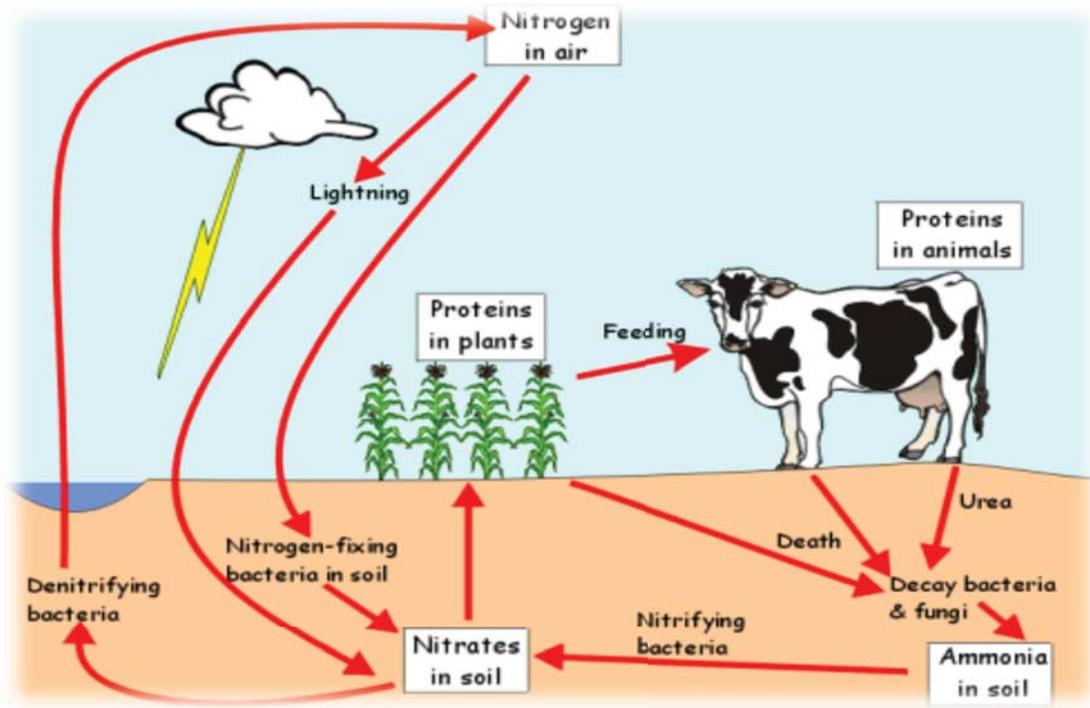
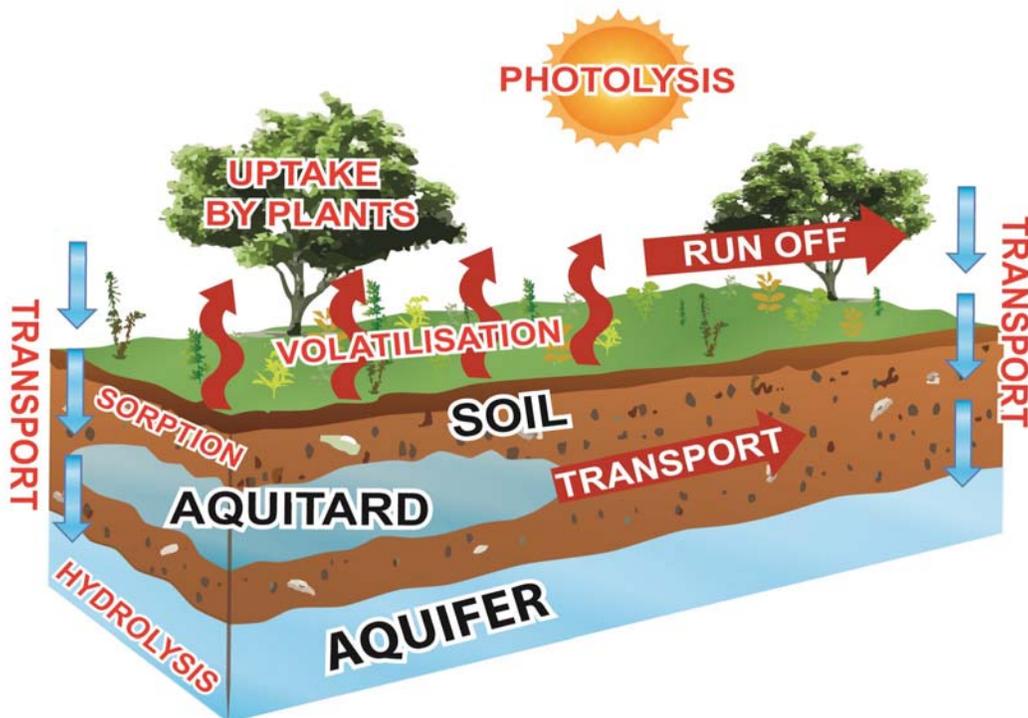


Hawaii Island Soil & Water Conservation Districts Annual Report 2016

*Ka'u*Kona*Mauna Kea*Hamakua*Waiakea*Puna*



Agriculture Makes the World Go Round



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

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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 2016 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,

A handwritten signature in cursive script that reads "Harry Kim".

Harry Kim
MAYOR



County of Hawai'i is an Equal Opportunity Provider and Employer.

**HAWAII ISLAND HAS SIX (6) SOIL AND WATER
CONSERVATION DISTRICTS**



UNITED STATES DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE

Lets welcome our new PIA Director

Born and raised in the small farming community of Weiser, Idaho, Travis developed a deep love for agriculture from the time he was very young. He would often work on friend's farms in the summers, putting up hay and moving cows. He learned how to work hard and take initiative; there was always something to be done. After high school, Travis headed to Brigham Young University (BYU) for a year before spending two years in Japan as a volunteer for his church.



On his return to BYU, he majored in Agronomy, where he also taught beginning Soil Science classes, worked part-time in the soils lab, and was also president of the Environmental Science Club. His senior year, he was part of a 3 member team that went to Yucatan, Mexico to conduct research on sustainable farming methods of the ancient Mayan people.

Shortly after graduation, he was hired as a Soil Conservationist with NRCS in Vernal, Utah. Following his years in Vernal, he would serve as a District Conservationist in Utah and Pennsylvania, and then back to Utah as an Assistant State Conservationist for Field Operations in 2011. During this time, he also held other leadership assignments such as acting State Conservationist in Idaho, and acting Environmental Quality Incentives Program (EQIP) Team Lead in Washington D.C. Travis was also a member of the agency's pilot leadership program, the Strategic Leadership Development Program in 2014.

Throughout his career his focus has been to create a culture of collaboration between the NRCS and its many conservation partners, to efficiently implement programs, and provide excellent customer service to our nation's private landowners. He remains dedicated to working with partners and private landowners to protect and conserve the Pacific Island Area's precious natural resources.

Travis and his wife, Amy, have six wonderful children who enjoy the outdoors and are excited to learn more about the culture of the Pacific Island area.



USDA is an equal opportunity employer and provider

Travis L. Thomason, USDA, NRCS, PIA Incoming Director

HILO FIELD OFFICE STAFF Servicing HAMAKUA, WAIAKEA, PUNA AND KA'U DISTRICTS

The Hilo Field Office (comprised of members of NRCS, Puna, Ka'u, Hamakua and Waiakea Soil and Water Conservation Districts) focused their 2016 fiscal year on working together to help people achieve their natural resource and business goals. Covering our 1.3 million acres of cropland, pastureland, rangeland and forestland we assisted over 80 cooperators. Site visits were completed for each request and the necessary assistance provided to meet their needs which comprised of: soil erosion, noxious and invasive weeds and animals, forest stand health, pasture health and economic impacts on agricultural production.



Kori Hisashima, District Conservationist

Spencer Nagata, Soil Conservationist

Laila Jayyousi, Soil Conservationist

Alex Gerken, CREP Planner

Amy Koch, Soil Scientist

Amelia Myers, Soil Conservationist

Kamran Fujimoto, Soil Conservationist

Justin Yeh, Conservation Specialist

Jennifer Lopez Reavis, District Secretary/Conservation Aide

Kanoe Malani, Soil Conservationist/Administrative Assistant

WAIAKEA

SOIL & WATER CONSERVATION DISTRICT



Leslie Takayama
Chairman

Sheldon Takajo
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

WAIAKEA SWCD OUTSTANDING COOPERATOR OF THE YEAR

Mrs. Joanne Dakujaku along with her husband Conrad and family, own and operated Dakujaku Ranch. Their parcel along with parcels leased from Joanne's family total 28 acres. It is located on the corner of Hoaka and Malaai Road within the Waiakea Soil and Water Conservation District. Joanne uses this property for her Black Angus cow calf operation and her horses.

Joanne started working with NRCS planner Spencer Nagata back in 2013 to clear pockets of dense brush and replant the area with better forage. Major resource concerns were inadequate forage quantity and quality, noxious and invasive species and inadequate water. Once her conservation plan got approval for EQIP funding, she started to clear waiwi and guava with a bulldozer, any regrowth was



any regrowth was sprayed with herbicide. She then replanted 4.7 acres with a variety of grasses such as guinea, baron goto, and California grass to increase her forage quantity and quality. She also installed 2675' of barbed wire fence to divide the parcels into 13 paddocks. Additional 1340' of pipe and 9 troughs were installed to deliver clean drinking water to her livestock in every paddock.

Joanne and her family have done an excellent job in implementing her conservation plan and a true blessing to work with. As a result of her hard work, her pasture is rid of invasive waiwi and guava trees, and she has a wide variety of forages for her cattle. I look forward to working with the Dakujaku's again on another EQIP contract as they plan to cut their paddocks smaller to intensify their grazing management. I would like to congratulate Joanne, Conrad and the Dakujaku Family for their dedication and hard work and for being awarded Waiakea Soil and Water Conservation District "2016 Outstanding Rancher of the Year Award."



PUNA

SOIL & WATER CONSERVATION DISTRICT



Oliver English (Chairman)



David Schell (Sec./Treas)



Randy Cabral (Director)



George Van Gieson (Director)



Aileen Yeh (Vice Chair)

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.

With the assistance of district employees, Amelia Drury, Jennifer Reavis, and part time employee Kamran Fujimoto, the Puna District had a very productive year and was able to assist 50+ Cooperators in 2016. 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

PUNA SWCD OUTSTANDING COOPERATOR OF THE YEAR

John Kihara has been a cooperater of the Puna Soil and Water Conservation District since 2008. His Father, Hitoshi Kihara had been a cooperater since 1993. Together the Father, and Son duo managed 85 acres on two parcels off Kukui Camp Road in Mountain View. They had a long term agreement, which is equivalent to a conservation program contract that provided cost-share dollars to improve their pastures through conservation practices. They installed infrastructure like cross fences, and a livestock water system to implement a rotational grazing system and forage improvement practices like land clearing and pasture planting. Since that first long term agreement in 1995, John has acquired an additional 100 acres adjacent to one of the original parcels. John worked with former NRCS Soil Conservationist Justin “Buddy” Perry to develop a long term conservation plan that would address resource concerns in



manageable amounts, taking into consideration John’s time and resources. At that time, John was working full-time as a Fire Captain for the Hawai’i County Fire Department and managing his 185 acre ranch on a part-time basis.

John’s resource concerns on his ranch included noxious and invasive plants like Waiawi, Koster’s Curse and Albizia, inadequate quantities and quality of feed and forage, and decreased forage quality and palatability.

His first phase of EQIP contracting in 2002 and subsequent EQIP contract in 2010 concentrated on the last 100 acres that John acquired. John installed over 13,000 feet of fence, expansion of his livestock watering system to service newly created paddocks and extensive pasture renovation. John, now retired from the Fire Department in 2011 along with his own son Ryan herbicide sprayed to help control weeds in his pasture and revegetated the paddocks with Pangola and Limpo grass to replace the marginal Vasey, Hilo and weedy vegetation mixture that were there. John is one of the most meticulous grass planters I have ever worked with. He carries grass sprigs around the paddock with him, along with a pick and plants one sprig every 2-3 steps in rows. He follows up his planting with



PUNA SWCD OUTSTANDING COOPERATOR OF THE YEAR CONTINUED

multiple fertilizer applications strategically placed on each grass plant for several months along with follow-up spot spraying of herbicide. He allows the newly planted paddock to rest for at least 1 year – closer to a year and a half before allowing his cows in for a light graze and uniform grass regeneration. John now rotates three mostly Angus herds across



39 paddocks. This new rotation will create a higher animal stock density impact per paddock, resulting in uniform 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. The advantages of intensive grazing for John 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 with less stress on animals, and more forage options because his pastures are rested and grazed more efficiently. John practices artificial insemination breeding

year round, and has noticed that since the rotation has been improved along with the quality and quantity of the forage that he has had healthier cows with high conception rates.

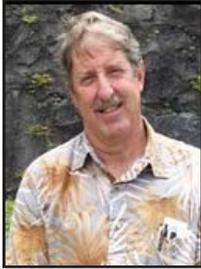


John appreciates the helpful guidance and planning of NRCS conservationist Buddy Perry,



Kori Hisashima, and those who assisted both he and his Father in previous years. He commends NRCS for their technical knowledge on grazing systems that helped a rancher like himself to become a successful beef producer while conserving and enhancing his natural resources. He claims that he would not be where he is today without the help received from NRCS. John has and continues to be a pleasure to work with. He utilizes the management tools we have shared with him to ensure the continued success of his operation. Congratulations to John Kihara for being honored as the 2017 Puna Soil and Water Conservation District Rancher of the Year.

Ka'u Soil and Water Conservation District



Vice Chairman
John Cross



Chairperson
Brenda Iokepa-Moses



Director
Tyler Johansen

Ka'u SWCD Chairperson's Message

Ka'u Soil and Water Conservation District (KSWCD) is fortunate to have a Board of well rounded and dedicated volunteers from the Ka'u Community. Current board members are Brenda Iokepa-Moses, Ka'u Mahi; John Cross, Ka'u Royal Hawaiian Coffee & Tea Co; Tyler Johansen, Agriculture Consultant. Board Members all bring something different to the table and this diversity helps them in their decision making and recommendations. The present board is currently looking for two new board members from the community to serve as directors and enable us to operate as a full service 5 member board. "We all work together on our own time, traveling to and from meetings on our own dime with one common goal 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" said Brenda Iokepa-Moses, chairperson. We are supported by Jennifer Lopez Reavis heading the Field Office Administrative staff that not only handles our district but also the districts of Puna and Waiakea. Along with the expertise of Amelia Myers a very talented full time planner with the district. We would like to welcome Justin Yeh, a new addition to the East Hawaii Soil and Water Conservation Districts working as a Conservation Specialist. Seasoned part time planner Kamran Fujimoto reaches out to farmers on weekends and after hours to make it more convenient for them.

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.

Ka'u SWCD Outstanding Cooperator of the Year

COOPERATOR OF THE YEAR

Mr. Glenn Panglao along with his family, own and operated a ranch in Pahala. Their 19 acre parcel is located in the Keaiwa area within the Ka'u Soil and Water Conservation District. Glenn uses this property to raise grass fatten steers and his families horses.



Glenn started working with NRCS planner Kori Hisashima back in 2011 to refurbish an old 580' diversion on the top of the property to protect the parcel from being flooded. Areas with soil disturbance have been seeded with grass to prevent soil erosion.



Glenn receives water from tunnels high up in the mountains and it is pipe down to him, this source can be unreliable at times so Glenn installed (2) 4000 gallon plastic tanks to store drinking

water for his livestock. Additional 2170' of pipeline was installed to deliver water to each of his 7 paddocks. Each paddock has its own 150 gallon concrete trough. Lastly prescribed grazing was completed last year with stubble heights of guinea grass exceeding 3 feet.



Ka'u SWCD Outstanding Cooperator of the Year.....continued



Glenn has done an excellent job in implementing his conservation plan and will continue to be working together with NRCS on his next project. Glenn has been recently selected for funding for his 2017 EQIP contract.

He plans to redo his paddock fencing with woven wire and will be removing invasive albizia trees. He also plans to redo another old sugarcane diversion on the front of the property. Panglao for their dedication and hard work and for being awarded Kau Soil and Water Conservation District “2016 Outstanding Rancher of the Year Award.” Congratulations Glenn and Lori.



KONA SWCD DIRECTORS AND THE KEALAKEKUA FIELD OFFICE



Greg Hendrickson
Chairperson



Jeff Knowles
Vice Chairperson



Keith Unger
Secretary



Pepe Miranda
Treasurer



Rick Robinson
Director



Kealakekua Field Office Staff
From Left to right, Bernard Vermeulen, Carl Rossetti, Laura Nelson, Jessica Sternfels, Mary Robblee; Jacky Vega. Unavailable for the photograph, Mike Kolman.

KONA

SOIL & WATER CONSERVATION DISTRICT

Chairman Greg Hendrickson speaks on behalf of the Kona SWCD

The Kona Soil and Water Conservation District had a successful year topping it off with our Cooperator of the Year Picnic. The creativity, resourcefulness, ingenuity, and work ethic of our farmers and ranchers always impresses me. This year's Cooperator of the Year award winners are great examples of that. They are also examples of the breath of agricultural opportunities available if you can do the hard work required.

We had a farm that is strictly coffee with terraces, conservation cover and mulching to prevent erosion. We had a farm that runs livestock and produces mangos on the same five acres. Our third got rid of Christmas berry and planted hundreds of native species for the benefit of his land and the forest generally.

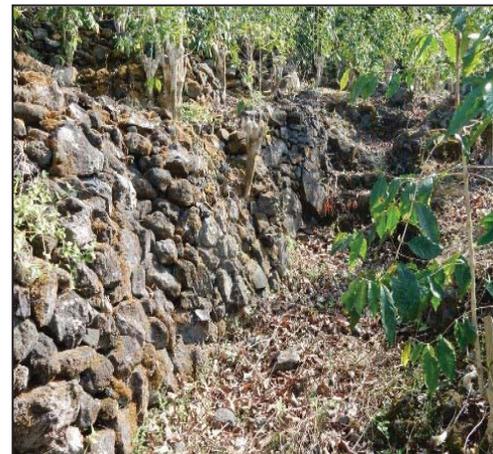
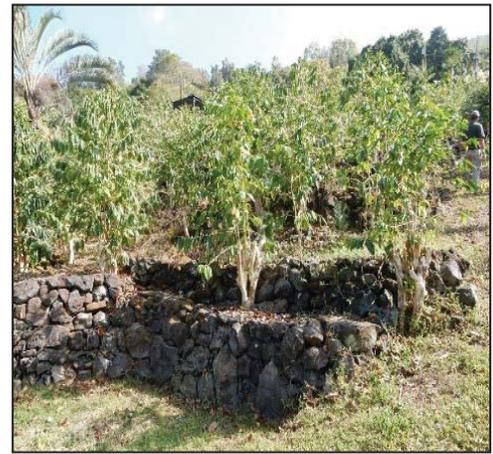
So many of our agricultural producers are silent heroes in that they steward our land, grow our food, and help make our community vibrant and whole without a lot of recognition. One of the roles of the soil and water conservation districts is to help educate the community of the good work our farmers and ranchers do every day and quite often with little or no fanfare, yet they keep on doing it. This is love of the land. This year we were very happy to host the County's Conservation Awareness Contest and very happy that new comer to the contest, West Hawaii Exploratory Academy (WHEA) was able to head to Kauai for the state competition. Regrettably they did not win there but they did report back that from the first presentation provided by the NRCS Soil Scientist to the defeat on Kauai the experience was very rewarding and they look forward to future competitions. Greenwell Farms was in the process of implementing a conservation plan we created with them so they had the perfect spot for us.

Our cooperators are also always willing to help others and share their knowledge. One of our cooperators, winner of Cooperator of the Year in 2014, Home O Kahuluu farm is our "go to" farm when new landowners come in and ask "What can I do with my land?" It is a beautiful example of agro-forestry and does give all those who visit inspiration which they bring back to their own land. All of our cooperators are like this, willing to help anyone that asks.

The future looks bright for agriculture in North and South Kona and the Kona SWCD Board of Directors is fortunate to be a part of it.

KONA SWCD's 2016 OUTSTANDING COOPERATORS

Each year our board is called upon to determine which of our many cooperators exemplifies conservation principles and practices on the ground. Our choices this year were between three farms. Joachim Oster is a coffee farmer who is terracing his 2.5 acre coffee farm, Athena Coffee of Hawaii, masterfully. By using conservation cover to keep the soil he was provided from the beginning, which was not very much, he has transformed his coffee farm. When he purchased the lease Joachim referred to the land as a glyphosate desert and it is hardly that now.



The top left photo is somewhat indicative of what the land conditions were. It is not an exact demonstration because of the mulching and conservation cover work Joachim has done. The top center and right photos show the terrace work that has been completed. The lower left photo provides an idea as to why terracing is so beneficial, our steep slopes. The lower center and right photos are more examples of the rock work. Bottom center highlights a lava tube and bottom right is a photo of an intermittent stream that runs through the property. During a flow that is a waterfall in the background, when it is dry they are steps.

KONA

SWCD OUTSTANDING COOPERATORS CONTINUED.....

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.



KONA SWCD OUTSTANDING COOPERATORS CONTINUED...

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!



All of our winners (from left to right)
Michael Corbitt, Brooks and Bill Wakefield, Joachim Oster

MAUNA KEA SWCD DIRECTORS AND THE WAIMEA FIELD OFFICE STAFF

Mauna Kea SWCD Directors



Pono von Holt,, Chairman



Charlie White, Director



Monty Richards, Director



Brad Lau, Treasurer



*Pono and
Travis
on
Ponoholo Ranch*

WAIMEA FIELD OFFICE STAFF



Waimea Field Office Photo: Left to Right- Carolyn Wong: NRCS State Grazing Land Management Specialist, Alex Beaton: NRCS Soil Conservationist, Alyssa Fujii: MKSWCD Conservation Specialist/ Administrative Assistant, Reese Libby: NRCS Geographer/ Cartographer Technician, Jill Ficke-Beaton: NRCS Soil Conservationist/ Acting District Conservationist, Andrew Stout: NRCS Civil Engineer.

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!

MAUNA KEA

SWCD OUTSTANDING FARMER OF THE YEAR

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.



Charla's Indigo and Grape tomatoes



Newly constructed high tunnel system

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.

Today, Charla and her family utilize four High Tunnels; 2 for tomatoes and 2 for lettuce, carrots and radish.

They provide vegetables to local natu-

ral 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 her a joy to work with. We are committed to continue



Aerial view of farming operation

MAUNA KEA

SWCD OUTSTANDING RANCHER OF THE YEAR

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 Kahei 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. Despite 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 willingness to share his experience, he has brought more producers to the SWCD and NRCS field office. We sincerely appreciate Scott and all of his efforts!

HAMAKUA

SOIL & WATER CONSERVATION DISTRICT



Doug Beaton
Chairman



Troy Keolanui,



Virginia Alderson
Secretary



Dylan Shropshire
Treasurer



Marissa 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 understanding the value and impact it has on the environment and their sustainability.

HAMAKUA SWCD
OUTSTANDING RANCHER OF THE YEAR

Anthony Gomes Cooperator of the Year in Ranching

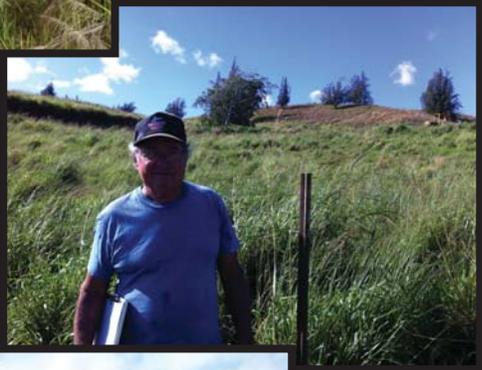
In 2015 Mr. Gomes successfully completed a project to restore a 133 ac pasture that was heavily infested with guava and sour bush. He worked cooperatively with several conservationists between the Hilo and later the Waimea Field Office. He came with previous experience in controlling guava and effectively 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.

Hamakua SWCD
Outstanding Rancher continued.....

Rancher, Anthony Gomes



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 thrilled to be working with NRCS as are we to be working with her.



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)

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 cooperators 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.

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 *Tectococcus ovatus* Hempel for over fifteen years, it has been evaluated carefully both in its native range and under special quarantine in Hawaii to reduce the risk of non-target species.

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



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

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.

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.

UNIVERSITY OF HAWAII
COLLEGE OF TROPICAL AGRICULTURE
AND HUMAN RESOURCES (CTAHR) CAN HELP YOU

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.

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