

## PRACTICE SPECIFICATIONS

### Range Planting

Range Planting shall be planned and applied in accordance with the Range Planting (550) Standard detailed in Section IV of the Field Office Technical Guide. This document describes the definition, purpose, conditions where Range Planting applies, criteria, considerations, and operation and maintenance for developing site-specific plans for this practice.

#### 1) Refer to *Herbaceous Vegetation Design Procedures (550 DP)*

Located at eFOTG, Section IV, A. Conservation Practices, Range Planting (550) Standard for guidance on installing this practice which covers the following subject:



SUBJECT	SECTION
• Grass Seeding Specifications	1
• Soil Fertility and pH (at seeding time)	2
• Existing Cover Conditions	3
• Seedbed Preparation	4
• Summer Annual Cover crops	5
• Companion Crops	6
• Mulching	7
• Species/Variety Selection	8
• Seeding Dates	9
• Seed Requirements	10
• Seeding Rates	11
• Pure Live Seed Calculations	12
• Seeding Depth	13
• Seeding Equipment	14
• Drill Calibration	15
• Management & Protection During Establishment	16
• Guidelines for Stand Evaluation	17

#### 2) Selecting Species and Varieties

- a) Determine the Ecological Site from Section II of the Field Office Technical Guide.
- b) Refer to Tables 1-9 and Ecological Site Descriptions by Major Land Resource Area for recommended species and percent allowable for the Ecological Site(s).
- c) Refer to Herbaceous Vegetation Design Procedures (550DP) for additional guidance on selection varieties of grass, forbs and shrubs.

#### 3) Seeding Rates

- a) Seeding Rates for the Purpose of Providing or Improving Forages for Livestock
  - i) The minimum seeding rate is 20 PLS/sq. ft. of grass species.

- ii) A tolerance of 5% above the maximum allowable percentages listed in the tables 1-9 is permitted. Refer to Herbaceous Vegetation Design Procedures (550 DP), Section 12, Pure Live Seed Calculations, for instructions on PLS calculations
- iii) When utilizing a range interseeder, use a minimum total of 10 PLS/sq ft.

- (1) A range interseeder is an aggressive planter that places the grass seed in wide rows in the bottom of a furrow (similar to a lister used for row crops).
- (2) All sites must be inspected by a qualified range professional before recommending this measure.
- (3) Only recommended on sandy sites with adequate erosion control.
- (4) Fields may need to be leveled with a light disk after grass seedlings are well established to level off ridges that remain.



**b) Seeding Rates for the Purpose of Improving Forage, Browse or Cover for Wildlife**

- i) The minimum seeding rate is 20 PLS/sq. ft. of grass species. Forbs must be added to the grass mixture at a minimum of 10% as noted below.
- ii) A tolerance of 5% above the maximum allowable percentages listed in the tables 1-9 is permitted. Refer to Herbaceous Vegetation Design Procedures (550 DP), Section 12, Pure Live Seed Calculations, page 11 for instructions on PLS calculations.

**4) Seeding Mixtures**

**a) Seeding Mixtures for the Purpose of Providing or Improving Forages for Livestock**

- i) Select no less than 4 perennial grass species (refer to Tables 1-9). Those species listed with a minimum percentage above zero must be included in the mixture.
- ii) Warm season grasses will be included in all mixtures.

**b) Seeding Mixtures for the Purpose of Improving Forage, Browse or Cover for Wildlife and Adding Forbs to Seed Mixtures for All Purposes**

- i) Refer to the animal preferences and wildlife interpretation interpretations listed in the ecological site descriptions for the site to be planted.
- ii) Select grass, forb, or browse species that suit the wildlife species of concern as well as the site.
- iii) Refer to the ecological site or range site description for the area to be seeded and formulate a forb seed mixture that suits the purpose and objective of the planting. Additional guidance on forbs can be found in Herbaceous Vegetation Design Procedures (550 DP), Section II. If forbs are to be added to the grass mixture, the total forb mixture must provide for a minimum density of 2 PLS/sq. ft. (10%) and be supplemented to the native grass seeding.

**c) Seeding Mixture for the purpose of restoring plant community to a historic climax**

- i) Refer to the Climax Plant Communities from ecological site or range site descriptions for the site to be planted to determine appropriate native species to plant.
- ii) Refer to Restoration and Management of Rare and Declining Habitats (643) for guidance on application of seeding on native plant communities listed as imperiled and critically imperiled terrestrial natural communities of Nebraska.

**d) General Requirements for Developing Seed Mixtures**

- i) Determine MLRA and major soil component of the site from web soil survey or other current soil survey information.

- ii) Determine the Ecological Site or Range Site from eFOTG/Nebraska FOTG, Section II, Statewide Soil and Site Information, Rangeland Interpretations for the appropriate Major Land Resource Area (MLRA).
- iii) Determine the total Pure Live Seeds/sq. foot required from seeding rate guidance above.
- iv) Design a mixture of compatible grasses from the minimum and maximum by species from Tables 1-9 by Ecological Sites where available or Range Site Descriptions and requirements above (The total of all species should add up to 100%).
- v) Select appropriate varieties for the site based upon the Certified Perennial Grass Varieties Recommended for Nebraska.
- vi) Determine the PLS pounds/acre based on the desired percentage of each species from Section 12 "Pure Live Seed Calculations" of the Herbaceous Vegetation Design Procedures (550DP). A seed calculator spreadsheet is also available for this purpose.
- vii) Complete a NE-CPA-8 Grass Seeding Jobsheet. Refer to Herbaceous Vegetation Design Procedures (550 DP) for instructions on completing this jobsheet.

#### 5) Plans and Specifications

- a) Use NE-CPA-8 Job Sheet for Grass Seedings to document practice designs, installation and certification and other requirements as spelled out in Herbaceous Vegetation Design Procedures (550 DP).

#### 6) Guidelines management during establishment and stand evaluation

- a) Document the stand evaluation one year after establishment on *Grass/Legume Stand Evaluation Jobsheet (NE-CPA-8A)*.
- b) Refer to Herbaceous Vegetation Design Procedures (550 DP), section 16 for management and protection of seedings during the establishment phase and section 17, for guidance on stand evaluation and follow-up recommendations.

#### 7) Established stand management

- a) Refer to Prescribed Grazing (528) for management of grazing following stand establishment.
- b) Refer to Forage Harvest Management (511) for management of haying following stand establishment.

#### 8) Support References

[Herbaceous Vegetation Design Procedures \(550 DP\)](#)  
[Grass Seedings Job Sheet, NE-CPA-8](#)  
[Grass/Legume Stand Evaluation Jobsheet, NE-CPA-8A](#)  
[Certified Perennial Grass Varieties Recommended for Nebraska, EC120, University of Nebraska-Lincoln, January, 2006](#)  
[Establishing Dryland Forage Grasses, G1705, University of Nebraska-Lincoln Extension, April, 2007](#)  
[Seed Mix Calculator](#)

Ecological Site Descriptions can be located at (eFOTG Section II, A. Statewide Soil and Site Information; 1. Rangeland, Grazed Forestland, Native Pastureland Interpretations)

**Table 1. Minimum and Maximum Seeding Rates for Loamy, Loamy Upland (formerly Silty) Ecological Sites**

Species	Seeding Rate in lbs. per acre @ 20 PLS/sq. ft	Allowable Percentages of Species (%)																	
		Panhandle		Southwest		Western Sandhills		Eastern Sandhills		North Central		Central		South Central		Northeast		Southeast	
		MLRA 60A, 64, 67A		MLRA 72,73W		MLRA 65W		MLRA 65E		MLRA 63B, 66		MLRA 71		MLRA 73E, 75		MLRA 102C, 107 N		MLRA 106, 107S	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Big bluestem	5.3	0	10	0	15	0	10	20	25	20	25	20	25	10	30	25	35	25	35
Blue grama	1.1	5	15	0	15	5	15	0	10	0	10	0	10	0	10	0	5	0	5
Buffalograss	15.6	0	5	0	5	0	5	0	5	0	5	0	5	-	-	-	-	-	-
Green needlegrass	4.8	0	15	0	10	0	15	0	10	0	10	0	5	-	-	-	-	-	-
Thickspike wheatgrass	5.7	0	10	0	10	0	10	-	-	-	-	-	-	-	-	-	-	-	-
Little bluestem	3.4	10	15	5	20	5	15	15	25	15	25	15	25	20	30	20	30	20	30
Indiangrass	5.0	-	5	0	10	0	5	0	10	0	10	5	15	5	15	5	20	5	20
Sand lovegrass	0.7	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5
Sideoats grama	4.6	10	15	5	20	5	20	5	15	5	15	5	15	5	20	5	20	5	20
Switchgrass	2.2	0	10	0	10	0	10	0	10	0	10	0	15	5	15	5	15	5	15
Western wheatgrass	7.9	20	35	10	35	20	35	10	20	10	20	10	15	5	15	0	10	0	10
Other Perennial Native Grass	--	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5

**Table 2. Minimum and Maximum Seeding Rates for Clayey, Shallow Clay, and Clayey Upland Ecological Sites**

Species	Seeding Rate in lbs. per acre @ 20 PLS/sq. ft	Allowable Percentages of Species (%)																	
		Panhandle		Southwest		Western Sandhills		Eastern Sandhills		North Central		Central		South Central		Northeast		Southeast	
		MLRA 60A, 64, 67A		MLRA 72,73W		MLRA 65W		MLRA 65E		MLRA 63B, 66		MLRA 71		MLRA 73E, 75		MLRA 102C, 107 N		MLRA 106, 107S	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Big bluestem	5.3	0	5	0	5	0	5	0	5	0	5	0	10	0	15	25	35	25	35
Blue grama	1.1	5	15	10	20	5	15	15	20	10	20	5	15	5	15	0	5	0	5
Buffalograss	15.6	0	5	0	10	0	5	0	10	0	10	0	10	0	10	-	-	-	-
Green needlegrass	4.8	15	30	0	15	15	30	10	15	10	15	0	15	-	-	-	-	-	-
Thickspike wheatgrass	5.7	0	20	0	10	0	20	0	5	0	5	-	-	-	-	-	-	-	-
Little bluestem	3.4	5	10	5	15	5	15	5	15	5	10	5	15	5	15	20	30	20	30
Indiangrass	5.0	-	-	0	5	-	-	0	5	0	5	0	10	0	5	5	10	5	10
Sideoats grama	4.6	5	15	5	15	5	15	5	10	5	15	5	15	10	20	10	20	10	20
Switchgrass	2.2	0	5	0	5	0	5	0	15	0	15	5	15	5	15	5	20	5	20
Western wheatgrass	7.9	25	45	30	45	25	45	30	45	30	45	30	40	25	35	0	20	0	20
Other Perennial Native Grass	--	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5



**Table 5. Minimum and Maximum Seeding Rates for Sands, Sandy, Shallow Sandy and Sandy Lowland Ecological Sites**

Species	Seeding Rate in lbs. per acre @ 20 PLS/sq. ft	Allowable Percentages of Species (%)																	
		Panhandle		Southwest*		Western Sandhills		Eastern Sandhills		North Central		Central		South Central		Northeast		Southeast	
		MLRA 60A, 64, 67A		MLRA 72,73W		MLRA 65W		MLRA 65E		MLRA 63B, 66		MLRA 71		MLRA 73E, 75		MLRA 102C, 107 N		MLRA 106, 107S	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Sand bluestem	7.7	10	35	20	30	15	40	20	40	20	40	20	40	20	40	15	30	15	30
Blue grama	1.1	5	10	0	15	5	10	0	10	0	10	0	10	0	10	0	5	0	5
Bluebunch wheatgrass	7.4	0	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Western wheatgrass	7.9	0	10	0	5	0	5	0	5	0	5	0	5	0	5	-	-	-	-
Thickspike wheatgrass	5.7	0	10	0	5	0	5	-	-	-	-	-	-	-	-	-	-	-	-
Prairie sandreed	3.2	10	30	10	30	15	25	15	25	15	30	15	30	15	30	10	20	10	20
Little bluestem	3.4	5	25	5	15	5	25	15	25	15	25	15	25	15	25	10	25	10	25
Switchgrass	2.2	5	10	5	15	5	10	5	15	5	15	5	15	5	15	10	20	10	20
Green needlegrass	4.8	0	5	0	5	0	5	0	5	0	5	0	5	-	-	-	-	-	-
Indian ricegrass	5.6	0	5	-	-	0	5	-	-	0	5	-	-	-	-	-	-	-	-
Indiangrass	5.0	0	5	0	15	0	5	5	15	0	10	5	15	5	15	10	20	10	20
Sand lovegrass	0.7	0	5	5	10	5	10	5	15	5	15	5	15	5	15	10	20	10	20
Other Perennial Native Grass	--	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5

**Table 6. Minimum and Maximum Seeding Rates for Saline Lowland and Saline Subirrigated Ecological Sites**

Species	Seeding Rate in lbs. per acre @ 20 PLS/sq. ft	Allowable Percentages of Species (%)																	
		Panhandle		Southwest		Western Sandhills		Eastern Sandhills		North Central		Central		South Central		Northeast		Southeast	
		MLRA 60A, 64, 67A		MLRA 72,73W		MLRA 65W		MLRA 65E		MLRA 63B, 66		MLRA 71		MLRA 73E, 75		MLRA 102C, 107 N		MLRA 106, 107S	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Alkali cordgrass	8.3	0	25	0	5	0	10	0	10	0	10	0	5	0	5	-	-	-	-
Alkali sacaton	0.5	10	35	15	35	20	35	20	35	20	35	15	30	10	25	0	10	0	10
Blue grama	1.1	5	20	5	20	5	20	5	20	5	20	5	20	5	15	5	15	5	15
Inland saltgrass	1.3	0	20	0	15	0	20	0	20	0	20	0	15	0	10	0	15	0	10
Thickspike wheatgrass	5.7	10	20	0	5	0	5	-	-	-	-	-	-	-	-	-	-	-	-
Slender wheatgrass	5.5	0	10	5	10	5	10	5	10	5	10	5	15	0	20	5	25	5	25
Switchgrass	2.2	0	10	0	15	0	15	0	15	5	20	5	25	10	25	10	25	10	25
Western wheatgrass	7.9	10	35	15	35	10	30	10	25	10	25	15	30	15	30	20	35	20	35
Other Perennial Native Grass	--	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5



**Table 9. Minimum and Maximum Seeding Rates for Subirrigated Ecological Sites**

Species	Seeding Rate in lbs. per acre @ 20 PLS/sq. ft	Allowable Percentages of Species (%)																	
		Panhandle		Southwest		Western Sandhills		Eastern Sandhills		North Central		Central		South Central		Northeast		Southeast	
		MLRA 60A, 64, 67A		MLRA 72,73W		MLRA 65W		MLRA 65E		MLRA 63B, 66		MLRA 71		MLRA 73E, 75		MLRA 102C, 107 N		MLRA 106, 107S	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Big bluestem	5.3	15	35	15	35	15	40	30	40	25	40	25	40	25	40	30	45	30	45
Eastern gamagrass	N/A	-	-	-	-	-	-	-	-	-	-	-	-	0	5	0	5	0	10
Little bluestem	3.4	10	20	10	20	10	20	10	20	10	20	5	20	5	15	5	10	5	10
Indiangrass	5.0	5	20	10	20	10	25	15	30	15	30	15	30	15	30	20	35	20	35
Prairie cordgrass	8.3	0	20	0	15	0	15	0	15	0	10	0	15	0	10	0	15	0	15
Sideoats grama	4.6	-	-	0	10	-	-	-	-	0	10	0	10	0	10	0	5	0	5
Switchgrass	2.2	5	20	5	20	5	20	5	20	5	15	5	20	5	20	5	25	5	25
Canada wildrye	7.6	0	5	0	10	0	5	0	5	0	5	0	5	0	10	0	10	0	10
Virginia wildrye	11.9	-	-	0	5	-	-	0	10	0	10	0	10	0	15	0	20	0	20
Western wheatgrass	7.9	0	20	0	20	0	20	0	20	0	20	0	15	0	10	0	10	0	10
Other Perennial Native Grass	--	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5