

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION RESERVE PROGRAM**

NATIVE PALOUSE PRAIRIE RESTORATION (CP-25) PLANTINGS

PURPOSE

- To reduce wind and water erosion on cropland occurring in the Washington Palouse Prairie region.
- To generate a native plant community that will provide food and cover for wildlife.
- To recreate a functioning plant community that is self-sustaining and resilient.
- To generate a seed source of native plants for adjacent sites.

CONDITIONS WHERE PRACTICE APPLIES

The CP25 Restoration of Native Palouse Prairie practice applies to cropland in southeastern Washington that is mapped as Steppe vegetation habitat. The Palouse Prairie steppe can be broken into 2 plant community associations: 1) Bluebunch Wheatgrass – Idaho Fescue association that occurs in the drier, west-side of the Palouse, and 2) Idaho Fescue – Snowberry association that occurs on the moister, east-side of the Palouse. Table 1 provides a rough breakdown of plant species associated with the two zones. The drier Bluebunch Wheatgrass – Idaho Fescue community is dominated by these two grasses and forbs are interspersed throughout the stand. Shrubs are minor components.

The moister Idaho Fescue – Snowberry community has a much larger forb component. Bluebunch wheatgrass is common and is mostly comprised of the rhizomatous ecotype. Snowberry and wild rose occurrences are high but tend to make-up a minor portion of the total canopy. Large shrubs such as Douglas hawthorn are common on north slopes.

CRITERIA

This practice is applicable in cropland that has been properly enrolled and accepted into the Conservation Reserve Program.

CONSIDERATIONS

Restoring native Palouse prairie can be a daunting task if not properly implemented. There are many factors that must be considered beyond species selection. Restoration plantings begin with the management of the previous crop. Successful installation of plantings should not be viewed as the end to the process. Weed control will be needed for at least an additional year after establishment of the restoration plantings.

Previous Crop:

The previous crop can impact restoration plantings. Heavy crop residues must be reduced to improve depth of seed placement and improve seed to soil contact. Fall plowing, baling straw, and field burning in some cases are tools available to growers. Weeds and volunteer grain must be considered when planning a planting.

Seeding:

Four planting scenarios are listed along with seeding techniques. Producers should not employ practices that are HIGH risk.

1. FALL PLOW & SPRING SOW-

- Fall plowing buries trash and improves decomposition
 - Spring seedbed preparation can commence earlier in the spring
 - Vegetative cover for rodents is destroyed
 - Weeds are greatly reduced
 - Soil erosion can be a hazard
- ⇒ **Double-disk openers with depth bands.** Relatively LOW risk.
- ⇒ **Double-disk openers without depth bands** will require careful adjustment of press wheels to control seeding depth. Relatively MODERATE risk.
- ⇒ **Broadcast seeding** will require doubling the seeding rate. Harrowing improves seed to soil contact but can result in deep burial of seed. Relatively MODERATE risk.
- ⇒ **Hoe openers** should be discouraged because inadequate control of seed depth placement. Relatively MODERATE risk.

2. FALL CHISEL & SPRING SOW-

- Erosion hazard is reduced
 - Trash decomposition will be incomplete and may interfere with seeding
 - Vegetative cover for rodents is reduced
- ⇒ **Double-disk openers with depth bands.** Relatively LOW risk.
- ⇒ **Double-disk openers without depth bands** will require careful adjustment of press wheels to control seeding depth . Relatively MODERATE risk.
- ⇒ **Broadcast seeding** will require doubling the seeding rate. Harrowing improves seed to soil contact but can result in deep burial of seed. Relatively MODERATE risk.
- ⇒ **Hoe openers** should be discouraged because inadequate control of seed depth placement. Relatively MODERATE risk.

3. SPRING GLYPHOSATE & DIRECT DRILL-

- Standing crop residue will reduce erosion hazard
- Trash will interfere with drill operation
- Glyphosate applications must be delayed until after a good flush of spring weeds
- Vegetative cover for rodents is maintained

⇒ **Double-disk openers with depth bands.** Relatively LOW - MODERATE risk.

⇒ **Double-disk openers without depth bands** will require careful adjustment of press wheels to control seeding depth. Relatively LOW – MODERATE risk.

⇒ **Broadcast seeding** will require doubling the seeding rate. Harrowing improves seed to soil contact but can result in deep burial of seed. Relatively HIGH risk.

⇒ **Hoe openers** should be discouraged because inadequate control of seed depth placement. Relatively MODERATE - HIGH risk.

4. SPRING GLYPHOSATE, BURN & DIRECT DRILL-

- Standing residue protects soil during the winter months
- Dense patches of crop residue are destroyed in the spring
- Glyphosate applications must be delayed until after a good flush of spring weeds
- Vegetative cover for rodents is maintained

⇒ **Double-disk openers with depth bands.** Relatively LOW risk.

⇒ **Double-disk openers without depth bands** will require careful adjustment of press wheels to control seeding depth. Relatively LOW risk.

⇒ **Broadcast seeding** will require doubling the seeding rate. Harrowing improves seed to soil contact but can result in deep burial of seed. Relatively HIGH risk.

⇒ **Hoe openers** should be discouraged because inadequate control of seed depth placement. Relatively MODERATE – HIGH risk.

Fall Seeding perennial grasses is not commonly practiced in the Palouse. Cool fall temperatures limit seedling growth and winterkill can be high. Native forbs of the Palouse frequently require a period of cold stratification for good germination. A fall seeding satisfies this cold requirement.

Separate grass and forb seeding operations are neither practical nor economical. Consequently the NRCS is recommending that forbs and shrubs should be added as transplants with the exception of Lewis flax, western yarrow and lupine. These three

species lack a cold stratification requirement and can be easily established with spring grass seedings.

Seeding Rate:

The seeding rates for establishing native Palouse Prairie are generally higher than conventional CRP seedings. The grass species that occur in Palouse prairie are poor reseeder so thin stands rarely fill-in. Perennial weeds quickly fill the voids in thin stands and the process of establishing a restoration planting must be reinstated. The cost of removing a weak stand and replanting will exceed the cost of a heavy seeding rate in the initial planting.

Transplanting:

Seed of native forbs and legumes can be very expensive and in very short supply. Transplanting live forbs and/or legumes enables participants to increase the species diversity of their plantings without investing in large amounts of seed. Transplanting should occur soon after seeding of the grass component. Waiting a year after grass establishment does offer some broadleaf weed control options but research has shown that transplant survival and growth is compromised.

Transplants should be disbursed throughout the planting and sites with favorable soil moisture should be emphasized. Transplants require a long root system (minimum 5-inches) and a minimum of a 1:1 root:shoot ratio. Root volumes less than 8 cubic inches are discouraged. If transplanting occurs one year after seeding of the grasses, then all competing vegetation within 1-foot radius needs to be controlled for each transplant. A listing of species appropriate for transplanting is provided.

Species Selection:

The Palouse prairie is composed of many species. Unfortunately many of the species are not commercially available. The Washington NRCS recognizes the fact that local, endemic plant germplasm is more desirable for “true” restoration plantings. However, native plant cultivars shall be satisfactory for CP-25 plantings because: 1) seed is readily available, 2) they have performed well in similar plantings for many years, and 3) the seed is not overly costly. Consult the attached listing of seed mixes that are best suited for your planting.

Table 1. Percent canopy coverage of steppe species occurring along a moisture gradient in the Palouse Prairie zone as described by R. Daubenmire (1966) ¹.

Species	Bluebunch Wheatgrass - Idaho Fescue Association					Idaho Fescue- Snowberry Association				
Plantago patagonica	3	7	2	2						
Phlox longifolia		1	3	1	5	1				
Astragalus spaldingii			6	2	13					
Poa sandbergii	19	39	16	23	45	2	2			
Achillea millefolium	1	2	3	1		22	10	6	9	25 25
Agropyron spicatum	42	77	33	34	71	79	57	-	77	78 78
Festuca idahoensis	29	7	71	75	8	81	30	41	35	40 40
Senecio integerrimus							2	8	3	2
Myrsotis micrantha						2				5 5
Haplopappus liatrifolius						10	8			
Koeleria cristata						5	3			4 4
Hieraceum albertinum						5		4	11	1 1
Lupinus sericeus						6	1	2		3 3
Festuca scabrella								51		
Sidalcea oregona							8			
Castilleja lutescens								2	9	5 5
Arnica sororia								5		
Solidago missouriensis						29				
Balsamorhiza sagittata								41	14	51 51
Helianthella uniflora										31 31
Astragalus palousensis										18 18
Poa ampla						57	53			
Rosa nutkana + R. Woodsii						1	2			1 1
Iris missouriensis							29		2	1 1
Potentilla gracilis						6	21		45	5 5
Geranium viscosissimum							21		4	
Galium boreale							11			1 1
Symphocarpos albus						4	15	2	11	17 17

←DRIER-----MOISTER→

¹ Reference: Natural Vegetation of Oregon and Washington, (1973) USDA Forest Service GTR PNW-8.

{Table 1 is abridged and species names are not updated.}