NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

PASTURE AND HAY PLANTING

(Acre)
CODE 512

DEFINITION

Establishing native or introduced forage species.

PURPOSES

This practice may be applied as part of a conservation management system to accomplish one or more of the following purposes:

* Establish adapted and compatible species, varieties, or cultivars.

* Improve or maintain livestock nutrition and/or health.

* Extend the length of the grazing season.

* Provide emergency forage production.

* Reduce soil erosion by wind and/or water.

CONDITIONS WHERE PRACTICE APPLIES

This practice may be applied on cropland, hayland, pastureland, and other agricultural lands where forage production is feasible and desired.

CRITERIA

General criteria applicable to all the purposes stated above.

Plant species and their cultivars shall be selected based upon:

* Climate 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, drainage class, inherent fertility, salinity and alkalinity, flooding and ponding, and levels of toxic elements that may be present such as selenium and aluminum.

* Plant resistance to disease and insects common to the site or location.

* Plant compatibility with other forage species and their selected cultivar(s) in rate of establishment, maturity, and growth habit when seeded together as a forage mixture.

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

Seeding rates will be calculated on a pure live seed (PLS) basis or percent germination.

Provide a firm, weed-free seedbed that ensures seed will contact soil moisture uniformly, facilitates seedling emergence, and provides a medium that does not restrict or allow roots to become dry.

All seed and planting materials shall be labeled and meet state seed quality law standards.

Legume seed shall be inoculated with the proper, viable rhizobia before planting.

When planting perennial grasses alone or in mixtures, do not fertilize at planting time.

When seeding legumes, fertilize with Avaliable Phosphoric Acid at the rate of 50 pounds per acre. This is equivalent to 22 pounds per acre of Phosphorus.

Seeding mixtures and rates shall be in conformance with the respective MLRA Vegetative Guide in the Field Office Technical Guide.

Based on bag tags, adjust seeding rates to insure at least 90 percent pure live seed of each species (germination x purity). Do not include any hard seed in the percent germination.

When coated seed is used, adjust seeding rate to compensate for the weight of coating.

Control of noxious weeds by mowing shall be evaluated as an alternative to use of herbicides.

When plantings are to be irrigated, maintain adequate moisture in the upper six-(6) inches of soil during the first four (4) weeks and then in the upper 12 inches thereafter until the rainy season during the establishment period.

On sloping land where crop residues are present or will result from the existing or planned crop, minimize seedbed operations to maintain adequate residues on the surface for protecting the new planting. When available, also specify a no-till drill or similar seed drill be used. Do these on the Practice Requirements sheet.

In wind erosion areas, use a temporary cover crop or a nurse crop to control erosion and protect seedlings.

Temporary cover crops can be planted in early Spring to reduce weeds and wind erosion. Select cover crops that will not readily re-seed and use the same seeding rates as for a cover crop. Plant the perennial grasses the next Fall or following Spring into the cover crop residue using a no-till drill or range type drill.

Additional criteria for improving or maintaining livestock nutrition and/or health.

Forage species must be capable of meeting the desired level of nutrition for the kind and class of the livestock to be fed.

Additional criteria for extending the grazing season.

Forage species selected for establishment shall fulfill a recognized dietary deficiency within the yearlong forage management program.

Criteria for providing emergency forage production.

Select plants that will produce forage for use during periods when other on-farm/ranch forage is unavailable to meet livestock needs.

Criteria for reducing erosion by wind and/or water.

Plants shall have the ability to provide adequate ground cover, canopy cover, root mass, and vegetal retardance to wind forces and water flows either alone or in combination with other forage species when site conditions require erosion protection.

CONSIDERATIONS

Prescribed Burning, Prescribed Grazing, Brush Management, and Grazing Land Mechanical Treatment practices may be used in combination with Pasture and Hay Planting.

Where wildlife management is an objective, the food and cover value of the planting can be enhanced by using approved habitat requirements necessary to achieve the objective.

Forage species planted in mixture should exhibit similar palatability to one another to avoid spot or selective grazing.

On land where erosion is a potential problem, seeding should be timed or other provisions made to control erosion during establishment. Stubble mulch seedbeds are most frequently used to minimize erosion.

Most adapted cool season annual grasses and legumes establish rapidly in California warm winter climates and can compete successfully with weeds. Most perennial grasses and legumes start slowly and pre-plant weed control measures are needed to facilitate establishment.

Residual herbicides can present grass and legume establishment problems on land that has been used for cultivated crops. Composite soil samples may be tested by trial seeding if residual herbicide problems appear probable.

When grain drills are used for grass and legume seeding, rice hulls are suggested as a seed dilutent to avoid excessive seeding rates.

Endangered Species Considerations

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that

avoid the adverse effects. Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Some species are year-round residents in some streams, such as, freshwater shrimp. Other species, such as steelhead and salmon, utilize streams during various seasons. Be aware that during critical periods, such as spawning, eggs in gravel's, and rearing of young may preclude activities in the stream that may directly affect the stream habitat during those periods. For example there should be no disturbance of stream gravel beds that may have eggs in them. That could include any equipment in the stream or even walking in the stream or work upstream that may result in sediment depositing in the gravel beds. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Water Quantity

After establishment there will be reduced runoff and increased infiltration. During planting there may be a temporary increase in runoff even though the long-term effect will be a reduction in surface water and an increase in ground water.

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.

Water Quality

The long-term effect will be an increase in the quality of the surface water due to reduced erosion and sediment delivery. Increased infiltration and subsequent percolation may cause more soluble substances to be carried to ground water.

1. Effects on erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances carried by runoff.
2. Effects on the use and management of nutrients and pesticides and resulting effects on surface and ground water quality.
3. Effects on the visual quality of downstream water resources.

PLANS AND SPECIFICATIONS

Specifications shall be prepared for each site or management unit according to the Criteria, Considerations, and Operation and Maintenance described in this standard, and shall be recorded on specification sheets, job sheets, in narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

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

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

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