Labile carbon:** permanganate oxidizable carbon (POXC) (preferred) or water extractable organic carbon (WEOC) (alternate)
5. **Bioavailable nitrogen:** Autoclaved citrate extractable (ACE) protein (preferred) or water extractable organic nitrogen (WEON)



Also required for both standard and advanced testing:

- **Soil pH:** 1:1 water extraction (preferred) or 0.01M CaCl₂ extraction (alternate)
- **Soil texture:** KSSL particle size distribution analysis (preferred) or hydrometer method (alternate)

Advanced soil health indicator methods:

Advanced soil health testing includes additional microbial diversity/functional diversity testing.

If an advanced soil health test with additional microbial/functional diversity information is desired, choose one of the methods below:

Microbial diversity using phospholipid fatty acid (PLFA) (preferred)

-OR-

Enzyme activity Choice of three of the following:

- β-Glucosidase (carbon cycling)
- N-acetyl-β-D-glucosaminidase (carbon and nitrogen cycling)
- Protease (nitrogen cycling)
- Acid and/or Alkaline Phosphatase (phosphorus cycling)
- Arylsulfatase (sulfur cycling)

Done in collaboration with Minnesota NRCS

Updated: April 2026

www.midwestcovercrops.org/soil-health-testing/



Midwest Cover Crops Council Soil Health Testing:

Labs that Conduct Soil Health Tests for NRCS CEMA 216

Cover crops and soil health

The USDA Natural Resources Conservation Service (NRCS) has identified four basic principles for maintaining and improving soil health: keep the soil covered; disturb the soil as little as possible; keep plants growing throughout the year; diversify crop rotations. Cover crops help accomplish these principles. Cover crops help reduce soil erosion, feed soil organisms from bacteria to earthworms, build soil organic matter, help cycle nutrients, reduce soil compaction, and improve soil aeration, infiltration, and structure.

Soil health testing

Soil testing can help producers understand what their land needs to function well. Soil fertility testing is a common practice to assess nutrient availability. Soil health testing is a more recent practice to help monitor soil health processes and indicators, including changes in soil structure, nutrient cycling, and water infiltration that might result from the use of cover crops. Visit the [MCCC website](#) for more information on soil health testing procedures and guidance on interpreting results.


NRCS Conservation Evaluation and Monitoring Activity (CEMA) 216

The NRCS Conservation Evaluation and Monitoring Activity 216 (CEMA 216) Soil Health Testing is a financial assistance opportunity for participants to hire Qualified Individuals or Technical Service Providers to provide quantitative testing for biological, chemical, and physical characteristics of soil, for all land uses. Learn more about [CEMA 216 Soil Health Testing](#) on the NRCS website.

Laboratories that offer soil health testing

This list of laboratories that offer soil health testing services was compiled to the best of our ability. If this information needs to be updated, please complete [this form](#), available on the MCCC website.

This document is provided to help producers select labs and soil health tests. This is not meant to replace detailed information available from each lab itself, and prices are subject to change. If cost is not included for a particular lab or service, we were unable to find it. Inclusion on the list is not an endorsement of a particular lab or service by the MCCC.

Labs that conduct soil health testing for CEMA 216		AGVISE Laboratories	AqSource - Lincoln	Cornell Soil Health Lab	Midwest Labs	MVTL	Regen Ag Lab	Soil Health Assessment Center	Ward Laboratories, Inc.	Waters Agricultural Labs
Last updated: April 30, 2026	Lab website:	agvise.com/	aqsource.com/	soilhealthlab.cals.cornell.edu/	midwestlabs.com/	mvtl.com/	regenaglab.com/	soilhealth.missouri.edu/	wardlab.com/	watersag.com
	Standard CEMA test package:	\$240.00	\$125.00	\$180.00	\$93.01 - \$103.01 with no aggregate stability test	\$129.00 - \$184.00	\$110.00	\$110.00	\$149.40	\$120.00
	Advanced CEMA test package:	not offered	not offered	not offered	not offered	standard + \$90.00 PLFA or + \$75.00 for 3 enzymes	\$185.00 - \$200.00	price TBD	\$238.50 - \$250.35	\$200.00
<i>This is not meant to replace detailed information available from each laboratory itself; prices are subject to change. If cost is not included for a particular lab or service, we were unable to find it. Inclusion on the list is not an endorsement of a particular lab or service.</i>										
Soil process or indicator	Lab method	Availability and cost	Availability and cost	Availability and cost	Availability and cost	Availability and cost	Availability and cost	Availability and cost	Availability and cost	Availability and cost
Soil Aggregate Stability	Preferred Lab Method: Wet sieving	\$63.50 or \$88.35 with sand correction	N/A	N/A	N/A	\$35.00	\$30.00	Available	Available	Available
	Alternate Lab Method: Image analysis or Cornell sprinkler infiltrometer	N/A	\$40 - image analysis	Cornell Sprinkler Infiltrometer	N/A	N/A	N/A	N/A	N/A	N/A
Soil Organic Carbon	Preferred Lab Method: Dry combustion	\$23.65	\$14.00	Available	\$26.25	\$25.00	\$15.00	Available	Available	Available
	Alternate Lab Method: Loss on ignition/ soil organic matter	\$4.75	N/A	Available	N/A	\$10.00	\$6.50 or Haney Test*	Available	Available	N/A
Soil Respiration/Microbial Activity	Preferred Lab Method: 24 hr CO ₂ respiration	\$34.50	\$25.00	N/A	Available*	\$30.00	\$25.00 or Haney Test*	N/A	Available	Available
	Alternate Lab Method: 96 hr (4 day) CO ₂ respiration	\$45.00	N/A	Available	N/A	\$40.00	\$35.00	Available	N/A	N/A
Labile Carbon/Carbon Food Source for Microbes	Preferred Lab Method: (POXC) Permanganate oxidizable carbon	\$23.90	N/A (in development)	Available	N/A	\$30.00	\$25.00	Available	Available	Available
	Alternate Lab Method: (WEOC) Water extractable organic carbon	\$32.75, includes WEON	\$45.00, includes WEON	N/A	Available*	\$20.00	\$17.50 or Haney Test*	N/A	Available	N/A
Bioavailable Nitrogen/Food Source for Microbes	Preferred Lab Method: Autoclaved citrate extractable (ACE) protein	\$36.50	N/A	Available	N/A	\$30.00	\$25.00	Available	Available	Available
	Alternate Lab Method: (WEON) Water extractable organic nitrogen	Included with WEOC	Included with WEOC	N/A	Available*	\$20.00	\$17.50 or Haney Test*	N/A	Available	N/A
Soil Texture	Preferred Lab Method: KSSL particle size distribution analysis	\$47.25	N/A	Available	N/A	N/A	N/A	Available	N/A	N/A
	Alternate Lab Method: Hydrometer method	\$27.25	\$19.85	N/A	\$11.76	\$24.00	\$20.00	N/A	Available	Available
Soil pH	Preferred Lab Method: 1:1 water extraction	\$5.85	\$7.16	Available	Available*	\$10.00	\$6.50 or Haney Test*	Available	Available	Available
	Alternate Lab Method: 0.01M CaCl ₂ extraction	\$6.25	N/A	N/A	N/A	\$10.00	N/A	N/A	N/A	N/A
Microbial Biomass and Diversity or Activity	Preferred Lab Method: Phospholipid fatty acid (PLFA)	N/A	N/A	N/A	N/A	\$90	\$90.00	Available	Available	N/A
	Alternate Lab Method: Potential enzyme activity, choose 3: 1)β-Glucosidase 2)N-acetyl-β-D-glucosaminidase (NAG) 3)Protease 4)Acid and Alkaline Phosphatase 5)Arylsulfatase	N/A	N/A	N/A	N/A	\$75 for 3	\$75.00	Available	Available	Available
Information last verified:		April 2026.	April 2026.	April 2026.	April 2026.	April 2026.	April 2026.	April 2026.	April 2026.	April 2026.
						*Available in Soil Health Basic (\$55.00) or Soil Health Complete (\$65.00)	* Also available in Haney Test Package (\$60.00)			