

# Energy and Florida Agriculture

February 9, 2017



# Functions & Responsibilities

- Legislatively designated state energy policy development office within Florida
- Evaluate energy related studies, analyses, and stakeholder input
- Promote and advocate for the development and use of renewable energy resources and energy efficiency technologies
- Use available state and federal funds to develop and manage energy efficiency, renewable energy, and energy education programs
- Produce Annual Energy Report
- Serve as the State clearinghouse for all energy information



# Florida Agriculture Quick Facts

300 commodities



The state of Florida is comprised of more than  
**42 million acres.**



Farms and forests encompass more than  
**25 million acres** in Florida, which is more than 3/5 of the state.

Farms occupy more than  
**9.5 million acres.**  
This includes lands for fruit and vegetables, citrus groves, field crops and pastures.



There are more than  
**47,300** farms in the state of Florida.

Agriculture and agribusiness contribute more than  
**\$127 billion** to the state's economy.

Agriculture and agribusiness employ  
**2.04 million** people.

On average, each  
**\$1 million in farm cash receipts:**

Creates  
**25**  
Florida jobs

Produces  
**\$90,681**  
in additional indirect tax revenues

Generates more than  
**\$2.6 million**  
in overall economic impact

Sources: USDA Ag Census, UF Implan study, IFAS implan study, FASS and Florida Forest Service.

**Information valid through 8/30/17**



# Cash Receipts

(In rank order for 2015)

Commodity	2014	2015
Oranges	\$1,288,665,000	\$1,167,880,000
Greenhouse/Nursery Floriculture	\$931,959,000	\$1,039,411,000
Cattle and Calves	\$868,368,000	\$859,164,000
Sugarcane for sugar	\$519,528,000	\$561,099,000
Milk	\$705,564,000	\$548,688,000
Poultry and eggs	\$485,208,000	\$539,763,000
Tomatoes	\$437,052,000	\$453,102,000
Strawberries	\$306,508,000	\$290,598,000
Bell Peppers	\$164,291,000	\$220,478,000
Sweet Corn	\$129,438,000	\$154,980,000
Grapefruit	\$153,775,000	\$116,737,000
Cucumbers	\$149,010,000	\$112,224,000
Watermelons	\$80,128,000	\$88,200,000
Snap Beans	\$85,135,000	\$87,274,000
Blueberries	\$75,620,000	\$82,267,000
Cotton	\$83,380,000	\$58,666,000
Tangerines	\$57,028,000	\$47,788,000
Cabbage	\$49,966,000	\$33,825,000
Squash	\$40,640,000	\$27,480,000
Avocadoes	\$21,582,000	\$20,562,000



# Bio-energy Demonstration Grant

- Provided bioenergy grants for research, development, and commercialization relating to bioenergy technologies and innovative technologies that significantly reduce fossil fuel consumption for transportation and/or electric generation.
- Goals of this program:
  - Further understand and develop bioenergy utilizing Florida-grown crops or biomass;
  - Develop additional means to expand, energy related, agribusiness in the State of Florida;
  - Stimulate in-state capital investments and economic development;
  - Research and develop new bioenergy related technologies; and
  - Create energy related jobs.
- Six grantees were awarded a total of \$3.9 million.



# Bio-energy Demonstration Grant

- Projects optimized cultivation of certain biofuel feedstocks for production in Florida. The cooperative extension service has been providing information and technical assistance for farmers interested in those feedstocks.
- Researchers explored the suitability and potential of algae, pine terpenes, oilseed crops such as carinata, sweet potatoes and sugar beets, for drop-in biofuels and processing into ethanol and jet fuel.
- One project utilized a pilot scale biorefinery in northern Florida to test various cellulosic feedstocks for ethanol production.
- After completion of work on our grants, some of our grantees have conducted follow-on work, funded by other sources.
- One project utilized a pilot scale biorefinery in northern Florida to test various cellulosic feedstocks for ethanol production.



# Farm Energy & Water Efficiency Realization (FEWER) Program

- A pilot program in Suwannee County to promote the adoption of innovative technologies and practices that increase energy and water efficiency for the agricultural industry.
  - \$5.2 million from Farm to Fuel
- Provides a 75 percent cost share, up to \$25,000, to area farmers who participate in the audit and choose to implement some of the recommendations.
- Eligible activities include upgrades to center pivots, diesel pumps, upgrades from a diesel pump to an electric pump, solar pumps, lights, cooling equipment.



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## Rural Business Enterprise Grant (RBEG)

- Received \$162,145 from U. S. Department of Agriculture RBEG program
- Eligible activities include upgrades to HVAC, adding insulation, lighting upgrades, controls as well as other efficiency upgrades to buildings..



# Farm Energy & Water Efficiency Realization (FEWER) Program

Since the program launched on June 25, 2015:

- We have received 228 applications for audits.
- 167 audits were completed.
- 113 applicants were approved to implement the energy efficient measures outlined in the audit.
- 94 applicants have installed and been reimbursed for implementing the energy efficient measures.



# Farm Energy & Water Efficiency Realization (FEWER) Program

- Expansion to Aquaculture
  - Freshwater tropical ornamental fish farming is the largest sector of FL aquaculture – more than half, based on farm-gate sales
  - About 95% of all ornamentals produced in the U.S. are from FL.
  - Most producers are located in central & south Florida, where they can make use of earthen, outdoor ponds to grow-out fish.
- Energy usage is second highest cost behind labor
  - Must control temperature and water quality
  - Majority of facilities using systems that are decades old
  - Examples: pumps, water treatment, aeration systems, lighting, heating and cooling



# Farm Energy & Water Efficiency Realization (FEWER) Program

- Project will explore potential alternatives
  - Existing, off the shelf technologies
  - Variable speed, high-efficiency pumps
  - High-efficiency heat pumps for temperature control
  - Solar and geothermal supplemental heating and cooling
  - Improved water treatment equipment (reverse osmosis units)
  - Natural gas generators and heat exchangers
  - Automatic controllers
  - Changes in production practices to conserve energy
  - Renewable energy and energy resiliency during power outages



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# Farm Renewable and Efficiency Demonstrations (FRED)

- Promotes the adoption of technologies and practices that increase energy efficiency and renewable energy use in Florida agriculture.
  - \$1 million from U.S. Department of Agriculture, Natural Resources Conservation Service
  - \$2 million from State Farm to Fuel Funds
- Will provide Florida agricultural producers with energy evaluations and up to \$25,000 to implement the recommendations.
- Eligible projects include, but are not limited to energy efficient lighting and water pumps, fuel efficient tractors and generators, and small scale renewable energy generation such as solar or biomass.



# Farm Renewable and Efficiency Demonstrations (FRED)

## Phase One: Mobile Energy Lab On-Farm Evaluations

- Determine farm's baseline energy use by evaluating utility bills and fuel estimates.
- Conduct an inventory of energy using devices on a farm, noting characteristics such as age and maintenance.
- Provide recommendations for energy efficiency and renewable energy upgrades based on the inventory.
- Provide farmer with copy of FDACS Energy Savings Practices (currently in development).



# Farm Renewable and Efficiency Demonstrations (FRED)

## Phase Two: FRED Grant Program

- Provides agricultural producers up to \$25,000 (with 20% cost share) to implement recommendations from the MEL evaluations.
- MEL teams will provide assistance to agricultural producers in developing their project and submitting their application for funding.
- Examples of eligible projects:
  - Energy efficient lighting
  - Energy/fuel efficient motors and pumps
  - Insulation and building envelop improvement
  - Renewable energy devices (solar panels, biomass generators)



# Farm Renewable and Efficiency Demonstrations (FRED)

## Phase Three: Economic Impact Study

- FRED participants will be asked to provide energy and cost savings data for evaluation.
- Participants may be asked to participate in case studies and/or presentations or tours.
- Data will be utilized to provide agricultural producers with possible return on investment for energy efficient implementation activities.



# Farm Renewable and Efficiency Demonstrations (FRED)

## Where We Are

- We have selected 3 universities to be the MELs.
- Agricultural producers have started to request on-farm evaluations.
- Agricultural producers should begin to apply for grants to implement some of the recommendations outlined in energy evaluations.

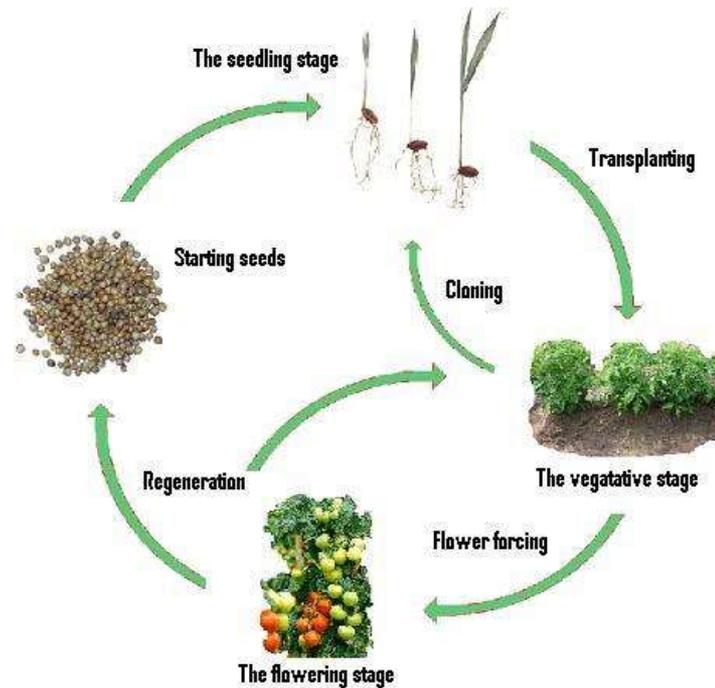


# Lessons Learned

It's easy to lose someone's trust, but very difficult to gain it back. In life, temptations are put in front of us to challenge our loyalty and respect. remember that.

- Unknown

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