

NATURAL RESOURCES CONSERVATION SERVICE CONSERVATION PRACTICE SPECIFICATION

FORAGE AND BIOMASS PLANTING

(ACRE)

CODE 512

I. SCOPE

The work shall consist of furnishing all materials and placing them on areas designated on the plan map and performing cultural operations to grow the crop and to maintain the life of the stand.

II. GENERAL

Record crop or forages produced on treatment area during the preceding growing season. Document the dominant soil series and the associated Forage Suitability Group in fields to be planted.

III. MATERIALS

Plant Materials

Selection of plant materials for seeding will be appropriate for the purpose for which the planting is made and based on the criteria for selection listed in the practice standard.

Forage plant characteristics and adaptation to climate and soils for species/cultivars suited to various locations in Nevada are provided in USDA-NRCS/Nevada Cooperative Extension (CES) joint publications BE-91-01, BE-91-02, and BE-91-03 and in Nevada NRCS Plant Guides.

All seed to be used shall conform to current Nevada State Seed Law and Regulations and current Nevada State Seed Certification Regulations (*Nevada Revised Statutes Chapter 587 Agricultural Products and Seeds* <http://www.leg.state.nv.us/NRS/NRS-587.html>).

Seed shall be labeled in accordance with Nevada State laws and the U. S. Department of Agriculture rules and regulations under the Federal Seed Act.

Information for the Nevada State Seed Law and Certification Regulations can be accessed at http://agri.nv.gov/Plant/Seed_Certification/Seed_Certification_Home/.

All commercially produced seed from *introduced plant species* shall be labeled either "certified seed" or "registered seed" as defined in the current Nevada Revised Statutes Chapter 587 Agricultural Products and Seeds (NRS 587.021.)

Seed shall be from the latest crop available. *No seed will be used having a date of test more than nine (9) months prior to the date of delivery to the site.*

Seed that has become wet, moldy, or otherwise damaged in transit or storage will not be used.

Seed is to be certified as free of noxious weeds.

Weed seed shall not exceed 1.5 percent (by weight) of the bulk seed supplied.

Seed label information will include percent purity and percent germination.

Refer to Nevada NRCS Plant Materials Technical Note No. 18 for definitions of seed label terms.

Seed lots of commercially produced species should be at least 85 percent pure live seed (PLS) and have a minimum purity of 85 percent.

Fertilizer

Application of fertilizer and soil amendments will be in accordance with NUTRIENT MANAGEMENT (Code 590) conservation practice standards and specifications.

All fertilizer shall be labeled in accordance with applicable state regulations and bear the warranty of the manufacturer for the grade furnished.

III. MATERIALS (continued)

Seed Inoculant

All legume seed should be inoculated. Inoculant for treating legume seeds shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species and shall not be used later than the date indicated on the container. A mixing medium, as recommended by the manufacturer, shall be used to bond inoculate to the seed.

For *pellet* inoculated seed, a minimum of 30-pounds of inoculant shall be used per 1,000-pounds of bulk seed.

For *non-pellet* inoculated seed, two times (2X) the amount of inoculate recommended by the manufacturer shall be used and seed shall be sown within 24-hours of treatment.

Pellet inoculated seed shall be labeled to show Lot Number, Expiration Date, and Percent Coat of the finished product. Pellet inoculated seed shall be stored in a cool environment and planted within 180-days of the inoculation date.

Pesticides

Pests such as cutworms may be present in the soil and should be controlled before new seedlings are planted. Grasshoppers, weevils, thrips, aphids and mites may also be a problem. Check with local information sources for necessary treatments for insects and rodents.

All pesticides used in performing this practice shall be federally, state, and locally registered and shall be applied strictly in accordance with authorized and registered uses, directions on the label, and other federal or state policies and requirements. Chemical containers shall be properly stored and disposed of in a safe manner. See PEST MANAGEMENT (Code 595) conservation practice standards and specifications.

IV. SEEDBED PREPARATION

All necessary land leveling, grading, shaping and subsoiling operations shall be completed prior to seedbed preparation.

If extensive earth movement has been required in land leveling, allow a year in an annual crop before establishing a perennial forage crop. An annual crop will improve soil condition in areas where topsoil has been removed and allow soil to settle in fill areas. A crop such as sudangrass, corn or small grain, leaves an excellent seedbed for drilling seed of forage plants and minimizes soil erosion.

The area to be planted shall be weed-free and have a firm seedbed.

Unless planting is made using a no-till drill, the soil surface is to be worked to a depth of 2 to 4-inches by disking, harrowing, or chiseling. If the prepared seedbed is too soft, the seedbed will be firmed using a ring roller or cultipacker.

Woody plant parts, thick roots, and other debris that may interfere with seeding shall be removed.

A pre-plant irrigation should be applied as necessary to bring soil moisture to field capacity. Seeding should be accomplished as soon as possible after soils have dried sufficiently to allow use of planting equipment. Planting seed in dry soil and "watering up" commonly results in soil crusting and salt accumulation on the soil surface. If "watering up" is a practice to be followed, light and frequent irrigation will be necessary.

Seedbed preparation shall be suspended when soil moisture conditions are not suitable for obtaining a satisfactory seedbed. Soils subject to compaction will not be tilled when wet.

For best results, a pre-plant fertilizer should be applied prior to planting and applied in a manner that will result in uniform distribution. Pre-plant fertilizers should be lightly incorporated into the upper few inches of the soil.

Soil amendments to modify pH should be applied three to six months in advance of planting if incorporated into the soil surface. Surface applications of soil pH amendments (without incorporation) should be made six to twelve months in advance of planting.

Fertilizer application (formulation, timing and rate) will be in accordance with NUTRIENT MANAGEMENT (Code 590) conservation practice standards and specifications.

V. PLANTING

Seeding rates are to be specified in terms of pure live seed (PLS). Seeding rate(s) shall be recorded for the weight of seed exclusive of any coating material.

Seeding rates for species/cultivars suited to various locations in Nevada are provided in USDA-NRCS/Nevada CES joint publications BE-91-01, BE-91-02 and BE-91-03 and in Nevada NRCS Plant Guides.

Unless otherwise specified, seed shall be drill seeded at the depth recommended in the Nevada NRCS Plant Guide for the species/cultivar being planted.

V. PLANTING (continued)

Seeding depth recommendations are usually given in terms of a range of depths. Planting depths on fine-textured soils will be shallower than other soils.

Seeding shall be performed as nearly as practical across the slope.

Except for those areas having less than a 100-day growing season, fall seedings are generally more successful than spring seedings. Spring seedings are more appropriate for areas with a growing season less than 100-days.

Although companion crops can provide more forage the first year, forage yields of the permanent species may be reduced in subsequent years. Competition with a companion crop for light, soil moisture and nutrients can reduce stand density and vigor of the permanent species. A companion crop is beneficial in areas where blowing sand may cut or cover young seedlings. If a small grain companion crop is seeded, the seeding rate of the cereals shall be one-half the normal rate and should be drill seeded in rows spaced 12-inches or wider.

If fertilizer is broadcast at seeding, irrigation water should be applied as soon as possible to move the fertilizer into the soil.

VI. OPERATION AND MAINTENANCE

Maintenance

Cultural practices recommended for establishing pasture and/or hayland forage crops and guidelines for management of new plantings are included in USDA-NRCS and Nevada CES joint publication BE-91-04 and in Nevada NRCS Plant Guides.

Irrigation water shall be applied following planting and during the establishment period at the times and rates required to prevent desiccation of seedlings.

New plantings will not be harvested until stand height averages at least ten inches.

Mowing can be performed for control of weeds or for firebreaks. Periodic mowing can be performed to reduce rank growth and to maintain species composition

Refer to Nevada NRCS Plant Materials Technical Note No. 32, *Determining Success of Forage Production Seedings*, for guidance in making evaluations of planting success.

Operation

Operations shall be done in such a manner that soil erosion is minimized and the impacts on air and water resources do not exceed state air and water quality standards.

The owner, operator, contractor, and other persons shall conduct all work and operations in accordance with proper safety codes for the type of equipment and operations being performed with due regard to safety of all persons and property.

REFERENCES

Nevada Cooperative Extension and the Soil Conservation Service. 1991. Irrigated Forages for Northern Nevada-Type Climate. Joint Publication BE-91-01. Reno, Nevada.

Nevada Cooperative Extension and the Soil Conservation Service. 1991. Irrigated Forages for Western Nevada-Type Climate. Joint Publication BE-91-02. Reno, Nevada.

Nevada Cooperative Extension and the Soil Conservation Service. 1991. Irrigated Forages for Southern Nevada-Type Climate. Joint Publication BE-91-03. Reno, Nevada.

Nevada Cooperative Extension and the Soil Conservation Service. 1991. Management of Irrigated Forages in Nevada. Joint Publication BE-91-04. Reno, Nevada.

Nevada Cooperative Extension. 2003. Intermountain Pasture and Hay Meadow Handbook: Pasture, Hay and Profit. Publication EB-00-03.