

# Soil Health and Locally Produced Fertilizer Inputs

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# Sustainable and Organic Agriculture Program

College of Tropical Agriculture and Human Resources  
University of Hawai'i at Mānoa

## **Type of Research/Activities**

- Local & Alternative Inputs
- Seedlings Media Improvement
- Compost Tea & Liquid Fertilizer
- Crop Diversity & Variety Selection
- Herbs & Spices
- Extension/Education Activities



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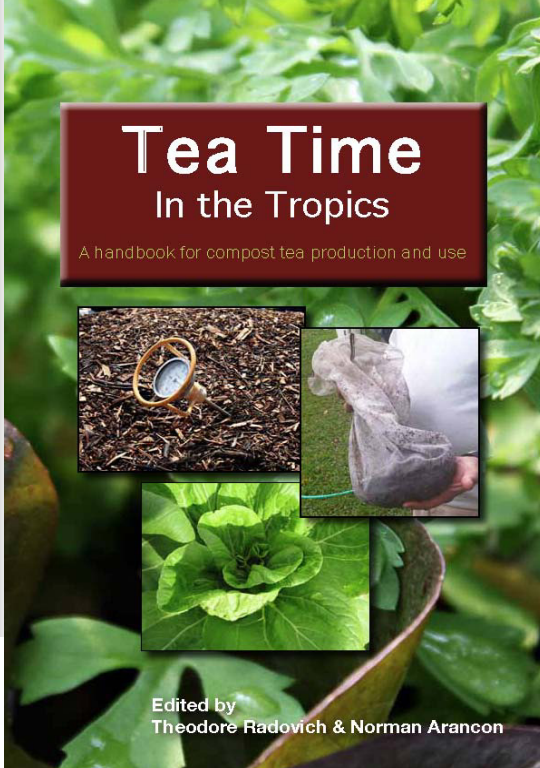
### In This Issue

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### ARCHIVED ISSUES



## Tea Time In the Tropics

A handbook for compost tea production and use

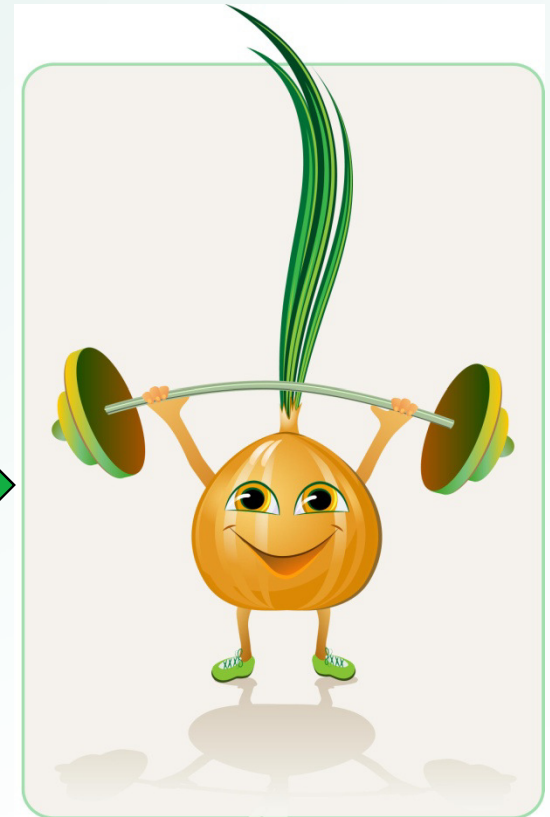
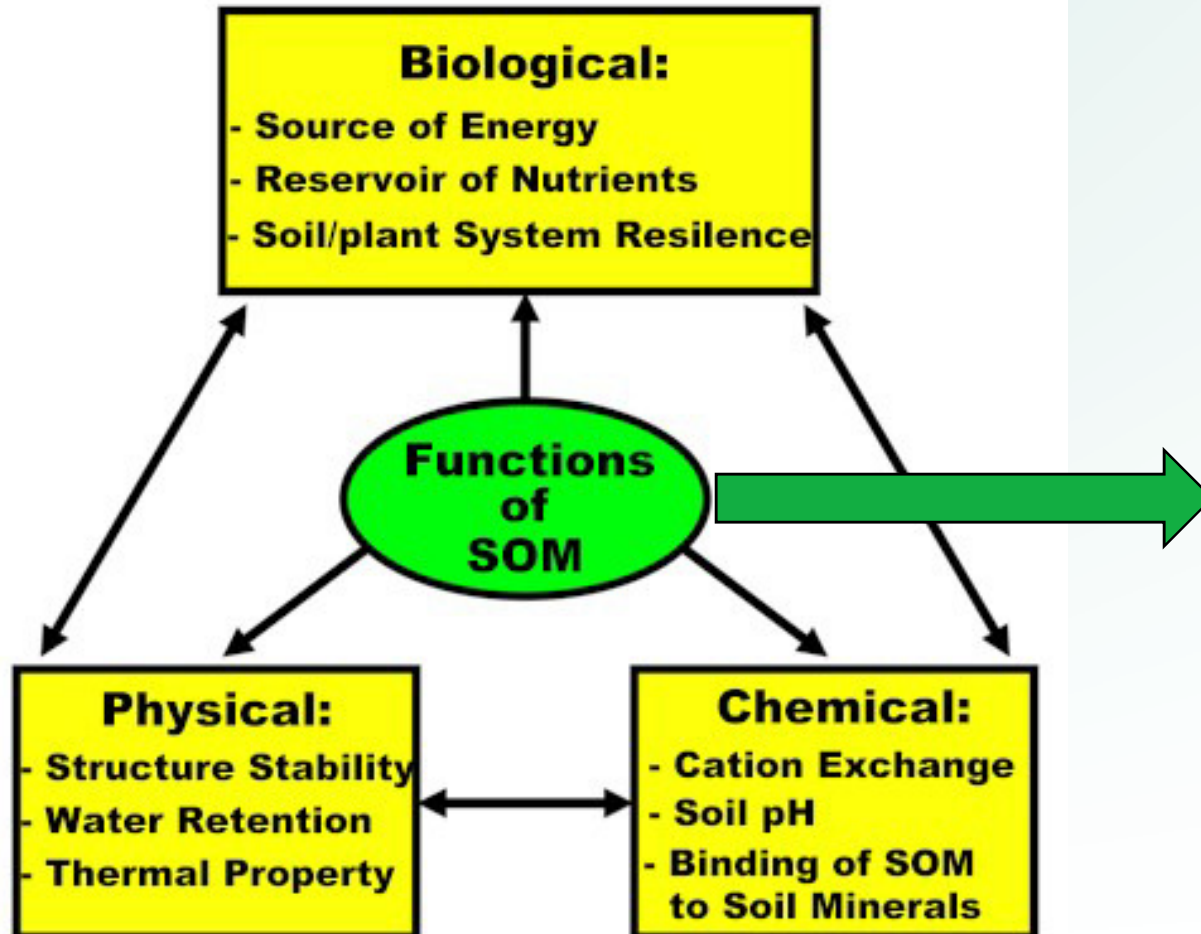


Edited by  
Theodore Radovich & Norman Arancon



# Soil Health and Local Fertilizers

Why Building Soil Organic Matter is Important?



# Local Inputs

## Composts



## Tankage



## Biochar

## Invasive algae



# Tankage

**Meat and Bone Meal by Products.**

**Produced Locally in Hawaii by Island Commodities.**

**It contains:**

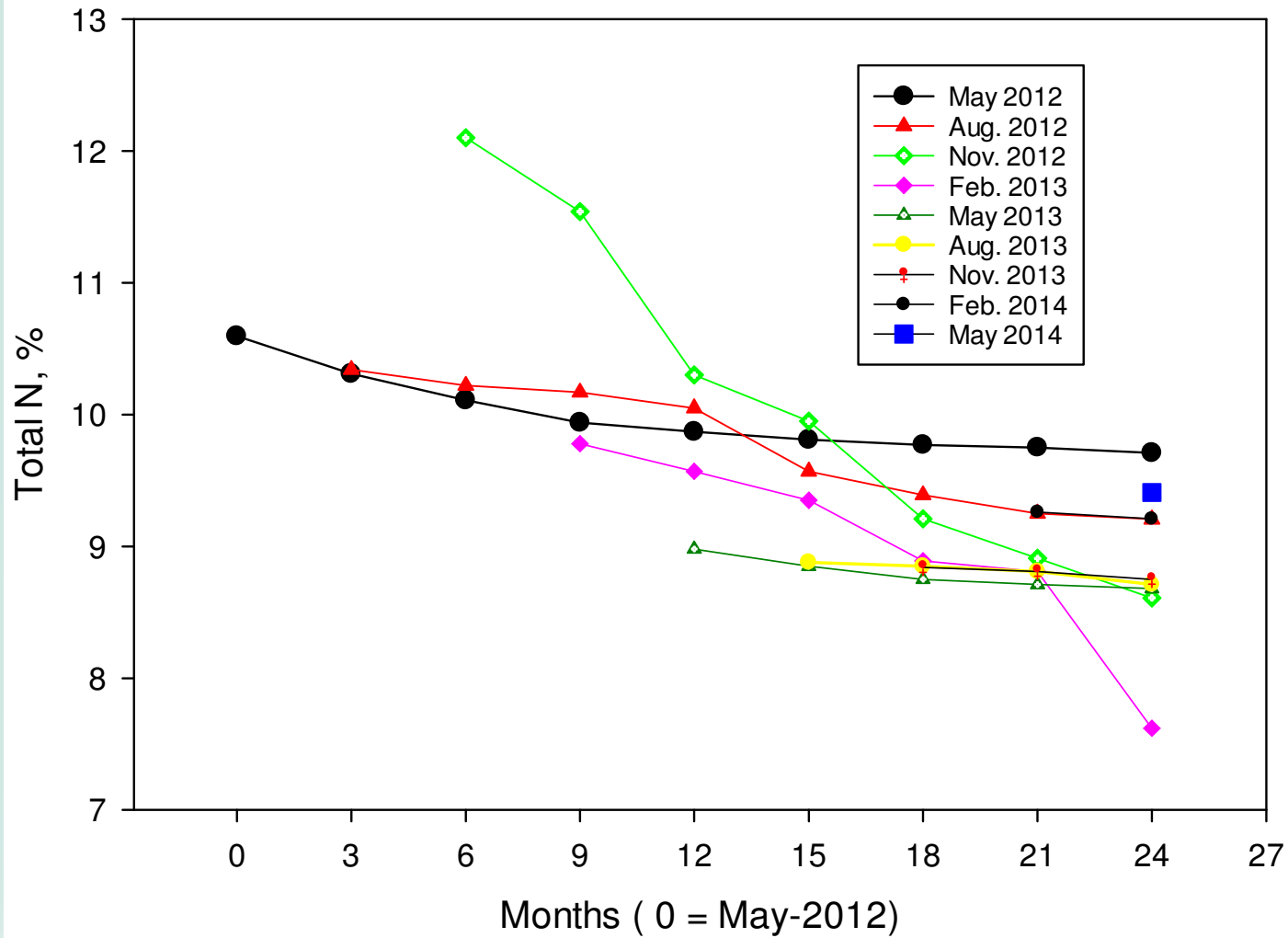
**Nitrogen = ~ 10%,**

**Phosphorus = ~2.5%,**

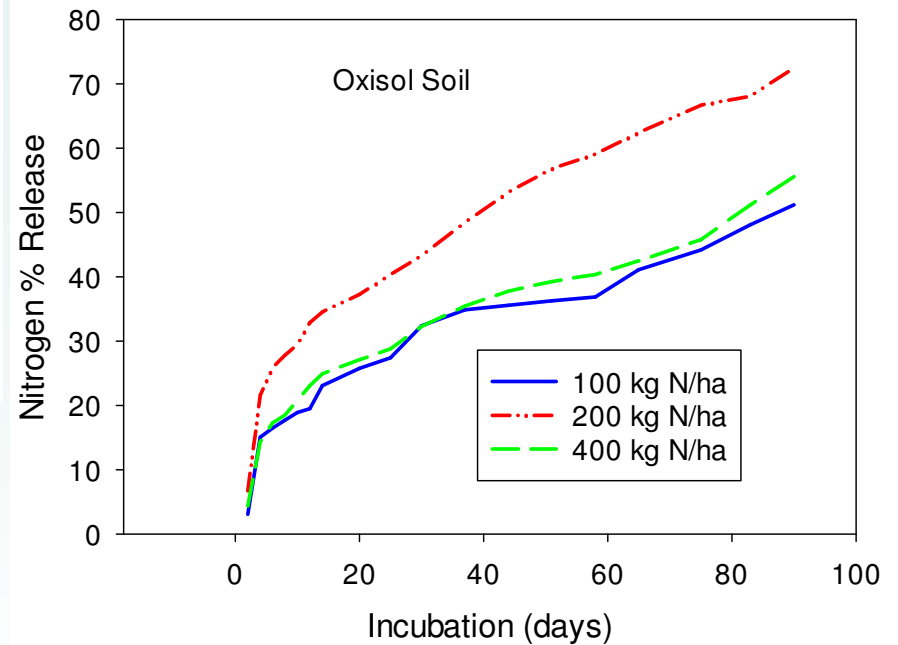
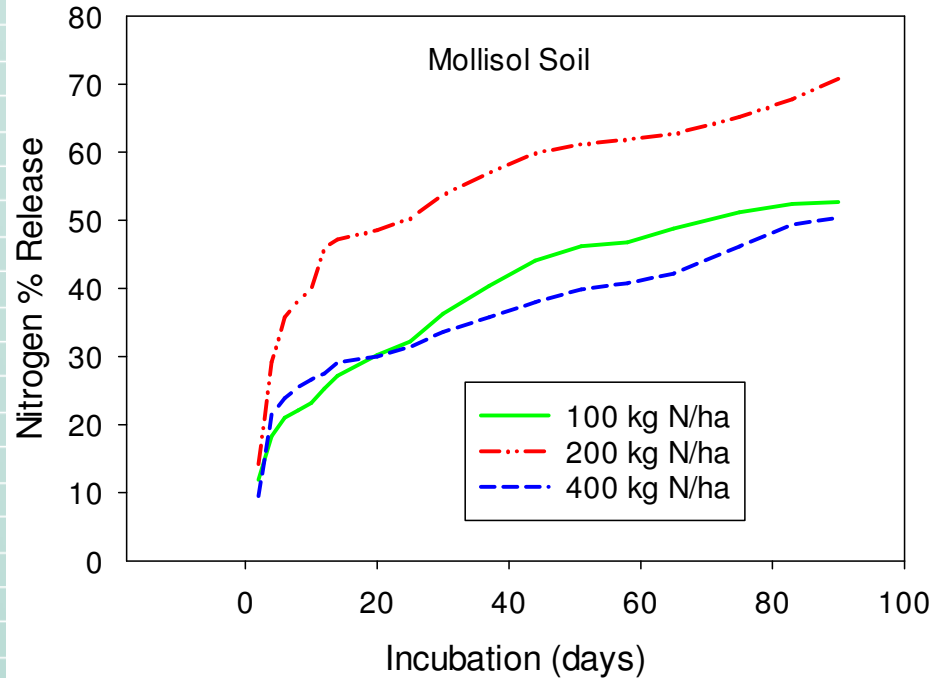
**C:N Ratio = 5:1**



# Batch-to-Batch Variability in Tankage



# Nitrogen release from Tankage



*NO<sub>3</sub>-N (%) released from tankage applied at 0, 100, 200, and 400 lbs N/acre over 90 days period under Mollisol (A) and Oxisol (B) soils in a leachate column study.*





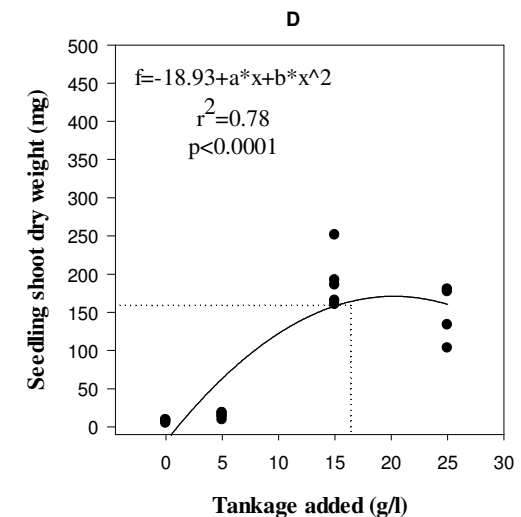
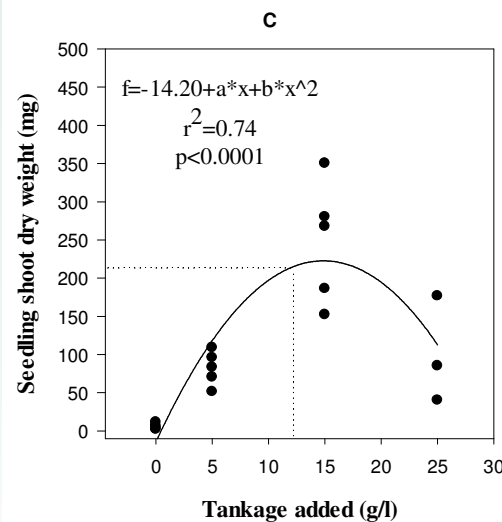
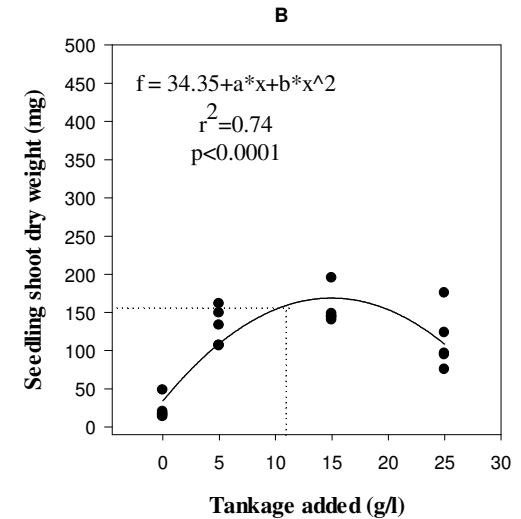
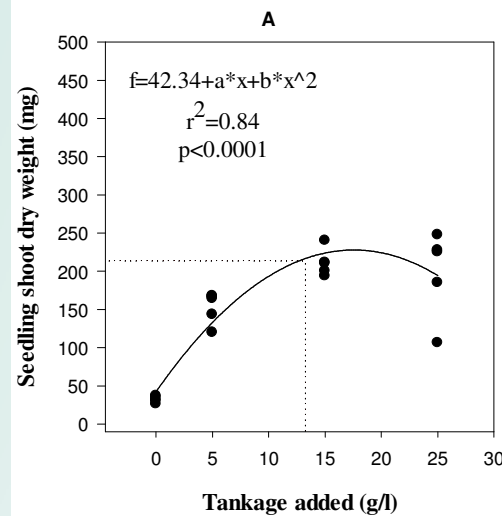
## Seedlings Media:

A: Peat

B: Peat amended  
with  $\text{CaCO}_3$

C: Coconut coir

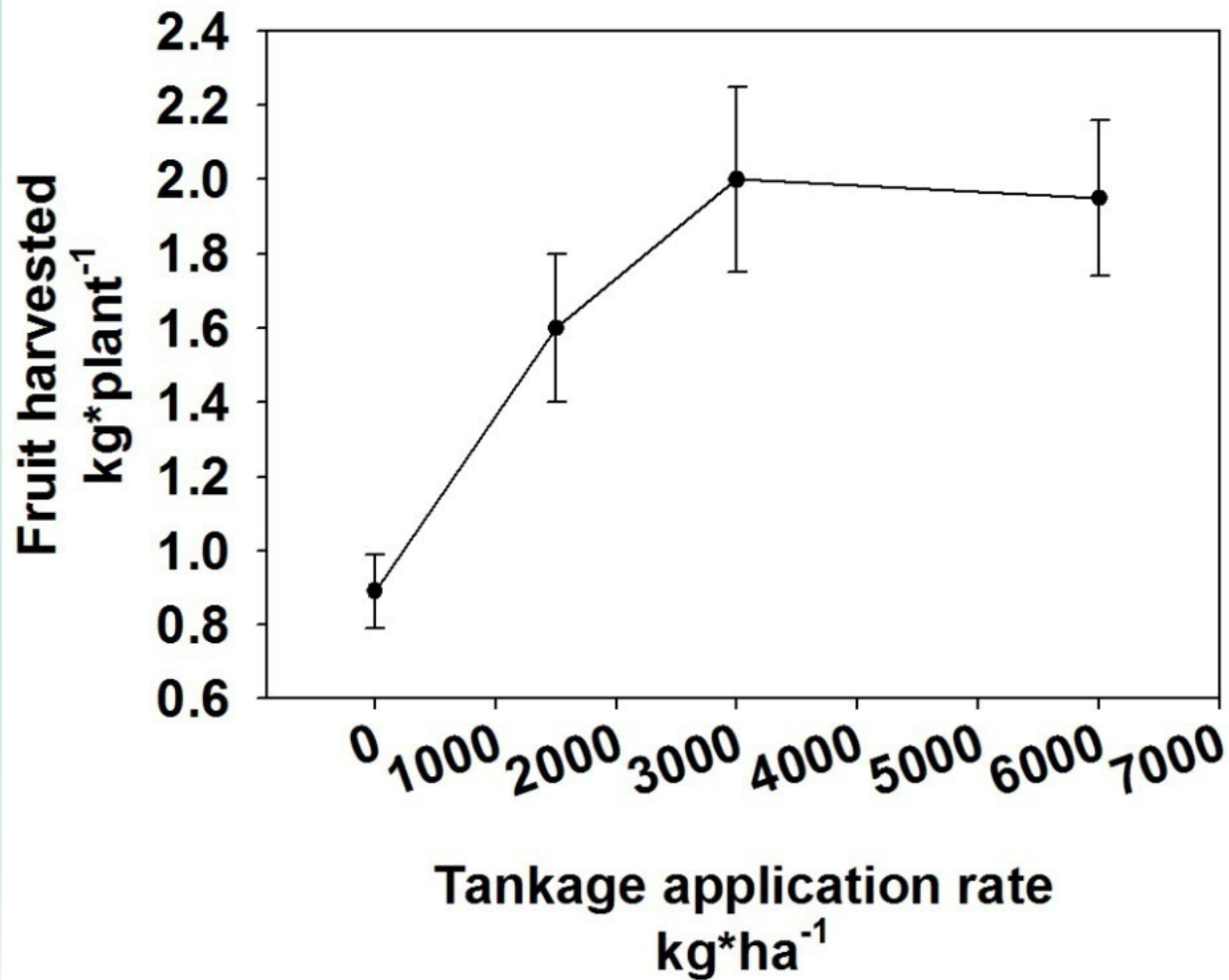
D: Thermophilic  
compost



Regression analysis between tankage application rate and shoot dry weight of 6 week old eggplant seedlings grown in (A) peat, (B) peat amended with  $\text{CaCO}_3$  0.7 g/l of medium, (C) coconut coir, and (D) thermophilic compost.



# Tankage in Eggplant Field Trial:



# Tankage in Sweet Corn Field Trial:

- Application Rates
- Split Application
- Location/Soil Type



Harvesting sweet corn planted at Waimanalo Research Station



# Liquid Fertilizer from Tankage

## Application Recipe:

- 1.5 lbs of tankage into 10 gallon water.
- Add about 1 ounce vermicompost
- Air for 12-24 hours
- Strain and apply with drip irrigation (Fertigation).



# Field Trial

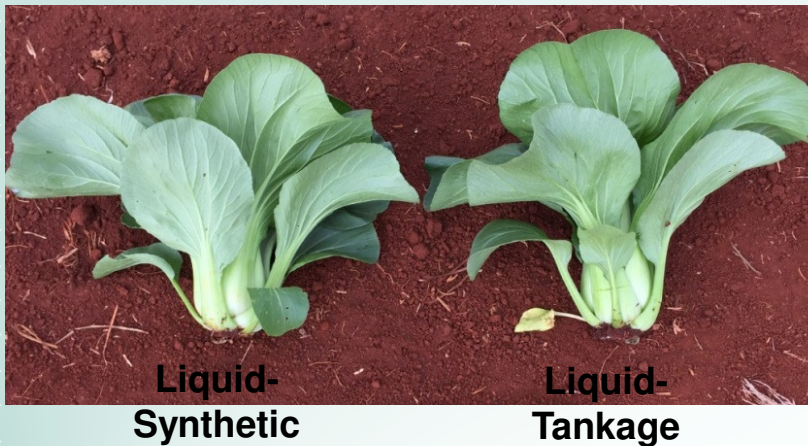
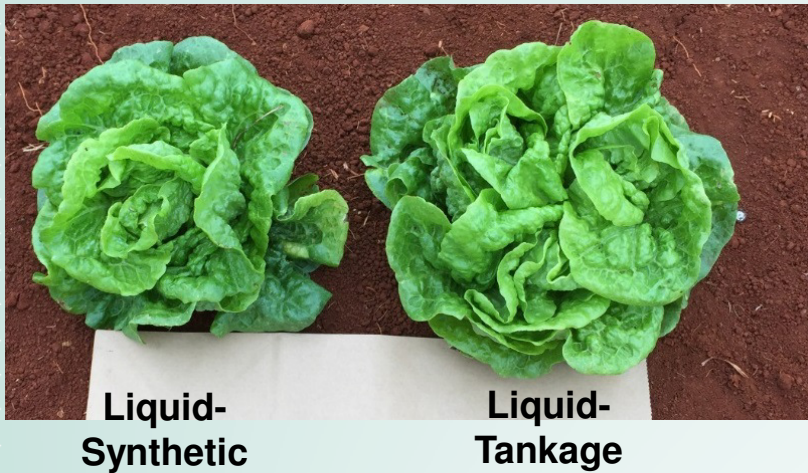


Field trial setup

Injecting liquid fertilizer into drip lines  
(Fertigation)



# Results-Lettuce, Pak Choi, and Daikon



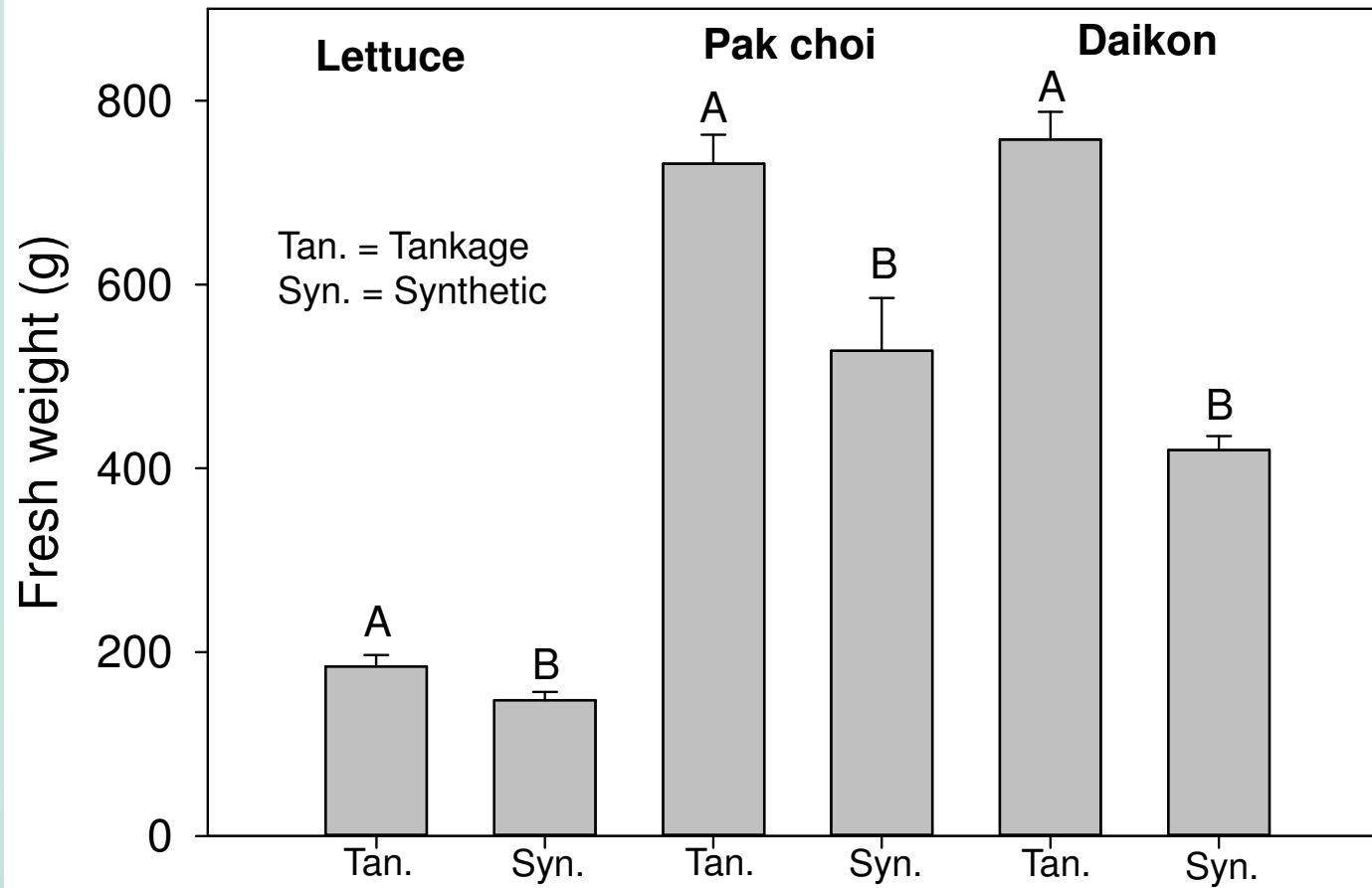
Lettuce and Pak choi were harvested after 4 and 5 weeks of seedlings transplant, respectively



Daikon was harvested after 9 weeks of planting



# Results-Fresh weight (g)



Fresh weight (gram) for lettuce, pak choi, and daikon under organic and synthetic liquid fertilizers application.



# Acknowledgements

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-WSARE

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# USDA



Department of Agriculture

STATE OF HAWAII





# Big Mahalo for Listening

Questions?

