



CONSERVATION ENHANCEMENT ACTIVITY

E512D

CONSERVATION STEWARDSHIP PROGRAM

Forage plantings that help increase organic matter in depleted soils

CONSERVATION PRACTICE: 512 - Pasture and Hay Planting

APPLICABLE LAND USE: Crop (Annual & Mixed); Crop (Perennial); Pasture

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).
- 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.

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- 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 ensure 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.

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



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| 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.
- 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 meets 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

ALABAMA – E512D Supplement- Forage plantings that help increase organic matter in depleted soils

Requirements:

- Applicable where crops have been planted using conventional tillage for a number of years or where little or no vegetation has been growing for a long period of time and organic matter has been depleted as evidenced by lack of dark color in the surface horizon.
- Calculate before and after soil loss for the field to be planted to grass. There must be a reduction in soil loss and must not exceed the soil loss tolerance level (T).
- Must be a grass or forb species and contain one legume. All species must be perennials or a mix of perennial grass and annual legume.
- Soil test required; must apply lime and fertilizer according to recommendations.
- Exclude livestock until plants are well established.
- Follow planting guidelines according to NRCS Conservation Practice Standard 512-Forage and Biomass Planting.
- If the area is to be hayed, follow the guidance in NRCS Alabama Job Sheet AL511.

| Tract/field | Prior tillage system and number of years | Munsell color in surface horizon | Species to be planted |
|-------------|--|----------------------------------|-----------------------|
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Additional criteria when livestock are included in the system

1. Written conservation plan that includes producer goals, objectives and resource concerns. Plan map will show and label all fences, feeding/watering areas, and sensitive areas. Livestock should be restricted from sensitive areas.
2. Average annual livestock dry matter needs will be balanced with available forage without deficiency for the yearly summary. The Forage/Animal Balance Worksheet will be completed to document.
3. Livestock will be rotated between at least 3 pastures in a particular functional-group (e.g. warm season pastures or cool season pastures) to facilitate prescribed grazing. Fences and water sources should be in place so that trails do not occur and concentrated livestock areas are minimized. Starting and ending grazing periods will meet the guidelines in the table below. Pastures will be sized and stocked to facilitate meeting the requirements for grazing heights and resting periods. It is anticipated that with a three-pasture rotation that each pasture would rest about 66 percent of the grazing cycle. Additional pastures are preferred and will enable more forage rest.
4. A contingency plan will be developed denoting the use of sacrifice areas for pasture management during drought or other weather-related events. These areas will be labeled on the conservation plan map.
5. Maintain grazing records to include pasture or field number, acres, forage type, animal type and number, forage height in and out-with dates. Records should be submitted quarterly along with the Pasture Condition Score.

Grazing will be managed according to the Prescribed Grazing (528) Standard.

The days of rest needed for plant recovery and regrowth range from 7 to 45 days, depending on the forage species (see below table). Stocking rates and growing conditions can also affect the forage growth. Grazing systems should be designed to meet the rest requirements of a specific forage as well as the needs of the livestock. For example, by using four pastures with 14 days of grazing per pasture, the grazing cycle is 56 days and each pasture rests 75% of the time or 42 days.

FORAGE GUIDELINES FOR PRESCRIBED GRAZING SYSTEMS

| Common Forages | Begin Grazing (in) | End Grazing (in) | Usual days of Rest |
|-----------------------|---------------------------|-------------------------|---------------------------|
| Alfalfa grazing types | 10 | 4 | 35 - 40 |
| Bahiagrass | 6 | 2 | 10 - 20 |
| Bermudagrass common | 5 | 2 | 7 - 10 |
| Bermudagrass hybrid | 6 | 3 | 7 - 10 |
| Big Bluestem | 18 | 10 | 30 - 45 |
| Dallisgrass | 6 | 3 | 7 - 15 |
| Eastern Gamagrass | 15 | 8 | 30 - 45 |
| Tall Fescue | 6 | 3 | 15 - 30 |
| Indiangrass | 12 | 6 | 30 - 40 |
| Orchardgrass | 8 | 3 | 15 - 30 |
| Switchgrass | 18 | 10 | 30 - 45 |

Grazing Management Records

Keeping accurate records is a continual and critical process in effective pasture and livestock management.

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|----------------|--------|--------------------------|---------------|--------------------------|---------------|-------------------------------|--|
| Pasture ID | | Pasture acres | | Forage type | | | |
| Soil test date | | Lime/ Fertilizer rate | | Lime/ Fertilizer type | | Date applied | |
| Livestock | | Date in | Forage height | Date out | Forage height | Notes (fertilizer applied) | |
| Type | Number | | | | | | |
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