

Horticulture Innovation Lab



Together, we build
international partnerships for
fruit and vegetable research that
improves livelihoods in developing countries.

2014 Annual Meeting Conference Program, March 18-19, Honduras

Welcome

On behalf of the management team of the Horticulture Innovation Lab, I would like to welcome you to our fourth annual meeting. We look forward to engaging with you to exchange information that promotes the use of horticulture to improve the livelihoods of smallholder farmers in Central America and around the world. The Horticulture Collaborative Research Support Program (Horticulture CRSP) recently changed its name to the Feed the Future Innovation Lab for Collaborative Research on Horticulture (Horticulture Innovation Lab). You'll notice that in addition to the word "horticulture," the other part of our name that has not changed is "collaborative research." Collaboration is key to programs like ours. Research collaborations between U.S. universities and institutions in developing countries increase opportunities for capacity building, while improving horticultural practices in the developing world.

– Elizabeth Mitcham, director



USAID
FROM THE AMERICAN PEOPLE

**HORTICULTURE
INNOVATION LAB**

UC DAVIS
UNIVERSITY OF CALIFORNIA

Highlights from 'Advancing Horticulture: Assessment of constraints to horticultural sector growth'

With funding provided by an associate award from USAID's Bureau for Latin America and the Caribbean, the Horticulture Innovation Lab recently conducted an assessment of major constraints to continued growth and increased involvement of smallholder growers in the horticulture sector in Central America, based on looking at two of the region's countries (Honduras and Guatemala).

Here is a preview of project findings, including major constraints identified and key recommendations for research, training, and policy initiatives.

Constraints to growth of the horticulture sector and increased participation of smallholders:

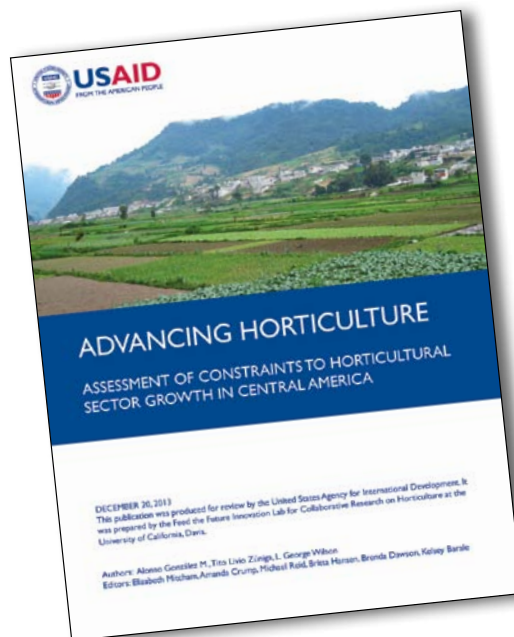
- Lack of access to adequate and affordable credit and crop insurance
- Lack of an adequate extension system
- Poor access to high-value markets
- Weather, climate volatility, and climate change
- Pests, diseases, and weeds
- Lack of research addressing regional, national, and local issues of the horticulture sector
- Postharvest losses and food safety

Regional approaches:

- Promote initiatives to adapt horticulture to climate volatility through better adapted varieties, protected culture, increased access to irrigation systems, and better weather forecasting.
- Establish regional research programs to address cross-cutting constraints affecting the region, particularly new pests and diseases and sustainable production systems.
- Promote regional and national training and education programs on appropriate technologies to reduce postharvest losses and comply with the Food Safety Modernization Act.
- Promote regional initiatives to conserve, characterize, and facilitate access to diverse and improved germplasm of horticultural species.



The project team surveyed and interviewed representatives from all sectors of the horticultural value chains in Honduras and Guatemala to write the report.



The English version of the report is available online at <http://horticulture.ucdavis.edu/lac>. A Spanish version and additional materials will be available shortly.

National approaches:

- Reduce the economic risks to horticulture farmers through availability of effective crop insurance programs.
- Design and test an interlinked microcredit-index insurance product.
- Improve national extension systems to ensure research information, best practices, knowledge, and technologies are delivered to smallholder farmers.
- Develop trusts or other microfinance means for financing smallholder farmers, particularly women.
- Develop national policies to support well-funded, long-term national agricultural research systems (NARS), including training of graduate students.
- Develop mechanisms to coordinate and enhance the marketing of horticultural products from smallholder growers.
- Create incentives and an enabling environment to develop horticulture-oriented business services.
- Develop policies to facilitate the participation of indigenous peoples, smallholders and women in value chains.

Tuesday, March 18

Location: Salon Real 3 & 4 (combined)

8:00 a.m.

Horticulture in Honduras and Guatemala

Objectives: Learn about horticulture in Central America. We will hear about projects that are ongoing and research problems that need to be solved.

- Horticulture Innovation Lab: Activities in Central America and recent assessment of horticultural sector growth in the region
Beth Mitcham, Horticulture Innovation Lab
- Horticulture in Honduras
Jacobo Paz Bodden, Secretaría de Agricultura y Ganadería, Honduras
- Horticulture at the Panamerican Agricultural School, Zamorano
Roberto Cuevas Garcia, Zamorano
- USAID/Honduras Overview
James Watson, USAID/Honduras
- ACCESO Overview
Andrew Medlicott, ACCESO
- Anacafé and AGEXPORT Overview
Arnoldo Melgar Calderón, Anacafé, and Ricardo Santa Cruz, AGEXPORT

10:00 a.m.

Tea and coffee break

10:30 a.m.

Scaling up workshop

Objectives: Discussion of scaling projects and technologies, with lessons from successes and failures. Participants will learn how to move any “technology” (including ideas, tools and practices) to another location or a broader scale. Participants will leave the workshop with a specific set of steps for scaling and an understanding of scaling models, including USAID’s.

Designing for Adoption

- *Robert L. Adams, UC Davis Sustainable Ag Tech Innovation Center*

Strategies for Scaling

- *John Bowman, USAID*
- *Bob Nanes and Carlos V. Urmeneta, iDE*

12:00 p.m.

Lunch

1:30 p.m.

Scaling up exercises
Participants will engage in hands-on exercises, based on their own projects (or businesses), learn to design for adoption, and then offer feedback and further opportunities to fellow participants.

3:00 p.m.

Coffee and tea break

3:30 p.m.

Scaling up exercises (continued)

Scaling: Where to next?

5:00 p.m. to
7:00 p.m.

Reception: Terrace of the Hotel

Leading the scaling workshop

Robert L. Adams is the executive director and entrepreneur-in-residence at the Sustainable Ag Tech Innovation Center. He helps researchers and early-stage entrepreneurs take start-up companies to the next level. Adams also serves as the director of business partnerships at Sustainable Conservation in San Francisco, and previously led the Design for Sustainability initiative at IDEO. He holds advanced degrees in viticulture from UC Davis and in product design from Stanford University. Adams also owns and operates a farm in California.



Wednesday, March 19



7:30 a.m.

Tour departure

Groups will depart from hotel on separate buses for tours. Participants will select their preferred tour during registration, when additional details about each tour will be available.

Objective: Participants will see first-hand how Hondurans interact with fruit and vegetable systems, from small, local vegetable stands to larger processing and export facilities.

- *Tour A. Markets and More:* This group will visit multiple markets, from small neighborhood stalls to a large supermarket distributor.
- *Tour B. Rural Production and Markets:* This group will visit a rural market and see local production for rural markets.
- *Tour C. Production for Export:* This group will visit a large producer whose focus is on export. This will include sorting and processing facilities.
- *Tour D. Vegetable Production:* Green onion, broccoli, cauliflower and lettuce grown year-round. Produce is sold locally to La Colonia and Hortifruti.

Field day at the Panamerican Agricultural School, Zamorano

Objective: The Horticulture Innovation Lab's Regional Centers bring together host institutions, project collaborators, and horticulture experts to research and adapt innovative technologies that help fruit and vegetable growers throughout the region. Participants will see the center facilities at Zamorano and hear about recent activities and plans for the future.

1:00 p.m.

Lunch at Kellogg Center

2:00 p.m.

Welcome
Dr. Raul Zelaya, academic dean

2:15 p.m.

Welcome to the Horticulture Innovation Lab Regional Center at Zamorano
Julio López, director

- History of the center
- What are we doing?
- What is the future?

2:30 p.m.

Visit the center facilities in groups

- Soil and water conservation
- Greenhouse and mesh house production
- Bio-intensive crop production

5:00 p.m.

Buses depart Zamorano for hotel

Horticulture Innovation Lab Regional Center at Zamorano

Overview

The Horticulture Innovation Lab Regional Center at Zamorano serves the region, in particular Honduras and Guatemala, by providing:

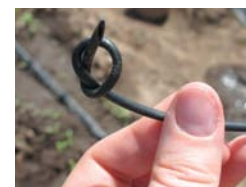
- Training for farmers and horticultural professionals
- Technical assistance and innovative technologies
- Curricula and material development
- Information dissemination

The center brings together key regional players with the Panamerican Agricultural School, Zamorano University, and other Horticulture Innovation Lab partners to improve livelihoods of smallholder farmers and small businesses throughout Central America.



Objectives

- Enable and promote adoption of horticultural technologies
- Facilitate human capacity building
- Undertake appropriate research
- Encourage entrepreneurs to utilize and manufacture innovative technologies
- Serve as a knowledge repository and disseminate information
- Provide training for professionals, on-site and across the region
- Promote economically and environmentally sustainable agricultural production among small- to medium-sized farms, especially those managed by women



Zamorano students (top) participate in the center's research of horticultural technologies. At its 2012 inauguration, the center displayed horticultural technologies such as micro-tube drip irrigation (above) and a retractable tunnel (left).

Leadership

Julio López is the director of the Horticulture Innovation Lab Regional Center at Zamorano. He also teaches courses on integrated pest management and entomology in the department of crop sciences at Zamorano.



Julio López

Highlights and activities

- The inauguration for the Horticulture Innovation Lab Regional Center at Zamorano was held Sept. 28, 2012 and was attended by the Minister of Agriculture for Honduras and representatives from USAID/Honduras.
- Through the center, more than 160 Zamorano students have worked on adapting new horticultural technologies.
- In May 2013, the center hosted a postharvest short course for the region's producers.
- The center has hosted visitors from Kansas State University, Walmart, Hortifruti, North Carolina A & T State University, and Georgetown University, among others.



USAID
FROM THE AMERICAN PEOPLE

**HORTICULTURE
INNOVATION LAB**

UC DAVIS
UNIVERSITY OF CALIFORNIA





Horticulture Innovation Lab in Central America

With funds from the U.S. Agency for International Development, the Horticulture Innovation Lab has supported more than \$1.5 million in horticultural research projects that affect smallholder farmers in Central American countries.

Seed systems:

- Producing local, disease-resistant vegetable seed in Guatemala, Honduras, Nicaragua and El Salvador
- Evaluating tomato and chili varieties for disease resistance in El Salvador, Honduras and Nicaragua

Improving production:

- Disseminating rainwater harvest and drip irrigation technologies to smallholders in Honduras and Guatemala
- Improving production in passively ventilated structures in Costa Rica, Dominican Republic, Haiti, Honduras and Nicaragua

Postharvest practices and food safety:

- Developing postharvest training materials in Honduras and Guatemala
- Demonstrating low-cost cooling technology in Honduras
- Evaluating small-scale postharvest technologies in various climates
- Delivering food safety education through social networks in Guatemala, Honduras and Nicaragua

Enabling industry:

- Training plant diagnosticians in Guatemala, Honduras, Nicaragua, Costa Rica, El Salvador, Mexico and Panama
- Developing energy solutions for horticultural production in Honduras
- Expanding the floral industry in Honduras

Regional Center at Zamorano

The Horticulture Innovation Lab Regional Center at Zamorano serves as a hub for horticulture-related activities in Central America, particularly in Honduras and Guatemala.

The center brings together key regional players to improve livelihoods of smallholder farmers, with innovative technologies that offer solutions for local horticultural needs. The center also builds capacity for horticultural research and development with regional partners and the Panamerican Agricultural School, Zamorano University.

Partners in Latin America and the Caribbean

- CARE, El Salvador and Guatemala
- Centro de Investigación Agropecuaria San Antonio, Nicaragua
- Corporación Dinant, Honduras
- Escuela Agrícola Panamericana Zamorano, Honduras
- Fundación Hondureña de Investigación Agrícola, Honduras
- Instituto Dominicano de Investigaciones Agropecuarias y Forestales, Dominican Republic
- International Development Enterprises
- Municipalidad de Chillán, Chile
- Project Haiti WINNER, Haiti
- Universidad de Concepción, Chile
- Universidad de Costa Rica
- Universidad de La Molina, Peru
- Universidad de la República, Uruguay
- Universidad de San Marcos, Guatemala
- Universidad Mayor de San Simón, Bolivia
- Universidad Nacional Agraria, Nicaragua
- Universidad Tecnológica América, Ecuador

Participants

Robert Adams
University of California, Davis
rladams@ucdavis.edu

Roque Almendares
International Development Enterprises
(iDE)
almroque@hotmail.com

Flora Christine Amagloh
CSIR - Savanna Agricultural Research
Institute
flora.amagloh@gmail.com

Patricia Arce Valladares
Escuela Agrícola Panamericana,
Zamorano
ivejarano@zamorano.edu

Liliana Barahona
Cargill Meats Central America
Liliana_Barahona@cargill.com

Vance Baird
Michigan State University
bairdw@msu.edu

Monica Blanco-Meneses
Universidad de Costa Rica
monica.blancomeneses@ucr.ac.cr

Eunice Bonsi
Tuskegee University
ebonsi@mytu.tuskegee.edu

Conrad Bonsi
Tuskegee University
cobonsi@mytu.tuskegee.edu

John Bowman
USAID
jobowman@usaid.gov

Jeffrey Brecht
University of Florida
jkbrecht@ufl.edu

Patrick Brown
Postharvest Education Foundation
Pat@SonoraPacific.com

Rolando Bú
FOPRIDEH
foprideh@foprideh.org

Maria Bucaro de Solares
Counterpart International Inc.
mbucaro@counterpart.org

Gloria Castelar
USAID/Honduras
gcastelar@usaid.gov

Eduardo Chirinos
USAID/Honduras
echirinos@usaid.gov

Florencio Rolando Cifuentes Velásquez
Universidad del Valle de Guatemala
rcifuen@uvg.edu.gt

From the International Advisory Board

Josette Lewis, chair
UC Davis
jolewis@ucdavis.edu

Dyno Keatinge
AVRDC - The World Vegetable Center
dyno.keatinge@worldveg.org

Julio López
EAP Zamorano
jlopez@zamorano.edu

Robert Nanes
iDE
bnanes@ideorg.org

Linus Opara
Stellenbosch University
opara@sun.ac.za

Robert Paull
University of Hawai'i at Mānoa
paull@hawaii.edu

Idah Sithole-Niang
University of Zimbabwe
isniangzw@yahoo.com

Sally Smith
The University of Adelaide
sally.smith@adelaide.edu.au

Detlef Virchow
Global Horticulture Initiative
dvirchow@globalhort.org

Ana Silvia Colmenares de Ruiz
Universidad del Valle de Guatemala
asruiz@uvg.edu.gt

Roberto Cuevas García
EAP, Zamorano
rcuevasg@zamorano.edu

Peetambar Dahal
UC Davis
pdahal@ucdavis.edu

Frederick Davies
USAID/BFS, Texas A&M University
f-davies@tamu.edu

Francisco Javier Diaz
FHIA
fjdiaz15@gmail.com

Marco Dominguez Franco
Vision Mundial Honduras
marco_dominguez@wvi.org

Ramon Arturo Escobar
Secretaría de Agricultura y Ganadería,
Honduras

Dinie Espinal
EAP Zamorano
drueda@zamorano.edu

Edwin Flores
PRONAGRO-SAG
edavidflores76@hotmail.com

Julia Gómez
jmgomez27@gmail.com

Sanja Ilic
The Ohio State University
ilic.2@osu.edu

Poonpipope Kasemsap
Kasetsart University
agrppk@ku.ac.th

Ricardo Lardizabal
USAID-ACCESO
raca@fintrac.com

Janelle Larson
Pennsylvania State University
jbl6@psu.edu

Jeffrey Lejeune
The Ohio State University
jkbrecht@ufl.edu

Cecilia Martinez-Tosta
Voces Vitales Honduras
Honduras@vocesvitaleshonduras.org

Andrew Medicott
USAID-ACCESO
andy@fintrac.com

Arnoldo Melgar
Anacafé
Arnoldo.MC@anacafe.org

David Miller
UC Davis
gdmiller@ucdavis.edu

Terry Miller
USAID
tmiller@usaid.gov

Bertha Mjawa
Prime Minister's Office, Tanzania
mjawabj@gmail.com

Desmond Mortley
Tuskegee University
mortleyd@mytu.tuskegee.edu

Mwanarusi Saidi Mwakaribu
Egerton University
mwanarusi@yahoo.com

Antony Nyaga
Kenya Agricultural Research Institute
tonynyagah@yahoo.com

Participants

Naman Nyabinda Ondego
AMPATH
nyabindex@gmail.com

Monica Orozco de Dekkers
Universidad del Valle de Guatemala
mnorozco@uvg.edu.gt

Phan Tam Thi Giac
Nong Lam University
phanthigiactam@gmail.com

Adolfo Pacheco
CARE in Honduras
Adolfo.Pacheco@ca.care.org

Renan Pineda Mejia
EAP Zamorano
repineda@zamorano.edu

Vilma Elizabeth Porres
Universidad del Valle de Guatemala
veporres@uvg.edu.gt

Dennis Ramirez
EAP Zamorano
dramirez@zamorano.edu

Manuel Reyes
North Carolina A&T State University
reyes@ag.ncat.edu

Jean Ristaino
North Carolina State University
jean_Ristaino@ncsu.edu

Mark Ritenour
University of Florida
ritenour@ufl.edu

Jose Mauricio Rivera Canales
FHIA, Honduras
Mauricio_Rivera@fhia-hn.org

Jaime Mauricio Salazar
EAP Zamorano
jmsalazar@zamorano.edu

Arie Sanders
EAP Zamorano
asanders@zamorano.edu

Ricardo Santa Cruz
AGEXPORT
ricardo.santacruz@agexport.org.gt

Hector Ricardo Santos
USAID
hrsantos@usaid.gov

Jate Sathornkich
Kasetsart University
psdate@ku.ac.th

Martin Schwarz
EAP Zamorano
mschwarz@zamorano.edu

Kate Scow
UC Davis
kmscow@ucdavis.edu

James Simon
Rutgers, The State University of New Jersey
jesimon123@gmail.com

Thibaud Martin
CIRAD
thibaud.martin@cirad.fr

Carlos Urmeneta
iDE
curmeneta@ideorg.org

James Watson
USAID/Honduras
jwatson@usaid.gov

Emanuel Van Wyk
ASNAPP Zambia
emil@asnapp.org

Ivanna Vejarano Moreno
EAP Zamorano
ivejarano@zamorano.edu

Robert Walle
iDE
robertow@honduras.com

Lusike Wasilwa
Kenya Agricultural Research Institute
lusike.wasilwa@kari.org

Stephen Weller
Purdue University
weller@purdue.edu

Lizanne Wheeler
World Food Logistics Organization
Lizanne@sonorapacific.com

Stephen Yaninek
Purdue University
yaninek@purdue.edu

Dennis Yiga
National Agricultural Advisory Services,
Uganda
dennisyiga@gmail.com

Neda Yousefian
Royal University of Agriculture,
Cambodia
nedayousefian@gmail.com

Rosa Zelaya Aguilera
EAP Zamorano
rzelaya@zamorano.edu

Raul Hernan Zelaya
EAP Zamorano
rhzelaya@zamorano.edu

From the Horticulture Innovation Lab management team



Elizabeth Mitcham
Director
ejmitcham@ucdavis.edu



Jim Hill
Associate dean
jehill@ucdavis.edu



Paul Marcotte
Evaluation
plmarcotte@ucdavis.edu



Amanda Crump
Associate director
acrump@ucdavis.edu



Diana Puccetti
Event planning
djpuccetti@ucdavis.edu



Kelsey Barale
Grad student assistant
kjbarale@ucdavis.edu



Mark Bell
ICT leader
mozbell@ucdavis.edu



Britta Lilley Hansen
Centers specialist
bhansen@ucdavis.edu



Azia Hasan
Student assistant
ajhasan@ucdavis.edu



Michael Reid
Technology leader
msreid@ucdavis.edu



Brenda Dawson
Communications
bldawson@ucdavis.edu