



NORTHERN MARIANAS COLLEGE



TRIP REPORT FORM

Name of Traveler:	Date From:	Date To:
Michael M. Ogo	8/12	14/11
Place Traveled:	TA#:	
Guam, USA	106806	

Purpose (as stated on Travel Authorization)

To meet with Dr. Mari Marutani of the University of Guam and learn about commercial aquaponics and to evaluate the commercial aquaponics system at UOG's Yigo Experiment Station.

Experience/Training gained; Contacts made; Problems encountered; Suggestions/Recommendations; (Please be concise and brief. Use of "Telex Type" wording is recommended – no flowery words.)

I arranged and travelled to Guam with Mr. Valrick Welch, Richard Gramlich, and Pete Arriola to familiarize these individuals with research and commercial hydroponics and aquaponics systems. San Vicente Elementary School Aquaculture Science Program was a recipient of a WSARE Professional/Producer grant on hydroponics and a familiarization study tour was one of the approved project activities. The intent was that after this tour, these individuals will return with a better understanding of how a aquaponics/hydroponics system works and apply that knowledge to their project. On our first day in Guam, we visited the University of Guam's shrimp pathology laboratory and learned how UOG can use their Polymerase Chain Reaction (PCR) equipment to perform shrimp viral pathogen diagnostics and shrimp genetic studies. From there, we drove to the hatchery in Fadian to look at Tilapia fry production in their raceway. Additionally, we were given a tour of the shrimp hatchery microalgae production room and the spawning and larval rearing units. That afternoon, we visited the UOG Tritons, Yigo Experiment Station where we spent the next 3 hours learning about aquaponics from seeding Rockwool with various lettuce seeds to daily and weekly water nutrient monitoring using EC and pH meters and adding micronutrients to address deficiency issues.

Early morning on the next day, we headed to the flea market in Dededo to observe Tilapia, shrimp, and milkfish sales, locally grown in southern Guam. The intent was to show these three the popularity of the farmed aquaculture commodities and find out the market price for live, fresh finfish and crustacean. That afternoon, we visited the new hydroponics farm in Mangilao, owned and operated by the same company that operates Guam Skydive. We were met by Mr. Ely Santos at the gate and were given a tour of the operation starting with the Reverse Osmosis water purification system that cleans the water used for the hydroponic nutrient film technique (NFT) grow out. Next we were shown the water cooling tower which mixes air and water to bring the temperature down that diminishes bitterness in the lettuce. Within this section, the nutrient mixing room is also located and we saw how nutrients were added to the water based on the feedback of the automated, water quality equipment. We proceeded to the greenhouse where the lettuce are seeded using a seeding tray attached to a vacuum and nursed until they are ready for transplantation. Last, we entered the grow out greenhouse, where we saw different varieties of lettuce being grown that eventually make their way to the Payless Supermarket chains in Guam. Here, we saw lettuce grown using the Nutrient Film Technique (NFT) technology that involves using six oval, polypropylene pipes, 40' long, sloped about 30 degrees from the drip inlet side to the drip side. Greenhouse was covered with 20% sun blockage, opaque netting.