UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
Honolulu, Hawai'i
and the
COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES
UNIVERSITY OF HAWAI'I AT MANOA
Honolulu, Hawai'i

NOTICE OF RELEASE OF KAHO'OLAWE GERMPLASM PILIGRASS SOURCE IDENTIFIED CLASS OF NATURAL GERMPLASM

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and the College of Tropical Agriculture and Human Resources, University of Hawai'i at Manoa, announce the release of a source identified ecotype of piligrass (Heteropogon contortus (L.) Beauv. ex Roemer & J.A. Schultes) for the Maui Nui group of Hawaiian Islands. The Maui Nui group is comprised of the islands of Maui, Moloka'i, Lana'i and Kaho'olawe which were connected by land in the past and, therefore, have genetically similar plant populations.

As a source identified release, this plant will be referred to as Kaho'olawe Germplasm Piligrass to document its original collection location. It has been assigned the NRCS accession number 9079683.

This alternative release procedure is justified because there are no existing commercial seed sources of piligrass. Propagation material of specific ecotypes from the Maui Nui group is needed for revegetation and ecosystem restoration. The potential for immediate use is high for these purposes on the island of Kaho'olawe.

Collection Site Information: The collection site is located on the island of Kaho'olawe, approximately one mile north of Lua Makika at 20 degrees 34 minutes 47 seconds north latitude and 156 degrees 41 minutes 58 seconds west longitude. The elevation is approximately 1,220 feet above sea level. The soil is classified as Kaho'olawe silty clay loam. This is a very deep, well-drained soil with moderate permeability. The top six inches consists of a silty clay loam with a dark reddish brown color when moist. It is very friable with a weak, very fine granular structure. It is slightly acid (pH 6.5). The parent material of the Kaho'olawe Series is strongly weathered volcanic ash over strongly weathered basic igneous rock with recent deposits of windblown soil. The piligrass at the collection site is growing on a 5 percent north facing slope exposed to strong winds. The climate at the site is relatively hot and dry with a mean annual precipitation of approximately 25 inches. The associated plants are mainly *Bothriochloa.*

Ecotype Description: Kaho'olawe Germplasm Piligrass is an erect, branching perennial that may form rather large bunches up to 5 feet tall under optimum conditions. Under natural conditions in Hawai'i, it grows 1 to 3 feet tall and is found in open, dry, sometimes rocky land from sea level to approximately 2,000 feet in elevation. Piligrass is widely distributed in the tropics and sub-tropics. There is extensive variation in this species throughout its range. It is relatively shallow rooted under natural conditions and is easily pulled up by grazing animals. The stems are flattened, rather tough, smooth, and a pale bluish-green. The leaf blades are flat or folded, 4 to 12 inches long, about 0.25 inch wide, and rough to the touch. Leaves are produced throughout the length of the stem, giving mature plants a characteristic top-heavy appearance. Piligrass is considered to be essentially an obligate apomict with plants reproducing by seed, but asexually, without fertilization. The flowering heads have narrow, crowded flower spikes up to 4 inches long. The spikelets overlap and each fertile one bears a conspicuous red-brown awn or bristle about 4 inches long, made crooked with two bends. The seeds are sharp-pointed and have the long, twisted, hairy awns. The long-awned seeds form black, tangled masses as they mature. Most of the seed falls to the ground at or near the base of the parent plant. The seed is unique in that it plants itself in the ground because of its long, spirally twisted hygroscopic awn and sharp, barbed tip. Upon absorbing water the awn arches, planting the tip and the seed then twists into the soil.

Environmental Impact Assessment: Kaho'olawe Germplasm Piligrass is a collection of naturally occurring germplasm and has been unaltered. The piligrass population in Hawai'i is decreasing, especially on the islands of Moloka'i and O'ahu. Kaho'olawe Germplasm Piligrass did not meet the assessment of a plant which could become invasive based on guidelines adopted by the NRCS Plant Materials Program.

Anticipated Conservation Use: The potential uses of Kaho'olawe Germplasm Piligrass include ecosystem restoration, erosion control, wildlife cover and food, increasing diversity in riparian and other communities, and enhancing cultural sites. Ecosystem restoration on degraded sites is accelerated by baling the piligrass when the seeds have matured and placing the bales in rills and gullies on the hardpan. The wind and water gradually degrade the bales releasing the hay and seed as mulch and propagating material down stream or in lee pockets where soil particles accrete. The seeds germinate following a precipitation event and the resulting seedlings stabilize the loose soil particles. Culturally, piligrass is important because the native Hawaiians used it for thatching their houses in dry areas, where it was generally favored because of its pleasant odor. Piligrass thatch was harvested by uprooting the bunch, shaking soil off the roots and trimming the flowering spikes. Piligrass bunches were tied to the house or hale in rows with the stems up. Stands of piligrass were maintained for this use by native Hawaiians through the practice of burning the grasslands, which destroyed native woody species.

Potential Area of Adaptation: Piligrass will grow on all the Hawaiian Islands from sea level to an elevation of approximately 2,000 feet in areas that receive approximately 15 to 50 inches of rainfall annually. Since piligrass is naturally found in relatively dry areas such as dry rocky cliffs, ledges, and slopes, it may not persist in very high rainfall areas. It has a low fertility requirement but is intolerant of acid (pH < 5.5) soils.

Availability of Plant Materials: Seeds of Kaho'olawe Germplasm Piligrass will be maintained by the USDA-NRCS Plant Materials Center, Ho'olehua, Moloka'i, Hawai'i. To make collections from the original collection site, contact the Plant Materials Center.

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Signatures for release of :
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