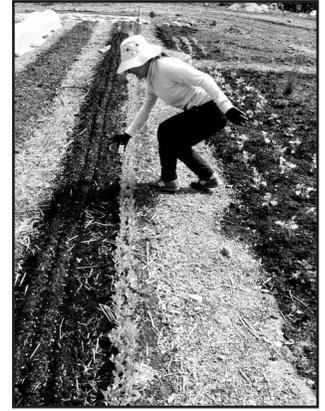


# Soil

Soil is remarkable, for while it is largely composed of minerals, it is also home to a broad range of tiny, living creatures. Under a microscope, millions of organisms live in a single teaspoon of healthy earth. The gardener's first job is to learn about the balance of elements in their soil and what to do if that balance needs adjusting.



**SOIL ELEMENTS.** Soil consists of four basic elements:

- Mineral particles known as nutrients are essential for plant growth. Macronutrients are nitrogen (N), phosphorus (P), and potassium (K). Calcium, magnesium, and sulfur are secondary nutrients. Micronutrients are boron, chlorine, cobalt copper, iron, manganese, molybdenum, nickel, and zinc.
- Water
- Air
- Organic matter, microscopic organisms. Organic matter includes any plant or animal material returned to the soil, where it decomposes. The process binds soil particles and improves the soil's water-holding capacity. It also provides food and a home to the many beneficial microscopic organisms that live in the soil and play an important role in plant health; these include bacteria, fungi, algae, and nematodes. Bacteria, for instance, produce natural antibiotics that help plants resist disease; fungi assist plants in absorbing water and nutrients.

**pH.** Just as blood pressure and heartbeat rates are indicators of human health, so acidity and alkalinity are indicators of soil health. Plants depend on the right pH level in order to take in nutrients. The ideal pH for most plants is somewhere between 6 (slightly acid) and 7 (neutral).

**SOIL TESTING.** The most accurate way to know about the balance of elements in your soil is to test it. There are inexpensive home kits for this, but the surest method is to send soil samples to a professional laboratory. Tests are best done in the spring or early fall, the fall being preferable, for the lab is less busy. Here are the steps:

- Online, request a free soil testing kit from the University of Maine's Maine Soil Testing Service (MSTS). <https://umaine.edu/soiltestinglab/home/kit-request/>

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- When the kit arrives, follow the instructions. If you have a particular question relating to your landscape, include it with your form.
- Mail your completed form and your sample(s) with a check for each test (as conditions vary in different parts of most properties, you may need more than one). The charge is \$18 for one standard test.
- The written results can be confusing. The Soil Testing Service has good information online, and several Islesboro residents have offered to be available to assist you: Sue Hatch, Pam Larson, and Michael Hutcherson.