



CONSERVATION ENHANCEMENT ACTIVITY

E512D

CONSERVATION STEWARDSHIP PROGRAM

Forage plantings that help increase organic matter in depleted soils

Conservation Practice 512: Forage and Biomass Planting

APPLICABLE LAND USE: Pasture, Crop (Annual and Mixed), Crop (Perennial)

RESOURCE CONCERN: Soil

ENHANCEMENT LIFE SPAN: 5 years

Enhancement Description

Establishing adapted and/or compatible species, varieties, or cultivars of herbaceous species suitable for pasture, hay, or biomass production that can help improve soil quality of depleted sites through increase or conservation of the organic matter in the soil.

Criteria

- Select perennial grass or forb and legume plant species or a mix of annual and perennial species and their cultivars based on climatic conditions, soil condition, landscape position and resistance to disease and insects, that will provide ground cover and root mass needed to be sufficient to protect the soil from wind and water erosion.
- This enhancement is applicable where soils have been depleted of organic matter (typically from direct exposure to air through plowing or disking, and/or having little or no vegetation growing on the soil for a period. In these circumstances, organic matter can be increased through planting of deep-rooted perennial species or a mix of deep-rooted perennials and annual species with the capability of moving carbon into the soil horizons naturally, and then managing these plant communities for optimum production of above ground matter (forage).

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- Recommendations for planting rates, methods, depths, and dates from land grant/research institutions, plant materials program, extension agencies, or agency field trials will be followed.
- Prepare seed bed for planting that does not restrict plant emergence or leave the site vulnerable to erosion.
- Planting will take place when soil moisture is adequate for germination and establishment.
- Federal, state, or local noxious species will not be planted.
- Plant nutrients and/or soil amendments for establishment purposes will be applied according to a current soil test and according to Land Grant University recommendations. Legume seed will be pre-inoculated or inoculated with the proper viable strain of Rhizobia immediately before planting.
- Inspect and calibrate equipment prior to use. Continually monitor during planting to insure proper rate, distribution and depth of planting is maintained.
- Monitor new plantings for water stress. Depending on the severity of drought, water stress may require reducing weeds, early harvest of any companion crop, irrigating when possible, or replanting failed stands.



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Documentation Implementation Requirements

Participant will:

- Prior to implementation, select a deep-rooted perennial forage species or grassland mixture of deep-rooted perennials and annuals for establishment. *If livestock are included in the system, forage species selected will meet the desired level of nutrition for the kind and class of the livestock to be fed. (NRCS will provide technical assistance, as needed.)*

Species	Forage category (grass, legume, forb)

- Prior to implementation, select planting technique, seeding rates and timing appropriate for the site and climatic conditions. (NRCS will provide technical assistance, as needed.)

Planting date	
Planting method	
Seeding rate	

- If livestock are included in the system, prior to implementation a grazing plan must be developed to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs and ensure adequate stubble heights remain to prevent erosion.*



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- During implementation, keep the following documentation:
 - Records and photographs of planting preparation and any materials purchased or materials on hand used for the implementation of the enhancement.
 - Documentation of seed rate basis (Pure Live Seed) and any fertilizer or soil amendments used for the implementation of the enhancement.
- If livestock are included in the grazing system, documentation and photographs of turn in/turn out grazing records and stubble height residue for each field. If livestock are included in the grazing system, during implementation in areas where animals congregate, establish persistent species that can tolerate close grazing and trampling.*
- After implementation, make the forage planting and grazing records available for review by NRCS to verify implementation of the enhancement.

NRCS will:

- As needed, prior to implementation, NRCS will provide technical assistance:
 - Planning site preparation and establishment specifications meeting NRCS Conservation Practice Standard Forage and Biomass Planting (Code 512).
 - Prepare specifications for applying this enhancement for each site using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation.
 - If livestock are included in the system, develop a grazing plan to keep grazing periods sufficiently short to allow for forages to recover before re-grazing occurs and maintain adequate stubble heights to prevent erosion.*
- During implementation, evaluate any planned changes to verify they meet the enhancement criteria.
- After implementation, verify the planned grassland mixture was established to specifications developed for the site.



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NRCS Documentation Review:

I have reviewed all required participant documentation and have determined the participant has implemented the enhancement and met all criteria and requirements.

Participant Name _____ Contract Number _____

Total Amount Applied _____ Fiscal Year Completed _____

NRCS Technical Adequacy Signature

Date





SOUTH DAKOTA (SD) SUPPLEMENT TO CONSERVATION ENHANCEMENT ACTIVITY

CONSERVATION STEWARDSHIP PROGRAM

E512D

Forage plantings that can help increase organic matter in depleted soils

Additional Criteria for SD:

In addition to the criteria specified in the national job sheet E512D, the following additional criteria apply in SD:

- See the SD Range Technical Note No. 4 (found in Section 1 of the SD Technical Guide at <http://efotg.sc.egov.usda.gov>) for more information on:
 - Table 1 lists allowable varieties for use in SD.
 - Table 2 provides seeding rate information.
 - Table 3 provides information on species characteristics and adaptability.
 - Table 4 lists allowable species for each forage suitability group by Major Land Resource Area (MLRA).
- On slopes over 8 percent (%), 50% of the seed mixture (pure live seed (PLS) basis) will be rhizomatous species.
- Stand enhancement (adding legumes to existing stands) is sometimes a viable option to improve an existing stand. Seeding rates for stand enhancement through the addition legumes should be one-half of a full seeding on pasturelands. Seedbed preparation will follow procedures described in South Dakota Range Technical Note No. 4. Stand enhancement with legumes is only recommended east of the Missouri River, on all irrigated lands, and within the Black Hills and surrounding foothills.
- Do not graze until the stand is fully established. This period will be a minimum of one full growing period.
- For additional information see the SD Prescribed Grazing Standard (528), the SD Forage and Biomass Planting Standard (512) and the appropriate SD Range Technical Note.



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Additional Documentation Requirements for SD:

In addition to the documentation requirements specified in the National job sheet E512D, the following additional documentation requirements apply in SD:

- Complete the SD Range Tool (SD-CPA-39 Forage/Animal Inventory, Grazing Schedule using the SD-CPA-15 or similar form, and SD-CPA-16 or similar grazing records document).
- Complete a drought contingency plan using the SD Drought Tool or provide the participant with a copy of the example drought contingency plan located within the SD Prescribed Grazing Technical Note 9.
- Complete the SD Seeding Tool (SD-CPA-4).
- Complete the SD Pasture Condition Score Sheet (SD-ECS-15) annually.