From the heart of Central Florida, the Mid-Florida Research and Education Center (MREC) serves Florida’s horticultural industry, urban food producers, homeowners, and beyond. At MREC, we pride ourselves on conducting high-impact research focused on improving individual’s quality of life with plants.

With more than 60 full-time staff, including 12 faculty members, more than 130,000 square feet of greenhouse space and 200,000 square feet of classrooms and laboratories, MREC is uniquely positioned to meet the ever-growing needs of Central Florida and its horticulture industry.

Located just northwest of downtown Orlando in Apopka, Florida provides MREC with unique opportunities for collaboration and conversation with stakeholders at the rural-urban continuum.

UF/IFAS INNOVATION LEADS TO SIGNIFICANT IMPACT...

$155,600,000 total awarded research funding in FY 2021

1,270,000 Extension consultations conducted annually

#1 IN AWARDS from the National Science Foundation for Higher Education Research & Development in Agricultural Sciences, Natural Resources & Conservation
What are Research and Education Centers?
Standing as a bridge between UF/IFAS Research, Extension, Floridians, and UF undergraduate and graduate students, Research and Education Centers, or RECs, serve as a connection between UF/IFAS and the state of Florida.

The primary mission of all UF/IFAS research and education centers (RECs) is to support multidisciplinary research, teaching, and Extension programs focused on commodities, natural resources, and broader issues (e.g., water quality and environmental contamination) relevant to Florida. The faculty, state, and director continuously interact with many public and private organizations, groups, and leaders and continue to be the scientific and educational experts in local communities.

Florida had over 108,000,000 square feet of “under cover” area, as well as 71,000 acres in the open, producing greenhouse, nursery, and floriculture crops in 2019.

<table>
<thead>
<tr>
<th>Category</th>
<th>Sales (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursery stock</td>
<td>645</td>
</tr>
<tr>
<td>Foliage plants for indoor or patio use</td>
<td>488</td>
</tr>
<tr>
<td>Potted flowering plants for indoor or patio use</td>
<td>284</td>
</tr>
<tr>
<td>Annual bedding/garden plants</td>
<td>140</td>
</tr>
<tr>
<td>Cut cultivated greens</td>
<td>73</td>
</tr>
</tbody>
</table>

Source: 2019 Census of Horticultural Specialties, USDA National Agricultural Statistics Service
https://www.nass.usda.gov/Publications/AgCensus/2019Online_Resources/horticulture/index.php

Florida’s greenhouse, nursery, and floriculture producers support $3.079 billion in sales revenue and 24,814 jobs throughout the state’s economy.

Sources:

Florida Horticulture and Nursery
Operations include those involved in growing crops of any kind under cover or growing nursery stock and flowers. “Under cover” includes the use of greenhouses, cold frames, cloth houses, and so on. These crops are sold at various stages of maturity and have both annual and perennial life cycles. Nursery stock includes short-rotation woody crops that have growth cycles of 10 years or fewer.

U.S. Ranking
1st Landscaping palms
2nd Floriculture
3rd Mushrooms
Ornamental grasses
Deciduous shrubs and flowering trees
Peppers (under cover)
Herbs, cut fresh (under cover)

Sources: 2017 Census of Agriculture, USDA National Agricultural Statistics Service
https://www.nass.usda.gov/Publications/AgCensus/2017Online_Resources/agriculture/index.php
2014 Census of Aquaculture, USDA National Agricultural Statistics Service
https://www.nass.usda.gov/Publications/AgCensus/2017Online_Resources/aquaculture/index.php

Economic Contributions (2018)
$2.06 billion in sales revenues
19,072 jobs

When considering multiplier effects, Florida’s greenhouse, nursery, and floriculture producers support $3.079 billion in sales revenue and 24,814 jobs throughout the state’s economy.
Central Florida, once known for its never-ending orange groves, is now the epicenter of Florida’s rural-urban connection. MREC plays an important role in serving some of the state’s largest grower associations and operations while also addressing the needs of more than 4.2 million residents.

MREC researchers have unique opportunities for collaboration as Central Florida is home to industries at the edge of innovation in agriculture, entertainment and hospitality.

- Florida is the 2nd largest producer of nursery greenhouse crops in the United States, with Apopka, Florida serving as the once-heart of the industry
- More than 4,200,000 residents call Central Florida home, with new Floridians joining the community every week
- State-of-the-art urban food production operations surround Central Florida, including The Villages Grown, a new 45-acre greenhouse facility, “The Grow,” a 1,200 acre innovative farm-to-table community, and 4Roots Farm, a 40-acre community farm project
- Nearly 900 springs can be found throughout Florida, many in protected habitats used for recreation

Home to top-ranked primary and secondary schools and world-class attractions while being less than an hour drive from beaches on either coast, Central Florida is a wonderful place to raise a family, begin a new chapter or finally settle down.

Florida’s springs are a popular overwinter destination for manatees and a place of recreation for outdoor enthusiasts.

The award-winning Winter Garden Farmers Market, located just down the street from MREC, features Central Florida agricultural producers.

Cape Canaveral, just 30-minutes East of Orlando, is home to the Kennedy Space Center.
MREC’s research focus is lifestyle horticulture: profitable yet environmentally responsible production and use of high value horticulture plants and plant products to satisfy demand driven by consumer tastes, preferences, and wellness. With more than 130,000 square feet of greenhouses and 60 staff, MREC researchers have an eye on the future of horticulture.

MREC blends expertise in all aspects of horticultural production and management, from whole plant physiology, breeding, and integrated pest management (insects, diseases, weeds), to consumer economics and water management, to focus on ways to best engage with all horticultural science stakeholders.

MREC research focuses on the protected production of high-value foliage, beverage crop, and citrus rootstock, and landscape nursery production, as well as plants used in urban plant systems such as landscapes and community agriculture.

MREC faculty have an eye on the future of plant breeding. Current research projects include:

- **Providing comprehensive solutions for producers of foliage and nursery plants**, with research into breeding, integrated pest management, optimal production systems, consumer preferences, water conservation, and weed control

- **Exploring alternative options for Florida specialty crop growers to meet changing consumer demands**, including beverage crop production, understanding optimal management for crop quality, pest control, economics, and breeding

- **Production of HLB resistant citrus rootstock** in phytosanitary greenhouses

- **Utilization of small Unmanned Arial Systems** to understand horticultural water use at both a macro and micro level

- **Understanding the world of product marketing** using eye-tracking technology and consumer research to understand consumer preferences and behaviors when purchasing plant products

- **Expanding our understanding of plants using comparative genomic approaches and cutting edge CRISPR biotechnology** to meet modern production needs and challenges
MEET OUR FACULTY

DR. RICHARD C. BEESON
Associate Professor of Landscape Ornamentals, Dept. of Environmental Horticulture

Beeson's research focuses primarily on the role water plays in plant development, focusing on how landscape plants and trees react to too much or too little water, as well as other environmental disturbances.

DR. ANA BOCSANCZY
Research Assistant Scientist, Dept. of Plant Pathology

Bocsanczy's research aims to understand the molecular aspects of the plant pathogen *Ralstonia solanacearum*, the causal agent of the tropical plant disease bacterial wilt.

DR. JIANJUN CHEN
Professor of Plant Physiology, Dept. of Environmental Horticulture

Chen's research examines how genetic, environmental, and cultural factors influence the growth and development of specialty crops, working with horticulturist to develop new management practices and cultivars.

DR. LIZ FELTER
Regional Specialized Agent, Central District, Food Systems and Ornamental Horticulture

Felter develops, plans, organizes, implements, and teaches educational programs that focus on food systems and ornamental plant production in Central Florida.

DR. HEQIANG HUO
Assistant Professor of Environmental Horticulture, Dept. of Environmental Horticulture

Huo’s research focuses on the application of genetic editing, or CRISPR technologies, to improve or modify plant architecture, flowering, fruiting and growth habits.

DR. HAYK KHACHATRYAN
Associate Professor, Food and Resource Economics, Dept. of Food and Resource Economics

Khachatryan specializes in horticultural economics, behavioral and experimental economics, and urban environmental policy. He investigates factors that influence consumer demand for ornamental horticulture industry products and services.
MEET OUR FACULTY

**DR. CHRIS MARBLE**
Associate Professor of Ornamental and Landscape Weed Management, Dept. of Environmental Horticulture

Marble’s research program aims to develop new methods of weed control using an integrated approach combining both chemical and non-chemical treatments.

**DR. DAVID J. NORMAN**
Associate Professor of Plant Pathology, Dept. of Plant Pathology

Norman’s research projects are designed to examine new cultural, biological and chemical disease control methods. He also conducts research on pathogen detection, isolation and classification.

**DR. LANCE S. OSBORNE**
Professor of Entomology, Dept. of Entomology and Nematology

Osborne’s research focuses on the management of insect and arthropod pests in greenhouse nursery production using biological, chemical and cultural controls.

**DR. BRIAN PEARSON**
Assistant Professor of Environmental Horticulture, Dept. of Environmental Horticulture

Pearson’s research is two-fold, focusing on medicinal crop production and landscape and ornamental plant management, examining the role of plants in producing consumable, holistic products.

**DR. XUAN WEI**
Research Assistant Scientist, Dept. of Food and Resource Economics

Wei’s research program utilizes horticultural producer and consumer surveys, controlled experiments, and economic models to understand individual and company behavior surrounding the marketing and purchasing of plant products.

**DR. YILIN ZHUANG**
Regional Specialized Agent, Central District, Water Resources

Zhuang works with clientele across Central Florida to manage and promote water conservation programs as well as find solutions to challenges facing Florida’s water supply.
INTERESTED IN LEARNING MORE ABOUT CAREER OPPORTUNITIES AT THE MID-FLORIDA RESEARCH AND EDUCATION CENTER?

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