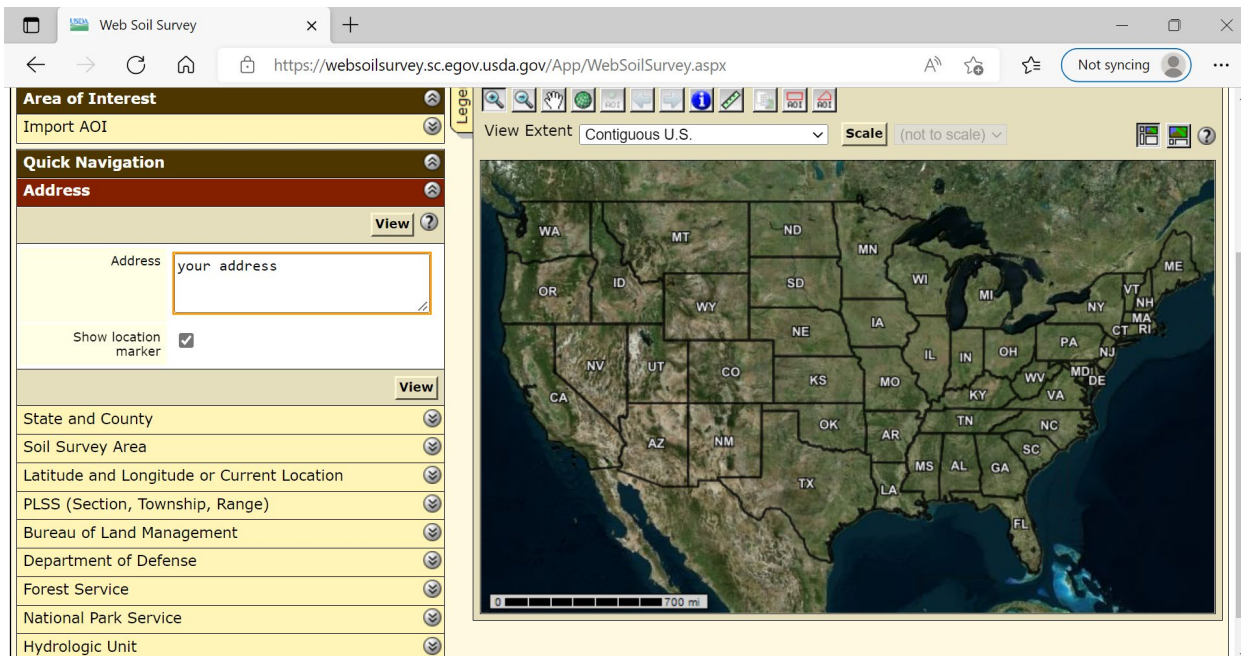
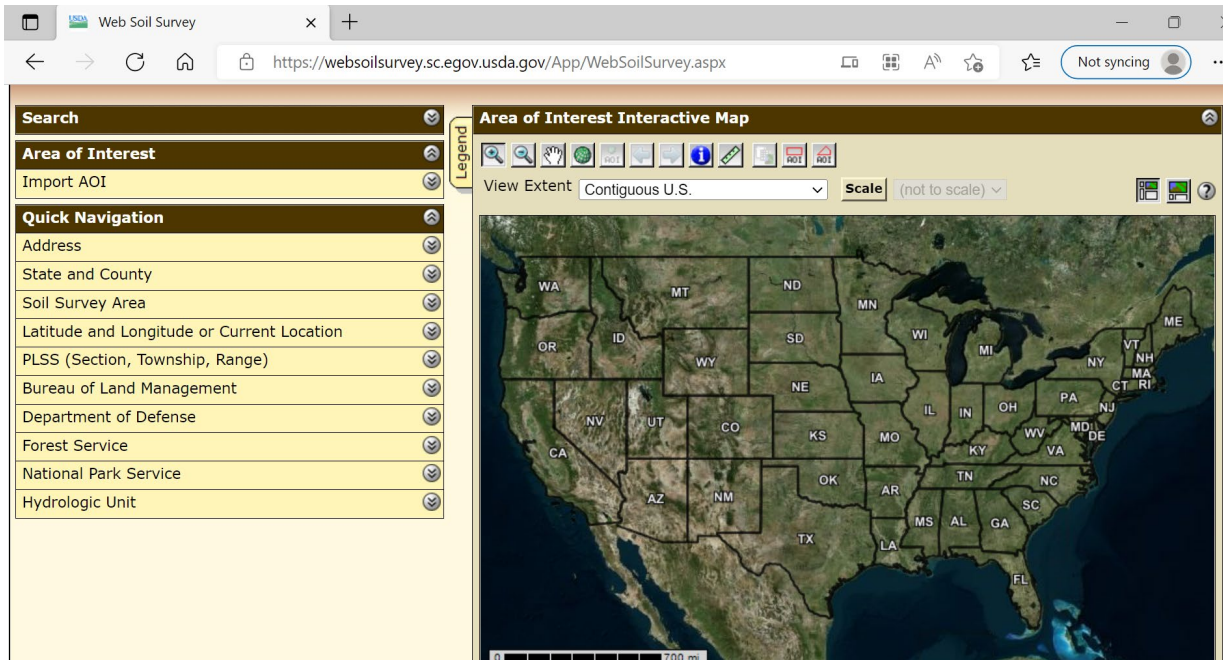
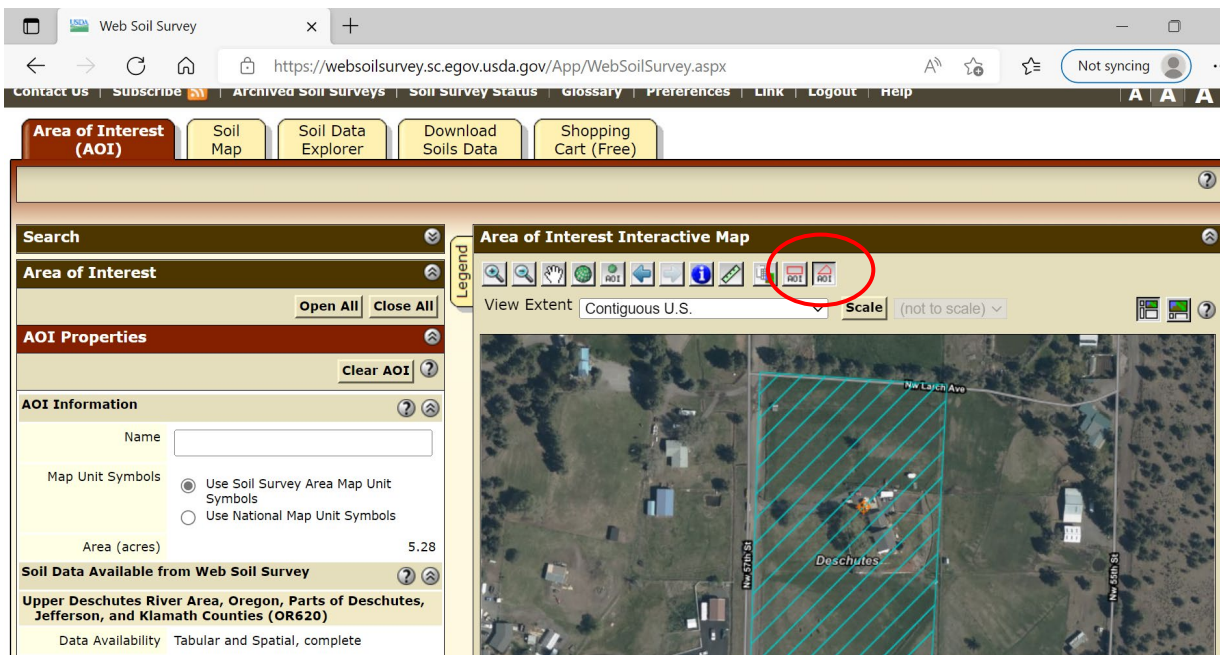
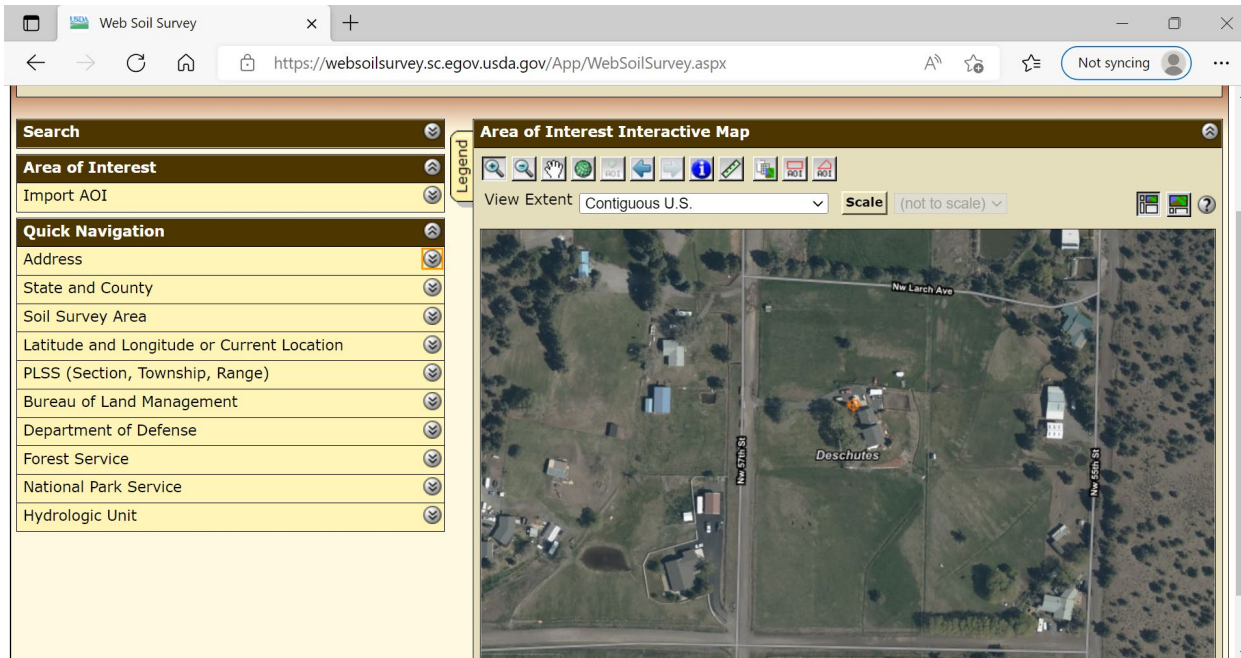


STEP-BY-STEP APPLICATION OF WEB SOIL SURVEY

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>





Select AOI (Area of Interest) to outline the area you want soils information.

Web Soil Survey

https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Area of Interest (AOI) **Soil Map** Soil Data Explorer Download Soils Data Shopping Cart (Free)

Printable Version Add to Shopping Cart

Search

Map Unit Legend

Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties (OR620)

Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties (OR620)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
31A	Deschutes sandy loam, 0 to 3 percent slopes	5.3	100.0%
Totals for Area of Interest		5.3	100.0%

Soil Map

Scale (not to scale)

Once the AOI is determined, select the “Soil Map” tab to retrieve soils information.

Web Soil Survey

https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

Area of Interest (AOI) **Soil Map** Soil Data Explorer Download Soils Data Shopping Cart (Free)

Printable Version Add to Shopping Cart

Report - Map Unit Description

Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties

31A—Deschutes sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2464
 Elevation: 2,500 to 4,000 feet
 Mean annual precipitation: 10 to 12 inches
 Mean annual air temperature: 47 to 50 degrees F
 Frost-free period: 70 to 90 days
 Farmland classification: Prime farmland if irrigated

Map Unit Composition

Deschutes and similar soils: 85 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

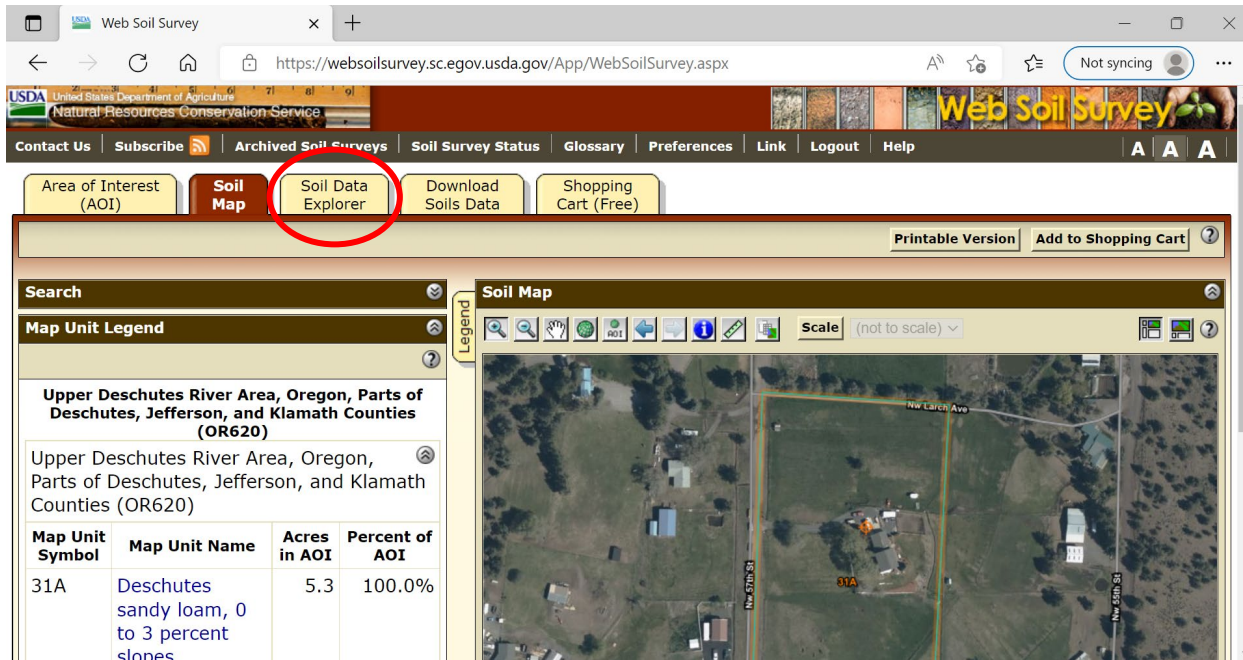
Description of Deschutes Setting

Landform: Lava plains
 Landform position (two-dimensional): Summit
 Landform position (three-dimensional): Interfluvium
 Down-slope shape: Linear
 Across-slope shape: Linear
 Parent material: Volcanic ash over basalt

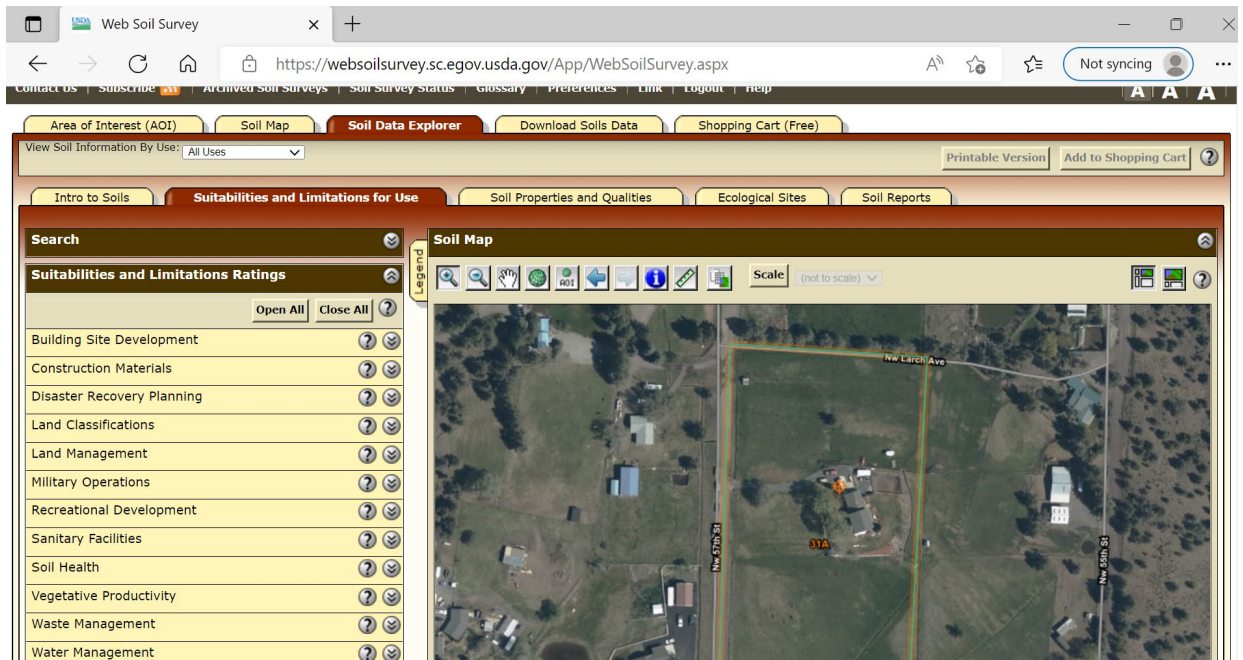
Typical profile

H1 - 0 to 7 inches: sandy loam
 H2 - 7 to 17 inches: sandy loam

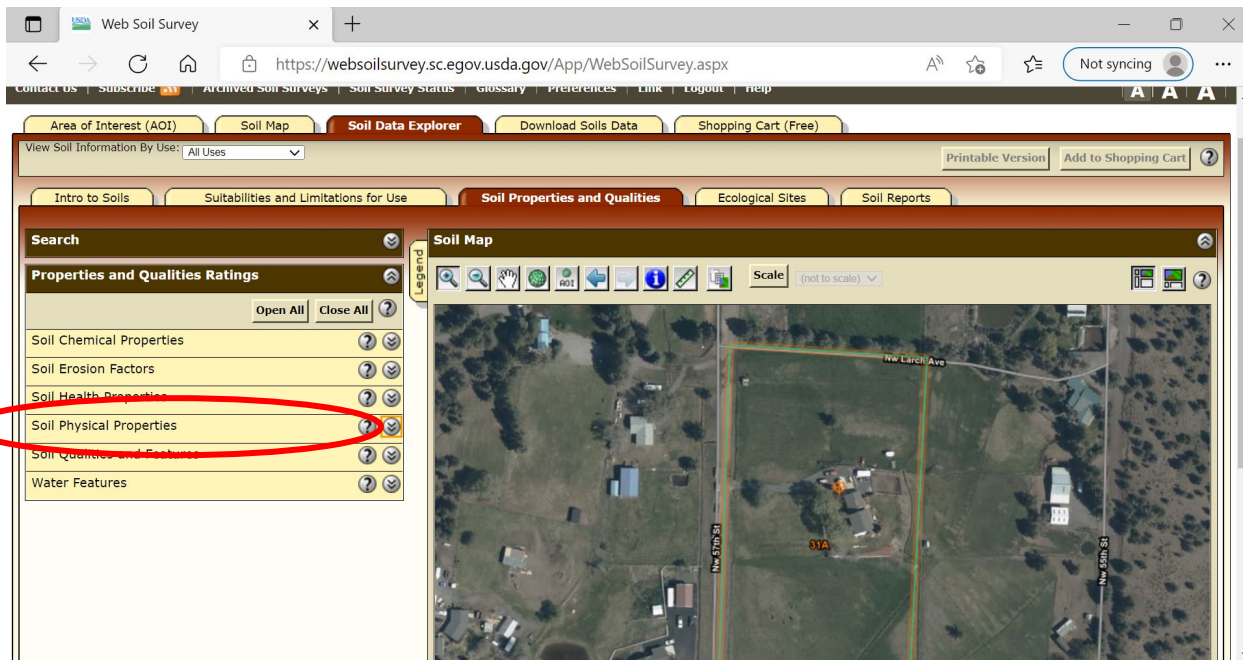
Click on the map unit name to get the detailed soil description.



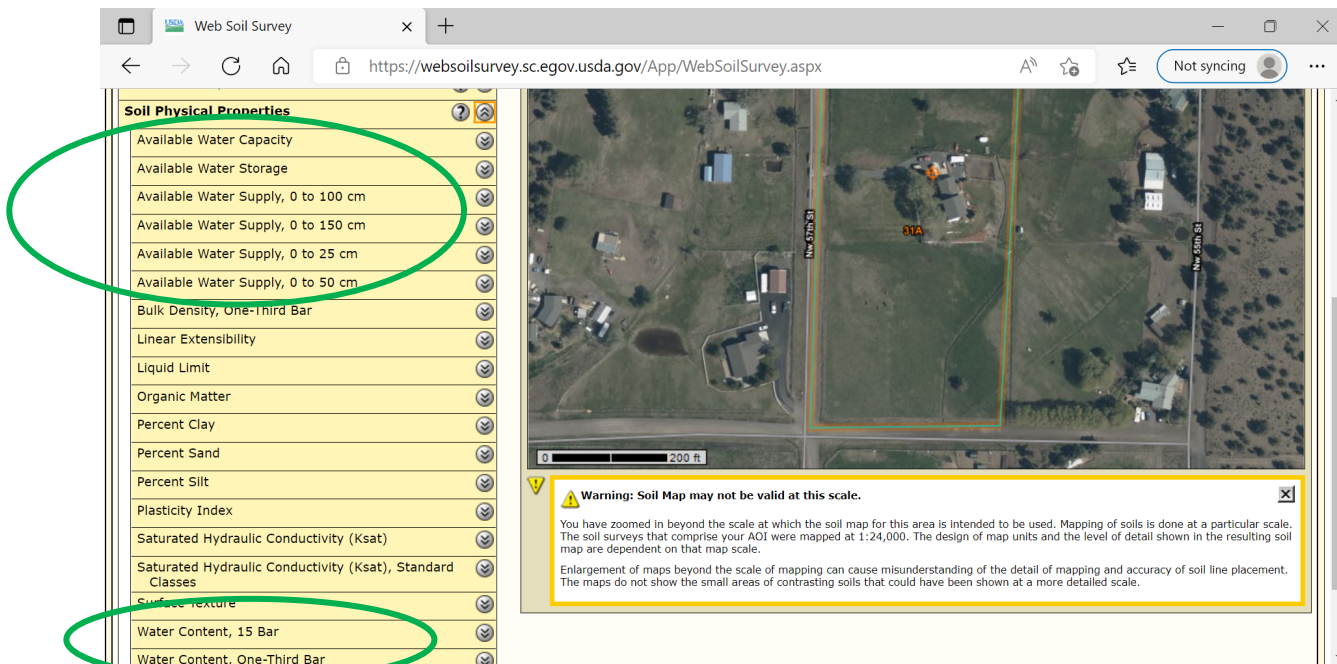
Click on Soil Data Explorer to access the soil properties tabs.



Select the "Suitability and Limitations For Use" tab to access a variety of productivity and suitability data.



Select the “Soil Properties and Qualities” Tab to access the physical properties of the soil. This is where irrigation water management (IWM) information about the soil is housed.



The above tabs are used for IWM scheduling.

Available Water Capacity (AWC) - The quantity of water that the soil is capable of storing for use by plants.

The screenshot shows the Web Soil Survey interface with the following settings and results:

- Rating Options:** Detailed Description
- Advanced Options:**
 - Aggregation Method: Dominant Component
 - Component Percent Cutoff: [Empty]
 - Tie-break Rule: Lower, Higher
 - Interpret Nulls as Zero: Yes, No
 - Layer Options (Horizon Aggregation Method):
 - Surface Layer (Not applicable)
 - Depth Range (Weighted Average)
 - Top Depth: 0
 - Bottom Depth: 39
 - Inches
 - Centimeters
 - All Layers (Weighted Average)

Tables — Available Water Capacity — Summary By Map Unit

Summary by Map Unit — Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties (OR620)

Map unit symbol	Map unit name	Rating (centimeters per centimeter)	Acres in AOI	Percent of AOI
31A	Deschutes sandy loam, 0 to 3 percent slopes	0.12	5.0	100.0%
Totals for Area of Interest			5.0	100.0%

Description — Available Water Capacity

Available water capacity (AWC) refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in centimeters of water per centimeter of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure, with corrections for salinity and rock fragments. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. It is

Available Water Storage (AWS) - Total volume of water (in centimeters) that should be available to plants when the soil, inclusive of rock fragments, is at field capacity.

The screenshot shows the Web Soil Survey interface with the following settings and results:

- Map:**
- Table:**
- Description of Rating:**
- Rating Options:** Detailed Description
- Advanced Options:**
 - Aggregation Method: Weighted Average
 - Component Percent Cutoff: [Empty]
 - Tie-break Rule: Lower, Higher
 - Interpret Nulls as Zero: Yes, No
 - Layer Options (Horizon Aggregation Method):
 - Surface Layer (Not applicable)
 - Depth Range (Weighted Sum)
 - Top Depth: 0
 - Bottom Depth: 39
 - Inches
 - Centimeters
 - All Layers (Weighted Sum)

Tables — Available Water Storage — Summary By Map Unit

Summary by Map Unit — Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties (OR620)

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
31A	Deschutes sandy loam, 0 to 3 percent slopes	9.48	5.0	100.0%
Totals for Area of Interest			5.0	100.0%

Description — Available Water Storage

Available water storage (AWS) is the total volume of water (in centimeters) that should be available to plants when the soil, inclusive of rock fragments,

Don't forget to convert centimeters to inches (3.7 inch)

Available Water Storage (AWS) 0 to 100cm (39 in)

The screenshot shows the Web Soil Survey interface. On the left, there are 'View Options' and 'Advanced Options' panels. The 'View Options' panel includes checkboxes for 'Map', 'Table', 'Description of Rating', and 'Rating Options', with a 'Detailed Description' checkbox that is unchecked. The 'Advanced Options' panel includes 'Aggregation Method' (No Aggregation Necessary) and 'Tie-break Rule' (Lower and Higher radio buttons). Below these are buttons for 'View Description' and 'View Rating'. A list of soil properties is shown with expand/collapse icons: Available Water Supply, 0 to 150 cm; Available Water Supply, 0 to 25 cm; Available Water Supply, 0 to 50 cm; Bulk Density, One-Third Bar; Linear Extensibility; Liquid Limit; and Organic Matter.

The main map area shows an aerial view with a red-shaded polygon representing the Area of Interest (AOI). A scale bar indicates 200 feet. A warning message is displayed over the map:

Warning: Soil Ratings Map may not be valid at this scale.
 You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:24,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.
 Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Below the map is a table titled 'Tables — Available Water Supply, 0 to 100 cm — Summary By Map Unit'. The table provides a summary by map unit for the Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties (OR620).

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
31A	Deschutes sandy loam, 0 to 3 percent slopes	9.48	5.0	100.0%
Totals for Area of Interest			5.0	100.0%

Below the table is a section titled 'Description — Available Water Supply, 0 to 100 cm'.

Don't forget to convert centimeters to inches (3.7 inch)

12in = 30 cm 24in = 61 cm 31in = 79 cm 39in = 100 cm 59in = 150 cm 9in = 25 cm

20in = 50 cm

Water Content 15 Bar - the amount of soil water retained at a tension of 15 bars, expressed as a volumetric percentage of the whole soil material. Water retained at 15 bars is an estimation of the wilting point.

The screenshot shows the USDA Web Soil Survey interface. The left sidebar contains navigation options like 'Classes', 'View Options', and 'Advanced Options'. The main content area displays a summary table for 'Water Content, 15 Bar' and a detailed description.

Tables — Water Content, 15 Bar — Summary By Map Unit

Summary by Map Unit — Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties (OR620)

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
31A	Deschutes sandy loam, 0 to 3 percent slopes	5.0	5.0	100.0%
Totals for Area of Interest			5.0	100.0%

Description — Water Content, 15 Bar

Water content, 15 bar, is the amount of soil water retained at a tension of 15 bars, expressed as a volumetric percentage of the whole soil material. Water retained at 15 bars is significant in the determination of soil water-retention difference, which is used as the initial estimation of available water capacity for some soils. Water retained at 15 bars is an estimation of the wilting point.

Water content varies between soil types, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure.

For each soil layer, water content is recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options — Water Content, 15 Bar

Units of Measure: percent
Aggregation Method: Dominant Component
Component Percent Cutoff: None Specified
Tie-break Rule: Higher
Interpret Nulls as Zero: Yes
Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)
Top Depth: 0
Bottom Depth: 39

This is for a soil 39 inches (100 cm)

Water Content at 1/3 Bar - the amount of soil water retained at a tension of 1/3 bar, expressed as a volumetric percentage of the whole soil. Water retained at 1/3 bar is the value commonly used to estimate the content of water at field capacity for most soils.

The screenshot shows the USDA Web Soil Survey interface for 'Water Content, One-Third Bar'. The layout is similar to the previous screenshot, but the summary table and description are for the 1/3 bar measurement.

Tables — Water Content, One-Third Bar — Summary By Map Unit

Summary by Map Unit — Upper Deschutes River Area, Oregon, Parts of Deschutes, Jefferson, and Klamath Counties (OR620)

Map unit symbol	Map unit name	Rating (percent)	Acres in AOI	Percent of AOI
31A	Deschutes sandy loam, 0 to 3 percent slopes	14.2	5.0	100.0%
Totals for Area of Interest			5.0	100.0%

Description — Water Content, One-Third Bar

Water content, one-third bar, is the amount of soil water retained at a tension of 1/3 bar, expressed as a volumetric percentage of the whole soil. Water retained at 1/3 bar is significant in the determination of soil water-retention difference, which is used as the initial estimation of available water capacity for some soils. Water retained at 1/3 bar is the value commonly used to estimate the content of water at field capacity for most soils.

Water content varies between soil types, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure.

For each soil layer, water content is recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options — Water Content, One-Third Bar

Units of Measure: Inches
Aggregation Method: Dominant Component
Component Percent Cutoff: None Specified
Tie-break Rule: Higher
Interpret Nulls as Zero: Yes
Layer Options (Horizon Aggregation Method): Depth Range (Weighted Average)
Top Depth: 0
Bottom Depth: 39

Total Available Water (TAW) = is the FC (at 1/3 Bar) – Permanent Wilting Point (PWP)

Total available water (TAW) and available water storage (AWS) is the same thing

Example: $14.2\% - 5.0\% = 9.2\%$

$9.2\% \times 39 \text{ in} = 3.6 \text{ inch}$

100