



AGRICULTURAL AND NATURAL RESOURCE ECONOMICS PROGRAM

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Southwest FL Research and Education Center

Weed Science and Economics Workshop

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Immokalee, FL

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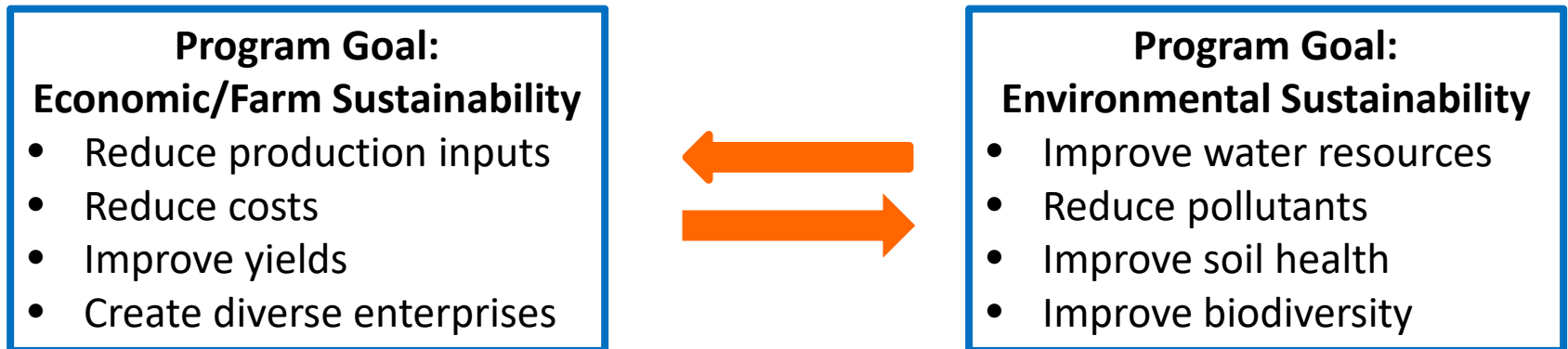
**AGRICULTURE AND
NATURAL RESOURCE
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“Helping growers reach their economic and conservation goals in efficient ways”

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- Agriculture plays an important role in sustaining and improving Florida’s natural resources.
- We can increase this role by:
 1. Measuring the economic value of the services growers provide
 2. Implementing policies that reward agricultural stewardship

We can achieve this by examining factors affecting economic and environmental sustainability.



Do our policy’s allow both the agriculture industry and the public to benefit?

- Food safety laws
- Cost share programs
- Land easements

Environmental Sustainability

The economics of agriculture and ...

Water Quality



Habitat



Land Use Change



Water Quantity

Extension and Research Projects

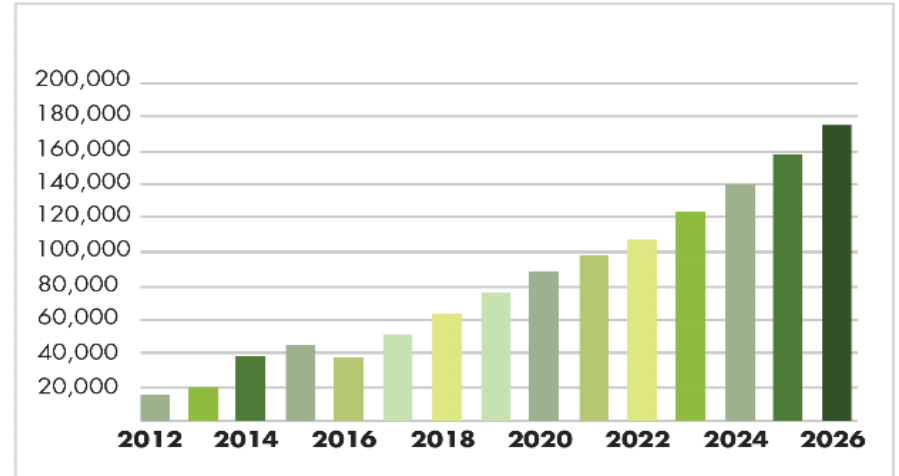
- Electronic Logging Devices
- Precision Agriculture and Integrated Pest Management
- Wildlife Predation on Cropland
- Cover Crops
- Best Management Practices



Electronic Logging Devices

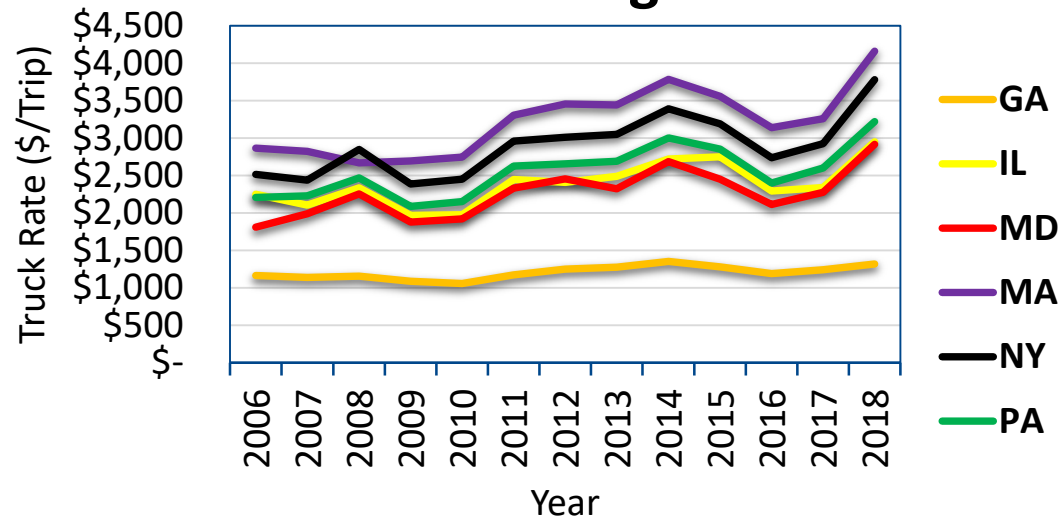
Truck Driver Shortages

Clarify Hours of Service Rules



Source: Driver Shortage Analysis 2017, American Trucking Association

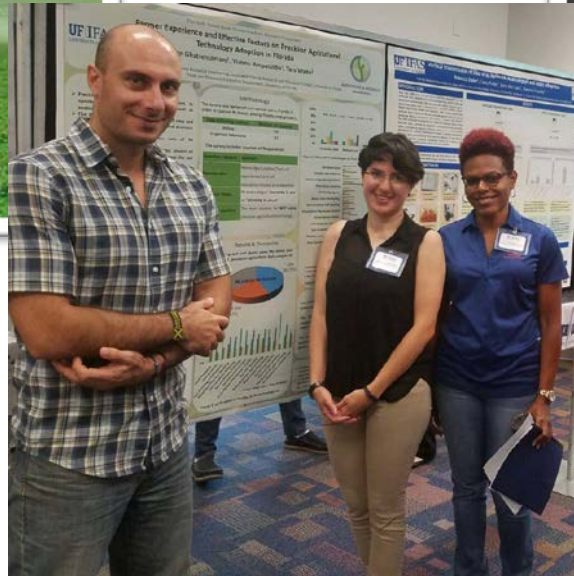
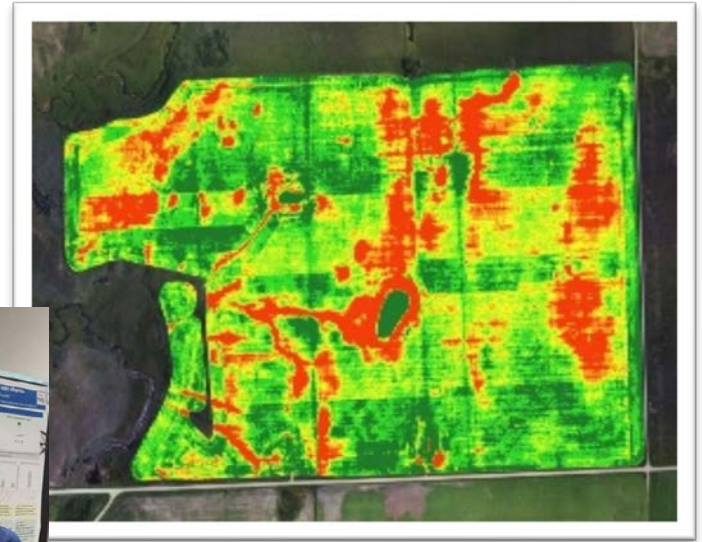
Examine Florida's Competitive Advantage



Precision Agriculture (PA)

Practices that have a positive ecological outcome

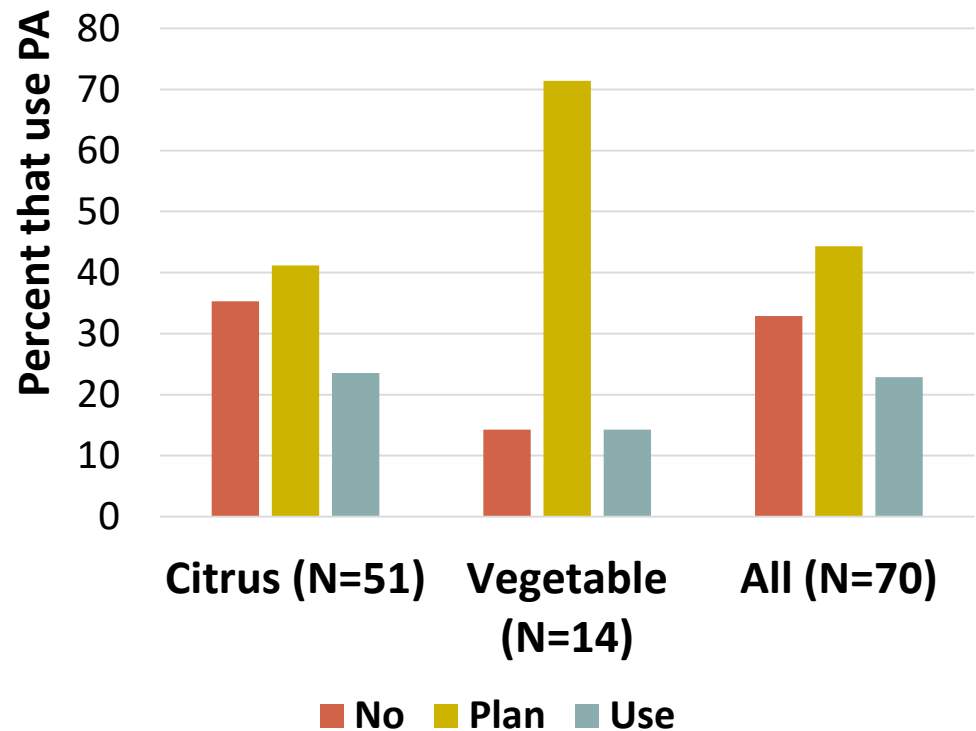
Technology adoption that is directly tied to positive ecological outcomes can help reduce agriculture's effect on the environment



Precision Agriculture (PA)

- We conduct a survey that serves as a needs assessment and are the most recent steps to understanding barriers to PA adoption
- Increasing PA acreage requires an understanding of the socioeconomic factors affecting adoption
 - Cost share program design
 - Extension/education programming

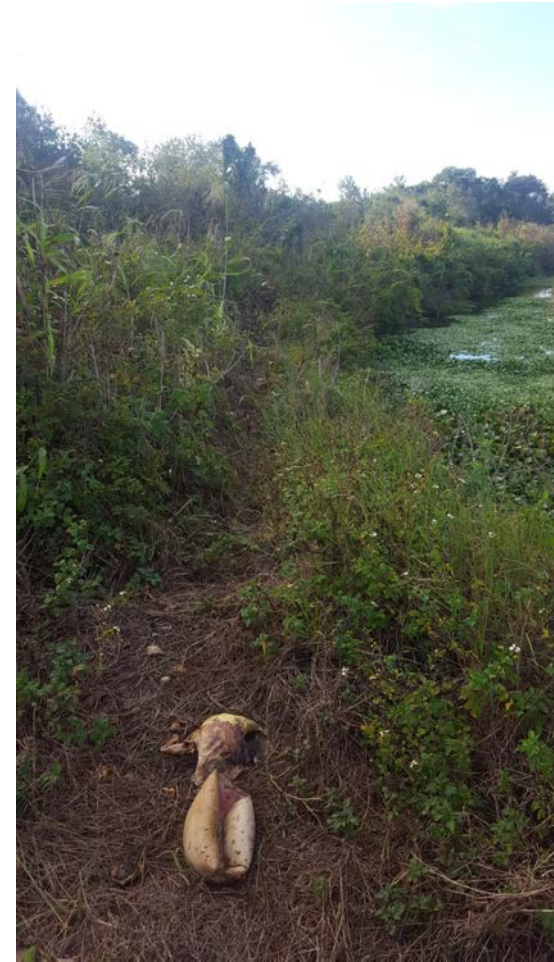
The majority of vegetable and cucurbit growers plan to use PA



Wildlife Predation on Cropland

Wildlife Causes Damages—93%

- Birds—29%
- Bears—24%
- Panther—14%
- Coyotes—24%
- Hogs—45%
- Deer—29%



Best Management Practices (BMPs)

Agricultural best management practices (BMPs) are essential to mitigating agriculture's negative effects on the environment

Public benefits

- Sustained or improved water quality
- Sustained or increased water quantity
- Reduced soil erosion
- Improved air quality

Potential private benefits

- Improved crop yield
- Improved soil health
- Reduced input costs (e.g., fuel, labor, and fertilizer)



Best Management Practices (BMPs)

Growers provide a public service by absorbing the cost of implementing BMPs

➤ *Information Gaps:*

- What are the full suite of costs and benefits
- Do benefits from BMPs outweigh the costs
- How do BMPs affect producers' bottom line
- Does the public benefit outweigh the grower benefit
- Do cost-share programs provide enough incentives to increase BMP use
- Where should BMPs be implemented
- How do we communicate the financial benefits of BMP use to growers
- **Who should be paying for BMP implementation**



More information is needed before we can have a conversation about who should be paying for BMP adoption and how these programs can be designed

Florida BMP Adoption & Cost Survey

- *We conduct a statewide grower survey to:*
 - Identify which commodity groups are adopting certain BMPs
 - Understand some of the challenges to adoption
 - Estimate the additional cost of adoption
 - Estimate the effect on yield
- Core BMPs examined:

▪ Controlled release fertilizer	▪ Calibrate fertilizer equipment
▪ Cover crops	▪ Irrigation scheduling tools
- Core BMP questions:

▪ Crop acres	▪ Years used
▪ Additional cost	▪ Affect on yield
- Other BMPs: soil tests, IFAS recommended fertilizer rates, apply fertilizer at root zone, conservation tillage, conservation buffers, do not irrigate beyond field water holding capacity

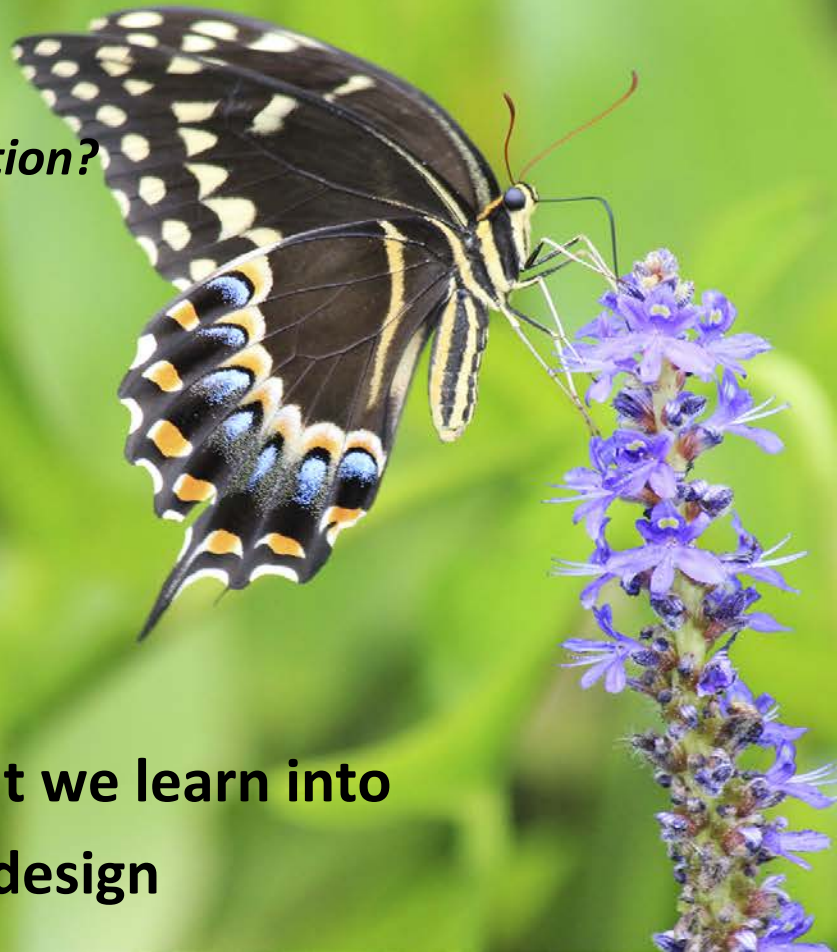
Master Gardeners and Natural Resource Economics

Economists help to manage scarce resources

Economists care about factors affecting choices

- *Too expensive?*
- *A need for more education?*
- *Too time consuming?*
- *Lack of interest?*
- *Other factors...*

**We incorporate what we learn into
program and policy design**



Master Gardeners and Natural Resource Economics

We have to consider the *total cost*

Total costs = Private Cost + Social Cost

Private cost

- Fertilizer
- Seed
- Pesticide
- Water
- Etc.

Social Costs

- Environmental costs
- Abatement costs
- Use value
- Non-use value
- Option value

How do we encourage beneficial behavior?

Our interests are closely aligned...

Master Gardeners and Natural Resource Economics

Florida friendly landscaping principles apply

<https://www.broward.org/Parks/Extension/Documents/FloridaFriendlyLandscapingPrinciplesRevised.pdf>

Ag. & Nat. Res. Program	FL Friendly Landscaping
Reduce chemical inputs	Fertilizing appropriately Managing pests (or weeds)
Pollinators Habitat	Attracting wildlife
Water Quality	Protecting the waterfront Reducing stormwater runoff Mulch
Water Quantity	Recycling Watering efficiently
Crop choice Land use change	Planting the right plant at the right place

Acknowledgements

Shelly Goodwin



Syed “Shah” Irfan



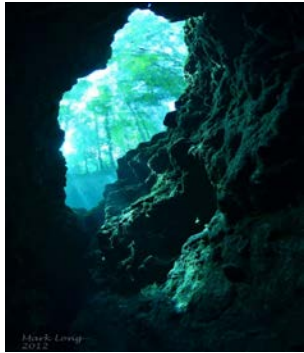
Barbara “Barb” Hyman

Questions???



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Credits



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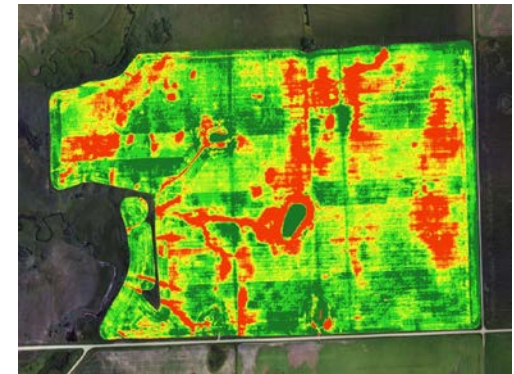
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