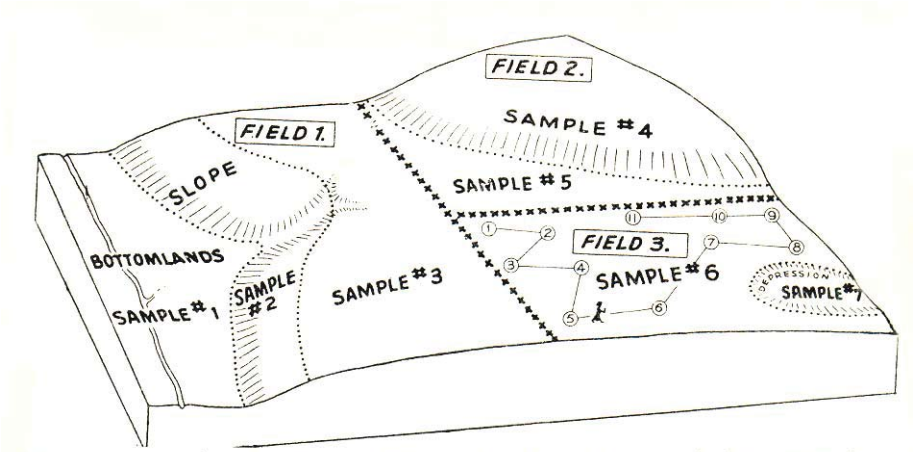
Soil Sampling Procedures for Pastures and Farms

Number of Cores

A composite soil sample is made up of a number of individual cores taken at random over a given area. The purpose of this is to minimize the variability that exists. This variation may have been caused by previous lime and fertilizer applications or slight soil variations.

If an insufficient number of cores are pulled for a composite sample, the sample results can be biased either too high or too low. It is recommended that a minimum of 10 to 20 cores be taken for a composite sample. Previous sampling studies have shown that the number of cores required per composite sample varies with the size of the area being sampled. For example, 20 cores were required for a 20-acre field, 15 cores for a 10-acre field, and 10 cores for a 5-acre field.

The cores should be taken at random over a section of the field or plot, and should be representative of the entire area. When all of the cores have been collected they should be thoroughly mixed together. After mixing, a sufficient amount of sample is placed in the soil sample bag to fill the bag up to the "fill line." You may also bring soil samples to our office in a ziplock bag. At least one pint of soil per field is needed for a soil analysis.



Areas cropped or fertilized differently should be sampled separately.

When to Sample

Soil test levels will change during the year, depending on the temperature and moisture of the soil. It's important, therefore, that samples be taken at the same time each year so results from year to year can be compared. Generally, nutrient levels will be lower during summer and fall as compared to winter and spring.

The best time to sample is one to six months prior to planting. The earlier the better if lime is needed, because lime requires several months to fully react and neutralize soil acidity. Fertilizer should be applied closer to the time the crop needs it, as recommended in the soil test report.

For most situations soils need to be tested every 2 to 3 years. However, test the soil when there is a suspected nutrient deficiency, once per crop rotation, or once every other year if the

soil is fertilized and cropped intensively. **Annual sampling is recommended** (1) on areas where high-value cash crops such as tobacco and vegetables are grown, (2) on areas testing high in P and K where no phosphate or potash is recommended and none is applied, and (3) on areas where the annual nitrogen application rate exceeds 150 pounds of N per acre.

Soil samples should also be taken following crops where large amounts of nutrients are removed in the harvested portion of the plant, particularly silage crops, hybrid bermuda hay, and when peanut vines are used for hay.

Keep previous soil test results from individual fields (or advise growers to keep records) and refer to them when adjusting lime and fertilizer recommendations. Large changes in pH or nutrient levels may signal that a sampling or analytical error has been made and, if not taken into account, could lead to an improper recommendation.

Contamination

In order to prevent contamination of the sample, clean sampling tools and collection containers should be used. Do not use galvanized or brass buckets and tools. Such devices will contaminate the samples with copper and zinc. It is best to use plastic buckets and steel sampling devices.

Specific Sampling Procedures

Plowed Field Soils

Samples should be taken to the plow depth. The lime recommendations found in Tables A, B, C, and D are based on an 8-inch depth. Make adjustments in the lime recommendations to compensate for plow depth if other than 8 inches. The table "Lime Requirement Adjustments for Plow Depth" lists the adjustments for several plow depths.

Similarly, when plowing to greater depths, fertilizer rates may need to be increased to compensate for the greater volume of soil to which the fertilizer is being applied. This does not ordinarily pose a serious problem because sampling to depths of 8 to 12 inches usually results in lower soil test readings and high fertilizer recommendations.

In situations where the grower wants to build soil test levels to a higher level, failure to compensate for plow depth may result in a slower rate of buildup. Fertilizer recommendations are based on a 6-inch depth; consequently, if the effective plow depth or zone of mixing is 8 inches, the fertilizer rate should be increased 30%. If the plow depth is 10 inches, the fertilizer rate should be increased 60%. Therefore, if the fertilizer recommendation is 60 pounds per acre, the recommendations for 8 and 10-inch plow depths would be 80 and 100 pounds per acre, respectively.

Pasture and No-Till Fields

Pastures and no-till fields should be sampled to a depth of 4 inches. This represents the depth of active nutrient uptake, and the zone where residual fertilizer nutrients accumulate.

Orchards

Numerous sampling studies have shown that with most orchard crops the greatest root activity occurs at a depth of 8 to 12 inches. When sampling orchards, this depth should be included in the

sample. For peach and apple orchards, a sampling depth of 12 to 14 inches is recommended. For pecans, a depth of 6 to 8 inches is recommended.

Gardens

The recommended sampling depth for gardens is 6 inches. This is the normal spading depth of most garden soils.

Lawns and Turf

Take soil samples to a depth of 4 inches. This is the actual soil depth and should not include roots or other accumulated organic material on the surface. When collecting soil plugs, remove the organic residue that may be present on the surface; this eliminates the contamination of the soil sample with dried plant material, which can influence the analysis. In order to take an inconspicuous sample, use small-diameter soil sampling tools. A sampling device for golf greens and tees can be made from an old golf club shaft.

Subsoil Sampling

Take a subsoil sample every four to five years. This is especially important in problem areas. A subsoil sample should be to a depth six inches below plow depth or normal surface sampling depth.

How to Submit Samples for Testing

A soil test is always a good starting point before investing in fertilizer or lime. For $9, our office can test your soil and provide an exact pH and nutrient analysis with recommendations on exactly how much fertilizer and lime to apply, if any is needed. Soil test results usually are processed by our lab within 8-10 days. Please follow the procedures for taking a proper soil sample in the instructions above. Only a pint of soil that is representative of the area you are sampling (mixed from several spots at random) is all that is needed to send to the lab. One sample can represent up to 15 acres if taken properly.

You may bring the sample to our office in a zip lock bag anytime Monday-Friday 8am-noon and 1-5pm. Our office is located near downtown Cartersville in the old schoolhouse (next to library) on 320 W. Cherokee Avenue. We are located in Room 112. Checks should be made out to "Bartow County 4-H". Call our office at 770-387-5142 if you have any questions.