



# Taking SOIL Samples



EXTENSION SERVICE

CIRCULAR 513



# Taking Soil Samples

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**This farmer is carrying all the equipment usually needed to take surface soil samples from a field: shovel, clean bucket, and clean paper sack or other container for the soil sample.**

**A**CHEMICAL soil analysis can be of considerable value in determining the fertilizer needs of a field. The value of an analysis is determined largely by:

(a) How well the soil sample which is analyzed represents the field.

(b) How well the method of analysis used correlates with field tests.

The analysis can be no better than the sample taken. It is therefore important that the sample be representative of the area to be fertilized. Taking accurate samples is not difficult if a few simple directions are followed.

**The essential points in getting an accurate soil sample are:**

- Be sure each sample represents only one soil type or condition.
- Take enough individual samples in each soil-type area to make sure you have an average.
- Mix the individual samples thoroughly, to make a composite sample which is truly representative of the area.
- Carefully identify each composite sample according to the area it represents.
- Be sure containers used for samples are clean.

When the analysis is used as a guide for fertilization, it is necessary to know the management history of the field as well as the results of the chemical analysis of the soil sample.

## EQUIPMENT AND SUPPLIES NEEDED

Soil sampling equipment can be found on the farm. Items needed are:

- A shovel, spade, post-hole digger, or soil auger, for digging the samples.
- A large bucket (10 or 12 quart) in which to collect and mix the individual samples for compositing.
- A **clean** container for each composite sample. The container should hold approximately one pint. One-pound paper bags, ice cream cartons, and fruit jars make good containers.
- A pencil and note pad for labeling each container and recording information about each sample.

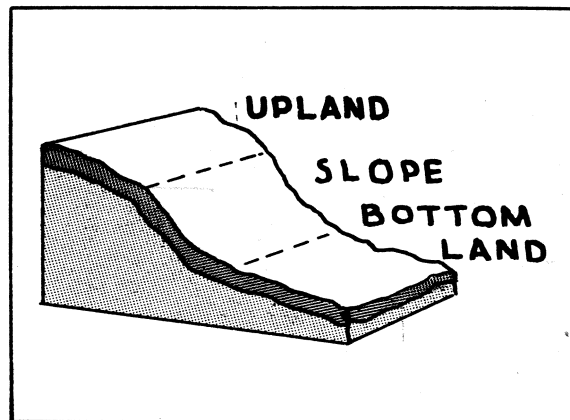
## STEPS IN TAKING SOIL SAMPLES

The following steps will result in a more accurate soil sample:

### Step 1. Outline Areas in the Field to Be Sampled.

Divide the field according to soil type or condition. If the soil in the entire field is uniform, one composite sample will be sufficient. If distinct differences are present, samples should be taken separately from each different soil area. Conditions calling for separate sampling include differences in slope, soil texture, past fertilizer treatment, and past cropping practices.

If these areas are small compared to the field as a whole, they should be disregarded in sampling.



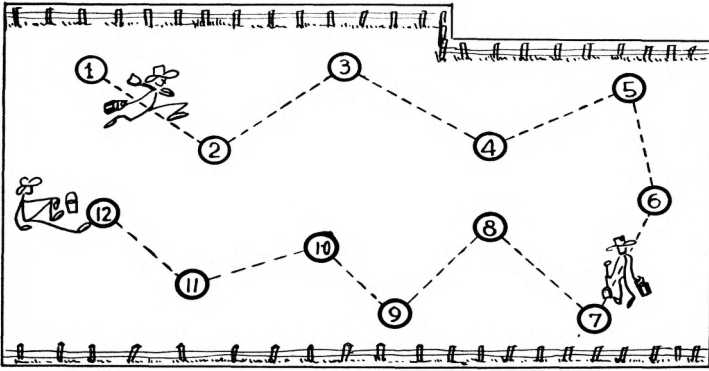
Divide the field according to soil type or degree of slope.

### Step 2. Collecting Surface Soil Sample.

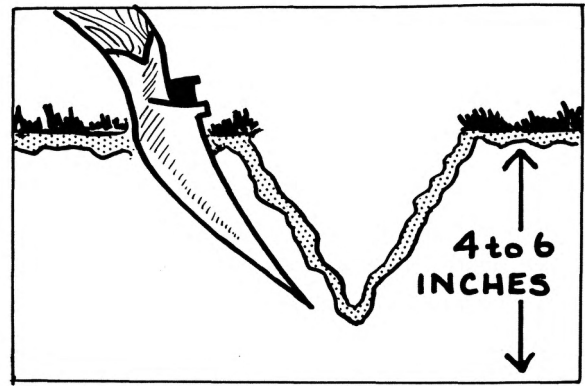
It is necessary to walk out the entire area, stopping at 12 to 15 places to collect a small sample of soil at each place.

In a recently plowed field, a handful of surface soil at each stop will be sufficient.

On fields that are not freshly plowed, the sample should be taken from the surface down to a depth of 6 to 7 inches.



Take a small sample at 12 to 15 different places over the area being sampled. If a deep-rooted crop is being grown, take a subsoil sample at each of about three or four places in the area.



In taking each individual sample, dig a hole to plow depth and take a slice of soil from the edge of the hole.

In pasture land which has not been plowed, the sample should be taken from surface down to a depth of 3 to 5 inches.

On soil where trash or stubble is present, clean an area large enough to prevent mixing of debris with sample.

Dig a hole to a depth of 6 to 7 inches. Take a slice of soil approximately one inch thick along the face from the top to bottom of the hole. Place this soil in the bucket to be mixed with similar samples taken in the same manner from 12 to 15 places over the field.

### Step 3. Mixing.

After a small quantity of soil has been collected from each of 12 to 15 stops or places in the designated area and placed in the bucket, mix thoroughly. The soil should not stick to the side of the bucket or remain in a corner. From this mixture, package approximately one pint of soil to be taken to the laboratory for analysis.



Mix the soil taken from the 12 to 15 places. From this mixture, take out about one pint to be taken to the laboratory.

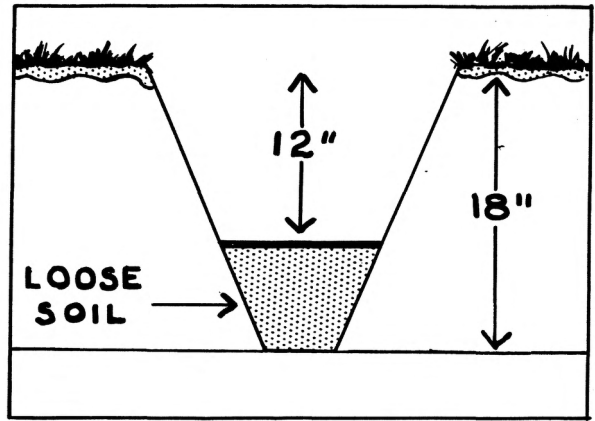
### Step 4. Collecting Subsoil Samples.

If deep rooted legumes such as alfalfa and sweet clover are to be planted, subsoil samples will also be needed for analysis. Subsoil samples should be taken at a depth of from 12 to 18 inches. Dig a hole approxi-



mately 12 inches deep and remove all loose soil. Loosen the soil in the bottom of the hole to a depth of about 18 inches and put a handful of this loosened soil in a container. Repeat this operation every fourth stop when taking the surface sample. Mix the subsoil samples from each area together and package one pint for the laboratory.

**Do Not Mix Surface Soil and Subsoil Together.**



For subsoil samples, loosen the subsoil from 12 to 18 inches deep at every third or fourth place a surface sample is taken. Put a handful of the loosened soil in container separate from the surface soil.

**Step 5. Packaging.**

Many different types of containers are suitable for soil samples. All containers must be clean. Rusty tin cans, tobacco sacks, paper coffee bags, and large match boxes are unsatisfactory. Ice cream cartons, small (1 lb.) paper sacks, clean coffee cans or pint glass jars make very good containers.

The field number or name should be clearly marked on the outside or written on a paper slip and put inside the container. All markings should be legible and preferably in pencil; ink may smear or run.

Make an entry in the note book for each sample, describing its exact location on the farm.



Mark each package for identification. Make a note in the book, telling where the sample was taken, and other information.

**Step 6. Taking Soil Sample to Laboratory.**

The farm operator, or someone familiar with the field and its past management history, should take the soil sample to the laboratory.

**An adequate recommendation for soil treatment of a given field cannot be made without knowledge of the cropping and fertilizer history.**

Information as shown on page 7 will be obtained from the person bringing the soil sample to the laboratory.

### **PRECAUTIONS IN TAKING SAMPLES**

Don't take soil sample if soil is too wet to plow.

Select only loose soil (no clods or mud balls).

Do not take soil samples from dead furrows, back furrows, fence rows, or low spots.

Avoid taking samples from alkali spots, old straw piles and other abnormal soil conditions if they do not occupy a large part of the field.



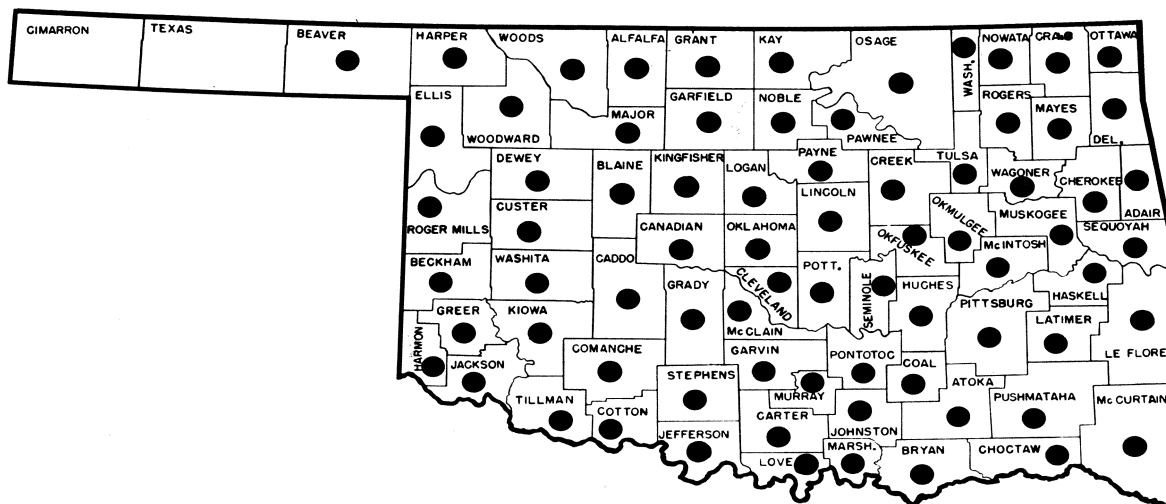
**When you take a soil sample to your county agent for analysis, be prepared to give him the information about your field**

**which he needs in making a fertilizer recommendation based on the soil analysis and related information. (See back cover.)**

In sampling a field planted to row crops which have received a recent fertilizer treatment, avoid sampling in the fertilizer row.

Allow 3 to 5 days to complete the test after it reaches the laboratory.  
Plan to sample 4 to 6 weeks ahead of planting date.

The soil sample should not be larger than 1 pint or 1½ pounds.



Seventy-five Oklahoma counties each have a complete soil-testing laboratory. Every farmer in the state has access to this ser-

vice through his county agent. Circles show counties having complete soil laboratories.

## WHERE TO HAVE SAMPLES TESTED

All farmers in Oklahoma have access to a soil testing laboratory. These laboratories are located in 75 counties and are supervised by the county agents. Policies for operating the laboratories are made by a county soil testing laboratory committee composed of local farmers.

The state-wide system of soil testing laboratories is supervised by the Extension Service of Oklahoma A. and M. College. Each laboratory is checked frequently to avoid irregularities that might come about through routine operation.

Recommendations for soil treatment are made on the basis of information secured from the soil analysis, and from other information furnished on the particular field, as well as general information on the area as a whole.

Soil Testing Program Form I

County \_\_\_\_\_ Date \_\_\_\_\_

Name \_\_\_\_\_ Address \_\_\_\_\_

Farmer Sample Number: { Surface \_\_\_\_\_  
Subsoil \_\_\_\_\_ } Laboratory Number: { Surface \_\_\_\_\_  
Subsoil \_\_\_\_\_ }

SCD Cooperator \_\_\_\_\_ SMC Cooperator \_\_\_\_\_ Survey Symbol \_\_\_\_\_

Location of Sample on Farm \_\_\_\_\_ Acres \_\_\_\_\_  
(East of barn, south of creek, S 40, etc.)

**CHARACTERISTICS OF THE SOIL**

Texture: { Surface Soil \_\_\_\_\_  
Subsoil \_\_\_\_\_ } Depth: { Surface Soil \_\_\_\_\_  
Subsoil \_\_\_\_\_ }

Location: Upland \_\_\_\_\_ Bench \_\_\_\_\_ Bottom \_\_\_\_\_ Degree of Slope \_\_\_\_\_ Land Class \_\_\_\_\_

**CROP HISTORY AND PREVIOUS SOIL TREATMENTS\***

Approximate number of years farmed \_\_\_\_\_ Date of previous soil tests \_\_\_\_\_

Lime history: Rate per acre \_\_\_\_\_ Date applied \_\_\_\_\_ Rock Phosphate: Rate \_\_\_\_\_

Date \_\_\_\_\_ Other Fertilizer: Kind \_\_\_\_\_ Rate \_\_\_\_\_ Date \_\_\_\_\_ Kind \_\_\_\_\_

Rate \_\_\_\_\_ Date \_\_\_\_\_ Kind \_\_\_\_\_ Rate \_\_\_\_\_ Date \_\_\_\_\_

Legumes grown in the last six years: Alfalfa \_\_\_\_\_ (Year) Vetch \_\_\_\_\_ (Year) Sweet Clover \_\_\_\_\_ (Year)

Winter Peas \_\_\_\_\_ (Year) Lespedeza \_\_\_\_\_ (Year) Was the crop plowed under? \_\_\_\_\_

Crop or crops grown last year \_\_\_\_\_

**LOCATION OF SAMPLE ON FARM**

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ Range \_\_\_\_\_

**PLANNED USE**

Crop to be grown this year \_\_\_\_\_

Will crop be irrigated? \_\_\_\_\_

Grazed? \_\_\_\_\_ Harvested? \_\_\_\_\_

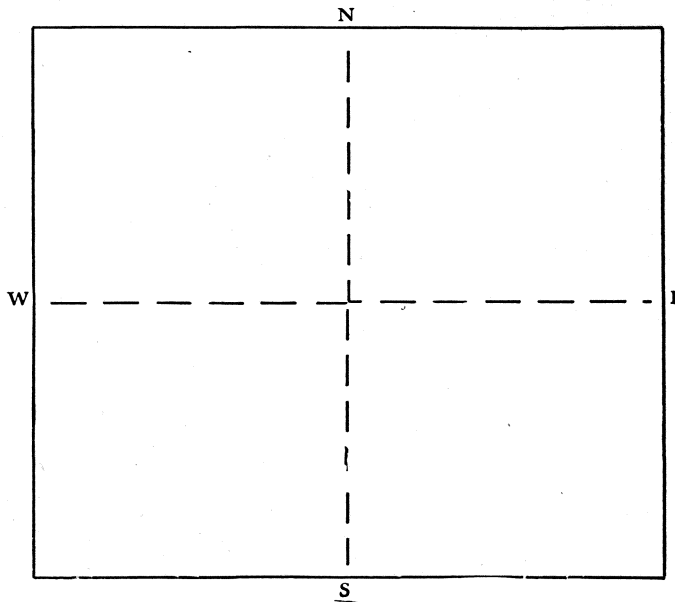
Fertilizer to be applied with:

Drill \_\_\_\_\_ Planter \_\_\_\_\_ Other \_\_\_\_\_

\_\_\_\_\_  
(Person submitting sample to laboratory)

\_\_\_\_\_  
(Address)

\*Recommendations for soil treatment are based not only on a chemical analysis of a representative sample, but also on the kind of soil, previous cropping history, previous soil management and fertilizer used and other applicable factors.



**This information is needed on each field before soil treatment recommendation can be made.**

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