



DEPARTMENT OF

# HORTICULTURE & LANDSCAPE ARCHITECTURE



## Research Overview

Horticulture applies knowledge from fields of science and biology to improve production and develop sustainable practices for high value, intensively cultivated crops including those used for food, landscapes, ornamentals and medicine. In Landscape Architecture, we analyze, plan, and design the natural and built environment using science, art, and technology.

Combining knowledge from biochemistry, physiology, molecular biology, genetics and ecology with aspects of design, function, and beauty, horticulture and landscape architecture includes people with a broad range of interests.



## Research Areas

- Sustainable practices for horticultural crop production
- Alternative crops and cultivars adapted to low-input and organic production systems
- Improvement of postharvest fruit quality
- Controlled environment agriculture
- Herbicide physiology, weed ecology, and mechanisms of herbicide resistance
- Plant interactions with soil microbial communities
- Plant growth and development
- Plant responses to the environment and abiotic stress
- Adapting crops to climate change
- Epigenetic regulation
- Genome editing
- Systems biology
- Plant metabolic biochemistry
- Plant natural product discovery
- Landscape systems and design; land use and planning; landscape ecology
- Plant Nutrition
- Drought Tolerance and Water Management
- Horticultural marketing
- Horticultural education



*Pictured at left from top:  
Dr. Lori Hoagland, Dr. Paul  
Siciliano Jr, Dr. Aaron Patton,  
Dr. Ariana Torres and a  
Horticulture greenhouse  
at night*

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*Josh Widhalm studies sea slugs to understand how some of the creatures are able to steal the organelles necessary for photosynthesis from the algae they eat.*

## Faculty Research Areas

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Torres, Ariana	Marketing of Specialty Crops	torres2@purdue.edu
Varala, Kranthi	Plant Abiotic Stress; Systems Biology	kvarala@purdue.edu
Widhalm, Joshua	Plant Natural Product Metabolism	jwidhalm@purdue.edu