NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

CRITICAL AREA PLANTING

(Acre)
Code 342

DEFINITION

Establishing permanent vegetation on sites that have or are expected to have high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices.

PURPOSES

- Stabilize areas with existing or expected high rates of soil erosion by water.
- Stabilize areas with existing or expected high rates of soil erosion by wind.
- Restore degraded sites that cannot be stabilized through normal methods.

CONDITIONS WHERE PRACTICE APPLIES

On areas with existing or expected high rates of erosion or degraded sites that usually cannot be stabilized by ordinary conservation treatment and/or management, and if left untreated, could be severely damaged by erosion or sedimentation or could cause significant off-site damage.

General Criteria Applicable To All Purposes

Species selected for seeding or planting shall be suited to current site conditions and intended uses. Selected species will have the capacity to achieve adequate density and vigor within an appropriate time frame to stabilize the site sufficiently to permit suited uses with ordinary management activities.

Species, rates of seeding or planting, minimum quality of planting stock, such as PLS or stem caliper, and method of establishment shall be specified before application. Only viable, high quality seed or planting stock will be used.

Table I gives a list of suitable plants and related information. Other plants, not listed, are allowed if they meet the purpose of this practice. These plants can be planted at any time when there is sufficient moisture but try to avoid planting during the middle of the rainy season.

Site preparation and seeding or planting shall be done at a time and in a manner that best ensures survival and growth of the selected species. What constitutes successful establishment, e.g. minimum percent ground/canopy cover, percent survival, stand density, etc. shall be specified before application.

Fertilization, mulching, or other facilitating practices for plant growth shall be timed and applied to accelerate establishment of selected species. Nutrients and amendment application shall be based on Nutrient Management, practice standard (590) criteria. If the recommended fertilizer rate exceeds nutrient recommendation, appropriate mitigating practices will be installed to reduce the risk of nutrient losses from the site.

Additional Criteria to Restore Degraded Sites

If gullies or deep rills are present, they will be treated, if feasible, to allow equipment operation and ensure proper site and seedbed preparation.

Soil amendments will be added as necessary to ameliorate or eliminate physical or chemical conditions that inhibit plant establishment and growth. Required amendments, such as compost or manure to add organic matter and improve soil structure and water holding capacity; agricultural limestone to increase the pH of acid soils; or elemental sulfur to lower the pH of calcareous soils shall be included in the site specification with amounts, timing, and method of application.

Comply with all applicable federal, state, and local laws, rules, and regulations.

Considerations:

Native species or mixes that are adapted to the site and have multiple values should be considered.

Avoid species that may harbor pests. Species diversity should be considered to avoid loss of function due to species-specific pests.

Annuals such as ryegrass and rice can be used as a nurse crop and to provide temporary cover. Plant ryegrass during the winter or fall months at the rate of 20 lbs. of seed per acre. Plant rice at the rate of 30 lbs. of seed per acre at any time of the year.

Site Preparation:

- On sites where construction in underway, disturb as little of the site as possible, and protect trees and other vegetation that are to be retained.
- Apply temporary cover or mulch to erodible sites that will be exposed for long periods before they are permanently vegetated. Common bermuda grass can also be seeded with temporary plants in critical situations.
- On sites to be graded, strip and stockpile the topsoil. After the grading operation is completed, spread the topsoil evenly over the area. On some sites, it will be necessary to apply topsoil before permanent vegetation can be established.
- The surface grade should be at least 1% or more away from buildings. The grade and slope should permit the use of regular maintenance equipment. The best slopes for maintenance of grasses are 3:1 or flatter. It may be necessary to supplement a vegetated slope with structural measures, such as retaining walls or bench terraces.

Seedbed Preparation:

- Remove all debris, such as tree stumps, scrap lumber, mortar or concrete, and rocks.
- After applying topsoil, if required, loosen the soil to a depth of several inches.
- Perform all tillage operations at right angles to the slope to reduce the erosion hazard.
- Fertilizer and lime are usually applied just previous to the final seedbed preparation.
- Continue tillage until a reasonably uniform, fine, firm seedbed condition has been attained.

Seeding or Sodding:

- Establish the permanent grass by seeding or sodding as soon as possible after the seedbed preparation is completed. All lawn grasses, used in the Caribbean Area, are planted with vegetative material, except for common bermudagrass. Plant common bermuda grass at the rate of 80 lbs. of seed per acre.
- Apply seed uniformly by hand, cyclone seeder, drill cultipacker seeder, or hydroseeder.
- Cover the seed lightly.
- Firm the seedbed following the seeding operation with a cultipacker, roller, or light drag.
- Sod pieces or plugs are planted on at least 12-inch centers. On erodible slopes and other critical areas, it is best to use sod strips.
- Sod strips should be laid on the contour, never up and down the slope, starting at the bottom of the slope and working up.
- Place sod strips with snug even joints and stagger the joints from strip to strip.
- Roll or tamp sod immediately following placement to insure solid contact of root material and soil surface. Do not overlap sod. All joints should be butted tight to prevent voids which wood cause air drying of the roots.
- On steep slopes, secure sod to surface soil with wooden pegs or wire staples.
- Immediately following planting, sod should be watered until moisture penetrates the soil layer beneath sod to encourage quick root growth. Maintain optimum moisture for at least 2 weeks. Watering to a 6-inch depth is more effective than frequent light watering.
- As sodding is completed, the entire area should be rolled or tamped.
- Do not allow livestock to graze the vegetation nor should traffic by equipment be permitted to the point that the purpose of the practice is defeated or materially hindered.

PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded and filed using the approved specification sheets or narrative statements in the conservation plan.

OPERATION AND MAINTENANCE

Use of the area shall be managed as long as necessary to stabilize the site and achieve the intended purpose.

Control or exclude pests that will interfere with the timely establishment of vegetation. Inspections, reseeding or replanting, fertilization, and pest control may be needed to insure that this practice functions as intended throughout its expected life.

Table 1. Vegetation recommended for Critical Area Planting in the Caribbean Area[1]

Common Local Name	Technical Name	Planting Method and Minimum Rate (acre)	Acid tolerant	Salinity tolerant
Bahia grass (Yerba bahía)	*Paspalum notatum*	By seeds, 40 lbs. or by sprigs 1500 lbs.	Yes	Fair
Bamboo (Bambú)	*Bambusa spp.*	Stem cuttings. Amount varies per species	No	No
Bermuda grass (Yerba bermuda)	*Cynodon dactylon*	By seed, 60 lbs. or by sprigs 1500 lbs.	Yes	Fair
Buffel grass	*Pennisetum ciliare*	By seed, 6 lbs. or by clump division	No	Yes
Carpet grass (Grama colorada)	*Axonopus compressus*	By seed, 40 lbs. or by sprigs 1500 lbs.	Yes	No
Centipede grass (Grama ciempiés)	*Eremochloa ophiuroides*	By seed 20 lbs. or sod	Yes	No
Dallis grass (Yerba dalis)	*Paspalum dilatatum*	By seed 20 lbs. or sprigs 1500 lbs.	Yes	No
Guinea grass	*Urochloa maxima*	By seed, 25 lbs. or by clump division	Fair (variety gramalote is high acid tolerant)	No
Hurricane grass (Yerba huracán)	*Bothriochloa pertusa*	By seed 2 lbs. or by clump division	Fair	Fair
Lemon grass (Limoncillo)	*Cymbopogon citratus*	Clump division	Fair	No
Napier Elephant grass (all varieties) (Yerba elefante)	*Pennisetum purpureum*	By stem cuttings, 2000 lbs.	Fair	No
Narrow carpet grass (Grama colorada)	*Axonopus affinis*	By seed, 40 lbs. or by sprigs 1500 lbs.	Yes	No
Pangola grass	*Digitaria eriantha*	By sprigs 1500 lbs.	Yes	No
Para grass (Malojillo)	*Urochloa mutica*	By seed, 5 lbs. or by sprigs 1500 lbs.	Yes	Fair
Rhodes grass (Pasto Rodes)	*Chloris gayana*	By seed, 20 lbs. or by clump division	No	No to Fair depending on variety
Rye grass	*Lolium spp.*	By seed 40 lbs.	Yes	No
Seashore paspalum	*Paspalum vaginatum*	By sprigs 1500 lbs.	No	Yes
Signal grass (Yerba Signal)	*Urochloa brizantha*	By seed, 2 lbs. or by sprigs 1500 lbs.	Yes	No
Stargrass (Yerba Estrella)	*Cynodon nlemfuensis*	By sprigs, 1500 lbs.	Fair	Fair
Vetiver grass (Pacholí)	*Vetiveria zizanioides*	By clump division	Yes	Low
Zoysia	*Zoysia japonica* *Z. matrella*	Sod	Yes	Yes

[1]For species selection, see table Conservation Plants and Their Uses (USDA-NRCS, P.R. & USVI), filed in Section II of the FOTG. We recommend the identification of the species growing near the site to be restored.