



# SOIL TESTS

A must for food plots

## WHY DO A SOIL TEST

Quality food plots are an investment in your time, treasure and talents (in the form of labor). The success of your food plot is a function of good site prep, quality seed and ensuring the soil both contains and can provide the nutrients necessary. A soil test does more than help your food plot reach its full potential, it also can save you money by reducing your input costs.

## TIMING

Ideally, soil tests should be conducted in the fall. Commonly lime is needed to adjust the pH and its best to put it down as far in advance as possible. The pH will start to change quickly but can often take a long time to achieve the full effect. For this reason, incorporate the lime into the soil in the fall. Fertilizer should be incorporated into the soil just before planting. If you missed the fall test, test as early as you can in the spring.

## TYPES OF TESTS

DIY kits are available at many garden centers. They let you play scientist with your soil sample by adding chemicals (think pool test kit) and leave you to interpret shades of colors. This test can help you identify deficiencies but does very little in providing recommendations for actions to correct those deficiencies.

It's much better to send your sample to a soil lab which will provide you much more detailed results as well as recommendations for your specific food plot type. Your local Extension Service office is a great resource for these tests. Some will have sample bags and forms for you to complete while others will have a list of soil labs in your area.

## METHODOLOGY

The list of equipment needed for a good soil sample is short.

- A clean plastic bucket (2.5 – 5 gallons work great) to mix your soil sub samples
- A soil probe if available to collect the sample, but a spade or even a hand trowel works fine. Stainless steel or plastic reduces contamination from metal.
- A sample bag (ziplock) to collect the soil

To collect your composite sample dig 10 -15 holes randomly throughout your food plot. Soil characteristics can differ within inches so the more sub-samples the better. Holes should be about 6 – 10 inches deep and put a small "slice" of soil from the hole wall into your bucket. Add all the sub-samples to the bucket, mix well and then draw out your composite sample. This has an averaging effect for your soil needs. The soil labs will have provided guidance on how much soil is needed to provide for the test (typically 1-2 cups) and some will provide a soil test bag. If not, a ziplock works well. Once your composite soil sample is collected, complete the soil lab test form and send to your soil lab of choice. Be sure to check the type of food plot you plan to plant (corn, sorghum, beans, etc) as this does affect the recommendations provided by the lab. Expect results in 2-3 weeks.

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or call – 877-914-7373

## INTERPRETATION

Plant growth and vigor are dependent on the soil pH and the available nutrients so for food plots we are most directly concerned with pH, Nitrogen (N), Phosphorus (P) and Potassium (K). Nitrogen is generally for plant growth, leaf development and the green color. Phosphorus is typically needed for root growth and the creation of flowers and seed while Potassium (sometimes called potash) is for root development and resistance to drought and disease.

It is important to realize that each crop type has varying needs. Many grass like species (corn, sorghum, oats) need Nitrogen, where soybeans (a nitrogen fixing legume) might need more P and K and sunflowers love Potassium rich soils. Do NOT forget to specify which crops you will be planting on your soil test form or your recommendations will not be appropriate.

The results provided by most soil labs include pH, nutrients (Phosphorus, Potassium, Calcium, Magnesium, sometimes Nitrogen), micronutrients (B, Zn, S, Mn, Fe, Cu), organic matter, the Soil Cation Exchange Capacity (CEC) and buffering capacity. Micronutrients rarely need to be amended in most landscapes.

**Note that not all soil labs provide Nitrogen levels in their standard report.** Typically, they will include it for an additional fee and because Nitrogen is typically the most limiting component of soil, you should ensure those levels are reported. If you indicated what crop type you will be planting in your food plot the soil results should have a recommendations section which indicates how much lime and fertilizer you will need to optimize your crop.

## LIME

pH (acidity/alkalinity) is the master variable in your soil. Soil pH determines nutrient availability to plants (it doesn't matter how much nitrogen fertilizer you add if the crop can't pull it out of the soil) and can also impact the effectiveness of herbicides. The pH should be in the 6-7 range. Lime is typically added (and it often takes a significant amount) to move acidic soils (low pH) closer to the 6-7 pH range. The pH will start to change quickly but can often take a long time to achieve the full effect so it is **best to apply in the fall and incorporate into the soil**. Pelletized lime is a good choice for smaller food plots because it is easy to spread and available at most garden centers, but it is typically more expensive and will take longer to impact the soil pH when compared to agricultural lime. Pulverized, powdered agricultural lime sold in bulk at farmer's coops or supply stores is less expensive but rather than spread it yourself, have a contractor do it for you. The labor cost will wash out if you need a lot of lime.

Remember that lime is less expensive than fertilizer and herbicide and neither will work well if you don't have the correct pH, so make sure you don't skip it.

## ADDING FERTILIZER

Fertilizer (NPK) recommendations will be in pounds per acre but unfortunately that's not how its sold. A bag marked 16- 4-8 contains 16% Nitrogen, 4% Phosphorus and 8% Potassium. To convert to pounds, simply multiply the percentage by the bag weight (ie if the bag weighs 50#,  $0.16*50= 8\#s$  N,  $0.04*50=2\#s$  P,  $0.08*50=4\#s$  K). Once you have the poundage, you'll need to multiply that by your need per acre.

Nitrogen is often the most limiting component of your soil. If a soil test shows it to be your only deficiency all you need is nitrogen, you might consider urea (46-0-0) or ammonium nitrate (34-0-0). You could also contract anhydrous ammonia (82-0-0) for larger projects. For granular fertilizers, it's often **best to incorporate the fertilizer into the soil just before seeding**.

QUESTIONS??? SPEAK WITH A WILDLIFE EXPERT at:

877-914-7373

