

FEED THE FUTURE  
INNOVATION LAB FOR HORTICULTURE

## Horticulture Innovation Lab



Our global research network advances fruit and vegetable innovations, empowering smallholder farmers to earn more income while better nourishing their communities.

# Why growing fruits and vegetables matters

## What horticulture can do:

**I**mproving livelihoods — through higher profits and diversified, nutrient-rich diets — is a major goal of the Horticulture Innovation Lab's research efforts around the world.

The *Global Horticulture Assessment*, an in-depth, collaborative, global analysis identified these major opportunities and challenges for horticulture development.

### Diversify diets:

Horticulture — growing fruits and vegetables — provides critical nutrients for a balanced diet. Diets low in fruits and vegetables contribute significantly to some of the world's most widespread and debilitating nutrient-related disorders.

### Increase incomes:

Farmers growing high-value crops, such as fruits, vegetables, flowers or herbs, consistently earn more than those growing other commodities. Horticulture can be an engine for agricultural and economic diversification.

## What horticulture needs:

**G**ender equity, technological innovation, and information access are critical themes in all projects of the Horticulture Innovation Lab.

### Gender equity:

Vegetables, fruits and cut flowers are often grown and marketed by women, but women often have less access to markets, land, inputs and education. Addressing these constraints places women growers on the path to increasing productivity and expanding horticultural markets.

### Technological innovation:

Given the complexity of horticulture, innovative “leapfrog” technologies can reduce constraints and input costs that limit the ability of smallholder farmers to achieve maximum profitability.

### Access to information and research capacity:

Commercial success in horticulture depends on locally adapted research on tools such as improved cultivars, management tools, market knowledge and effective postharvest practices. Sustained horticultural growth requires access to reliable information, a well trained workforce and local capacity to conduct both original and adaptive research.







## OUR WORK ALONG THE HORTICULTURE VALUE CHAIN

# Collaborating across borders for research

The Horticulture Innovation Lab has supported collaborations with more than 200 organizations and universities on projects for smallholder farmers around the world. In the program's first 9 years, these research teams also trained more than 50,000 individuals, including 18,000 farmers who improved their farming practices.

Most projects include partners from a U.S. university and from an organization in an emerging economy in Africa, Asia or Latin America, according to the U.S. government's "Feed the Future" global food security strategy. The program's research projects span the horticultural value chain:

### Seed systems and germplasm

- Scaling up drying technologies for seed in Bangladesh
- Expanding tomato grafting for entrepreneurship in Honduras and Guatemala



### Sustainable production

- Promoting drip irrigation and climate resilience in Guatemala
- Developing farmer-led irrigation solutions in Uganda
- Managing nematodes and soil health in Guatemala
- Promoting conservation agriculture for vegetable growers in Cambodia and Nepal
- Assessing feasibility of nets for pest-exclusion in Kenya



## REGIONAL CENTERS AS HORTICULTURAL HUBS Building local capacity, supporting innovation

The Horticulture Innovation Lab supports Regional Centers at local institutions to bring together key players for horticultural development activities in nearby countries.

The program has two active centers at strategic universities — one at the Panamerican Agricultural School, Zamorano, in Honduras and one at Kasetsart University in Thailand.

The centers focus on adapting innovative technologies, training farmers and exchanging information with Horticulture Innovation Lab projects and partners.

### Improving postharvest practices

- Reducing postharvest losses in Rwanda
- Building postharvest capacity in Tanzania
- Improving practices for dried apricots in Tajikistan
- Improving postharvest practices for tomatoes in Burkina Faso

### Improving food safety

- Building safe vegetable value chains in Cambodia
- Investigating integrated vegetable crop-livestock systems in Cambodia



### Improving extension

- Empowering women through horticulture in Honduras
- Establishing a youth-led horticulture training center in Guinea
- Designing for horticulture innovation with university D-Labs

### Advancing nutrition

- Improving nutrition with African indigenous vegetables in Kenya and Zambia
- Examining nutrition impacts of horticultural innovations in Bangladesh



## TRELLIS FUND MAKES NEW CONNECTIONS

# Engaging graduate students in development

In addition to major projects, the Horticulture Innovation Lab has funded dozens of smaller Trellis Fund projects, which pair a U.S. graduate student with an organization in a developing country.

In the first 55 completed Trellis Fund projects, 8,512 participants received training with 230 field demonstration plots and more than 265 training meetings.

Though smallholder farmers are the focus of Trellis Fund projects, the program also builds new relationships with organizations and provides development experience to tomorrow's agricultural researchers.





The Feed the Future Innovation Lab for Horticulture — also known as the Horticulture Innovation Lab — is managed by a team at the University of California, Davis, in the College of Agricultural and Environmental Sciences, under the Department of Plant Sciences.

Funding for the Horticulture Innovation Lab is provided by the U.S. Agency for International Development as part of Feed the Future, the U.S. government's global hunger and food security initiative.

Dr. Elizabeth Mitcham is the director of the Horticulture Innovation Lab. She is also a UC Cooperative Extension postharvest specialist and pomologist at UC Davis.



**Elizabeth Mitcham,**  
Director

## Global network

The program is led by a consortium that also includes the University of Florida, North Carolina State University, and the University of Hawai'i at Mānoa.



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Since 2014, the Horticulture Innovation Lab has led research projects in Kenya, Rwanda, Tanzania, Uganda, Zambia, Guinea, Burkina Faso, Bangladesh, Cambodia, Nepal, Tajikistan, Guatemala, and Honduras. These projects rely on collaboration between local organizations, research agencies and private companies, with leadership from top researchers at:

- Penn State
- Rutgers, the State University of New Jersey
- Purdue University
- Michigan State University
- University of Wisconsin-Madison
- Kansas State University
- Panamerican Agricultural School, Zamorano
- Kasetsart University
- Agribusiness Associates, Inc.
- Rhino Research

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