

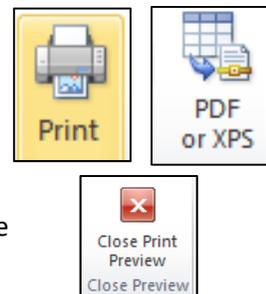
Instructions: Pacific Northwest Cover Crop Selection Tool, Version 1

March 2016

Purpose: The Pacific Northwest Cover Crop Selection Tool is a guide in helping you, as a planner or landowner, select cover crop species adapted to your climate, soils, and your intended cover crop purpose.

General Instructions for using the Pacific Northwest Cover Crop Selection Tool:

- Make selections for environmental conditions using the drop-down lists. The first 8 selection criteria and Purpose 1 are required, but Purposes 2, 3, and 4 are optional.
- After selections have been made, click the buttons on the right to generate reports. This tool has the ability to generate four reports to help with the final selection, planning and implementation phases of establishing a cover crop. The reports available are listed below. All reports contain the list of species that meet the selected criteria, and the following information:
 - **Cover Crop Adapted Species and Selected Purposes Rating Report**
 - Ratings (good, fair, poor) for each purpose selected by the user
 - **Cover Crop Adapted Species and All Purposes Rating Report**
 - Ratings (good, fair, poor) for all purposes embedded in the tool
 - **Cover Crop Adapted Species and Plant Properties Report**
 - Crop Type
 - Root Type
 - Plant Duration
 - C:N Ratio
 - Water Use
 - **Cover Crop Adapted Species and Seeding Information Report**
 - Seeds per Pound
 - Seeding Depth Min and Max
 - Seeding Rate Min and Max
- All reports can be run simultaneously by clicking the “Run all Reports” button. Each report will be visible by clicking on the tabs at the top.
- The reports open in **Print Preview** mode. The reports can be printed directly from Access, or a PDF electronic file of the report can be created using these Access buttons:
- **Note:** To change your choices for any parameters, click on the **Close Print Preview** button to return to the main form. Choice list entries can then be changed and new reports generated. There are also buttons to **Clear all Selections** and **Clear Purposes 2-4**.



- If there are no plants that meet the selected soil and site properties and primary use, the report displays the following:

Suitable Cover Crop Species and Purpose Ratings				
8/18/2014				
Precipitation Zone:		Soil Drainage Class:		
Planting Season:		Soil pH Class:		
Winter Kill:		Soil Salinity Class:		
Hardiness Zone:		Flooding Class:		
If the report is empty, there are no cover crop plants that are suitable based on the selected soil and site conditions and primary purpose.				
Plant Name	Purpose 1:	Purpose 2:	Purpose 3:	Purpose 4:

Instructions for making selections in the Pacific Northwest Cover Crop Selection Tool:

1. **Precipitation Zone** – From the drop-down menu, choose the precipitation zone where the cover crop will be planted, or if it will be irrigated, choose “Irrigated”. If you do not know your precipitation zone, see the Soil Survey instructions below.
2. **Plant Type** – From the drop-down menu, choose the type of plant you plan to grow (cool or warm season species). If you would like to grow a mixture of cool and warm season species, or are unsure about the season, select “Both Cool and Warm Season”.
3. **Overwinter?** – From the drop-down menu, choose whether you want the cover crop to grow over the winter (“yes”) or be terminated by winter killing (“no”). If you are growing a cover crop in the warm season and plan to terminate it by some other method (spray, tillage, etc.), select “N/A – grown within frost-free period”.
4. **Hardiness Zone** – From the drop-down menu, choose the USDA Plant Hardiness Zone for the region where the cover crop will be planted. Plant Hardiness Zone maps for Idaho, Oregon, and Washington are available on the Cover Crop Selection tool main page. Keep in mind that the life cycle of a cover crop may vary depending on when it is planted, the species/variety of the crop, and the Hardiness Zone where it is grown.
5. **Soil Drainage Class** – From the drop-down menu, choose the appropriate drainage class for the field where the cover crop will be planted. To look up the drainage class, see the Soil Survey instructions below. For the purposes of this tool, “Poorly drained” includes soils rated in the soil survey as *very poorly drained* and *poorly drained*; “Well drained” includes soils rated *somewhat poorly drained*, *moderately well drained*, and *well drained*; and “Excessively drained” includes soils rated as *somewhat excessively drained* and *excessively drained*. Note: If the field is tilled, you can select “Well drained” even if the soil map says it is poorly drained. If the soil is rated as excessively drained, but you plan to irrigate the crop so soil moisture won’t be limiting, select “Excessively drained, irrigated”.
6. **Soil pH Class** – From the drop-down menu, choose the appropriate soil pH class for the field where the cover crop will be planted. Ideally this information should come from a recent soil test of the field. If a test is not available, the pH range can be retrieved from soil survey (see instructions below).

7. **Soil Salinity Class** – From the drop-down menu, choose the soil salinity class for the field where the cover crop will be grown. Soil salinity is affected by management, so this information should also come from a recent soil test of the field. If you don't know the soil salinity, see the Soil Survey instructions below to look up the information for your soil type.
8. **Ponding Class** – From the drop-down menu, choose the appropriate ponding class for the field where the cover crop will be grown. *Ponding* is water standing in a closed depression for short periods after rainfall or snowmelt, or water standing in swamps and marshes. If you do not know the ponding frequency for your field, see the Soil Survey instructions below to look up the information for your soil type.
9. **Purpose** – From the drop-down menu, select the primary purpose for the cover crop that will be grown. Only plants that have a "Good" or "Fair" rating for **Purpose 1** (primary purpose) are displayed in the reports as suitable species. **Purpose 2, 3, and 4** are optional and do not affect species selection, but ratings are displayed in the "Cover Crop Adapted Species and Selected Purpose Ratings" report. The "Cover Crop Adapted Species and **All Purposes** Ratings Report" will display the ratings for all purposes.

Note: If your Purpose for the cover crop is to "Promote Nitrogen Fixation", the specific Rhizobium bacteria for the selected legume(s) must either be already present in the soil (the species was grown on the field in the previous two years and was inoculated) or the seed must be inoculated at the time of planting. For more information on the benefits of legume inoculants, which type to use, and where to purchase them, see **Idaho Technical Note 26: Legume Inoculation** (http://www.nrcs.usda.gov/Internet/FSE_PLANTMATERIALS/publications/idpmstn10092.pdf). Legumes growing in soils with pH less than 5.0 may grow poorly and may not nodulate (thus they will not fix nitrogen), since most species of Rhizobium bacteria generally don't survive in soils below pH 5.0.

Instructions for using **Web Soil Survey** to obtain soil survey information for using the **Cover Crop Selection Tool**:

1. Go to <http://websoilsurvey.nrcs.usda.gov/>. Click the Start WSS button.
2. Create an **Area of Interest** for the fields where a cover crop is being planned.

3. Click on the **Soil Map** tab. The **Map Unit Names** have hotlinks to soil map unit descriptions such as in the example:

Whitman County, Washington (WA075)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
54	Latah silt loam	8.6	4.5%
61	Naff-Garfield complex, 3 to 25 percent slopes	33.5	17.5%
65	Palouse silt loam, 7 to 25 percent slopes	7.0	3.6%

4. Soil Map Unit Description - information on precipitation zone, drainage class, and ponding frequency.

Whitman County, Washington

54—Latah silt loam

Map Unit Setting

National map unit symbol: 29bb
 Elevation: 1,800 to 3,200 feet
 Mean annual precipitation: 18 to 23 inches
 Mean annual air temperature: 40 to 48 degrees F
 Frost-free period: 100 to 135 days
 Farmland classification: Prime farmland if drained

Map Unit Composition

Latah and similar soils: 100 percent

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

Description of Latah

Setting

Landform: Drainageways
 Parent material: Alluvium from loess and ash

Typical profile

H1 - 0 to 19 inches: silt loam
 H2 - 19 to 30 inches: silt loam
 H3 - 30 to 60 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
 Depth to restrictive feature: More than 80 inches
 Natural drainage class: Somewhat poorly drained
 Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
 Depth to water table: About 6 to 30 inches
 Frequency of flooding: Frequent
 Frequency of ponding: None
 Available water storage in profile: High (about 10.4 inches)

- Click on the **Soil Data Explorer** tab then the **Soil Reports** tab. The **Map Unit Description** report can be used to generate a description for all the soil map units in the **Area of Interest**.



- Under the **Soil Reports** tab, select the **Soil Chemical Properties** category and run the **Chemical Soil Properties** report. This report provides information **on Soil reaction (pH)** and **Salinity**. For cover crops, the data for the surface layer would generally be the most important.

Report – Chemical Soil Properties							
Whitman County, Washington							
Map symbol and soil name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate	Gypsum	Salinity
	<i>In</i>	<i>meq/100g</i>	<i>meq/100g</i>	<i>pH</i>	<i>Pct</i>	<i>Pct</i>	<i>mmhos/cm</i>
54—Latah silt loam							
Latah	0-19	10-20	—	6.6-7.8	0	0	0
	19-30	10-20	—	6.6-7.8	0	0	0
	30-60	15-25	—	6.6-7.8	0	0	0

- Under the **Soil Reports** tab, select the **Water Features** category and run the **Water Features** report. This report provides information on the months that ponding is most likely to occur and frequency.

Report – Water Features								
Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.								
Whitman County, Washington								
Map unit symbol and soil name	Hydrologic group	Surface runoff	Month	Water table		Ponding		
				Upper limit	Lower limit	Surface depth	Duration	Frequency
				<i>Ft</i>	<i>Ft</i>	<i>Ft</i>		
33—Emdent silt loam								
Emdent	B/D	—	January	0.0	>6.0	0.0-0.5	Long (7 to 30 days)	Frequent
			February	0.0	>6.0	0.0-0.5	Long (7 to 30 days)	Frequent
			March	0.0	>6.0	0.0-0.5	Long (7 to 30 days)	Frequent
			April	0.0	>6.0	0.0-0.5	Long (7 to 30 days)	Frequent
			May	0.0	>6.0	0.0-0.5	Long (7 to 30 days)	Frequent
			June	0.0	>6.0	0.0-0.5	Long (7 to 30 days)	Frequent