



SOIL SAMPLING AND TESTING FOR FERTILITY FACT SHEET

This is one in a series of fact sheets from the Mississippi Soybean Promotion Board and the soybean checkoff. Each sheet presents a brief overview of a topic important to Mississippi soybean production. More information on each topic can be accessed through the link at the bottom of the sheet. To see other fact sheets, click [here](#).

Ensuring that soil nutrients are available to a growing crop is an important initial step for producing a profitable crop. Replenishing soil nutrients and ensuring optimum pH according to soil test results and recommendations will allow realization of the full yield potential of a healthy soybean crop.

Today's high-yielding soybeans in the Midsouth are removing large amounts of nutrients from the soil, and phosphorus (P) and potassium (K) are the nutrient elements that exhibit the largest removal.

Soil sampling and testing are the most important steps for successful determination of the amount of soil nutrients that have been depleted by a crop, and subsequently, what amount of them should be added to attain the desired level for anticipated yield of the following crop. Results from proper conduct of these two activities will serve as the most reliable indicator of how much of a particular nutrient is available to the crop.

Soil sampling and testing for nutrients should consist of the following:

- Use the correct soil sampling technique, which includes sampling when soil moisture conditions are suitable for tillage, using a soil map to delineate the areas of the tested area with different textures, sampling from the top 6-8 inches of soil, and sampling between rows of the previous crop.
- Composite samples from each distinct soil area (e.g. upland vs. lowland, sandy loam vs. silt loam vs. clay, light-colored vs. dark-colored, low- vs. high-fertility as indicated by growth of the previous crop) in a field.

- A representative sample from a distinct area should be composited from 15 to 20 soil cores.
- Soil cores that are to be composited should be gathered at random within each area.
- Dry collected samples at room temperature, and thoroughly mix the soil in each composited sample.
- Collect one pint from each composited sample and place in a container that is available from or provided by the chosen testing laboratory.
- Each field or area should be sampled in the same month each year, preferably in the fall. Fall vs. spring weather conditions are usually more favorable for collecting the required number of soil samples from a given area or field. Also, the availability of some fertilizer elements—e.g. phosphorus and potassium—for next year's crop will be enhanced with fall applications according to soil test results. And applying lime in the fall according to soil test results will allow time for pH correction before spring planting.
- Keep accurate records that include a sample identifier such as a number, and the location in a field from which each labeled sample was collected each year.
- Sample each field at least every 3 years. More frequent sampling may be necessary in fields that do not have a history of soil test information (especially where high seed yields have been harvested), in fields that grow multiple crops or crops in rotation, and to determine and monitor trends in fertility levels.

A soil test report should include pH, lime requirement, and cation exchange capacity (CEC—an indicator of soil texture), plus extractable levels of phosphorus, potassium, calcium, magnesium, sodium, and zinc. Organic matter and estimated reserve sulfur should also be reported if there is no previous record of these soil traits.

Click [here](#) for a detailed discussion of this topic, and [here](#) for a Nutrient Management White Paper on this site.