



Susan Kubo, NRCS Aiea Service Center. 'Tropic Sun' sunn hemp mulch for green onion.

**PLANT MATERIALS SPECIALIST REPORT OF PLANTS
FOR FIELD AND INCREASE PLANTINGS**
November 2012

Introduction

This report provides a description of non-invasive, promising species featured for field and increase plantings in the Pacific Islands Area. Other species may be suitable and may be requested. Plantings are conducted with cooperators or clients through Field Offices. This document serves as a guide to Field Office personnel when considering plants for testing with clients. The excellent cooperation between Plant Materials and Field Office personnel in the Pacific Island Area has enabled us to maintain a viable Plant Materials Program.

The basic job of the Plant Materials Program is to assemble, test, and release new plants for conservation use. Proven plants are formally released by the NRCS in cooperation with the University of Hawaii and other institutions. Plants released for public use are commercially produced by growers. Increase plantings are established with cooperators for the commercial production of the released plants.

Data collected from field plantings are used to document the release of new cultivars. The field planting is the final phase of testing in the plant materials systematic testing process. It is where a new plant is tested on a farm or other site under actual use conditions. Field plantings may also be used to gather additional information on previously released and commercially available plants and to demonstrate a new plant, technique, or practice. Information gained from field plantings is incorporated into the Pacific Islands Area Vegetative Guide, fact sheets, plant guides, and other documents.

Field Office personnel may request a field or increase planting of the plants in this report by contacting the Plant Materials Specialist. A Plan for Field, Special, and Increase Plantings (NRCS-ECS-9 form) is completed by the Field Office and signed by the cooperator. It is sent for approval to the Plant Materials Specialist. Arrangements will then be made with the Plant Materials Center Manager and staff to send the plant materials to the Field Office for delivery to the cooperator. There is no charge for plant materials for approved plantings and they are shipped pre-paid. However, supplies are limited and plantings should be kept relatively small. The NRCS-ECS-9 form may be accessed at: [ftp://ftp-fc.sc.egov.usda.gov/MT/www/technical/plants/ECS-9\(July2010_revision\).pdf](ftp://ftp-fc.sc.egov.usda.gov/MT/www/technical/plants/ECS-9(July2010_revision).pdf).

The Field Office Role in Field and Increase Plantings

- Select clients who are interested and knowledgeable about the purpose of the planting.
- Complete the NRCS-ECS-9 form and send it to the Plant Materials Specialist for approval.
- Advise the client on the planting. Refer to the section on Plant Establishment Procedures from the Pacific Islands Area Vegetative Guide – Vegetative Technical Note No. 7.
- Follow the applicable FOTG Standard and Specification.
- Within 60 to 180 days, evaluate the planting and send photos with the completed evaluation form to the Plant Materials Specialist. This first evaluation of the field planting is especially important for cover crop plantings that are terminated for soil improvement within 60 to 90 days. The Photo Documentation Form (Conservation Planning Technical Note – No. 4) works well for sending photos.
- Evaluate the planting after the first year's growth and again once each year for the next four years (unless the Plant Materials Specialist determines that no additional information can be learned and closes the planting) and send the evaluation and photos to the Plant Materials Specialist.
- The Field and Increase Planting Evaluation form has been streamlined for ease of use and consists of only a single page. The evaluation form is available from the Plant Materials Specialist. An example of the form is included in this report.

FIELD AND INCREASE PLANTING EVALUATION

Client: _____

Date Planted (m/y): _____

Evaluator: _____

Plant Common Name: _____

Date Evaluated: _____

Cultivar Name or Accession #: _____

CHARACTERISTICS

RATINGS (X)

	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
Average Plant Height (ft., in.): Leaves _____			
Seed Heads/Pods _____			
Average Width or Spread (ft., in.): _____			
Times Mowed, Trimmed, Grazed/Yr: _____			
Plant Density or Stand:	_____	_____	_____
Plant Vigor:	_____	_____	_____
Ability to Compete with Weeds:	_____	_____	_____
Ease of Establishment:	_____	_____	_____
Shade Tolerance:	_____	_____	_____
Drought Tolerance:	_____	_____	_____
Insect Resistance:	_____	_____	_____
Disease Resistance:	_____	_____	_____
Tolerance to Low Fertility Soils:	_____	_____	_____
Tolerance to Grazing:	_____	_____	_____
Ability to Spread by Seed:	_____	_____	_____
Ability to Spread by Vegetative Means:	_____	_____	_____
Ease of Maintenance:	_____	_____	_____
Quality of Growth for Intended Use:	_____	_____	_____

Comments on overall plant performance, fertilizer and pesticides applied, unusual conditions, existing vegetation, explanation of ratings, and other factors:

Client's comments and opinion of plant:

Instructions: Evaluate planting with the client, if possible. Complete all items. Enter NA next to criteria that are not applicable. Use a separate form for each cultivar or accession number. Send one copy of the completed form to the Plant Materials Specialist and keep a copy for your files.

TERMS EXPLAINED

Field Planting: a planting conducted by a client/cooperator to evaluate the performance of a new plant under actual use conditions.

Increase Planting: a planting conducted by a client/cooperator to multiply the seed or vegetative parts of a formally released plant for commercial use or sale.

Plant Density or Stand: consider how much of the plant is there.

Plant Vigor: overall appearance or health of the plant.

Ability to Compete with Weeds: consider how many weeds there are compared to the plant being evaluated and if the plant is out-growing the weeds or vice versa.

Ease of Establishment: consider the time and effort it took for the plant to reach this stage of growth and density.

Shade Tolerance: consider how well the plant grows in shaded conditions.

Drought Tolerance: consider how well the plant handles dry conditions.

Insect Resistance: consider the amount and severity of insect damage observed on plant.

Disease Resistance: consider the amount and severity of disease present.

Tolerance to Low Fertility Soils: ability of the plant to establish itself and grow on a low fertility site.

Tolerance to Grazing: ability of the plant to re-grow and thrive after grazing.

Ability to Spread by Seed: consider the amount of volunteer seedlings found near the planting site.

Ability to Spread by Vegetative Means: consider the amount and rate the plant spreads by stolons (runners) or rhizomes.

Ease of Maintenance: amount of care required to keep the plant in the desired condition.

Quality of Growth for Intended Use: consider growth rate, uniformity, adaptability, and other characteristics important for intended use.

Note: locally occurring plants can be used for comparison when evaluating if they serve the same conservation purpose



Crotalaria juncea ('Tropic Sun' sunn hemp): Sunn hemp is an erect, annual legume that grows very well throughout the Pacific Islands Area. The cultivar 'Tropic Sun' is an excellent cover/green manure crop that is resistant to root-knot nematodes and is non-toxic to animals. The photo shows a crop being cut by hand for mulching the soil surface. Green onions are planted through the mulch. This type of culture looks promising for areas such as American Samoa where equipment is limited. Sunn hemp is popular with farmers for soil improvement, nematode control, weed suppression, moisture retention as mulch, a pollinator, a temporary windbreak, and, more recently, for corn earworm control. 'Tropic Sun' seed is commercially available. Plantings will be limited to innovative plantings such as the type pictured. Further information on 'Tropic Sun' can be found at: <http://www2.ctahr.hawaii.edu/oc/freepubs/pdf/GreenManureCrop/sunnhemp.pdf> and <http://www.plant-materials.nrcs.usda.gov/pubs/hipmcrb8433.pdf>.



Dodonaea viscosa ('a'ali'i, lampuaye, Florida hopbush): A widely adapted indigenous shrub that is native to Hawaii and naturalized in the Northern Marianas. It is a good windbreak, hedge, screen, and landscaping plant. It is mostly seen growing to a height of approximately 10 feet, but can reach 25 feet under certain conditions. It has a slow to moderate growth rate. It is propagated by seed and its attractive seed capsules make colorful leis. We have formally released a selection collected on Molokai referred to as Kamiloloa Germplasm 'A'ali'i Source Identified Class of Natural Germplasm (pictured). Fact sheets on 'a'ali'i may be viewed at: <http://www.ctahr.hawaii.edu/oc/freepubs/pdf/OF-20.pdf> and <http://www2.hawaii.edu/~eherring/hawnprop/dod-visc.htm>.



Eragrostis variabilis (kawelu, 'emoloa, lovegrass): A perennial bunchgrass that is endemic to Hawaii. It is an attractive grass that is found on all the main islands and in the Northwestern Hawaiian Islands. It occurs on coastal dunes and grasslands, open sites in dry forests, and on exposed cliffs up to approximately 3,600 feet. It shows promise for erosion control on critical areas, restoration, wildlife, and beautification. It may be somewhat short lived. It is propagated by seed. Because it is endemic to the Hawaiian Islands, it should be planted only in Hawaii. The kawelu pictured was collected on Kaho'olawe and was formally released as Kaho'olawe Germplasm Kawelu Source Identified Class of Natural Germplasm. Please see the following fact sheets for additional information: ftp://ftp-fc.sc.egov.usda.gov/HI/pub/technical/pmc/Kawelu_FactSheet1_090616.pdf and http://en.wikipedia.org/wiki/Eragrostis_variabilis.



Heteropogon contortus (piligrass, tanglehead): Piligrass is indigenous to the Pacific Islands Area and is widely distributed in the tropics and subtropics. The native Hawaiians used it to thatch their houses and other buildings in dry areas. It is a drought tolerant bunch grass. It is currently being used for erosion control and restoration on Kaho'olawe. It is also used for forage, conservation cover, landscaping, and roadside revegetation. The piligrass pictured was collected on Kaho'olawe and was formally released as Kaho'olawe Germplasm Piligrass Source Identified Class of Natural Germplasm. It is propagated by seed. Interesting and helpful additional information on piligrass can be found at the following links:

http://www.plants.usda.gov/factsheet/pdf/fs_heco10.pdf and http://www.nativeplants.hawaii.edu/plant/view/Heteropogon_contortus.



Pennisetum purpureum X *Pennisetum glaucum* (Napier X pearl millet hybrid): Hybrids of Napiergrass and pearl millet are sterile and not invasive. They are very leafy and make good forage for cut and carry animal feeding operations. A Napier x pearl millet hybrid called PMN Hybrid (shown) was developed by the Hawaiian Sugar Planters' Association (now HARC) for the USDA-ARS Georgia Coastal Plain Experiment Station. It has thinner stems than other selections of Napier. A PMC developed hybrid (HA-5690) is a cross between banagrass, a tall Napier, and a male sterile pearl millet. HA-5690 performed well on a slope planting using the live fascine technique. These tall grasses have promise for herbaceous wind barriers, vegetative barriers, biomass for energy production, and forage. Propagation is by stem cuttings planted in furrows similar to sugar cane. Additional information is at: http://www.tropicalforages.info/key/Forages/Media/Html/Pennisetum_purpureum.htm.



Sporobolus virginicus (seashore rushgrass, seashore dropseed, 'aki'aki, totoput): An indigenous, creeping, perennial grass that is normally propagated by rhizomes. Recent tests indicate that it can be propagated by stolons if a rooting hormone is used and the stolons are kept continuously moist until they develop roots. It is native to sandy, coastal sites in tropical and subtropical areas worldwide. It is usually found just above the high-tide mark. It will grow up to 1,000 feet in elevation, but the soil must be fairly loose for the rhizomes to spread. It is performing well for erosion control on Kaho'olawe where ripping or chiseling was done to fracture the hard soil. It is drought tolerant and very salt tolerant and should be useful for shoreline, stream bank, and critical area stabilization. It is palatable to animals and can be grazed. Fact sheets may be seen at the following links: http://plants.usda.gov/factsheet/pdf/fs_spvi3.pdf and http://www.nativeplants.hawaii.edu/plant/view/Sporobolus_virginicus.



Vitex rotundifolia (beach vitex, pohinahina): A native sprawling shrub that is approximately 6 inches to 2 feet tall. It is indigenous throughout the Pacific. The leaves are gray-green to silvery and the flowers are bluish purple. It is found growing naturally on sandy beaches, dunes, and rocky shorelines up to approximately 50 feet. However, observations indicate that it will grow at higher elevations. It is useful for shoreline and stream bank stabilization. Propagation is by seed and cuttings. The following link has additional information: <http://www2.hawaii.edu/~eherring/hawnprop/vit-rotu.htm>



Waltheria indica ('uhaloa, hi'aloa, sleepy morning): An indigenous shrub that has a strong stem emerging from the ground, but frequently branches near the ground. It usually has an upright and somewhat branching form. However, in some environments, it may have a semi-prostrate habit. It usually grows 2 to 3 feet tall, but has been reported to reach 6 feet. It has yellow to orange flowers. It grows throughout the tropics and is adapted to a wide variety of soils from sea level to over 3,000 feet in elevation. Because it is naturally found on disturbed sites and along roadsides, it should prove useful for restoration and critical area plantings. It is tolerant of drought, salt spray, and mildly salty soils. It is browsed by livestock, has medicinal properties, and is a good pollinator plant. It is propagated by seed. Additional information is at:

<http://www2.hawaii.edu/~eherring/hawnprop/wal-indi.htm> and <http://www.fs.fed.us/global/iitf/pdf/shrubs/Waltheria%20indica.pdf>.

Photos by: D. Duvauchelle, R. Joy, S. Kubo, G. Sakamoto, and F. & K. Starr.