

# 'Kuiaha' Desmodium



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## 'KUIAHA' DESMODIUM

*Desmodium aparines* (Link) DC

### ORIGIN OF 'KUIAHA'

*Desmodium aparines* (Link) DC. was first introduced into Hawaii by the Hawaii Agricultural Experiment Station in 1947 under the name of *Desmodium intortum* (Mill.) Urb. Unfortunately, the name *D. intortum* belongs to another *Desmodium* species that is found in different localities on the Island of Hawaii. The cultivar 'Greenleaf' desmodium released by Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia also carries the name *D. intortum* which should be changed to *D. aparines*.

Since *Desmodium aparines* was introduced into Hawaii, a number of different strains have been observed. Some of these have been quite variable in form, growth habit, and production. Two of the early introductions, HAES 4331 and 4247, have



been outstanding in yield trials and field plantings. These two original strains were increased by the Soil Conservation Service (SCS) at the Kokomo Unit of the Plant Materials Center on Maui. Limited amounts of seed have been available for field-size plantings throughout the State.

The 'Greenleaf' desmodium of Australia, originated from plants of 4331 and other types similar in appearance. This cultivar has been used widely in Hawaii and various parts of the tropics and is commercially available. Because of climatic conditions in Australia, a constant and ready source of seed is not always available.

Because the original seedings of 4331 and 4247 types at the SCS Plant Materials Center at Kokomo have become crossed, and because 4247 varies greatly from extremely stemmy to fine leafed, mother clones of 4331 types were reselected to establish a Hawaiian seed source for *D. aparines*. Rooted cuttings of selected clones were planted in a 2-acre seed field at the SCS Plant Materials Center unit at Haiku, Maui, in August 1967.

A limited amount of seed was harvested in January 1968. The 1969 seed crop was almost a total loss after an unusually severe wind and rainstorm at the time of maturity. In succeeding years, much more seed should be available when the plants mature. The USDA, SCS Plant Materials Center and the HAES plan to maintain this field as a source of foundation seed. Seed production should average 250-500 pounds of clean seed per acre.

The seed from this field will be first-generation synthetic composed of both self-fertilized and outcrossed materials. *D. aparines* will self-fertilize readily but will outcross when weather conditions are suitable and pollinating insects are available. The plants from this seed will be quite uniform in appearance, rate of growth, and time of flowering. This should ensure the grower a uniform planting material without a wide range in variation of forms, some of which may be less useful as forage. This strain is called 'Kuiaha.'

## DESCRIPTION

'Kuiaha' desmodium is a perennial decumbent plant with long, trailing stems that root at the nodes. The main stems are predominantly green with some red, from 5 to 25 feet long, and about 5/16 inch in diameter. The leaflets are ovate, 2 to 3 inches wide and 3 to 5 inches long when mature. The upper leaf surface is light to dark green and covered with fine hairs. The lower leaf surface may be lighter in color and is covered with fine hairs.

The pea-type flowers are usually pink and are borne on terminal racemes. The hairy seed pods are indented around the seed; the lower edge of the pod has the larger indentations. Flower initiation is regulated by a short photoperiod. Most of the flowering occurs from late November through December. The seeds are

kidney-shaped, light brown or tan, about 2.0 mm long and about 1.5 mm wide. There are approximately 350,000 seeds per pound.

### USE

'Kuiaha' desmodium is recommended for use as a pasture legume. It adds to the forage quality by its protein content and increases production by providing nitrogen for companion grasses.

### ADAPTATION

*Desmodium aparines* is adapted in Hawaii to climatic areas with an annual rainfall of more than 60 inches and elevations ranging from sea level to more than 2,500 feet. According to the New Soil Classification System, the soils in the Great Groups for the major areas of adaptation are the Dystrandepts, Histosols, Humitropepts, Hydrandepts, and Tropohumults. In the old classification, Great Soils Group, these soils were classified as Humic Latosols, Humic Ferruginous Latosols, and Hydrol Humic Latosols. This includes parts of vegetative zones C and D in Hawaii.

### COMPANION GRASSES

'Kuiaha' desmodium is generally grown with pangolagrass (*Digitaria decumbens*). It will grow well with paragrass (*Brachiaria mutica*) and kikuyugrass (*Pennisetum clandestinum*).

'Kuiaha' desmodium may establish from seed or from stem cuttings. To insure success, seeds should be planted in a well-prepared seedbed either by broadcasting or drilling in rows. Any width of row up to 3 feet may be used. As the distance between rows increases, the seeding rate per acre may be decreased. The suggested broadcast seeding rate is 1 pound of live pure seed per acre.

'Kuiaha' desmodium seed must be inoculated with the proper *Rhizobium* to insure effective nodulation. Keep inoculum and inoculated seeds out of direct sunlight. Improper nodule formation may severely limit the growth of this crop. It is recommended that the grower use "desmodium inoculum" which is commercially available.

Weeds can be controlled in recently seeded pastures by controlled animal grazing. This may be done by stocking the pasture with enough animals to remove the top growth of all weedy plants in 7 days or fewer. The animals must be removed before the 'Kuiaha' desmodium seedlings are permanently damaged.

Adequate levels of available phosphorous, potassium and calcium increase seedling vigor and promote rapid establishment.

## MANAGEMENT

Management of a 'Kuiaha' desmodium grass mixture is governed by the growth of the legume; rotational grazing must be controlled carefully. This legume must be given an opportunity to make enough top growth for good root development. Care must be taken to prevent excessive stem damage because the new growth comes from buds in the leaf axils on the stems as well as from the crowns. Remove all livestock from the pasture as soon as possible after the leaves have been stripped from the stems. 'Kuiaha' desmodium has a 60- to 90-day regrowth cycle.

Applications of phosphate, and sometimes potassium and lime, are needed for good, vigorous plant growth. A good stand of this legume may provide enough nitrogen for adequate grass growth, so a nitrogenous fertilizer should not be used. A good, well-managed 'Kuiaha' desmodium-grass pasture should produce up to 80 tons of green forage per acre per year.



Flowering Head of  
*D. aparinum* (Link) DC.

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