

# Soil Test Interpretation Guide

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**R**egular soil testing is an important element in nutrient management. You can use soil tests as a diagnostic tool or to identify trends through time. To obtain meaningful test results, you must sample soil correctly, at the same time each year, and you must maintain records.

For more information, see the following in the OSU Extension Catalog (<http://extension.oregonstate.edu/catalog/>): *Soil Sampling for Home Gardens and Small Acreages* (EC 628); *Monitoring Soil Nutrients Using a Management Unit Approach* (PNW 570); *Monitoring Soil Nutrients in Dryland Systems Using Management Units* (EM 8920).

Soil testing laboratory methods vary, which may influence results and sufficiency ranges. Therefore, the sufficiency ranges in this publication are accurate only for the test methods listed.

Soil tests are used to measure soil nutrients that are expected to become plant-available. They do not measure the total amounts of nutrients in soil. Measurements of total nutrient content are not useful indicators of sufficiency for plant growth, because only a small portion of the nutrients are plant-available. Roots take up plant-available nutrients as positively or negatively charged ions from the soil (table 1).

Soil test results (see figure 1) can be viewed in three categories: (1) low or yes, a fertilizer addition *will* likely increase growth and yield; (2) high or no, a fertilizer addition *will not* likely increase growth or yield; and (3) intermediate or maybe, a fertilizer addition *may* increase growth or yield. Categorization of soil test results into “yes,” “no,” and “maybe” assists understanding the limits and benefits of using soil test results for making nutrient recommendations.

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Table 1. Plant-available nutrient forms.

Nutrient	Form used by plant
<b>Cations (+):</b>	
Nitrogen	$\text{NH}_4^+$
Potassium	$\text{K}^+$
Calcium	$\text{Ca}^{2+}$
Magnesium	$\text{Mg}^{2+}$
Manganese	$\text{Mn}^{2+}$
Copper	$\text{Cu}^{2+}$
Zinc	$\text{Zn}^{2+}$
<b>Anions (–):</b>	
Nitrogen	$\text{NO}_3^-$
Phosphorus	$\text{H}_2\text{PO}_4^-$ and $\text{HPO}_4^{2-}$
Sulfur	$\text{SO}_4^{2-}$
Boron	$\text{H}_2\text{BO}_3^-$ and $\text{H}_3\text{BO}_3$
Molybdenum	$\text{HMoO}_4^-$ and $\text{MoO}_4^{2-}$
Chloride	$\text{Cl}^-$

# Soil Test Interpretation Guide Chart

**Mark Steyvers**



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web objective to apply stoichiometric principles to calculate the appropriate chemical equation for the reaction between iron metal and a solution of copper i sulfate introduction in the form of finely split powder copper metal is produced as a byproduct of the process as iron ions the iron metal dissolves

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web in this lab we will use experimental evidence and the principles of stoichiometry to determine which ion is formed in a single replacement reaction between iron and copper ii sulfate pre lab assignment in preparation for the lab activity we will investigate another single replacement reaction between copper and silver nitrate

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web stoichiometry can be defined as the relationship between the relative quantities of substances taking part in a reaction or forming a compound stoichiometric principles can be used to deduce the appropriate chemical equation for a reaction in our experiment we used solid iron in the form of powder was added to a solution of copper ii sulfate

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web under the finalise of the experiment it was found that iron was the limiting reactant and iron ii sulfate was a product of the reaction between 7 0002g away cooper ii sulfate and 2 0101g iron metal which produced 2 3037g of copper product with a percent yield of 100 72 introduction

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