

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION
CONSERVATION COVER
 (acre)
CODE 327

SCOPE

This document establishes the technical details, workmanship, and quality and extent of materials required to install the practice in accordance with the Conservation Practice Standard. The information shall be considered when preparing site-specific specifications for the practice.

The site-specific specifications for installing, operating, and maintaining the practice on a specific field or treatment unit shall be documented via the NRCS Hawaii Jobsheet for this practice and given to the client. Other documents such as practice worksheets, maps, drawings, and narrative statements in the conservation plan may be used to plan or design the practice and to prepare the site-specific specifications.

SPECIES SELECTION

The vegetation type and species selected will be suitable to the soil and site conditions and its intended purpose. Check other environmental factors, besides rainfall and elevation, for vegetation suitability. Viable, high quality, and adapted seeds, cuttings, or seedlings will be used.

Information about suitable grass species for conservation cover is included in Table 1 of this specification. Information about other suitable types of plant species for conservation cover are available in other practice Specifications as indicated below. The Hawaii Vegetative Guide (Hawaii Vegetative Technical Guide No. 7) includes all of the information and also pictures of most of the plant species.

Type of Information Required	Practice Specification (FOTG Section IV)
Grass species	Conservation Cover (327)
Perennial species	Critical Area Planting (342)
Adapted tree species	Tree/Shrub Establishment (612)
Habitat requirements for various wildlife species	Upland Wildlife Habitat Management (645)
Wetland plant species preferred by waterbirds	Wetland Wildlife Habitat Management (644)

The tables are not all-inclusive; if other plants are being considered contact the NRCS Plant Materials Specialist for approval (prescription).

For a list of vendors selling native plants refer to *Hawaii Plant Source Guide* published by the College of Tropical Agriculture and Human Resources, University of Hawaii. The Guide is available as the Hawaii Vegetative Technical Note No. 6.

ESTABLISHMENT METHODS

Acceptable methods of establishing the vegetation are: seeding, sprigging, planting trees and shrubs, or natural regeneration.

Seeding

The minimum site preparation for seeding will consist of one primary tillage like plowing or ripping, followed by disking where soil conditions permit.

All tillage will be on the contour or cross slope to minimize the erosion hazard, unless topography does not permit it and may cause safety concerns. Treat soil quality concerns, such as tillage pans, to prevent exacerbation of existing problems

Alternative methods to conventional tillage may be used, including herbiciding the existing vegetation and using a conservation tillage implement to prepare the seedbed. Refer to the *National Range and Pasture Handbook*, chapter 5, section 2, page 67 for information about allelopathic compounds that could cause seeding failure.

Refer to the following practices for additional information about site preparation; **Cover Crop** (Code 340), **Critical Area Planting** (Code 342), **Pasture and Hay Planting** (Code 512), and **Range Planting** (Code 550).

Seeding can be accomplished by broadcasting or drilling. If the seed is to be broadcast, a heavy rope, spiked tooth harrow, or similar implement will be dragged over the area to ensure good soil to seed contact. Seeds will be drilled to a maximum depth of 1/4 to 1/2 inches on medium to fine textured soil.

The NRCS Hawaii Vegetative Technical Note 3, *Pure Live Seed Worksheet*, may be used to calculate the amount of seed necessary.

Sprigging

If there is an adequate amount of vegetative material available to be sprigged, site preparation is the same as for seeding. After site preparation, the vegetative material will be distributed evenly on the prepared ground and disked. Spread sprigs at a minimum rate of 50 cubic foot (40 bushels or 600 pounds) per acre.

If there is a limited supply of vegetative material, the site preparation will consist of plowing furrows at a maximum depth of 6 inches and having the furrows spaced 3 feet apart. Furrows should follow the contour as much as possible. Place the vegetative materials in the furrow at a maximum spacing of 3 feet between sprigs. Cover the vegetative material with soil by disking, or other method(s), covering the sprigs parallel to the furrow. Compact the soil to ensure good soil to sprig contact.

A sprig planter may be available for the client's use from the NRCS Plant Materials Center in Hoolehua, Molokai. The sprigger is very effective where the soil is deep and the topography is not complex. The cooperater is responsible for making arrangements for its use through the local Soil and Water Conservation District and for all shipping costs.

The minimum site preparation where terrain restricts the use of heavy equipment will consist of digging 6-inch deep holes on a 3 x 3-foot grid.

Planting Trees and Shrubs

Proper site preparation is critical for the survival of trees and shrubs. Competing vegetation should be removed from the immediate vicinity. Refer to the standards and specifications for **Tree/Shrub Establishment** (Code 612) for additional information.

If cultivation and/or herbiciding are not practical, install polypropylene weed barriers (mats). Check with the Cooperative Extension Service (CES) or Division of Forestry and Wildlife (DOFAW) for herbicides that may be used on the type of trees and shrubs you are planting.

If the area will be mechanically cultivated, be sure to leave sufficient space for the tillage implements.

Mulching around the tree or shrub is a good way to reduce competition from weeds and conserve soil moisture. Leave a 5-inch area free of mulch around the trunk or stem to reduce plant disease problems.

Prepare container grown plants by fertilizing once a week with a teaspoon of 10-10-10 mixed with a gallon of water. Water the plants frequently before planting.

Bare rooted plants should be planted as soon as possible since they lose their vigor quite quickly. Soak the bare root plants in water 6--12 hours before planting. Bare rooted plants must not be allowed to dry out. If the bare rooted plants must be stored, dig a v--shaped trench and lay in the seedlings without crowding the roots; cover the roots with soil and pack firmly; water thoroughly.

Avoid root bound plants. The CES publication, *Planting a Tree* is an excellent reference. Refer to it for site preparation. Note the percolation test for soil drainage on page 2.

Calculate the consumptive use for trees in your area to determine the amount of water necessary. The main objective is getting the water into and throughout the root zone.

Natural Regeneration

Allow existing seeds to germinate, especially when the naturalized vegetation in the locale includes a high percentage of the target vegetation.

The seed supply of the target species on or within the soil will be of sufficient quantity so that 80% of the minimum required cover is normally reached within 3 months after the beginning of plant growth. If there is insufficient seed naturally present in the soil, the field will be seeded with the desired species.

REPLANTING

The area will be seeded, sprigged, or planted again, if necessary to establish and maintain the conservation cover.

TIMING OF PLANTING AND IRRIGATION

Seeding, sprigging, and planting will be conducted as close to the start of the rainy season as possible and/or irrigation will be provided to ensure that adequate moisture is available to establish and maintain the stand of vegetative cover. Refer to the standards and specifications for **Critical Area Planting** (Code 342) for the minimum standards for temporary irrigation.

PROTECTION

The vegetative cover will be protected from animals, vehicle and human traffic, insects, and diseases. If exclusion of animals and vehicle and human traffic is required, refer to the standards and specifications for **Use Exclusion** (Code 472). For pesticide application, refer to the standards and specifications for **Pest Management** (Code 595).

FERTILIZER APPLICATION

Fertilizer will be applied as necessary, to establish and maintain the minimum amount of vegetative cover required. Application will be based on a soil test and a nutrient balance worksheet, and the **Nutrient Management** (Code 590) practice.

REFERENCES

- Atchison, R. L., Ricke, L. B. 1996. *Weed Barrier Fabric Mulch for Tree and Shrub Plantings*. Kansas State and Extension Forestry, Kansas State University.
- Bornhorst, H. L., Rauch, F. D. 1994. *Native Hawaiian Plants for Landscaping, Conservation and Reforestation*. Research Extension Series 142. College of Tropical Agriculture and Human Resources. University of Hawaii
- Dickerson, G. W. 1998. *Mulches for Gardens and Landscapes*. College of Agriculture and Home Economics, New Mexico State University.
- Hollyer, J. A., etal. 1998. Hawaii Plant Source Directory 1998-1999. College of Tropical Agriculture and Human Resources. University of Hawaii at Manoa.
- Mead, G., Hensley, D. L. 1997 *Planting a Tree. Landscape Series, L-4*. Cooperative Extension Service, College of Tropical Agriculture and Human Resources. University of Hawaii
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- Rauch, F. D., Bornhorst, H. L., Hensley, D. L. Ilima 1997. *Ilima*. Ornamentals and Flowers OF-15. Cooperative Extension Service. College of Tropical Agriculture and Human Resources. University of Hawaii.
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Table 1. Suitable Grass Species (Page 1 of 1)

Grasses Normally Seeded	Rainfall (inches)	Elevation (feet)	Recommended Seeding Rate (lbs. PLS/ac)
annual ryegrass ^{1/ 6/} (<i>Lolium multiflorum</i>) mixed w/ other grasses annual ryegrass alone	40+	0 – 7,000	10 20
Bermudagrass ^{4/ 5/} (<i>Cynodon dactylon</i>) 'NK-37' giant Bermuda, common Bermuda	20 - 50	0 – 3,000	6
green panicgrass ^{4/} (<i>Urochloa maxima</i>) 'Petrie'	25 - 70	0 – 2,500	6
guineagrass ^{6/} (<i>Urochloa maxima</i>)	35 -100+	0 – 2,500	6
kikuyugrass ^{6/} (<i>Pennisetum clandestinum</i>) 'Whittet'	40+	0 – 6,000	6
lovegrass, 'emoloa' ^{3/} (<i>Eragrostis variabilis</i>)	15 - 45	0 – 3,500	6
orchardgrass (<i>Dactylis glomerata</i>)	40 - 100	3,000 – 7,000	12
perennial ryegrass (<i>Lolium perenne</i>) 'Tetraploid'	40+	1,500 – 7,000	24
piligrass ^{3/} (<i>Heteropogon contortus</i>)	15 - 45	0 – 2,000	6
Rhodesgrass ^{5/} (<i>Chloris gayana</i>) 'Bell', 'Katambora', 'Nemkat' ^{4/}	20 - 40	0 – 3,000	6
signalgrass ^{5/} (<i>Urochloa brizantha</i>)	50+	0 – 3,000	9
Grasses Normally Established Vegetatively	Rainfall (inches)	Elevation (feet)	Recommended Planting Rate (bushels/ac ^{2/} disked in material)
Baron's grass (<i>Ischaemum digitatum</i>)	50+	0 – 3,000	40
digitgrass ^{4/} (<i>Digitaria eriantha</i>) 'Mealani' 'Pangola'	50+	0 – 3,500	40
limpograss (<i>Hemarthria altissima</i>) 'Bigalta'	60+	0 – 4,000	40
Napiergrass (<i>Pennisetum purpureum</i>) 'Mott'	40+	0 – 3,000	40
signalgrass ^{5/} (<i>Urochloa brizantha</i>)	50+	0 – 3,000	40
stargrass, Puerto Rican ^{5/} (<i>Cynodon nlemfuensis</i>) 'Florico'	20 - 80	0 – 3,000	40

Note: This list is not all-inclusive. Other species may be recommended by qualified NRCS technical specialists.

^{1/} Use annual rye for rapid temporary cover.

^{2/} A bushel equals 1.25 cubic feet, or about 15 pounds of vegetative material.

^{3/} Native to Hawaii.

^{4/} Resistant to root-knot nematodes.

^{5/} Highly tolerant of soil salinity and wind-borne salt

^{6/} May have potential to become invasive.