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MUN

**MUNSELL  
SOIL COLOR  
CHARTS**

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1954  
EDITION

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**MUNSELL COLOR COMPANY, INC.**

BALTIMORE, MARYLAND 21218

U.S.A.

## DETERMINATION OF SOIL COLOR

quoted in part

(From U.S. Dept. Agriculture Handbook 18—  
Soil Survey Manual)

Soil colors are most conveniently measured by comparison with a color chart. The collection of charts generally used with soils is a modified version of the collection appearing in the Pocket Edition of the Munsell Book of Color and includes only that portion needed for soils, about one-fifth of the entire range found in the complete edition of the Book of Color.

The seven charts in the Soil Collection display 196 different standard color chips systematically arranged according to their Munsell notations, on cards carried in a loose leaf notebook. The arrangement is by the three simple variables that combine to describe all colors and are known in the Munsell system as Hue, Value, and Chroma.

The Hue notation of a color indicates its relation to Red, Yellow, Green, Blue, and Purple; the Value notation indicates its lightness; and the Chroma notation indicates its strength (or departure from a neutral of the same lightness).

The colors displayed on the individual Soil Color Charts are of constant Hue, designated by a symbol in the upper right-hand corner of the card. Vertically, the colors become successively lighter from the bottom of the card to the top by visually equal steps; their value increases. Horizontally they increase in Chroma to the right and become grayer to the left. The Value notation of each chip is indicated by the vertical scale in the far left column of the chart. The Chroma notation is indicated by the horizontal scale across the bottom of the chart.

As arranged in the collection the charts provide three

scales: (1) radial, or from one chart to the next in hue; (2) vertical in value; and (3) horizontal in chroma.

"The nomenclature for soil color consists of two complementary systems: (1) Color names, and (2) the Munsell notation of color. Neither of these alone is adequate for all purposes. The color names are employed in all descriptions for publication and for general use. The Munsell notation is used to supplement the color names wherever greater precision is needed, as a convenient abbreviation in field descriptions, for expression of the specific relations between colors, and for statistical treatment of color data. The Munsell notation is especially useful for international correlation, since no translation of color names is needed. The names for soil colors are common terms now so defined as to obtain uniformity and yet accord, as nearly as possible, with past usage by soil scientists. Bizarre names like 'rusty brown,' 'mouse gray,' 'lemon yellow,' and 'chocolate brown' should never be used."

The soil color names and their limits are given in the diagrams which appear opposite each chart.

"The Munsell notation for color consists of separate notations for hue, value, and chroma, which are combined in that order to form the color designation. The symbol for hue is the letter abbreviation of the color of the rainbow (R for red, YR for yellow-red, Y for yellow) preceded by numbers from 0 to 10. Within each letter range, the hue becomes more yellow and less red as the numbers increase. The middle of the letter range is at 5; the zero point coincides with the 10 point of the next redder hue. Thus 5YR is in the middle of the yellow-red hue, which extends from 10R (zero YR) to 10YR (zero Y)."

"The notation for value consists of numbers from 0, for absolute black, to 10, for absolute white. Thus a color of value 5/ is visually midway between absolute white and absolute black. One of value 6/ is slightly less dark, 60 percent of the way from black to white, and midway between values of 5/ and 7/."

"The notation for chroma consists of numbers beginning at 0 for neutral grays and increasing at equal intervals to a maximum of about 20, which is never really approached in soil. For absolute achromatic colors (pure grays, white, and black), which have zero chroma and no hue, the letter N (neutral) takes the place of a hue designation."

"In writing the Munsell notation, the order is hue, value, chroma with a space between the hue letter and the succeeding value number, and a virgule between the two numbers for value and chroma. If expression beyond the whole numbers is desired, decimals are always used, never fractions. Thus the notation for a color of hue 5YR, value 5, chroma 6, is 5YR 5/6, a yellowish-red. The notation for a color midway between the 5YR 5/6 and 5YR 6/6 chips is 5YR 5.5/6; for one midway between 2.5YR 5/6 and 5YR 6/8, it is at 3.75YR 5.5/7. The notation is decimal and capable of expressing any degree of refinement desired. Since color determinations cannot be made precisely in the field—generally no closer than half the interval between colors in the chart—expression of color should ordinarily be to the nearest color chip."

"In using the color charts, accurate comparison is obtained by holding the soil sample directly behind the apertures separating the closest matching color chips. Rarely will the color of the sample be perfectly matched by any color in the chart. The probability of having a perfect matching of the sample color is less than one in one hundred. It should be evident, however which colors the sample lies between, and which is the closest match. The principal difficulties encountered in using the Soil Color Chart are (1) in selecting the appropriate hue card, (2) in determining colors that are intermediate between the hues in the chart and (3) in distinguishing between value and chroma where chromas are strong. In addition, the chart does not include some extreme dark, strong (low value, high chroma) colors occasionally encountered in moist soils. With experience, these extreme colors lying outside the range of the chart can



be estimated. Then too, the ability to sense color differences varies among people, even among those not regarded as color blind."

"While important details should be given, long involved designation of color should generally be avoided, especially with variegated or mottled colors. In these, only the extreme or dominant colors need be stated. Similarly, in giving the color names and Munsell notations for both the dry and moist colors, an abbreviated form, such as 'reddish brown' (5YR 4/4; 3/4 moist), simplifies the statement."

"By attempting detail beyond the allowable accuracy of field observations and sample selection, one may easily make poorer soil descriptions than by expressing the dominant colors simply. In all descriptions, terms other than the ones given on these charts should be used only in rare instances, and then only as supplemental expressions in parentheses where some different local usage is common."

We are indebted to Dr. Charles E. Kellog, chief of the Division of Soil Survey, the U. S. Dept. of Agriculture for permission to quote from the SOIL SURVEY MANUAL.

NOTE: The Regular Format, 1954, contains the following seven charts: 10R, 2.5YR, 5YR, 7.5YR, 10YR, 2.5Y and 5Y. This collection is the same as used by the U. S. Soil Conservation Service in the United States. The following additional charts are available where required:

7.5R—slightly more red than 10R, used in most tropical and semi-tropical lands.

5R :—slightly more red than 7.5R, used in tropical lands, particularly Australia, Africa and South-east Asia.

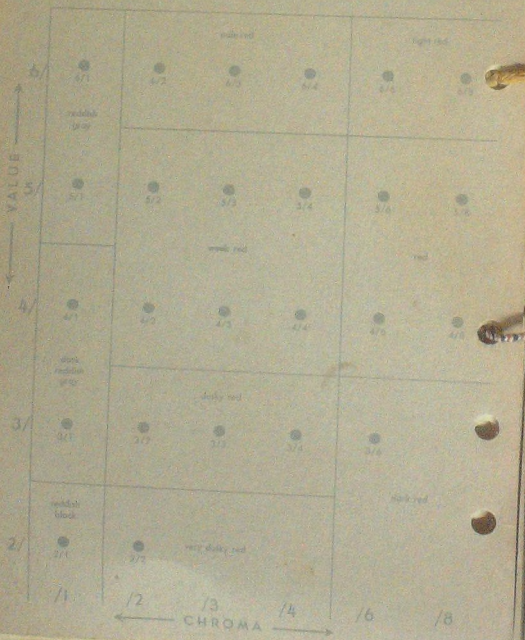
/1 Chroma—a selection of near-gray colors for hues from yellow through green and blue, for submerged soils, 28 colors on value levels 4/ through 7/.

MUNSELL COLOR COMPANY, INC.



HUE 10R

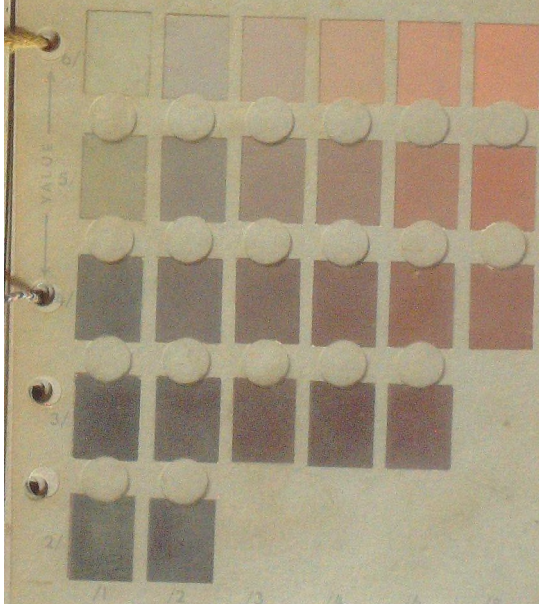
SOIL COLOR NAMES





# MUNSELL® SOIL COLOR CHART

10R



HUE 2.5YR

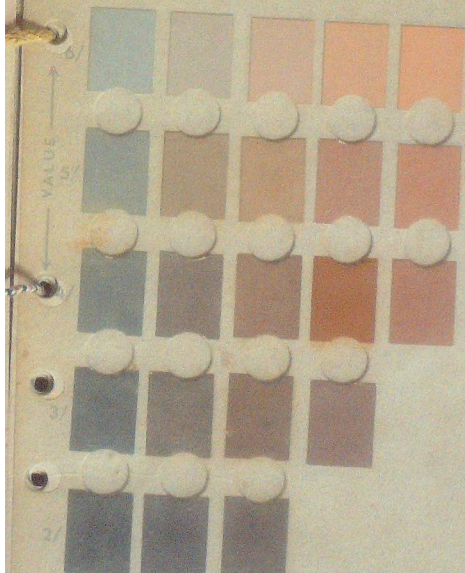
SOIL COLOR NAMES

		pink red	light reddish brown	light red	
6/	6/1	6/2	6/3	6/4	6/5
5/	5/1	5/2	5/3	5/4	5/5
4/	4/1	4/2	4/3	4/4	4/5
3/	3/1	3/2	3/3	3/4	3/5
2/	2/1	2/2	2/3	2/4	2/5
1/0	1/1	1/2	1/3	1/4	1/5

VALUE  
↑  
6/5  
↓  
2/1

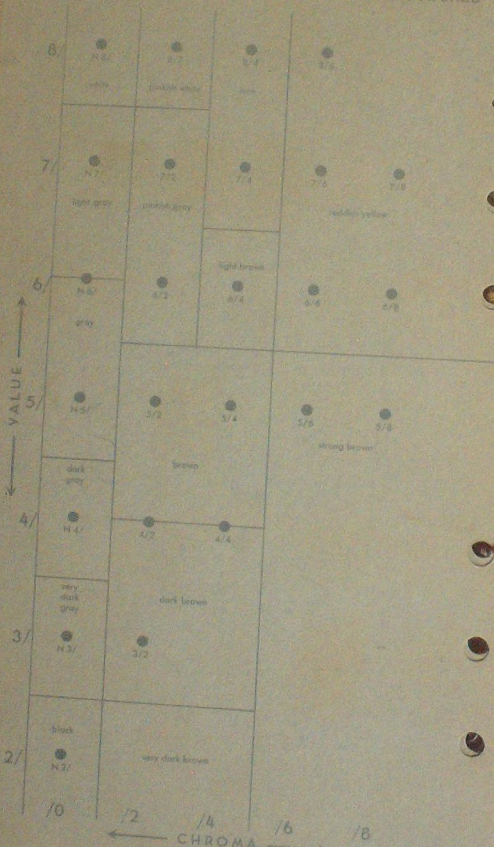
MUNSELL® SOIL COLOR CHART

25YR



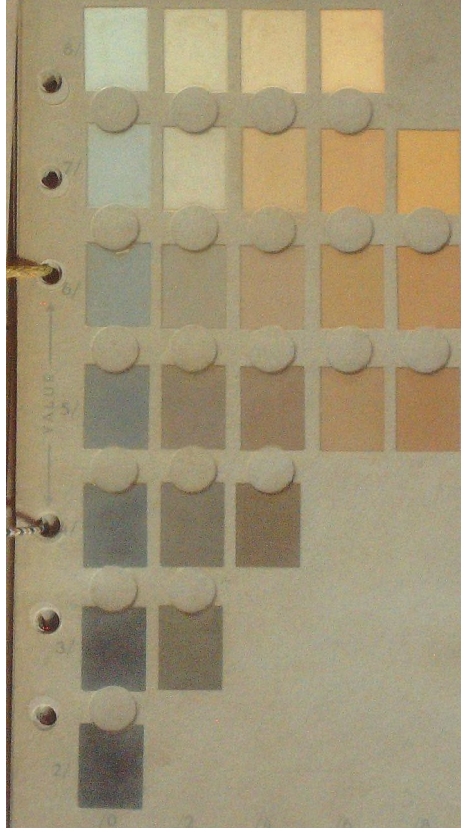
HUE 7.5YR

SOIL COLOR NAMES



MUNSELL SOIL COLOR CHART

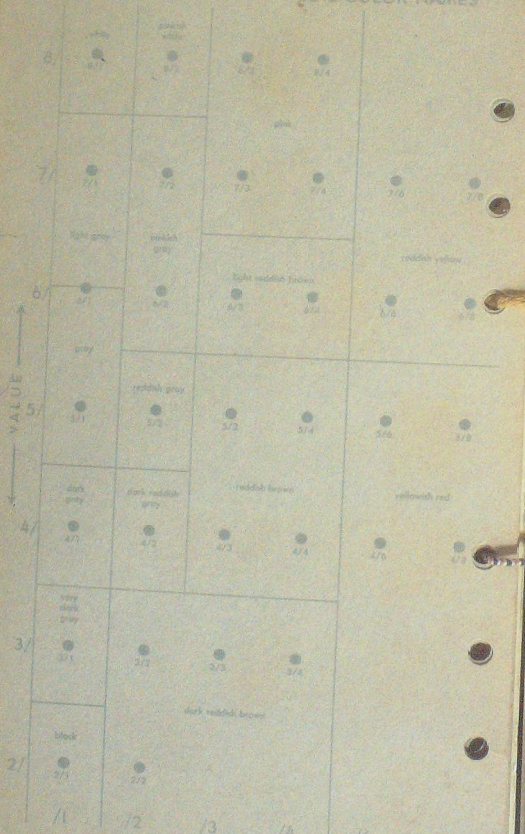
7.5YR





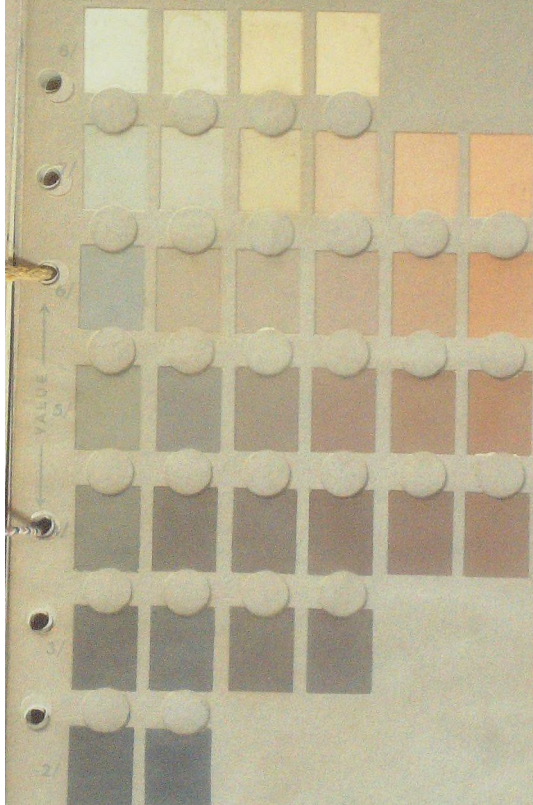
# HUE 5YR

# SOIL COLOR NAMES



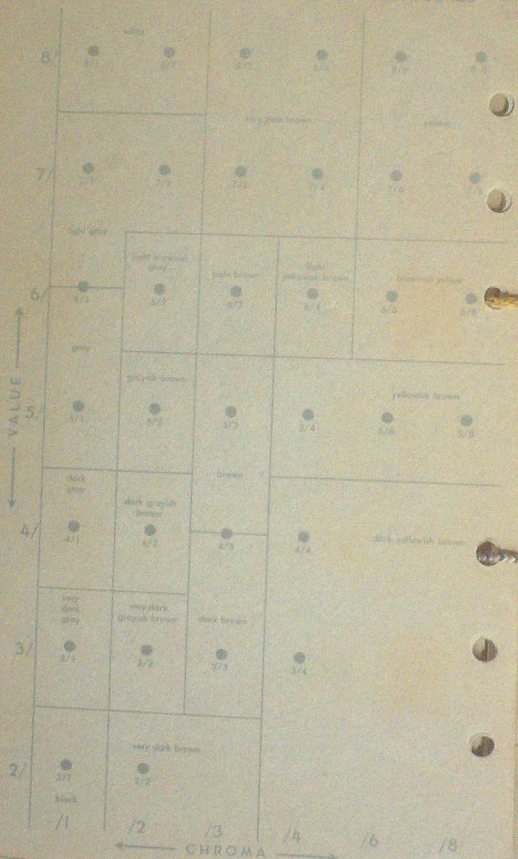
# MUNSELL<sup>®</sup> SOIL COLOR CHART

5YR



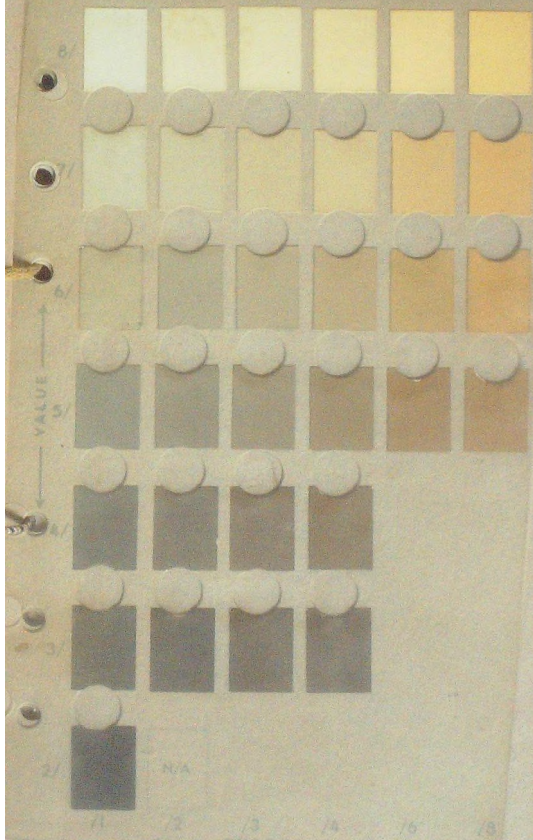
## HUE 10YR

## SOIL COLOR NAMES



# MUNSELL<sup>®</sup> SOIL COLOR CHART

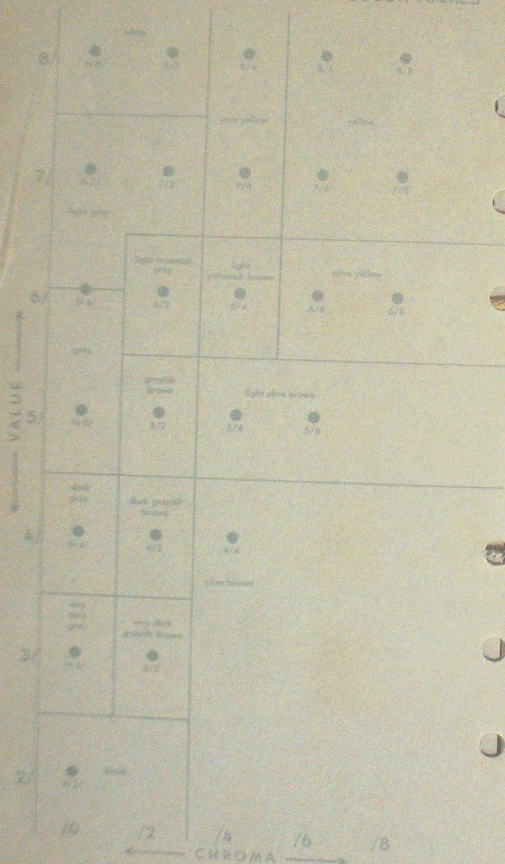
10YR





HUE 2.5Y

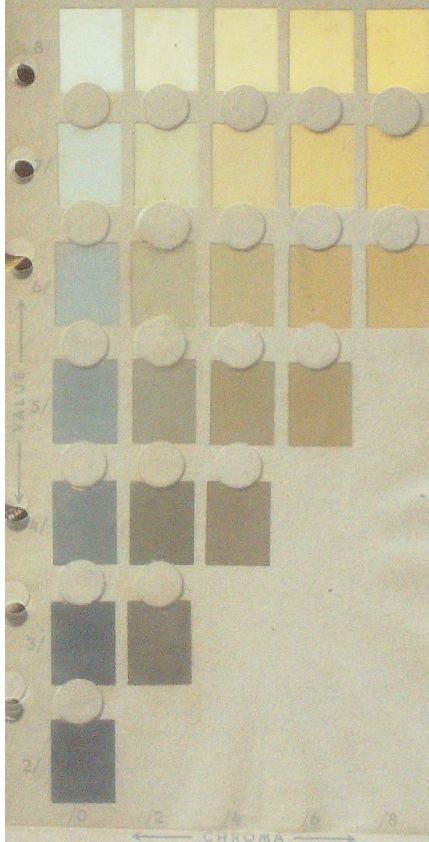
SOIL COLOR NAMES





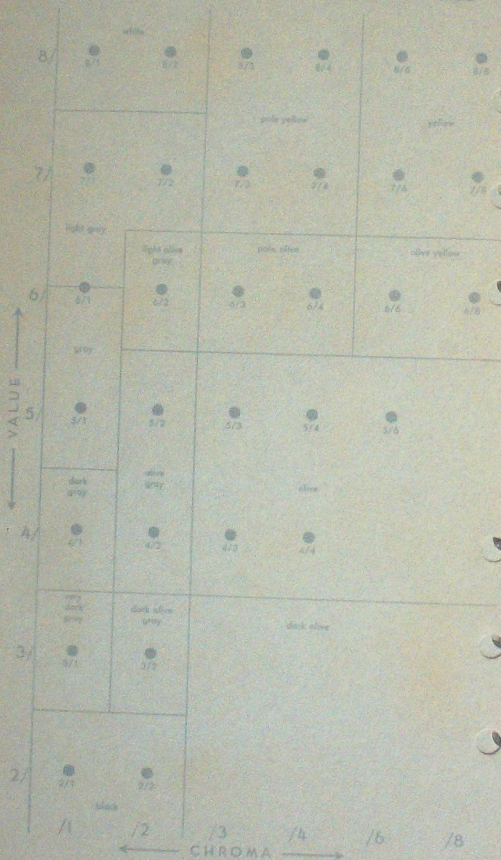
# MUNSELL SOIL COLOR CHART

2.5Y



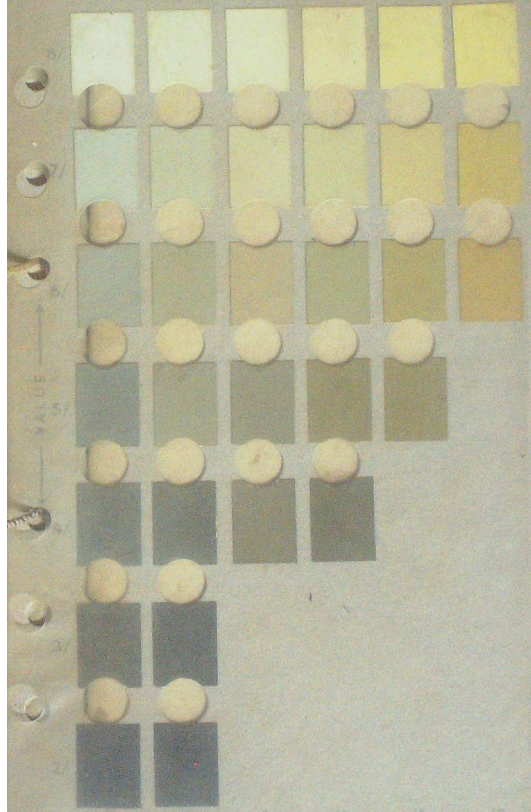
## HUE 5Y

## SOIL COLOR NAMES



# MUNSELL SOIL COLOR CHART

5Y



VALUE

CHROMA