

Column	Description	Data Type / Unit
<b>Records</b>	A unique identifier or sequential number for each soil sample measurement. This column is used to track	Categorical / Integer
<b>410</b>	Spectral reading at 410 nanometers. This value represents the reflectance or absorbance at 410 nm, which is part of the soil's spectral signature.	Numeric (reflectance/absorbance value)
<b>435</b>	Spectral reading at 435 nanometers. Part of the spectral signature used to determine soil composition and	Numeric
<b>460</b>	Spectral reading at 460 nanometers. Provides information about how the soil interacts with light at this specific	Numeric
<b>485</b>	Spectral reading at 485 nanometers. This and the following spectral columns capture the unique light interaction	Numeric
<b>510</b>	Spectral reading at 510 nanometers.	Numeric
<b>535</b>	Spectral reading at 535 nanometers.	Numeric
<b>560</b>	Spectral reading at 560 nanometers.	Numeric
<b>585</b>	Spectral reading at 585 nanometers.	Numeric
<b>610</b>	Spectral reading at 610 nanometers.	Numeric
<b>645</b>	Spectral reading at 645 nanometers.	Numeric
<b>680</b>	Spectral reading at 680 nanometers.	Numeric
<b>705</b>	Spectral reading at 705 nanometers.	Numeric
<b>730</b>	Spectral reading at 730 nanometers.	Numeric
<b>760</b>	Spectral reading at 760 nanometers.	Numeric
<b>810</b>	Spectral reading at 810 nanometers.	Numeric
<b>860</b>	Spectral reading at 860 nanometers.	Numeric
<b>900</b>	Spectral reading at 900 nanometers.	Numeric
<b>940</b>	Spectral reading at 940 nanometers.	Numeric
<b>Capacity Moist</b>	Soil moisture measurement obtained using a capacitive sensor. This sensor estimates the water content of the soil via changes in capacitance.	Numeric; typically expressed in a unit like % or volumetric water content
<b>Temp</b>	The temperature of the soil at the time of measurement. This value is critical as temperature can influence chemical reactions and microbial activity in the soil.	Numeric; usually in °C
<b>Moist</b>	An additional measurement of soil moisture, possibly obtained from a different sensor or methodology. It serves to validate or complement the capacitive moisture reading.	Numeric
<b>EC (u/10 gram)</b>	Electrical Conductivity of the soil measured per 10 grams. This indicates the concentration of ions or the salinity of the soil. The unit "u" typically refers to micro-units.	Numeric; units such as $\mu\text{S}/10\text{ g}$ (or similar)
<b>Ph</b>	The soil pH level, indicating the acidity or alkalinity of the soil. This is crucial for nutrient availability and overall soil health.	Numeric; pH scale (typically 0-14)

<b>Nitro (mg/10 g)</b>	Measurement of the nitrogen content in the soil, given in milligrams per 10 grams of soil. Nitrogen is a key nutrient for plant growth.	Numeric; mg/10 g
<b>Posh Nitro (mg/10 g)</b>	Likely represents the phosphorus content in the soil (despite the name "Posh Nitro," it is typically used as shorthand for phosphorus measurement). Measured in milligrams per 10 grams.	Numeric; mg/10 g
<b>Pota Nitro (mg/10 g)</b>	Likely represents the potassium content in the soil. Although the name is a shorthand, it refers to potassium levels, a vital nutrient for plant health. Measured in milligrams per 10 grams.	Numeric; mg

#### Additional Dataset Details

##### Spectral Data (Columns 410 to 940):

These columns contain the soil's spectral response at various wavelengths. The pattern of these responses (or the spectral signature) can be used to infer details about the soil's composition, such as mineral and organic content.

##### Sensor Data (Columns after Spectral Data):

These include physical and chemical measurements:

Moisture: Both "Capacity Moist" and "Moist" provide insights into the water content.

Temperature: Helps contextualize other measurements, as many soil processes are temperature dependent.

#### Additional Dataset Details

##### Spectral Data (Columns 410 to 940):

These columns contain the soil's spectral response at various wavelengths. The pattern of these responses (or the spectral signature) can be used to infer details about the soil's composition, such as mineral and organic content.

##### Sensor Data (Columns after Spectral Data):

These include physical and chemical measurements:

Moisture: Both "Capacity Moist" and "Moist" provide insights into the water content.

Temperature: Helps contextualize other measurements, as many soil processes are temperature dependent.