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# Soil Testing
## What's In It For Me?

Soil testing has been a recommended management practice for Pennsylvania crop producers by agronomists, extension agents, and crop consultants for years. Of the many crop management practices soil testing is one of the simplest and least expensive to implement. Surprisingly, however, the practice of a consistent soil-testing program is not part of the overall crop management program on many Pennsylvania farms.

There are several reasons why crop producers should implement a consistent soil-testing program.

### Soil Testing Is . . . Economically Smart

Let's get right to the heart of the issue. Ultimately you are growing crops to make money. The number-one thing soil testing can do is help you become more profitable.

In order to maximize the return on every dollar you spend on fertilizer, it is important that the right combination and rates of fertilizer materials be used for the crop to be grown. Soil test information based on a realistic yield goal is essential to making the decisions on fertilizer needs. Without soil tests it is impossible to determine which nutrients are in short supply and which ones are adequate for the crop. It is like trying to play darts blindfolded after being spun in a circle twenty times.

For instance, a soil test report may show that the nutrient levels in your soils are adequate and that you can make optimum yields with less fertilizer than you are currently using. Cutting back on fertilizer can make you money because you spend less while making the same yield.

Correspondingly, soil testing can help identify fields that have low nutrient levels and need more fertilizer than you are applying. Increasing the amount of fertilizer applied, while also increasing fertilizer input costs, will increase the yield potential of those low fertility fields. In these cases, you will make more profit by increasing spending.

A third way soil testing can increase your profits is by identifying acidic fields where low pH is limiting the availability of essential nutrients. As a result, your yields are reduced by an

inefficient use of the fertilizer you applied. By applying lime and increasing pH levels to desired levels you may increase profits.

Finally, the cost of soil testing is minimal. For example, a soil sample from a five-acre field sent to the Penn State lab costs $9.00. The soil test report received provides nutrient recommendations for 3 years. That means the cost per acre is $0.60 per year. You don't have to realize much in fertilizer input savings or increased yields to recoup that investment.

### Soil Testing Is . . . Agronomically Sound

There are several reliable labs that provide soil-testing services for Pennsylvania farms. The analysis procedures and the recommendations provided by these labs to the producer are based on years of research.

This research has studied sampling procedures, crop yield responses to fertilizer application, and interactions of plant nutrients with other production factors. The bottom line is that we have a very good handle on what nutrient levels are required to produce a bushel of corn or a ton of alfalfa hay. In addition, soil testing helps identify the variability of nutrient content within a field and among different fields on a farm. Therefore, producers can follow the nutrient recommendations provided and be confident that they can realize their yield goal for a specific crop on a specific field.

### Soil Testing Is . . . Environmentally Responsible

The potential for environmental impact from nutrients can be greatly reduced through a fertilizer and manure management program based on soil testing.

Fertilizer application according to soil test results ensures the proper combination of nutrients for most efficient utilization by the crop. Soil test results are the basis for determining fertilizer and manure rates that meet crop nutrient needs without over applying nutrients, particularly nitrogen and phosphorus, making them vulnerable to loss from crop fields into surface and groundwater.

A famous football coach, who was not a fan of throwing the football, often said that when you threw the ball, three things could happen, and two were bad. Likewise it can be said about soil testing, when you fertilize without a soil test, three things can happen, and two are bad:

- You may apply more fertilizer or lime than you need, resulting in unnecessary costs and no increase in yield; or
- You may apply less fertilizer or lime than you need, resulting in reduced yield; or
- You may get it right.

The odds of correctly and successfully fertilizing without a soil test are no better than one in three. In reality, the odds are likely much less. Soil testing dramatically improves the odds.

Soil testing is a management tool that helps determine and meet crop nutrient needs and helps protect the environment. **But remember, the number-one benefit it can provide is an increase in your profits.**