Helping Farmers Grow
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LIFE Final Progress Report from October 2010-September 2011

University of Hawaii at Manoa

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In Partnership with CTAHR's Risk Management/Targeted States Program, Aquaponics Program, Sustainable and Organic Program, and Agribusiness Program

The purpose of this project is to address recent Asian immigrants entering Hawaii's diversified agriculture industry with limited English speaking /reading capabilities and little to no experience in diversified crop production. Due to their small acreage and remote locations, these under represented developing agricultural areas need more educational support from UH CTAHR. New producers struggle with the many facets of crop production, i.e., soil, water and pest management, new government regulations, pesticide application, label comprehension, etc., A change in Hawaii's agriculture industry has prompted a need for the Local Immigrant Farmer Education Program (LIFE). LIFE's educational program focuses on responsible farming, business management, and cost of production, risk management, and environmental stewardship. Information is delivered to growers in an easy to understand manner which is respectful of their diverse cultures and backgrounds.


CTAHR IMPACT 2011

The Staff of LIFE

Could you grow a papaia? A pipicha? A bitter ball? Maybe not, but you might be able to find one in your local farmers market, thanks to a growing population of immigrant farmers bringing the techniques and products of their native lands to Hawai'i. But while there's much that these growers know, there are aspects of starting to farm in a different country, climate, and economy that can be confusing and even daunting.

This is where LIFE comes in. The Local Immigrant Farmer Education Program serves Southeast Asian farmers in Hawai'i whose small acreage, remote locations, and limited English language skills may make it difficult for them to connect with local growers. LIFE also serves other socially disadvantaged, limited-resource producers, including women and Native Hawaiians. The program is headed by Extension agent Jari Sugano, she and Randall Hamasaki, Maria Diaz-Lyke, Robin Shimabuku, and Glenn Sako are the training members of the group. Recently retired agent Steve Fukuda helped to make the program what it is today; project founder Sabina Swift stays involved, as does Stuart Nakamoto, and in 2010 Ming Yi Chou and Elsie Barbano joined the team.

LIFE project founder Sabina Swift (right) seen here with a coffee farmer on the Big Island.

The hands-on aspect of the program is one that farmers appreciate the most. Trainers and growers get out into the fields and prune, spray, and build. At a recent "field day" event, participants were able to take part in building aquaculture grow tanks, while other workshops have shown how to deal with small business taxes, ways to combat insecticide resistance, and the proper care and handling of papayas for shipping to the Mainland. More of the program's materials and workshops are translated into the languages of their intended readers, something that has been lacking in previous training programs.

On-farm interaction is key to the program's success.

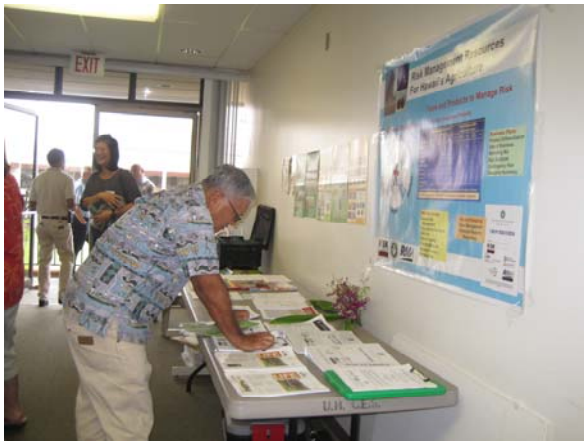
At LIFE's core is the one-on-one interaction provided by the "Farm Doctor" visits, where an agent meets with individual farmers on their land to "diagnose" any problems with the crops or soil. It's the interaction, the mutual teaching and learning, that's important. Clients can participate in the program by conducting "Cooperator-Inspired Field Trials" to investigate planting or agribusiness techniques and share their findings with LIFE, while program coordinators act as resources and aid in collecting and summarizing the data. And one of the program's stated measures of its own success is the number of participants who are able to start helping others in their community. What better way to reap the bounty of what different cultures can bring to the table?

The LIFE program is a risk management training program for limited resource and underserved Filipino, Southeast Asian and other minority growers of Hawaii with the assistance of the USDA Risk Management Agency. The program has gained recognition for its grass roots efforts in reaching socially disadvantaged growers. The LIFE program was recently highlighted as an outstanding program in the 2011 UH CTAHR Impact Report: Second Quarter with an article called, 'The Staff of LIFE (Local Immigrant Farmer Education).' It will soon be featured in the Malamalama (UH Manoa) and the Ag Hawaii (Hawaii Farm Bureau) magazines.

Letters of support for the LIFE program have been received (on file) from Margarita Hopkins, County of Hawaii, Economic Development, Jason Shitanishi of the USDA FSA, Pat Conant of HDOA, Raymond Uchida of Oahu County, Cooperative Extension Service, Karen Umehara and Orlando Manuel of the Hawaii Papaya Industry Association, Andrew Kawabata, Hawaii Extension Agent, Mark Crowell of Brewer Environmental Industries, Shinichi Ichimura of Diamond Head Papaya Company, Glen Sako of CTAHR Hawaiian Homelands Program, Gloria Camba of the Kau Coffee Growers Cooperative, Kenn Harada of Calavo Growers, Lorie Obra of Rusty's Hawaiian Coffee Company, Luisa Castro of CTAHR Food Safety Program, Michale Kawate of CTAHR IR4 Program, Russell Nagata of Hawaii County Cooperative Extension

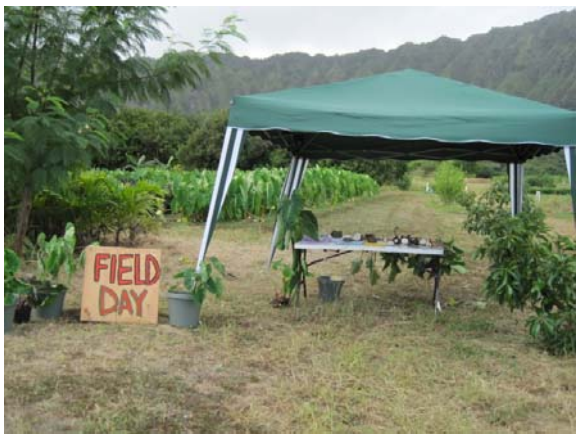
Program, Steven Chiang of the CTAHR Ag Incubator Program, and Reginald Hasegawa of Crop Protection Sciences.

1. **Identify limited resource underserved farmers and communities, including potential participants for training in crop production and farm business management including marketing.**



Working with agricultural agencies: Collaboration with Tropical Hawaiian Products, Diamond Head Papaya Company, Calavo Growers, Hawaii Papaya Industry Association (HPIA), Kau Coffee Growers Cooperative, Hawaii State Department of Agriculture, CTAHR Sustainable and Organic Farming Systems Program, CTAHR Targeted States Program, CTAHR Food Safety Program, USDA ARS- PBARC and the USDA FSA has been a tremendous plus to improving grower participation in the LIFE educational programs. HPIA and the Kau Coffee Growers Cooperative function as liaisons for the LIFE program and are instrumental in helping us plan, deliver and evaluate our educational programs for underserved growers in Hawaii. Agricultural industry events provide opportunities for LIFE to promote our programs and services. Collaborative partnerships with industry and area leaders have enabled LIFE to acquire 'buy in' into improving quality of Hawaii grown products and the sustainability of Hawaii's socially disadvantaged producers.

Working with Agents, Farms and Companies that Recruit Agricultural Labor: There is a tremendous shortage of agricultural labor in Hawaii. Many agricultural companies are recruiting agricultural laborers from countries outside of the United States. These growers have entered Hawaii's agriculture industry with little to no experience in diversified agriculture. Companies that employ workers are required by law to provide training programs in areas such as worker protection, farm safety, etc. To overcome these challenges, we have teamed up with county agents, agricultural labor companies, and agricultural companies with laborers to increase awareness of human and food safety concerns on the rise. Introductory level workshops are offered to ensure farmers in the target group are sufficiently informed so as to have access to existing and emerging risk management tools such as crop production, crop insurance, crop protection tools, and funding resources.

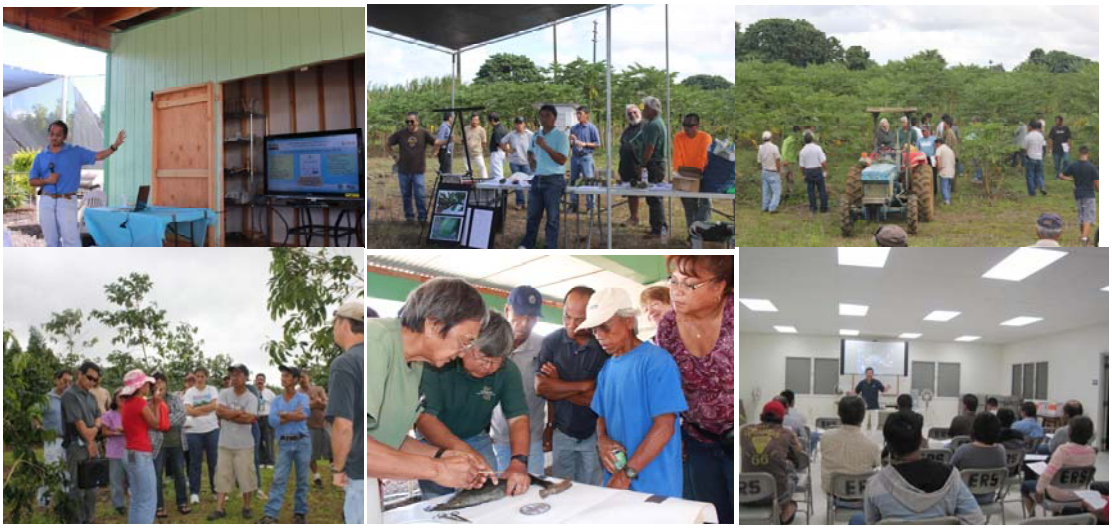


Addressing Native Hawaiian Communities: The native Hawaiian homes commission act of 1920 created a homesteading program for native Hawaiians. Its mission is to place eligible native Hawaiians on 203,000 acres of land. The Hawaii Department of Hawaiian Homelands' mission is to 1) manage the Hawaiian Home Lands trust

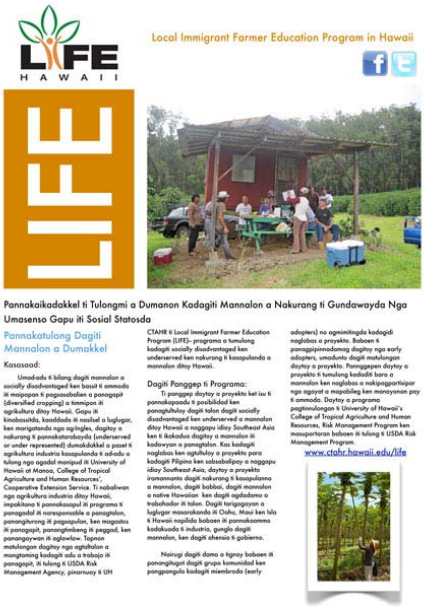
effectively 2) develop and deliver land to native Hawaiians, 3) partner with others towards developing self-sufficient and healthy communities. This program aimed to help increase self sufficiency and healthy living on Hawaiian Homestead farm lands. LIFE program partnered with Hawaiian homelands extension agents to extend our reach in meeting the needs of beginning native Hawaiian producers.

Grower Referrals: Many farmers prefer a one-on-one or perhaps a close-knit small group learning environment because they are easily intimidated and too shy to discuss their problems in front of others. A non-threatening environment is very critical to farmers with limited English proficiency. We developed a 'Refer a Grower' Program, to attract new growers. Training team member arranged farm visits around subsequent workshops (e.g. the day before or after an evening workshop). An interpreter was used when needed, and translated training materials were fully utilized during these sessions. This training provides farmers with individual attention and hands-on instruction, and problems are addressed immediately during field meetings. During this period, the LIFE program offered. 224 Farm doctor opportunities through direct and referral contacts. New cooperators were entitled to a 'farm check up' to identify high risk areas and opportunities for future partnerships.

Targeting Second Generation Farmers: For many new immigrant farmers, the agriculture business is a family business. First generation farmers appreciate the value of education and often have children (second generation children) who are educated and involved with the family business. In Hawaii, these children have a strong influence on decisions made on the farm and effectively communicate with the extension personnel. To attract new growers, LIFE targeted second generation farmers in hopes to advance the adoption of new technology and management practices. This partnership has helped LIFE engage first generation producers to play an active role in mitigating risk on farms.

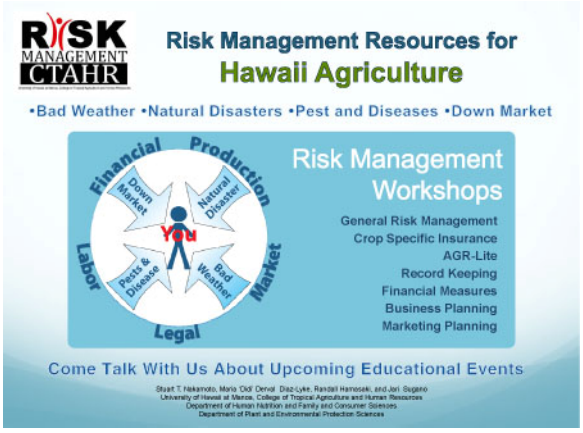


2. **Objective 2. Provide training of new growers and returning participants on risk management mitigation in crop production and agribusiness.**



A total of 45 workshops/ field days were developed based on grower identified needs on the islands of Oahu, Maui, Molokai and the Big Island. During this period, 1177 growers were reached through the workshops/ field days and 224 one on one field consultations were made to help growers address issues relating to crop production, marketing, crop insurance, and risk mitigation. Increased participation at workshops and field days were the result of new grower participation via the Farm Doctor Program and referrals from early program adopters. LIFE specializes in on farm field trainings and demonstrations. LIFE was also invited to participate in three extension functions which enabled us to increase awareness of Risk Management and the LIFE program through opportunities such as the Kau Coffee Festival, American Society of Horticulture Sciences professional training program and the American Pathology Society's field tour.

Educational programs were conducted to address clientele needs. Its ability to address clientele issues has lead to program success. Much of the program's strengths coincide with producer interests that typically involve production problems such as crop nutrition & fertilizing, or pest and disease identification & control. LIFE also offered less popular, business-type workshops, including record keeping, crop insurance, etc. While many producers still participated, the drop off in attendance at such single-topic events is evident. The weak interest in crop insurance was also a recognized challenge for the targeted states Risk Mgt program.



The project decided to formalize their relationships with a win-win partnership that would capitalize on LIFE's reputation for useful, quality information and proven ability to ATTRACT producers to events with topics producers find interesting and relevant, together with the technical expertise, knowledge, and resources of the targeted state Risk Management/Crop Insurance Education program. Examples of ATTRACT topics include soil fertility management, new varieties, and management of serious pests and diseases. This partnership helped PROMOTE education by transfer of research based information, increasing producer knowledge, and helping growers obtain competencies so they can correctly choose and utilize specific technology and practices best suited to meet their diverse needs. The methods remain the same, except that with the partnership the

workshops, field events, and farm visits piggyback crop insurance and similar education upon the topics that producer found attractive.

The partnership between LIFE and Risk Management/Crop Insurance Education is a significant part of the program's ability to meet its expected objectives. At the onset of every LIFE sponsored event, 5 areas of risk are highlighted. Growers receive information about the role of crop insurance in managing commercial agricultural risk. A total of 1177 individuals were educated about ag risk and risk mitigation techniques. Growers indicated the workshops were useful and helped increase their knowledge in risk management.

A task for the LIFE program was to advance food safety by providing education to minimize risk due to food borne illnesses, correct application of pesticides, using reduced risk measures, nutrient/ pesticide record keeping and monitoring, etc. During this period, four grower workshops were conducted to educate growers about ways to minimizing unnecessary risk and advance food safety. Due to the severity of the pesticide application process, LIFE worked with the Hawaii Department of Agriculture to conduct worker protection workshops on farms to address food safety issues regarding misuse of pesticides, over application, safe pesticide handling (in grower's native languages). Food safety education was conducted in collaboration with UH CTAHR's food safety team. Workshops include a representative from the food safety team to provide an over view about new good agricultural practices. Through the FARM DOCTOR program, LIFE works with growers one on one to address priority risk such as (pesticide handling, washing hands, PPE, etc) areas to minimize risk that could result in food safety concerns/ violations. Adoption of risk mitigation recommendations were most successful after Farm Doctor visitations.

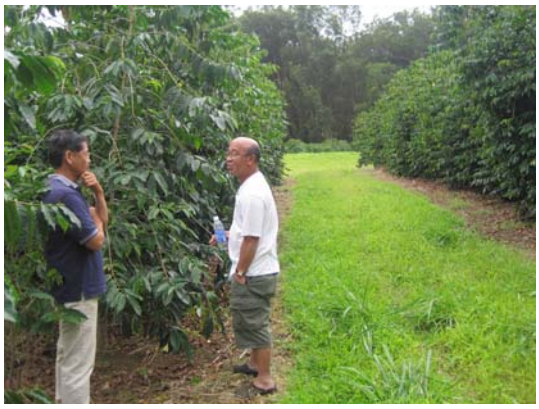
Improving the sustainability of Hawaii produced commodities by socially disadvantaged growers was another major task for LIFE. Ten workshops were conducted to educate growers about the importance of risk management in regards to priority production risk areas. Agricultural theft and vandalism was a priority issue in 2011. Four workshops on crop insurance, private insurance, disaster insurance programs were held in support of this pressing topic. Crop insurance options were mentioned at majority of LIFE's educational sessions as part of its risk management educational program. Fourteen workshops targeted at new marketing opportunities and agribusiness (taxes, record keeping, etc.) topics were covered. Approximately, eleven pesticide and worker protection workshops were held to highlight the importance of human, worker and food safety to farmers and their agricultural labor force.

3. Reinforce risk management training programs through successful LIFE educational models.

Conducting Quality Hands On Educational Meetings and Workshops: LIFE has earned a reputation of being a trustworthy source of good information and sound recommendations, in large part because we demonstrate how to get results instead of just talking about it. The reputation and sustainability of the LIFE program is dependent on the ability to continue

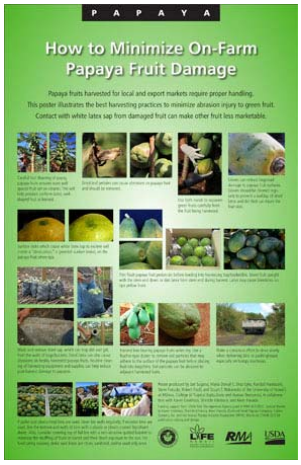
delivering these demonstration types of educational sessions.

In 2011, a summary of workshop evaluations indicate extension programs delivered by the LIFE program were EXCELLENT (3.7), based on mean values of 1= poor, 2=fair 3=good and 4=excellent, in regards to providing useful information. Participants rated the information GOOD in improving their knowledge and understanding (3.5) of the different topic areas. Evaluations indicate participants felt the workshop was explained in practical terms (3.5)and appropriate teaching strategies were utilized (3.5). Eighty-one percent of participants indicated an application of recommended CTAHR practices and technologies.



Agricultural Diagnostic-Farm Doctor Program: The Farm Doctor program was an integral component of the 2011 LIFE program. Field visitations to commercial agricultural operations were conducted on an ongoing basis to provide crop production consultation support to growers who requested assistance. Through farm visitations, LIFE worked with growers in conducting a 'farm check up' to ensure their farms are in good diagnostic order. We strived to develop strong working relationships with growers to address their priority issues and develop appropriate solutions to meet their needs. Bi-lingual material filled with color photographs and terminology in lay-terms was used to support field visitations. During this grant period, 224 Farm Doctor sessions were conducted in conjunction with statewide agents, specialists and area support. Evaluation, modification and adoption of recommended LIFE practices were correlated with Farm Doctor training programs.

Bilingual Training Materials: Translated handout materials are preferred by immigrant participants (Swift and Brennan, 2003). Written materials in two languages have been found to better inform users and are more acceptable to the farmers than either language alone. Although there are several Filipino languages used in Hawaii, educational materials developed by previous programs have been compiled in only an English/Ilokano bilingual training manual. Publications developed by LIFE in 2009 were used to assist growers in understanding recommended practices. During this period, we expanded appropriate educational materials to incorporate more photographs and lay terms (examples: black spot handout and the papaya ripening chart). LIFE used publications filled with photographs to help convey difficult to understand concepts.



Translated workshop announcements were created to meet the needs of those who requested additional support. Web and electronic information (face book, twitter, etc) were made available to help second generation farmers stay updated on upcoming LIFE events.

Program Outputs of the project:

Developing Growers Competencies: LIFE program has worked to develop many core competencies in many underserved socially disadvantaged producers. Participants have become active information seekers and are taking an active role in seeking out answers to their respective problems. Participants have become knowledgeable and competent in accessing local and national agricultural services and programs (USDA, UH CTAHR, HDOA, etc.). LIFE participants hold major decision making roles within their respective industries and have clearly emerged as leaders in Hawaii's diversified agriculture industry.

Evidence: Testaments to this goal are the Ag Vandalism example below. In 2010, two papaya farms suffered tremendous economic crop losses due to vandalism targeted at agricultural crops. The first incident occurred in May 2010 on a LIFE cooperator farm in Mililani, Oahu. Nearly 400 trees were cut down. In July 2010, another LIFE cooperator suffered a devastating economic blow losing 8500 trees on a 17 acre papaya farm in Hawaii due to vandalism. Damage was estimated at $100,000. Papaya trees were 18 months old and starting to bear fruit. Agriculture vandalism is not currently covered under crop insurance programs. In 2011, vandals struck again and damaged 10 acres of papaya trees at a cooperator farm in Keeau.

Willingness to help one another is just of the characteristics we promote when assisting growers transitioning to 'mainstream' operations. We consider mainstream producers to have: sound understanding of crop production issues and business concepts, quality products, consistent product supply, market awareness, market presence, and are active participants, information seekers and demonstrate willingness to assist others.

To quickly address the issue, papaya growers from the Big Island seeked out community donations to build a reservoir of funds with the purpose of providing rewards for information leading to the identification and arrest of vandals. LIFE cooperators and the HPIA worked to secure a Hawaii county police officer to speak on vandalism prevention issues at the LIFE educational field day on Black Spot Management. Neighborhood watch programs were developed due to the grower's commitment to assist one another. LIFE's supported the efforts of HPIA by developing Ag Theft and Vandalism Flyers in English and Ilokano to help bring about awareness. LIFE is proud to support the efforts of LIFE cooperators and applaud these cooperators for stepping forward to support others in need of assistance. These cooperators have solicited resources to safeguard their industry against these unforeseen and unexpected economic risks. Currently, the reward for information about ag heft or vandalism regarding the papaya growers in Puna is set at $10,000.

Evidence: Seeking out Assistance with the IRS: Business Tax Workshops to Increase Business/ Financial Sustainability. Growers identified one of their biggest challenge is understanding and meeting their tax filing requirements. The financial consequences of failure to comply with tax filing requirements can jeopardize your business. These workshops covered basic and advanced tax issues facing small businesses and farmers in Hawaii today including: Basic Business Tips; Correct Worker Classification; Independent Contractors; Trust Fund Taxes; Record Retention; Tax Consequences Of LLC's, "S" Corporations, Sole Proprietorships; Electronic Filing; GE tax law; When to file Schedule "F"; IRS Pub 225; Farm Income and SE Tax; Net Operating Losses; Farmer's Casualty Losses – Theft, Vandalism, Pests, Vog. LIFE provided growers with a better understanding of the impact of taxes on business/ financial management by holding these workshops in Hawaii. Increased grower competencies in the area of financial management may help producers become financially sound agriculture enterprises.

Michael Holl, a kama'aina resident of Hawaii since 1959 who grew up on the Waianae coast of Oahu, is a federally licensed Enrolled Agent (EA) representing taxpayers before the IRS. Keaau growers wanted to know specifically if vandalism was covered as a casualty loss. The Kau growers' main concern was how their coffee business will get covered if there was an infestation of coffee berry borer on their farm. Coffee berry borer is a significant threat to this upcoming coffee industry. For both groups, the main concern of the farmers/business owner was the question on proper procedures for work force payroll.

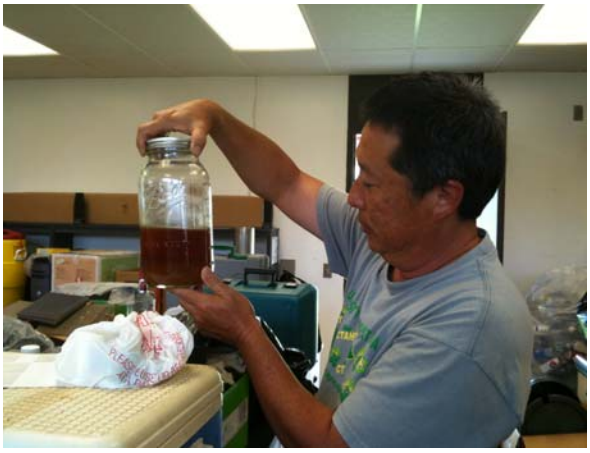
Overall, there was a great response from both groups of growers regarding the tax workshops. Workshop evaluations are conducted at the conclusion of all educational workshops. It allows us to evaluate the quality and impact of our programs. Overall, a summary of the surveys collected for the workshop on May 26, 2011 indicated growers felt educational programs were EXCELLENT (3.9) based on a mean score of 1=poor and 4 = excellent. Participants also felt the workshop was GOOD (3.4) in increasing their knowledge and awareness of risk management topics. Evaluations indicated that the delivery of the workshop was EXCELLENT (3.9) in providing information in practical terms and utilized appropriate teaching methods. Eighty percent of participants felt they could apply some of the information obtained through the program on business taxes.

A summary of the surveys collected for the workshop on May 27, 2011 had similar results. Results indicated growers felt educational programs conducted were EXCELLENT (3.6) based on a mean score of 1=poor and 4 = excellent. Participants also felt the workshop was EXCELLENT (3.7) in increasing their knowledge and awareness of risk management topics. Evaluations indicated that the delivery of the workshop was GOOD (3.5) in providing information in practical terms and utilized appropriate teaching methods. Ninety five percent of participants felt they could apply some of the information obtained through the educational program on business taxes. One participant said, '. I feel in a way this is good for business. The presentation was O.K. I wanted to learn more because this is all new to me.'

Establishing Lasting Cooperative Partnerships:

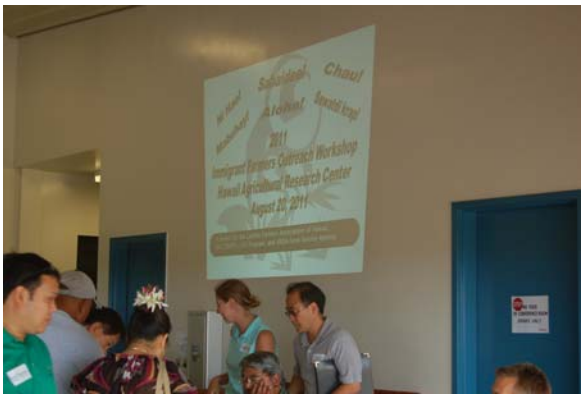
Evidence: Testimonials from LIFE's clientele provide additional evidence in support of our successful partnerships. Karen Umehara of the Hawaii Papaya Industry writes, "You all must

tire of my praises but I truly need to express my personal appreciation! The efforts of your teamwork is outstanding! great job!!!" Program Director of USDA's RMA program in Davis says, "Good to see the positive feedback that our funded programs have." Delan Perry, former president of HPIA emails, "Wanted to thank you for a great program. Good attendance and all!" Kenn Harada of Calavo Growers talks about our field day workshops, "The field day was a success. Grower turnout were really good." Lorie Obra, Kau Coffee Grower and outstanding producer acknowledged by the Specialty Coffee Association of America (SCAA) and the Hawaii Coffee Association says, " Sabina and then you bringing the program here is very beneficial for me. It taught me a lot and I am very grateful. I can't speak for the other farmers. How I wish they will use it too for their advantage."



Evidence: Addressing Native Hawaiian Community Needs. In 2011, the LIFE program partnered with Hawaiian homelands extension agents to extend our reach in meeting the needs of native Hawaiians. Sako determined the needs and interest of the group lies in the area of natural farming. Participants indicated their interest in using natural methods vs. commercial pesticides / fertilizers for crop care. During this period, six hands on workshops were developed around the topics of native Hawaiian taro cultivation and natural farming. The Natural Farming method developed by Master Cho has received statewide publicity in the local media. Participants have learned about Global Natural Farming (CGNF), CGNF input introduction, Indigenous Microorganism (IMO), OHN (Oriental Herb Nutrient); IMO-2; Fish Amino Acid (FAA). Fermented Plant Juice (FPJ) and Fermented Fruit Juice (FFJ). Participants will also learn how to apply these natural farming techniques to their homestead farming systems.

Participant responses have been positive. Participants comments include, "love hands on experience; very easy to absorb; all information is useful; great workshop; lots of useful information to help me start a farm based on natural farming; excellent presentations; the workshops have helped me so much. I don't want them to end, I need more." We are excited with our new partnership and look forward to working with the native Hawaiian group further. LIFE is working with this group to gather research based information to determine if this natural system minimizes risk and pest as compared to traditional farming methods.



Evidence: Partnering with Government Agencies: Another example of a collaborative partnerships is the Immigrant Farmer Outreach workshops in conjunction with Jason Shitanishi of the USDA, Farm Services Agency. Workshops in remote rural areas were held to attract socially disadvantaged growers to our workshops. Participants are able to meet and greet agricultural agency representatives

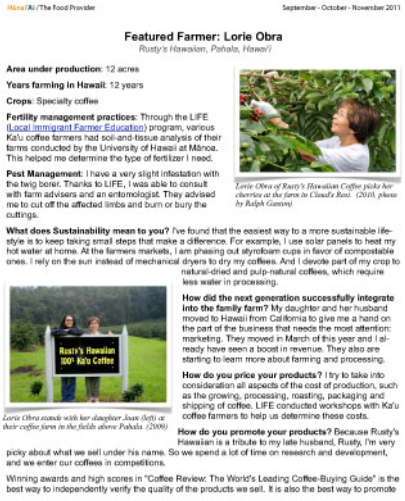
from agencies such as USDA (many different sub agencies), Oahu Conservation and Resource, University of Hawaii, Hawaii Department of Agriculture, Hawaii Farm Bureau, government sponsored loan officers, etc. Workshops are held in the evening and conducted in a non aggressive manner which enables us to build lasting partnerships over the years. An example of our work was recognized in the Honolulu Star Advertiser's article entitled, 'Immigrant Farmers Reap Harvest of Opportunities.' (Honolulu Star Advertiser, August 21, 2011)

"We've used crop insurance, USDA farm loans, resource conservation and development grants and other programs to help our farm grow. The agricultural community as a whole has been very supportive of my brother and me because they see us as part of the younger generation of farmers."

Shin Ho
Second-generation farmer and operations manager of Ho Farms in Kahuku

Improving Crop Productivity/ Heightening Product Quality: Advancement and recognition of the Kau area of Hawaii for its award winning coffee. A five year commitment by Drs. Sabina Swift, Stuart Nakamoto and the LIFE team has resulted in the development of lifelong relationships, development of superior coffee, marketing of locally produced coffee, and discovery of a new coffee producing region on Hawaii. Coffee growers in this region have received county, statewide, national and international recognition for their superior Hawaiian (Kau) grown coffee.

Evidence: Acknowledgement of our Award Winning Coffee Producers: The LIFE program is credited for supporting and encouraging early adopters of the LIFE program to apply and compete in local, national and international cupping competitions. Several of our LIFE clientele have received recognition by the Specialty Coffee Association of America (SCAA) and the Hawaii Coffee Association for their fine coffees during cupping competitions. Kau producers were recognized by SCAA as the Best of Origin USA/Hawaii. Another one of Kau's growers received the grand champion award in 2010 and 2011 by the Hawaii Coffee Association. Each year the awards for this cooperative go on and on. In 2011, Starbucks reported partnering with Kau producers in 'serving up world-class cups of Hawaii Joe from Big Island's Kau district' (Hawaii Magazine, October 13, 2011). Lorie Obra of award winning, Rusty's Hawaiian Coffee, credits LIFE in her interview with the CTAHR Sustainable and Organic Agriculture program. She states, 'Through the LIFE program, various Ka'u coffee farmers had soil-and-tissue analysis of their farms conducted by the University of Hawaii at Manoa. This helped me determine the type of fertilizer I need…Thanks to LIFE, I was able to consult with farm advisers and an entomologist. … I try to take in to consideration all aspects of the cost of production, such as the growing, processing, roasting, packaging and shipping of coffee. LIFE conducted workshops with Ka'u coffee farmers to help us determine these costs.'



Hana'Ai / The Food Provider — September - October - November 2011

Featured Farmer: Lorie Obra
Rusty's Hawaiian, Pahala, Hawai'i

Area under production: 12 acres

Years farming in Hawaii: 12 years

Crops: Specialty coffee

Fertility management practices: Through the LIFE (Local Immigrant Farmer Education) program, various Ka'u coffee farmers had soil-and-tissue analysis of their farms conducted by the University of Hawaii at Manoa. This helped me determine the type of fertilizer I need.

Lorie Obra of Rusty's Hawaiian Coffee picks her cherries at the farm in Claudi's Rest. (2010, photo by Ralph Gemmy)

Pest Management: I have a very slight infestation with the twig borer. Thanks to LIFE, I was able to consult with farm advisers and an entomologist. They advised me to cut off the affected limbs and burn or bury the cuttings.

What does Sustainability mean to you? I've found that the easiest way to a more sustainable life-style is to keep taking small steps that make a difference. For example, I use solar panels to heat my hot water at home. At the farmers markets, I am phasing out styrofoam cups in favor of compostable ones. I rely on the sun instead of mechanical dryers to dry my coffees. And I devote part of my crop to natural-dried and pulp-natural coffees, which require less water in processing.

Lorie Obra stands with her daughter Joan (left) at their coffee farm in the fields above Pahala. (2006)

How did the next generation successfully integrate into the family farm? My daughter and her husband moved to Hawaii from California to give me a hand on the part of the business that needs the most attention: marketing. They moved in March of this year and I already have seen a boost in revenue. They also are starting to learn more about farming and processing.

How do you price your products? I try to take into consideration all aspects of the cost of production, such as the growing, processing, roasting, packaging and shipping of coffee. LIFE conducted workshops with Ka'u coffee farmers to help us determine these costs.

How do you promote your products? Because Rusty's Hawaiian is a tribute to my late husband, Rusty, I'm very picky about what we sell under his name. So we spend a lot of time on research and development, and we enter our coffees in competitions.

Winning awards and high scores in "Coffee Review: The World's Leading Coffee-Buying Guide" is the best way to independently verify the quality of the products we sell. It is also the best way to promote

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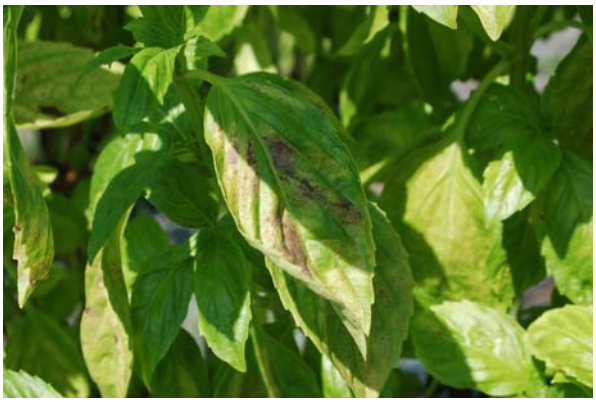
Timely Research Based Response: The economic success of agricultural producers relies on their ability to adapt their farming principles and practices to integrate latest technology and research developments. LIFE established critical field experiments in conjunction with growers to tackle pressing crop production issues (spray coverage, fungicide program for papaya, variety trials to overcome a new and devastating tomato virus, etc) that strive to improve productivity and profitability. Field day activities enabled growers to see the impact of LIFE recommendations first hand.

Evidence: Safeguarding Agricultural Businesses from a Newly Emerging Risk Through a Multi Agency Field Demonstration on Best Management Practices. Coffee berry borer (CBB) is known to be the most devastating pest of coffee. Since its invasion into Kau, the coffee growers have transitioned their efforts from CBB monitoring to pest management. Timely notices and workshops were held to educate Kau cooperators in a timely manner. Growers were provided with an update about the pests, methods of identification, symptoms of damage and information about handling pest discoveries (not moving samples around the island). Since its discovery, growers in Kau have been scouting / managing CBB effectively in their coffee fields. LIFE coordinated with agricultural agencies to address this new pest invasion in Kau. Follow up Coffee Berry Borer (CBB) field days were held in collaboration between the LIFE program, the Hawaii Department of Agriculture (HDOA), and agricultural chemical companies such as CPS and BEI. Timely notices/ responses and a coordinated effort has helped to keep this pest within economic thresholds in Kau.

Overall, farmers were appreciative of the field demonstration. LIFE/RMA staff also witnessed how the Kau coffee farmers are collaborating as a group to help one another in combating this devastating pest. A summary of the surveys collected at the workshop 2011 had similar results. Results indicated growers felt educational programs conducted by LIFE were EXCELLENT (3.7) based on a mean score of 1=poor and 4 = excellent. Participants also felt the workshop was EXCELLENT (3.8) in increasing their knowledge and awareness of risk management topics. Evaluations indicated that the delivery of the workshop was GOOD (3.5) in providing information in practical terms and utilized appropriate teaching methods.

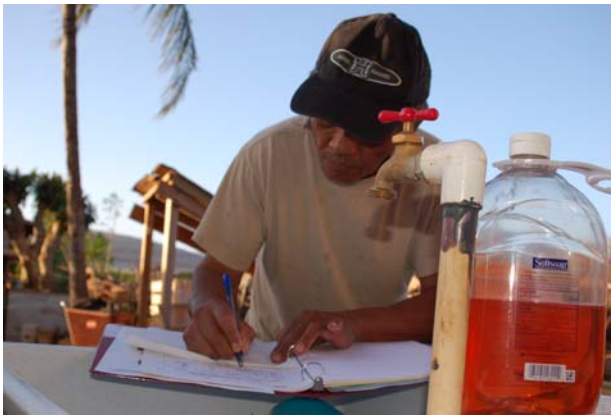
Evidence: In 2011, agricultural chemical representatives brought to LIFE's attention, a problem detected in a commercial basil operation in Waianae, Oahu. Basil industry in Hawaii is estimated as a 6.8 million dollar (local and export) industry run primarily by socially disadvantaged producers in Waianae, Kunia and Kahuku. Samples were submitted to the CTAHR Agricultural Diagnostic Service Center's and identified as a new disease, Basil Downy Mildew. Dean Yuen of CTAHR developed a Basil SWAT team to address this newly emerging problem. LIFE worked with growers to identify best management practices which included pesticide safety, chemical label comprehension, and correctly choosing approved crop protection chemicals for basil production in Hawaii. Agricultural chemical company representatives and the Hawaii Department of Agriculture supported our mission to educate farmers, homeowners and nurseries producing basil seedlings with best management guidelines. Due to the timeliness of the response through a collaborative approach, we were able to obtain effective control of the pathogen and ensure quarantine of infected plants not reaching the mainland US and abroad in early 2011. News and radio reports were conducted by KITV, Start Advertiser, KSSK and Hawaii Public Radio and increased our delivery of research based solutions to an emerging problem.



Evidence: New Disease Affecting Commercial Tomato Operations. Tomato yellow leaf curl virus (TYLCV), is a devastating disease of tomato worldwide and was first detected and identified in commercial tomato plantings around Oahu and Maui in 2009 (Melzer, et al, 2009). TYLCV can completely devastate statewide commercial tomato operations without proper control strategies. LIFE worked with extension agent, Steve Fukuda, Dr. Mike Melzer, CTAHR Plant Virologist, and Dr., Ted Radovich to screen and identify resistant varieties that can tolerate this new virus. In 2011, replicated field trials were installed at the Poamoho Research station. Field day events were held to educate socially disadvantaged growers on the field symptoms and best management practices available to manage this new disease. Through this effort, we discovered another disease on tomatoes. Dr Melzer identified this new disease as pepper

mottle virus. Through a coordinated effort, we have been able to identify commercial varieties with putative resistance to TYLCV and TSW. Due to the quick detection and screening of varieties, socially disadvantaged producers are back in business.

Safeguarding our Food and Worker Health: New standards such as the worker protection, Good Handling Practices and Good Agricultural Practices developed by agencies such as the Environmental Protection Agency (EPA), USDA, and US Food and Drug Administration are putting grower's agricultural practices under close scrutiny. At the onset of the LIFE program it was brought to our attention that many socially disadvantaged producers were being fined for the misuse of pesticides and lack of worker protection equipment. LIFE teamed up with the CTAHR Food Safety Program, Hawaii Department of Agriculture, and the Worldwide Farmers Exchange to encourage producers and their agricultural farm workers to 'buy in' to our Safe Farm & Employee Program. Educational training and adoption has been increasing steadily.

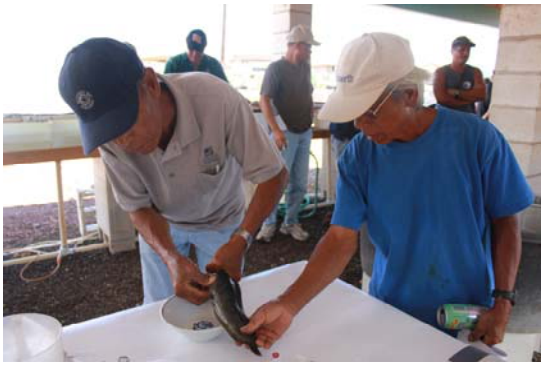


Evidence: The candidate collaborated with the CTAHR and HDOA Food Safety team to conduct four grower workshops dealing with pertinent food safety issues. HDOA and CTAHR faculty members from Oahu, Hawaii and Maui were recruited as guest lecturers. In addition to workshops, LIFE conducts food safety coaching on farm, assists growers with manual development and worked with the Hawaii Farm Bureau to draft policies and procedures to address their respective food safety program. During this period, the LIFE program assisted 5 commercial producers in obtaining and maintaining 3rd party food safety certification through Primus Laboratory, developed 12 working draft manuals with active crop producers for food safety record keeping and auditing purposes, worked with innovative leaders in food safety to draft food safety standard operating procedures and develop an online food safety record keeping system. Program members met with the educators from Costco during their local audits of Oahu farms to get a better sense of the food safety issues and processes used by the large wholesale chain.

Evaluations from food safety workshops indicated grower's knowledge in the area of food safety improved greatly (3.6), based on mean values of 0=no change, 1= little change, 2=moderate change, 3=changed quite a bit, and 4=greatly improved. Participants indicated information was explained in practical terms and the teaching methods were appropriate. One hundred percent of participants indicated they would make corrective changes to their operations. Field visitations with cooperating growers resulted in an increase in certified food safety operations and heightened level of food safety in locally grown commodities.

Transition to Mainstream Producers: Since the program's inception, we estimate approximately 6% of Oahu's immigrant growers, 11% of Keeau papaya growers, and 28% of Kau Coffee growers are now viable 'mainstream' producers. We consider mainstream producers to have: sound understanding of crop production issues, business action plan, quality products, consistent products, market awareness, market presence, and are active

participants, information seekers and demonstrate willingness to assist others. The movement into mainstream agriculture has been difficult for many LIFE cooperators due to the state's economic situation. Risk mitigation efforts are on the rise. However, additional work and time is needed to assist growers in creating long term sustainable agricultural businesses that can endure spurts of financial hardship. Adoption of risk management recommendation has helped to improve growers' sustainability and economic viability during this rough economic period.



Evidence: Improving Sustainability through Diversification. Producers have realized through agribusiness opportunities and one on one field consultations, mono-crop production increases vulnerability to risk. Extreme environmental conditions such as drought or heavy rain fall, often create emergency disaster situations which puts producers such as those farming in Waialua, Oahu (Otake Camp) in great jeopardy. Many agricultural producers with ethnic ties to Southeast Asia have requested the assistance in providing educational opportunities in aquaponics (fish+vegetable commodity) operations. Incorporation of an aquaponic operation would enable growers to cultivate edible crops such as lettuce, Asian leafy greens, etc while producing and marketing aquaculture commodities such as tilapia, cat fish, etc. in a sustainable manner. Producers have expressed interest in transitioning away from Hawaii's competitive vegetable and fruit industry towards Hawaii's $32 million dollar (Statistics of Hawaii Agriculture, 2009) aquaculture industry. Growers intend to mitigate risk through diversification.

LIFE has partnered with CTAHR aquaculture specialists, Drs. Clyde Tamaru and Kai Fox of UH CTAHR to develop educational opportunities in the area of aquaponics. Through this partnership, growers will obtain access to starter fish and educational resources to produce fish and edible crops successfully in a safe and cost effective manner.

Two workshops were held for growers on aquaponic related issues in 2011. Workshops were hands-on grower field days to show interested growers how to set up an aquaponic system using local sources of materials and supplies. Growers indicated their interest in minimizing cost associated with fertilizers. A demonstration site was installed at the Poamoho Experiment station with the assistance of CTAHR's Oahu County CES, Aquaponic and Aquaculture, LIFE, Oahu 4H, and the Sustainable and Organic Farming Programs. Aquaponics utilizes the waste from the fish to supplement the nutritional needs of the plants. CTAHR Aquaculture/Aquaponics Specialists, Drs. Clyde Tamaru and Bradley "Kai" Fox talked aquaponics and their experiences working with successful systems in Hawaii. Participants were able to see the parts, plumbing, pumps, and other supplies needed to get

started in aquaponics. The grow beds were assembled in front of everyone. It was a truly hands-on event. Additional work is taking place with the CTAHR Food Safety team to assess the risk factor of produce grown with this new technology.

A summary of workshop surveys collected at the conclusion of the field day indicated growers felt the field day programs were EXCELLENT (3.9) based on a mean score of 1=poor and 4 = excellent. Participants also felt the workshop was EXCELLENT (3.7) in increasing their knowledge and awareness of risk management topics. Evaluations indicated that the delivery of the workshop was EXCELLENT (3.7) in providing information in practical terms and utilized appropriate teaching methods. Ninety percent of participants indicated they learned something that could be applied to their respective operations. Participants provided testimonials such as, 'Great, informative, useful, educational and I would like to do my own - smaller. Mahalo,' 'Very hands-on and useful! Thanks!,' 'Good to see the foundation being laid,' 'Informative & assessable to all levels of farmers,' 'Awesome & informational. Loved the hands on!,' Good to see the actual construction,' 'Interesting, awesome!' When asked about the best component of LIFE workshops, comments included, 'very informative,' 'excellent teaching,' 'good hands on,' 'informative and hands on,' 'excellent workshop.'

LIFE Workshops: October 2010-September 2011

1. Commercial Horticulture in Waimea on the Big Island. Tour for Horticultural Professionals (ASHS). September 24, 2011. Waimea, Hawaii.
2. LIFE Program Meeting Grower's Needs: Case Study: Managing the Spot (*Asperisporium* Black Spot Disease) through Implementation of Best Management Practices. 47th Annual Hawaii Papaya Industry Association Conference. September 23, 2011. Komohana Extension Office. Hilo, Hawaii
3. New Market Niche. Understanding the Risk involved in Aquaculture / Aquaponics, Catfish Spawning Demonstration and Aquaculture Insurance Programs. September 2011. Mari Gardens. Mililani, Oahu.(Grower Inspired Field Day)
4. Complete Farm Protection: Part I: Farm Protection: *Asperisporium* Black Spot Disease. Part II: Crop Protection: Options on Insurance: Ag Theft & Vandalism. Keeau, Hawaii. August 25, 2011 (Industry Inspired Field Day)
5. Immigrant Farmer Assistance Program. Meet Hawaii Ag Agencies & USDA Reimbursement Transportation Cost Payment Program. Kunia, Oahu. August 20, 2011
6. Tomato Field Day: Minimizing Your Production Risk with Resistant Varieties: Evaluating New Varieties for TSW & TYLCV Resistance. Poamoho Research Station, Waialua, Oahu. August 11, 2011. (Grower Response Field Day)
7. American Pathology Society National Conference, Pre and Post Harvest Field Tour with Opportunities to meet with Socially Disadvantaged Growers. Waialua to Kahuku Ag farms. August 6, 2011.
8. Challenges and Opportunities for Soiless Farming in Hawaii. Windward Community College. July 23, 2011
9. Insecticide Resistance Management Program: High Potency Bt Insecticide Evaluation for the Control of Diamond back Moth on Head Cabbage (Field day). Kula Ag Park Research Station, Maui. July 21, 2011.

10. Cho Global, Natural Farming: Part II. Hands on Instruction on IMO-3, OHN, WCAP, WCA. Waimea Civic Center/ Komohana Extension Office. April 5-6, 2011
11. Banana Production Research and Extension Update: Mini Conference. Windward Community College. April 19, 2011
12. Native Taro Germplasma Field Day, Waimanalo Research Station, April 21, 2011.
13. Cho Global, Natural Farming: Part III. Hands on Demonstration on OHN, IMO-4, and LAB. Waimea Civic Center/ Komohana Extension Office. April 26-27, 2011
14. Minimize Risk / Increase Marketability by Adopting On-Farm Food Safety Practices. Keaau Community Center, April 28, 2011.
15. Coffee Berry Borer Update: Monitoring, Trapping and Control Strategies. Pahala Community Center, May 3, 2011.
16. Insecticide Evaluation for the Control of a New Onion Virus on Bulb Onions-Field Day. Kula Agricultural Park. May 10, 2011
17. Risk Management Hawaii – Crop Insurance and Record Keeping Poster. Pahala Community Center. May 14, 2011 for the Kau Coffee Festival.
18. Reducing Fertilizer Cost: Cover Crops, and Compost Field Day, Twin Bridge Farms, Waialua, May 19, 2011. (Grower Inspired)
19. Diversification to Increase Sustainability: Starting Aquaponic / Hydroponic Systems: Framework, Plumbing and Fish. Hands on Demonstration. Poamoho Research Station, May 19, 2011
20. Keeping More Money in Your Pocket; Learn About Business Taxes: Responsibilities and Pitfalls. Keaau Community Center, May 26, 2011
21. Keeping More Money in Your Pocket; Learn About Business Taxes: Responsibilities and Pitfalls. Pahala Community Center, May 27, 2011
22. Coffee Berry Borer Finds its way to Kau; Emergency Multi Agency Field Day: Monitoring, Sanitation and Spraying. Pahala Community Center and Coffee farm in Pahala, Hawaii, June 3, 2011
23. Food Safety Manual: Standard Operating Procedures Development Workshop. Pearl City Urban Garden Center, Oahu. June 14, 2011.
24. Incorporation of Spray Surfactant to Increase Spray Effciency and Minimize Pest and Disease Population in Papaya and Risk Management and Crop Insurance Q&A. Keeau Community Center, Febuary 24, 2011.
25. Identifying Industry's Priority Pest Management Issues for Papaya. Komohana Extension Office. February 24, 2011
26. Minimize your Risk of Pesticide Inspections and Citations by Understanding Pesticide Labels and its Safe Application. Keeau Community Center. March 17, 2011.
27. Bees, Termites and Hawaiian Taro Field Day. Waimanalo Research Station. March 12, 2011
28. A Symbol of Quality-Hawaii Seal of Quality Program. Kau Community Center, March 19, 2011
29. Cho Global, Natural Farming: Part I. Hands on Demonstration on CGNF, IMO (indigenous microorganisms). Waimea Civic Center/ Komohana Extension Office. March 22& 23, 2011
30. Basic Pesticide Safety. Educate, Test and Evaluate Yourself. Pearl City Urban Garden Center. March 29, 2011.

31. Cho Global, Natural Farming: Part II. Hands on Demonstration on OHN, IMO-2, FAA, FPJ, and FFJ. Waimea Civic Center/ Komohana Extension Office. March 29& 30, 2011
32. Update on Syngenta Insecticides and the Importance of Insecticide Resistance. Hawaii Agriculture Research Center, Kunia, Oahu.March 30, 2011.
33. Pesticide Safety 101: Educate, Test and Evaluate Yourself. Kaneohe Extension Office. March 30, 2011.
34. Introduction to Marketing and Value Added. Pahala Community Center. October 1, 2010.
35. Do you know your Cost of Production?. Kahului Extension Office. October 6, 2010
36. Agribusiness Part I: Introduction to Marketing and Value Added. Agader Farm, Waialua, Oahu, October 8, 2010
37. Agribusiness Part II: Writing a Business Plan. Agader Farm, Waialua, Oahu,. October 20, 2010
38. Agribusiness Hawaii: Writing a Business Plan. Komohana Extension Office. Hilo, Hawaii, October 21, 2010
39. Agribusiness Part III: Writing a Marketing Plan. Pahala Community Center. Kau, Hawaii, October 22, 2010
40. Risk Management Overview and Crop Insurance. Kaneohe Extension Office, November 16, 2010.
41. Minimizing Market Risk. West Coast Papaya Assessment for Producers. Keeau Community Center. November 18, 2010.
42. Minimizing Market Risk. West Coast Papaya Assessment for Packers/Shippers. Komohana Extension Office. November 19, 2010.
43. Revisions and New Additions to Crop Insurance in Hawaii. Kau Community Center November 19, 2010.
44. Improving the WPS (Worker Protection Standards) and Efficacy of Pesticide Sprays to Corn. Pioneer Seed Company, Kauai. November 23, 2010.
45. Improving WPS and Spray coverage to Oahu's Sweet Corn Producers. Kaneohe Extension Office. December 15, 2010

The Local Immigrant Farmer Education (LIFE) Program is a grant funded collaborative project between the UH College of Tropical Agriculture and Human Resources (UH-CTAHR), UH CTAHR Risk Management program and the USDA, Risk Management Agency