



**Science
Societies**

Introducing Extension Spotlight

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This month, we introduce a new series, Extension Spotlight, where we will highlight new and noteworthy Extension publications, factsheets, guides,

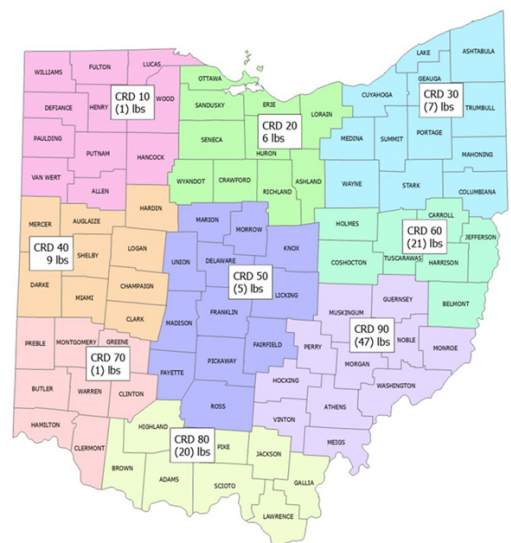
decision tools, and other resources from land grant universities and Extension programs across the United States.

Work in Extension and have a new publication to highlight? [Let us know about it!](#)

Corn Belt

Potassium Use in Ohio Agriculture

Ohio State University Extension



Ohio crop reporting districts (CRDs) and average mass balances of K₂O nutrient use for the past 20 years (2005–2024). Values are reported as pounds per acre. Numbers in

Potassium (K) is a primary macronutrient essential for crop growth. In agriculture, K is supplied by soil-derived potassium, supplemented by nutrient applications from organic sources—primarily livestock manure—and by commercial fertilizers manufactured from mined deposits of potassium chloride (KCl) originating from ancient seabeds.

parentheses indicate negative mass balance. [Figure from this factsheet.](#)

Potassium uptake by plants occurs primarily through diffusion, a process driven by nutrient concentration gradients near the root surface. Soil testing measures the soil's ability to supply K. Fertilizer recommendations are based on correlations between soil test levels and the amount of added K required to achieve a yield response in a given crop. Tracking soil-test trends helps guide long-term nutrient management to support increasing crop yields.

This factsheet summarizes trends in the use of K sources applied for Ohio crop production, the mass balance of nutrient additions and removal at a state and regional scale, and state soil test K trends.

[Read more](#)

Southeast/Mid-South

Soybean Liming and Fertilization

Mississippi State University Extension

Soybeans grow best on soils of medium to high fertility and with favorable soil pH. Maximum yields are possible only when producers meet plant nutritional requirements and other basic production factors. Even if you use the best soybean varieties and cultural practices, your soybeans will not reach their full

potential unless soil fertility is properly managed. Adequate soil fertility helps reduce risks from weather stresses, diseases, and nematodes, allowing plants to achieve maximum potential.

Soil fertility often is overlooked in crop production, and soybeans frequently test low or very low in available phosphorous and potassium. In addition, soil acidity issues limit production. The past economic status of soybeans, the large amount of rented acreage, and the fact many growers fail to recognize lime's importance contribute to reduced yields for Mississippi soybean producers.

This publication provides practical information for improving nutrient-use efficiency, protecting yield potential, and maximizing the return on fertility investments.

[Read more](#)

West

Effective Soil Sampling for Sustainable Crop Production

University of Arizona Cooperative Extension

Soil testing is essential for successful crop production. Using a soil test report, a producer can determine the best way to treat and manage their soils for sustainable crop production. Traditional soil testing includes the assessment of fundamental soil chemical parameters like pH (acidity or alkalinity), electrical conductivity (EC, also known as soluble salts), cation exchange capacity (CEC), and available or extractable essential soil nutrients; essential soil nutrients include both macronutrients (nitrogen, phosphorus, potassium) and micronutrients (iron, zinc, manganese). Often, soil physical and biological properties are measured for specific purposes; for example, soil health assessments include measurements of various soil physical, chemical, and biological properties. These soil properties, which are crucial for plant growth and optimal crop production, are measured with the goal of determining the amendments (fertilizers, gypsum, organic manure, lime, etc.) that should be applied to the soil to achieve increased crop productivity and overall food security.

This publication provides practical guidance on collecting representative soil samples, selecting appropriate testing strategies, and interpreting results to support nutrient management decisions, improve soil health assessments, and maximize the value of soil testing investments.



Soil sampling using a soil corer or probe. [Image from this publication.](#)

[Read more](#)

Mid-Atlantic/Northeast

Field Nitrogen Balances as a Tool to Prioritize Corn Silage Fields for Management Interventions

Cornell University Cooperative Extension

The adaptive N management process for field crops in New York allows farms implementing a comprehensive nutrient management plan (CNMP) to override foundational land grant university guidelines when defining N application rates. However, this process requires farmers to measure and report crop yield and to conduct an end-of-season assessment to see if the higher N rates were warranted. End-of-season evaluation tools include conducting corn stalk nitrate test (CSNT), N rate studies, or implementing N rich or control N strips in fields. In 2025, estimation of N balances was added as an extra end-of-season evaluation tool for corn silage.

This factsheet describes the added value of estimating N balances not just for fields under adaptive N management, but for all corn silage fields in the farm using readily available data, as a strategy to diagnose field N use efficiency and prioritize management interventions.

[Read more](#)

Pacific Northwest

A Practical Guide to Soil Health Indicators for Monitoring Shifts in Soil Organic Matter

Washington State University Extension

Improving and maintaining soil health can have a wide range of economic benefits, including reduced input costs and improved crop growth, quality, and yield. Soil organic matter (SOM) is a commonly used metric for assessing soil health but can be slow to respond to management changes, taking years or even a decade for measurable changes to occur. Soil health indicators that can detect shifts in microbial activity, carbon (C) cycling, and nutrient cycling are more responsive than SOM and can help producers see if they are moving in the right direction.



Image from this publication.

This publication provides an overview of soil health indicators that are related to shifts in SOM but can respond more rapidly to management changes. This practical guide will help producers navigate the names of tests, their availability in the Pacific Northwest, and the relevance of each test to production systems.

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