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# RANGE OF SOIL MOISTURE IN ETAPALLI TALUKA DIST. GADCHIROLI

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**ABSTRACT :**

*Soil is a component of lithosphere and biosphere system. It is a basic resource for growing food, fibre, fodder and fuel wood for meeting the human needs. A scientific inventory of this valuable natural resource has assumed considerable importance. It provides a systematic basis for the study of rope and soil relationship, so vital for increasing production and for planning for irrigation, development, soil conservation and reclamation. Land Soil is a basis of life which has been created by nature for the subsistence of the living world. The agriculture of a region, to large extent depends upon not true trend potentialities of its soils and also on their climatic conditions of the region. The nature and characteristic of a soil is mainly dependent on geological formations, topography and climate of the region in which it occurs. Scientific agriculture aims at improving the soil productivity. The fundamental thing, necessary for the management of land resources, is the knowledge about the soil which is the basis to the development of scientific agriculture on a firm footing and it can be obtained from the detailed soil survey of the area.*

**KEY WORDS:** *Soil Moisture, Soil $P^H$.*

## INTRODUCTION

It has long been known that the wilting coefficient, or wilting point, of a soil does not represent the lower limit of soil moisture available to plants but rather the approximate lower limit available for growth of Some writers, however, have used the term rather loosely to refer to the percentage of non-available moisture, possibly on the assumption that the amount of moisture available at moisture percentages below the wilting point is so small as to be of no practical significance. Always Batchelor and Red and others have reported finding soil under deep-rooted trees or shrubs at moisture percentages well below the wilting coefficient and in some cases at about the hygroscopic coefficient. These writers pointed out the significance of the moisture below the wilting coefficient in the maintenance of life in these plants during periods of prolonged through, and Batchelor and Reed proposed that, since the wilting coefficient does not represent the lower limit of available moisture, the hygroscopic coefficient be used as the reference value for expressing the relative wetness of a soil as related to plant behaviour. While the hygroscopic coefficient, in the sense in which this term was employed, is no longer in general use as a soilmoisture constant, Batchelor and Reed's contention that a soil-moisture constant, approximately equivalent to the non-available soil-moisture percentage, is needed, is nevertheless a pertinent one. Since more general information was needed in connection with irrigation experiments,for soil present in Etapalli taluka Dist. Gadchiroli. It seemed desirable to determine the wilting range of a large number of soil types varying widely in texture and other characteristics.

## MATERIAL AND METHODS:

Put a 30-m measuring tape on an axis perpendicular to the slope of your sample point, with the 15 meter mark in the center of your plot. Starting at the 1 meter mark, and at distances of 4 meters (i.e., at the 1, 5, 9, 13, 17, 21, 25 and 29 meter marks), measure the soil moisture. 2. Before using the Keyway probe, the

tester's plates must be totally free of contamination (wipe off remaining soil particles after each use) and chemically clean. The metals plates must be rubbed clean before use with the Kelway Conditioning film provided; place the dull side of the Conditioner Film around the plates, squeeze lightly and rotate a few times. This rubs the plates clean. Then wipe the plates with a clean rag or paper towel. Be sure not to touch the plates with your fingers. 3. Remove grass, leaves, pebbles and other debris in the spot to be tested, and soften the soil. Break up pieces if it is hardened. Now gently insert the tester vertically into the soil to a depth which will cover the tester's metal plates fully (8 cm or 3.25 inches). Press the soil tightly around the tester so that the metal plates are in close contact with the soil. 4. Press the button on the side of the tester and hold it for 2-3 minutes to read the moisture content on the lower scale. This time period is necessary for the meter to stabilize. The reading you obtain is percent relative saturation, and is NOT the percent moisture by weight. Soils - 3 Each type of soil has its own field capacity (meaning its own ability to hold water) after it has been irrigated or rained on and then drained for 24 hours. This could be termed relative saturation. 5. After use, wipe the plates clean with a paper towel to remove all dirt particles. Remember to use the Conditioner Film before the next reading.

**Choose a sample design:** Put a 30-m measuring tape on an axis perpendicular to the slope of your sample point, with the 15 meter mark in the center of your plot. Starting at the 1 meter mark, and at distances of 4 meters (i.e., at the 1, 5, 9, 13, 17, 21, 25 and 29 meter marks), measure the soil moisture. 2. Before using the Kelway probe, the tester's plates must be totally free of contamination (wipe off remaining soil particles after each use) and chemically clean. The metals plates must be rubbed clean before use with the Kelway Conditioning film provided; place the dull side of the Conditioner Film around the plates, squeeze lightly and rotate a few times. This rubs the plates clean. Then wipe the plates with a clean rag or paper towel. Be sure not to touch the plates with your fingers. 3. Remove grass, leaves, pebbles and other debris in the spot to be tested, and soften the soil. Break up pieces if it is hardened. Now gently insert the tester vertically into the soil to a depth which will cover the tester's metal plates fully (8 cm or 3.25 inches). Press the soil tightly around the tester so that the metal plates are in close contact with the soil. 4. Press the button on the side of the tester and hold it for 2-3 minutes to read the moisture content on the lower scale. This time period is necessary for the meter to stabilize. The reading you obtain is percent relative saturation, and is NOT the percent moisture by weight. Soils - 3 each type of soil has its own field capacity (meaning its own ability to hold water) after it has been irrigated or rained on and then drained for 24 hours. This could be termed relative saturation. 5. After use, wipe the plates clean with a paper towel to remove all dirt particles. Remember to use the Conditioner Film before the next reading.

## RESULT AND DISCUSSION:

The soil moisture within the wilting range provides the plant with an emergency reservoir that enables many species of plants to survive periods of prolonged drought or to mature seed after vegetative growth has ceased as a result of water shortage. With the reduction in the rate of absorption, which occurs near the first permanent wilting point, and the severe water shortage that follows, the various mechanisms by which transpiration is greatly reduced, such as stomatal closure and abscission of leaves, are set in motion; but after these changes are in progress there still remains the available water of the wilting range, which may be slowly absorbed over a relatively long period. Since the magnitude of the wilting range of different soils, even though they may be of similar texture, varies widely, it seems likely that this characteristic of a soil may be of some importance among those factors that affect the survival of plants during periods of drought. Following are the values of soil moisture observed in different places of Etapalli taluka.

| Site Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Value of Soil Moisture ( Foot of depth) | 0.28 | 0.50 | 1.0 | 1.15 | 1.50 | 1.60 | 0.80 | 0.90 | 1.00 |

Most soils of importance in agriculture fall within the textural range corresponding to moisture equivalents of 5 to 45, and in this range the proportion of the available moisture in the wilting range varies

from about 11 to about 30 percent, averaging roughly 20 percent. It is clear that the proportion of the total available moisture that is held in the wilting range is great enough in most soils to be of significance in any consideration of the influence of soil-moisture shortage on the behaviour of plants.

## CONCLUSION:

This study shows that the value of soil content at site number 1 and 2 are the Coarse sand type soil, Site number 3 and 4 are Loamy sand type soil, site number 5 and 6 may be Fine sandy loam type soil and site number 7, 8 and 9 are may be belongs to fine sand type soil.

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