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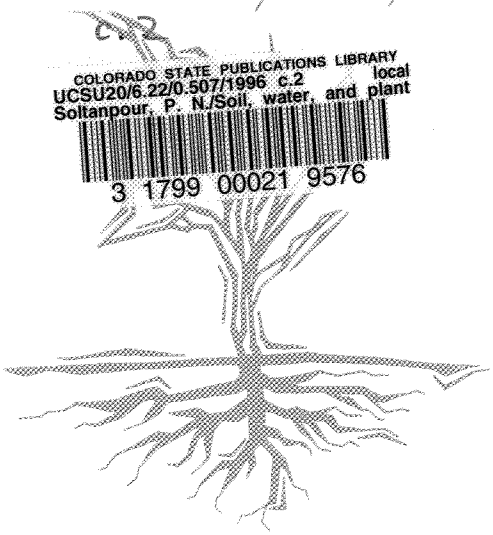

SOIL

Soil, water and plant testing no. 0.507

by P.N. Soltanpour, J.Self [1]

Quick Facts...

The Colorado State University Soil, Water and Plant Testing Laboratory analyzes soil, plant, water, and manure for farmers, homeowners and researchers.

The results of soil, water and manure analyses form the basis for fertilizer recommendations and reclamation of salt-affected and sodium-affected soils.

Plant analyses are used to confirm suspected nutrient deficiencies and toxicities.

A complete list of tests and prices can be obtained on request from the Soil, Water and Plant Testing Laboratory.

Introduction

Colorado State University's Soil, Water and Plant Testing Laboratory is engaged in three types of activities.

The first activity involves testing soil, water and manure samples for Colorado farmers and homeowners for fertilizer recommendations, and for diagnosis of salt and sodium problems. Plant samples are analyzed to confirm suspected nutrient deficiencies and toxicities.

The second activity involves serving the researchers at Colorado State University and other educational and governmental agencies by analyzing their soil, water and other samples.

The third activity is doing research on soil testing methods in order to develop new methods and improve old ones.

Fertility evaluation of soils, organic matter, nitrate, available phosphorus, potassium, zinc, iron, copper and manganese are determined on a routine basis. Five nutrients (nitrogen, phosphorus, potassium, zinc and iron) are deficient in Colorado soils. Other nutrients have not been found to be deficient in Colorado except under unusual or special conditions. When field experiments show the need for additional tests, they will be included in the routine list.

In addition to the above tests, pH and soluble salts are determined, and lime and soil texture are estimated on a routine basis. When necessary, the ratio between sodium and calcium plus magnesium, and gypsum levels in the soil also will be determined.

The salt, sodium adsorption ratio (SAR), lime, gypsum requirement and texture tests form the basis for reclamation of salt-affected and sodium-affected soils.

The routine water analysis consists of pH, conductivity (soluble salts), calcium, magnesium, sodium, potassium, sulfate, chloride, carbonate, bicarbonate, and nitrate determinations and forms the basis for evaluation of water for irrigation and domestic purposes.

In addition to these tests, the Soil, Water and Plant Testing Laboratory is equipped to determine many other inorganic cations and anions in soils and waters. Also, water-holding characteristics, cation exchange capacity, and particle size distribution of soils can be determined.

The charge to farmers and homeowners for routine soil analysis is $16.50; for routine water analysis, $30, and for routine soil analysis plus sodium evaluation, $20. These prices are subject to change without notice. A current price list for research samples will be sent to any interested person upon request. The laboratory is located in room A319, Natural and Environmental Sciences Building, Colorado State University, Fort Collins, CO 80523.

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Table 1. Summary of services available at the Colorado State University Soil, Water and Plant Testing Laboratory

Tests available	Purpose	Cost
Routine soil test: pH, soluble salts, organic matter, nitrate, phosphorus, potassium, zinc, iron, copper, manganese, texture and lime	Evaluation of soil fertility and salt status for growing crops. A fertilizer recommendation is given. When salts are high, leaching requirements are suggested. Good soil drainage is a must for reclamation of salt-affected soils.	$16.50
SAR test: soluble sodium, soluble calcium plus magnesium, pH, electrical conductivity	Evaluation of sodium status of the soil. This test is necessary when pH is above 8.5 or when salts are high. Amendments are recommended. If gypsum content is high, no amendment will be necessary. Good soil drainage is a must for reclamation.	$10.00
Gypsum test		$5.50
Routine soil test plus SAR	For fertility, salt and sodium evaluation. See above.	$20.00
Routine irrigation water test: pH, soluble salts, calcium, magnesium, sodium, potassium, sulfate, chloride, carbonate, bicarbonate, boron and nitrate determination. SAR is calculated.	For evaluating salt and sodium hazard of irrigation water. Management practices for use of water for irrigation are recommended.	$30.00
Routine domestic water test: same as routine irrigation water test	To evaluate water quality for domestic consumption.	$30.00
Routine plant analysis: nitrogen, phosphorus, potassium, zinc, iron, copper, manganese, calcium, magnesium, sodium and boron	Determination of plant composition to diagnose nutrient deficiencies and toxicities.	$35.00
Plant sulfur	To determine sulfur status of plants.	$7.25
Routine and chemical fallow (routine soil test and hydrometer)	The same as described for routine soil test. Clay and organic matter contents are utilized to calculate the rate of herbicides for chemical fallow.	$22.50
Other tests available upon request.	For research work.	Variable, depending on test

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