AIARD
ASSOCIATION FOR INTERNATIONAL AGRICULTURE AND RURAL DEVELOPMENT

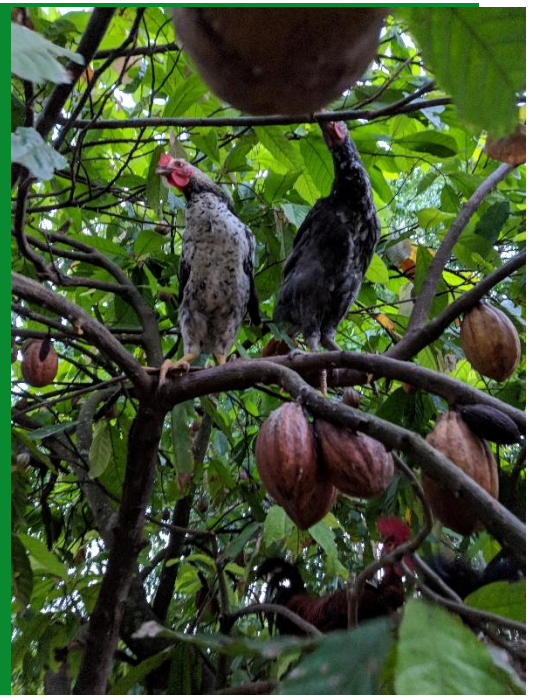
Future Leaders Forum Participant Research Presentations

55th Annual Conference

June 2-4, 2019

Washington, DC

Hilton Garden Inn, US Capitol



Flavor characterization of cocoa beans from Guatemala

1 **Guatemala cocoa sector in numbers:**

- 1,500 MT
- 9,172 productive units (families), mainly indigenous in rural areas
- 31% produced in Alta Verapaz region (93.5% indigenous, 53.6% extreme poverty)
- 11% exported
- Prioritized food system

2 **Problem:**

Lack of knowledge on flavor quality of cocoa beans

3 **Why?**

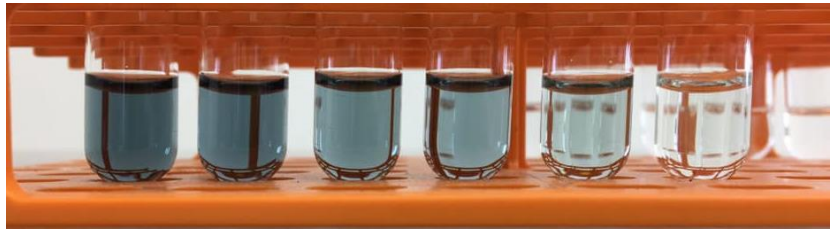
- Low research investment
- Low research capacity built
- High-cost analysis
- Lack of technical knowledge

4 **Objective:** To characterize the flavor profile of cocoa beans from Guatemala

Roasting mapping

Flavor characterization

Sensory evaluation



Marlon Ac Pangan, Ph.D. Student
Food Science and Human Nutrition Department
University of Illinois at Urbana - Champaign
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ILLINOIS

My research overview

1. Water management in agriculture: a case of Nepal
   - adoption of indigenous conservation technology to ensure food security

2. Multidimensional poverty of Uganda
   - education, health, living standard, and food security

3. Exogenous and endogenous risks associated with groundwater table
   - loss of groundwater accessibility
   - salt water intrusion

Dependra Bhatta
Louisiana State University
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Source: International Water Association

Research in
Cañar, Ecuador

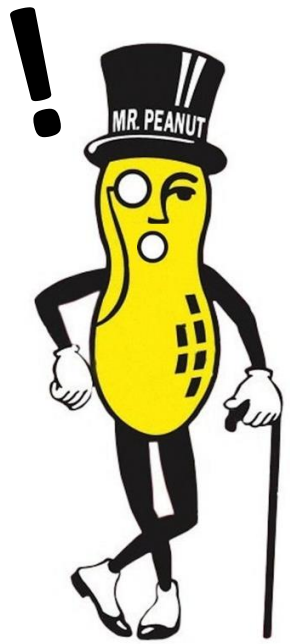
Julianne Kellogg, PhD Crop Science
Washington State University

Participatory plant breeding

Diversity

Nutrition

Chandler Levinson – University of Georgia



Susceptibility detected!

A new tool for breeders!

Wild peanut

Resistance detected!

[redacted]

[redacted]

Breeding efforts

&

Resistant plants!

Images from: catalog.archives.gov, teepublic.com

Chandler Mulvaney

- Understand the why & how.
- Examine connections between subsistence farmers & resiliency.
- Communicate factors that influence the adoption of innovations.
- Focus on the need.

Nexus of Water, Agriculture and Malnutrition

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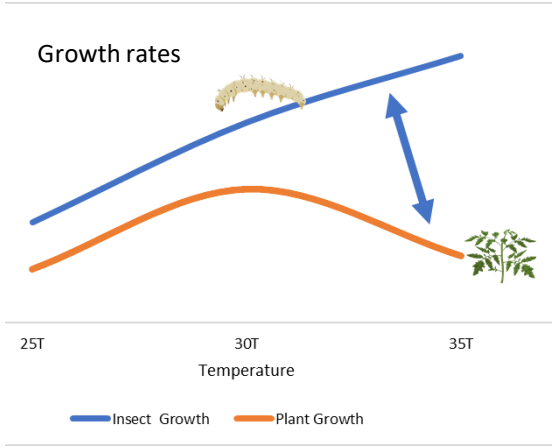
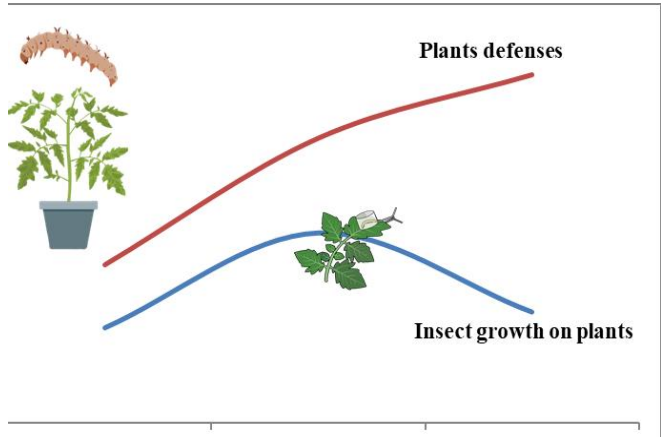
Ben Ndayambaje
Ph.D. Student
University of Nebraska

Crop Losses to Insect Pests in a Warming World

Sulav Paudel,

Pennsylvania State University, AIARD, 2019





Research Results : US and Nepal

Esther Rugoli
Washington State University

Mutant Azotobacter vinelandii could fix Nitrogen for non-legume crops.

: Mutant Azotobacter Vinelandii
N_2: Atmospheric Nitrogen
: Non-legume crop

I and the farmers from HUGUKA Cooperative in the Rwanda

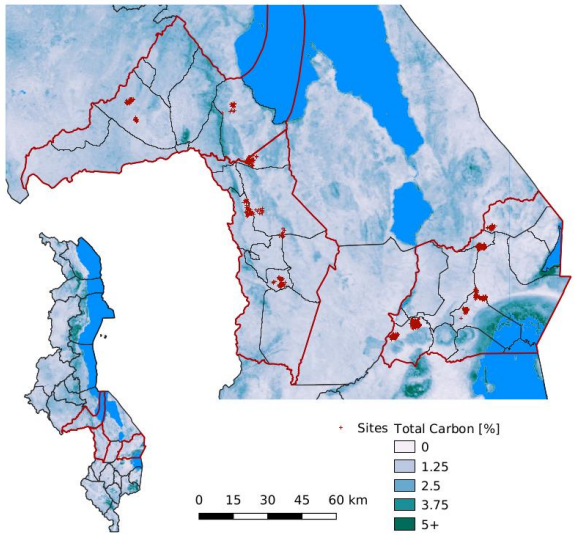
Soil Health – Foundation of Resilience in Global Food Systems

Xinyi Tu, Michigan State University

The Challenges

- **95 percent** of our food is directly or indirectly produced on our soils.
- **Land degradation** affecting 38% of the world's cropland.
- **Sustainable soil** management could remediate the situation.

The Science and Technology



In Agriculture

Soil Carbon (Fertility)

= E x M x T

E: Environment

M: Management practices

T : Time

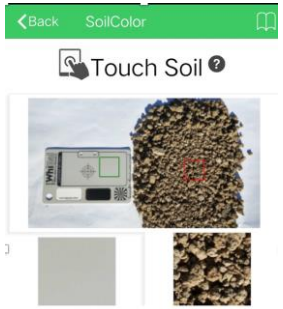
Soil Forming/Degradation Factor

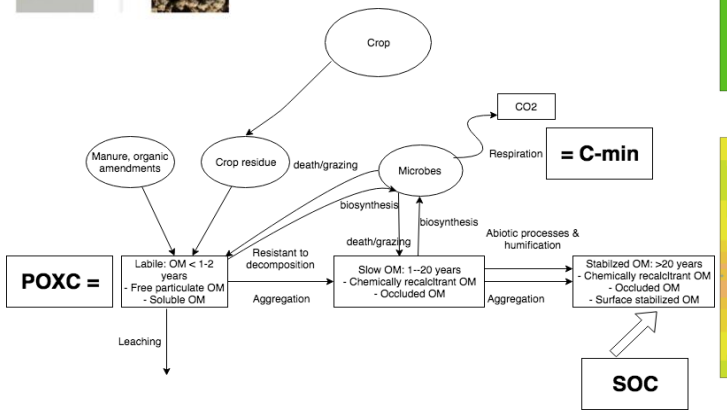
S = f (Cl, O, R, P, T)

Cl: Climate O: Organisms

R: Relief T: Time

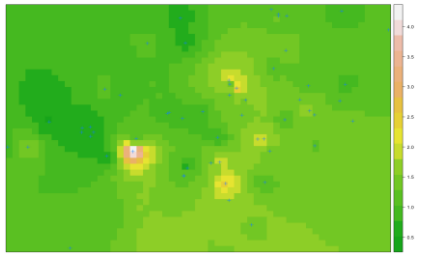
P: Parent Material



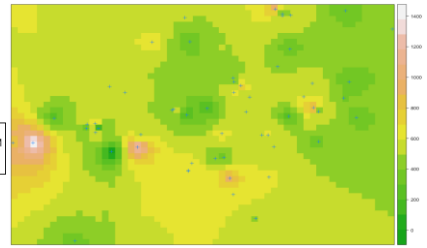


The Solution

- Geospatial
- On-Farm Study
- Lab Analyses
- Statistical Models



Soil Organic Carbon



Active Carbon

Global Change Learning Lab in Sub-Saharan Africa
http://globalchangescience.org/eastafricanode/

ADOPTION AND IMPACT OF IMPROVED CROP VARIETIES

KATE VAIKNORAS, PHD CANDIDATE, AGRICULTURAL AND APPLIED ECONOMICS, VIRGINIA TECH

Traditional rice variety

Drought-tolerant rice variety

FEEDING THE WORLD WITH FOOD WASTE

Kathryn Williamson, MS, The Ohio State University

Millicent Yeboah- Awudzi

Food Scientist/Entrepreneur
(Ph.D. Student)
Louisiana State University
Baton Rouge, Louisiana

2019 AIARD Conference

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