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 Desaeger, 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
- Operational
- Inactive
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**

<table>
<thead>
<tr>
<th>Grain/Fiber</th>
<th>Grain</th>
<th>Fiber</th>
<th>CBD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bama</td>
<td>CFX-1</td>
<td>Eletta</td>
<td>AC DC</td>
</tr>
<tr>
<td>Canada</td>
<td>CFX-2</td>
<td>Campana</td>
<td>Baox</td>
</tr>
<tr>
<td>Carmagnola</td>
<td>CRS-1</td>
<td>Fibranova</td>
<td>Berry Blossom</td>
</tr>
<tr>
<td>Carmagnola</td>
<td>Canada</td>
<td>Puma-3</td>
<td>BR Cherry</td>
</tr>
<tr>
<td>Selezionata</td>
<td></td>
<td></td>
<td>Cherry</td>
</tr>
<tr>
<td>Han FN-H</td>
<td>Canada</td>
<td></td>
<td>Cherry B</td>
</tr>
<tr>
<td>Han FN-Q</td>
<td>North China</td>
<td></td>
<td>Cherry</td>
</tr>
<tr>
<td>Han NE</td>
<td>Central China</td>
<td></td>
<td>Cherry Blossom</td>
</tr>
<tr>
<td>Han NW</td>
<td>Central China</td>
<td></td>
<td>Blossom</td>
</tr>
<tr>
<td>Helena</td>
<td>Serbia</td>
<td></td>
<td>Cherry</td>
</tr>
<tr>
<td>Joey</td>
<td>Canada</td>
<td></td>
<td>Cherry x T1</td>
</tr>
<tr>
<td>Si-1</td>
<td>South China</td>
<td></td>
<td>Cherry Wine</td>
</tr>
<tr>
<td>Tygra</td>
<td>Poland</td>
<td></td>
<td>CW-1</td>
</tr>
<tr>
<td>Yuma</td>
<td>South China</td>
<td></td>
<td>Endurance</td>
</tr>
<tr>
<td>Yuma-2</td>
<td>South China</td>
<td></td>
<td>JL Baux</td>
</tr>
</tbody>
</table>

*We do not expect all of these to do well.*
Ways to Get Involved

Program Activities
• Workshops *Summer 2019*
• Field days

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