United States Department of Agriculture
NRCS Natural Resources Conservation Service

Ho'olehua Plant Materials Center

Progress Report of Activities
2009

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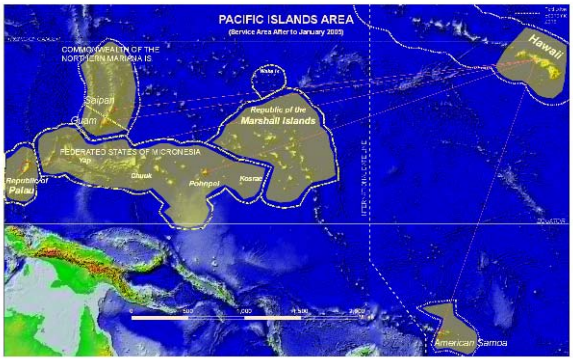
Who We Are

The Ho'olehua Plant Materials Center is located on the island of Molokai and situated on the fertile agricultural plains of Ho'olehua. It is one of 27 Centers located throughout the United States. The island of Molokai is 27 miles long and 11 miles wide (261 square miles) and the fifth largest island in the Hawaiian chain. The Center is responsible for servicing the plant conservation resource needs of the Pacific Island Area, which includes the State of Hawaii, Guam, Northern Mariana Islands, The Federated States of Micronesia, The Republic of Palau, The Republic of the Marshall Islands and American Samoa.



Hawaii Plant Materials Program

Controlling erosion, enhancing and protecting our natural resource base through the use of plant materials, is our main mission. To do this and be consistent with the USDA objectives and NRCS Strategic Plans, the Plant Materials Program develops, tests and transfers effective state of the art plant science technology, so as to meet stakeholders and conservation resource needs.

Program Highlights For 2009

Kaho'olawe Island Re-vegetation Effort

The re-vegetation assistance, provided by the Ho'olehua Plant Materials Center, continues to be a major role for the Plant Materials Program. The Plant Materials Center has been tasked to provide native plant seeds to the Kaho'olawe Island Reserve Commission (KIRC). The assistance provided has enabled KIRC to re-introduce native plant species to help reduce and control the soil erosion problems that has plagued the island for decades. The upper one third of the island is severely eroded and void of any significant vegetation, hence the native plants has also helped to control invasive plants from establishing on the island of Kaho'olawe.

Achyranthes splendens growing on barren Kahoolawe hardpan 2008

Since 1999, the Hawaii Plant Materials Center (PMC) has developed 20 acres of land as native seed production fields. The goal has been to provide KIRC with a reliable, large producing native plant seed source for their re-vegetation efforts. This also included, providing technical assistance in resource conservation planning, and techniques for the establishment of native plants.

Native plant species currently cultivated and provided by the PMC include, *Heteropogon contortus*, piligrass; *Dodonaea viscose*, a`ali`i; *Chenopodium oauhense*, aweoweo; *Eragrostis variabilis*, kawelu; *Achyranthes splendens*; and *Waltheria indica*, uhaloa

Newly planted field of *Anchyranthes splendens* November 2009

To date, the PMC has shipped over 12,159 native piligrass hay/seed bales (182 tons) to Kaho'olawe. The Ho'olehua Plant Materials Center has also provided, over 2,229 pounds of kawelu, 88 pounds of a'al'ii and 1,364 pounds of aweoweo seed for distribution over the island of Kaho'olawe.

Bush Cherry Tree as Winbreak
Syzigium paniculatum

Syzigium paniculatum, or Bush Cherry is currently under initial evaluation at the Ho'olehua Plant Materials Center. It was selected for windbreak evaluations, due to its compact characteristics and moderately fast rate of growth. The Cherry Bush produces puffy white flowers and has small, firm, glossy leaves. When provided with adequate light, this plant will develop red highlights on its leaves. It's native to Florida and Australia. It's beautiful reddish foliage and shiny green mature leaves, make it an attractive screen and hedge planting. The Bush Cherry may still be referred as *Eugenia myrtifolia* in some literature.

Bare root seedlings of a current stand of Bush Cherry, was obtained by Field Office Soil Conservationist, Lester Suehiro in 2007 and out planted to evaluation plots in March 2008. By August 2009, the average height exceeded 10 ft. in height. The rate of growth accelerated after the fourth and fifth month after transplanting.

Photographs of Bush Cherry at the Ho'olehua Plant Materials Center.

Syzigium paniculatum
May 200*8*

Syzigium paniculatum
August 2009

Evaluating Hydro-planting Techniques with Native Hawaiian Plants for Possible Roadside Application

The Ho'olehua Plant Materials Center (PMC) in partnership with the University Hawaii at Manoa, Department of Tropical Plants and Soil Science and the State of Hawaii Department of Transportation are investigating the use of hydro-planting techniques for possible roadside applications. Developing hydro-planting techniques for native species offers a great opportunity to utilize native species for large-scale re-vegetation/erosion control and restoration projects.

Hydroplanting test plots at Hoolehua PMC, Summer 2009

Hydro-planting involves the use of water, seeds or vegetative plant parts, and a mixture of one or more of the following, wood fiber, straw, paper, fertilizers and or biostimulants. The mixture is agitated in a large tank and pumped out via hose and nozzle attachment.

A hydro-planting trial was conducted at the Ho'olehua Plant Materials Center and involved a "hydromulching cap", which is hydromulch applied over vegetative grass sprigs (native grass selection).

Hydromulching cap being applied over aki`aki sprigs, Summer 2009 PMC

Sporobulis virginicus or more commonly, aki`aki grass was used in the study to determine if the hydromulching cap, sprayed over aki`aki grass sprigs, would establish a suitable and successful ground cover. The study involved utilizing various mixtures of mulch ingredients, fertilizer, hormones and pre-emergence herbicides.

Aki`aki grass is a low growing, drought and extremely salt tolerant indigenous native grass. It is found throughout the tropics and sub tropics and most commonly seen growing along and near coastal and shoreline areas.

Photographs taken of the trial at the Ho'olehua Plant Materials Center:

Inter Center ‘Tropic Sun’ sunn hemp Study

In the summer of 2009, the Ho’olehua Plant Materials Center (PMC), along with other Plant Materials Center’s across the nation, simultaneously undertook a national study to investigate the adaptable ranges of growing the Ho’olehua Plant Materials Center’s 1982 release of *Crotalaria juncea* ‘Tropic Sun’ sunn hemp.

'Tropic Sun' sunn hemp at 30 days after planting

The rising cost of petroleum base fertilizers and fuel has prompt a closer look at using green manure ‘Tropic Sun’ sunn hemp, as an alternative source of nitrogen, organic matter and its nematode suppression attributes. *Crotalaria juncea*, ‘Tropic Sun’ sunn hemp is a fast growing, nitrogen fixing, nematode suppressant legume, released from the Ho’olehua Plant Materials Center to be utilized in crop rotation systems. ‘Tropic Sun’ can provide up to 150 pounds of nitrogen per acre and add up to 2 tons of organic matter per acre, within 60 days after planting. It is also resistant to the root-knot nematode.

David Duvauchelle, Natural Resource Specialist stands next to 'Tropic Sun' sunn hemp at 60 days after planting, August 2009

The study has involved Plant Material Center’s throughout the United States, as far east as Florida and Maryland and throughout the mid-west and west coast. The study has also investigated the feasibility of producing seed of ‘Tropic Sun’ in Mexico and Puerto Rico. Currently, there are only two Hawaii seed companies producing seed of ‘Tropic Sun’.

Training/ Outreach/Tours/Visitors
2009

State of Hawaii Department of Agriculture Weed Specialist visit PMC to collect plant specimens and discuss invasive plant issues

State and Field Office personnel attend one day training session a PMC

Hawaiian Immersion High School students volunteer to harvest piligrass thatching material for the construction of a traditional Hawaiian grass house on the island of Kaho`olawe

Hawaii Soil and Water Conservation District (SWCD) Soil Conservationist attend a PMC orientation training session

Molokai High School students of the Molokai Environmental Preservation Organization, (MEPO) volunteer their services to help shrink wrap piligrass hay bales prior to shipment to Kaho`olawe Island

Summer Americorps volunteers Frank Borden and Jare Seumalu contributed over 500 hours at the PMC