The Florida Senate

COMMITTEE MEETING EXPANDED AGENDA

AGRICULTURE
Senator Grimsley, Chair
Senator Rader, Vice Chair

MEETING DATE: Thursday, October 12, 2017
TIME: 10:00 a.m.—12:30 p.m.
PLACE: 301 Senate Office Building

MEMBERS: Senator Grimsley, Chair; Senator Rader, Vice Chair; Senators Baxley, Farmer, Hukill, Mayfield, Powell, Rouson, and Steube

TAB	BILL NO. and INTRODUCER	BILL DESCRIPTION and SENATE COMMITTEE ACTIONS	COMMITTEE ACTION
1		Remarks by Adam Putnam, Commissioner, Department of Agriculture and Consumer Services	Presented
2		Panel Discussion on the impact of Hurricane Irma to Florida Agriculture	Presented
3		Other Related Meeting Documents	

OFFICE OF THE COMMISSIONER
(850) 617-7700

THE CAPITOL
400 SOUTH MONROE STREET
TALLAHASSEE, FLORIDA 32399-0800

FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES

COMMISSIONER ADAM H. PUTNAM

Hurricane Irma's Damage to Florida Agriculture

October 4, 2017

Hurricane Irma made landfall on the Florida Keys as a category 4 hurricane, and again in Southwest Florida as a category 3 hurricane. Irma was the largest, most powerful hurricane ever recorded on the Atlantic Ocean, and is among the strongest hurricanes ever to make direct landfall in the United States. Besides causing major devastation to Florida's coastal communities, Irma was large and powerful enough to bring hurricane and tropical storm conditions to every one of Florida's 67 counties. Hurricane Irma's path coincided with some of Florida's most productive agricultural landscapes, and consequently it caused major losses to all segments of production agriculture.

In the wake of this historic storm, Commissioner Putnam received innumerable calls from industry leaders across the state describing the overwhelming impacts this storm had on not only their current year crop losses, but the further devastation of damaged infrastructure: destroyed fences, shade structures, ground cover for row crops; uprooted or cracked trees and bushes, laid down sugarcane; and animals whose long-term welfare was impacted by the excessive wind and rain.

This document provides an early summary of the estimated losses to Florida's diverse agricultural sectors, accounting for the loss in current year crop production, as well as the associated losses to direct, on-farm inputs and related infrastructure. These estimates are based on data obtained from the USDA National Agricultural Statistics Service[1], the UF-IFAS "Impacts of Hurricane Irma on Florida Agriculture: Update #4" Report[2], UF-IFAS crops budgets[3], Timber Damage Estimates prepared by the Florida Forest Service, and early surveys the Florida Department of Agriculture and Consumer Services conducted with industry leaders and individual producers.

[1] https://www.nass.usda.gov/Statistics_by_State/Florida/index.php

[2] Clouser R, Hodges A, Court C, Vansickle J, and Stefanou S (2017) Impacts of Hurricane Irma on Florida Agriculture: Update #4. Released October 2, 2017

[3] Singerman A, Burani-Arouca M, Williamson JG, England GK (2016) Establishment and Production Costs for Southern Highbush Blueberry Orchards in Florida: Enterprise Budget and Profitability Analysis. UF-IFAS EDIS FE1002

The purpose of this document is to inform policy-makers on the extent of the damage and losses experienced and expected by agricultural producers in Florida in the wake of Hurricane Irma. The estimates are based on the best available information, including satellite imagery, published agricultural statistics, and early surveys with agricultural producers who are in the midst of a large-scale recovery effort. These estimates will be updated as additional information is gathered and becomes available. Most importantly, this is not a request to the State or Federal governments; rather it is meant to inform policy-makers.

This document summarizes estimates of **crop losses** and **total losses. Crop losses** include reduced agricultural sales due to wind or flood induced product losses, decreased yields, spoiled product, and dead livestock. **Total losses** include crop losses in addition to ancillary losses experienced by producers such as debris cleanup, additional feed or harvest costs, damage to land, infrastructure, and equipment. In other words, total losses are the sum of crop losses and ancillary losses.

Total crop losses are estimated at **$2,014,481,961**; while total losses to production agriculture are estimated at **$2,558,598,303**.

1. Citrus: $760,816,600

Citrus is Florida's signature crop, and nearly 60% of all the citrus consumed in the US is produced in the state. While Florida's citrus crop has been declining over the last decade due to the deadly citrus greening disease, annual sales of citrus still range around $1 billion. Today, a large portion of the citrus industry is concentrated in southwest Florida, which experienced some of the heaviest winds and flooding in mainland Florida.

An estimated 421,176 acres of citrus production were affected by hurricane or tropical storm force winds, with 94,144 acres in Collier and Hendry (Tier I) counties experiencing major hurricane force winds and a projected loss of $2,500 per acre; 254,956 acres in Lee, Brevard, Glades, Charlotte, St. Lucie, Highlands, Indian River, Okeechobee, DeSoto, Hardee, and Osceola (Tier II) counties experiencing hurricane force winds and a projected loss of $1,750 per acre; and 72,076 acres in Polk and Martin (Tier III) counties tropical storm force winds and a loss of $1,100 per acre. Losses in this industry are reported to be very heavy, with some farms reporting 100% fruit drop. To add insult to injury, many of the state's citrus trees were just a few weeks from harvest at the time Irma hit. Total losses in this industry are estimated at a value of $760,816,600.

Growers are also reporting heavy infrastructure damage, and there are major concerns of flood-caused tree mortality in the near future. However, there is not enough information to estimate these losses at this time.

Total losses, including crop losses, for citrus producers are estimated to be $760,816,600.

2. Beef Cattle: $237,476,562

Beef cattle is one of Florida's most important land uses, with more than 1.7 million animals grazing in approximately 6.5 million acres of pasture and woodlands, and annual sales of $549.1 million.

A statewide survey of cattle ranches in the aftermath of hurricane Irma revealed the following losses and damages:

An estimated 100 dead animals, each with a market value of $800, at a loss of $80,000.

An estimated 187,000 calves awaiting to be shipped to out-of-state feedlots, currently in stressful conditions, will each lose about 50 lbs in weight (loss of $75 per calf), with losses valued at $14,025,000.

Forage crops have been severely affected by floods, and as a result many ranchers who lost forage crops to flooding will have to purchase additional hay and supplements to feed their animals during the coming winter. An estimated 45 additional feeding days (hay and supplement valued at $1.85 per day per head) for 601,250 cows, will result in unexpected hay and supplement purchases valued at $50,054,062.

As a result of floods and widespread damage to ranch infrastructure, we also expect that up to 7% of our cows will not carry calves to weaning or even breed this year. This is an estimated loss of 52,500 calves, each with a value of $787, or $41,317,500.

An estimated 150,000 acres of pasture has experienced significant erosion and flood damage as a result of Hurricane Irma. Renovating these areas will cost around $40 per acre in replanting and related costs, for a total cost of $6,000,000.

Of the more than 18,000 beef cattle ranches in Florida, an estimated 6,000 suffered significant damages to structures, fences, and equipment, and also have large amounts of storm debris that must be cleaned up. These damages will result in the following estimated costs:

- $4,000 per ranch in debris cleanup and rebuilding fences: $24,000,000.
- $15,000 per ranch in damage to barns, sheds, housing, roads, and other infrastructure: $90,000,000.
- $2,000 per ranch in equipment damage: $12,000,000.

Total crops losses to beef cattle producers in Florida are estimated to be $14,105,000.

Total losses, including crop losses, to beef cattle producers in the state are estimated to be $237,476,562.

3. Dairy: $11,811,695

Florida is home to over 100 dairies and 125,000 dairy cows, with annual milk sales over $500 million. Most of the milk production is in South Florida where Hurricane Irma's destruction was heaviest, and where most of the damages occurred for the Florida dairy industry. However, since Irma impacted the entire state, all Florida dairy farms experienced some form of impact.

Many milk processing plants in Florida shut down operations before, during and after Hurricane Irma, and as a result there were no markets for milk for several days. Southeast Milk Inc., the farmer cooperative owned by the dairy farmers in South Florida, lost an estimated $1,951,695 in lost revenue/sales because of dumped milked and milk being sold at lower pay prices in other milk markets. This issue will continue to impact the prices farmers receive for months to come.

Cooling systems and structures offering shade and temperature control for dairy cows were damaged during Hurricane Irma. In addition, most dairy farms lost electric power for several days during and after the storm, so even if cooling systems were not destroyed, dairies were unable to cool their animals. Heat stressed animals eat less and spend more energy simply cooling their bodies, resulting in weight loss and reduced milk production which will not recover for several months. Florida dairies estimated production losses associated with the Hurricane over the next four months to result in a total revenue loss of $7,500,000.

Of the more than 100 dairies in Florida, an estimated 40 dairy farms suffered significant damages to structures, fences, and equipment, and have significant amounts of storm debris that must be cleaned up. At this time, there is no verified cost data on these damage repairs but the following are early estimates:

- $4,000 per farm in debris cleanup and rebuilding fences: $160,000.
- $50,000 per farm in damage to barns, sheds, milk parlors, and other infrastructure: $2,000,000.
- $5,000 per farm in equipment damage: $200,000.

Total crop losses to dairy producers in Florida are estimated at $7,500,000.

Total losses, including crop losses, to dairy producers in the state are estimated to be $11,811,695.

4. Aquaculture: $36,850,000

Florida aquaculture is a highly diverse sector with annual sales in the range of $70 million. Aquaculturists in Florida produce ornamental fish, mollusks, alligators, aquatic plants, live rock and coral, and a diversity of food fish, among other products.

Aquaculture farms depend heavily on electricity to run oxygenation and water circulation systems. Even short periods of time without electrical power may result in heavy losses, particularly when fish and shellfish are in larval or juvenile stages. In addition, if areas with

ponds or tanks get flooded, fish will likely die or escape, resulting in heavy losses. Responses from a statewide survey suggest that product losses are as high as 25%, equivalent to $17,500,000.

Several aquaculturists are also reporting heavy infrastructure and equipment losses, as well as significant amount of storm debris that must be cleaned up. Of the 404 aquaculture operations reporting sales in Florida, an estimated 150 experienced heavy infrastructure, equipment and cleanup losses or costs:

- $45,000 per operation in infrastructure loss: $6,750,000.
- $80,000 per operation in equipment loss: $12,000,000.
- $4,000 per operation in cleanup costs: $600,000.

Total crop losses to aquaculture producers in Florida are estimated to be $17,500,000.

Total losses, including crop losses, to aquaculture producers in the state are estimated to be $36,850,000.

5. Fruits and Vegetables (Excludes Citrus): $180,193,096

Florida is a major producer of fruits and vegetables, with more than $2.2 billion in annual sales and nearly 200,000 acres in production. Major products include fresh tomatoes, bell peppers, melons, and avocados, among many others.

An estimated 163,679 acres of fruits and vegetables were affected by hurricane or tropical storm winds, with 40,816 acres experiencing winds exceeding 111 mph, 51,646 acres experiencing winds between 74-110 mph, and 71,216 acres experiencing winds between 39-73 mph. Fortunately, the planting season for most of these crops was just getting started, and most crop losses will happen due to shortened production season, market distortions, and reduced yields resulting from higher pest pressure due to dilution of pesticides. Total crop losses in fruit and vegetables throughout this acreage are estimated at 10%, a value of $72,324,496.

When fields experience storm surge with salt water inundation, the salt will remain in the soil for up to 3 years, depending on the amount of rainfall and irrigation practices over this period. We expect that up to 7,000 acres may experience this problem in the southern portions of the state, for a loss of $30,926,000.

The planting season was getting into full gear as Hurricane Irma hit, and many fields lost the plastic and drip-tape irrigation that had been installed. Plastic and drip-tape irrigation costs about $2,500 per acre. An estimated 10% of the affected acreage, or 16,368 acres, had blown plastic and drip-tape irrigation, for an estimated loss of $40,920,000.

In addition to blown plastic and irrigation, growers have reported clean-up costs of $300 per acre on all acreage that experienced hurricane strength winds. Given that 92,642 acres experienced hurricane force winds, this loss is estimated at $27,738,600.

Some blueberry growers have also reported that the wind ripped entire blueberry bushes from the ground, with one grower reporting that 125 acres of blueberry bushes were completely ripped from their beds. Land preparation and planting costs for an acre of blueberries in Florida is around $16,568 per acre, as reported in blueberry crop budgets. An estimated 500 acres statewide have suffered the same fate, bringing the cost of replanting berry bushes to $8,284,000.

Several growers are also reporting heavy infrastructure losses, including flooding and damage to internal farm roads, dikes, water control structures, and retention areas. However, there is not enough information to estimate these losses at the current time.

Total crop losses for fruit and vegetable producers are estimated to be $72,324,496.

Total losses, including crop losses, for fruit and vegetable producers are estimated to be $180,193,096.

6. Greenhouse, Nursery, and Floriculture: $624,819,895

Florida's nurseries provide live plants for landscapers and agricultural producers throughout the nation, and their annual sales are in the range of $2.75 billion.

An estimated 46,204 acres of greenhouse, nursery, and floriculture production were affected by hurricane or tropical storm winds, with 24,267 acres experiencing winds exceeding 111 mph, 2,024 acres experiencing winds between 74-110 mph, and 19,914 acres experiencing winds between 39-73 mph. Losses in this industry are reported to be heavy, as live plants with any kind of minor damage, such as scarring of the bark, are deemed of much lower value. Total crop losses in this industry are estimated at a value of $435,605,410.

Heavy winds have also caused severe damage to greenhouses and related infrastructure and equipment. Growers have reported $141,703,450 in infrastructure losses, and $5,000,000 in equipment losses, as a result of Hurricane Irma.

In addition, growers incurred substantial labor costs in preparing nurseries in advance of Hurricane Irma, as well as cleaning up debris after the storm passed. Growers have reported $42,511,035 in preparation and debris clean-up costs.

Total crop losses for greenhouse, nursery, and floriculture producers are estimated to be $435,605,410.

Total losses, including crop losses, for greenhouse, nursery, and floriculture producers are estimated to be $624,819,895.

7. **Sugar: $382,603,397**

Florida is one of the major domestic producers of sugarcane, with total annual sales around $676 million. The industry is heavily concentrated in South Florida on the south shore of Lake Okeechobee, which experienced heavy wind impacts during Hurricane Irma.

An estimated 534,324 acres of sugarcane production were affected by hurricane or tropical storm winds, with 205,262 acres experiencing winds exceeding 111 mph, 267,946 acres experiencing winds between 74-110 mph, and 61,115 acres experiencing winds between 39-73 mph. Losses in this industry are reported to be heavy, with most farms reporting cane lodged to the ground entirely by the wind. While much of the lodged sugarcane can be salvaged, doing so requires significant effort and results in higher harvesting costs. In addition, the salvaged sugarcane will be of lower quality and lower sucrose content. Hence, growers will have to use additional resources and will see lower yields. Total crop losses in this industry are estimated at a value of $382,603,397.

Besides the loss of this year's crop, a major concern expressed by growers is the ability to locate and use sugarcane for seed to plant the next crop as planned. This issue may result in reduced acres planted for the first harvest in the 2018-2019 season. However, without seeing whether the current crop recovers, it is difficult to estimate quantitatively what this impact may be.

Growers are also reporting heavy infrastructure damage. However, there is not enough information to estimate these losses at the current time.

Total losses, including crop losses, for sugarcane producers are estimated to be $382,603,397.

8. **Field Crops: $62,747,058**

Florida has significant acreage in field crops, including an estimated 93,021 acres in cotton, 154,093 acres in peanuts, 61,600 acres in corn, 29,226 acres in soybeans, 26,598 acres in rice, and 61,700 acres in other field crops.

An estimated 426,238 acres of field crop production were affected by hurricane or tropical storm winds, with 22,461 acres experiencing winds exceeding 111 mph, 22,745 acres experiencing winds between 74-110 mph, and 381,032 acres experiencing winds between 39-73 mph. Losses in this industry are reported to be significant, with yield losses caused by wind damage and floods, which prevent timely harvest and are associated with spoilage.

Total losses, including crop losses, in field crops are estimated at a value of $62,747,058.

9. **Forestry $261,280,000**

Nearly 47% of Florida's land, or approximately 16.96 million acres, is forestland cover. Of the forestland cover in Florida, 49% is pine, 45% is hardwood or mixed hardwood-pine, and 6% is

cypress. These productive forests support a sizable forest products processing and manufacturing sector in the state.

Previous studies indicate that during storm events wind speeds between 30 and 57 MPH are associated with "light" tree damage, wind speeds between 58 and 73 MPH with "moderate" tree damage, wind speeds between 74 and 95 (Hurricane Category 1) cause "severe" tree damage, and wind speeds above 96 MPH (Hurricane Category 2 and above) cause "catastrophic" tree damage. Wind speeds of 94 MPH break all trees regardless of their species, diameter, height or elastic properties. Based on wind speeds experienced in Florida during Hurricane Irma, a proportion of all affected counties in each wind range category was calculated. Stand timber damages assigned to each wind category were 5 percent for "light", 15 percent for "moderate", 35 percent for "severe", and 75 percent for "catastrophic" damages. Based on the recent state-wide forest inventory, known pine pulpwood and sawtimber tonnage in each county was then multiplied by standing timber prices and area affected in each county by wind category. This methodology indicates that the total loss experienced by Florida forest products industry in the current year is $261,280,000.

Total timber losses in the current year are estimated at $261,280,000.

For questions related to this document, please contact:

Sergio Alvarez, PhD.
Chief Economist
Florida Department of Agriculture and Consumer Services
(850)410-2291
Sergio.Alvarez@freshfromflorida.com

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Jeanna Mastrodicasa

UF/IFAS Associate Senior Vice President

Gene McAvoy

UF/IFAS Extension Hendry County
Director and Regional Vegetable/Horticulture Agent

Laurie Hurner

UF/IFAS Extension Highlands County
Director and Citrus Agent

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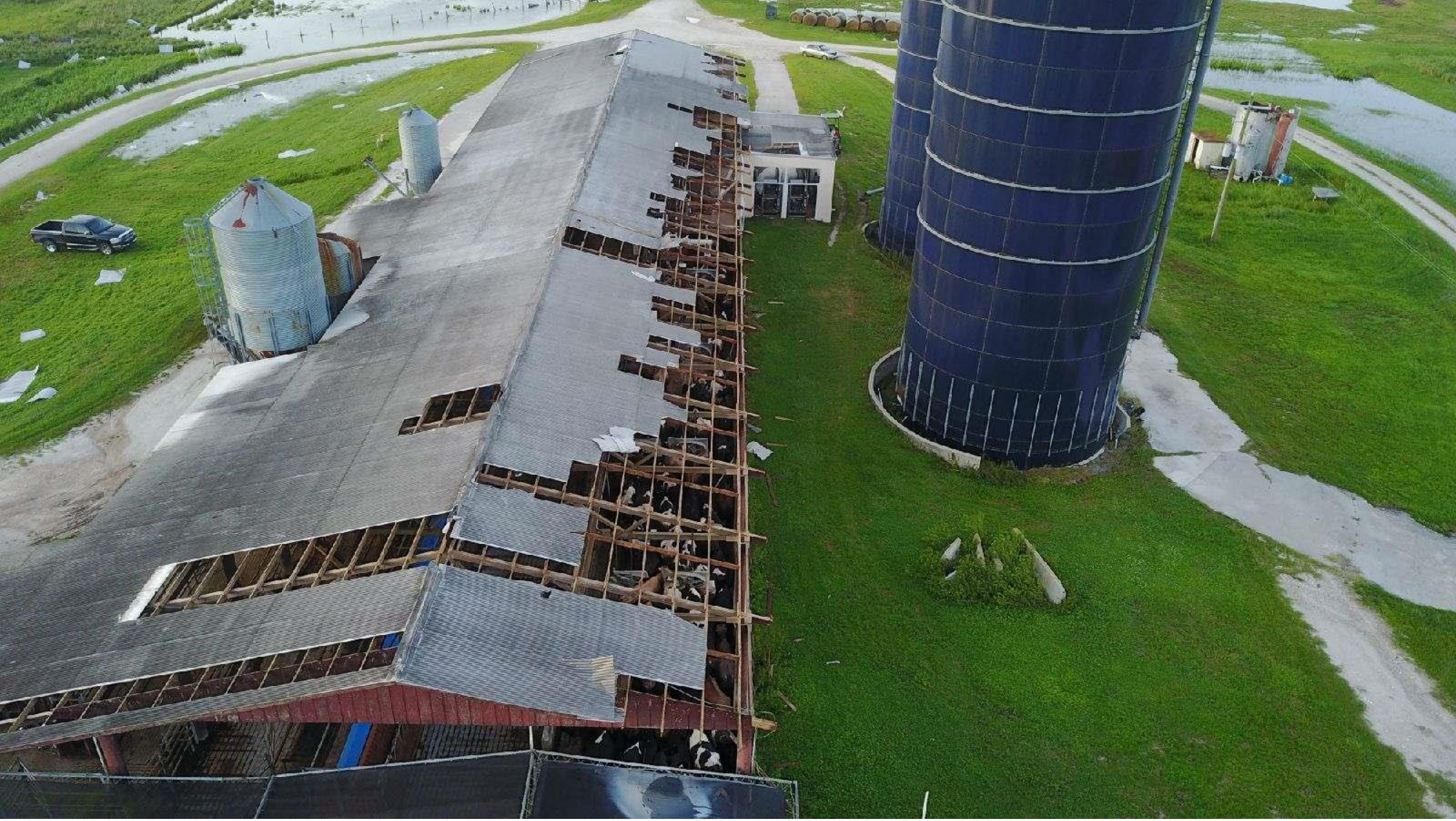


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DALLAS B. TOWNSEND AGRICU
1085
SERVICES


DALLAS B. TOWNSEND AGRICULTURAL CENTER
BORN 2 FARM


LINEMEN
FREE LAUNDRY
SERVICE
LINEMEN
FREE LAUNDRY
SERVICE


DONATION
DROP OFF
THANKS
Hendry County
Extension Office


Power Available to
Charge your phone!
OF QUARTZ
I LOVE
GEOLOGY


#our
future

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Jeanna Mastrodicasa

UF/IFAS Associate Senior Vice President

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Damage to IFAS

- Projected estimates $2M+
- Only ONE off-campus Research site did NOT have damage: WFREC in Jay
- More than 244 building damage reports state-wide
- Damage to 50+ greenhouses, 25+ screen houses and shade houses, 12+ laboratories, 12+ 4-H camper cabins
- Fields flooded in Immokalee, Hastings, Homestead
- Major damage to irrigation system in Immokalee

Impact to IFAS Research

- Damages from lost power, flooding, facility impacts, crop losses
- Research results impacted, damaged, or entirely lost
- Reduced productivity and increased costs for animal sciences farms
- Ability to continue research dependent on facility repairs


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Dr. Jeanna Mastrodicasa UF/IFAS – Associate Senior Vice President
Remarks for Senate Ag & Natural Resources Committee October 12, 2017

Opening remarks:
I'm Dr. Jeanna Mastrodicasa, Associate Vice President, UF/IFAS
On behalf of UF/IFAS, we really appreciate the opportunity to talk to you about the impacts of Hurricane Irma. As you know, we have Extension offices in all 67 counties in Florida, working directly with the agriculture community. This put us in a position where had people on the front lines of hurricane preparations and recovery.

Today you will hear from two of our Extension Agents,
Gene McAvoy, County Extension Director, Hendry County South,
Extension Agent with a specialty in vegetables and horticulture
Laurie Hurner, County Extension Director, Highlands County South
Extension Agent with a specialty in Fruit Crops

Based on their personal experiences and their colleagues, they will provide you with an overview of impacts to the agriculture community in the path of Hurricane Irma; what we have learned about the needs of the industry before, during and after this type of event; and what went right and what went wrong.

Closing Remarks
As you can see, our Extension Agents are in a unique position to be able to play a critical role during emergency situations. In their role with Extension,, they are an integral part of the community, know the people and understand the needs of the industry. They work with other governmental agencies, like DACS, and know how to connect resources. You can tell we are very proud of our Extension Agents and the service they were able to provide to the industry and the people during Hurricane Irma

As you have seen, there are holes in the aftermath of a catastrophic event that we can fill. The priority of groups that provide aid like FEMA, the Red Cross, and other organizations is helping the people. However, it takes time for aid organizations to understand the needs of the agriculture industry and how to address their needs during recovery. IFAS has the boots on the ground, with the knowledge and expertise to address the needs of the industry; our agents are a part of their community, they know the people, the farm operations and can collect accurate damage reports immediately after the storm. IFAS stands ready to assist.

I would also like to conclude with the point that we are farmers too, all over the state at our farms and research centers in IFAS. We also lost crops that were part of vital research for the agriculture industry all across the state. We had damage to more than 250 buildings, including more than 50 greenhouses, 30 shade houses, even camper cabins at the 4-H camps. Like our producers, it will take us a while to rebuild, and we will have to start over on some of our research crops. But, we will be working right along with the producers to help rebuild and repair the agriculture industry.
Once again, thank you for the opportunity to present our information today.

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Gene McAvoy- UF/IFAS Hendry County Extension Director and Regional Vegetable Extension Agent

Testimony for the State Senate Ag Committee Presentation
October 12, 2017

Hurricane Irma Impacts

Thank you for this opportunity to share my experiences and provide you with some insights into the damage inflicted by Hurricane Irma and its long term impact on my community.

I will be providing you with estimated numbers of the acres of the crops impacted, but it is important to understand that depending on the commodity, the impacts will be felt for the next 3 to 5 years.

Infrastructure Damage

Damage to buildings and ag infrastructure, like pump stations and packing sheds, was widespread and affected farms regardless of crop. Dikes around retention areas were compromised and will require repairs. Farm roads experienced washouts.

A number of packing houses were damaged in the storm with roof and wall damage. Widespread damage to plant houses that produce vegetable transplants has also been reported. Southwest Florida is home to six major transplant operations that produce nearly one billion vegetable seedlings a year.

Nurseries have reported extensive damage to plants and structures totaling over $650 million statewide.

Crop damage was extensive and we will see effects for the next 3- 5 years depending on the crop.

Southwest Florida produces about 125,000 acres of citrus. On average, 70 percent of the citrus fruit was blown from the trees and is not salvageable. Hurricane winds twisted stems of remaining fruit and stressed trees, which will result in an additional 10-15% loss of the fruit remaining on trees.

Many trees were uprooted – 10 -15% depending on location. In many instances uprooted trees damaged irrigation systems. Many trees had limbs broken off – some of these trees may be saved by severe pruning and resetting, but will result in lost productivity for several years.

Widespread flooding of groves will result in long term adverse effects on tree health (many groves remained under water for a week or more). Root systems will be invaded by pathogenic fungi, like Phythophthora, which will lead to tree loss and decline and lost productivity.

Southwest Florida produces about 75,000 acres of vegetables on an annual basis. Land prep and planting typically begins in August in Southwest Florida. The majority of vegetables are planted on raised beds covered in plastic mulch. Fertilizer, herbicides and fumigants are applied under the plastic before planting.

Fortunately, the hurricane came early in the season before extensive planting had occurred reducing losses.

But, one hundred percent of all vegetables which were planted prior to the storm were lost – approximately 4,500 - 5000 acres of tomatoes, peppers, herbs, squash, cucumbers, melons, corn and beans.

In addition, approximately 15,000 acres of land had been prepared for planting and plastic laid. One hundred percent of the plastic was lost. Each acre of plastic costs approximately $2000 before planting even occurs.

Sugarcane

There are 450,000 acres of cane in South Florida. It is anticipated that there will be at least a 10-15% yield reduction. Cane is resilient and can take a lot of wind and flooding. Some cane is starting to stand up, but remains bowed and harvesters will not be able to get a portion of the stalk laying on the ground.

Looking to the future: Recovery and Responses

Currently, there is a shortage of ag labor as debris cleanup, construction and landscaping are pulling workers away from agriculture

Flooding was a major issue impacting agriculture and recovery has been hampered by flooding and the need to physically remove ruined plastic from fields. Flooding also resulted in plague of mosquitos in unprecedented numbers making it difficult to work outdoors.

Just like other critical infrastructure such as the power grid, our ag operations need to harden on farm infrastructure. This includes acquiring generators and materials to prepare structures prior to the storm as well as developing the capacity to recover rapidly by acquiring hurricane recovery supplies and equipment post storm.

The necessities and logistics of transporting animals and plants before and after a storm sometimes clash with existing regulations that are essential during non-emergencies.

I believe that UF/IFAS Extension represents an underutilized resource in hurricane recovery efforts. With an office in every one of Florida's 67 counties, UF/IFAS Extension is uniquely positioned to respond quickly in an emergency with boots on the ground – to conduct expert unbiased damage assessments – and apply local expertise to address the situation. Our familiarity with our local communities and ability to get out rapidly to communicate with farmers and ranchers regarding their needs could allow UF/IFAS Extension to play a critical role in helping direct needed resources and assistance. Eg – flooding and mosquitos.

Gene McAvoy

Vice President National Association of County Agricultural Agents
County Extension Director
Regional Vegetable Agent IV
UF/IFAS Hendry County Extension
PO Box 68
LaBelle, Florida 33935

863-674-4092 office
863-673-5939 cell
gmcavoy@ifas.ufl.edu

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Laurie A Hurner-UF/IFAS Extension Highlands County Director and Citrus Agent

Testimony for the State Senate Ag Committee Presentation
October 12, 2017

September 11, 2017, Hurricane Irma, forever changed south Florida and its agriculture community. I would like to share with you some of my experiences. Let us look at what went right, what went wrong and some things we could do better in a few areas.

Coordination of communication would help on a number of levels. After the hurricane, a number of groups and agencies needed/wanted damage assessments. As a result, some producers were visited by a number of people asking for the same information. This took up a lot of the producers' time and could be very frustrating as it took time away from their recovery efforts. Not all of the damage reports were accurate. In the future, UF/IFAS Extension could act as the main collector of damage information or even team up with another agency so everyone could get the same information. As agents, we are a part of our communities. We are at church on Sunday, in the grocery stores and at the office. There are many reasons producers do not want people on their farms, liability issues being one of them. The community trusts us.

Waste Disposal quickly became an issue after the storm. There was a lot of damage to "Ag Infrastructure" including buildings, culverts, employee housing, greenhouses, field borders, fencing, shade houses (including shade cloth), road washouts, etc. These losses were highly visible and varied widely across the county. One potential issue not considered before the storm was animal life loss to dairy and livestock animals. Some counties did not think about waving tipping fees prior to the storm for Ag infrastructure debris and dead animals brought to the landfill for disposal. The only waiver was for county resident disposal of storm debris during the first 7 days after the storm.

After receiving a call to see about proper animal disposal, I put in a call to our local Emergency Operations Center (EOC). Few, if any of the EOCs had someone with an agriculture background assigned to an agriculture role during the disaster event. Within the next hour, four people from the EOC were looking to me to answer the question I had called in.

Supporting Dairy Workers

Three dairies in Highlands County suffered significant damaged during the hurricane. Dairy cows are generally milked two times a day. You cannot skip a milking or move around the milking times because you have stuff to do. Dairy cows need to be milked at

least twice a day and they do not like to wait. These cows are raised to produce a large amount of milk and when they are not milked on time, they are in pain and milk production will go down. Missing several milking's increases the cow's risk of disease and can eventually lead to death.

Without power, you cannot power milking parlors. Getting generators in working order immediately are crucial to success. Generator size and power needed are large and require a lot of fuel. Due to the length of time without power, diaries have incurred tremendous amounts of fuel costs.

Due to infrastructure (barns, pre-milking areas) damage, cows died and milking parlors were compromised. In some cases, milk tankers could not get to the dairies and the milk had to be poured on the ground. There was no way to get feed to the dairies in a time where food sources at the dairy were under water and unavailable.

During and after the storm, employees of the dairy were unable to leave the dairy. Worker housing was damaged and they still went to work; leaving their families without help to fix their own homes, electricity and food. There was no plan to feed or get food, water and necessities delivered to these county residents (over 100) who could not go to PODS (points of distribution) or other places of help.

In the future, each county Emergency Operation Center (EOC) should have agriculture representation and each county needs to be aware of the importance of including agriculture in pre-storm compliance variances and special assistance after the storm.

Aide Distribution

The United States, Florida & County agriculture communities feel as if they are part of one big family. Immediately after the storm my cell phone and Facebook (only things working) began to blow up with people reaching out to me from across the US, state of Florida and Ag not affected by the storm. These folks are very generous and wanted to send items, fuel, and people, whatever we needed in this time of destruction.

As "County Extension Director", I was not authorized to accept items at the local Ag Center. I had to move everyone through the Red Cross. There just is not enough Red Cross workers and their priority is people not agriculture.

In the future, we need some coordination of donations for agriculture other than turning it over to private entities like the Red Cross and others. UF/IFAS Extension could lead the charge in developing an agricultural distribution center and serve as a resource for future disasters. In this role, we would be able to involve private citizens and businesses

in a creating a pro-active plan that would be in place for donation acceptance and distribution prior to the event.

I would like to conclude by sharing with you a couple of facts and stories from the hurricane. First, the coordination between the South UF/IFAS Extension District offices was amazing. Anytime I reached out for a need, from fuel, to MREs, to dairy help they were there. The Extension CED's in this district are the best.

The help I received from the UF/IFAS Extension Okeechobee office on the Dairy issues was amazing. They were helping feed our people, getting supplies delivered and keeping others posted on the issues.

A local 4-H group helped one citrus grower pick up Fall-Glo Tangerines off the ground so that they could sell them locally as a fundraiser since the tangerines could not be picked for commercial sale.

There was a need by small livestock producers for hay after the storm. We got involved with the FEMA system and had free hay delivered into the county. A local feed store was kind enough to receive it and distribute it (free) to people in need. We worked with FEMA to get the dairies (100 people) on a special MRE delivery so that could have food directly at the dairy without leaving the property.

One of our plant nurseries had a lot of damage and could not get their generator to work. I put out an all call to my Wedgworth Leadership connections, and we reached out to Florida Nursery Growers and Landscaping Association and we had help in no time.

In conclusion, I would like to say that our community is not "Back to Normal" and it will never be. We are creating a new normal. Even though the power is back on, we still have people without permanent housing, food and employment. It will be a long time before their basic needs are met.

At the end of the day, events such as Hurricane Irma bring out the best in people. I was extremely proud of the generosity, help and care from our UF/IFAS Extension colleagues, my community, surrounding areas and people who were not directly affected by Irma.

Laurie Hurner
UF/IFAS Extension Highlands County
Director and Citrus Agent
Phone: (863) 402-6540

The Florida Senate

COMMITTEE MEETING

AGRICULTURE

Thursday, October 12, 2017

The Impact of Hurricane Irma to Florida Agriculture

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Good morning, Madame Chair and Members of the Committee. Thank you for the kind invitation to be with you this morning. I am Ed Bravo, owner of Big Trees Plantation located in Newberry in Alachua County. We produce trees and shrubs for the North Central Florida landscape market. As the current president of the Florida Nursery, Growers & Landscape Association (FNGLA), I am here to share our insights into the impacts of Hurricane Irma on Florida's nursery growers.

NURSERY/LANDSCAPE INDUSTRY'S ECONOMIC IMPACT ON FLORIDA

With nursery and greenhouse crops produced in all of Florida's 67 counties, Florida is the second largest nursery crop production state in the nation. Florida is also the largest producer of tropical foliage and houseplants used indoors. In fact, Florida accounts for nearly 80% of the entire nation's production of tropical foliage and houseplants. Since the lion's share of these plants are shipped out of state, they are a significant portion of our industry's $1.6 billion in sales to markets outside Florida.

According to the most recent economic impact study conducted by the University of Florida/IFAS, the nursery and landscape industry's total output or revenues in Florida in 2015 were estimated at slightly more than $21 billion. The study also found Florida's nursery and landscape businesses directly provided 232,600 Florida jobs and $8.75 billion in labor income. The vast majority of FNGLA's members and the industry-at-large, are small, family-owned businesses. We often say Florida's nursery and landscape industry is a small business industry with a big business impact on Florida's economy.

As the pillar of our $21 billion industry, Florida's nursery and greenhouse crop growers accounted for $4.55 billion in total crop production output in 2015. In an almost endless multitude of sizes, nursery growers produce an extensive palette of thousands of types of trees, palms, citrus nursery trees, shrubs, plants, flowering annuals, cut ferns and seasonal plants such as poinsettias. Started by seed, cuttings or tissue culture, these crops are grown indoors in shade houses and greenhouses - or outside in containers or in-ground in nursery fields. I share this with you to underscore how large and diverse our industry truly is.

HURRICANE IRMA WAS DIFFERENT

Hurricanes, or "Rain with a Name" as we often call them, are part of the Florida experience. Typically, when Florida is hit with a hurricane, its impact is confined to that region

of the state. Since Florida is a large state with nursery production in every county, growers in other regions of our state often receive just a glancing blow - if at all. However, Hurricane Irma's immense size made her decidedly different. Irma's landfall and then its northward path just west of the peninsula's spine subjected Florida's nursery industry to hours upon hours of strong winds and heavy rains. Florida's nursery crop growers did not escape Irma's wrath.

IRMA'S IMMEDIATE COSTLY IMPACTS

As the forecasts began to predict Irma's approach with an as yet unclear path, the pervasive uncertainty essentially halted statewide landscape and retail sales forcing nursery growers to lose sales in the days preceding Irma. At the same time grower sales halted, growers were racking up considerable labor costs preparing their nurseries as best they could for Irma's eventual arrival. Employees were: laying down containerized trees so their leaves would not be stripped in the wind; inspecting shade houses to ensure cables were secure; and, removing all possible obstacles to allow maximum drainage on their nursery property. Despite all of their precautions, when Irma hit, she hit nursery growers hard.

Many nurseries went days without electrical power. Fuel availability was also challenging for several days due largely to the mandatory evacuation and movement of 6½ million people. As a result, many nursery growers with generators exhausted their fuel supplies. Without power, irrigation systems do not operate, yet nursery crops still need to be irrigated.

In Miami-Dade County alone, it is estimated nearly 60% of all of the shade cloth and poly on nursery production structures was blown away, ripped apart or torn up by Hurricane Irma. If shade cloth or poly no longer offers the needed protection for tropical and houseplant production, then it does not matter whether one is a small or large nursery as all such plant inventories were turned into rows of crispy dead plants.

Florida's nursery and greenhouse crop growers suffered total crop losses estimated at a value of $435.6 million. Substantial damage to nursery production facilities was also incurred as growers report an estimated $141.7 million in nursery infrastructure losses and $5.0 million in equipment losses. Nursery growers also report an estimated $42.5 million in labor costs directly attributable to pre-Irma nursery preparation and post-Irma cleanup. Total losses, including crop losses for nursery and greenhouse growers, are estimated to be $624.8 million.

FACTORS IMPACTING RECOVERY SPEED

The speed of recovery for tree and palm growers depends on the amount of wind damage and/or flooding they suffered. Even with some expanded tree production coming on-line, landscape tree inventories are expected to be at least as tight, or tighter, in the foreseeable future. Much plant, tree and palm damage is not readily apparent, becoming so only after some weeks and months.

For tropical foliage, houseplant and cut fern growers, shade cloth availability is perhaps the primary factor dictating recovery speed. If shade cloth supply remains as tight as present, then many growers will be unable to plant in time for the all-important spring sales season which often provides as much as 60% of a nursery grower's annual sales. Some hard-hit nursery growers are still in clean-up mode and have not yet begun the real road to recovery.

Nonetheless, given the large size, scope and resilience of Florida's nursery growers, plants and trees are available as some growers are fortunate to have already bounced back. If there's one thing we have learned about Florida's nursery growers and other agricultural producers, it is we are exceptionally innovative in adapting to the hands we've been dealt.

LOOKING TO USDA FOR SUPPLEMENTAL DISASTER ASSISTANCE

Florida's nursery and greenhouse crop growers are looking to USDA for some meaningful assistance. FNGLA has already requested the U.S. Secretary of Agriculture authorize the crop insurance claims inspection and adjustment process be expedited so nursery growers with insurance can quickly begin to recover. We are pleased FNGLA has received many reports of crop insurance claims inspectors and adjusters in the nurseries.

FNGLA wishes to acknowledge Florida Commissioner of Agriculture Adam Putnam for his unshakeable support of the Florida agriculture community in Hurricane Irma's aftermath. With his stellar team at the Florida Department of Agriculture & Consumer Services, Commissioner Putnam has played the lead role in articulating the desperate grower needs which are found in the proposed USDA supplemental disaster assistance package. This package includes the necessary federal actions to resolve impediments and shortcomings in USDA permanent disaster assistance programs, such as the Tree Assistance Program (TAP) and the Emergency Conservation Program (ECP) so nursery crop growers can fully participate.

For instance, ECP provides cost-share assistance for debris cleanup and removal so the land is rehabilitated and plants are replanted. Yet, only in 2005 did the statute direct ECP to provide such for nursery debris cleanup and removal. Another anomaly involves cut fern foliage. It is ineligible for USDA crop insurance because the policy covers plants in their entirety – not parts of plants - such as cut fern fronds which are the actual crops.

While USDA's Noninsured Crop Disaster Assistance Program (NAP) is designed specifically to offer assistance to producers of otherwise non-insurable crops, the NAP eligible loss policy for cut fern foliage was inexplicably changed in 2012. It no longer counts the value of cut fern fronds separately from the value of rooted fern plants which remain largely unaffected by storms. As a result, cut fern grower crops are ineligible for crop insurance and effectively disqualified from NAP coverage. Yet, if fern growers neglect to purchase NAP coverage – from which they have no reasonable expectation of any assistance – they are excluded from any USDA disaster assistance.

SUGGESTED STATE GOVERNMENT RESPONSES TO DISASTERS

First, any agricultural emergency management function must start at the local level to ensure initial needs for agricultural response and recovery are articulated. For instance, just when recovery needs to begin, blocked roads can be obstacles in preventing growers from reaching their crops and/or livestock to assess damages or salvage what can be recovered.

There needs to be some additional flexibility in the way growers are wrestling with significant amounts of debris following natural disasters. Offering more latitude with respect to burning (when weather conditions allow); providing more ready access to local solid waste facilities for

growers to transport debris; and, other creative options should be explored to help growers cleanup and remove debris to enable a more recovery and replanting.

Second, arguably one of the most challenging hurdles in recovering from a storm is watching nursery plants and other agricultural crops which initially survived the storm, die from exposure after a storm passes. Shade houses, greenhouses and other production facilities often need immediate access to shade cloth or poly roof coverings to recover and protect otherwise exposed plants. In some instances, generators to run cooling fans or irrigation pumps are also in very short supply in a storm's aftermath. Of course, part of the challenge may be these needed vendors also experienced business-disruptions caused by the storm. Sometimes they cannot transport deliveries due to impaired road conditions or fuel availability issues.

Obviously, the State of Florida does not need to be, nor should it be, a farm supply store. Yet, FNGLA is interested in exploring options which could be activated when Emergency Declarations are issued. Perhaps an Emergency Declaration could trigger authorization to the Florida Department of Agriculture & Consumer Services, in conjunction with emergency management authorities, to access certain state funds expressly for the purchase and staging of essential items for the recovery and protection of nursery and other agricultural crops. These items could then be co-located with other state emergency response supplies and equipment.

Lastly, the Legislature should reexamine the function, duty and roles of the State Agricultural Response Team (SART). This entity seems to be a logical fit to implement, coordinate and execute emergency agricultural response functions provided SART is accorded the appropriate responsibility, focus and resources.

LOOKING FORWARD

Although Hurricane Irma left massive amounts of vegetative debris in her wake, there is bright side to her wrath. Florida's professional landscape installation and maintenance companies are in overdrive playing a very large role in helping Floridians clean-up their residential properties and neighborhoods. In so doing, Florida can more quickly resume projecting images of our state's beautiful homes, communities, landscaped businesses, resort hotels and attractions. As tough as the situation is, I always look to end on a high note!

Thank you again for this opportunity to share Hurricane Irma's dramatic impacts on Florida's nursery growers.

Contact:
Ed Bravo, FNGLA President; Big Trees Plantation at: bigtreesplantation@gmail.com or 352-332-2150.
Ben Bolusky, FNGLA Chief Executive Officer at: bbolusky@fngla.org or 800-375-3642.
Jim Spratt, President, Magnolia Strategies at: jim@magnolistratgiesllc.com or 850-228-1296.

FLORIDA FORESTRY ASSOCIATION

P.O. Box 1696
Tallahassee, Florida 32302
Phone: 850.222.5646
Fax: 850.222.6179
www.FloridaForest.org

Written Comments to the Florida Senate Agriculture Committee on the Impact of Hurricane Irma to the Forest Industry

Thursday, October 12, 2017

On behalf of the approximately 1400 members of the Florida Forestry Association, thank you for the opportunity to share with you about Hurricane Irma's impact on forestry in Florida. In addition to this written statement, Association Board member Joe Collins, Senior Vice President at Lykes Bros Inc., will appear before the Committee.

A recently completed study by the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) reports that Florida's forest industry provides a $25 billion impact to the state's economy and helps employ more than 124,000 people. There are approximately 17 million acres of forested land in Florida, which means they cover roughly half of the state's total land area. Eighty percent of the forests lie north of Ocala.

As you all know, Hurricane Irma touched most of the state. Her damage to timber was heaviest in areas south of Orlando; damage in the areas north of there was light. Widespread flooding and erosion caused extensive damage to forest roads throughout the impacted areas. Assessment and salvage efforts were impeded by water and debris on the roads.

As reported by Commissioner Putnam the estimated timber losses for the current year are more than $260,000,000. That figure is based on estimates from the Florida Forest Service and UF/IFAS.

Not only will financial damages continue to be felt as the growing cycle continues, but other significant storm-related damage can happen after the fact as well. If not removed in a timely manner, the fallen trees set a stage for several potential problems. They add to the fuel load for wildfires and can increase the chances of issues with invasive species or other pests, such as the southern pine beetle.

Additionally, increased reforestation efforts are needed to compensate for the loss of the damaged trees.

There are two major ways the state can help in recovery efforts:

Lifting truck weights. Lifting truck weights helps in salvage and recovery efforts. They were lifted post-Irma and are expected to remain suspended for up to three months. However, under the current permit system, this is done in two-week intervals. By issuing

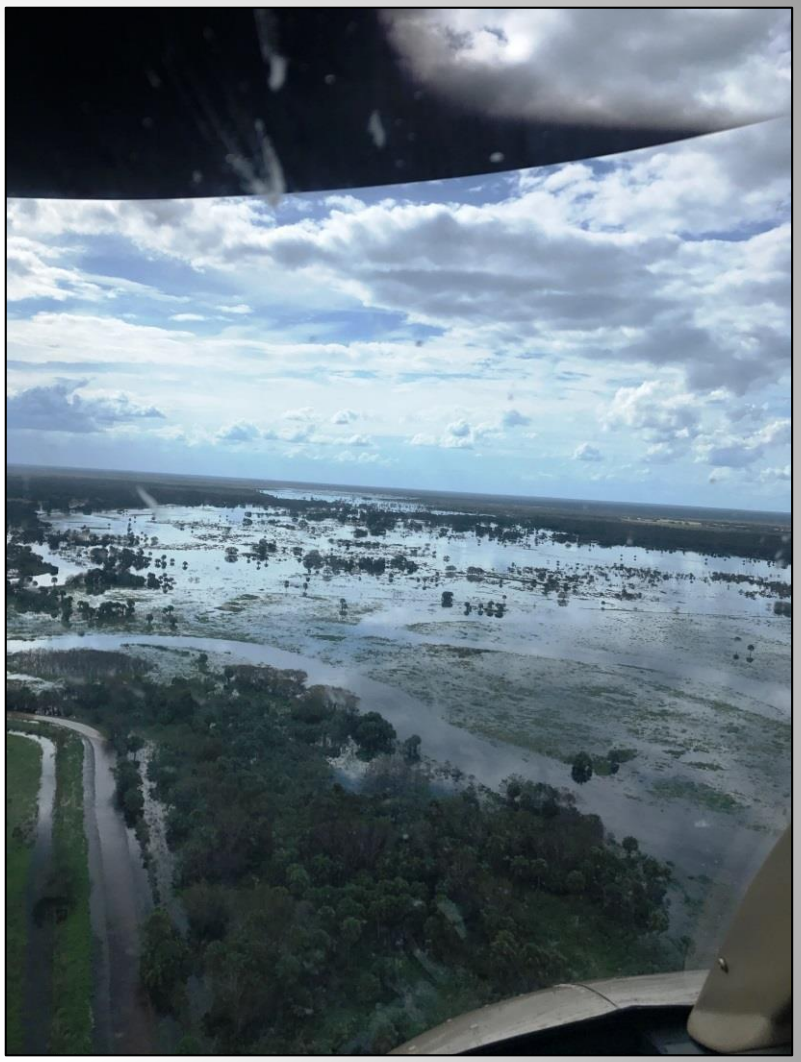
orders that are effective for 30 or 60 days, the Florida Department of Transportation could help ease the administrative burdens of communicating the extensions and printing new permits needed for each truck. The longer timeframe is also more in line with the salvage window before pests and disease damage the fallen timber, which is up to 90 days in most cases.

Funding the Department of Agriculture and Consumer Services' Legislative Budget Request for the *Protecting Florida Resources* program. This cost-share program would be helpful to forest landowners in addressing post-storm issues, such as increased needs for fuel mitigation/reduction and prescribed burning, invasive species control and reforestation.

Contact:
Alan Shelby at 850.222.5646 or Alan@ForestFla.org
Jim Spratt at 850.228.1296 or Jim@MagnoliaStrategiesLLC.com

Hurricane Irma
Sunday, September 10, 2017
Lykes Bros. Inc.

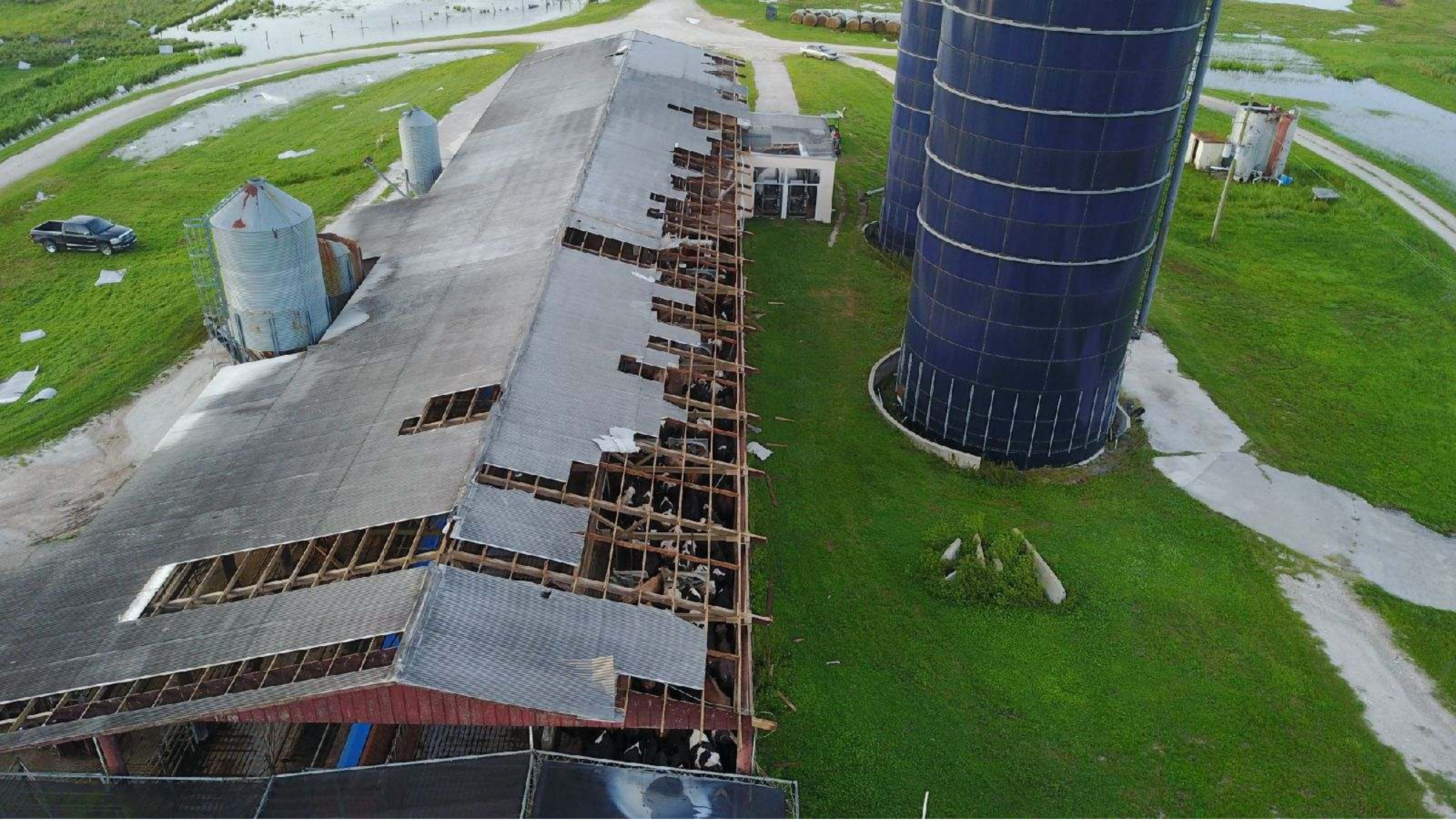
Questions?



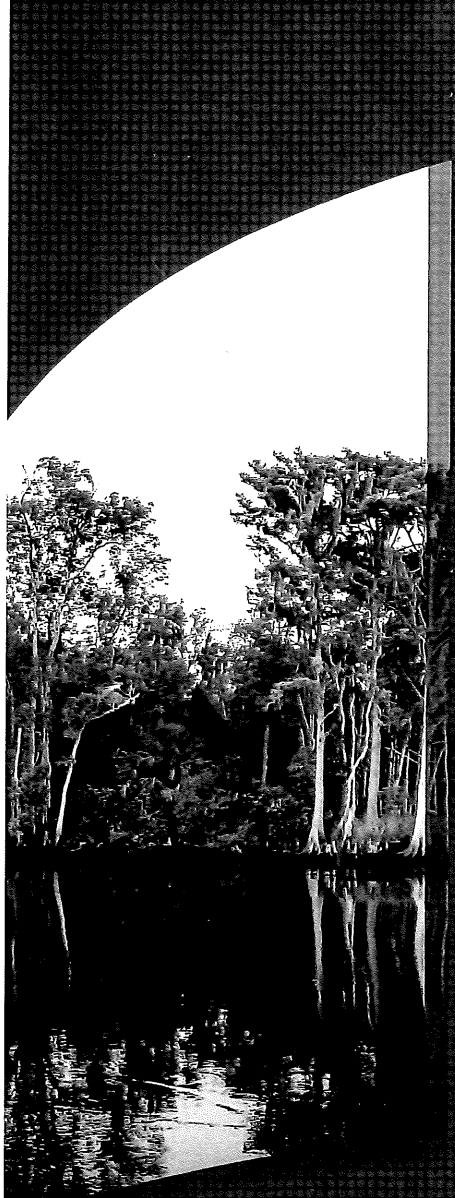
Fisheating Creek

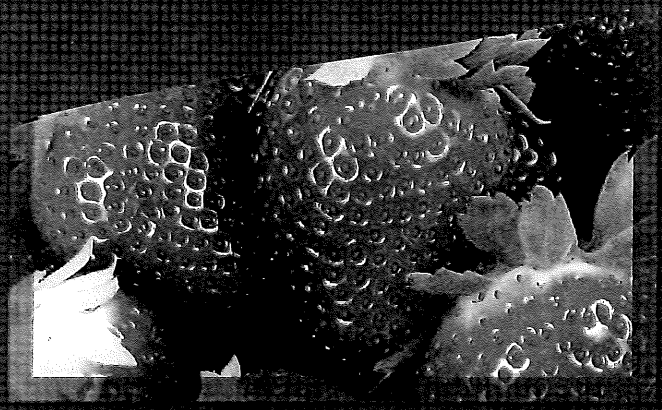
Before Hurricane Irma

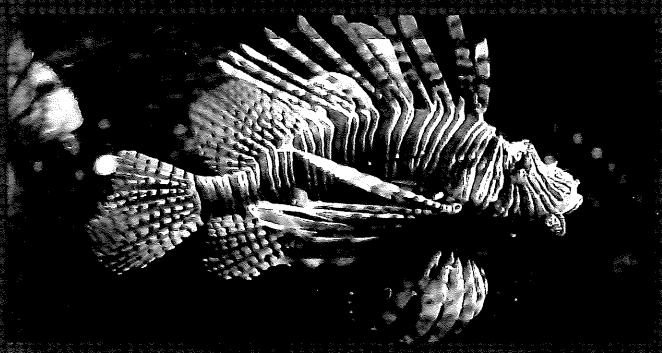
After Hurricane Irma



Public Investment in UF/IFAS Yields Significant ECONOMIC BENEFITS AND JOBS







UF|IFAS
UNIVERSITY of FLORIDA

2017

Economics

$20 in Benefits for Every $1 Invested

Investments in UF/IFAS Research and Extension programs show significant returns that create jobs and improve Florida's economic vitality. According to an extensive analysis published in 2010 by a team of agricultural economists, **for every $1 invested in U.S. agricultural research and development there's a return of $20 in benefits from increased agricultural productivity.**[1] Agricultural research helps farmers produce more food, fiber and fuel with the same amount of land and inputs; for consumers, agricultural research pays off with lower food prices, increased food safety and improved environmental stewardship.[2]

The State of Florida invests approximately $160 million annually in UF/IFAS agricultural research and development, as well as Extension outreach education.[3] In return, this investment contributes about **$3.2 billion in economic benefits to the state,** based on the 20:1 benefit-cost ratio.

Water

With Florida's population now exceeding 20 million, the state's water resources are in greater demand than ever before. In response, UF/IFAS has prioritized its efforts to enhance and protect the state's water quality and availability.

To better coordinate water conservation efforts statewide and reach stakeholder groups more effectively, UF/IFAS Extension has established five new positions known as **water resource regional specialized agents.** Each agent works in a different UF/IFAS Extension district and is assigned to interface with one or more of the state's five Water Management Districts, to facilitate greater communication and collaboration. The individuals filling the new positions have extensive experience with the scientific and practical aspects of water use and conservation.

A team of UF/IFAS experts has developed a suite of **mobile-device applications, or "apps,"** that can help homeowners, landscape managers and farmers conserve water without negative impacts on lawns or crops. So far, the team has released six apps under the Smartirrigation name, developed for turf, citrus, vegetables, strawberry, cotton and avocado. Each app notifies users when irrigation is advisable, based on crop variety, geographic location, weather and other factors.

The **avocado app** was recently the subject of extensive field testing, which was undertaken to verify that its predictive power was sufficient. Researchers determined that the app was providing reliable results by averaging data from five days of recent weather observations, and did not require additional days of data.

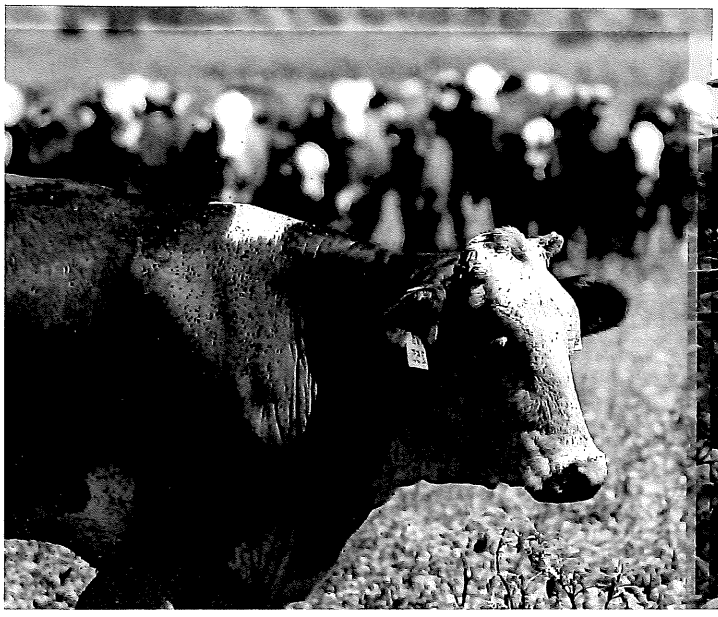
Citrus

Florida's multi-billion dollar citrus industry has been dramatically impacted by a bacterial disease known as **citrus greening, which reduces yields and eventually kills infected trees.** Today, the disease infects an estimated 80 percent of the state's commercial citrus trees.

UF/IFAS response has been extensive. The latest accomplishments include:
Scientists with UF/IFAS have established that the greening bacterium initially damages the roots of infected trees, impairing their ability to deliver nutrients. Fortuitously, they also determined that growers can minimize root damage by using soil-applied fertilizers and optimizing soil pH. Recommendations resulting from these studies have been disseminated to growers statewide, and anecdotal reports indicate that **yields have increased up to 30 percent** when growers followed recommended practices.

UF/IFAS citrus breeders have released a greening-tolerant rootstock known as 'UFR-17', which is **less vulnerable to citrus greening infection than many rootstocks already in use.** Numerous other rootstock varieties are under evaluation for their potential and growers await the results.

Recent studies indicate that a long-term solution to citrus greening may come from a crop improvement technique known as "clustered, regularly interspaced short palindromic repeats," or CRISPR. The technique is a form of genetic engineering that involves identifying citrus genes that are activated by the citrus greening bacterium to make the tree easier to infect, then **altering those genes so that they make no response,** or even activate immune defenses, in the presence of the bacterium.



Florida's Agriculture, Natural Resources and Food Industries

$127.34 Billion in Value-Added Impacts, 1.6 Million Direct Jobs

In calendar year 2014, Florida's agriculture, natural resources and food industries supported 1.6 million jobs directly connected to these industries, generated **$127.34 billion** in value-added impacts to Florida's Gross State Product and contributed **$12.87 billion** in business taxes to local, state and federal governments.[4] These industries span the market chain from farm to table, including commodity production, supporting services, processing/manufacturing and food distribution to consumers.

Due to Florida's subtropical climate, its competitive advantage for specialty crops and its access to international ports, exports from Florida to domestic and international markets accounted for **$59.61 billion** in revenues. As globalization continues to increase — global agricultural demand is expected to increase 70 to 100 percent by 2050 [5] — the influx of invasive pests and diseases will put greater demands on UF/IFAS Research and Extension to maintain gains in agricultural productivity and develop and disseminate new technologies to increase competitiveness.

Invasive Species

Florida is home to a greater number of **invasive plants, animals and fungi** than any other state in the continental U.S., in part due to its climate and extensive international tourism and trade.

Some invasive organisms have captured headlines, including the Asian citrus psyllid, a flying insect that transmits the pathogen responsible for citrus greening; the disease-transmitting mosquito species *Aedes aegypti* and *Aedes albopictus*; and the Burmese python, which threatens wildlife throughout the Everglades.

The **Florida Invasive Species Partnership,** or FISP, is a multi-agency partnership formed to provide a coordinated, statewide effort to address Florida's invasive species issues. FISP has been steadily growing in prominence since its formation, less than a decade ago.

The University of Florida is one of 20 institutions, agencies and organizations that have joined FISP and support its efforts to educate and assist private landowners, land managers responsible for government properties, and members of the public.

UF/IFAS researchers and Extension agents active in FISP have been conducting **events including workshops, symposia, and work days** devoted to invasive plant removal and exotic pet amnesty days, where residents can drop off unwanted non-native animals.

Recent FISP achievements include development of tools to help private landowners find technical assistance to cope with problems, and **help growers find cost-share assistance** in the form of grants.

Efforts are under way to bring science-based information to UF/IFAS Extension personnel to better acquaint them with invasive species issues in their communities.

Natural Resources

Along Florida's Big Bend coastline, from Wakulla County to Pasco County, UF/IFAS researchers have made **remarkable progress toward restoring the health of ancient oyster reefs** damaged by salinity fluctuations years ago.

Normally, these reefs support the local seafood industry and minimize storm-related coastal erosion. But when large numbers of adult oysters die simultaneously their shells degrade and the oyster reef begins to resemble a sand bar, inhospitable to free-swimming larval oysters that might otherwise settle and grow, reviving the reef.

With financial support from the National Fish and Wildlife Foundation, The Nature Conservancy Florida, the National Oceanographic and Atmospheric Administration, the Florida Sea Grant Program and other entities, a UF/IFAS research team has developed a low-cost strategy to add structures that **attract larval oysters to degraded reefs.**

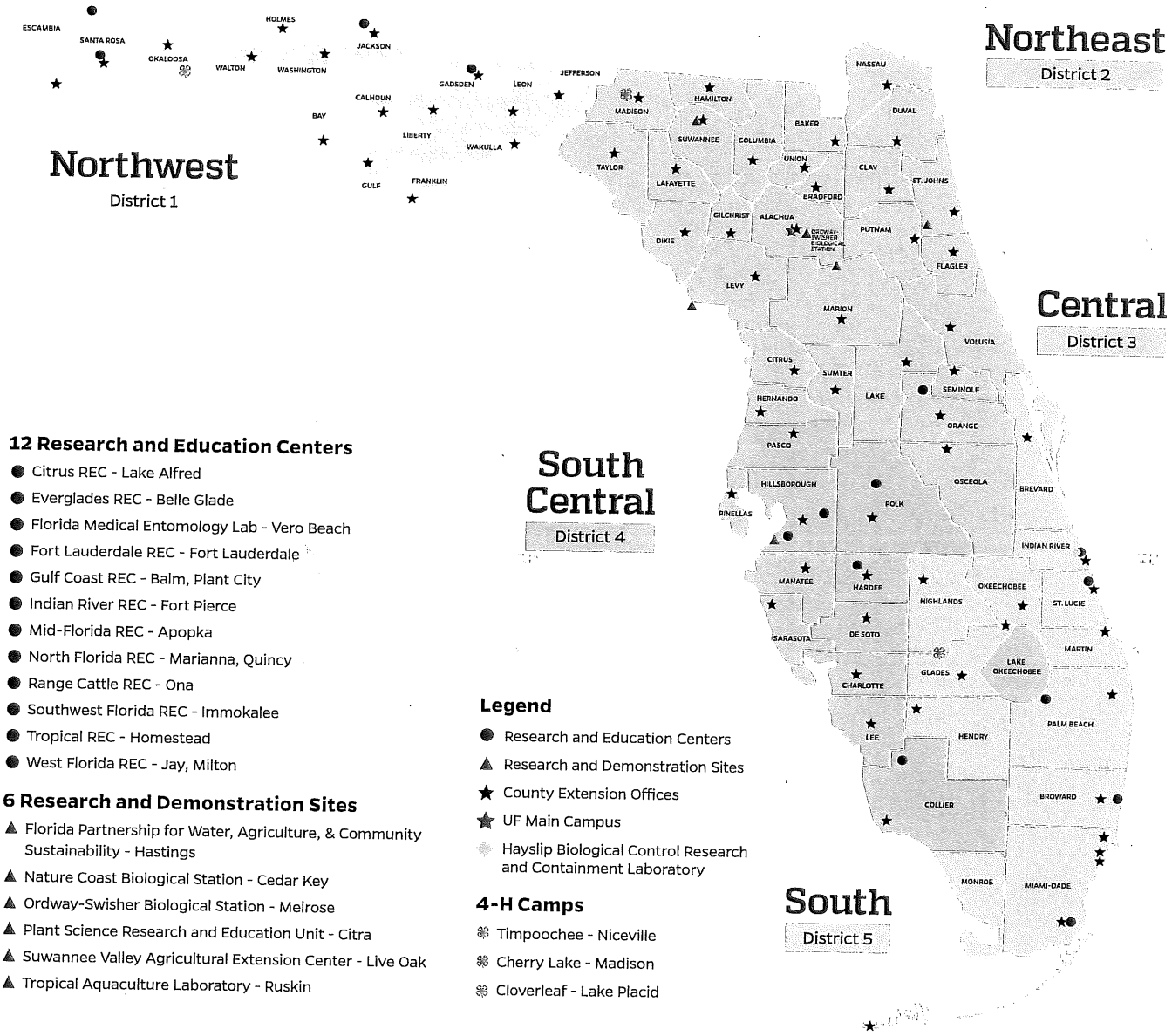
The scientists demonstrated that lime rock boulders and polyester mesh bags filled with clam shells are effective, inexpensive "building materials" to use. Monitoring showed that after 18 months, reefs restored in this manner had **higher densities of live oysters** than most restored oyster reefs in other parts of the U.S.

The project, conducted under the auspices of the **UF/IFAS Nature Coast Biological Station,** has already shown signs of benefitting the larger Big Bend ecosystem because the restored reefs attracted more birds than unrestored control sites – 62 percent more birds overall and up to 500 percent more for certain species, including the bald eagle.

The Land-Grant Higher Education System

The University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) is a proud part of the nation's land-grant university system. This system of public higher education institutions was established by the U.S. Congress through the Morrill Acts of 1862 and 1890 to provide educational opportunities to citizens of average means; UF and Florida A&M University are Florida's two land-grant institutions. Additional federal legislation funded two other initiatives that expanded the land-grant mission with research and outreach efforts. At UF/IFAS, the College of Agricultural and Life Sciences educates students, the Florida Agricultural Experiment Station conducts research and the Florida Cooperative Extension Service offers outreach activities to producers and residents. To fulfill its mission, UF/IFAS has 14 academic departments and two schools based at the UF main campus in Gainesville, 18 research facilities throughout the state, and Extension offices in all 67 Florida counties.

UF/IFAS Statewide Facilities



12 Research and Education Centers

- Citrus REC - Lake Alfred
- Everglades REC - Belle Glade
- Florida Medical Entomology Lab - Vero Beach
- Fort Lauderdale REC - Fort Lauderdale
- Gulf Coast REC - Balm, Plant City
- Indian River REC - Fort Pierce
- Mid-Florida REC - Apopka
- North Florida REC - Marianna, Quincy
- Range Cattle REC - Ona
- Southwest Florida REC - Immokalee
- Tropical REC - Homestead
- West Florida REC - Jay, Milton

6 Research and Demonstration Sites

- Florida Partnership for Water, Agriculture, & Community Sustainability - Hastings
- Nature Coast Biological Station - Cedar Key
- Ordway-Swisher Biological Station - Melrose
- Plant Science Research and Education Unit - Citra
- Suwannee Valley Agricultural Extension Center - Live Oak
- Tropical Aquaculture Laboratory - Ruskin

Legend

- Research and Education Centers
- Research and Demonstration Sites
- County Extension Offices
- UF Main Campus
- Hayslip Biological Control Research and Containment Laboratory

4-H Camps

- Timpoochee - Niceville
- Cherry Lake - Madison
- Cloverleaf - Lake Placid

Learn about UF/IFAS Research Discoveries and the Florida Agricultural Experiment Station at: **http://research.ifas.ufl.edu/featured-3-menus/discoveries/featured-discoveries/**

This report, along with state-level and county-level information on UF/IFAS Extension impacts, can be found at: **http://ifas.ufl.edu/economicimpacts.html**

Information on statewide UF economic impacts can be found at: **http://economicimpact.ufl.edu**

Sources cited may be found at: **http://ifas.ufl.edu/annual-reports/**

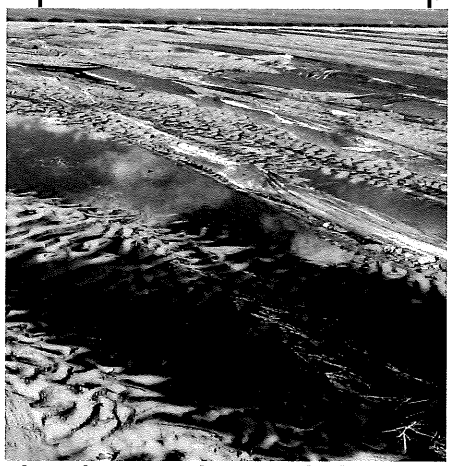
For more information, contact:
Jack M. Payne, Senior Vice President for Agriculture and Natural Resources
1008 McCarty Hall • P.O. Box 110180 • Gainesville, FL 32611-0180
(352) 392-1971 • jackpayne@ufl.edu • **http://ifas.ufl.edu**

Mary Ann Hooks, Director of UF/IFAS Governmental Affairs
215 South Monroe Street • Suite 110 • Tallahassee, FL 32301
(850) 681-0000 • mgosa@ufl.edu
http://ifas.ufl.edu/svp/ifas-governmental-affairs-/

Florida Strawberry Growers Association – Irma Assessment

Hurricane Irma has impacted the Florida Strawberry Industry. Damage and Losses from Irma can be separated into two categories, Infrastructure Loss and Lower Productivity.

Infrastructure Loss: High winds and flooding caused significant damage to the plastic mulch and drip-tape.



Fortunately, the growers had not planted the strawberry plants when Irma came calling. Repairs to the comprimised beds, plastic, and drip-tape have been completed and planting is underway.

On average, 20% of the strawberry acreage was comprimised (10,000 acres x 20% = 2000 affected acres). Plastic, drip-tape, and re-bedding cost varies per farm from $1500 - $2500 per affected acre. The largest component of the cost was labor. Digging out damaged plastic and removal is a labor intensive effort. (2000 damaged acres x $2000 = $4 million infrastructure cost.)
In addition, most growers are reporting $300 per acre of general clean-up and minor repairs to the entire acreage of the industry. (10,000 acres x $300 = $3 million general clean- up cost.)

Lower Productivity: A reduction of marketable fruit is expected on portions of the fields where the plastic mulch was comprimised. During the process of re-building the strawberry beds and laying new plastic and drip-tape, untreated soil is mixed with fumigated soil. This unfortunate practice will enhance soil-borne pathogens and nematodes. The strawberry industry is expected to realize a 20% loss in production in these areas and an increase in the use of crop protection materials.

Given that the break-even revenue per acre is $30,000, using that as a basis would equate to $6000 per acre reduction in revenue, conservatively. (2000 affected acres x $6000 = $12,000,000 reduction in revenue.)

Irma Impact Summary to the Florida Strawberry Industry

Infrastructure Loss:	$4 million
General Clen-up cost:	$3 million
Lower Productivity:	$12 million

Total Estimated Losses: $19 million

Even though the growers have added expense to the pre-planting cost, there is a silver lining, by all accounts the Florida Strawberry Industry will be on time in the marketplace.

Florida Sugarcane Industry

Hurricane Irma Damage
October 12, 2017

Hurricane Irma flooded farms

- Everglades Agricultural Area (EAA) & surrounding sugarcane growing areas were recovering from June's flooding when Hurricane Irma struck.
- In 2 days, Irma dropped average 12" of rain on farms
  - Some farms received 16" in 2 days
  - Compared to entire month of September 2016 = 6.5"
- Sugarcane planting was delayed 2-3 weeks from flooding
  - Sugarcane will have less time to grow, affecting next year's crop
  - Farmers adding resources to planting to catch up; increases costs
- Recently planted sugarcane acreage was lost to flooding
- Two of 4 sugar mills postponed start of crop season due to flooding

Hurricane-force wind damaged sugarcane

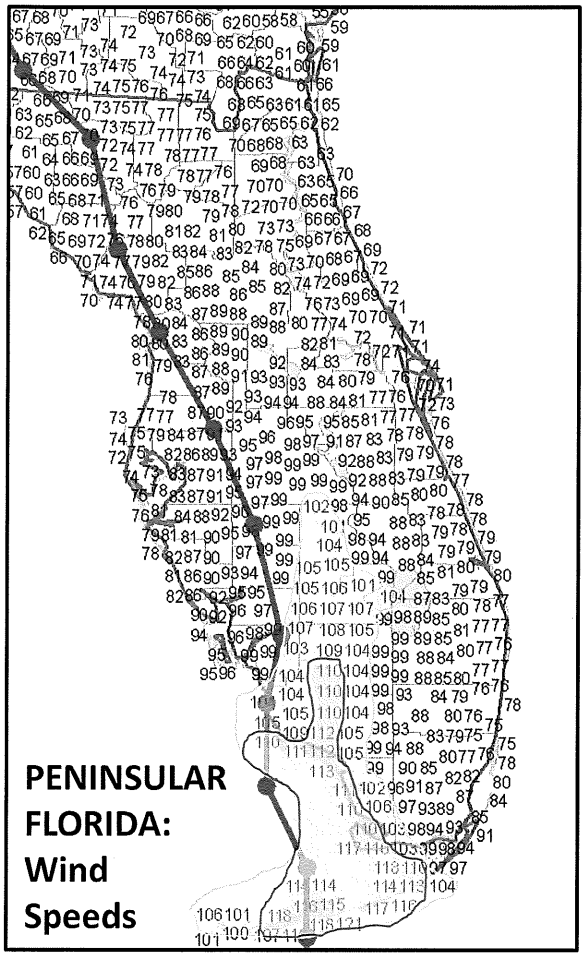
- Winds bent, twisted and caused sugarcane to lay flat
  - Cane is difficult to harvest in this condition
  - Cane is vulnerable to uprooting
- Wind shredded leaves
  - Leaves are needed for cane growth
  - Estimate loss of week to 10 days of cane growth and sucrose development just prior to harvest

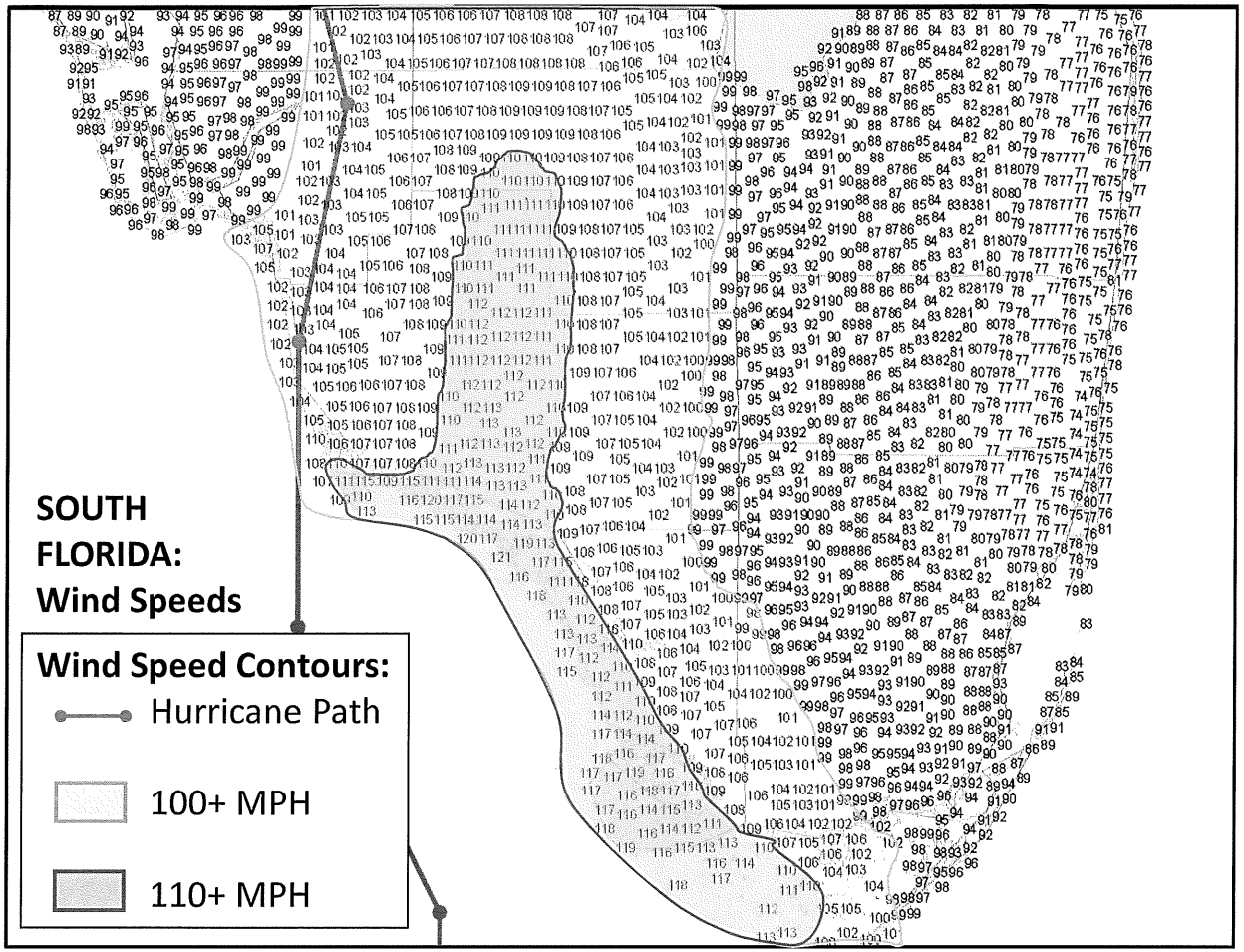
Damaged cane is sprouting at eyes

- Average 40% of cane eyes have sprouts
  - Up to 80% in some varieties
- Sprouts ("suckers") absorb sucrose from sugarcane
  - Lower yield at the mill
  - Important to get sugarcane to mill as quickly as possible
- Sprouts limit quality of cane as seed
  - If sprout is damaged, the eye will not sprout again
    - Leads to skips in planting
    - Damages future crops
- Damaged eyes can carry disease to stalk
  - Limits stalk's use and performance as seed and damages subsequent crops

Sugarcane vulnerable to uprooting

- Flooding and wind already caused some uprooting
- Continual wet conditions coupled with damaged cane leaves crop vulnerable to uprooting during harvest
  - Causes skips, or empty spots, when sugarcane regrows in subsequent years
  - Lowers tonnage to mill
  - Requires farmers to compensate by planting more seed
    - Drives up costs: more seed needed and resources to plant





Hurricane Irma (2017): Preliminary Peak Wind Gust(mph)

Estimated 3-second gust wind speeds (mph) at 10 m above ground over open terrain from ARA model fit to surface level observations using NHC storm track and central pressure data through Forecast/Advisory 52 at 0300UTC on 9/12/2017.
Map is subject to change. Created on: 9/12/2017.

ARA

THE FLORIDA SENATE

Tallahassee, Florida 32399-1100

SENATOR DEBBIE MAYFIELD
17th District

COMMITTEES:
Education, Vice Chair
Government Oversight & Accountability, Vice Chair
Appropriations Subcommittee on the Environment and Natural Resources
Appropriations subcommittee on General Government
Agriculture
Judiciary

JOINT COMMITTEES:
Joint Legislative Auditing Committee, Alternating Chair

October 6, 2017

Chair Denise Grimsley
413 Senate Office Building
404 South Monroe Street
Tallahassee, FL 32399-1100

Re: Agriculture

Dear Chair Grimsley,

I am respectfully requesting an excused absence from the Agriculture committee meeting on October 12, 2017, scheduled from 10:00am to 12:30pm.

I appreciate your consideration of this request and I look forward to working with you and the Agriculture committee in the future. If you have any questions or concerns, please do not hesitate to call me directly.

Thank you,

Deb

Senator Debbie Mayfield
District 17

Cc: Katherine Becker, Kim Bonn, Marty Mielke, Anne Bell, Andrea Jahna, Jae Williams

REPLY TO:
❒ 900 E. Strawbridge Avenue, Melbourne, Florida 32901 (321) 409-2025
❒ 1801 27th Street, Vero Beach, Florida 32960 (772) 226-1970
❒ 324 Senate Office Building, 404 South Monroe Street, Tallahassee, Florida 32399-1100 (850) 487-5017

Senate's Website: *www.flsenate.gov*

JOE NEGRON
President of the Senate

ANITERE FLORES
President Pro Tempore

THE FLORIDA SENATE

Tallahassee, Florida 32399-1100

COMMITTEES:
Judiciary, *Chair*
Banking and Insurance, *Vice Chair*
Agriculture
Appropriations Subcommittee on Finance and Tax
Appropriations Subcommittee on Pre-K - 12 Education
Children, Families, and Elder Affairs
Regulated Industries

JOINT COMMITTEE:
Joint Committee on Public Counsel Oversight

SENATOR GREG STEUBE
23rd District

October 3, 2017

The Honorable Denise Grimsley
Florida Senate
413 Senate Office Building
404 South Monroe Street
Tallahassee, FL 32399-1100

Senator Grimsley,

Please excuse my absence from the Agriculture Committee Meeting scheduled for Thursday, October 12. Due to a previous commitment, I will not be able to attend the meeting. My apologies for the inconvenience.

Respectfully yours,

W. Gregory Steube
District 23

REPLY TO:
❒ 6230 University Parkway, Suite 202, Sarasota, Florida 34240 (941) 342-9162
❒ 326 Senate Office Building, 404 South Monroe Street, Tallahassee, Florida 32399-1100 (850) 487-5023

Senate's Website: *www.flsenate.gov*

JOE NEGRON
President of the Senate

ANITERE FLORES
President Pro Tempore

THE FLORIDA SENATE

Tallahassee, Florida 32399-1100

COMMITTEES:
Appropriations Subcommittee on Higher Education
Appropriations Subcommittee on Pre-K - 12 Education
Agriculture
Education
Environmental Preservation and Conservation

SENATOR GARY M. FARMER, JR.
34th District

October 11, 2017

Chair Grimsley
Senate Committee on Agriculture
335 Knott Building
Tallahassee, FL 32399-1100

Chair Grimsley,

I respectfully request for an excused absence from tomorrow's scheduled committee meeting. Unfortunately, I will not be in the Capitol at that time.

Respectfully,

Senator Gary Farmer
District 34

CC
Katherine Becker, Staff Director
Kim Bonn, Administrative Assistant
Anne Bell, Legislative Assistant
Andrea Jahna, Legislative Assistant
Marty Mielke, Legislative Assistant
Jae Williams, Legislative Assistant

REPLY TO:
❒ Broward College Campus, 111 East Las Olas Boulevard, Suite 913, Fort Lauderdale, Florida 33301 (954) 467-4227
❒ 216 Senate Office Building, 404 South Monroe Street, Tallahassee, Florida 32399-1100 (850) 487-5034

Senate's Website: *www.flsenate.gov*

JOE NEGRON
President of the Senate

ANITERE FLORES
President Pro Tempore

THE FLORIDA SENATE

APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

10/12/17
Meeting Date

Bill Number (if applicable)

Amendment Barcode (if applicable)

Topic Hurricane Irma Impacts on Citrus

Name G. Ellis Hunt, Jr.

Job Title Chairman

Address 605 E. Main Street
Street

Bartow FL 33830
City *State* *Zip*

Phone 863-537-3950

Email ehunt@hbcoop.com

Speaking: ☐ For ☐ Against ☑ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing Florida Citrus Commisison

Appearing at request of Chair: ☑ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☑ No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

This form is part of the public record for this meeting.

S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

10/12/17
Meeting Date

Bill Number (if applicable)

Topic Hurricane Irma Impacts on Citrus

Amendment Barcode (if applicable)

Name John Barben

Job Title President

Address 411 East Orange Street
Street

Phone 863-682-1111

Lakeland FL 33801
City *State* *Zip*

Email

Speaking: ☐ For ☐ Against ☑ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing Florida Citrus Mutual

Appearing at request of Chair: ☑ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☑ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

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10/12/17
Meeting Date

Bill Number (if applicable)

Amendment Barcode (if applicable)

Topic Hurricane Irma Impacts on Citrus

Name Shannon Shepp

Job Title Executive Director

Address 605 E. Main Street
Street

Phone 863-537-3950

Bartow FL 33830
City *State* *Zip*

Email sshepp@citrus.myflorida.com

Speaking: ☐ For ☐ Against ☑ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing Florida Department of Citrus

Appearing at request of Chair: ☐ Yes ☑ No

Lobbyist registered with Legislature: ☑ Yes ☐ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

10/12/2017
Meeting Date

Bill Number (if applicable)

Topic UF/IFAS Hurricane Impacts

Amendment Barcode (if applicable)

Name Dr. Jeanna Mastrodicasa

Job Title UF/IFAS Associate Senior Vice President

Address 1001 McCarty Hall D
Street
Gainesville, FL 32611
City *State* *Zip*

Phone 352-392-1971

Email jmastro@ufl.edu

Speaking: ☐ For ☐ Against ☑ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing UF Institute of Food and Agriculture Sciences

Appearing at request of Chair: ☑ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

Meeting Date

Bill Number (if applicable)

Topic UF/IFAS Hurricane Impact

Amendment Barcode (if applicable)

Name Laurie Hurner

Job Title County Extension Director Highlands County

Address 4509 George Blvd
Street

Phone 863-402-6540

Sebring FL 33875
City *State* *Zip*

Email lhurner@ufl.edu

Speaking: ☐ For ☐ Against ☑ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing UF Institute of Food and Agriculture Sciences

Appearing at request of Chair: ☑ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☑ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

Meeting Date	Bill Number (if applicable)

Topic UF/IFAS hurricane Impact

Amendment Barcode (if applicable)

Name Gene McAvoy

Job Title County Extension Director - Hendry County

Address PO Box 68 (Street)

Phone 850-674-4092

LaBelle, FL 33935 (City / State / Zip)

Email gmcavoy@ifas.ufl.edu

Speaking: ☐ For ☐ Against ☑ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing University of Florida Institute of Food and Agricultural Sciences

Appearing at request of Chair: ☑ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☑ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

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10/12/17
Meeting Date

Bill Number (if applicable)

Topic _____

Amendment Barcode (if applicable)

Name Ed Bravo

Job Title President of the Florida Nursery Growers & Landscape Association

Address _____ Phone _____
Street

_____ Email _____
City *State* *Zip*

Speaking: ☐ For ☐ Against ☐ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing _____

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

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10/12/17
Meeting Date

Bill Number (if applicable)

Topic _____

Amendment Barcode (if applicable)

Name Ken Barton

Job Title Executive Director of the Florida Peanut Producers Association

Address _____ Phone _____
Street

_____ Email _____
City *State* *Zip*

Speaking: ☐ For ☐ Against ☐ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing _____

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

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S-001 (10/14/14)

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APPEARANCE RECORD

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10/12/17
Meeting Date

Bill Number (if applicable)

Topic _____

Amendment Barcode (if applicable)

Name Gaston Cantens

Job Title Vice President, Florida Crystals Corporation

Address _____ Phone _____
Street

_____ Email _____
City *State* *Zip*

Speaking: ☐ For ☐ Against ☐ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing _____

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

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S-001 (10/14/14)

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APPEARANCE RECORD

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10/2/17
Meeting Date

Bill Number (if applicable)

Topic _____

Amendment Barcode (if applicable)

Name Joe Collins

Job Title Senior VP of Lykes Brothers

Address _____ Phone _____
Street

_____ Email _____
City *State* *Zip*

Speaking: ☐ For ☐ Against ☐ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing _____

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

Meeting Date

Bill Number (if applicable)

Topic _____

Amendment Barcode (if applicable)

Name Ben Butler

Job Title _____

Address _____ Phone _____
Street

_____ Email _____
City *State* *Zip*

Speaking: ☐ For ☐ Against ☐ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing Butler Oaks Dairy

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

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10/12/17
Meeting Date

Bill Number (if applicable)

Topic _____

Amendment Barcode (if applicable)

Name Jim Handley

Job Title Executive Director of FL Cattlemen's Association

Address _____ Phone _____
Street

_____ Email _____
City *State* *Zip*

Speaking: ☐ For ☐ Against ☐ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing _____

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

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10/12/17
Meeting Date

Bill Number (if applicable)

Topic _____

Amendment Barcode (if applicable)

Name Dudley Calfee

Job Title President, Florida Blueberry Growers Association

Address _____ Phone _____
Street

_____ Email _____
City *State* *Zip*

Speaking: ☐ For ☐ Against ☐ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing _____

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

Meeting Date | *Bill Number (if applicable)*

Topic _____ *Amendment Barcode (if applicable)*

Name Al Herndon

Job Title _____

Address _____ Phone _____
Street

_____ Email _____
City *State* *Zip*

Speaking: ☐ For ☐ Against ☐ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing Ferris Farms

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

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S-001 (10/14/14)

THE FLORIDA SENATE

APPEARANCE RECORD

(Deliver BOTH copies of this form to the Senator or Senate Professional Staff conducting the meeting)

10/12/17
Meeting Date

Bill Number (if applicable)

Topic _____

Amendment Barcode (if applicable)

Name Kenneth Parker

Job Title Executive Director, FL Strawberry Growers Association

Address _____ Phone _____
Street

_____ Email _____
City *State* *Zip*

Speaking: ☐ For ☐ Against ☐ Information

Waive Speaking: ☐ In Support ☐ Against
(The Chair will read this information into the record.)

Representing _____

Appearing at request of Chair: ☒ Yes ☐ No

Lobbyist registered with Legislature: ☐ Yes ☐ No

While it is a Senate tradition to encourage public testimony, time may not permit all persons wishing to speak to be heard at this meeting. Those who do speak may be asked to limit their remarks so that as many persons as possible can be heard.

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S-001 (10/14/14)

CourtSmart Tag Report

Room: SB 301 **Case No.:** **Type:**
Caption: Agriculture Committee **Judge:**

Started: 10/12/2017 10:01:07 AM
Ends: 10/12/2017 12:18:36 PM Length: 02:17:30

10:01:10 AM Roll call
10:01:27 AM Quorum Present
10:01:55 AM Welcome from Sen Grimsley
10:04:42 AM Tab 1 Remarks from Commissioner Adam Putnam
10:13:45 AM Questions?
10:13:48 AM Question - Sen Rouson
10:15:03 AM Commissioner Putnam Response
10:17:07 AM Question from Sen Rader
10:19:23 AM Response from Commissioner Putnam
10:22:15 AM Dr. Jeanna Mastrodicasa from UF/IFAS recognized
10:23:38 AM Presentation from Gene McAvoy from UF/IFAS
10:30:14 AM Questions?
10:30:21 AM Presentation from Laurie Hurner, UF/IFAS
10:41:31 AM Questions?
10:41:37 AM Question from Sen Rader
10:42:28 AM Response from Gene McAvoy
10:43:01 AM Response from Laurie Hurner
10:43:42 AM Dr Jeanna Mastrodicasa Concluding Remarks
10:44:36 AM Tab 2, Panel Discussion on the impact of Hurricane Irma to FL Agriculture
10:45:22 AM Ed Bravo, President of the Florida Nursery Growers and Landscape Association
10:53:23 AM Gaston Cantens, Vice President of the Florida Crystals Corporation
11:04:46 AM Al Herndon, Ferris Farms
11:09:52 AM Kenneth Parker, Executive Director of the FL Strawberry Growers Assoc.
11:12:17 AM Dudley Calfee, President of the FL Blueberry Growers Assoc.
11:16:52 AM Ken Barton, President of the Peanut Producers Assoc.
11:22:49 AM Question: Sen. Powell
11:22:57 AM Response: Mr. Calfee
11:23:38 AM Question: Sen. Baxley
11:27:00 AM Response: Mr. Bravo
11:28:24 AM Question/Comment: Sen. Rouson
11:29:06 AM Response: Mr. Herndon
11:30:11 AM Further response, Mr. Parker
11:31:21 AM Question: Sen. Radar
11:33:07 AM Panel #2, Citrus and Cattle panelists
11:34:11 AM Mr. John Barben, President of FL Citrus Mutual
11:40:15 AM Mr. Ellis Hunt, Chairman of the FL Citrus Commission
11:49:59 AM Mr. Joe Collins, Senior Vice President of Lykes Brothers
11:58:37 AM Mr. Ben Butler, Butler Oaks Dairy
12:05:13 PM Mr. Jim Handley, Executive Director of the FL Cattlemen's Assoc.
12:12:48 PM Chair Grimsley response and question
12:16:58 PM Senator Rouson comments
12:18:28 PM Senator Baxley moves we adjourn