

# Adapting Aquaponics for the Pacific Islands

## American Samoa



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Photo by Kiara Sakamoto

# Our approach to extension

- Face to face, long term extension
- Problems are solved quickly and easily by both on-site extension agent and farmer
- Networking

“I hear and I forget. I see and I remember. I do and I understand.”

- Confucius

# Identifying the Need

- There is little food security
  - All fruits and vegetables are imported from New Zealand
- Land is a premium
  - Very expensive to buy; most land is held by families
- Growing population
- These are Samoan priorities

# What is Aquaponics?

- Growing fish and plants symbiotically in one system
  - Fish metabolites feed plants and plants purify fish water
- 6x more production per unit area than traditional agriculture
- Now using modern materials and technology to improve upon ancient methods



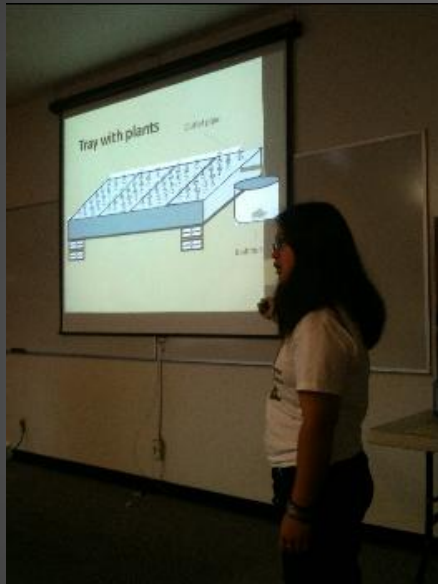
# CTAHR/CTSA Aquaponics Method

- Plant needs were assessed using hydroponics solutions
- Low capital and maintenance costs
- Potassium and iron are controlled
- Shows that water chemistry is paramount to a successful system
- Heavy extension work
- Without the good science and extension, it wouldn't work



# Goals of the Project

- Build two working systems
- Face to face long term extension work with farmers
- Teach people basic operation and economics
- Make sure they thoroughly understand the chemistry so they can operate logically and efficiently long-term



# Building the Systems

- 1 system: 2 trays, 1 tank, 96 plants, 5 kg fish
- 2 sites: ASCC Land Grant, Taputimu village



# Daily Management

- Taught farmers how to feed the fish optimally by assessing leftovers
- Taught water quality parameters
- Taught and guided weekly water chemistry testing
- Guided farmers to manage the systems through their own informed decision making





# Economics and Marketing

A. Samoa: Lettuce: \$3/lb and Tilapia \$3/lb

	12 plywood= raceway	5 raceways (starter farm)
Annualized capital costs	\$332	\$2,080
Annualized variable costs	\$1,774	\$9,045
Gross income (lettuce/tilapia)	\$9,147 (\$7,602/\$1,545)	\$45,738 (\$38,016/\$7,722)
Net profit	\$7,041	\$34,613

## • Possible Markets

- School Lunch Program
- Cost-U-Less
- Co-op business
- Local Restaurants
  - Mom's
  - Tradewinds
  - Sadie's by the Sea
- Small grocers
  - KS Mart
  - US Mart
  - Convenience Stores

A. Samoa average annual income: \$8000

# Getting the Word Out

- Site Visits

- Duke's Ponds, Sefulu's Ponds, Kuki's Farms etc.

- Media Coverage

- Samoa News, Malama News, World Population Summit, Topix.com, Aquaculturehub.com

- Four Workshops

- 2 at ASCC Land Grant, 2 held in Taputimu Village



# During Those 6 Weeks...

- Discovered that aquaponics is a viable option for the farmers
- Inspired a third system, funded by Land Grant, and two future grassroots businesses
- Worked hands on with people and taught by having them see, do and practice under guidance



# Goals for the Future

- Apela Afoa and Larry Hirata are starting a Hydroponics / Aquaponics Co-op
- Alfred Selinga is starting a future Lettuce and Salad Mix Business
- CTSA's locally produced Samoa Fish Feed Program is critical





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