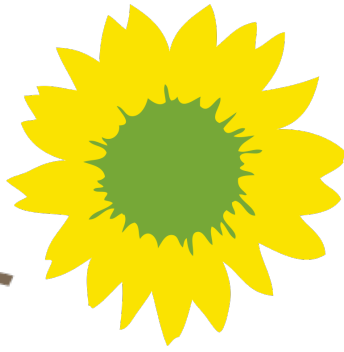


Grow  
YOUR  
SOIL



## Soil Science Spotlight

*If we understand a soil,  
we can improve it*

### Why Test Your Soil?

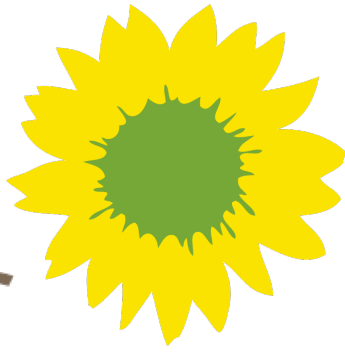
Look at any soil beneath your feet and you are looking at a unique, mini-universe. It is probably supporting some type of plant life, either a plant growing because of its suitability to that soil and climate, or one that was planted and may not be naturally suited. For those crops that we plant, we cannot assume that the soil we have chosen to plant them in is optimally suited to support them. Instead, we must first try to understand that soil's strengths and weaknesses before we can improve it. Does it have good structure that allows passage of air, water and roots? Does it have enough organic matter to support diverse and healthy microbiological populations? Does it contain the nutrients needed by the plant and are they available to the plant in sufficient quantities?

Before we can improve a soil, we must first understand it. How do we go about understanding our farm's soil if it is truly a mini-universe? Of course, we cannot ever fully understand it. But we can come to know much about it and be able to answer the questions above by testing our soils for parameters such as organic matter, pH, calcium, magnesium, potassium, phosphorus, iron, boron, copper, zinc, manganese and electrical conductivity.

Most small farmers in the world do not test their soil. They observe it closely, they care for it, they monitor it after a storm and see whether it absorbed the rain or was eroded by it, they smell it, they walk it thousands of times and as they eat their crops, they are made of it. But they often don't test it, so they may be unaware that the soil's productivity is held back by a deficiency in one or more nutrient. As a result, they suffer the consequences of obtaining yields year after year that may have been able to be improved with a modest application of a locally available organic fertilizer that contains the missing nutrient. If we manage our soil with sustainable methods such as GROW BIOINTENSIVE®, they can retain the added nutrient in their soil and maintain or even improve its fertility for many years to come, adding only the compost they produce from the crops they have grown.

What is required to test your soil? You need first to take a sample of your soil that is representative of your growing area and the conditions that your plants encounter. To do this, you will dig a foot deep hole, take a small amount from the wall of the entire depth of that hole (since the top 12 inches has the most effect on the health of most plants) and put that small sample into a bucket. Then repeat this process with many holes around your growing area, combining all the small samples into the same bucket. Mix the bucket thoroughly and take one sample from it which you will then send to a soil testing laboratory. You may want to retain some sample as backup, and you may want to create and submit more than one composite sample if your soils vary greatly on your farm. For more complete instructions, see [www.growyoursoil.org/sample](http://www.growyoursoil.org/sample).

Grow  
YOUR  
SOIL



## Soil Science Spotlight

*If we understand a soil,  
we can improve it*

You then need to locate a suitable soil testing laboratory, hopefully one that is of high quality, local to avoid having to export a soil sample, and tests for a wide variety of soil parameters. Suggestions can be found at [www.growyoursoil.org/steps](http://www.growyoursoil.org/steps), and please contact Grow Your Soil for additional help in locating a laboratory.

What if sending your soil to a laboratory is not possible? Another approach to understanding your soil and what it needs to support your crops is to observe the crops that it grows for signs of nutrient deficiencies. *Test Your Soil With Plants* (Ecology Action, 2014) is a unique resource for this approach that enables farmers to not only identify nutrient deficiencies but also develop their own organic fertilizer recommendation to overcome these deficiencies.