

FY 2020 Annual Report of Accomplishments and Results

MICRONESIA

College of Micronesia

I. Report Overview

The NIFA reviewer will refer to the executive summary submitted in your FY 2020 Plan of Work located in the Institutional Profile. Use this space to provide updates if needed.

1. Executive Summary (Optional)

Annual report overview

The geographic region served by the College of Micronesia land grant program (COM-LG) covers six sites across three island nations and over 2 million square miles. Four of the extension counties in the Federated States of Micronesia (FSM) are Yap, Chuuk, Pohnpei, and Kosrae. These counties include 607 islands and atolls, 65 of which are inhabited, spread across an ocean area of more than one million square miles. The Republic of the Marshall Islands (RMI) consists of two north-to-south chains of islands. Altogether it consists of 30 atolls, each made up of many islets and five coral islands. The Republic of Palau (ROP) consists of a cluster of more than 343 islands in the southwest corner of the region, roughly 500 miles southeast of the Philippines. In 2020, despite challenges induced by the COVID-19 pandemic, extension staff continued providing advisory and extension services as per the approved work plan. In addressing the wide range of issues identified by the stakeholders, our program emphasized addressing national and local issues and priorities. While 5 out of 6 programs addressed national importance, one program area – aquaculture - specifically addressed a local priority area. In 2020, we reassessed our program areas that resulted in the consolidation of regional significance and priorities.

Research and extension activities continued to improve agriculture and aquaculture productivity, increase food security and self-sufficiency, tackle youth and family issues, enhance climate change adaptation strategies, enforce food safety measures, address childhood obesity, and improve life quality.

Micronesian islands have an economically detrimental reliance on imported foodstuff, especially fruits, vegetables, and animal products. The increase in the demand and consumption of imported foods has led to an overall decline in local food production and decreased food security. Strengthening traditional agricultural systems using climate-smart adaptive methods and focusing on local food production and processing methods was crucial to reducing poverty and meeting overall food security objectives. Our programs utilized research, extension, and education

activities to provide knowledge, technical assistance, and methods to produce local foods and improve food products and processes for existing and expanded markets. In ROP, the partnership between the National Bureau of Agriculture and international partners has resulted in a taro processing program to transform raw taro corms into value-added vacuum-sealed taro products with longer shelf-life. In Pohnpei county, a research project on black pepper standardized the production methods, and appropriate hands-on training activities were provided to local farmers for adoption and expansion. New efforts initiated to control invasive insect pests such as coconut rhinoceros beetle, and information on control measures have been disseminated to farmers. The efficacy of a combination of nitrogen-fixing plants and seaweed compost is tested to ameliorate the challenges with atoll soils in RMI. Extension efforts focused on providing swine husbandry training, hands-on demonstrations on cover cropping, intercropping, crop rotations, soil management, vegetable gardening training in schools and communities, cooking demonstrations, preparation of healthy meals, and training on value-addition of local produce. There was a total of 2,105 contacts among adults (1,655) and youth (450) under the 'Lack of local food production and food insecurity program.'

Research and extension efforts to promote aquaculture and its economic potential for sustainable community development continued to be prioritized. Aquaculture programs addressed the issue of low wild stock of marine food species through regular release and monitoring of economically important species. Programs focused on developing and refining techniques in the seed production and grow-out culture of traditionally and economically important aquaculture species such as mangrove crab, rabbitfish, tiger shrimp, grouper, small clam, and sea cucumber. Multispecies hatcheries served as locations for seed production activities, hands-on demonstrations, local and regional training, and capacity building. Successful seed production operations in ROP resulted in 11,900 rabbitfish juveniles and 16,430 mangrove crab juveniles delivered to grow-out farms. About 18 million larvae of mangrove crabs were released in conservation areas to enhance their wild population. Research efforts in Yap and Pohnpei county hatcheries produced about 12,000 sea cucumber juveniles for grow-out initially for three months in the ocean floating hapa nurseries, then to the community or protected area farms for about 18-24 months for further growth up to marketable size. Spawning and larval rearing of giant clams were demonstrated, and staff provided hands-on training to various stakeholders in Micronesia. A research project in the RMI aims to standardize protocols for hatchery, nursery, and grow-out culture of small clams and groupers. In contrast, the extension program facilitated demonstration and training of grow-out maintenance of rabbitfish and tilapia and training schoolchildren on construction and use of traditional fish traps. Altogether, the aquaculture extension program reached 892 stakeholders via direct contacts.

The traditional extended family system in Micronesia has changed significantly during the last few decades. Many of these changes are both profound and ominous. Today, Micronesian families face challenges in maintaining smooth relationships owing to outside influences and threats. Our extension programs strengthened families in Micronesia by helping in skills-building activities, healthy physical activities, vegetable gardening, counseling, cultural activities, after-school educational tutoring sessions, and leadership development programs. Each of these emphasis areas impacts communities and their well-being. Outreach sessions comprised workshops to enhance youth's life skills in modern fishing methods, handicrafts making, weaving, sewing, and business development skills such as business plan writing, marketing, pricing, and cash flows. These skills development training sessions empowered youth to engage in productive activities in the community. Tutoring and counseling sessions provided to school dropouts and vulnerable groups to stay away from substance abuse, engage in sports and fitness

programs, and complete academic sessions. Through parental guidance and counseling sessions, young couples and families with relationship challenges learned about the value of respect, proper communication, discernment of correct behavior, wise decision making in family resources management, solving conflicts, and experiencing a harmonious life. Outreach and educational activities under 'Youth and family issues in the communities' reached 957 youth and 128 adults.

Building resilience of traditional island agriculture systems is a priority given the challenges from climate variability and change. Seed system is an important area for enhancing such resilience as seed security links to island communities' food security and resilient livelihoods in general. Resilient seed systems can absorb shocks and reorganize to maintain seed security over time with direct links to ensure food security. However, building resilient seed systems is unexplored in research and practice. An ongoing research project evaluates the potential of open-pollinated seeds to meet small-scale growers' needs for planting material and to enhance their resiliency during times of stress. Outreach activities were conducted to spread awareness of climate change impacts on the environment, agriculture, food production systems, and agroforestry practices as an adaptation strategy. Demonstration gardens maintained to showcase climate-smart production systems. Results of research and extension programs were shared with stakeholders in meetings and through local outreach events. In FY 2020, the 'Climate change challenges in Micronesia' program reached 877 adults and 240 youth via direct contacts.

Lack of proper knowledge on food safety is attributed to the high incidence of food and waterborne illnesses across the Micronesian region. This often results in communities exposed to unsafely processed and contaminated foods. Outreach and extension efforts to educate the target audience about food safety practices continued through awareness training, educational workshops, and hands-on demonstrations. Activities were focused on proper and safe food handling, understanding food labels, proper storage methods, adopt best practices and processing methods, food inspections to avoid contamination, and sanitation requirements to reduce the risk of food and waterborne illnesses. In FY 2020, the 'High incidence of food and waterborne illnesses in Micronesia' program reached 618 adults and 20 youth through direct contacts.

Childhood obesity continues to be a significant health problem across Micronesia. Modernization, dietary changes, and dependence on imported food products contributed to the increase in obesity. Presently Micronesians are among the top 10 obese countries in the world. A major effort of our extension program is to address diet and obesity-promoting factors through culturally appropriate interventions. Consumption of high-calorie sugary drinks and lack of enough physical activity was identified as a significant factor contributing to obesity. Educational sessions were conducted in schools to increase awareness of better food and drink choices and motivational sessions to increase daily physical activities. Recommendations were given to increase local foods consumption, including school/home-grown vegetables and fruits, and incorporate other suggestions to reduce meals fat and calorie content. Training programs also focused on parental attitudes and actions on children's eating and exercise behaviors and delivery of culturally appropriate parental best practices. In FY 2020, the 'Childhood obesity' program reached 642 adults and 516 youth.

Cost-sharing agreement with State Governments continued, whereby extension agents from the State agriculture departments collaborated with the cooperative extension staff. The shortage of qualified staff remains a challenge, and appropriate steps are being taken to fill vacant positions. Outreach activities were hampered during the early days of the COVID-19 pandemic. However, appropriate measures were taken to provide needed support services to vulnerable island communities.

COM Extension Response to COVID-19

The global pandemic crisis worsened the challenges of small-scale producers that render them vulnerable to food insecurity. While the three island nations' borders are still closed, the COM extension remained committed, took appropriate measures to lessen the challenges, and offered needed support services. In the context of the pandemic outbreak, providing outreach services was a challenge. Nevertheless, extension staff is better positioned to help respond to the pandemic crisis. Improving the awareness and knowledge to use locally developed innovative solutions was crucial for sustainable agriculture and effective response to emergencies. Harnessing local innovations and facilitating the co-creation of knowledge was essential to overcoming the difficulties. The staff for all activities adhered to the following criteria: i) Maintained social distancing norms, and ii) Compliance with appropriate country and county-specific regulations and movement restrictions within the islands. The following activities were explicitly carried targeting vulnerable island communities:

1. Facilitated access to inputs and services, and income-generating opportunities in the short-term.
2. Empowered the most vulnerable to find solutions to location-specific problems.
3. Encouraged small-scale growers to adopt existing methods and practices and empowered them to innovate and develop their ideas and localized solutions.
4. Helped to adopt and make available technologies and practices.
5. Exchanged information and experience from other countries and scaled-up good practices and research solutions.
6. Extended technical assistance and distributed seeds for establishing/maintaining household vegetable gardens.
7. Rearranged working schedules to ensure flexible participation of, especially women and youth.
8. Helped community members communicate and exchange information (in local vernacular), experience, and innovative solutions.
9. Ensured participation of most vulnerable community members.
10. Allocated resources for extension and advisory services to adopt appropriate methods and practices and strengthen local food production.
11. Provided practical guidelines and methods that are specifically significant to local situations. Such practices are generally found within the vicinity of the households. These practices and technologies helped women and youth in promoting innovations in generating alternative income sources.
12. Starting vegetable production at the household level was a quick solution to access fresh agricultural produce during the lockdown. Home gardening activities provided nutritious vegetables to vulnerable communities. Across the FSM counties, there is a marked increase in the number of vegetable gardening activities. Read a [success story](#).

II. Merit and Scientific Peer Review Processes

The NIFA reviewer will refer to your 2020 Plan of Work. Use this space to provide updates as needed or activities that you would like to bring to NIFA's attention.

| Process | Updates ONLY |
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| 1. The <u>Merit Review Process</u> | No updates |
| 2. The <u>Scientific Peer Review Process</u> | No updates |

III. Stakeholder Input

The NIFA reviewer will refer to your 2020 Plan of Work. Use this space to provide updates as needed or activities that you would like to bring to NIFA's attention.

| Stakeholder Input Aspects | Updates ONLY |
|--|--------------|
| 1. Actions taken to seek stakeholder input that encouraged their participation with a brief explanation | No updates |
| 2. Methods to identify individuals and groups and brief explanation. | No updates |
| 3. Methods for collecting stakeholder input and brief explanation. | No updates |
| 4. A Statement of how the input will be considered and brief explanation of what you learned from your stakeholders. | No updates |

IV. Critical Issues Table of Contents

| No. | Critical Issues in order of appearance in Table V. Activities and Accomplishments |
|------------|--|
| 1. | Lack of local food production and food insecurity |
| 2. | Sustainable aquaculture development |
| 3. | Youth and family issues in the communities |
| 4. | Climate change challenges in Micronesia |
| 5. | High incidence of food and waterborne illnesses |
| 6. | Childhood obesity |

V. Activities and Accomplishments

Please provide information for activities that represent the best work of your institution(s). In your outcome or impact statement, please include the following elements (in any order): 1) the issue and its significance (e.g., who cares and why); 2) a brief description of key activities undertaken to achieve the goals and objectives; 3) changes in knowledge, behavior, or condition resulting from the project or program’s activities; 4) who benefited and how. Please weave supporting data into the narrative.

| No. | Project or Program Title | Outcome/Impact Statement | Critical Issue Name or No. |
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| 1. | Sustainable mango fruit production in Palau (Research) | <p>Issue/Significance: There is an ever-increasing demand for locally grown mango in ROP. However, low fruit-setting in mango trees is a concern for local growers. This research project focus on inducing flowering in mango through improved tree management practices of pruning, fertilizer application, and use of growth retardant.</p> <p>Target audience: Local farmers, suppliers, hotel establishments</p> <p>Activity: About 56 mango trees growing inside the college campus of Palau Community College were selected for the experiment. All trees are approximately 8 to 10 years old. Of the 56 trees selected for the study, 54 trees were subjected to pruning and further treatments, while the remaining two trees were kept as standard. Each tree was pruned from the top about 20 percent, leaving only the side branches to promote flowering. All dead/decayed branches were removed. The trees were pruned to allow sunlight, proper air circulation, and reduce pests and disease problems induced by overcrowding, and enhance fruit growth and development. Each tree received an equal amount of mixture containing 2 lb. of 10-30-30 fertilizer, 4 lb. chicken manure, and 4 lb. potting mix. The mixture was applied along the dripline of trees. The treatment will be repeated 2 times each year. A growth retardant will be included in the 2nd treatment. As part of the extension component of this project, about 35 farmers attended two-days training on soil management, air-layering, fruit tree management, pruning, and fertilizer management.</p> <p>Results: This is an ongoing research project and more results will be reported in subsequent years. It is expected that the results will be encouraging to assist farmers with needed information for quality mango production.</p> | Lack of local food production and food insecurity |

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| 2. | <p>Development of Locally Adapted Sustainable Taro Production (<i>Colocasia esculenta</i> (L) Schott) in Palau (Research)</p> | <p>Issue/significance: Upland taro production becomes increasingly significant as saltwater intrusion prevents wetland taro production. Identification of sustainable measures for upland taro production and dissemination of adaptable techniques are helpful to improve taro production for food security. This research project aims to optimize taro yield using low-cost conservation agricultural practices involving soil amendments.</p> <p>Target audience: Taro farmers, women groups, youth groups</p> <p>Activity: Field trials were conducted in various farms across 8 locations and at the R&D facility. During field trials, 58 participants were trained in sustainable land management practices focusing upland soil types to prevent erosion and improve soil fertility. Germplasm of locally adapted taro varieties was collected from across ROP and in-vitro and in-situ collections were established. About 25 students were trained in in-vitro germplasm conservation using tissue culture techniques.</p> <p>Results: As a result of extension education efforts, 18 small farmers acquired the knowledge, ability, and skills to manage upland taro farms as per conservation agriculture methods by reducing soil erosion and improving soil organic matter content. Student participants gained knowledge and skills in tissue culture techniques and knowledge on the importance of local germplasm conservation to improve food security. Currently about 18 trained participants are following sustainable conservation agriculture methods for upland taro production. The results of the field experiment on conservation agriculture carried out in the 2019 season were presented during the Tropical Agricultural Development Symposium held in Japan. Locally, the results were presented as a poster during the Women’s Conference Belau.</p> <p>So far, the following publications came out of this research:</p> <ol style="list-style-type: none"> 1. Yin YinNwe, Felix Sengebau, Thomas Taro, Christopher Kitalong and Hide Omae. Study of locally adapted sustainable taro production based on conservation agriculture in Palau. Nov 2019, In: The Proceedings of the Tropical Agriculture Development Symposium. | <p>Lack of local food production and food insecurity</p> |

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| | | <p>2. Yin YinNwe, Felix Sengebau, Trepkul Tellei, Thomas Taro, Christopher Kitalong, Kaitlin Isalias, Mereng Renguul, and Hide Omae. Are you interested in eco-farming? Poster presentation in 20th Women Conference Belau, August 2019.</p> <p>3. Masato Oda, Yin YinNwe, Hide Omae. Use of site-specific K factors in the Universal Soil Loss Equation can show arable land in Palau. Jan 2020. https://f1000research.com/articles/9-89.</p> <p>4. Yin YinNwe, Felix Sengebau, Thomas Taro, Christopher Kitalong, Jay Olegeriil, Hide Omae. Effect of tillage method and land cover on yield of upland taro (<i>Colocasia esculenta</i> (L.) Schott), and soil erosion in Palau. Journal of Tropical Agriculture Development (<i>In press</i>).</p> | |
| <p>3.</p> | <p>Multi-site Coconut Rhinoceros Beetle assessment, mitigation, and biocontrol with basis in Palau and biocontrol and initial assessments/training in Yap, Chuuk, Pohnpei, Kosrae and Marshall Islands (Research)</p> | <p>Issue/significance: Coconut plays a central role in the diet of islanders and is vital in contributing to food security, health promotion, and sustainable livelihoods. As a versatile raw material that supports both household and wider societal needs, coconut is a valuable resource woven into the very fabric of Pacific society and their daily life. While the coconut is by far the most important agriculture crop, the industry is far from reaching its full potential. The overall decline in yield is related to the damaging effect on coconut trees caused by the coconut rhinoceros beetle (CRB). This research project aims to control the damage caused by CRB through sanitation, trapping, and biocontrol.</p> <p>Target audience: Communities, Bureau of Agriculture, Students</p> <p>Activities: Long-term damage assessments are ongoing as well as sample trapping for DNA and viral presence analysis. Besides, net-based traps for reducing CRB populations in outer-lying atolls have been laid out in two locations (Sonsorol and Kayangel). Furthermore, viral infection protocol in Sonsorol samples has been assayed, and results of samples are being analyzed. Genetic works are done in partnership with the University of Hawaii and Tokyo University of Agricultural technology. Forty biosecurity officials were trained in monitoring and trapping techniques to secure borders. Training on insect CRB identification (type and sex), dissection, and DNA analysis was provided to 5 research collaborators and 25 students. Outreach activities to create awareness on the importance of coconuts for food security and economic development and control of CRB devastation were conducted. Kayangel Atoll is the site of pilot</p> | <p>Lack of local food production and food insecurity</p> |

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| | | <p>eradication and partnerships and awareness programs with the state government, youth and community associations, Bureau of Agriculture, and PVA have led to applying green waste management strategies and on the ground active trapping. After completion and monitoring of the 3-month project, effectiveness will be analyzed and reviewed for use on other vulnerable island atolls as well as throughout areas that are afflicted. The Regional Invasive Species Council (RISC) has promoted the program and we are looking at a joint nudi-virus assessment for biocontrol for 2021.</p> <p>Results/Outcome: As a result of training, a majority of the population (about 94) living on the two outer lying states of ROP, i.e., Sonsorol and Kayangel, have increased awareness of the damage caused by CRB on coconut trees, their breeding sites, and basic methods to reduce/control breeding. Training of biosecurity officials resulted in improved monitoring of incoming breeding habitats for CRB and an alert system has been placed in the Palau national biosecurity regulations. These practices, in collaboration with partners in the Pacific, are being duplicated in other Micronesian islands after technical assistance and training workshop held in Pohnpei. The survey indicates that over 80% of the population (about 18,000) of ROP is aware of CRB issues. The results of the research were presented during the 2019 International Plant Protection Conference, in India.</p> | |
| 4. | Dilngebuked taro patch rehabilitation project | <p>Issue and significance: Taro is the staple crop in Palau, where wetland production (<i>mesei</i>) is the predominant mode of growing taro. In the wetland production mode, taro is grown in a paddy-like system with channels and dikes for water control. Traditionally the <i>mesei</i> system is particularly important and it is inherited through maternal and paternal lineage and also through marriage. However, saltwater intrusion due to climate variability and change poses a severe threat to these coastal wetland systems. Several such wetland taro systems have been abandoned during the last decade affecting the livelihoods of many. Although few research projects look into varieties suitable for upland cultivation, equal efforts are underway to rehabilitate abandoned wetland taro patches using dikes and sandbags and incorporating salt-tolerant varieties.</p> <p>Target audience: Ngaraard County Women’s Group</p> | Lack of local crop production and food insecurity |

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| | | <p>Activity: Extension education and hands-on training sessions were provided to a group of 40 women in Ngaraard locality to rehabilitate about 60 sections of a big taro patch that were abandoned for several years. Taro patch sections (approx. 3 x 5 m each) were equally divided among the women’s group and a test plot was selected for demonstration and training. The training focused on empowering women folks in using proactive measures to prevent saltwater intrusion by placing sandbags and erecting primary and secondary dikes above the high tide mark. The taro patch was weeded and the weeds were later used as green manure. The top 15 cm was then turned over and placed in a pile. The second batch of 15 cm soil layer was then turned over. The weeds were then placed in the hole along with bundles of green manure. The top 15 cm layer of soil was then added followed by the second batch of 15 cm soil layer. This method allows proper mixing of soil. After leveling of the taro patch, selected taro cormlets (about 15 – 20 plants in each section) were planted in each section and covered with dry banana leaves as mulch. The water channels between different sections of a patch were redone.</p> <p>Results: Followed by hands-on training outreach efforts, 29 members of the women’s group prepared their section of taro patches and completed planting taro. It is expected that each section of the taro patch would yield approximately 100 to 150 lbs. of taro within one year of growth. With the current market price, this would fetch approx. \$200 to \$250.00.</p> <p>Outcome: Participants learned improved land preparation and production methods for wetland taro cultivation and they have shown confidence in growing taro in challenging soil conditions.</p> | |
| 5. | Agroforestry and home gardening training activities | <p>Issue and significance: Agroforestry continues to be the predominant form of the food production system in Micronesia. It consists of mixed tree gardening, inclusive of a diverse and intermittent number of starchy root crops and vegetables often integrated with livestock such as poultry and pigs. It is important to maintain and enhance these agroforestry systems, through a combination of sustainable indigenous techniques and new practices to improve food security, livelihood, and income generation for the island communities. Fully established agroforestry systems will reduce communities’ dependence on imported food, as well as reducing vulnerability to changing market conditions. This can be achieved through crop diversification and/or livestock (poultry and pigs) integration and adaptation of sustainable land-use practices to improve productivity. A combination of a wide range of vegetable and</p> | Lack of local crop production and food insecurity |

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| | | <p>starchy-root crops planted along with high-value crops such as black pepper among fruit and tree crops will improve the food production system to provide a variety of agriculture products and materials to meet family needs and provide opportunities for income generation.</p> <p>Target audience: Farmers, households, community members, and youth</p> <p>Activity: A series of hands-on demonstrations on cover cropping, intercropping, crop rotation, and mulching were conducted for 109 individual participants. Lectures and hands-on training were provided to 733 participants to increase their knowledge and skills in vegetable gardening to incorporate vegetable production in their agroforestry system. Hands on training on cassava, black pepper propagation, and production methods for cassava, black pepper, and fruit and tree crops were provided to 42 community members.</p> <p>Results:</p> <ul style="list-style-type: none"> • There were a total of 884 participants in the program. • 92% (813/884) of participants have improved their knowledge and skills in agroforestry practices and participated regularly in training and awareness activities. • 27 households have integrated vegetable gardens into their agroforestry system to produce a variety of fresh vegetables such as cucumber, eggplant, spinach, bitter melon, and Chinese cabbage. Each household produced every month about \$300.00 worth of produce for home consumption. • 11 new farmers have established their black pepper product farm, each with 50 black pepper plants supported by fern posts. Of the 11 farmers, 3 had also added additional 50 more posts to enhance pepper production. The anticipated yield from black pepper is about 3080 pounds of berries each year. • 18 farmers expanded their agroforestry garden by incorporating cassava, with an expected yield of 11,500 lbs. • One community (15 members) has planted 147 fruit trees (mango and breadfruit) as part of their initiative to improve the agroforestry system and increase fruit production for their members. | |
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| <p>6.</p> | <p>Swine production and management</p> | <p>Issue/significance: Improving swine production systems is becoming vital due to increased demand for fresh pork in the local market, especially for family consumption, and traditional ceremonies. In a recent household income and expenditure survey in 2013-2014, pigs were found to be the most valuable animals for sale, consumption, and ceremonial gifts representing 94% of livestock production valued at about \$3.7 million with an average production of 3 pigs per household. However, in the same period, pork meat and products were imported at a value of \$1.3 million. This shows local production is still limited and there is great potential for developing this sector to enhance food security and improve income-generating opportunities. Several constraints in swine production and management including lack of improved bloodline, high cost of feedstuff, diseases, and lack of knowledge and skills in animal husbandry is still challenging that need to be addressed to improve swine production.</p> <p>Target audience: Community members, swine producers, youth groups</p> <p>Activity: Technical assistance was provided on swine management, nutrition, health, feeding, breeding and reproduction, facilities, and marketing. Thirty-two demonstrations in basic techniques in reproduction and farrowing such as needle teeth clipping and castration were conducted. Thirty brochures on swine medication were distributed and 38 hands-on training were provided on common swine diseases and basic treatment and medications. Seven lectures were conducted on housing and spacing requirements, and basic manure management system and practices. One hundred fifty-eight follow-up sessions were conducted. Sixty technical advice and one-on-one consultation sessions were provided on feeding requirements, balancing feed ration, recognized cuts of meat, current market trend, and market opportunities. Altogether 505 participants completed activities under this extension program.</p> <p>Results/Outcomes: Surveys and follow-up observations of the 505 participants revealed:</p> <ul style="list-style-type: none"> • 68% (345 participants) showed an increase in their knowledge and skills in one or more techniques in swine production and management. • 24% (122 participants) were engaged in swine production. • 383 youth participants gained awareness of the importance of swine production. | <p>Lack of local crop production and food insecurity</p> |
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| | | <ul style="list-style-type: none"> • Of the 122 participants engaged in swine production (pig farmers), 98% (119) pig farmers reported combined annual earnings of \$281,700.00. • Three commercial farms with a production capacity of more than 25 pigs continued to sustain their operations and reported an annual income of \$24,750.00. • One new commercial farm was established with the capacity to raise 100 pigs. <p>Impact Statement: There was an overall increase (67%) in pig production from an average of 3 pigs to 5 pigs per farmer household.</p> | |
| 7. | Soil management and home gardening training for atoll communities | <p>Issue and significance: Good crop growth on atolls is severely constrained by the general infertility of soils, which are unsuited to intensive agriculture. The sandy texture of soils has little cation exchange capacity, promotes rapid drainage, and has low water-holding capacity. Elevated pH of soils hinders crop production. Training communities on appropriate composting methods and atoll soil management helps to improve soil characteristics for crop production.</p> <p>Target audience: Community members, farmers, students, and teachers</p> <p>Activity: A total of 198 participants (83 adults, 107 students, 8 teachers) received hands-on training on atoll soil management, compost preparation methods (brown and green alternative) using locally available organic materials, and dry litter methods. Altogether 4 training sessions were conducted combining PowerPoint presentations and interactive sessions. Compost preparation sessions were followed by hands-on training on establishing a backyard/school garden for growing a variety of leafy vegetables.</p> <p>Results/Outcomes: Out of the 198 participants, 166 were fully participated in all training sessions and increased their knowledge on compost preparation and soil management activities. Out of 166 continuing participants, 112 utilized the skills and established sustainable composting programs for effective vegetable gardening. The survey showed that 21 clients were able to set up fully functional vegetable gardens and collectively harvested about 2021 heads of Bok Choy and 1598 bundles of Chinese kale, worth about \$3,500.00 in the local market. Additionally, 53 clients established pineapple plants in their respective fields. It is</p> | Lack of local crop production and food insecurity |

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| | | <p>expected that these plants would bear fruits within 14 to 18 months and suckers and leaf crowns would be used to produce next-generation pineapple plants.</p> <p>Outcome: Students, teachers, as well as community members enhanced knowledge on sustainable atoll soil management for vegetable cultivation without having to resort to expensive commercial soil.</p> | |
| <p>8.</p> | <p>Release of hatchery produced mangrove crab juveniles to mangrove crab farms in Palau</p> | <p>Issue/Significance: Mangrove crab is a traditional part of the Palauan diet, especially at custom feasts, and are also in high demand by restaurants. However, their population has been declining in the wild due to unsustainable harvesting. Mangrove crab farming has great potential to address food security requirements while promoting economic development. Stock enhancement through hatchery-produced juveniles not only boosts the mangrove crab population but also helps farmers undertake a successful venture.</p> <p>Target audience: Local fisherfolks</p> <p>Activity: Production of mangrove crab juveniles in the hatchery continued to support the growing interest in mangrove crab farming. Three mangrove crab farmers were given a total of 1,430 hatchery-produced mangrove crab juveniles for stocking in their grow-out farms. Hands-on training conducted for handling juveniles and grow-out methods, and technical guidance in setting up and managing a farm were also provided. These activities have been published through various media.</p> <p>Results: Three farm owners who are directly involved in the establishment of 3 mangrove crab farms (along with 5 farm workers, 15 traditional leaders, 10 youth, and 15 other community members) gained hands-on experience in setting up a farm, transport, and stocking of crablets, and feed management in their grow-out farms. It is expected that within a year after stocking, at least 50% of these crabs will reach the marketable size of about 2.5 lbs. With the current local market price of \$8.00/lb. of live crabs, this will generate about \$24,000.00 income to the farmers. About 10,000 residents in the ROP were indirectly informed about the extension assistance available for mangrove crab farming.</p> | <p>Sustainable aquaculture development</p> |

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| <p>9.</p> | <p>Release newly hatched mangrove crab larvae and juveniles to fishery and mangrove conservation areas in Palau</p> | <p>Issue/Significance: Mangrove crab fishermen report a decline in catch of mangrove crabs from the wild. This directly resulted in an increased price of mangrove crabs in the local market and that triggered increasing fishing pressure and overharvesting from the wild. Releasing hatchery-produced mangrove crab larvae and juveniles in the mangrove conservation and fishery areas would enhance the population and improve the mangrove crab fishery business in the county.</p> <p>Target audience: Mangrove crab fishermen, traditional leaders, state government officials, conservation agencies, youth, and other communities.</p> <p>Activity: About 18 million newly hatched mangrove crab larvae were released along the mangrove channels in four locations of Palau namely Airai, Aimeliik, Ngeremlengui, and Ngardmau. Additionally, a total of 15,000 hatchery-produced mangrove crab juveniles were also released in two major mangrove crab fishery areas (Ngermeduu Bay and Oikuul Village in Airai). Extension agents worked with country rangers and an NGO conducting a series of crab trapping surveys to assess the status of the crab population in the fishery area. Technical assistance on proper farm management including stock feeding and stock monitoring were provided to the farmers. Monthly farm visits were made to ensure proper farm operations. All activities have been disseminated to a larger audience through various local media.</p> <p>Results: Sixty participants including mangrove crab fishermen, traditional leaders, state government officials, conservation agencies, youth, and communities in general have joined and supported the mangrove crab seeding effort. It is expected that out of 18 million newly hatched mangrove crab larvae released, at least 0.01% will survive in the mangrove areas. Within a year, each of these crabs would grow up to marketable size (2.5 lb. per crab), which equals to approximately 45,000 lb. anticipated catch of mangrove crabs. Similarly, at least 50% of the mangrove crab juveniles released will be recruited to the mangrove crab fishery areas. Within a year these crabs would grow up to marketable size (2.5 lb. per crab), adding another 18,750 lb. of mangrove crabs potentially available for the catch. With the current local market price of \$8.00/lb. of live crabs, these catches would generate about \$510,000.00 in the local economy. Currently, two fishermen have already reported an increase in catch from their crab trapping operations. A recent report on stock assessment in one of the major mangrove crab fishery areas showed an increase in recruitment in the crab population.</p> | <p>Sustainable aquaculture development</p> |
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| <p>10.</p> | <p>Release of rabbitfish juveniles to fish farms in Palau</p> | <p>Issue/Significance: The rabbitfish is considered a favorite fish among Palauans. They are caught mainly from the wild in large quantities. This prompted the local government to issue restrictions on catching rabbitfishes during its peak spawning months for fear of depletion of stocks due to over-fishing. Furthermore, since its current source is from the wild, its supply is unreliable. Farmers need a sufficient supply of rabbitfish juveniles for stocking in their grow-out cages. The establishment of techniques for the spawning, larval, and nursery rearing of rabbitfish will provide the necessary fingerlings of this species for grow-out operations.</p> <p>Target audience: Local fishermen, traditional leaders, youth, and other communities.</p> <p>Activities: A series of production runs were conducted by following the improved larval rearing methods that were developed at the Palau Community College multi-species hatchery. Since October 2019, a total of 11,900 hatchery-produced rabbitfish juveniles were delivered to three rabbitfish grow-out farms in Palau. Technical guidance was also extended to these farmers on the grow-out management of rabbitfish in floating net cages.</p> <p>Results: By making the rabbitfish juveniles available, three existing farms were able to continue their rabbitfish grow-out operations. As a result of the previous year’s rabbitfish aquaculture training, 1 group consisting of 2 participants has established a new farm and a private hatchery to start producing rabbitfish juveniles.</p> <p>Out of the 11,900 juveniles that were provided to the 3 farmers, about 3,000 pounds of fish (worth about \$12,000 in the local market) were harvested in a 6-to-8-months culture period with survival rates that ranged between 25 to 90%.</p> | <p>Sustainable aquaculture development</p> |
| <p>11.</p> | <p>Virtual Training Workshop on the Seed Production of Rabbitfish</p> | <p>Issue and significance: Rabbitfish is a top candidate for aquaculture in Palau. Traditionally, farming of this species has relied heavily on the collection of juveniles from near-shore environments for grow-out. However, a reliable and sustainable supply of fingerlings is needed to support the growing interest in rabbitfish farming. Earlier staff standardized methods for producing juveniles from hatchery-reared larvae with great success. Fish hatchery operators seek technical knowledge and skills for the production of rabbitfish juveniles to support the seed requirement of rabbitfish farmers.</p> | <p>Sustainable aquaculture development</p> |

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| | | <p>Activities: A 3-day virtual training workshop was conducted in collaboration with the Center for Tropical and Subtropical Aquaculture (CTSA) via the Zoom platform. The training workshop consisted of live presentations, video tours of hatchery facilities in Palau and Hawaii, and pre-recorded training demonstrations highlighting all aspects of rabbitfish hatchery production. Twenty-two participants from Palau and the FSM attended this virtual event.</p> <p>Results: The virtual training enabled 22 participants from across the Micronesian region to gain relevant knowledge and skills for rabbitfish hatchery larval production and grow-out techniques. The workshop consisted of 4 broad sessions, namely: i) Status of rabbitfish aquaculture, ii) Biology of rabbitfish, iii) Hatchery techniques for rabbitfish, and iv) Live feed production. Post-workshop reports from participants show that various topics covered in the workshop enabled them to apply similar methods in their respective hatcheries. A technician from a private hatchery reported that he was able to successfully spawn and collect good quality eggs and produce good quality rabbitfish juveniles in their facility. Another hatchery operator indicated his interest to establish a rabbitfish grow-out farm. A hatchery operator in the Marshall Islands and an extension agent working with Northern Marianas College now applying their skills of larval rearing and nursery protocols to another species of rabbitfish. A complete resource package of this workshop is available online for a wider audience. http://www.ctsa.org/index.php/news/rabbitfish_hatchery_and_grow_out_workshop_materials</p> <p>Outcomes: Improved larval rearing and nursery techniques for rabbitfish have been demonstrated and transferred to interested participants across the Micronesia region. New methods on feeding rabbitfish broodstock, egg collection, egg handling, and incubation, and larval rearing were applied for the mass production of juveniles.</p> | |
| <p>12.</p> | <p>Comprehensive aquaculture outreach events</p> | <p>Issue/significance: Over the years, community outreach has become an integral part of the aquaculture program. Outreach activities are designed to engage a larger audience and to bring knowledge, connecting people of services, and facilitate conversations about the economic and social value of aquaculture throughout the Micronesian region. This year, staff conducted outreach and education events during community meetings, in Palau national fair, during the summer marine science program, and through facilitated tours at the multispecies hatchery.</p> | <p>Sustainable aquaculture development</p> |

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| | | <p>Activities: Staff attended two community meetings during which PowerPoint presentations were made on the status of ongoing aquaculture seed production activities. Participants engaged in interactive activities and comments and suggestions were recorded. During the annual UN day/Olchotel Belau Fair, aquariums containing hatchery-produced rabbitfish and mangrove crabs were displayed to the public. Posters and banners showing the results of the current and recent aquaculture research and extension activities were also displayed. During the summer science program, 3 classroom presentations on sustainable aquaculture along with hatchery tours were conducted for 6-8 graders. Students were encouraged to ask questions and a quiz session was conducted at the end of the activities. For several years, the multispecies hatchery has become one of the facilities selected by the community groups and various government institutions in Palau for their educational field trips. This year, 65 elementary school students and 57 community members visited the hatchery as part of their educational activities. Visitors had the opportunities to see hatchery operations including fish and mangrove crab larvae and nursery and broodstock tanks of fishes and crabs.</p> <p>Results: During the community meeting, 39 people learned about biology, hatchery, and grow-out techniques of mangrove crabs. After the meeting, staff released seeds to enhance the wild population of mangrove crabs in different locations as advised by the community leaders. Leaders further expressed their interest in carrying out similar projects in other mangrove crab fishery areas.</p> <p>~ Staff had the opportunity to interact and exchange information about aquaculture programs with a total of 166 visitors who visited the booth during the national fair. After attending the fair, 3 visitors established mangrove crab farms and requested crablets for grow-out operations. Additionally, a group of 13 traditional leaders requested a site visit and layout plan for a crab farm.</p> <p>~ Thirteen 6 – 8 graders attended the summer science program and learned about the importance of sustainable aquaculture program, participated in educational activities such as identification of juveniles of mangrove crabs and various fishes. Educational activities and hatchery tours helped students to gain knowledge and skills to undertake science projects in aquaculture.</p> <p>~ Over 10000 individuals including students and adults were indirectly informed about aquaculture projects through brochures and news in local media.</p> | |
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| <p>13.</p> | <p>Broodstock Development and Seed Production of Tiger Shrimp in Palau (Research)</p> | <p>Issue/ Significance: Existing fishpond owners in Palau want to grow tiger shrimp in their farms and, therefore, look for scientific knowledge, training, and technical assistance.</p> <p>Target audience: Existing fishpond owners, NGOs, local entrepreneurs</p> <p>Activities: A research project began this year to standardize the development of broodstock and seed production methods for the Tiger Shrimp, <i>Penaeus monodon</i> (Fabricius) in Palau. The goal of this project is to develop a captive local tiger shrimp broodstock and to produce high-quality fry that would support the development of sustainable shrimp farming. During this year, six tiger shrimp broodstock (about 50 gm body weight) were initially stocked inside the 5m x 5m broodstock tank, fed with a shrimp maturation diet, and monitored for spawning.</p> <p>Results: After six months of monitoring, none of the shrimp broodstock spawned and eventually died in captivity. It was noticed that mortality was caused by infection due to contamination in water. Efforts are now focused on restocking tiger shrimp juveniles in the broodstock tank. Local fishermen have been contacted as possible sources of tiger shrimp juveniles. A tiger shrimp hatchery in Hawaii that produces pathogen-free tiger shrimps was also contacted as a possible supplier to obtain technical guidance on better broodstock management. This effort is hampered due to COVID-19 pandemic-related restrictions on flights.</p> | <p>Sustainable aquaculture development</p> |
| <p>14.</p> | <p>Training on traditional fish traps</p> | <p>Issue/Significance: The life of the Marshallese people has always been intricately related to the ocean and all the things that live in it, and the many traditional fishing techniques which they devised, indicate the profound understanding and acute observation of sea life behavior. The teaching and learning of traditional skills in fishing techniques integrate the teaching of cultural values. As modern fishing gears and supplies become expensive and unaffordable for local fisherfolks, there is renewed interest to use traditional fishing methods. Knowledge about the traditional fishing methods, as it is with other traditional skills and practices, is significant toward the maintenance of the overall sustainability of the communities.</p> <p>Target audience: Fisherfolks, youth</p> <p>Activities: PowerPoint presentations and group lectures were conducted to 48 adults and 57 youth from three different atolls and 2 boarding schools of the Marshall Islands on the</p> | <p>Sustainable aquaculture development</p> |

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| | | <p>important link between traditional fishing methods and sustainable fishing, types of local materials used, and step-by-step processes of constructing traditional fish traps out of locally available materials. These presentations and group lectures were followed by hands-on training on how to carefully choose and prepare the materials needed, and construct appropriate fish traps, from scratch to the final product. At the end of the four week-long training, the participants gained the necessary skills to construct traps, properly bait them, and place them at various locations across the lagoon.</p> <p>Results: As a result of these extension efforts, a total of 105 participants (adults and youth) gained awareness and knowledge on traditional fishing traps. Seventy-one participants enhanced their skills and actively participated and completed constructing 12 fish traps for further use. Using these fish traps, participants were able to catch on an average 1,890 pounds of reef fish (worth approx. \$2,835.00 in the local market) every two weeks.</p> <p>Outcome: The participants and youth learned knowledge and skills in traditional fish trap construction and use. Trained youth belonging to two boarding schools are using fish caught in their daily food menu.</p> | |
| 15. | Giant clam production | <p>Issue/Significance: Aquaculture development in the Micronesian region is gaining recognition for its sustainability and social and economic opportunities but is limited due to lack of needed skills, non-availability of seeds, and shortage of other production inputs. Micronesian islands have extensive coral reefs and lagoons that are suitable for aquaculture purposes. The development of hatchery-based aquaculture technologies has great potential to address aquaculture development issues and strengthen aquaculture programs for the overall socioeconomic condition of local communities. The giant clam is a promising species for potential aquaculture due to minimal input. However, giant clams have long been exploited across their natural habitats and their numbers have declined drastically in recent years. In Yap county, presently there is growing interest among the communities in giant clam farming.</p> <p>Target audience: Community members, youth, fishermen, potential aquaculture farmers, and resource managers</p> <p>Activities:</p> | Sustainable aquaculture development |

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| | | <ol style="list-style-type: none"> 1. A series of six workshops were conducted to enhance the knowledge and awareness of communities in giant clam farming, hatchery-based production, grow-out methods, and sustainable care and protection. Two hatchery tours were conducted for students to observe and increase their awareness of the hatchery-based production of giant clams. Five educational sessions were conducted at four communities where details on the importance of giant clam aquaculture, its hatchery techniques and the grow-out methods, species availability and identification, and biology of giant clams were provided. 2. Hands-on training and on-site demonstrations were further integrated for interested clients on hatchery techniques and grow-out phase to add skills and strengthen the knowledge acquired. Training and demonstrations for hatchery and ocean grow-out techniques were conducted through four spawning, two larval and nursery rearing phases, and fourteen ocean grow-out phases that included site selection, juvenile settlement, and ocean nursery cage establishment including transporting, cleaning, maintenance, and monitoring growth rate. <p>Results:</p> <ol style="list-style-type: none"> 1. As a result of educational and outreach efforts, 273 community members, fishermen, and students increased their awareness and acquired knowledge on giant clam aquaculture and its importance to society, its hatchery production and grow-out, and sustainability. 65 community members had improved their understanding of the importance of giant clam aquaculture and gained greater confidence to start their giant clam farm. Two fishermen with existing giant clam farms had adopted recommendations for expanding their giant clam farms. <p>Follow-up surveys indicated:</p> <ul style="list-style-type: none"> ● 48 students participated in tours of giant clam hatchery production with 54% showing an interest in giant clam aquaculture. ● 56% of community members gained awareness on the topic of giant clam aquaculture and its societal importance. ● 20% gained an increase in knowledge after each session. | |
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| | | <ul style="list-style-type: none"> ● 24% showed changes in attitude towards the program (wanted to participate in aquaculture activities). ● 12% shown greater interest in trying it out (attended hatchery demos and training). <p>Indirect contacts with other potential clients about aquaculture were over 400. Most of this is through word of mouth in communities and through local outreach events that our extension program participated.</p> <p>2. Hatchery training and demos allowed 51% (33/65) of the 65 community members and fishermen to increase and strengthen their knowledge and obtain skills in spawning, larval rearing, nursery, and ocean grow- out (farming). An additional 10% (excluded from educational workshops) participated in the training and demos and gained basic knowledge of culturing giant clams and skills in the hatchery techniques mentioned.</p> <p>From follow-up surveys of 65 participants revealed:</p> <ul style="list-style-type: none"> ● 51% gained awareness about giant clam sustainable aquaculture farming. ● 47% increased their knowledge on sustainable aquaculture farming. ● 27% increased their skills in spawning, larval rearing, nursery, and ocean grow-out phases. ● 13% felt confident in skills gained from spawning demos, larval rearing, nursery rearing, and ocean grow-out. ● 53% indicated an interest in starting their farm. <p>Outcomes:</p> <ul style="list-style-type: none"> ● A small-scale semi-government-based hatchery started in 2019 completed training for hatchery, nursery, and ocean grow-out, and managed to rear approximately 30,000 giant clam juveniles as well as provide seed stock for communities. ● One existing giant clam farmer established a no-take zone Marine Protected Area (MPA) to protect his farm, set up clear boundaries, passed a radio announcement to the public for awareness, and actively monitors the MPA. | |
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| | | <ul style="list-style-type: none"> • Fourteen community members implemented recommended giant clam farming methods. About 620 juvenile seed stock were provided to two farmers and 12 communities in 8 municipalities covering the majority of Yap county for stock enhancement and further growth in the wild. Placement of seed stocks was conducted within MPA's and reserved areas where conditions are suitable. • Monthly monitoring conducted for ocean grow-out survival rate has been successful at 95% indicating site conditions fulfilled. <p>Impact statement:</p> <p>There has been an increase in the number of community members participating in aquaculture activities, specifically for giant clam farming. In comparison to the previous year, the number of participants increased this year by 38% (from 198 to 273) and the adoption rate of aquaculture practices increased by 180% (from 5 to 14). Communities became empowered to advocate for giant clam aquaculture production. Two farmers have enhanced their giant clam stocks as a result of hatchery production, and 12 communities have started their aquaculture farms to combat stock depletion and aspire for food security.</p> | |
| 16. | Sea cucumber production and grow-out trainings | <p>Issue/Significance: Fishing is a key source of sustenance and livelihood for the people of Pohnpei county. Sea cucumbers are an important resource to the people of other FSM states as well for food security and income through sales at local markets. However, sea cucumbers have long been commercially exploited with unregulated harvests and a lack of effective management. This has led to significant overfishing of stocks and subsequent population decline. Presently they have been listed under IUCN's Red List and classified as endangered. Considering the poor state of stocks in the wild, a 2017 study recommended closing of commercial harvesting and implement a management plan for subsistence fishery, and hatchery production of juveniles for conservation of depleted stocks. The study also indicated to ensure the biology and ecological role of these species is well understood and that these resources are available for future generations by raising awareness of these species and their economic importance.</p> <p>Target audience: Communities, students.</p> | Sustainable aquaculture development |

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| | | <p>Activity: About 46 members from 2 communities in Pohnpei county attended awareness and training sessions this year. Through lectures, on-site demonstrations, hatchery hands-on training sessions, and one-on-one consultations, they learned the significance of growing sea cucumber for the local and export market. Additionally, 7 student interns majoring in the Marine Science program from the College of Micronesia-FSM received hands-on training on broodstock collection, disinfection of broodstock, spawning induction, collection, rinsing, and stocking/incubation, larval rearing, microalgal cultures, feeding procedure, nursery management, and ocean grow-out methods. They produced 1,118 sea cucumber juveniles that were later transferred from hatchery to ocean grow-out farms for further growth and restocking.</p> <p>Results: Outreach activities enabled all community participants to learn about the significance of sea cucumber farming, its production strategies, and its economic potential. They have increased awareness and knowledge on the importance of sea cucumber farming to food security, biodiversity, living sustenance and as a way to generate income. They are motivated and have shown interest to tackle challenges in sea cucumber production. Participants responded that they would request the local government to ban commercial sea cucumber harvesting and begin sea cucumber farms with community support. Three student participants showed greater confidence to begin sea cucumber farming with proper support from the local government.</p> | |
| <p>17.</p> | <p>Food processing training for youth</p> | <p>Issue: Knowledge and skills in cooking and processing local food is limited in Yap county, especially among youth in remote atolls. Youth generally prefer imported food over local food. This is partly because of limited skills in cooking local food. Engaging youth in cooking classes and food preparation demonstration activities enables them to be productive, healthy while spending quality time for positive pursuits.</p> <p>Target audience: Youth</p> <p>Activity: A total of 240 Participants (youth) engaged in 30 training sessions on how to:</p> <ul style="list-style-type: none"> • Make flour from breadfruit and banana. • Make jam from soursop, pumpkin, banana, papaya, and pineapple. | <p>Youth and family issues in the communities</p> |

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| | | <ul style="list-style-type: none"> • Make meatless burgers using local produce. • Cook with locally-made coconut oil. • Make gravy using locally available ingredients. • Make local fruit ice cream. <p>Results: Based on pre/posttests:</p> <ul style="list-style-type: none"> • 76 (32%) participants out of 240 gained necessary skills and knowledge in food processing techniques and value addition using local farm produce. • 100% of youth were engaged in this activity by actively participating in all hands-on sessions. • Participants earned approximately \$900.00 from locally processed food. Some were sold, consumed, or shared with others in the village. • 16% of youth adopted the method of cooking using locally made coconut oil (38 youth out of 240 youth). <p>Outcome:</p> <ul style="list-style-type: none"> • Hands-on training enabled participants to make value-added products such as flour, jam, gravy, ice cream, oil, and meatless burger. • Participants were able to earn \$900.00 from the sale of all value-added products. <p>Impact Statement: Youth have shown commitment to learning new cooking methods; they have gained necessary skills in making healthy value added food items, and earn from the sale of value-added products.</p> | |
| 18. | Substance abuse prevention sessions | <p>Issue/Significance: Sports have a special interest among youth and adults in Yap county. Engaging youth in various sports activities is an integral part of our youth program, and the practice of sports is seen as one of the tools which can bring a crucial benefit to youth and discourage them away from using alcohol.</p> <p>Target audience: School and college students</p> | Youth and family issues in the communities |

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| | | <p>Activity:</p> <ul style="list-style-type: none"> • 74 youth were introduced to volleyball and table tennis clinics and youth tournaments. • Altogether 12 weeks of volleyball clinic and table tennis clinics were conducted. • 34 students from 2 schools were trained in volleyball fundamentals. <p>Results:</p> <ul style="list-style-type: none"> • 14 youth participants for table tennis and 60 youth participants for volleyball represented their communities during the annual Yap county games. • 3 youth participants assisted referees during the tournament. • 2 youth who attended the volleyball clinic took roles in volleyball games as 2nd referee. • 34 students from two schools had increased their knowledge in volleyball fundamentals. • Based on the survey conducted, 76% of students showed increased knowledge and skills in volleyball fundamentals. <p>Outcome: There is increased knowledge and skills in volleyball and table tennis fundamentals that helped many youth showing a positive attitude and engaging in constructive activities in their respective communities.</p> | |
| 19. | Youth volunteering and counselling | <p>Issue/Significance: Traditionally underserved youth in Micronesian families face challenges in maintaining smooth relationships with their parents owing to peer pressures and outside influences. Youth are especially vulnerable leading to substance abuse, domestic violence, suicide, physical and sexual abuse, school dropout, unemployment, and other social problems of concern. This extension program was established to serve traditionally underserved youth with increased opportunities to learn about healthy family relationships, social skills, and moral values.</p> <p>Target audience: Parents, children, adolescents, inmates, and communities</p> | Youth and family issues in the communities |

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| | | <p>Activities: Number of program participants attended in education and outreach events in Chuuk county: 514; Pohnpei county: 304</p> <p>In Chuuk county:</p> <ul style="list-style-type: none"> • 150 elementary school students received character enriching sessions on respect, obedience, and family values one hour every week during their recess time. Ten students were recruited and trained in volleyball games for about 2 hours each day for team building and sportsmanship. • Counseling services provided to 6 vulnerable college students 1 hour every week for one semester to get rid of their drinking habit. • Counseling about stable and happy marriage was provided to 4 teenage couples ahead of their marriage. • Thirty inmates (mostly teenagers) were assisted to reform their attitudes and behaviors 2-4 hours every week. • About 250 parents and their children were given lectures about good family relationships and responsibilities. Altogether 25 sessions were conducted, each with 10 participants. • Seventy families were trained in vegetable gardening with 7 participants in each session held the half-day. A total of 10 sessions were conducted. <p>In Pohnpei county:</p> <ul style="list-style-type: none"> • Conducted PowerPoint presentations coupled with information leaflets for 100 students, on indigenous agroforestry practices, home gardening, and the significance of traditional agriculture to island communities. • Provided mentoring on COVID-19 safety guidelines to 6 Nursing major students. • Conducted awareness sessions on pandemic safety guidelines and healthy physical activities to 40 school children. • Conducted 6 weeks' long online refresher courses in Health and English to 8 students. <p>Results:</p> | |
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| | | <p>In Chuuk county:</p> <ul style="list-style-type: none"> • Feedback from respective teachers reveals that students’ behavior in the class improved considerably and they are promptly doing their classwork and projects. About 61% of elementary students improved their performance, attendance, and classwork. • By setting ground rules, the change in attitude and behavior of 10 youth players were observed in every game. All these players learned teamwork, showing respect for each other, and sportsmanship. • Feedbacks from campus security guards indicated that all 6 college students stopped consuming alcohol. The college registrar reported that they completed the courses. • Four married couples made monthly updates to their counselor about the adoption of harmonious relationships and wise decision-making as newlywed individuals. • The prison warden reported that about 10 % of inmates were released, whereas over 30% of inmates behaving well and cooperating. • From police records, there was 100% compliance in community curfew hours; 10% engaged in graffiti, and 0% suicide among youths. • All 70 families established household vegetable gardens, and they reported saving at least \$10 – \$20 monthly by growing their vegetables. <p>In Pohnpei county: Survey shows:</p> <ul style="list-style-type: none"> • About 85% of students increased their knowledge of agroforestry practices. • All 6 Nursing major students completed posttests with 100% scores. • About 66% of students answered 5 or more questions on pandemic safety measures correctly. | |
| <p>20.</p> | <p>Sewing trainings for women</p> | <p>Issue/Significance: The economic and societal returns of skilled womenfolk are recognized, bringing local attention to equip them with the requisite skills to succeed in daily lives. Our program helps womenfolk in Kosrae county build financial stability, enhance entrepreneurship and leadership skills, and contribute to local communities.</p> | <p>Youth and family issues in the communities</p> |

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| | | <p>Target audience: Women groups</p> <p>Activities: Sewing training sessions conducted for 82 participants belonging to 6 women groups this year. This is an ongoing program that attracts more womenfolk each year. Training sessions have three phases, namely basic, intermediate, and advanced. Two local seamstresses, who earlier attended our training in Guam and Hawaii, served as volunteers and assisted extension staff for the advanced sessions this year. A total of 6 sessions were conducted (each session was approximately 4 hours duration, 4 days a week) for 6 weeks. Training sessions enabled participants to learn about the proper use of sewing machines, machine maintenance, pattern making, cut accurately, sew curved and straight seams, sewing various wardrobes of daily use for girls, boys, men, women, and men. After basic and intermediate sessions, participants are encouraged to complete a sewing project of their choice.</p> <p>Results: Participants shown increased involvement in sewing activities promoting livelihood opportunities. With the gained skills participants were able to make different types of products such as pillowcases, shirts, window curtains, muumuu, facemasks, skirts, flags, braided ribbons, and kids’ dresses, that are in high demand locally. A follow-up survey shows that collectively 6,349 saleable products have been made for the local market. Further, over 50% of participants (belonging to 4 women groups) reported that they collectively earned \$16,792.00 through the sale of products. Fifty-five participants are regularly selling dresses locally and overseas, and 20 participants have bought new machines and materials. Participants made over a thousand facemasks for both children and adults for local government agencies as part of preventive measures for the COVID-19 pandemic.</p> | |
| 21. | Entrepreneurship training sessions for youth | <p>Issue/Significance: Under Kosrae county youth program, we train high school and college students, women, and communities in attaining important life and leadership skills in entrepreneurship, financial management, and community development programs.</p> <p>Target audience: Students, youth groups, women’s group, communities</p> <p>Activities: This year, extension staff conducted the following activities aiming at developing the social and entrepreneurial skills of participants.</p> | Youth and family issues in the communities |

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| | | <ul style="list-style-type: none"> • Five training sessions were conducted for 13 high school students on decision-making, time management, financial management skills, the college application process, and career advancement. Students were tasked to prepare a career map of future pursuits. • A grant writing workshop (one day, 2 sessions) was conducted in which 6 participants belonging to youth groups, a women’s organization, and a community organization received training on grant writing and fundraising process. The program taught how to identify and partner with funding organizations whose mission aligns with the funding request. Participants learned to search, respond to, and work effectively with public and private funding sources throughout the grant-seeking and grant writing process. Participants brought an idea and developed into an outline and later expanded it into a full proposal. These participants returned after few weeks with their full proposal ready for a peer review. • Youth Entrepreneurship Start-up (YES) Program is a collaborative effort that began in 2014 between Kosrae County Small Business Development Center (SBDC) and College of Micronesia land grant that provides business skills training to out-of-school youth, high school and college students, and other interested youth groups. The program runs for 1 hour every Wednesday that provides skills training in sewing, carving, and cooking while the SBDC provides training in business plan development, pricing, and small business management. With a grant from the Federated States of Micronesia Congress, our program purchased 7 sewing machines this year to loan to participants trained in sewing to start home-based business activities. Generally, sewing machines are loaned to families 6 months to help them generate enough money to purchase their sewing machines. • Wood carving training was conducted for 5 youth (aged 13 and above) for 3 months. Each session was of 3 hour duration/3 days per week. Participants were trained on how to use power tools, safety procedures, and carving lessons to make products from locally discarded wood pieces, coconut shells, and similar items. Staff held additional handicraft training sessions for families and children through the local handicraft club. The handicraft club meets once a week and club members serve as volunteers and share their skills during training sessions. <p>Results:</p> | |
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| | | <ul style="list-style-type: none"> • Career mapping training enabled students to decide their career paths with unique insights to build the careers they are suitable for. They have shown healthy and wise decision-making capabilities and they are empowered to become successful adults. • A follow-up survey conducted after one year shows that 3 funding requests of community projects worth \$80,000.00 have been approved by the FSM Congress. • Under the YES program, 2 youth mastered sewing skills this year. Data indicates that they collectively generated \$2,836.25 from home-based sales of finished textile products. • All 5 participants actively participated in the training and gained carving skills. They made several craft items from coconut shells for the local market. Handicraft club members made several items from trash like plastic bottles, butane gas caps, used strings, small logs and wood pieces, coconut shells, dried coconut husks, dried pandanus leaves, and hibiscus fibers. This ‘trash to cash’ activity produced items like bracelets, earrings, wall decorations, window and door curtains, flowerpots, picture frames, dashboard covers, etc. This year the club generated \$1,420.00 from the sale of craft items. | |
| 22. | Substance abuse prevention interventions | <p>Issue/Significance: Reports from Majuro and Ebeye atolls show increased use of drugs among youth. The effects of this crisis are felt in every sector and vulnerable populations, and youth are at especially high risk. Youth need continued support and education related to drug-use prevention, including a holistic view of health that reduces other factors, such as stress, which contributes to an increase in substance abuse among them. Appropriate extension interventions would help this vulnerable group transform lives, turning their future from bleak to bright.</p> <p>Target Audience: Students and out-of-school youth.</p> <p>Activities: Extension staff conducted substance abuse prevention training and counseling programs across several schools. Through 11 sessions, the program directly reached 267 students and helped prevent substance abuse, and informed them about the importance of productive adolescence. The topics focused on substance use prevention, social networking, selecting creative pursuits, productive adolescence, volunteerism, teamwork, decision-making, communication skills, and leadership skills. Additional topics covered in the training sessions include non-communicable diseases and preventive measures.</p> | Youth and family issues in the communities |

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| | | <p>Results/Outcomes: All 267 participants gained awareness of positive coping strategies, increased abilities to manage destructive behavior and increased abilities to build positive relationships. They were able to develop and practice individual plans to help them make good decisions and strengthen communication skills and increase academic success. About 201 participants shown increased leadership skills and healthy relationships to avoid peer pressures and 115 youth became active members of local youth groups.</p> <p>Outcomes: Vulnerable youth had the chance to attend counseling sessions for the first time, an experience they found to be safe and inclusive. They are empowered to become responsible and successful adults.</p> | |
| <p>23.</p> | <p>Coastal erosion and restoration</p> | <p>Issue/Significance: Impacts of climate change affect almost all aspects of life in the Marshall Islands. Among the many, coastal erosion associated with sea level rise and wind-driven waves are detrimental. Climate models predict sea level continue to rise while wave height and direction become more variable in different seasons. These climate impacts call for nature-based local solutions to protect shorelines. Communities need to be made aware of ongoing and impending threats resulting from climate variability and change.</p> <p>Target Audience: Students, teachers, and community groups.</p> <p>Activities: Outreach efforts addressed public education and hands-on training on the current climate, changing climate, and future climate of the Marshall Islands and its impact on temperature, rainfall, sea level rise, wind-driven waves, and weather extremes, and how these climate features affect communities and coastal resources and infrastructure. Staff conducted 7 educational sessions targeting students, teachers, and community members. Hands-on training focused on the identification and selection of native plant species to establish along the coastline as shelter plants. Altogether 240 students, 11 teachers, and 83 community members attended educational sessions. This program also aimed at developing leadership skills and prepare the next generation citizens to tackle the climate crisis and equip them with needed information for sustainable coastal zone management.</p> <p>Results/Outcomes: The survey showed all 334 clients (score over 90% in posttest) gained increased awareness on climate change challenges, identified risk factors associated with</p> | <p>Climate change challenges in Micronesia</p> |

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| | | <p>extreme climate events, and shown improved skills in identifying climate change adaptation measures. They actively participated in hands-on training sessions on coastal protection measures. Participants along with communities planted nearly 400 local plants (including tree saplings, shrubs, vines, and small plants) along the 7 most-affected shorelines for effective stabilization. It is expected that once strand vegetation is established, it helps to stabilize the shoreline and break waves during high tides, wave events, and storm surges.</p> <p>Outcomes: Participants understood the concepts of climate variability and change. Teachers who participated in the program are better positioned to use gained information and skills to teach students and incorporate relevant activities in their curriculum.</p> | |
| <p>24.</p> | <p>Climate change adaptation trainings</p> | <p>Issue/Significance: Climate variability has devastating impacts and affects local communities in terms of food security, health, and the environment. Appropriate interventions in innovative climate-smart agriculture strategy to maintain natural resources will assist local communities in learning and adopting relevant skills to cope with the negative impacts of climate variability.</p> <p>Target audience: Farmers, small-scale growers, homemakers, teachers, extension agents, and communities in general.</p> <p>Activities: To address the issues, staff provided outreach and extension education on climate variability and change in the region, its impacts on the local environment, and suitable adaptive measures to enhance livelihood opportunities. Altogether, 34 educational sessions were conducted across Chuuk county that directly reached 726 participants. Educational efforts targeted the following key areas: i) sustainable soil management, ii) compost preparation, iii) seeds and seedlings multiplication, iv) vegetable gardening, v) integrated pest management, vi) postharvest handling, and vii) managing coastal erosion. A special hands-on session was conducted on proper waste segregation and management following 4 R's principle (Reduction, Recycling, Reuse, and Refuse). In collaboration with the EFNEP agent, cooking demonstrations conducted using locally available neglected and underutilized crops, and byproducts of harvest such as banana blossom, banana, and pineapple peel as emergency food choices at times of disasters. About 145 members from four villages on a remote island were specially trained for coastal protection measures using native plants. They planted over 2000 mangrove seedlings and over 1000 coconut seedlings across the coastline. Each household (116 in total) received at</p> | <p>Climate change challenges in Micronesia</p> |

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| | | <p>least one breadfruit sapling each along with seeds of fruits and vegetables. Communities established 5 nurseries (at one high school and in four villages) for maintaining seedlings of various fruit and vegetable crops.</p> <p>Results: Post-event surveys showed:</p> <ul style="list-style-type: none"> • About 90% of participants increased awareness/knowledge on climate variability-related challenges, climate-smart agriculture, and they showed improved enthusiasm and active learning in educational sessions. On one island, Mayor requested the local government council to pass an ordinance that requires all family households have backyard vegetable gardens. • All participants showed increased skills in properly handling solid wastes including composting biodegradable wastes. About 38% of participants adopted improved waste management practices. • All participants learned improved skills on additional health benefits of underutilized crops and byproducts of agricultural harvest for use at times of disaster. • About 145 members of 4 villages learned about the importance of native plants in protecting the eroded shoreline and they participated in coastline restoration activities by planting native plants. <p>Outcome statement: Participants showed increased confidence to face climate variability challenges.</p> | |
| <p>25.</p> | <p>Socially disadvantaged farmers participate and learn climate-friendly vegetable gardening activities</p> | <p>Issue/Significance: The target audience of socially disadvantaged and climate change-induced migrant households are food insecure, where access to fresh vegetables is limited. Many of the climate change-induced issues are complex and the magnitude of change is uncertain and difficult to predict – especially at the local scale. To engage the displaced atoll communities, a comprehensive climate-smart approach was implemented to provide nutritional benefits thru vegetable gardening while coping with the changing climate.</p> | <p>Climate change challenges in Micronesia</p> |

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| | | <p>Based on past years of experience, the extension team is positioned to lead the way to help build a more resilient food system for the displaced communities. This is a valuable program developed over the years to help increase access to nutritious vegetables in the community.</p> <p>Activities: As part of the program, hands-on training, in-house advice sessions, and technical assistance programs were extended to the targeted communities. The program helped to increase access to healthy food in the community. Prime areas of training include alternative crop production methods (especially for vegetables) to bypass degraded soil conditions and improved staple crop production in degraded lands. The outreach efforts allowed extension staff to engage with 85 households/in-person contacts and approximately 300 indirect contacts.</p> <p>Results: In written surveys, 57 program recipients responded and indicated the following:</p> <ul style="list-style-type: none"> • 93% tried growing vegetables to a great extent. • 84% used ideas and skills from training programs in vegetable gardening. • 79% indicated they are doing methods differently and implement best practices. • 91% shared information and ideas with neighbors and extended family members. • 98% shown interest to continue with the program. <p>In general, participants reported that the program had increased their access to nutritious vegetables and improved their eating habits. The impactful qualitative comment includes, “I have always been a strong proponent of all varieties of CRE projects. Not only do I have a strong personal interest in the kinds of activities (agricultural) but a collective interest on the part of our community. Food security, as well as water security in the face of climate change, is utmost on my mind. Thank you for the opportunity to share.”</p> | |
| 26. | Food safety program | <p>Issue/Significance: Micronesia experiences high temperature and humidity, a condition conducive to fast spoilage of food especially under poor food handling practices. This situation frequently results in many individuals and households consuming unsafely processed and contaminated foods. Though clients were provided with education and training about safe food preparation, handling and storage, personal hygiene and reading labels of grocery items,</p> | High incidence of food and waterborne illnesses |

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| | | <p>foodborne and waterborne diseases continue to rise. Approximately 30% of the past participants provided three reasons for the high incidence of these illnesses: poor personal hygiene especially in washing hands; cross-contamination from the usage of kitchenware and dependence on expired food items that are cheaper than non-expired foodstuff.</p> <p>Food safety program continues providing education and training to the communities to safeguard their health. It aims to change the target audience’s knowledge, attitudes, and behavior in handling food, processing safe and healthy food products, and forge strong partnerships with other agencies disseminating information about healthy lifestyles and usage of safe and healthy foods.</p> <p>Target audience: Food producers and handlers, food and grocery establishments, parents.</p> <p>Activities: The food safety program in Chuuk county offers a wide range of educations for the target audience to increase their knowledge and awareness on food and waterborne illnesses, potential sources of contamination, the importance of improved personal hygiene while handling food, food safety guidelines, and adoption of established food safety measures. Each training is tailored specifically to meet specific audiences (grower, producer, food handlers, consumers, etc.) needs. In 2020, the following training/programs were delivered to a total of 517 program participants in 34 sessions, each session was about 3 to 4 hours duration, and had about 10-15 participants.</p> <ul style="list-style-type: none"> • Lectures and poster presentations on possible sources of contamination in food and water. • Proper handwashing methods, cleaning fingernails, hair grooming, and toilet use habits were demonstrated. Participants were informed about the multiplication of microbes with improper handwashing and foodstuffs. • Boiling of water collected from rooftop catchments to prevent contamination. • Instructions and methods to keep food preparation space clean, keeping raw and cooked food separately, proper cooking methods, storing food at safe temperatures, and use of clean water and ingredients for cooking. • Proper ways to read and understand food ingredients, and expiration dates of food items. • Tips for safely disposing of household wastes by adopting the 4Rs principle (Reduce, Reuse, Recycle, and Refuse). | |
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| | | <p>Results: Pre and post-test evaluations conducted after training sessions and follow up visits showed:</p> <ul style="list-style-type: none"> • All participants mentioned the lectures and demonstrations were informative and useful. • All participants learned the proper handwashing method by singing in tune with the Happy Birthday song. They are motivated to adopt and maintain proper hygiene measures. • All participants learned about the science behind boiling water collected from rooftop catchments and ground wells. They learned about sources of contamination from pigpens and makeshift bathrooms, especially during heavy rains and flooding. • About 89% of participants could read and write, and understood expiry dates on the food labels. However, the discounted price associated with nearly expired foodstuffs causes some people to purchase these items. • All participants learned about the importance of proper waste disposal. However, follow-up visits show about 12% of participants practiced waste segregation at homes. • Although participants asked queries and actively participated in the discussions during training sessions, during follow-up visits it was found that only 30% of participants practice food and water safety hygiene measures. The majority of participants still follow the traditional way of cooking and storing food, adapted to their style of local circumstances. They face challenges in adopting some of the methods for lack of access to such amenities (e.g., inconsistent water supply). While staff continues encouraging participants to adopt food safety practices for its net benefit, for health and other reasons, steps have also been taken to notify schools and local governments to take appropriate measures to safeguard the health of children and communities by providing needed amenities. | |
| 27. | Food safety and safe food handling program | <p>Issue/Significance: Food and waterborne illnesses are a common, yet preventable public health problem in the RMI. The high incidence of this health problem is attributed primarily to a lack of food safety knowledge. A common need that is unique to many Marshall Islands counties justifies the need for food safety and food education is the sheer number of traditional, large gatherings that involve food handling, food preparation, serving food, and subsequent storage. Educating the public about adopting proper food safety practices through appropriate extension programs is thus crucial.</p> | High incidence of food and waterborne illnesses |

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| | | <p>Target Audience: Food vendors and cooks.</p> <p>Activities: Focusing on risk factors known to be the most important task when it comes to preventing food and waterborne illnesses. Two workshops were conducted for 16 participants from communities that include cooks, food handlers, and foodservice providers. Workshop sessions covered topics such as effective washing of hands, food preparation requirements (gloves, hairnets, aprons), proper thawing of meat, meat vs seafood (separation), temperature control and bacterial growth, effective cleaning and storage of cooking materials, appliances, and equipment.</p> <p>Results/Outcomes: Follow-up survey indicated that all participants (100%) gained awareness on sources of food and waterborne illnesses, health issues resulting from unsafe food handling practices, and the importance of personal hygiene. They have shown improved skills and are putting knowledge gained into practice by adopting best safety practices in their respective fields, established food safety measures in the community, and practices food and water safety hygiene measures.</p> <p>Outcome: The workshop enabled participants to create and implement food safety plans in their daily work environment.</p> | |
| <p>28.</p> | <p>Childhood obesity prevention</p> | <p>Issue/Significance: Obesity continues to be a critical health threat among the Micronesian population. Modernization, dietary changes, and over-dependence on high calorie and low nutrient foods, sweetened beverages, and lack of physical activity significantly contribute to an increase in the prevalence of obesity and overweight among children. Outreach campaigns in the schools involving educational sessions to increase awareness of better food and drink choices and increased motivation for daily physical activity can help lower the prevalence of overweight and obesity among school children.</p> <p>Schools are an appropriate setting for addressing childhood obesity due to the continual and concentrated access to a large number of school-age children at a developmentally appropriate age. In addition to providing access to children, school-based intervention with the support of educators would help to address childhood obesity issues efficiently. Schoolteachers are</p> | <p>Childhood obesity</p> |

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| | | <p>perfectly positioned and have the potential to become involved in addressing childhood obesity issues. The first phase of this extension program was targeted to train the teachers about the significance of childhood obesity, obesity intervention activities, and how to collect needed data such as Body Mass Index (BMI) and waist circumference to help monitor students. The program allowed teachers to become involved in preventive activities within their appropriate curriculum areas.</p> <p>Target audience: Students and educators.</p> <p>Activities:</p> <p>Phase I: Training of assigned educators in the schools to teach students about obesity, good nutrition, food portioning, the importance of physical activities, and how to collect health data such as height, weight, and waist circumference.</p> <p>Results: The obesity program training was completed with 100% of assigned public school teachers and 3 private school teachers attended and completed the training session.</p> <ul style="list-style-type: none"> • All assigned teachers (total of 98) from all public schools, Early Childhood Education Program, and 3 private schools were trained in teaching students about obesity, good nutrition, better drink choices, food portioning, physical activity, and how to collect data to track student’s health status. Altogether 13 training sessions were conducted for 6 weeks, with 9 or fewer participants in each session. • Needed equipment (such as scales, stadiometer, calipers, and measuring tapes) for the program were ordered through the Department of Education for all public schools. <p>A survey was conducted at the end of phase I of this program with results showing:</p> <ul style="list-style-type: none"> ✓ 99% of teachers saying that they think this program will work in their respective schools. ✓ 100% think that it will help to improve students’ health and, therefore, achieving intended outcomes. ✓ 100% said they gained new information from training sessions. | |
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| | | <p>Phase II: Collection of baseline data (body mass index) for each student.</p> <ul style="list-style-type: none"> ✓ Data collected from one high school and a high school TRIO Program students show 62% of students have ideal BMI and the rest are either overweight, underweight, or obese. ✓ Elementary and junior high age student’s data was collected showing 45% of the students have ideal BMI, 4% is overweight, 6% obese and 45% is underweight. <p>Data collected:</p> <p>High school #1: Out of 103 students,</p> <ul style="list-style-type: none"> • 56% have normal BMI • 16% overweight • 20% obese • 8% underweight <p>TRIO Program High school #2: out of 39 students,</p> <ul style="list-style-type: none"> • 69% have normal BMI • 15% overweight • 11% obese • 5% underweight <p>Elementary School/Junior High (Grades 1 – 8) #1: Out of 53 students</p> <ul style="list-style-type: none"> • 45% have normal BMI • 4% overweight • 6% obese • 45% underweight <p>Phase III: Evaluation of data collected and implementation of obesity preventive measures.</p> <ul style="list-style-type: none"> • Out of the 3 schools evaluated for BMI and waist circumference, 27% of 195 students were overweight/obese. These students began their intervention activities. The underweight | |
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| | | <p>students have been to the school health program of Public Health for follow-up and interventions.</p> <ul style="list-style-type: none"> • Intervention activities done at the schools with students, parents, teachers, and school administrators: <ul style="list-style-type: none"> ➤ During this reporting period, the following intervention activities were conducted in Chuuk and Yap County : <ul style="list-style-type: none"> • 13 training sessions conducted for weeks with 98 participants covering topics such as what is obesity, good nutrition, and food portioning, counting calories, the importance of physical activities, and reducing sweetened drinks in the diet. • 10 presentations conducted for 7 months with 370 participants covering topics such as MODFAT diet, food portioning, exercising, drinking water instead of sweetened beverages, and BMI (due to COVID-19 regulations, the presentations conducted after March 1, 2020, had only 9 participants or fewer in each session). • 2 meetings were conducted in 1 month with 18 participants covering topics about obesity, MODFAT diet, and exercise, and reducing the consumption of sweetened beverages. • 62 health educational sessions were conducted for 10 months with 554 participants (Chuuk county) on healthy meal preparation, portion control, and education on vitamins, minerals, and benefits of physical activities. <p>Phase IV: Second BMI and waist circumference check for the year and evaluation of the Childhood obesity program (will be done at the end of the school year around May 2021).</p> <p>Outcome:</p> <ul style="list-style-type: none"> • 98 public school teachers and private school teachers have increased their knowledge on healthy food and drink choices, the importance of physical activities, and skills on how to collect obesity related data. • 897 students have increased knowledge in healthy food and drink choices, food portioning, and physical activities. | |
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| | | <ul style="list-style-type: none"> • 45 parents and school administrators have increased knowledge on healthy food and drink choices, the importance of physical activities, and how to collect obesity related data. • During this reporting period, baseline data were collected from 1 elementary/junior high school, 1 high school, and a TRIO Program (grades 9 – 12) - Upward Bound. From this data, it shows that 27% of our students from the 3 schools are overweight or obese, 17% are underweight and 56% have ideal BMI. • 21 out of 98 teachers (21%) have adopted skills in collecting BMI and waist circumference data. They collected student BMI data for their schools. <p>Students increased knowledge in healthy food and drink choices, food portioning, and physical activities whereas teachers increased knowledge on obesity prevention, and gained skills in collecting BMI and waist circumference data for monitoring students health status.</p> | |
| 29. | Obesity awareness and data collection | <p>Issue/Significance: Global Nutrition Report data shows about 26.7 % of children and adolescents in the Marshall Islands are obese whereas about 59.4 % of them are overweight. Poor diet quality and lack of physical activity continue to plague these limited resource children and adolescents. Access to healthy food options and physical activity opportunities, along with nutrition education programs and extension interventions are important for helping limited-resource individuals and families reduce health risks while managing food resources effectively. Healthy habits started in childhood are likely to continue into adulthood. To foster healthy habits among children and adolescents, specifically lowering the obesity rate, obesity prevention programs implemented targeting high school and elementary school students.</p> <p>Target audience: School children</p> <p>Activity: In a collaborative team effort, the extension team made presentations and gave lectures to 321 high school and elementary school students on Majuro and Ebeye on childhood obesity, its causes, understanding Body Mass Index (BMI), health consequences and non-communicable diseases, interventions, preventive measures, the importance of physical activities in 2 separate sessions. Participating students were screened and BMI data collected to introduce intervention activities such as school gardening programs, urban household gardening programs, and healthy meal cooking demonstrations. A summer camp was</p> | Childhood obesity |

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| | | <p>conducted for about 180 students for 3 days (6 sessions) during which students were introduced to physical activities, health improvement lectures, hands-on training on school gardening, sports, and outdoor skills.</p> <p>Results: Survey results from participating students showed that 281 students increased awareness and knowledge on obesity-related issues, benefits of physical activity, selecting healthy foods, and a healthy lifestyle. About 143 (about 51%) students showed a positive attitude towards obesity prevention activities, physical activities and they made changes to their daily routine and eating habits to remain healthy. About 55 students who are identified as either overweight or obese began practicing healthy eating habits and carrying out physical activities regularly. Summer camp helped students with nutritional support, educational programs, and skills that promote good health and physical activity. Data collected after 7 months into the program reveals in 83% of students there was a significant reduction (> 5 pounds) in the overall body weight.</p> <p>Outcome: Students have increased their knowledge on obesity-related issues and the importance of maintaining a healthy lifestyle.</p> | |
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| OPTIONAL Youth Development Expenditures (dollars) | |
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| State and/or Institution: | FY 2020 Expenditures (\$) |
| 1862 Smith-Lever | |
| 1890 Extension | |