



FEED:|FUTURE

The U.S. Government's Global Hunger and Food Security Initiative

Feed the Future Innovation Lab for Collaborative Research on Horticulture

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**HORTICULTURE
INNOVATION LAB**

UC DAVIS
UNIVERSITY OF CALIFORNIA

We build international partnerships for fruit and vegetable research to improve livelihoods

1. Horticultural value chain research
2. Innovation and scaling
3. Capacity building
4. Nutrition driven horticulture
5. Empowering women and the most vulnerable
6. Sharing information



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Why Horticulture?

- High value crops – income generation and diversification
- Intensive farming on small plots possible
- Nutritional benefits of diet diversification
- Potential source of micronutrients (Vitamin C, Vitamin A, Vitamin E, K+, phytonutrients, etc.
- Women are heavily engaged in horticulture crop production and marketing



Horticulture Innovation Lab

Current Project Countries

- Africa: *Kenya, Tanzania, Uganda, and Zambia*
- Central America and the Caribbean: *Guatemala and Honduras*
- Asia: *Bangladesh, Cambodia, Nepal*



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Nutrition Research



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Strengthening the value chain for African indigenous vegetables

- Improving the African indigenous vegetable value chain
 - Varieties
 - Production practices
 - Marketing
 - Nutritional value



Gender Research



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Empowering Women through Horticulture

- Honduras
- Penn State University and Zamorano University



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Scaling Technologies

- Ceramic Drying Beads – Rhino Research Group, Thailand
- Insect Barrier Nets – A to Z, Tanzania



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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



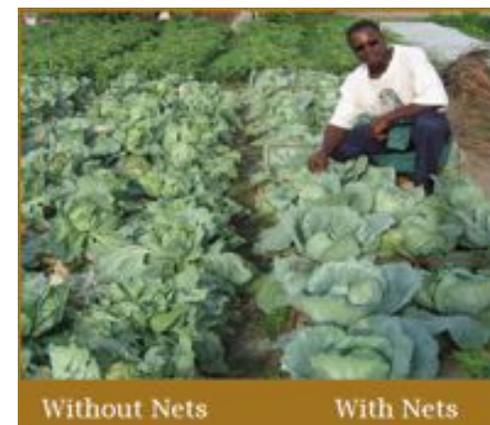
Keeping seed dry improves germination

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



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



Other New Projects

- Conservation agriculture for vegetables
 - Cambodia and Nepal
 - Buy in from Guatemala Mission under development
- Vegetable Grafting in Central America
- Small-scale irrigation for vegetables in Uganda



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

- Likely return on investments made is key
- Reliable market for crop
- Incentive for improving practices



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Linking farmers to markets

- Linking new woman farmers to buyers at local hotels and supermarkets
- Strengthening production practices and the postharvest value chain



Postharvest handling is a key technology for horticulture

- Reduce losses
- Maintain quality
 - Nutrition
 - Safety
 - Taste
 - Appearance



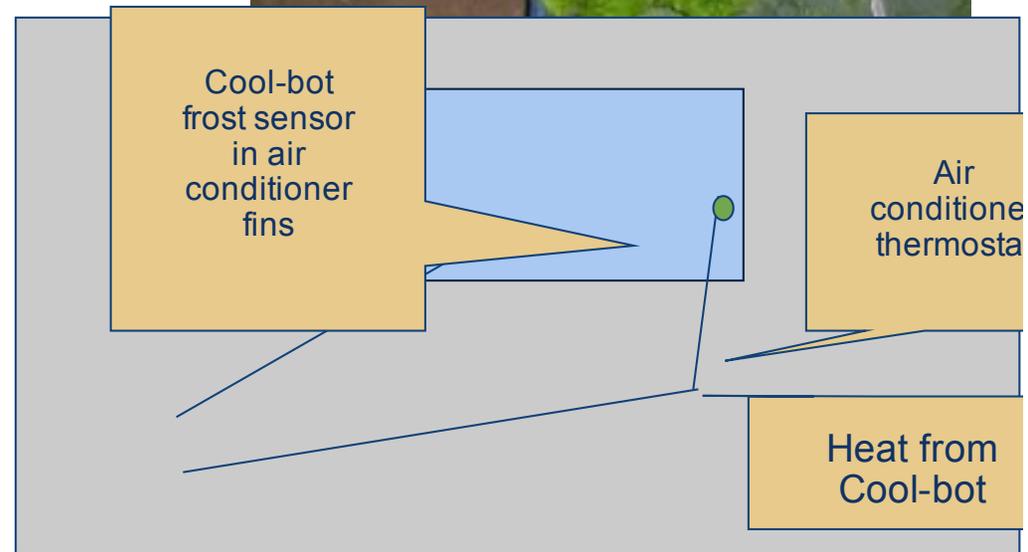
Horticulture Innovation Lab chimney dryer

- Inexpensive
- Efficient
- High air speed



CoolBot and Cold Rooms

Store it Cold,
Inc.



Related Projects

- Role of Aquaculture and Horticulture for Nutrition in Bangladesh
 - Introduction of technologies on availability of nutritious foods
- Collaboration with CIP on CoolBot cool storage for potato and orange-fleshed sweet potato



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Regional Centers

- Establish in recognized regional institutions
- Regional foci for Horticulture Innovation Lab activities
 - Training
 - Research
 - Outreach
 - Information



Trellis Fund – Capacity Building

- Links US Graduate Students with Developing Country NGOs and graduate students
- Malawi Project
 - Promoting soil science education to combat erosion and improve agricultural yields
 - Kusamala Institute of Agriculture and Ecology
 - Deirdre Griffin, UC Davis Graduate Student



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New Portfolio – East and Southern Africa

- Scaling of pest exclusion nets (Kenya)
 - Michigan State University, CIRAD, A to Z textiles
- Developing small-scale irrigation solutions (Uganda)
 - UC Davis, NaSARRI, TEWDI, AMARI, Busitema University, BugiZARDI, Nabuin ZARDI, and CSIRO
- Improving nutrition with African indigenous vegetables (Kenya and Zambia)
 - Rutgers University, Purdue University, ASNAPP, AMPATH
- Supporting coolrooms and cooling (Tanzania)



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Questions?



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