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DDE Supplement / Attachment

DDIdentifier ₍₁₀₎	DDEName
469	Estimated Soil Water Condition

Version 1.0

Estimated Soil Water Condition

The water content of a soil will strongly influence seed germination, irrigation scheduling, the ability of equipment to enter a field, and so forth. Water content is difficult to estimate directly in the field, however: the same volume of water in different soils can result in different behavior, depending on the nature of the soil material, nature and dimensions of pores, etc.

This DDI provides an operationally-viable proxy for water content, "soil water condition", based on visual and mechanical properties that can be observed easily and without specialized equipment. Allowances are made for the influence of different soils on these properties: for the sake of simplicity, only two broad categories of soils (cohesive and non-cohesive) are used in the scale. They are distinguished based on their clay content (expressed as a percentage by mass). Please refer to a soil map of the area, or consult an agronomist or soil scientist, to obtain an estimate of the clay content, and/or the cohesive/non-cohesive nature of your soils of interest.

The evaluation of mechanical properties (e.g. plasticity) mentioned in the scale requires obtaining a sample of soil near the surface. This can easily be done with a soil probe, drill or auger, but also manually.

Note: this DDI does not fully cover conditions in which the ground is frozen or snow-covered. For those situations, please assign a value of 0 to this DDI, and also include DDI 468 "Soil Snow/Frozen Condition".

Source: ISO 25177: 2008. Soil quality – Field soil description, 7.4 Estimation of moisture status

Enumeration:

Id	Code	Description
0		Unknown: Used under conditions where the methods described below cannot be applied (e.g. frozen or snow-covered soil) or where the value is otherwise unknown.

DDE Request Form

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1	<p>Dry: Water content less than the moisture retained at the wilting point.</p> <p>In the case of cohesive samples (generally more than 17 % clay), this may result in the following soil properties: hard, nonplastic consistency; soil colour darkens when water is added.</p> <p>Note: the FAO defines plasticity as "the ability of soil materials to change shape, but not volume, continuously under the influence of a constant pressure and to retain the impressed shape when the pressure is removed". It can be evaluated by attempting to manually roll a sample of soil into a "wire" or "noodle" shape.</p> <p>In the case of non-cohesive samples, generally when the percentage of clay is less than 17 %, this may result in the following soil properties: light soil colour, which becomes much darker when water is added; dusty.</p>
2	<p>Slightly moist: water content between field capacity and wilting point.</p> <p>In the case of cohesive samples (generally more than 17 % clay), this may result in the following soil properties: partially cohesive, but crumbles when forming a roll of 3 mm thickness; soil colour darkens slightly when water is added.</p> <p>In the case of non-cohesive samples, generally when the percentage of clay is less than 17 %, this may result in the following soil properties: soil colour darkens slightly when water is added.</p>
3	<p>Moist: moisture content of soil is near the field capacity; absence of free water.</p> <p>In the case of cohesive samples (generally more than 17 % clay), this may result in the following soil properties: stiff; can be formed into a roll of 3 mm thickness without crumbling, does not darken when adding water; no water freed when squeezed.</p> <p>In the case of non-cohesive samples, generally when the percentage of clay is less than 17 %, this may result in the following soil properties: fingers moisten slightly when the sample is touched; no water escapes from soil pores even when the sample is knocked on the drill; does not darken when water is added.</p>

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4	<p>Very wet: presence of free water, saturating all or a part of the soil pores.</p> <p>In the case of cohesive samples (generally more than 17 % clay), this may result in the following soil properties: soft; can easily be formed into a roll of thickness more than 3 mm; water freed when the sample is squeezed.</p> <p>In the case of non-cohesive samples, generally when the percentage of clay is less than 17 %, this may result in the following soil properties: fingers get distinctly wet when the sample is touched; visible free water when the sample is compressed.</p>
5	<p>Saturated: free water saturates all the soil pores.</p> <p>In the case of cohesive samples (generally more than 17 % clay), this may result in the following soil properties: muddy, waterlogged; mud passes through the fingers when the sample is squeezed.</p> <p>In the case of non-cohesive samples, generally when the percentage of clay is less than 17 %, this may result in the following soil properties: distinct water escape; sample is often fluid.</p>
6	<p>Inundated: soil surface is covered by water.</p> <p>This concerns only the upper horizon, near the surface of the soil.</p>