



## SISC Metric Guidelines: Protocol for Soil Sampling

**This guidance pertains to the following SISC Metrics:**

- Phosphorus Use
- Soil Organic Matter

### Introduction

Guidelines for collecting soil samples are provided here. Laboratories vary in their recommendations for how to sample soils, and these guidelines combine features from several methods to capture the best of each. We recognize, however, that most growers already have a system for collecting their soil samples. If you have an existing method, we ask that you verify that the method is consistent with the general principles governing reliable soil testing, such as those set forth in these guidelines. Using the same sampling procedure year after year allows you to identify trends on your fields.

### Sampling Time

Soil samples should be collected when the soil is neither overly wet nor overly dry, usually after harvest. Do not sample shortly after lime, fertilizer or manure applications. Samples should be taken at approximately the same time of year each time they are taken.

### Sampling Locations

For each sample you send to the laboratory, choose an area no larger than 40 acres that is relatively homogeneous, and then collect 20-30 subsamples from it. If slope changes from relatively flat to relatively steep, or if soil type or tillage practices change, sample those areas separately. Other factors to consider in deciding whether an area is homogeneous include soil texture, cropping history, manure history, drainage, and erosion.

### Choosing Locations of Subsamples

From each sampling area, collect 20-30 subsamples (or cores). The method for choosing where to collect these subsamples depends on the cropping practices used on the field. However, unusual areas in the field like low spots, old fencerows, building sites, roads and waterways should be avoided. We recommend recording the locations of the subsampling locations on a map.

Alternative 1. Choose 20-30 locations at random from within the field.

Alternative 2. Collect samples on a grid. Using a soil map or yield map, choose subsamples so that they are distributed evenly across areas of low-to-high yield or across different soil types in an otherwise homogeneous area.

Alternative 3. If fertilizer is applied in bands and the band locations are known, collect one subsample from within the band area for each 20 subsamples collected outside the band area.

Alternative 4. If fertilizer is applied in bands and the band locations are not known, collect subsamples in pairs, where the first subsample of each pair is collected at a random location and the second is collected 50% of the band-spacing distance from the 1st sample, perpendicular to the band direction.

### **Collecting Subsamples**

It is probably quickest and easiest to use a soil probe or soil sampling tube. If you use this method, be sure the soil sample in the tube includes soil from the entire target depth, discussed below.

Alternatively, collect each subsample by scraping away plant residue, digging a small hole in the soil using a stainless steel trowel or spade, and then collecting a half-inch "slice" from the side of the hole to a depth of 6", or to the maximum tillage depth in the field. This method ensures that you do not accidentally over-sample or under-sample from different soil depths.

The depths should correspond roughly to the volume of soil that plant roots explore and from which they pull phosphorus. Most plants derive most of their nutrients from shallow soils, but some like alfalfa and fruit/nut trees absorb nutrients from deeper in the profile as well. If you grow crops that you know to root more deeply, you may want to collect a deeper sample (0-8" for alfalfa, 0-18" for trees).

Combine these subsamples in a plastic bucket and mix well with a trowel. Laboratories vary in the amount of soil they require; place the required amount in a bag provided by the laboratory and ship this sample to the lab 2-day mail. Do not air-dry the sample.