

FLORIDA EXTENSION INITIATIVE 1:  
INCREASING THE SUSTAINABILITY, PROFITABILITY, AND COMPETITIVENESS  
OF AGRICULTURAL AND HORTICULTURAL ENTERPRISES  
STATEWIDE EDUCATIONAL PROGRAMS IN **SUSTAINABILITY OF PRODUCTION SYSTEMS AND ALTERNATIVES**

**Plant Systems Subgroup**  
**Minor Revision, February 2016; Logic Model added under Resources.**

**SITUATION**

The Plant System sub-priority group is comprised of county and state faculty members with programmatic activity with commercial agronomic, ornamental, and fruit and vegetable crops. Agricultural crops are a major contributor to the Florida economy, with many of our crops ranking in the top five nationally. Peanut, cotton, corn and soybean were planted on an average of almost 309,000 acres during the five-year period from 2006-2010, with peanut accounting for nearly half of the total state acreage. The average farm gate value of production during 2006-2010 was \$38.4 million for cotton, \$73.8 million for peanut, \$12.6 for corn and \$6.5 million for soybean (National Agricultural Statistics Service, 2011). The extended economic impact is much greater. Peanut and cotton are the dominant row crops in north Florida and production is dominated by medium acreage (500-1000 acres) to large acreage (over 1000 acres) for individual growers with a trend to increased farm size.

Florida sugarcane is grown almost exclusively on land along or near the southern half of Lake Okeechobee. Most of the production is concentrated on the organic muck soils in Palm Beach County; however, sugarcane is also produced in Hendry, Glades and Martin Counties. Presently, about 80% of the crop is grown on organic soil and 20% is grown on sand. The total planted area is approximately 400,000 acres, making sugarcane the most extensively grown agronomic row crop in Florida. About 50% of the cane sugar produced in the U.S. comes from Florida and this accounts for 14% of all sugar consumed (cane and beet) in the country. Annual cash receipts from the industry total \$800 million, however when indirect and multiplier economic effects are taken into account, the Florida sugar industry contributes greater than \$4.5 billion to the state economy and influences more than 47,000 jobs.

Foliage, cut flowers and bedding plants were valued about \$2.3 billion in 2011. Florida nurseries accounted for more than \$8.1 billion in revenue in 2010 (UF/IFAS, 2012) and in 2007, Florida turfgrass sod producers harvested sod valued at \$320 million and the in-field value of all varieties totaled \$514 million. Florida vegetable and melons were grown on 185,000 acres with a farm-gate value of \$1.44 billion. (USDA/NASS, 2012), ranking our state second nationally, behind California. In 2013, total citrus production on 490,000 acres valued \$1.58 billion; this was down from 506,000 acres harvested the previous year (USDA/NASS, 2014). There is also significant acreage and revenue from other specialty crops including tropical fruits, blueberry and peach.

However, although these industries contribute significantly to Florida's economy, our ranchers, growers, packers and shippers face increasing pressures that threaten their competitiveness. These pressures include: new plant pests, loss of soil fumigants, increased competition from domestic and off-shore production areas and increased regulations.

Therefore, our extension programs must focus on enhancing the sustainability, competitiveness and profitability of Florida's producers, handlers, shippers, processors and allied industries. By taking advantage of our integrated research and extension delivery programs, the latest Florida-centric information can be readily disseminated to clientele for evaluation and adoption. An essential component is to assist in the awareness and adoption of new crops with economic potential, including bioenergy crops, specialty crops and improvements in conventional crops. A second component is to provide options to maximize crop production through the proper use of irrigation, nutrients, and plant protectants via Best Management Practices, while protecting the natural resources of Florida. Third, awareness of cost-effective means of improved harvest and handling procedures in the value chain will help

growers and handlers to reduce losses and reliably provide high-quality, safe crops to local and distant markets. Identifying and exploiting new uses of existing commodities or waste products will also add value to current production systems.

## PROGRAM OBJECTIVES

In order to successfully address the above critical needs, this sub-group will annually disseminate new information to growers via extension programming and will document increased knowledge, adoption rates and profitability. Collaborations with other sub-groups within Initiative 1 and other Initiatives is critical to the success of these programs, and our faculty typically have activity in and report to several Initiatives.

Specific objectives are to inform Florida growers about and facilitate adoption of:

- 1) new crops and varieties with potential for production under Florida's range of microclimates,
- 2) innovative production practices consistent with profitability and environmental stewardship,
- 3) novel techniques and technologies for producing, harvesting and shipping high-quality, safe crops.

## EDUCATIONAL METHODS

Agricultural products are produced on over 47,500 Florida farms; some are exceptionally large (1,000's of acres) while greater than 90% of these farms are termed "small" based on the USDA's definition. This diverse population of Florida agriculture producers requires a diversity of extension delivery methods— each tailored to reach the desired outcomes.

- 1) Agent/Grower/Specialist interaction (e.g., on-site visits to farms and facilities)
- 2) Relevant and timely print and electronic media (e.g., EDIS publications, Sugar Cane Handbook, Vegetable Production Manual, The Vegetarian Newsletter, county faculty newsletters, contributions to relevant industry publications.)
- 3) In-Service Trainings for County Faculty (e.g., annual IST held at Florida State Horticulture Society)
- 4) Field Days and On-farm Demonstrations (e.g., Peanut Field Day at NFREC-Marianna; AgExpo at GCREC-Balm)
- 5) Digital tools (e.g., apps, social media, virtual field day videos and PowerPoint resources)
- 6) Workshops for growers, regulatory agencies, and policy makers/shapers (e.g., Florida Tomato Institute, Peanut Short Course)

## RESULTS

Short Term Outcomes – Changes in Knowledge by Florida's farmers and the general public:

- Increased understanding of the merits of newly developed cultivars and how they impact market demand, production efficiency, and profitability.
- Increased understanding of how current, innovative production practices impact profitability and environment.
- Increased awareness of proper harvest and handling procedures for improved quality and consumer safety.

Intermediate Outcomes – Changes in Behaviors and Adoption

- Producers select new crops and varieties that will improve crop rotation, production efficiency, and profitability.

- Increased grower adoption of new cultural practices for Florida crops to improve profitability and sustainability.
- Grower adoption of more effective harvest and handling techniques and technologies that reduce losses, improve quality and increase animal and consumer safety.

#### Long Term Outcomes – Impacts

- Optimize sustainable production, harvest and handling practices that result in higher economic returns while minimizing environmental impact.

#### LOGIC MODEL – See Resources

#### NEEDS

- 1) Develop website-based and multi-media digital platforms (apps for smart phones, tablets, etc.) for 24/7 access to information.
- 2) Improved funding opportunities for long-term, systems-approach, research.
- 3) Improved communication with associated researchers (irrigation specialists, IPM specialists, etc.).
- 4) Applied Agriculture Economist to assist with budgets and feasibility models.
- 5) Develop closer partnerships with regulatory agencies.

#### SUPER ISSUES MET BY THE PLANT SYSTEMS GROUP

- Awareness and appreciation of food systems and the environment.
- Resource sustainability and conservation in Florida communities.
- Financial management for individuals and enterprises.
- Science, technology, engineering, and math (STEM) opportunities for youth.
- Help Floridians develop healthy lifestyles.

**Program: Plant Systems Logic Model. January 2016**

