

The Munsell® color-order system quantifies individual colors and shows relationships among different colors. While these relationships can be used for a variety of purposes, we are primarily concerned with the various colors associated with soil and plant tissue.

Three Components of the Munsell Notation: Hue, Value, and Chroma

Hue

Hue is a quantification of the chromatic composition of light that reaches the eye of an observer. This allows us to differentiate one color from another, such as red from green or blue from yellow. There are 10 major hues broken down into five principal and five intermediate hues:

Principal	Intermediate
Red	Yellow-Red
Yellow	Green-Yellow
Green	Blue-Green
Blue	Purple-Blue
Purple	Red-Purple

All of the hues are given a one- or two-letter designation, and are arranged around a color circle. Each of the 10 major hues are broken into four equal segments, which are given the following numerical prefixes: 2.5, 5, 7.5 and 10.

Value

Value indicates the degree of lightness of a color in terms of a neutral gray scale. The scale ranges from 0/ for pure black to 10/ for pure white.

Chroma

Black, white and the shades of gray in between are all considered neutral colors. Chroma is the degree of departure of a color from the neutral color of the same value. This can be considered the relative purity of a color. As a color gets more vivid, the chroma increases. Neutral color is given a designation of /0, and unlike the value, there is no tangible upper limit. Most applications for soil and plant tissue end with a chroma of /8.

The Munsell Notation

The complete Munsell notation for a chromatic color is written Hue Value/Chroma. For a vivid red having a hue of 5R, a value of 6 and a chroma of 8, the complete notation is 5R 6/8.

For Soil and Plant Tissue

The Munsell Notation is one of the most quantifiable and recognized means for describing the chromatic appear-

ance of soils and plant tissue. Only a fraction of the overall range of hues are required to encompass the variety of soil and plant tissues one can expect to encounter. The soil collection includes 322 color chips within nine tabbed charts and the plant tissue collection includes 320 color chips for 17 hues. Munsell soil color charts have been developed in cooperation with the U.S. Soil Conservation Service guidelines for classifying various soil types.

The Munsell Notation is one part of an overall soil color description. Also included is the water state, written as either moist or dry. It is important to record the water state because moisture in soil can lower the color value. The physical state of the soil is an additional element of a soil color description. Terms such as crushed, rubbed, crushed and smoothed and broken are used, with crushed often referring to dry soil and rubbed often referring to moist soils.

The colors of plant tissues reflect several influences. Light, water and temperature can effect the vividness or mottling in plant tissue. Color changes can serve as a reference for the relationship between plant tissue and chemical content of the soil, genetic origin of plants and the effect of toxic substances or parasites.

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