

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**PASTURE AND HAY PLANTING**

(Ac.)

**CODE 512**

**DEFINITION**

Establishing native or introduced forage species.

salinity, depth, flooding and ponding, and levels of toxic elements that may be present.

- Resistance to disease and insects common to the site or location.

**PURPOSE**

- Establish adapted and compatible species, varieties, or cultivars for forage production.
- Improve or maintain livestock nutrition and/or health.
- Balance forage supply and demand during periods of low forage production.
- Reduce soil erosion and improve water quality.
- Increase carbon sequestration

Specified seeding/plant material rates, methods of planting and date of planting shall be consistent with documented guidance cited by plant materials program, research institutions or agency demonstration trials for achieving satisfactory establishment.

Seeding rates will be calculated on a state approved method such as pure live seed (PLS) or percent germination.

Plant to proper depth ensuring seed or planting material will contact soil moisture uniformly. Prepare site to provide a medium that does not restrict plant emergence.

Planting dates shall be scheduled during periods when soil moisture is adequate for germination and establishment. A dormant or frost seeding is acceptable for some species.

All seed and planting materials shall meet state quality standards.

Select plants that according to federal, state, or local regulations are not considered noxious species.

Fertilizer and soil amendment recommendations shall be based on results from a current soil test. Application shall be appropriately placed and timed to be effective.

If needed, legume seed shall be inoculated with the proper species of viable Rhizobia before planting.

If using coated seed, recalibrate the planting

**CONDITIONS WHERE PRACTICE APPLIES**

This practice may be applied on lands where forage production and/or conservation is needed and feasible.

**CRITERIA**

**General Criteria Applicable to All Purposes**

Plant species and their cultivars shall be selected based upon:

- Climatic conditions, such as annual rainfall, seasonal rainfall patterns, growing season length, humidity levels, temperature extremes and the USDA Plant Hardiness Zones.
- Soil condition and position attributes such as pH, available water holding capacity, aspect, slope, drainage class, fertility level,

Conservation practice standards are reviewed periodically and updated if needed. To obtain the current version of this standard, contact your Natural Resources Conservation Service [State Office](#) or visit the [electronic Field Office Technical Guide](#).

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equipment to deliver the same number of seed per area as would be applied with non-coated seed.

Livestock access shall be managed to benefit the new seeding or excluded until the plants are well established.

**Additional Criteria for Establishing Adapted and Compatible Species, Varieties or Cultivars for Forage Production**

Select forage species based on the intended use, realistic expected yield, maturity stage, compatibility with other species and level of management willing to provide. Plant adaptation to the proposed planting area shall be verified prior to planting. Agronomy Technical Note #34 provides guidance for plants adaptation to various planting sites.

**Additional Criteria for Improving or Maintaining Livestock Nutrition and/or Health**

Establish forage species that are most capable of meeting the desired level of nutrition (quantity and quality) for the kind and class of the livestock to be fed. NRCS National Range and Pasture Handbook can be used to help determine livestock nutritional requirements.

**Additional Criteria for Balancing the Forage Supply and Demand during Low Forage Production Periods**

Select plants that will produce forage for use during periods when other on-farm/ranch forage does not meet livestock needs. Forage species selected shall balance or help balance the dry matter demand of the animals for the desired period of time. Iowa State University publication Guide For a Year-Round Forage Supply Pm 1771 November 1998 provides some growth curves for guidance.

**Additional Criteria for Reducing Erosion and Improving Water Quality.**

Plants shall provide adequate ground cover, canopy cover, root mass and vegetative retardance to protect soil against wind and water erosion.

**Additional Criteria to Increase Carbon Sequestration**

For optimal carbon storage, select species that increase site biomass.

**CONSIDERATIONS**

In areas frequented by high density of animals, establish persistent species that can tolerate close grazing and trampling.

Where wildlife management is an objective, identify the species of concern and use an approved habitat evaluation procedure to aid in selecting plant species and providing for other habitat requirements.

Where air quality concerns exist, site preparation techniques should be utilized that will minimize airborne particulate matter generation and transport.

**PLANS AND SPECIFICATIONS**

Specifications for the establishment of pasture and hay planting shall be prepared for each site or management unit according to the Criteria and Considerations described in this standard. Iowa CPA-4 Seeding Plan or similar document shall be used to provide specifications for pasture or hay planting to the land user. Refer to Technical Note #34 for information on selection of species, seeding rates and planting dates.

When a formal stand evaluation is needed use Agronomy technical Note #19 "Guideline for Herbaceous Stand Evaluation".

All specifications shall be consistent with federal, state, and local regulations.

**OPERATION AND MAINTENANCE**

The operator will inspect and calibrate equipment prior to use to insure proper rate, distribution and depth of planting material.

Growth of seedlings or sprigs shall be monitored for water stress. Depending on the severity of drought, water stress may require reducing weeds, early harvest of any companion crops, irrigating when possible, or replanting failed stands.

Invasion by undesirable plants shall be controlled by cutting, using a selective herbicide, or by grazing management by manipulating livestock type, stocking rates, density, and duration of stay.

To maintain productivity, soil tests should be taken according to Iowa State University prescribed methods every four or five years. Apply lime and fertilizer according to recommendations of an approved soil testing laboratory. Nutrient removal by grazing animals is small. The uniformity of livestock manure distribution throughout the pasture can greatly affect fertilizer needs.

In a diverse species mixture that includes both tall grasses and legumes, the height of the tall grasses need to be controlled to allow sunlight to get to the legumes. Table 7 in Agronomy Technical Note #34 provides guidance to develop diverse seeding mixtures. Legumes also need to be rested during the grazing or haying season. Short-lived legumes should be allowed time to reseed every two to three years. Red clover will need approximately 30 days and Birdsfoot trefoil 45 days of rest during the growing season to allow for seed formation.

Evaluating the pasture utilizing a Pasture Condition Score evaluation prior to forage improvements will establish a "baseline" for the quality of the pasture. Conducting a Pasture Condition Score on an annual basis will help the producer monitor the system and identify management needs to maintain a viable forage system. Deficiencies noted in the Pasture Condition score will help identify any practices that might need to be implemented to improve the forage.

Insects and diseases shall be controlled when an infestation threatens stand survival.

Evaluate forage stands each season or as needed to determine management inputs needed to achieve the desired purpose(s).

## DOCUMENTATION

The following items shall be considered when developing a Pasture and Hay Planting Plan. Items marked with an asterisk shall be recorded as minimum documentation requirements. Use of computer programs is considered adequate if they contain information as outlined in the plan and documentation sections of this standard.

1. \*Soil Map
2. \*Plan Map
3. \*Acres
4. \*Iowa CPA-4
5. Pest & Nutrient Management Plan
6. Erosion Control Requirements

(Seeding Plan can reference back to Conservation Plan for Map requirements)

## REFERENCES

The following conservation practice standards and information are available at the Iowa NRCS Home Page at:

<http://www.ia.nrcs.usda.gov>

- Forage Harvest Management (511)
- Nutrient Management (590)
- Pest Management (595)
- Prescribed Burning (338)
- Prescribed Grazing (528)
- National Range and Pasture Handbook; <http://plants.usda.gov/>

The following information on forages is available on the Iowa State University home page at:

<https://www.extension.iastate.edu/store/ListItems.aspx?CategoryID=18>

Estimated Costs of Crop Production – FM 1712

Warm Season Grasses for Hay and Pasture – PM 569

Birdsfoot Trefoil for Pasture – PM 855

Improving Pasture by Frost Seeding – PM 856

Fertilizing Pastures – PM 869

Interseeding and No-Till Pasture Renovation – PM 1097

512 - 4

Guide to Year-Round Forage Supply – PM  
1771

Stockpiled Forages: A Way to Extend the  
Grazing Season – PM 1772

How Pasture Plants Grow – PM 1791

Selecting Forage Species – PM 1792

General Guide for Crop Nutrient & Limestone  
Recommendations in Iowa – PM 1688