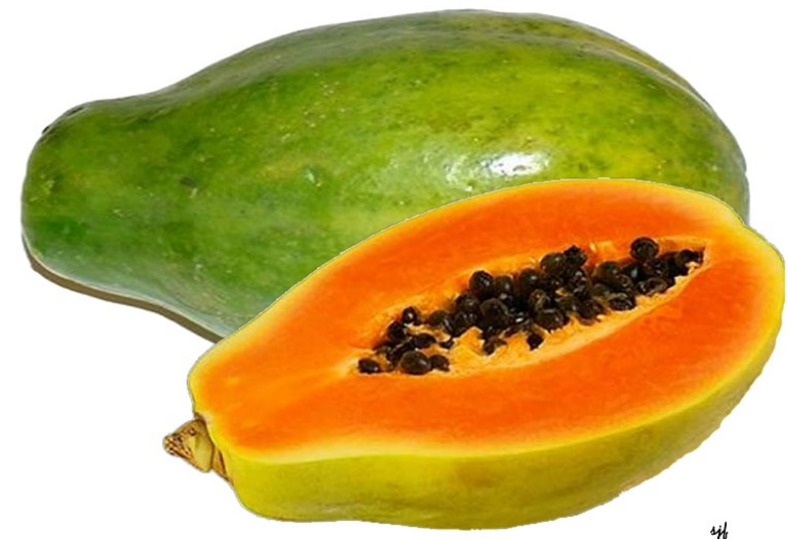


2019 Hawaii Island



Annual Report



University of Hawaii College of Tropical Agriculture And Human Resources

The University of Hawaii at Manoa, College of Tropical Agriculture and Human Resources (CTAHR) through the activities of the Cooperative Extension Service is responsible for providing community-based educational programs in agriculture and human resources. The Cooperative Extension Service is able to provide services to the public and your community through the work of county extension personnel.

County Extension Agents are University of Hawaii faculty members who work out of Extension Offices throughout the State. On the Big Island, the two principal Extension Offices are in Hilo (East Hawaii) and in Kainaliu (West Hawaii). County Agents are available for individual consultations or can provide educational workshops and short courses covering topics in agriculture, urban horticulture, aquaculture, home economics, leadership, family living, youth activities, community development, nutrition and health. Educational materials such as brochures, publications and videos are also available at extension offices for use by the general public. Services provided by County Agents are generally provided free of charge except those provided by the Agricultural Diagnostic Service Center that provides soil, tissue, water, feed and forage analysis, as well as, insect disease and nematode identification for a nominal charge.

CTAHR also maintains a network of eight agriculture research stations on the island, each with a unique environment. Researchers and extension faculty from CTAHR, other units of UH-Manoa, UH-Hilo, Hawaii Agriculture Research Center, U.S. Dept. of Agriculture, University of Wisconsin, and others utilize the stations for research on a variety of agricultural crops, forest trees and livestock; demonstrations on a new cultural techniques and cultivars; instruction; and work on native endangered plant species. A list of county extension agents, specialists and researchers who are assigned to the Big Island of Hawaii can be obtained by contacting the office in your area. CTAHR also has a number of agriculture researchers and specialists stationed on the Big Island to conduct research to solve high priority problems associated with various agricultural commodities. These researchers and specialists provide information to the extension agents who in turn are responsible for developing educational programs for the public. The extension agents are your link to the University and its community-based educational program.

COOPERATIVE EXTENSION SERVICES:

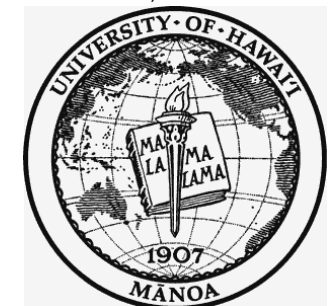
HILO
(808) 981-5199
875 Komohana Street
Hilo, HI 96720-2757

WAIMEA
(808) 887-6183
67-189 Kamamalu Rd.
Kamuela, HI 96743-8439

KONA
(808) 322-4892
79-7381 Mamalahoa Hwy.
Kealahou, HI 96750-7911

HAWAII AGRICULTURE EXPERIMENT STATION: BEAUMONT RESEARCH STATION

(808) 981-2823
875 Komohana Street
Hilo, HI 96720-2757



State Department of Agriculture continued.....

The US Forest service conducted host test studies with dozens of native, non-native plants related to strawberry guava. In Hawaii, the family *Myrtaceae* is represented by 49 species in 9 genera, including 8 native species. All laboratory test and field observations indicate that *Tectococcus* is highly host specific to strawberry guava. In November 2011, the Hawaii Department of Agriculture, USDA Animal and Plant Health Inspection service, US Fish and Wildlife services, State of Hawaii Board of agriculture and the public reviewed the final environmental assessment (EA) and decided that *Tectococcus* could be utilized as a biological control for strawberry guava.



Strawberry Guava Plants before being inoculated: Note the monotypic stand of Strawberry Guava December 2015

The Brazilian scale, *Tectococcus ovatus* Hempel (Hemiptera: Eriococcidae) is a small scale insect that creates galls on young leaves. A single female remains enclosed in the gall throughout her life, producing a several hundred eggs in a matrix of wax filaments, which help the crawlers to float in the wind. Under laboratory conditions, *Tectococcus* reproduces continuously with a generation time of 6 to 10 weeks. Reproduction is facultatively parthenogenetic but there is at least one alternation of generations each year. The crawlers emerge from a small orifice at the tip of each gall, crawls upwards on branches, in search of soft, young leaf tissue. Once a suitable material is identified, it will settle, feed, and a gall will form around the nymph. A single leaf may support dozens of galls. The developing galls change the morphology of leaves, making it difficult for photosynthesis to occur. Sugar and carbohydrate production is altered, and the energy for fruit and seed formation is reduced. Heavy infestations can cause premature leaf drop, in some instances, the majority of the plant becomes defoliated. When the plant pushes out a new flush of foliage, *Tectococcus* once again infest new leaf tissue. This cycle may take up to two years, stunting the entire plant until it exhausts much of its stored energy reserves. Sometimes other plants (Grasses, ginger, ferns, shrubs, etc.) will out compete and over take it.



Plants after two years of observations: Note the defoliation of the plant canopy and regrowth of Uluhe Ferns being established in the understory. May 2017

Tectococcus ovatus will not outright kill strawberry guava, however it can be used as a tool to slow the spread by reducing fruit and seed production, weaken plant vigor which enhances mechanical and chemical control methods.

Message from the Mayor

Harry Kim
Mayor



Wil Okabe
Managing Director

Barbara J. Kossow
Deputy Managing Director

County of Hawai'i

Office of the Mayor

25 Aupuni Street, Suite 2603 • Hilo, Hawai'i 96720 • (808) 961-8211 • Fax (808) 961-6553 KONA: 74-5044 Ane Keohokalole Hwy., Bldg. C • Kailua-Kona, Hawai'i 96740

(808) 323-4444 • Fax (808) 323-4440

MAYOR'S MESSAGE

On behalf of the people of the County of Hawai'i, it is an honor to extend our heartfelt thanks to all the staff and volunteers of the Hawai'i Island Soil and Water Conservation Districts, whose achievements are documented in the 2019 SWCD Annual Report.

Often times unsung heroes, the Hawai'i Island Soil and Water Conservation District volunteers, work tirelessly to preserve and protect Hawai'i's natural resources and our pristine environment.

This dedication provides technical conservation assistance, continuing education and underscores the value of protecting these essential agricultural resources.

Your work truly benefits the people of Hawai'i now and for generations to come.

Aloha,

Harry Kim



Diversified Agriculture

Whats growing in Hawaii.....

- **Cattle and Calves – \$59.8 million:** A steer typically weighs about 1,000 pounds and yields about 450 pounds of edible meat.
 - **Sugarcane – \$51.4 million:** One stalk of sugarcane, a tall perennial true grass, contains 30 teaspoons of sugar and six teaspoons of molasses.
 - **Coffee – \$49.2 million:** A coffee tree, which grows berries called coffee cherries, produces about 10 pounds of coffee cherry each year.
 - **Macadamia Nuts – \$45.6 million:** Macadamia nuts are not picked from trees but instead harvested after they have fallen to the ground.
 - **Floriculture – \$45 million:** Floriculture is flower farming. More than 30 percent of U.S. consumers buy fresh flowers each year.
 - **Chicken Eggs – \$15.6 million:** U.S. poultry farms provide about 10 percent of the world's egg supply, or 75 billion eggs each year.
 - **Bananas – \$10.9 million:** This fruit doesn't always come in its familiar yellow color. In fact, bananas can grow in a variety of colors, even red.
 - **Papayas – \$10.6 million:** The papaya is thought to be native to southern Mexico and Central America.
 - **Dairy Products – \$9.92 million:** A dairy cow produces about 6.3 gallons of milk each day and 350,000 glasses of milk in a lifetime.
- Mushrooms – \$6.93 million:** The most widely cultivated mushroom in the world is the button mushroom, which is sold both fresh and canned.

Ginger, taro, coffee, papaya, macnut, avocados,, pineapples

STATE Department of Agriculture

Bio-control of Strawberry Guava (*Psidium cattleianum*) in Hawaii

Hawaii Department of Agriculture
Plant Pest Control Branch

Strawberry guava (*Psidium cattleianum*) is native to Southeastern Brazil, where it is established in the sandy coastal plains to higher forest elevations up to 4,000 feet. It thrives in tropical to sub-tropical climates and can tolerate repeated winter frost. In Brazil, the typical height for strawberry guava ranges up to 16 feet, fruit may vary in color from red to yellow.

Strawberry guava was introduced to Hawaii by a priest in the 1820's as a table-fruit, however became established in Hawaiian forest ecosystems and currently considered one of the most disruptive alien weeds. Strawberry guava infest thousands of acres of forest on all of the major Hawaiian Islands, it forms dense thickets up to 30 feet in height. A combination of rapid growth rate, heavy fruit drop, lack of natural plant pathogens, and predators make it the perfect forest weed. Many non-native birds, rodents and feral hogs consume the fruit, move to new locations, creating new thickets by defecating seeds. Strawberry guava will overcrowd, compete and displace many rare and endangered native plants. The vast amounts of fruit produced by strawberry guava can also have a negative impact on Hawaii's agricultural fruit crops, by providing an alternate host for the Mediterranean fruit fly. Dense root masses can absorb, block or alter the natural flow of rain from entering fresh water aquifers. It is estimated that there is at least 300,000 acres of strawberry guava on Hawaii Island alone. In Hawaii, strawberry guava is commonly controlled by cutting, bulldozing and/or application of herbicides. However, repeat applications are necessary, which prove to be difficult, time consuming, and expensive. Another alternative is Biological control.



Galls formed by *Tectococcus ovatus*

The Institute of Pacific Islands Forestry of the USDA Forest Service has done research on *Tecto-*

Department of Land and Natural Resources

LAND
Division

STATE OF HAWAII, DEPARTMENT OF LAND AND NATURAL RESOURCES



About The Department of Land and Natural Resources (DLNR) Land Division is responsible for managing State-owned lands in ways that will promote the social, environmental and economic well being of Hawaii's people and for ensuring that these lands are used in accordance with the goals, policies and plans of the State. Lands that are not set aside for use by other government agencies come within the direct purview of the division. These lands are made available to the public through fee sales, leases, licenses, grants of easement, rights-of-entry, month-to-month tenancies or kept as open space area.

Besides maintaining an inventory of State-owned lands, the division serves as an office of record and maintains a central repository of all government documents relating to land dating back to the "Great Mahele" of 1848...

On the island of Hawaii, there are approximately 100+ leases and permits issued for agriculture and pasture purposes. These leases and permits encumber over 114,000 acres of land. The DLNR requires all its tenants to apply as co-operators with their respective Soil and Water Conservation District and submit a plan for approval by the Chairperson of the Board of Land and Natural Resources. This requirement insures the land is kept in a productive state while encouraging our tenants to carry out good conservation practices.

Message from...NRCS PIA DIRECTOR

Years ago, I worked with a Soil and Water Conservation District (CD) in a small farming community to develop a watershed plan with the purpose of addressing a water quality issue. I was a new District Conservationist eager to jump into a new project and do something great with the community leaders. The CD Board Chairman asked me to attend the next county commission meeting to ask for the county's support; none of the board members were able to make the meeting, so I agreed to take a letter from the CD board and invite the commissioners to get involved.



The watershed happened to be in a community that was experiencing significant development pressure due to its proximity to a large city. I did not know there would be a developer at the county commission meeting arguing his desire to have his development plan approved; he was right before me on the agenda. As I sat waiting for my turn to speak, I nervously listened to the developer get more and more angry with the county leaders. The commissioners returned much of the angst back at him. Eventually his time was up and his plea unsuccessful. I could feel the tension in the room and silently pondered the easiest escape route.

The announcement came that I was next; I cautiously stood up and handed a one-page letter (an invitation to participate from the CD board) to each commissioner and greeted them with a smile. Many of them didn't notice me; they were still brewing over the recent argument they'd just closed. I approached the microphone, only to notice that one commissioner (still upset at the last participant), leaned over to his peer and said (not knowing his mic was still hot), "Who is this guy and what does he want?". I wanted to turn around and leave, fearing the same outcome as the last participant. Much to my surprise, the fellow commissioner picked up my letter and with a brief glance at the letter head, responded, "He's with the Conservation District; it must be important."

I learned an important lesson that day; one that would direct my career goals for many years to come: locally-led conservation is the key to success in everything we do. During the meeting, I learned that one of the commissioners had previously served on the local CD board and recognized the importance of the work done by Conservation Districts. He spoke of the importance of conservation to their community and why each commissioner needed to be involved in the watershed planning effort. I decided that day to never approach a conservation challenge without the Conservation Districts standing by my side. Locally-led conservation is the basis for long-lasting, successful natural resource conservation efforts in our local communities. I'm excited the new Farm Bill strengthens the locally-led conservation effort and look forward to the great work we'll accomplish as a team with our great Conservation Districts!

Travis



USDA is an equal opportunity employer and provider

Hilo Field Office Staff Servicing Hamakua, Waiakea, Puna and Ka'u Districts

The Hilo Field Office (comprised of members of NRCS, Hamakua, Waiakea, Puna and Ka'u Soil and Water Conservation Districts) team focused their 2018 fiscal year on working together to provide excellent customer service and helped our agricultural producers achieve their natural resource and business goals!



(from Left to Right)

Spencer Nagata, Jennifer Reavis, Meghan Mulley, Kori Hisashima, Mike Malon, Destiny Abilla, Drew Stout, Nanea Babila, Ryan Belcher, Kanoë Malani, Alex Gerken, and Laila Jayyousi



HAMAKUA SWCD Outstanding Farmer of the Year

Laurie Lloyd Cooperator of the Year in Farming

Mrs. Laurie Lloyd has a 4.7 acre farm on the Hamakua Coast. She is growing coffee, citrus, bananas, figs, and various other fruit trees in her mixed orchard. She was interested in establishing a windbreak for the orchard with apple banana trees. She also wanted to improve the organic matter content of the soil by mulching. Mulching will increase the organic matter thereby improving the ability of the soil to retain nutrients and moisture. Moisture management was also a concern which was addressed with the windbreaks and mulching. Mrs. Lloyd has a progressive plan that will address some of her resource concerns over time. She has noticed a significant improvement in the vigor of her coffee plants, which are thriving after she mulched them. She is very happy with the windbreaks and mulching and attributes both practices towards the success of her farm.

Mrs. Lloyd got funded through AMA in 2016 and has signed up with EQIP 2017 to develop a plan to encourage pollinators to her farm by planting native pollinator plant species. Mrs. Lloyd is



Mr. and Mrs. Lloyd-First year of mulching (coffee plants look good)



*Second Year of Mulching
(coffee plants look very healthy and vigorous)*



2017 Coffee Production



*Windbreak Establishment with Apple Banana
(photo on left was established in 2016, photo on right was a years growth)*

HAMAKUA SWCD Outstanding Rancher of the Year

Rancher, Anthony Gomes



Waiakea Soil and Water Conservation District



Leslie Takayama
Chairman

Susan Litteral
Vice Chairman

Amy Bugado
Treasurer

George Mikami
Secretary

Harry Toki
Director

Chairman Takayama speaks on behalf of Waiakea SWCD

The mission of the Waiakea Soil and Water Conservation District (SWCD) is to preserve our land and water resources by assisting in planning and education. The Waiakea Soil and Water Conservation District provides conservation plans for individual agricultural land-owners to help control surface water and reduce sediment runoff. The Waiakea District, being in an urban setting, also assists on flood control projects along with the County Department of Public Works (DPW) and Natural Resource Conservation Service (NRCS) with planning and annual inspection of such projects. Plans are also provided for USDA NRCS Farm Bill cooperators, primarily for Environmental Quality Incentive Program (EQIP) with the District acting as a Technical Service Provider (TSP).

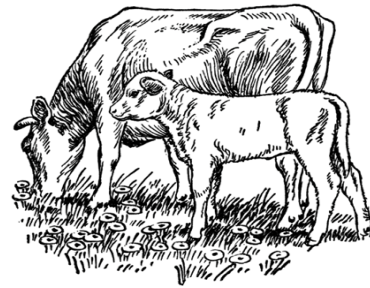
The District would like to thank its partners the County of Hawaii Department of Research & Development, County of Hawaii Department of Public Works, USDA Natural Resources Conservation Service, the University of Hawaii Cooperative Extension Service and the State Department of Land and Natural Resources for all their assistance in our goals. We also would like to thank the cooperators for their earnest efforts towards helping to create and implement the plans.

The Waiakea SWCD would also like to thank HACD for all their efforts to secure funding from the State Legislature. We at the Waiakea SWCD would like to join with all District Directors to come up with new ideas for better funding. One idea our District wants to promote is the potential use of lands controlled by the Department of Land and Natural Resources. If part of the income from State land leases can be directed to the Districts, we may have sufficient funding to carry out our mission. Or if given the land we could produce and sell plant material for windbreaks, ground covers, forage, or native species for natural area restoration. The State is land rich. Let's see if we can tap this wealth for the benefit of conservation.

Waiakea SWCD Outstanding Cooperator of the Year

“Henry Silva”

Henry Silva has been a cooperator of the Waiakea Soil and Water Conservation District since 2012. Henry worked with District Conservationist Kori Hisashima to develop a conservation plan that would address resource concerns related to poor livestock forage and noxious weeds on his 5.5 acre pasture off Alawaena Road in Waiakea Uka.



Henry has transformed his small ranch from a weed infested Waiawi, African Tulip pasture with mostly Wainaku and Hilo grass to a 7 paddock mixed

species pasture of Signal, California, Guinea, and Desmodium. He achieved this by installing paddock fences with an alleyway, Brush Management by both mechanical and chemical methods, and a lot of grass seed planting. Henry went through several rounds of planting Signal grass seed with poor or very delayed seed germination and periods of heavy rainfall that made his planting less than successful. Henry was patient, and re-seeded and fertilized until he was able to establish a good stand of forage for his sheep and cattle. He has also installed a livestock water system to deliver cleaning drinking water to each

paddock. His grazing rotation moves the animals every 5-14 days depending on the paddock size, and the forage is sufficient to sustain his small herd of 3 steers and 6 goats.

Henry credits the NRCS team for the success he has had with developing his property into a small-scale grazing operation and appreciates all the direction and input he received from Kori as well as other ranchers that have gone through the conservation planning and contracting process with NRCS. Henry is now reaping the benefits of his renovated pasture. His improved forage pasture allows him to raise steers for his own family's consumption, as well as a small cut and wrap market.

Congratulations Henry Silva for being selected as the 2018 Waiakea Rancher of the Year.



MAUNA KEA SOIL AND WATER CONSERVATION DISTRICT

Anthony Gomes Cooperator of the Year in Ranching

In 2015 Mr. Gomes successfully completed a project to restore a 133 ac pasture that was heavily infested with guava and sour bush. He worked cooperatively with several conservationists between the Hilo and later the Waimea Field Office. He came with previous experience in controlling guava and effectively demonstrated two methods of guava control; chemical and mechanical. He planted the mechanically treated areas to signal grass and the pastures have been successfully restored to productive agricultural land. He also installed cross fencing and a water system to increase his number of paddocks from 2 to 6. He is now able to manage his cattle's grazing to ensure his pastures remain healthy and productive.

In 2016, Mr. Gomes approached the NRCS and HSWCD for help again restoring another separate pasture infested with invasive species. This time he is controlling strawberry guava, common guava and wild persimmon on 21 acres in Hamakua. He is also installing cross fencing and a water harvesting catchment system in order to keep cattle out of the stream and practice prescribed grazing. He is off to a strong start and remains on schedule for what is expected to be another successful conservation project.

Mr. Gomes is nominated for his outstanding commitment to improve his lands and demonstrate good agricultural stewardship. He is also an outstanding cooperator to work with and has generously given his time and allowed access to his pastures for other producers and conservationists to come and see, ask questions and take what they can from his experience. He is a humble man but shares freely what he has learned through his experiences and encourages others in their efforts on their own lands.

MAUNA KEA SOIL AND WATER CONSERVATION DISTRICT



Doug Beaton
Chairman

Troy Keolanui,
Vice Chairman

Virginia Alderson

Dylan Shropshire

Manasa Harman
Associate Director

Hamakua Chair's Message

As 2016 comes to an end, we are obligated to reflect on our challenges and accomplishments so that we can continue to move forward with providing valuable services for our community and producers. The need for those services continues to grow as our district is a very active agricultural area with operations ranging from small subsistence farms to large commercial operations. The demand for conservation planning services to conserve those resources will only increase as our population and population densities continue to rise. The agriculture residential interface will continue to increase as well, creating challenges for both the agricultural communities as well as the public.

The Hamakua SWCD, in partnership with the USDA Natural Resources Conservation Service, welcomed 17 new cooperators and approved 27 conservation plans in 2016. Over 5,000 acres of land have been included in our 2016 plans and will be implementing practices to address the identified resource concerns. The district also took part in several outreach activities including a UH Hilo Environmental Science class field session, the Waimea Healthy Keiki Festival, UH Hilo's Earth Day & Conservation Career Day, and volunteering at the 2016 Hawaii County Conservation Awareness Contest hosted by the Kona SWCD.

The Hamakua SWCD would like to acknowledge and extend our deepest appreciation to the County of Hawaii, the USDA Natural Resources Conservation Service, and the State Department of Land and Natural Resources for providing the financial and technical support that enables us to provide free conservation planning to for our district. The HSWCD Board would like to also thank Kanoë Malani, Hamakua SWCD Conservation Planner and Administrative Assistant, for being their person in the field and the office and commend her for her dedication and commitment to conservation. Most of all, the Board wishes to thank all of the farmers, ranchers and foresters for their voluntary cooperation with the district and for willingly implementing conservation on the land they control and for un-

Puna



Oliver English (Chairman)



Leanne Okamoto (Director)



Aileen Yeh (Vice Chair)



Atto Assi (Director)

Puna SWCD Chairman's Message

The Puna Soil and Water Conservation District (SWCD) have been instrumental in conservation planning and accomplishments throughout the agriculture lands in the Puna District.

The Puna district had a very challenging year with ranches, farms, businesses and homes that were claimed by the volcanic eruption. It was a humble task trying to help relocate these less fortunate. However the with the assistance of the SWCD board, district employees, Ryan Belcher, Jennifer Reavis, and HACD employee Meghan Mulley, the Puna District worked to make it happen. All in all the District continues to be one of the fastest growing districts in the State of Hawaii.

Animal waste continues to be a high priority in the district. Invasive species are increasing in this district as more nurseries and potted plant cooperators start to expand. The Coqui frogs are also spreading to higher elevations. Other invasive pests of interest include the Nettle Caterpillar, Fire Ants, and pests such as the Varroa Mites and Small Hive Beetles affecting our bees and their hives.

We would like to thank the many governmental agencies that assist and support the District programs. The State Legislature through DLNR, USDA Natural Resource and Conservation Service (NRCS), the University Extension Service, and Mayor Kim's Office and the County Department of Research and Development for funds to hire our District Employees for implementation of the Hawaii County Grading Code.

Puna SWCD Outstanding Cooperator of the Year

“Elizabeth & James Weatherford”



Dr. James Weatherford along with his wife Elizabeth, own and operate a cattle ranch in Pahoā. Within the Puna Soil and Water Conservation District. They have a 55 acre parcel, of which 42 acres are being grazed and the other 13 acres were left as a forested area. They run Dexter cattle, which is a multi-purpose miniature breed for both milk and meat production. Adult cows only average 600 lbs.

James first signed up as a cooperator back in 2008, he started working with then district planner Amelia Drury and completed a Conservation Technical Assistance plan in 2011. He then signed up for Agriculture Management Assistance Program with NRCS in 2014 with planner Spencer Nagata. James crossed fenced into 5 paddocks,

built an elevated roof catchment, tanks, and delivered clean drinking water to every paddock. Once James was given the green light to start work, he has always been ahead of schedule, and he completed this entire project within 15 months. He is currently working on a second contract with NRCS, where he has already installed more cross fencing to make 9 paddocks, delivered water to the newly created paddocks, and herbaceous weed treatment to control mint weed and warabi ferns without chemicals.



I would like to congratulate James and Elizabeth, for their dedication and hard work and for showing everyone a good example of grazing management. With the proper tools and knowledge, and a little bit of luck, this is a perfect example of proper grazing management. It's been a pleasure to be your planner.

Congratulations to the Weatherford's for being awarded the 2018 Puna Soil and Water Conservation District Outstanding Rancher of the Year!

MAUNA KEA SOIL AND WATER CONSERVATION DISTRICT

Rancher of the Year: Jeremy “Scott” Lewis



Mr. Scott Lewis has been chosen as the 2016 Rancher of the Year for Mauna Kea Soil and Water Conservation District.

Scott, alongside his dad, ranch on about 500 acres in the Kohala area. In 2005 Scott established Lewis Cattle Company with about 50 heifers on lease land,

this lasted for about 5 years.

In 2010, Scott started looking more into the genetics of his cattle and that is when he purchased about 30 heifers from Kona. This line of heifers were Black Angus and he also obtained some registered bulls from a few different sources. In 2012, Scott decided to go with the grass fat program with Red and Black Angus. He purchased about 70 commercial heifers and 7 registered bulls.



In 2014, Scott came into NRCS for help with his Kāhei parcel. He has done a tremendous amount of work on this land. More than half of this land was treated for noxious and invasive weeds with the help of a good friend of Scott's, Alton Oye. It was a great learning experience for him, as he had to start from the ground up. Lewis Cattle Company uses water from the Kohala Ditch, but still suffer interruptions from sediment getting into his waterlines. As Scott was successfully moving forward with this project, he came in for help with another parcel in the Puakea area in 2016. The water unreliability was the big issue with this parcel, which is still in progress of being implemented.

Currently, Lewis Cattle Co. is running about 130 cows, 45 grass fat, 7 bulls and 40 calves. De-



spite having two contracts going simultaneously, Scott has managed to do an outstanding job with keeping on schedule and even working ahead at times. The work he has accomplished, aside from his regular job is remarkable. He works above and beyond NRCS standards and specifications. His progressive thinking, innovative approach, and dedication to detail does not go unnoticed. Scott has been a pleasure to work with and his openness and will-

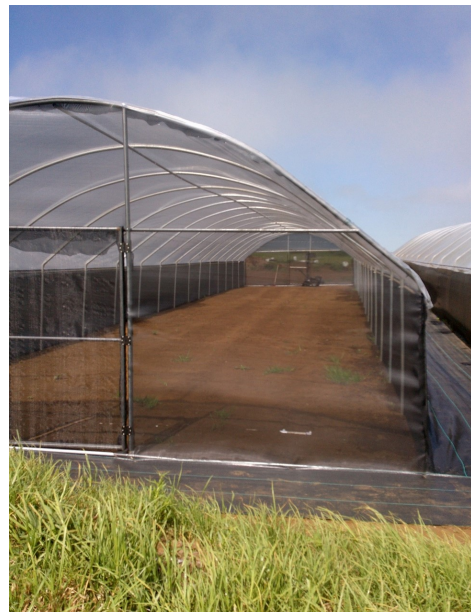
MAUNA KEA SOIL AND WATER CONSERVATION DISTRICT

Outstanding Farmer Charla Lindsey-Crabbe

Charla Lindsey- Crabbe has been selected as the 2016 Farmer of the Year for the Mauna Kea Soil and Water Conservation District.

Located on a 5 acre ag parcel in Department of Hawaiian Home Lands, Charla along with the help of her husband and children farm a variety of vegetables. They farm organically, but are not yet certified, with hopes that within the next couple of years they can become certified organic as well as food safety certified.

Charla's farming career started in 2015 when Mike and Tricia Hudson from WOW Farms approached her to join their "Farming for the Working Class" program. Charla was in the last cohort of the program. Their desire to farm came from the desire to feed their family, friends, elderly and people of the Waimea community.



Newly constructed high tunnel system

Today, Charla and her family utilize four High Tunnels; 2 for tomatoes and 2 for lettuce, carrots and radish. They provide vegetables to local natural food stores and a few restaurants on the coast, along with generously sharing with the elderly in their neighborhood.

Charla and her family have been very successful and will continue to be with their hard work and dedication. Her kindness and cooperative, can-do attitude make



Charla's Indigo and Grape tomatoes

They started off with one High Tunnel where they grew Indigo and Grape tomatoes. In the beginning, they would go around their neighborhood giving to families and also trading beef with some ranchers. Soon, Charla was approached by a friend, who is also a chef at a hotel. This was the beginning of a successful market relationship. Within their first year, they were successful enough to be able to purchase another High Tunnel.

In 2016, Charla applied for two more High Tunnels and a native windbreak through the Environmental Quality Incentives Program (EQIP) offered by NRCS. She has already completed her contract and her new windbreaks will help to protect the farm from the strong, whipping Waimea winds on the Pu'ukapu plain.



Aerial view of farming operation

Puna SWCD Outstanding Cooperator of the Year

"Shane and Pua Kalaniopio"

Shane Kalaniopio has been a cooperator of the Puna Soil and Water Conservation District since 2014, shortly after he and his wife Pua acquired their 77 acre parcel of North Kulani Road in Mountain View.



Shane has worked throughout the years with District Conservationist Kori Hisashima to develop a conservation plan that would address resource concerns related to poor livestock forage and noxious weeds in manageable phases. Shane has transformed his extremely weedy Waiawi, Gunpowder, Albizia, Melastoma pasture with mostly Wainaku and Hilo grass to a 5 paddock, soon to be 10 paddock

mixed species pasture of Signal, California, Mulato, Mombasa, Barons, and Desmodium. He achieved this by installing paddock fences, extensive Brush Management by both mechanical and chemical methods, and a lot of grass seed planting and praying for less rain. Shane planted seeds several times in his quest to find a mix of suitable forage species for his area that has some areas of poor soils and high rainfall. He experienced great disappointments due to poor or very delayed seed germination, seed loss to birds, and periods of heavy rainfall that made his planting at times seem like a disaster. Shane was counseled to be patient, re-seed where necessary, and again to be patient. His hard work and patience paid off as the forage establishment started to germinate and the grass filled in as he deferred grazing and allowed the seedlings time to take root and flourish. He has also installed a livestock water system to include some of the most well-built and aesthetically pleasing water harvesting catchment roof sheds and tanks to deliver cleaning drinking water to each paddock for his cattle.



Shane's new rotation will create a higher animal stock density impact per paddock, resulting in uniformed grazing of paddocks, a high plane of animal performance and diet quality, balanced with the health of the grazing resources like the forage, roots, and soil.

Shane says, "My family and I are grateful for all the hard work the NRCS team put in to help small farmers like us make huge improvements to our land. Your dedication inspires us when we're out there pounding fence posts, clearing albizia's, and caring for our animals. Mahalo to you all!"

Congratulations Shane Kalaniopio for being selected as the 2018 Puna Rancher of the Year.

Puna SWCD Outstanding Cooperator of the Year

Double N Ranch—Neal Nakamoto

In Pahoā, Neal has been a cooperator of the Puna Soil and Water Conservation District since 2008. He acquired leased land from Kamehameha Schools, and when Buddy first started working with Neal he had already installed some paddock fences, a water harvesting catchment, water tanks, and a livestock water distribution system on his own. Neal implemented Brush Management to control a plethora of tenacious invasive species such as Melochia, Alibzia, Clidemia, Waiawi, Melastoma, and Tibouchina and through



planting established a beautiful mixed green salad for the cattle of California, Signal, Barons, and Star Grass along with Desmodium, and Kaimi Clover. One of Neal's main goals here was to suppress the vigorous Hilo grass growth by rotating cows quicker through his 12 paddock grazing system which allows each pasture to sustain a 18 in stubble height. The advantages of intensive grazing for Neal is that he has the maximum forage production and use per acre, weed control through grazing, more even distribution of manure throughout the paddocks, more uniform animal distribution, higher stock densities; Neal went from 25 animal units to 130 animal units on 276 acres with less stress on animals, and more forage options because his pastures are rested



and grazed more efficiently.

Neal is very appreciative of the services and financial assistance that he has received from NRCS. He has gained knowledge of grasses, rotational grazing, and how to set up a good grazing system that is very valuable to him. He says that he would've made it to the point that he is at today eventually, but that NRCS made it 100 times easier for him. Neal credits his wife Cindy, and his kids for sacrificing their time and supporting him through his ranching endeavors.

Congratulations Neal Nakamoto of Double N Ranch for being selected as the 2018 Puna Rancher of the Year.



MAUNA KEA SOIL AND WATER CONSERVATION DISTRICT

Mauna Kea SWCD Chairman's Message

Greetings from the Mauna Kea District! This past year has been a busy and productive year for our district. Across the 740,000 acres that make up the Mauna Kea Soil and Water Conservation District there are a multitude of different agricultural and conservation achievements, and innovations happening every day. It is a privilege and an honor for the MKSWCD to assist our producers and land stewards in their work. We understand that being an agricultural producer in Hawai'i is not just a career but a passion, a tradition, and a challenge. The district is proud to support our community through the development of conservation plans, the compliance with the Country Grading and Grubbing Ordinance, participation in community education and outreach activities, facilitating bulk orders of cover crop seed from mainland vendors, providing rental equipment to farmers, and technical assistance.

The district board meets every second Wednesday of the month from 4-6pm in the USDA-NRCS Waimea Field Office. This meeting is open to the public and participation is welcome.

The NRCS Waimea Field office has seen many changes through this past year. Matt Wung began his retirement journey at the end of September 2016. He was a pleasure to work with and always very supportive of the district. He always had a smile on his face and made sure everyone knew that he appreciated them! Matt is truly missed as well as his contagious laugh! Also, Hannah Conley who was the Conservation Specialist/ Administrative Assistant for MKSWCD has embarked on a great journey to New Zealand in October 2016. She was with the District for about 3 years. Her humor and intelligence is definitely missed. Taking her place is Alyssa Fujii, starting a few weeks prior to Hannah leaving to get the great training needed for the District. We welcomed back home Alex Beaton as a Soil Conservationist. He started his career with NRCS in Texas in 2015. He is currently working out of the Waimea Field Office and we are very lucky to have him back! Jill Ficke- Beaton has been in the Waimea Field Office since April 2016 as a Soil Conservationist and now is also the Acting District Conservationist. Her wealth of knowledge is a great advantage to the field office!

The Mauna Kea District would like to thank the County of Hawai'i, the State Department of Land and Natural Resources, and the University of Hawai'i Cooperative Extension Service, and others for their financial and technical support that allows us to serve our conservation and agricultural community.

We would like to welcome our new Director for the PIA, Travis Thomason. We had the pleasure of meeting with Travis on his recent visit to the Big Island and got to spend some time at a few different site visits as well. We look forward to a bright future with Travis!

WAIMEA FIELD OFFICE AND THE MAUNA KEA SWCD DIRECTORS



Pono von Holt, Chairman



Charlie White, Director



Monty Richards, Director



Brad Lau, Treasurer

Mauna Kea SWCD



Directors

Pono and Travis on Ponoholo Ranch

WAIMEA FIELD OFFICE STAFF



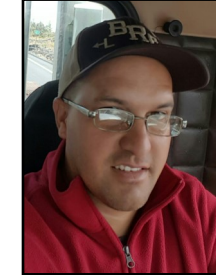
Ka'u Soil and Water Conservation District



Chairperson
Brenda Iokepa-Moses



Vice Chairman
John Cross



Director
Tyler Johansen

Ka'u SWCD Chairperson's Message

Ka'u Soil and Water Conservation District (KSWCD) has a board made up of dedicated volunteers that include Brenda Iokepa-Moses, Ka'u Mahi that currently serves as the Chairperson and has been on the Board for twenty plus years; John Cross, Johnny's Garden and John C. Cross Tropical Estate and Land Planning Services that currently serves as Director and has been on the Board(s) for twenty plus years; our newest members; Tyler Johansen, Agriculture Consultant and Lee Segawa, Ka'u Valley farms add perspectives from small farming and ranching communities. Board Members all bring something different to the table and this diversity helps them in their decision making and recommendations. This past year has been one of recovery from the Volcano, to flooding, to windstorms. Our farming community is resilient and have made great strides to mend what has been broken. In times of natural disaster, the Soil and Water Conservation and NRCS staff play an important role in assisting the farmer to repair damages or in some places relocate and start over. We are blessed with a Hilo staff that is not only good at their jobs but also go above and beyond to assist farmers because they truly care. Ryan Belcher and Meghan Mulley are the conservation planners that make things happen in the office along with the unwavering support of Kori Hisashima and the rest of the NRCS staff. Jennifer Lopez-Reavis heading the Field Office in Hilo also handles three districts (Puna, Ka'u and Waiakea) on top of coordination of special events, budgets and anything else that comes up! With all these talented members of our team and with all the different backgrounds our goal collectively is to do our part to help preserve the land and water resources by assisting in the planning and preparation of the lands as well as facilitating education for the farmers.

With our district being comparable in size to the Island of Oahu it is a challenge just getting to our client. With the drive being an hour or two away from the field office a lot of time is spent on the road getting to these rural area clients. With the help of our partner NRCS they make it work with careful planning.

A special mahalo to Mayor Harry Kim, the County of Hawaii R&D, DPW, Department of Land and Natural Resources, Natural Resources Conservation Service, and other affiliated agencies for their continued support of the agricultural community.

"Buy Local it Matters"

Ka'u SWCD Outstanding Cooperator of the Year

DANE & TERRY SHIBUYA Masazo's Pig Farm

Mr. Dane Shibuya along with his wife Terry and their family, own and operate Masazo's Piggery. They own 3 acres above Naalehu town, within the Kau Soil and Water Conservation District. The Shibuya's run a Dry Litter Style Piggery that has the capacity to hold over 50 sows. They sell both wean-offs and market size hogs.



Dane started working with NRCS, back in the early 1990's, with then district planner George Mikami. They designed and built a 20 sow dry litter piggery. Dry Litter Piggeries consist of concrete pens built on a slope to allow movement of the litter material, by the natural instinct of the hog digging and rooting. Most common litter material at that time was Macadamia Nut husk. Litter material would be added at the top of the pen, and as the hogs dig thru it, the litter would move down the pen, into a trough located at the bottom, where it is collected and used as compost material. In 2013, the Shibuya's wanted to expand, with help from then

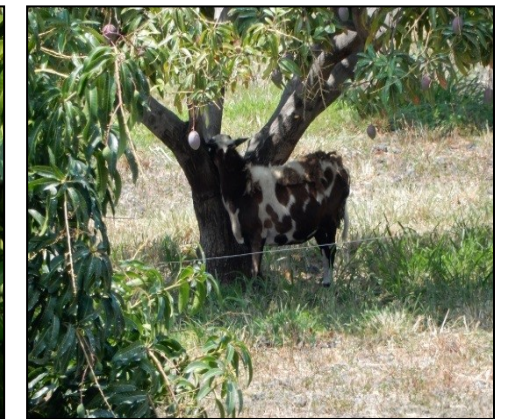
district planner Amelia Drury and NRCS planner Jill Beaton. The Shibuya's were awarded an EQIP contract to build another 30 sow Dry Litter Piggery, which consisted of the pens, a composting and waste storage facility. During construction of the second piggery, the Shibuya's suffered a devastating loss. The Hog herd contracted a disease, and they were ordered to remove all hogs and sanitize the entire facility. This loss took a heavy toll on the Shibuya's, but with help and motivation from family, friends, and the community, the Shibuya's have started raising hogs again!

I would like to congratulate Dane and Terry Shibuya and their family, for their dedication and hard work. It took a lot of blood, sweat, and a whole bunch of tears to get this project completed. Congratulations of being awarded the 2018 Kau Soil and Water Conservation District Outstanding Hog Farmer of the Year!



Kona SWCD

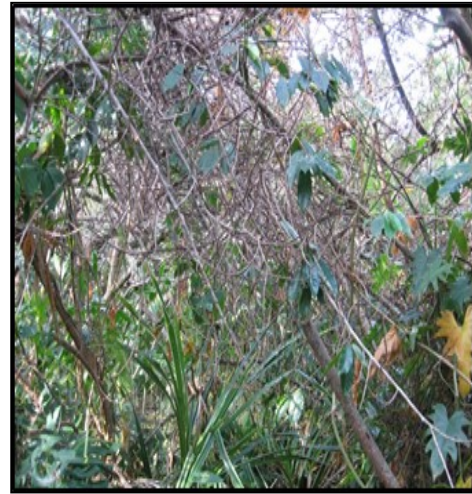
Our third nominee was Wakefield Organics. They were awarded Organic Farmer of the Year because of their mango ranch. Bill and Brooks Wakefield have a five acre farm with five varieties of mango trees. To maintain the orchard grass, prune the mango trees, prevent immature fruit drop from developing a fruit fly problem and for fertilizer assistance they enlist the aid of up to 20 sheep. The district staff refers to this farm as the mango ranch. The sheep are managed using a five paddock rotational grazing system. They have a mix of Barbados, Saint Croix and Dorper sheep. They are all considered hair sheep because they have very little wool. The hair they do have is similar to dog hair but a lot coarser. Though the Wakefields do not sell any of the meat from their ranch to the public they have told us it is tasty.



The Mango Ranch, a five acre mango orchard with five varieties of mangos...and a 5 paddock ranch with a rotational grazing system for their livestock, hair sheep. The sheep help to keep the grasses down, they eat immature fruit drop helping to keep fruit flies away. They also help with pruning by keeping the branches from getting too low, they also help reduce fertilizer costs, and...they taste good!

Kona SWCD

The second farm we toured is a twenty acre avocado farm, Kane Plantation Guest house, owned and operated by David Cox and his partner Michael Corbitt. Five years ago much of this land was solid Christmas berry. Now with that removed and hundreds of native species planted in its place the forest is growing.



Top left, what the land looked like when acquired. Top right, they did a lot of mulching. All bottom photos...a new native forest is born. It does have a park like feel but it is on its way to becoming a mature native forest. The guests at Kane Plantation Guest House have fallen in love with the plantings.



Ka'u SWCD Outstanding Cooperator of the Year

Double N Ranch—Neal Nakamoto

Neal Nakamoto of Double N Ranch has been a cooperator of the Ka'u Soil and Water Conservation District since 1999. Neal manages a 1,288 acre parcel adjacent to Punalu'u that he leases from Kamehameha Schools. Over the years Neal worked with former NRCS



Soil Conservationist Justin "Buddy" Perry and Kori Hisashima to develop a long-term conservation plan that would address resource concerns in manageable amounts, taking into consideration Neal's time and resources. Neal also works full-time as a contractor and manages other ranches in Ka'u, Puna, and Hamakua. Neal has transformed his ranch in Ka'u from an extremely weedy Christmas Berry pasture with sparse Guinea to a 9 paddock rotation of Guinea, Green Panic, Haole Koa and Glycine with 2 additional paddocks that

are reserved for times of drought. He achieved this by installing over 7 miles of fence, extensive Brush Management by both mechanical and chemical methods, and a lot of grass seed planting and praying for rain. He has also installed a livestock water system to each paddock to ensure his cattle has sufficient clean water. The improvements to the land allowed Neal to increase his herd



from 50 animal units to now 120 animal units. He practices year-round breeding and markets his weaned calves.



Neal is very appreciative of the services and financial assistance that he has received from NRCS. He has gained knowledge of grasses, rotational grazing, and how to set up a good grazing system that is very valuable to him. He says that he would've made it to the point that he is at today eventually, but that NRCS made it 100 times easier for him. Neal credits his wife Cindy, and his kids for sacrificing their time and supporting him through his ranching endeavors.

Congratulations Neal Nakamoto of Double N Ranch for being selected as the 2018 Ka'u Rancher of the Year.

Kona

Over the past year North and South Kona Districts had plenty of rain and that made everyone happy. Some of our producers likely had some water issues due to the prevalence of micro-climates but overall our producers were able to focus on matters other than water, which has been a rare blessing. Our sympathies are with our friends and fellow-agriculturalists in Puna who have been dealt a devastating blow by nature. You have our support and look forward to seeing your characteristic resilience.

There is a continued increase in the interest in Kona to reforest our landscapes. We have many landowners who obtain assistance from NRCS and many who move forward on their own. One of the great NRCS projects that is coming on-line relates to the lands of the Kuamo`o Battlefield and Burial Grounds. The nonprofit group Aloha Kuamo`o `Aina has acquired the land and will protect it into perpetuity. The Kuamo`o Battle, also known as the Battle of 1819, pitted one Hawaiian against another. Chiefess Manono cried out in death for the warriors to “Mālama kō aloha” – “keep your love”. It was a plea to both sides, no matter what, to keep their love for their fellow Hawaiian. She did not want this battle to end relationships between families and friends. She wanted her people to know peace. One of the goals of Aloha Kuamo`o Aina is to create a place that was of war but is now of peace. To that end they have started to reforest the land and so far their efforts have been highly successful. The Kuamo`o Battlefield has many valuable cultural resources within its boundaries and protecting those are also a high priority.

There are many other forestry project going on from installing windbreaks to restoring acres to their natural beauty on both private land and public land. Palamanui College is working on re-establishing native forest land on college (state) property. A stand of Wiliwili trees were located within their 500 acres and we are very excited to see their progress. We believe that there are great benefits to educating our young adults on the opportunities associated with a restoration economy.

We continue to do our site visits (almost 50 this year) and assist our producers with improving their soil. Every cooperator who invites us to their land receives a soils folder with a wealth of information from bio-char to cover crops and to herbicide application techniques to help them improve their soil. When it is available we will give those we visit a pound of buckwheat seed so that they can see first-hand what cover crops can do for their land.

The Kona SWCD worked with the Big Island Resource Conservation and Development Council (BIRC&D) to obtain funding for a booklet about Kona’s natural resources, their current state and how to protect and improve them. BIRC&D worked with Councilmembers Eoff, David, and Kanuha each donating funds to cover the development and print costs of our booklet. As the Chair for the Kona SWCD we are happy to report it is ready for distribution and use as an education tool.

Kona SWCD

Our second Cooperator of the Year, for Agroforestry, is Sandra Scarr and Daily Fix coffee.

Aside from growing delicious Kona Coffee Sandra also raises Labrador retrievers and for them, she grew a forest so they could have loads of fun. Sandra also planted native trees in her coffee orchard to provide biodiversity to the environment.



A variety of photos from Sandra Scarr's farm where she produces Daily Fix Coffee. She reports her labs love the forest where they are free to run and play.

Kona SWCD

Kona's Cooperator of the Year

We had two producers honored as the Kona SWCD 2017 Cooperator of the Year. Ken Verosko and his partner Beth Smith are our Farmers of the Year because of their dedication to protecting the land. They own the South Kona Fruit Stand and are true believers in the value of conservation cover. They know some of their challenges would have been worse if not for their cover, you see, they live along Kiilae Stream, one of only two "blue line streams" on United States Geological Survey (USGS) maps. In 2007 the South Kona Fruit Stand suffered terrible damage during a flash flood. The land was severely damaged as well. Ken and Beth are ones who do not know the meaning of the word defeat. After every disastrous event they simply keep going. In August and September of 2015 it was one flash flood event after another. Again, they did not know the mean of the word quit and after a couple months and a lot of work they were reseeded their orchards and planting tropic lalo sprigs. They know, as bad as things have been with flooding, with-out the ground cover it could have been worse, they may not have been able to recover.



A papaya orchard, destroyed 2007



Soil, ground cover and mulch all gone with nothing but pa-hoehoe in its place. This was the result of the multiple flash



the S. Kona Fruit Stand itself, significantly damaged



Conservation cover and the way Ken and Beth like their farm to look and put a lot of effort into making and keep-

KEALAKEKUA FIELD OFFICE AND THE KONA SWCD DIRECTORS

Kona's Office Staff



From left to right: Jessica Schmelz, District Conservationist; Carl Rossetti, Civil Engineering Technician; Jacky Vega, Soil Scientist; Laura Nelson, Soil Conservationist at the Kona Coffee Expo 2018



Mary Robblee, SWCD Staffer



Mike Kolman, Soil Scientist



Ben Barnette, Cultural Resources Specialist

Kona SWCD Directors



Rick Robinson-Director



Pepe Miranda-Treasurer



Jeff Knowles-Vice Chair



Tom Greenwell, Secretary



Greg Hendrickson, Chair