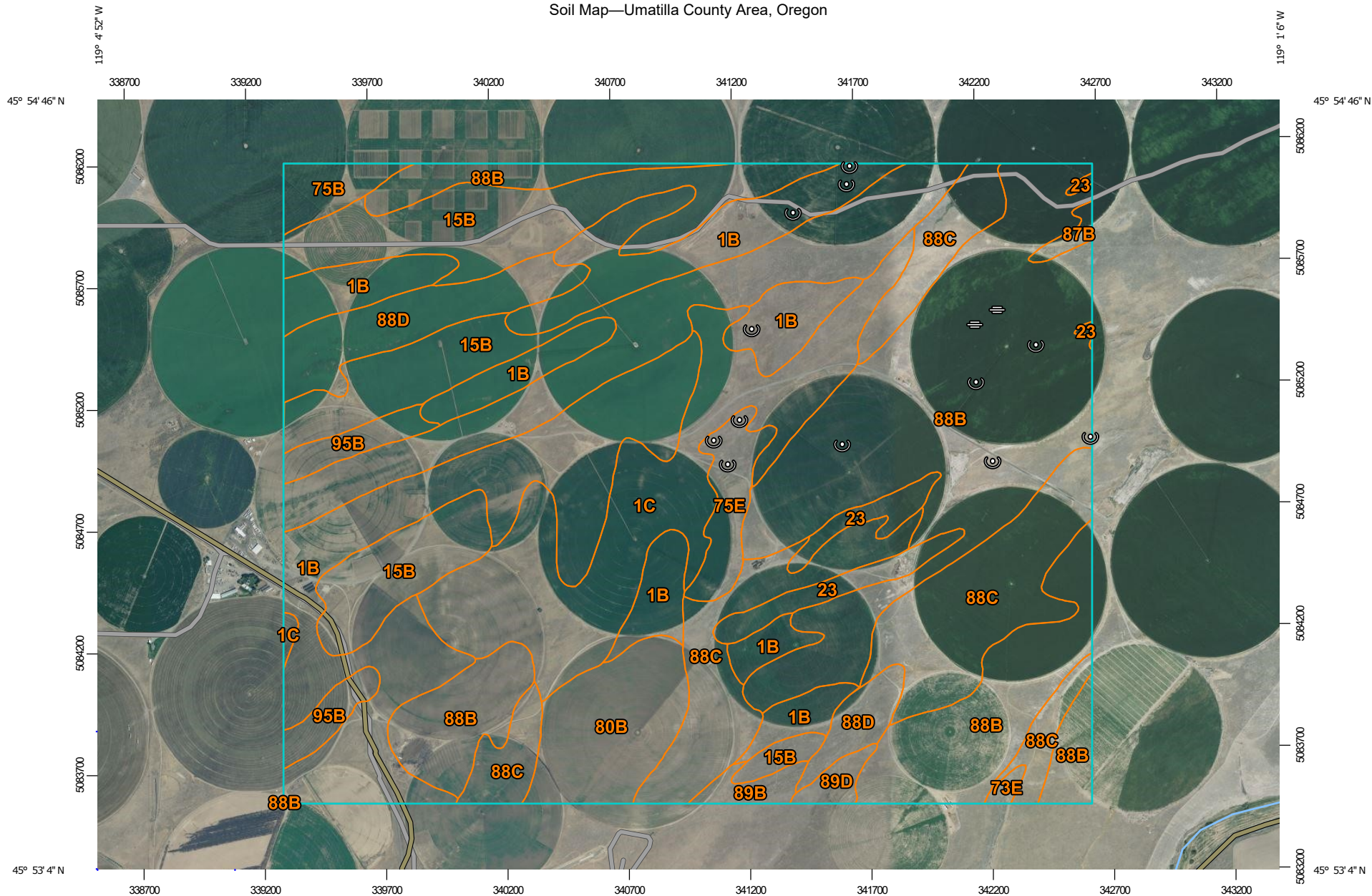
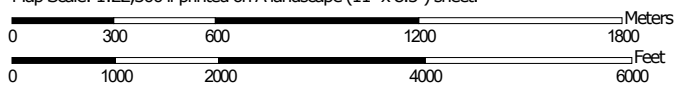


Soil Map—Umatilla County Area, Oregon



Map Scale: 1:22,300 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84



**Natural Resources
Conservation Service**

Web Soil Survey
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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Umatilla County Area, Oregon

Survey Area Data: Version 24, Sep 10, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

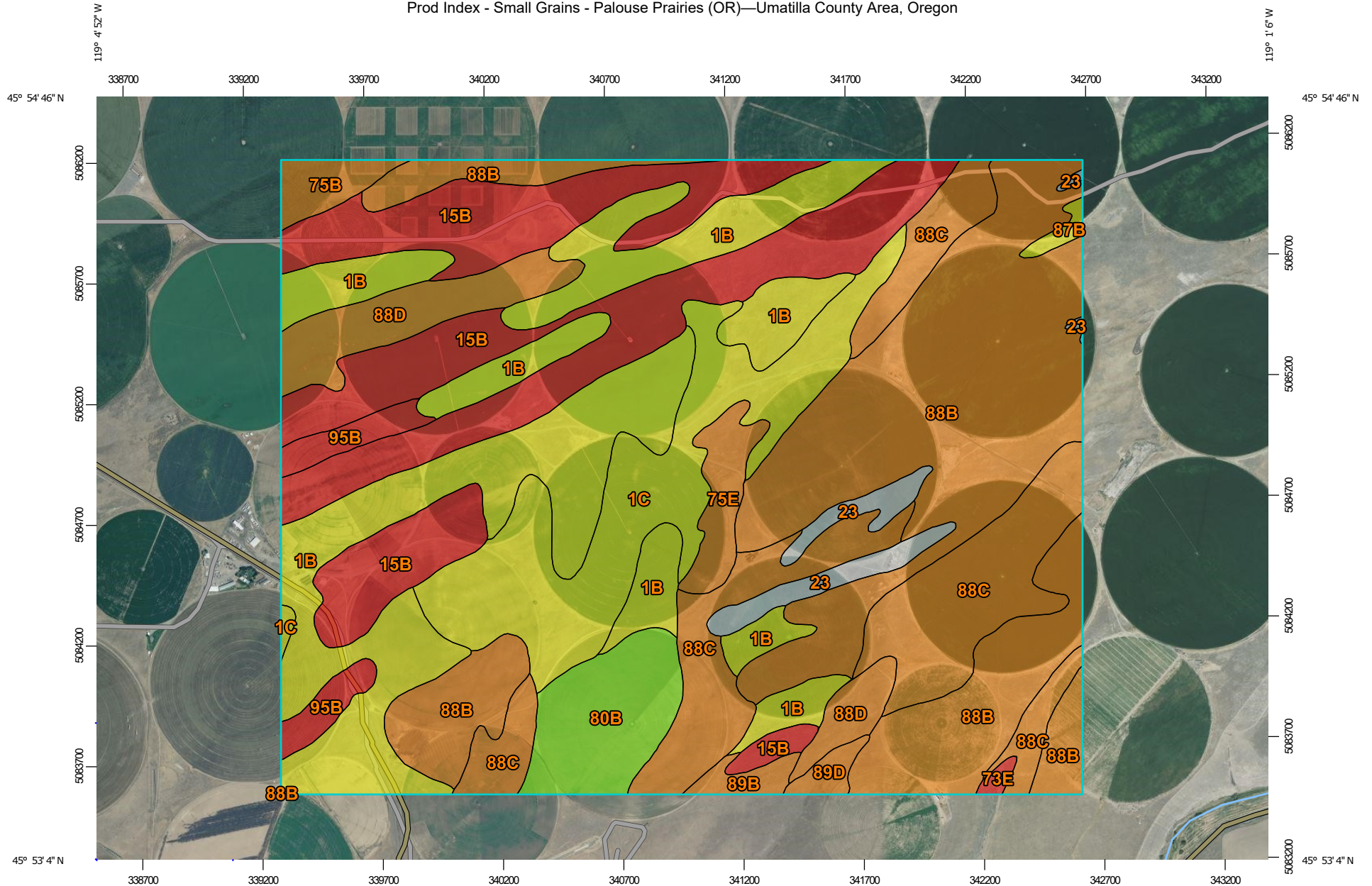
Date(s) aerial images were photographed: Jun 3, 2020—Aug 4, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

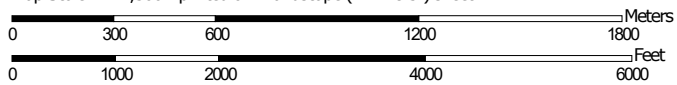
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1B	Adkins fine sandy loam, 0 to 5 percent slopes	439.4	20.2%
1C	Adkins fine sandy loam, 5 to 25 percent slopes	213.6	9.8%
15B	Burke silt loam, 1 to 7 percent slopes	395.5	18.2%
23	Dune land	39.2	1.8%
73E	Prosser silt loam, 20 to 40 percent slopes	3.4	0.2%
75B	Quincy loamy fine sand, 0 to 5 percent slopes	21.1	1.0%
75E	Quincy loamy fine sand, 5 to 25 percent slopes	32.5	1.5%
80B	Ritzville silt loam, 2 to 7 percent slopes	79.9	3.7%
87B	Sagehill fine sandy loam, 2 to 5 percent slopes	5.6	0.3%
88B	Shano very fine sandy loam, 2 to 7 percent slopes	542.2	24.9%
88C	Shano very fine sandy loam, 7 to 12 percent slopes	262.1	12.1%
88D	Shano very fine sandy loam, 12 to 25 percent slopes	83.9	3.9%
89B	Shano silt loam, 2 to 7 percent slopes	12.0	0.6%
89D	Shano silt loam, 12 to 25 percent slopes	9.8	0.5%
95B	Taunton fine sandy loam, 1 to 7 percent slopes	33.2	1.5%
Totals for Area of Interest		2,173.7	100.0%

Prod Index - Small Grains - Palouse Prairies (OR)—Umatilla County Area, Oregon



Map Scale: 1:22,300 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84



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Conservation Service**

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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 Low
 Moderately low
 Moderate
 Moderately high
 High
 Not rated or not available

Soil Rating Lines

 Low
 Moderately low
 Moderate
 Moderately high
 High
 Not rated or not available

Soil Rating Points

 Low
 Moderately low
 Moderate
 Moderately high
 High
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Umatilla County Area, Oregon
 Survey Area Data: Version 24, Sep 10, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2020—Aug 4, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Prod Index - Small Grains - Palouse Prairies (OR)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
1B	Adkins fine sandy loam, 0 to 5 percent slopes	Moderate	Adkins (75%)	Soil climate (0.59)	439.4	20.2%
				Chemical properties (0.88)		
				Plant water (0.92)		
1C	Adkins fine sandy loam, 5 to 25 percent slopes	Moderate	Adkins (75%)	Soil climate (0.59)	213.6	9.8%
				Landscape factors (0.85)		
				Chemical properties (0.88)		
				Plant water (0.92)		
15B	Burke silt loam, 1 to 7 percent slopes	Low	Burke (75%)	Soil climate (0.59)	395.5	18.2%
				Chemical properties (0.61)		
				Plant water (0.65)		
				Physical properties (0.69)		
23	Dune land	Not rated	Dune land (70%)		39.2	1.8%
73E	Prosser silt loam, 20 to 40 percent slopes	Low	Prosser (80%)	Landscape factors (0.30)	3.4	0.2%
				Plant water (0.47)		
				Physical properties (0.50)		
				Soil climate (0.59)		
				Chemical properties (0.74)		
75B	Quincy loamy fine sand, 0 to 5 percent slopes	Moderately low	Quincy (85%)	Soil climate (0.59)	21.1	1.0%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Chemical properties (0.68)		
				Plant water (0.70)		
				Physical properties (0.90)		
75E	Quincy loamy fine sand, 5 to 25 percent slopes	Moderately low	Quincy (65%)	Soil climate (0.59)	32.5	1.5%
				Chemical properties (0.68)		
				Plant water (0.70)		
				Landscape factors (0.85)		
				Physical properties (0.90)		
80B	Ritzville silt loam, 2 to 7 percent slopes	Moderately high	Ritzville (85%)	Soil climate (0.72)	79.9	3.7%
				Chemical properties (0.88)		
87B	Sagehill fine sandy loam, 2 to 5 percent slopes	Moderate	Sagehill (85%)	Soil climate (0.59)	5.6	0.3%
				Chemical properties (0.72)		
				Physical properties (0.99)		
				Landscape factors (0.99)		
88B	Shano very fine sandy loam, 2 to 7 percent slopes	Moderately low	Shano (80%)	Soil climate (0.59)	542.2	24.9%
				Chemical properties (0.65)		
88C	Shano very fine sandy loam, 7 to 12 percent slopes	Moderately low	Shano (75%)	Soil climate (0.59)	262.1	12.1%
				Chemical properties (0.65)		
				Landscape factors (0.94)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
88D	Shano very fine sandy loam, 12 to 25 percent slopes	Moderately low	Shano (65%)	Soil climate (0.59)	83.9	3.9%
				Chemical properties (0.65)		
				Landscape factors (0.73)		
89B	Shano silt loam, 2 to 7 percent slopes	Moderately low	Shano (80%)	Soil climate (0.59)	12.0	0.6%
				Chemical properties (0.65)		
89D	Shano silt loam, 12 to 25 percent slopes	Moderately low	Shano (70%)	Soil climate (0.59)	9.8	0.5%
				Chemical properties (0.65)		
				Landscape factors (0.73)		
95B	Taunton fine sandy loam, 1 to 7 percent slopes	Low	Taunton (80%)	Plant water (0.41)	33.2	1.5%
				Chemical properties (0.56)		
				Soil climate (0.59)		
				Physical properties (0.68)		
				Landscape factors (1.00)		
Totals for Area of Interest					2,173.7	100.0%

Rating	Acres in AOI	Percent of AOI
Moderately low	963.6	44.3%
Moderate	658.7	30.3%
Low	432.2	19.9%
Moderately high	79.9	3.7%
Null or Not Rated	39.2	1.8%
Totals for Area of Interest	2,173.7	100.0%

Description

This interpretation provides a crop productivity index (CPI) for nonirrigated small grains, principally wheat and barley, for the Palouse and Nez Perce Prairies in Northern Idaho, Eastern Washington, and Northeastern Oregon (Major Land Resource Area 9).

The CPI consists of a numerical value that range from 0.00 to 1.00. The greater the CPI value, the higher is the predicted productivity for small grains. A narrative rating is also assigned, based on the CPI value as follows:

Low - less than or equal to 0.20

Moderately low - 0.21 to 0.40

Moderate - 0.41 to 0.60

Moderately high - 0.61 to 0.80

High - greater than or equal to 0.81

The criteria for the small grains crop productivity index were developed by a team of soil scientists and agronomists familiar with the soils, crops, and crop production practices in Major Land Resource Area 9. The team used the framework of the National Commodity Crop Productivity Index (NCCPI) as a starting point, and modified it for local soil and climatic conditions. More information on the NCCPI is available at:

ftp://ftp-fc.sc.egov.usda.gov/NSSC/NCCPI/NCCPI_user_guide.pdf

The criteria for the small grains crop productivity index are grouped into five categories: soil physical properties, soil chemical properties, climate, landscape, and soil water.

Soil physical properties include bulk density, saturated hydraulic conductivity, linear extensibility, rock fragment content, and depth to root-restricting layers.

Soil chemical properties include organic matter content, sodium adsorption ratio, electrical conductivity, pH, and cation exchange capacity.

Climate properties include the number of frost-free days, and mean annual precipitation.

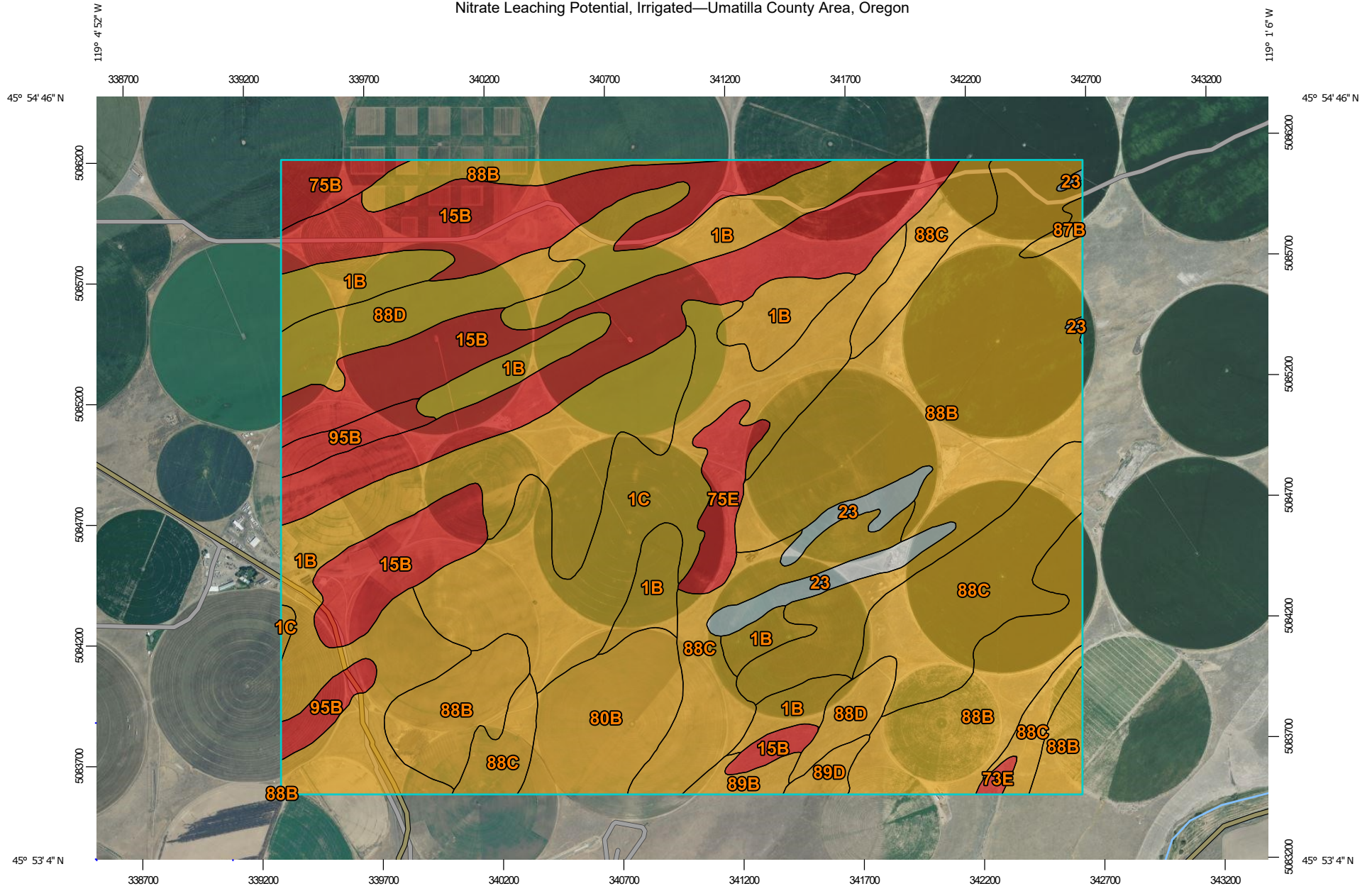
Landscape criteria include steepness of slope, stones and boulders on the soil surface, depth and duration of the water table during the growing season, flooding frequency and duration during the growing season, and ponding frequency and duration during the growing season.

The soil water criterion is based on the available water capacity.

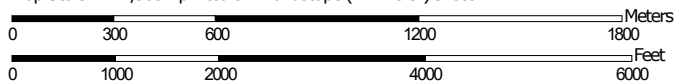
Rating Options

Aggregation Method: Dominant Condition

Nitrate Leaching Potential, Irrigated—Umatilla County Area, Oregon



Map Scale: 1:22,300 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84



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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 High
 Moderately high
 Moderate
 Low
 Not rated or not available

Soil Rating Lines

 High
 Moderately high
 Moderate
 Low
 Not rated or not available

Soil Rating Points

 High
 Moderately high
 Moderate
 Low
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways

 US Routes
 Major Roads
 Local Roads
Background
 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Umatilla County Area, Oregon
 Survey Area Data: Version 24, Sep 10, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 3, 2020—Aug 4, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Nitrate Leaching Potential, Irrigated

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
1B	Adkins fine sandy loam, 0 to 5 percent slopes	Moderately high	Adkins (75%)	Water travel time (0.82)	439.4	20.2%
				Water holding capacity (0.10)		
1C	Adkins fine sandy loam, 5 to 25 percent slopes	Moderately high	Adkins (75%)	Water travel time (0.82)	213.6	9.8%
				Water holding capacity (0.10)		
				Slope (0.03)		
15B	Burke silt loam, 1 to 7 percent slopes	High	Burke (75%)	Water travel time (1.00)	395.5	18.2%
				Water holding capacity (0.94)		
23	Dune land	Not rated	Dune land (70%)		39.2	1.8%
73E	Prosser silt loam, 20 to 40 percent slopes	High	Prosser (80%)	Water travel time (1.00)	3.4	0.2%
				Water holding capacity (0.95)		
				Slope (0.19)		
75B	Quincy loamy fine sand, 0 to 5 percent slopes	High	Quincy (85%)	Water travel time (1.00)	21.1	1.0%
				Water holding capacity (0.97)		
75E	Quincy loamy fine sand, 5 to 25 percent slopes	High	Quincy (65%)	Water travel time (1.00)	32.5	1.5%
				Water holding capacity (0.97)		
				Slope (0.01)		
80B	Ritzville silt loam, 2 to 7 percent slopes	Moderately high	Ritzville (85%)	Water travel time (0.82)	79.9	3.7%
87B	Sagehill fine sandy loam, 2 to 5 percent slopes	Moderately high	Sagehill (85%)	Water travel time (0.93)	5.6	0.3%
88B	Shano very fine sandy loam, 2 to 7 percent slopes	Moderately high	Shano (80%)	Water travel time (0.82)	542.2	24.9%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
88C	Shano very fine sandy loam, 7 to 12 percent slopes	Moderately high	Shano (75%)	Water travel time (0.82)	262.1	12.1%
88D	Shano very fine sandy loam, 12 to 25 percent slopes	Moderately high	Shano (65%)	Water travel time (0.82)	83.9	3.9%
				Slope (0.06)		
89B	Shano silt loam, 2 to 7 percent slopes	Moderately high	Shano (80%)	Water travel time (0.82)	12.0	0.6%
89D	Shano silt loam, 12 to 25 percent slopes	Moderately high	Shano (70%)	Water travel time (0.82)	9.8	0.5%
				Slope (0.06)		
95B	Taunton fine sandy loam, 1 to 7 percent slopes	High	Taunton (80%)	Water travel time (1.00)	33.2	1.5%
				Water holding capacity (0.95)		
Totals for Area of Interest					2,173.7	100.0%

Rating	Acres in AOI	Percent of AOI
Moderately high	1,648.6	75.8%
High	485.7	22.3%
Null or Not Rated	39.2	1.8%
Totals for Area of Interest	2,173.7	100.0%

Description

This interpretation is designed to evaluate the potential for nitrate-nitrogen to be transmitted through the soil profile below the root zone by percolating water under irrigated conditions. Leaching nitrates have the potential to contaminate shallow and deep aquifers used for drinking water. The ratings are based on inherent soil and climate properties that affect nitrate leaching and do not account for management practices, such as crop rotation, rates and timing of nitrogen fertilizer applications, and management of irrigation water.

The following soil and climate factors are used in the interpretation criteria:

1. Mean annual precipitation minus potential evapotranspiration - This factor provides an estimate of the amount of water that is available to move through the soil profile on an annual basis from precipitation. Potential evaporation is estimated from mean annual air temperature using an algorithm (developed by the National Soil Survey Center) that employs the Hamon potential evapotranspiration method.
2. Water travel time through the entire soil profile - This factor uses the saturated hydraulic conductivity (Ksat) and thickness of each soil horizon to estimate the number of hours that would be required for a given volume of water to move through the entire soil profile. One advantage of this method for estimating the rate of water movement is that the properties and thickness of each soil horizon are accounted for instead of using an average saturated hydraulic conductivity for the entire profile. This method accounts for subtle differences between soils in texture, structure, horizon thickness, and depth to water-restricting layers.
3. Available water capacity - This factor accounts for the cumulative amount of water available to plants that the entire soil profile can hold at field capacity to a depth of 150 cm. The more water the soil profile can hold, the less water is available for deep leaching.
4. Depth to and duration of a water table - This factor uses a water table index based on the minimum average depth to a water table and the number of months that the water table is present during the period from April through October. The factor is used to account for the loss of nitrates to the atmosphere as nitrous oxide or nitrogen gas due to denitrification under anaerobic conditions caused by water saturation. The higher the water table and the longer its duration, the larger the quantity of nitrates that would potentially be lost to the atmosphere and therefore would not be available for deep leaching.
5. Slope gradient adjusted for hydrologic soil group - The steeper the slope gradient, the higher the potential for surface runoff and the lower the amount of water available to move through the soil profile. The following adjustments are made to the slope gradient by hydrologic group to account for differences in potential for surface runoff:

Hydrologic group A-slope % $\times 0.75$

Hydrologic group B-slope % $\times 0.85$

Hydrologic group C-slope % x 0.95

Hydrologic group D-no adjustment

The ratings are both verbal and numerical. The ratings for Nitrate Leaching Potential, Irrigated Areas, are calculated as follows:

1. The Water Travel Time subrule is weighted by multiplying by 0.60.
2. The Available Water Capacity subrule is weighted by multiplying by 0.40.
3. The sum of these two weighted subrules results in a value between 0.00 and 1.00.
4. Adjustments are then made for water table depth and duration and for slope gradient adjusted for hydrologic group. The sum of the values from these subrules is subtracted from the sum in step 3 above. The maximum reduction is 0.50 for the water table index subrule and 0.30 for the slope gradient subrule.
5. A final positive adjustment is made for the Mean Annual Precipitation minus Potential Evapotranspiration subrule. The maximum addition is 0.60.

The following rating classes for Nitrate Leaching Potential, Irrigated, are assigned based on the final calculation from the factors above:

Low: 0.00 to 0.25

Moderate: 0.26 to 0.50

Moderately high: 0.51 to 0.75

High: 0.76 to 1.00

The ratings indicate the potential for nitrate leaching below the root zone, based on inherent soil and climate properties and application of irrigation water. A "low" rating indicates a low potential for leaching of nitrates below the root zone. A "high" rating indicates a high potential for leaching of nitrates below the root zone. The "moderate" and "moderately high" ratings indicate intermediate potential.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.