

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**RANGE PLANTING**

(Ac.)

**CODE 550**

**DEFINITION**

Establishment of adapted annual or perennial vegetation such as grasses, forbs, legumes and/or perennial shrubs and trees. Adapted annual vegetation use is restricted to NRCS approved materials within the Mediterranean climate zone with 12" or less mean annual precipitation.

**PURPOSE**

One or more of the following:

- Restore a plant community similar to its historic climax or the desired plant community.
- Provide or improve forages for livestock.
- Provide or improve forage, browse or cover for wildlife.
- Reduce erosion by wind and/or water.
- Improve water quality and quantity.
- Increase carbon sequestration

**CONDITIONS WHERE PRACTICE APPLIES**

On rangeland, grazed forest or other suitable location where the principle method of vegetation management will be with herbivores. This practice shall be applied where desirable vegetation is below the acceptable level for natural reseeding to occur, or where the potential for enhancement of the vegetation by grazing management is unsatisfactory.

**CRITERIA**

**General Criteria Applicable to All Purposes**

Establishment of annual grasses, forbs and legumes is restricted to the Mediterranean climate zones receiving less than 12" of mean annual precipitation. The Mediterranean climate zone is described as Storm Intensity Type Zone 1 on Figure 2-1, "Approximate Boundaries for SCS Rainfall Distributions", page 2-15 of the National Engineering Manual. Local values for mean annual precipitation are found in Section II of the FOTG.

Seeding species and rates will be derived from the California Vegetation Guide in Section II of the Field Office Technical Guide and will correspond to the soil vegetation group, the MLRA and (4)eta zone.

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

Species, cultivars or varieties selected must be compatible with management objectives and adapted to climate conditions, soils, landscape position, (e.g., aspect) and ecological/range site(s).

Species, cultivars or varieties selected shall provide adequate cover to control erosion by wind and/or water within an acceptable period of time.

Seedbed preparation and planting methods will be suitable to meet any special needs for obtaining an acceptable establishment of planted materials.

Planting depths, dates, seeding rates, soil amendments and fertilizer needs for establishment, minimum seed quality standards and management during the establishment period such as weed control and deferment from grazing shall be followed to enhance establishment success.

Timing of planting will correspond to species selection, seasonal considerations and identified site constraints.

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

Where native materials are used, species selected must be consistent with plant species identified in available corresponding ecological/range site description for the area to be treated.

Seeding of perennial species must be performed using seed mixes containing no exotic annual species component. Overseeding of annual species into stands of desirable perennial grasses will occur only after the perennial species are clearly established and are managed appropriately.

#### **Additional Criteria to Improve Forages for Livestock**

Selection of a species or combination of species shall be designed to meet the desired nutritional and palatability requirements for the kind and class of livestock.

Selection of species or combination of species shall be designed to meet the desired season of use or grazing period.

#### **Additional Criteria for Improved Water Quality and Quantity**

Select a species or combination of species that will maintain a stable soil surface and increase infiltration.

Species that have high evapotranspiration rates, such as some woody species and phreatophytes, shall not be planted when watershed yields are the primary objective.

A mixture of shrubs and trees indigenous to the site shall be planted when riparian area, stream bank stability and water temperature criteria are important.

#### **Additional Criteria for Improving Forage, Browse or Cover for Wildlife**

Selection of planted species shall meet dietary and palatability requirements for the intended wildlife species.

Species will be selected and planted in a designed manner that will meet the cover requirements of the wildlife species of concern.

#### **Additional Criteria to Increase Carbon Sequestration**

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

### **CONSIDERATIONS**

Planting materials selected should contribute to wildlife and aesthetics when opportunities exist.

Other practices such as Brush Management (314) or Grazing Land Mechanical Treatment (548) may be used to promote a satisfactory site preparation to insure a successful range planting.

Use of locally certified planting materials should be encouraged, however, distance and source limitations on seed and planting stock should be considered in terms of logistics and costs.

Any special handling requirements for planting materials need to be followed for best results, (e.g., beards or awns on seed, hard seed coats, seed mixture ratios).

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

To retain existing benefits of the current plant community, evaluate compatibility of resident species with those to be seeded. Alternative plant materials and/or alternative treatments should be explored if current plant community benefits are likely to be lost or substantially impaired as a result of the planting.

Stand establishment and success of native species can be maximized by stabilizing ecological processes through management. These ecological processes will appear in the ecological site description for the area to be treated and/or technical references for the specific plant community to be restored.

In most cases, fertilization with nitrogen of native grass species will result in increased competition from exotic annual grasses which may result in seeding failure.

For perennial species, the first one to three years after planting usually determines the overall success of this practice. Emphasis on competition control and reduced defoliation and/or seed predation by rodents during this period can substantially improve establishment success.

Where multiple species of natives are to be established for the purposes of ecological site restoration, establishing groups of species in phases can enhance the effectiveness of competition control and enhance restoration success. For example, it may be more effective to establish perennial native grasses before introducing native annual forbs.

Where native perennial species are to be seeded, site preparation in the form of annual species competition control may be necessary for two to three years prior to insure establishment of the seeded species. Where sufficient quantities are available, irrigation water can effectively suppress annual competition prior to planting and enhance desirable seedling establishment following planting.

## PLANS AND SPECIFICATIONS

For standard plantings, appropriate forms, worksheets, etc. may be used to develop specifications and documentation. Plantings that require more detailed information may require the use of other practices prior to planting and require a specific site specification prepared.

Specifications will include:

- 1) Goals and objectives of this practice
- 2) The ecological site and/or soil vegetation group associated with this practice
- 3) Description of competing vegetation
- 4) Implementation schedule including all seedbed preparations, competition control and phased planting sequences as applicable to this practice.
- 5) Species and material types (seed, plug, sprig etc.) and corresponding methods of plantings
- 6) Application rates and acres to be planted
- 7) Stand establishment and management recommendations for first three years beginning with site treatment and including soil amendment requirements, seedbed preparation, competition control, livestock management and/or predation control requirements
- 8) Post-establishment stand maintenance recommendations

## OPERATION AND MAINTENANCE

**Operation.** Identify any required items needed to assist in stand establishment such as mowing, burning, flash grazing and herbicides to control weeds. Address insect and disease control needs where they are likely to create establishment problems.

**Maintenance.** Any necessary replanting due to drought, insects or other uncontrollable event which prevented adequate stand establishment should be addressed as soon as possible. Recommendations may vary from complete re-establishment to overseeding or spot replanting. Thin stands may only need additional grazing deferment during the growing season.

## REFERENCES

- Wildland Plants: Physiological Ecology and Developmental Morphology (Bedunah, Donald J. & Sosebee, Ronald E. Eds, 1995 Society for Range Management, Denver, Colorado)
- Rangeland Ecology and Management (Heady, H.F. and R. D. Child. 1994, Westview Press, Boulder, Colorado)
- Ecological Site Descriptions – Ecological Site Inventory System (USDA, NRCS)
- Effectiveness of annual and perennial grasses and legume species for early emergence and erosion control (USDA, NRCS, California Plant Materials Technical Notice # 39)
- Field Planting Summaries (USDA, NRCS, California Plant Materials Technical Notice # 32, 33 & 45)

PLS – What is it and how can we use it (USDA, NRCS, California Plant Materials Technical Notice # 34)

Range Development and Improvements third edition (Vallentine, John. 1989. Academic Press)

Dryland Pastures: Establishment and Management in the Intermountain Region of Northern California (Wilson, Rob et. al., Division of Agriculture and Natural Resources, University of California publication 8163, 2006)