

TEST PROCEDURES & METHODS

For the best use of soil testing results, it is important to know the following information:

1. Laboratory method used for each analysis.
2. Units reported for each analysis.
3. Any conversion or calculation used for specific tests.

AgSource uses recommended methods for determining soil fertility characteristics and the availability of essential nutrients required for plant growth.

Actual nutrient availability in the soil is determined by changing factors including: soil moisture, temperature, pH, clay content, internal drainage, organic contact and physical barriers. As any of these factors change, the availability will also change.

SOIL - All soil samples are dried and ground.

Analysis	Units	Method Description
Soil pH	--	1:1 Soil/Water Slurry
Buffer pH (Buffer Index)	--	Sikora Buffer Method
Soluble Salts (EC)	mmhos/cm	1:2 Soil/Water Slurry
Potassium	ppm	Bray 1 Extraction
Phosphorus, Bray 1	ppm	Bray 1 Extraction
By request:		
Phosphorus, Bray 2	ppm	Bray 2 Extraction
Phosphorus, Olsen	ppm	Olsen Extraction, when soil pH >7.2
Calcium, Magnesium and Sodium	ppm	Ammonium Acetate Extraction
Sulfur	ppm	Monocalcium Phosphate Extraction
Copper, Iron, Manganese and Zinc	ppm	DTPA Extraction
Boron	ppm	Hot Water Extraction
Nitrate-Nitrogen	ppm	KCl Extraction, Cadmium Reduction
Organic Matter	%	Loss on Ignition (LOI), expressed as OM%

Soil test methods are described in:

- **Nutrient Application Guidelines for Field, Vegetable, and Fruit crops In Wisconsin**, 2012 Publication A2809
- **Wisconsin Soil Testing and Plant Analysis Procedure**, No. 6 Fertility Series 1970, Revised 1976.

- **Recommended Chemical Soil Test Procedures for the North Central Region**, North Central Research Publication No. 221 (Revised), 2015, Missouri Agricultural Experiment Station SB 1001.

PLANT TISSUE - All plant tissue samples are dried and ground.

Analysis	Units	Method Description
Total Nitrogen	%	Total Kjeldahl Digestion
Minerals:		
P, K, S, Ca, Mg, Na	%	Nitric Acid Digestion
Cu, Fe, Mn, Zn, B, Al	ppm	Nitric Acid Digestion

Plant tissue test methods are described in:

- **Wisconsin Soil Testing and Plant Analysis Procedure**, No. 6 Fertility Series 1970, Revised 1976.

MANURE - All samples are handled and reported as detailed below.

Analysis	Units	Method Description
Dry Matter/ Moisture	%	Oven Drying at 50°C, 48 hours
Nitrogen (TKN)	%	Total Kjeldahl Digestion, "As Received"
Minerals:		
P, K, S, Ca, Mg, Na	%	Nitric Acid Digestions, "Dry Basis"
Cu, Fe, Mn, Zn	ppm	Nitric Acid Digestions, "Dry Basis"
Ammonium-Nitrogen	%	KCl Extraction, "As Received"
Nitrate-Nitrogen	%	KCl Extraction, "As Received"
Organic Nitrogen	%	Calculated: (TKN – Ammonium-Nitrogen)
pH	--	1:2 Manure:Water Slurry, "As Received"
Electrical Conductivity (EC)	mmhos/cm	1:2 Manure:Water Slurry, "As Received"

Manure test methods are described in:

- **Nutrient Application Guidelines for Field, Vegetable, and Fruit crops In Wisconsin**, 2012 Publication A2809
- **Recommended Methods of Manure Analysis**. 2003, University of Wisconsin Extension Publication A3769