

Almost all plants naturally grow in soil, a complex and living ecosystem. But not all soils are created equally. The only way to know the fertility status of a soil and how you might improve it is with a soil test.

The purpose of this exercise is to become familiar with soil testing and test reports so that you can advise others on the procedures and interpretation, not just to be able to do it for your own garden. In this exercise you will practice figuring out what to do with the information on the example soil test reports.

The background information on why and how to do much of this is in your manual, but you won't find the specific answers there, as each garden and its soil test report, as well as the gardening practices, is unique. Answering the practice questions in this exercise should help you gain the confidence to assist others in interpreting their soil test report.

1. Looking at the four sample soil test reports, which properties have excess phosphorus (for the types of plants being grown)?
 - Bob Brown
 - Sharon Coneflower
 - Mr. Green
 - Mrs. Smith

Mr. Green's and Bob Brown's properties are showing high levels as indicated in the Laboratory Analysis Interpretations section (the line graphs at the bottom of the page). Bob's is off the charts, something that commonly occurs in urban soils.
2. Which property has the most organic matter? Which has the least?

The Organic Matter % is listed in the last column of the Laboratory Analysis at the bottom of the page. The range in organic matter is relatively small — a high of 5.2% for Bob Brown to a low of 3.0% in Sharon Coneflower's vegetable garden. Most soils in Wisconsin normally have only 2-4% organic matter, so these numbers are quite representative.
3. Which property has the lowest pH? Which has the highest pH?

The pH is listed in the second column of the Laboratory Analysis at the bottom of the page. The pH on these examples ranges from 6.3 in Bob Brown's yard to 6.9 for both Sharon Coneflower and Mr. Green. All of these are in the slightly acidic range (pH 6.0 - 7.0) that most flowers, vegetables and ornamental plants grow best under.
4. Which property(s) would you recommend using a balanced blend fertilizer (10-10-10) and explain why.

The gentlemen's properties (Bob Brown and Mr. Green) both have high to excessive levels of phosphorus (P) and potassium (K), so they shouldn't be adding more of those nutrients that are contained in a balanced blend. The ladies' properties (Sharon Coneflower and Mrs. Smith), on the other hand, have low or barely sufficient P and K, so they should be using a balanced blend.

5. Sally Coneflower has received the soil test report for her vegetable garden, but is confused because it only indicates how much fertilizer to add per 100 ft², not specifically for her 3 raised beds. Upon questioning her, she tells you that each bed is 1.5 feet high, 4 feet wide and 12 feet long. What is the square footage of each bed? How much fertilizer should she add to each bed? How much fertilizer should she buy?
To calculate the number of square feet in an area, multiply the width by the length — the height is irrelevant. In this case each bed is 4 x 12 = 48 ft². That's very close to 50 ft², so you can just divide the recommendations by 2 (50 is half of 100) to determine the amount to apply. Her soil test report recommends using 2.5 pounds of fertilizer per 100 ft², so she should apply half that amount, or 1¼ pounds per bed. Since she has 3 beds, she'll need a little under 4 pounds, so probably will end up buying a 5 lb bag.
6. Mrs. Smith doesn't want to use chemical fertilizers, but has a big compost pile. What can you tell her about using compost instead of a synthetic fertilizer (based on her soil test results)?
Adding compost would improve her organic matter content, which is generally beneficial to any soil. However, the nutrient levels in homemade compost are unknown, and are generally low, so it may require larger amounts of compost and a longer time to bring fertility levels up to the sufficient range.
7. Based on the soil test report, what advice would you give Mr. Green about fertilizing his lawn?
The Laboratory Analysis Interpretation shows very high levels of phosphorus (P) and potassium (K), so he shouldn't be adding more of those nutrients. He should use a high nitrogen (N), or no P-K fertilizer over the next 2-3 years to bring those levels down while providing nitrogen for the grass.
8. Bob Brown wants to use a 10-10-10 product to fertilize his trees. Based on his soil test report, what advice would you give him?
The Laboratory Analysis Interpretation shows his soil already has very high levels of phosphorus (P) and potassium (K), so he shouldn't be adding more of those nutrients that are in a balanced product — just like in the previous question. If excess nutrients are applied to the soil they will just end up leaching through into waterways. He should follow the nitrogen recommendation as printed, using a fertilizer without P or K, to avoid adding those nutrients to ground water or runoff.
9. Mrs. Smith wants to know if she could use bone meal to fertilize her perennial flower garden. What advice would you give her? (Hint - consult Table 2 in the soils chapter in your manual)
Although bone meal contains high levels of phosphorus (P), it doesn't have ANY potassium (K), so this would do nothing to improve the potassium level which is very low. She would need to find another product containing potassium (K) to use instead or to augment the bone meal.