

HOW TO Identify soil characteristics

Knowing the properties of your forest soil will help you predict how the soil will respond to forest operations. You can then plan operations so as to minimize soil disturbance.

A soil survey is a detailed report by the USDA Natural Resources Conservation Service (NRCS) that includes maps of soil boundaries, photos, descriptions and tables of soil properties and features. Idaho county soil surveys are available at local NRCS offices, or they can be explored virtually at USDA NRCS-Idaho Soil Surveys.

There are two fairly precise methods to determine your site's soil types.

1. You can use a Global Positioning System (GPS) device to record points across the area of interest and take this information to a local NRCS office, where staff can work with you to identify your soil types.
2. You can conduct your own field survey.

Conducting a field soil survey

1. Walk into your harvest unit and select three to five spots across the unit.
2. At each spot dig a small hole about 12 inches deep. This is the critical zone that trees access for nutrients and moisture. It is also the most susceptible to disturbance during harvesting.
3. Grab some soil from each hole and rub it between your fingers.



Answer the following questions:

What is the soil texture?

To test, add water to a small handful of soil and mix it, trying to form a small ball (about the size of an egg).

- If you are not able to form a ball, you have sandy soil.
- If you are able to form a ball, place it between your thumb and forefinger, slowly squeeze the soil forward and let it droop over your forefinger to form a ribbon (about 1/8 inch thick). If you are able to form a ribbon 3 inches long without breaking, you have soil with high clay content.

Does the soil feel sandy and coarse? Does it have a lot of pebbles and small rocks?

If so, puddling or rutting will have less effect on long-term forest growth than it would on other types of soils. However, erosion could be a problem if surface cover is displaced and soil exposed.

Does the soil feel smooth and contain no more than a few rock fragments?

If so, puddling or rutting very likely will affect forest productivity if equipment is used when soils are wet. When dry, however, these soils can be highly compaction resistant.

What color is the soil?

Is it dark (reddish brown to black)? Dark-colored soils have higher organic matter content, a source of essential plant nutrients. Is it a light color (off white to tan)? Lighter colored soils contain less soil organic matter and fewer plant nutrients. They also hold less water for tree growth.