UF/IFAS Hemp Pilot Project Update
Florida Agricultural Policy Outlook Conference
February 27, 2020

Jerry Fankhauser, Assistant Director
Florida Agricultural Experiment Station - UF/IFAS
Lead Oversight Manager, UF/IFAS Hemp Pilot Project
Dean for Research Office – Handling Pilot Project Logistics

- Dean & Director of Florida Ag. Experiment Station is Dr. Rob Gilbert – Initially Lead Oversight Manager for Hemp Pilot Project

- Assistant Director – Jerry Fankhauser

My experience...

- Former director of Purdue Agricultural Centers & assistant director of Indiana Ag. Experiment Station (split appt.)
- Technical Service Representative for American Cyanamid in northern Ohio (1995-1997)
Hemp Production – Options

Hemp is... low THC Cannabis Sativa L. (≤ 0.3% Delta-9 THC by dry wt.)

Fiber (Stem)  Grain (Seed)  CBD (Flower)
What are cannabinoids?

- Biologically active compounds in Cannabis.
- Originally over 110 have been identified, but might be closer to 200.
  - Terpenes and Flavonoids = might be better to use the whole compound and not just a single derivative.
- $\Delta^9$-Tetrahydrocannabinol (THC) is the main psychoactive component in the plant it is usually more abundant in the acidic form: $\Delta^9$-Tetrahydrocannabinolic Acid.
- Heat and light convert the acidic form to the neutral form.
- THC can be reported as Total Potential THC which is equal to $[(0.877 \times \text{Concentration of } \Delta^9\text{THCA}) + \text{Concentration of } \Delta^9\text{THC}]$ and must be below 0.350% on a dry weight basis.
Industrial Hemp Pilot Projects

2014 US Farm Bill
2017 Florida Statute
2018 FDACS Rule & BOT Approval
2019 Planting Permits
Dec. 2019 BOT Approval

Mandate

• Industry-funded
• 2-year pilot project (2019 – 2021)
• Report project outcomes to Governor & State Legislators

Response (Initial Approval)

• Hemp production limited to UF facilities
• Genetics through variety trials without breeding efforts
• Processing and market research without product sales
UF/IFAS Research Objectives

Overall goal... support the future viability and sustainability of an industrial hemp industry

The initial 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
• Work closely with UF/IFAS Extension to provide production-oriented information to Florida growers (Transfer knowledge!)
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 - $250,000 + in-kind donations
• Additional plant material - CBD hemp
• Additional objectives - genetics, propagation, indoor grow, communications, hemp products incubator, additional sites
• Additional locations – Citra (2020), Jay (2020), Ona, and ???
• Multiple sponsors & state funding critical to our purpose!
>20 Faculty, 8 Units

Agronomy
Horticulture Sciences
Environmental Horticulture
Economics
Entomology and Nematology
Plant Pathology
Florida Agriculture Experiment Station
UF College of Pharmacy

UF/IFAS Statewide Facilities

Legend
- Research and Education Centers
- Research and Demonstration Sites
- County Extension Offices
- UF Main Campus

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

4-H Camps
- Timpowee - Niceville
- Cherry Lake - Madison
- Cloverleaf - Lake Placid

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## Pilot Project Field Trials – Seed/Cultivars

<table>
<thead>
<tr>
<th>Grain/Fiber</th>
<th>Grain</th>
<th>Fiber</th>
<th>CBD</th>
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<tbody>
<tr>
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<td>Eletta</td>
<td>Berry Blossom</td>
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<tr>
<td>Canada</td>
<td>CFX-2</td>
<td>Campana</td>
<td>Cherry</td>
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<tr>
<td>Carmagnola</td>
<td>CRS-1</td>
<td>Fibranova</td>
<td>Blossom</td>
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<tr>
<td>Carmagnola</td>
<td>Canada</td>
<td>Puma-3</td>
<td>Cherry Blossom x T1</td>
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<td>Selezionata</td>
<td>Canada</td>
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<td>Han FN-H</td>
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<tr>
<td>Joey</td>
<td>Canada</td>
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<tr>
<td>Si-1</td>
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<tr>
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<tr>
<td>Yuma-2</td>
<td>South China</td>
<td>United States</td>
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</tbody>
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**Shown in photo:**
1) Si-1  2) Cherry Wine  3) Tygra  4) Eletta Campana  5) Puma-3
Hemp Cultivar Adaptability in Florida

Performance on the field or in the field... “tools”

**Seeking baseball talent, one looks for 5 tools:**

- Speed
- Power
- Hitting for Average
- Arm Strength
- Fielding

**Seeking adapted Hemp, growers should look for (at least) 5 tools:**

- Low & Stable Total THC
- Seed/Plant Vigor & Viability
- Daylength/Photoperiod Appropriate
- Pest Resistance (*disease, insect, nematode*)
- Yield! (Cannabinoid, grain, or fiber)
2019 Field Trials

Hemp Genetics
- 30+ hemp varieties from seed and cuttings
- Uses: fiber, grain, cannabinoids
- Origin: North America, Europe, Asia

Locations
- NFREC - Quincy
- AFRU - Hague
- EREC - Belle Glade
- TREC - Homestead

Research Focus
- Cultivar screening
- Planting date
- Seed emergence
- CBD & THC Levels
Pilot Project Field Research
Tropical REC-Homestead

- South Chinese Fiber Type
- Dual Type
- European Dual Type
- Fiber Type
Pilot Project Field Research
Gulf Coast REC-Balm

Efforts: Disease & Nematode Pressure, Photoperiod Demonstration Trial
Pilot Project Field Research
North Florida REC-Quincy
North Florida REC-Quincy
2019 Cannabinoid Development Study

CBL - Cherry Blossom
CT1 - Cherry x T1
CW - Cherry Wine
KG 9201 - Kayagene (Day Neutral)
KG 9202 - Kayagene (Day Neutral)
UF/IFAS Indoor Locations

- Mid-Florida Research and Education Center, Apopka (MREC-Apopka) **CBD hemp genetics**
- North Florida Research & Education Center, Quincy (NFREC-Quincy) **field level propagation**
- Gulf Coast Research & Education Center, Wimauma (GCREC-Wimauma) **greenhouse: pests**
Pilot Project Field Research
AFRU-Hague (Alachua County)

Issues: Lack of drainage and excessive weed pressure
Field Trial Challenges: Weeds
Phase II Request & Approval

- Pursue additional state and industry funding
- Qualify industry project partners
- Seek to engage with growers in on-farm trials
- Set stage for genetics research leading to hemp breeding efforts
Qualified Project Partners & On-Farm Trials

Better understand risk and potential for profitable industry in Florida

Midpoint Biomass Spot Price (per % CBD Content/lb) PanXchange Average Price Index (CO,KY,OR)

Source: PanXchange (January 2020)

January 2019: $3.50/Point
January 2020: $0.72/Point
Issues of concern for Florida growers include:

• Lack of “certified” or “approved” hemp seed and cultivars
• Lack of registered hemp crop protection products (e.g. herbicides & insecticides)
• Adapted hemp cultivars in outdoor grow systems
• Acceptable THC ($\leq 0.3\%$ Delta-9 THC by dry wt) levels near/at harvest
• Potential for pollen drift from grain/fiber production
• Lack of structured and stable markets for flowers, stalks, & grain

THANK YOU!

Website: https://programs.ifas.ufl.edu/hemp/
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