# Scaling Horticulture & IPM Technologies

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# Scaling Technologies

- The ultimate test of research programs is not the glamor of the inventions, but the impact of their results
- Today, we have technologies that can help farmers grow more productive crops and improve water management
- The evidence base is growing around a select number of technologies that - if taken to scale - can impact tens of millions of lives
- But those technologies are not reaching nearly enough farmers

**Adapted from remarks by Administrator Rajiv Shah to the CGIAR Board of Directors**

Friday, December 7, 2012

# What do we mean by Scaling Up?

Scaling up means expanding, adapting and sustaining successful policies, programs and projects in different places and over time to reach a greater number of people

Quoted in Hartmann and Linn, 2008

*"…research use took place when it was coupled with user demand during the research process itself, and when research and research use were part of a wider network of players and actions involved in the innovation process."*

Andy Hall, United Nations University Working Paper Series#2011-076.
Putting agricultural research into use: Lessons from contested visions of innovation.

# What technologies is the Horticulture Innovation Lab working on?

# How does the Horticulture Innovation Lab approach scaling?

# The value of horticulture

- High value crops – income generation and diversification
- Intensive farming possible on small plots
- Nutritional benefits of diet diversification
- Women are heavily engaged in horticulture crop production and marketing

- Low dietary diversity is linked to higher rates of malnutrition among infants and young children
- Improving on-farm crop diversity through horticulture increases the likelihood that a family will diversify their diet
- Nutrient-dense foods, such as fruits and vegetables, are necessary for optimal mental and physical growth throughout development

(Arimond & Ruel, 2004
Arimond et al., 2010
Ruel, 2003)

# Key to Adoption of All Improved Horticulture Practices is a Viable Market

- Likely return on investments made is key
- Reliable market for crop
- Ability to store crop short time provides essential bargaining power (cool storage)
- Transportation to market
- Farmer associations can be instrumental

# Technologies being tested by the Horticulture Innovation Lab

- Seed drying beads
- Pest exclusion nets
- CoolBot and coolrooms
- Solar drying
- Soil solarization
- Improved market linkages
- Nutritional value of indigenous vegetables
- Orange fleshed sweet potato for flour & weaning food
- New variety evaluation
- Solar powered irrigation

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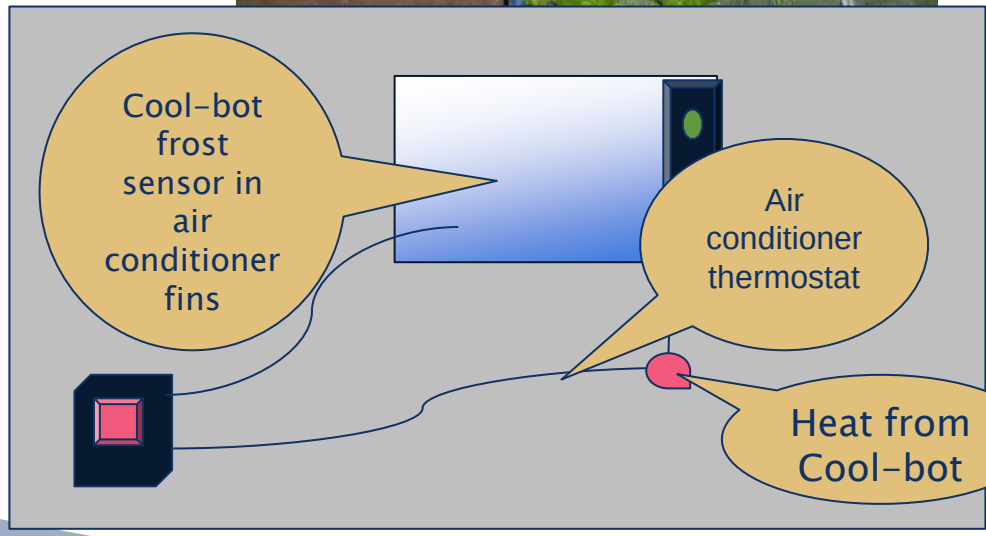
# CoolBot and Cold Rooms



# Potato Storage in Bangladesh

We will be comparing CoolBot cold rooms with simple ‘ambient’ storage and ‘improved ambient’ storage systems designed by BRAC

Ambient

CoolBot with AC



Improved ambient

# Seed drying beads

- High humidity reduces seed viability
- Drying beads
  - Made of special type of zeolite
  - Can be reused indefinitely
  - Can be used for both drying and storing
- Farmers can dry seeds to very low moisture contents
- Farmers plant healthier seeds with increased yield and germination

# Keeping seed dry improves germination

- Most vegetable seeds dried with the beads germinated better than those dried in the sun



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# Opening a regional postharvest training and services center

- Opened a Postharvest Training and Services Center in Arusha, Tanzania (at World Vegetable Center)
- Trained 36 Master Trainers in advanced postharvest practices
- Intent on training over 10,000 farmers in Africa each year

# Pest exclusion nets

- Insects reduce crop yield
- Pest exclusion nets
  - Create a barrier that protects vegetables against pests
  - Improve ambient conditions
  - Can be locally made and reused
- Farmers are able to implement nets into an Integrated Pest Management program that relies less on pesticides

# Regional Centers of Innovation

- Central America
  - Zamorano University, Honduras
- Southeast Asia Center
  - Kasetsart University, Thailand
- East Africa Center
  - Participatory Training Center
    - KARI-Thika, Kenya

We were innovation before innovation was cool!

# Regional Centers of Innovation

- Testing, adaptation and demonstration of technologies
- Collaboration with partners
- Trade shows and fairs for industry
- Encourage entrepreneurship

# Thank you!!

For more information:

http://hortcrsp.ucdavis.edu

**Thanks to our many collaborators, including:**

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Tuskegee University
University of California
Zamorano University

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