



Updated: May 2019

## UF/IFAS Industrial Hemp Pilot Project

**Dr. Zachary Brym**

Assistant Professor, Agronomy Department  
Tropical Research and Education Center



# What is Industrial Hemp

*Cannabis sativa* with THC < 0.3% per dry weight

**Botanically:** indistinguishable from marijuana

**Legally:** distinguished by THC content

**Economically:** potentially valuable alternative crop

**Ecologically:** potential invasive species



# What is Medical Marijuana

*Cannabis sativa* with THC > 0.3% per dry weight

Medical applications include:

- Treat diseases (e.g., Epilepsy, Multiple sclerosis)
- Treat conditions (e.g. pain, nausea)





# Why Industrial Hemp

## Multi-use crop

- Fiber (textiles)
- Food (hemp seed oil, greens)
- Feed (forage)
- Building material (hempcrete)
- Bioplastics
- Medicinal (CBD extract)
- Environmental remediation





# Why Pilot Project at UF/IFAS

## The Risks

- Seed import and transportation
- THC testing and hot plants
- Biosecurity and invasion potential
- Lack of registered agrochemicals
- Personal security, theft, and law enforcement
- Bond requirements and financing



## The Unknowns

- Plant varieties
- Cropping Systems
- Economics and Markets
- Environmental Impacts



# How Pilot Project at UF/IFAS

## Initial Authorization

- Federal – 2014 Farm Bill, 7 U.S.C. s.5940, Legitimacy of industrial hemp research. DEA – Schedule 1 Permit and other forms for seed procurement.
- State – Florida Statute 1004.4473 (2017), Industrial hemp pilot projects
- FDACS – Rule 5B-57.013 (2018), Industrial hemp planting permits
- UF – Board of Trustees



# How Pilot Project at UF/IFAS

## **What was mandated?**

- Industry-funded
- 2-year pilot project (starts at planting date)
- Report project outcomes to legislation

## **How did UF respond?**

- Hemp production limited to UF facilities
- Genetics through variety trials without breeding
- Processing and market research without product sales

# How Pilot Project at UF/IFAS

## Updates to Authorization

- Federal – 2018 Farm Bill
  - Hemp = ag commodity, NOT controlled substance
  - USDA controls hemp production
    - Farmers access financing and insurance
    - Hemp production still regulated
  - FDA controls hemp products
- State – SB 1020, State Hemp Program
- FDACS – New rule to USDA, include private permits

**\*It is still illegal to grow hemp without a permit in FL\***



# UF/IFAS Research Objectives

**The Goal** Support the future viability and sustainability of an industrial hemp industry

**The Plan** Industry funded research and outreach at UF/IFAS research facilities with a multidisciplinary team to:

- Identify hemp varieties suitable for planting in Florida's various environments
- Develop hemp management practices and cropping systems economically viable for Florida
- Assess hemp invasion risk in Florida's natural and built environments

# UF/IFAS Research Team

**Dr. Zachary Brym**, Project Coordinator, Agronomy

**Dr. John Erickson**, Agronomy

**Dr. Michael Mulvaney**, Agronomy

**Dr. Josh Freeman**, Horticulture

**Dr. Luke Flory**, Invasion Ecology

**Dr. Edward Evans**, Economics

**Dr. Brian Pearson**, Propagation Horticulture

**Dr. Lance Osborne**, Entomology

**Dr. Johan Desaege**r, Nematology

**Dr. Natalia Peres**, Pathology

**Dr. Christopher McCurdy**, Analytical chemistry

**Jerry Fankhauser**, Florida Ag. Experiment Station-UF/IFAS

Lead Oversight Manager



# UF/IFAS Permitted Locations

**Plant Science Research and Education Unity – Citra**

**Main Campus – Gainesville**

**Bivens Arm – Gainesville**

**Agronomy and Forage Research Unit – Hague**

**Topical Research and Education Center – Homestead**

**North Florida Research and Education Center – Quincy**

**Mid-Florida Research and Education Center – Apopka**

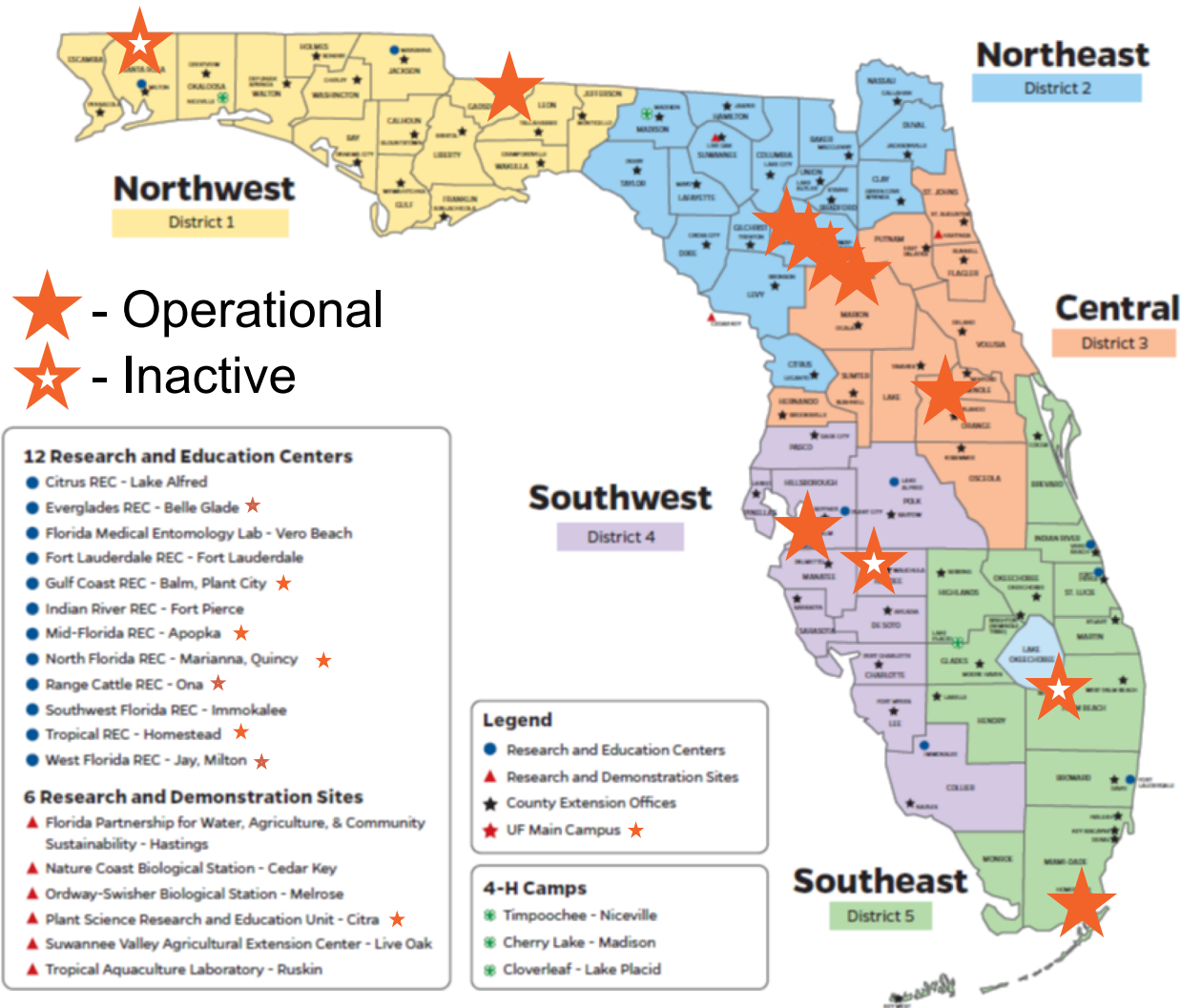
**Gulf Coast Research and Education Center – Wimauma**

***Everglades Research and Education Center – Belle Glade***

***West Florida Research and Education Center – Jay***

***Range Cattle Research and Education Center – Ona***

# UF/IFAS Statewide Facilities





# UF/IFAS Research Activities

## **Hemp Varieties**

- 46 varieties obtained for trial (grain, fiber, CBD)
- Germination, flowering, height, biomass, yield, disease, THC, CBD

## **Hemp Management**

- Research scale production (3 production sites, 2-4 acres each site)
- Planting date experiment with select varieties
- Fertilizer response experiment with select varieties
- Propagation and basic physiology with CBD hemp
- Pest and disease screening

## **Invasion Risk**

- Greenhouse (light, water, soil response) and field experiment
- Control measures to minimize escape and spread
- Invasion risk scenarios in cropping systems across Florida

# UF/IFAS Field Locations

We are operational! First outdoor hemp plants in decades!!

- North Florida Research & Education Center, Quincy (NFREC-Quincy)
- Tropical Research and Education Center, Homestead (TREC)
- Agronomy Forage Research Unit, Hague (AFRU)
- Bivens Arm, Gainesville (Invasion risk)





# UF/IFAS Indoor Locations

Propagation and plant physiology in controlled environment

- Mid-Florida Research and Education Center, Apopka (MREC-Apopka)
- North Florida Research & Education Center, Quincy (NFREC-Quincy)
- Gulf Coast Research & Education Center, Wimauma (GCREC-Wimauma)
- Bivens Arm, Gainesville
- Main Campus, Gainesville





# UF/IFAS Variety List

Grain/Fiber		Grain		Fiber		CBD	
Bama	South China	CFX-1	Canada	Eletta	Italy	AC DC	CO
Canda	Canada	CFX-2	Canada	Campana		Baox	NC
Carmagnola	Italy	CRS-1	Canada	Fibranova	Italy	Berry Blossom	CO, NC
Carmagnola	Italy			Puma-3	South China	BR Cherry	CO
Selezionata				Puma-4	South China	Cherry	CO
Han FN-H	North China					Cherry B	NC
Han FN-Q	North China					Cherry	CO, NC
Han NE	Central China					Blossom	
Han NW	Central China					Cherry	CO
Helena	Serbia					Blossom x T1	
Joey	Canada					Cherry Wine	CO, NC
Si-1	South China					CW-1	CO
Tygra	Poland					Endurance	NC
Yuma	South China					JL Baux	CO
Yuma-2	South China					Lifter	NC
						Stout	NC
						Super CBD	CO
						Suver Haze	NC
						T1	NC
						Therapy	NC
						Wife	CO

\*We do not expect all of these to do well.\*

# Ways to Get Involved

## Program Activities

- Workshops
  - Field days
- \*Summer 2019\*

## Advisory Group

- Oversee program execution
- Aid in program decisions

## Qualified Project Partners

- Formal volunteer opportunity
- On-farm research \*Requires new FDACS rule\*

## Project Sponsors

- Workshops and Field Days
- Research Activities



# UF/IFAS Sponsorship

## **Sponsored Programs' Research Agreement – \$1.3 million**



- First sponsor required for UF BOT approval and project initiation
- Current pilot project objectives and research activities

## **Florida Industrial Hemp Endowment – \$40,100 + in-kind donations**

- Additional plant material - CBD hemp
- Additional objectives - genetics, propagation, indoor grow, communications, hemp products incubator, additional sites
- Additional locations - Belle Glade, Jay, Ona, and Immokalee
- Multiple sponsors critical to our purpose
- Donate to Fund #023613      <https://www.uff.ufl.edu/give/fih2>





# THANK YOU!

<https://programs.ifas.ufl.edu/hemp/>

Newsletter: <https://programs.ifas.ufl.edu/hemp/newsletter>  
Email: [hemp@ifas.ufl.edu](mailto:hemp@ifas.ufl.edu)  
Endowment: <https://www.uff.ufl.edu/give/fih2>