

Intro to Soil Color

Why is soil color important?

Soil color can be a useful tool for correctly identifying your soil and can be an important indicator of soil health. Correct soil identification is vital information for farmers, natural resource managers, land planners, and other land managers. Soil color is linked to mineral composition, soil fertility, soil organic matter, and other critical factors for land potential and productivity.

How is soil color measured?

The [Munsell System](#) is the most commonly used color notation system for classifying soil color. This system allows you to compare soils from any location in the world. The color system has three components:

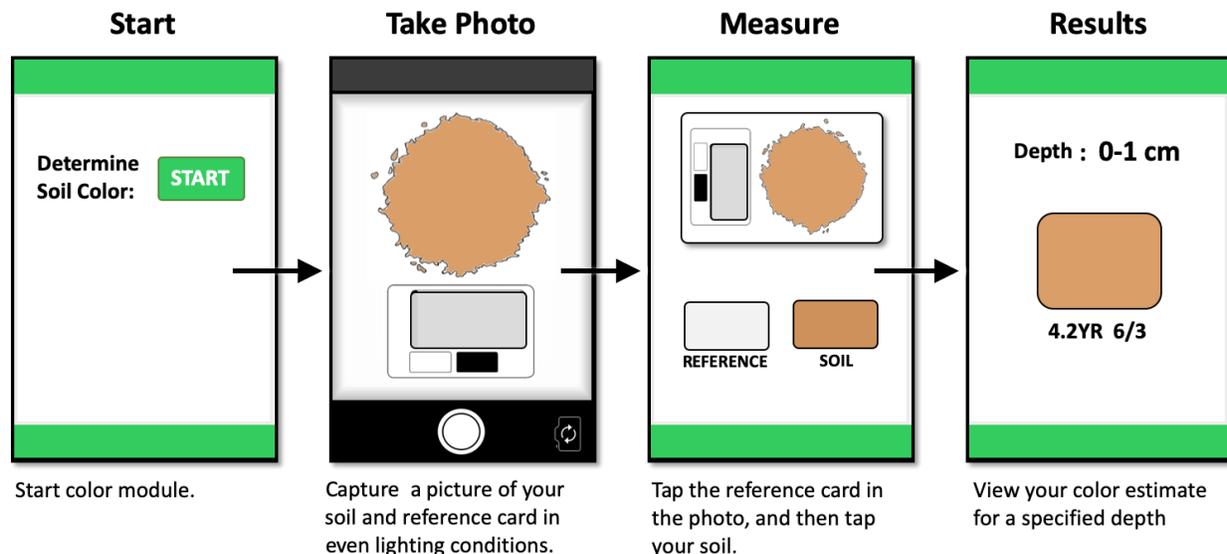
1. Hue: the color (red, yellow, and blue)
2. Value: the lightness or darkness of that color
3. Chroma: the intensity of the color

For example, a 7.5YR 6/8 is a reddish-yellow soil, where 7.5YR represents the hue, 6 is the value, and 8 is the intensity.

With the LandPKS app, you can use the camera on your smartphone to take a picture of your soil and determine its Munsell color value.

How do I determine the color of my soil with LandPKS?

LandPKS uses the camera on your smartphone to determine combined with a color reference to determine your soil color. You can access the soil color function from the Data Input screen under LandInfo.



Which Reference Card Should I Use?

In the LandPKS Application Settings, you can select from several options for reference cards. You can choose between:

- WhiBal card
- Camera Trax
- 3M Yellow Post-It Note
- User-defined color reference based on an RGB, LAB or Munsell color

If you are using a 3M Yellow Post-It Note, we recommend following these guidelines:

- Only use new Post-Its
- Layer at least 3 Post-Its on top of each other
- Make sure the Post-Its lie flat, are not written on, and are not dirty
- Make sure the Post-Its are not degraded by sunlight, as considerable variation can exist depending on sun exposure
- Store Post-Its in dark envelopes to avoid sun exposure

Tips for a more accurate soil color estimate:

- Take your picture in bright, even sunlight. Clouds and shadows will impact the accuracy of your soil color estimate.
- Before taking the picture of your soil and your reference, sieve soil through a 2mm sieve to create a pile of homogenous soil. Flatten the pile of soil to minimize shadows within the soil sample.
- Use dry soil whenever possible. The app does have a way to indicate if your soil is wet, but dry soil color estimates are more accurate.
- If your soil layer has multiple colors (i.e. mottles, redoximorphic features, or carbonates), isolate the dominant matrix color from the pile.

Further Reading

[Measurement of Soil Color: A Comparison Between Smartphone Camera and Munsell Color Book](#)

[The Color of Soil – USDA NRCS](#)

[Soil Color: A Smartphone-Based Application to Estimate Soil Color, presentation by Shawn Salley](#)