



*International Forage & Turf Breeding Conference*

*March 25, 2019*

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**John C. Beuttenmuller**

Executive Director

Florida Foundation Seed Producers, Inc.

# Discussion Topics

- Overview of:
  - Florida Foundation Seed Producers, Inc. (FFSP)
    - Seed Production Operations
    - Plant Variety Licensing Operations
      - UF/IFAS Royalty Distribution Policy
  - Plant Breeding at the UF/IFAS
  - Importance of Synergistic Collaboration



# FFSP History

- 1943 - Florida Crop Improvement Association
  - Established as a non-profit
  - Originally founded in DeFuniak Springs, FL
- 1957 – Reorganized and renamed as the Florida Foundation Seed Producers, Inc. (FFSP)



# FFSP History

## FFSP Purpose (1957)

- To provide that there is available annually to Florida producers of crop seeds, foundation seed stocks of the best known varieties adaptable to Florida climate and soils in adequate quantities and at reasonable prices.
- To cooperate with the Agricultural Experiment Stations, University of Florida, in making available to the farmers of Florida new and improved varieties of crop seed.



# FFSP History

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## ➤ 1973

- FFSP becomes direct support organization (“DSO”) of UF
- Organized and operated exclusively to receive, hold, invest, and administer property and to make expenditures to or for the benefit of UF



# FFSP – Board of Directors

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- 13 members
  - 9 board seats are held by representatives from the diverse agricultural industries which are served by the mission of FFSP
  - 1 seat is held by the UF/IFAS Dean for Research
  - 1 seat is held by the UF/IFAS Dean for Extension
  - 1 seat appointed by the President of UF
  - 1 seat appointed by the UF Board of Trustees



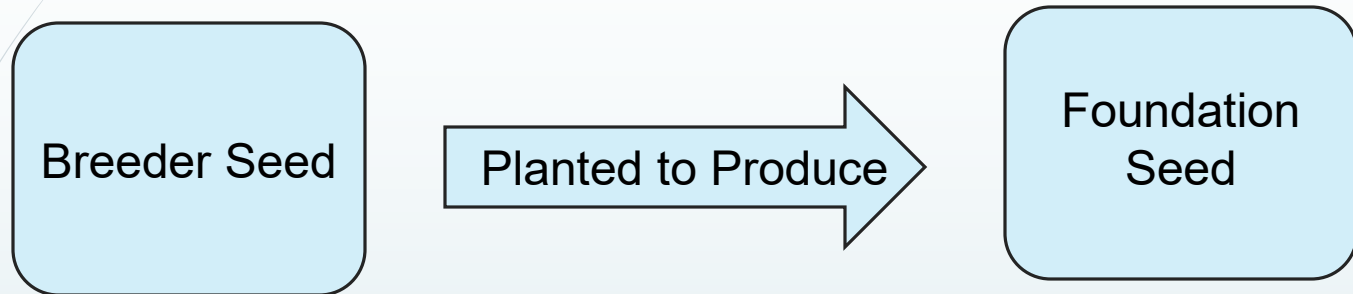
# What is Foundation Seed?

- Plant breeder increases “breeder” seed or “breeder” stock of new variety in anticipation of releasing the variety





# What is Foundation Seed?



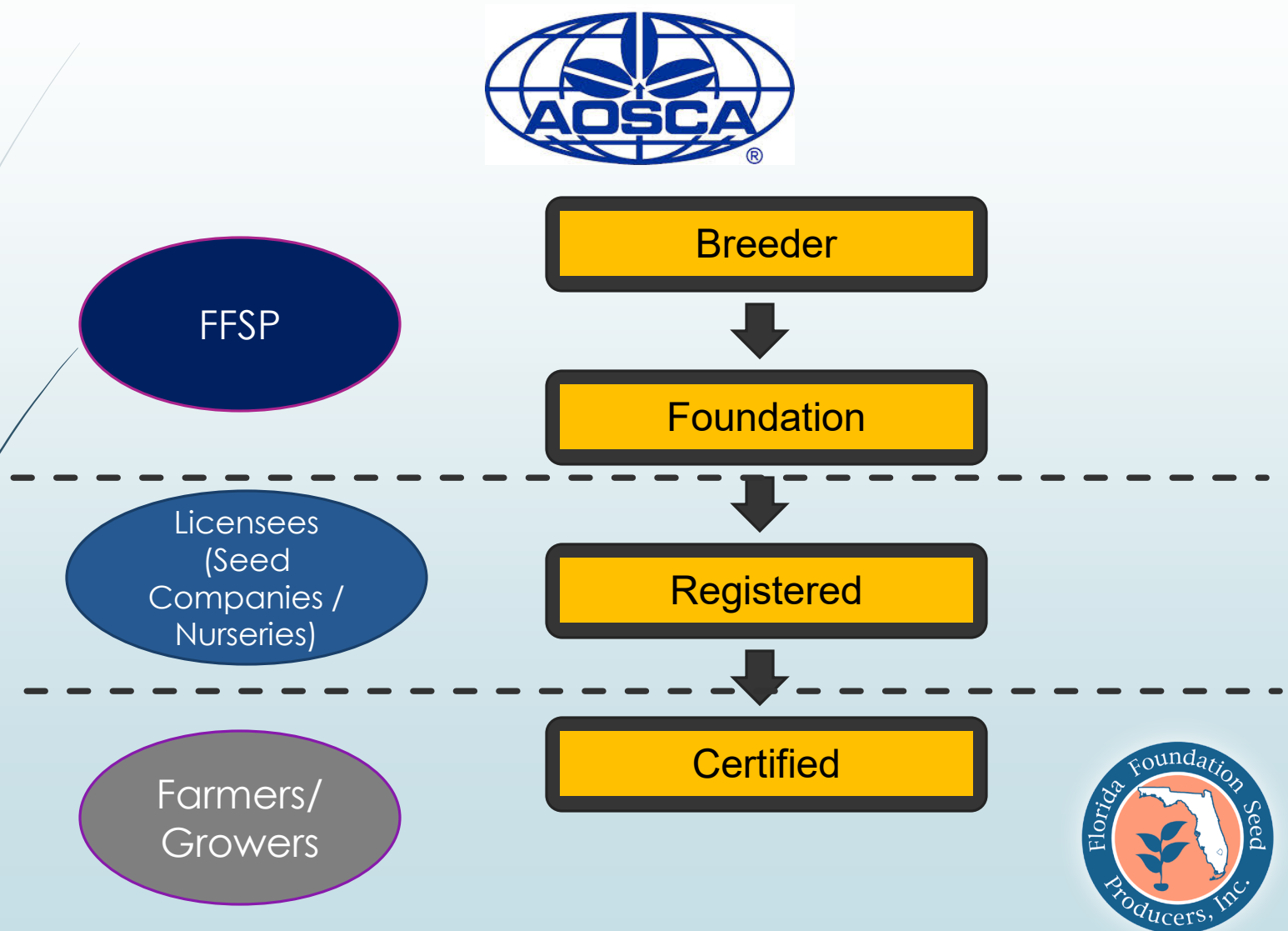


# What Happens to Foundation Seed?

- Foundation seed is grown by FFSP and its contract growers, harvested, processed, cleaned, treated, and packaged



# Production of Certified Seed



# FFSP Today

- Main office in Marianna, Florida
  - Adjacent to the UF/IFAS North Florida Research and Education Center (Marianna)
- Additional office in Gainesville, FL



# FFSP Today

Two main functions:

## 1. Production

1. E.g.: Peanut, Oat, Triticale, Bahiagrass, Rye, Soybean, Grain Sorghum, Wheat, Corn, Blueberry, Strawberry

## 2. Licensing

1. Technology transfer and intellectual property licensing of new plant varieties and germplasm



# University of Florida: Intellectual Property Policy

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- Research conducted by University personnel
  - Patentable inventions and other marketable forms of intellectual property result
- Obligation to serve the public interest by ensuring that intellectual property is appropriately developed



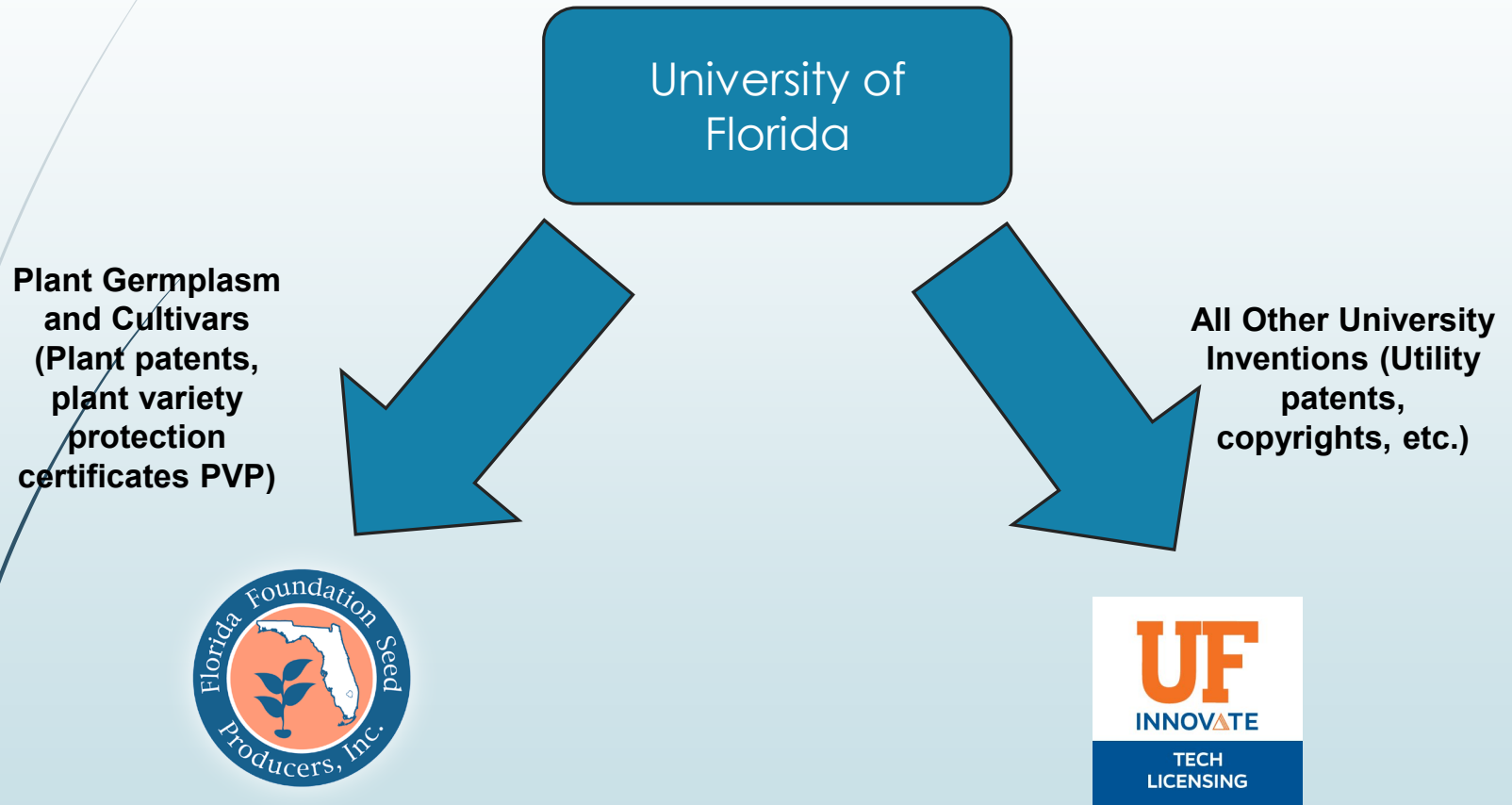
# University of Florida: Intellectual Property Policy

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- Encourage and enable technology development and transfer for benefit of the public
- Encourage the creation of technology by providing incentive to inventors
- Fund further research at the University



# University of Florida: Intellectual Property Policy





# University of Florida: Intellectual Property Policy

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- Royalty Distributions for Utility Patents (UFRF):
  - Costs deducted prior to distribution (patent expenses, etc.)
    - For first \$500,000:
      - 40% to the creator(s)
      - 10% to the program(s)
      - 7.5% to the creator(s)'s department
      - 7.5% to the creator(s)'s college
      - 35% to UFRF



# University of Florida: Intellectual Property Policy

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- Royalty Distributions for Utility Patents (UFRF):
  - Above \$500,000:
    - 25% to the creator(s)
    - 10% to the program(s)
    - 10% to the creator(s)'s department
    - 10% to the creator(s)'s college
    - 45% to UFRF



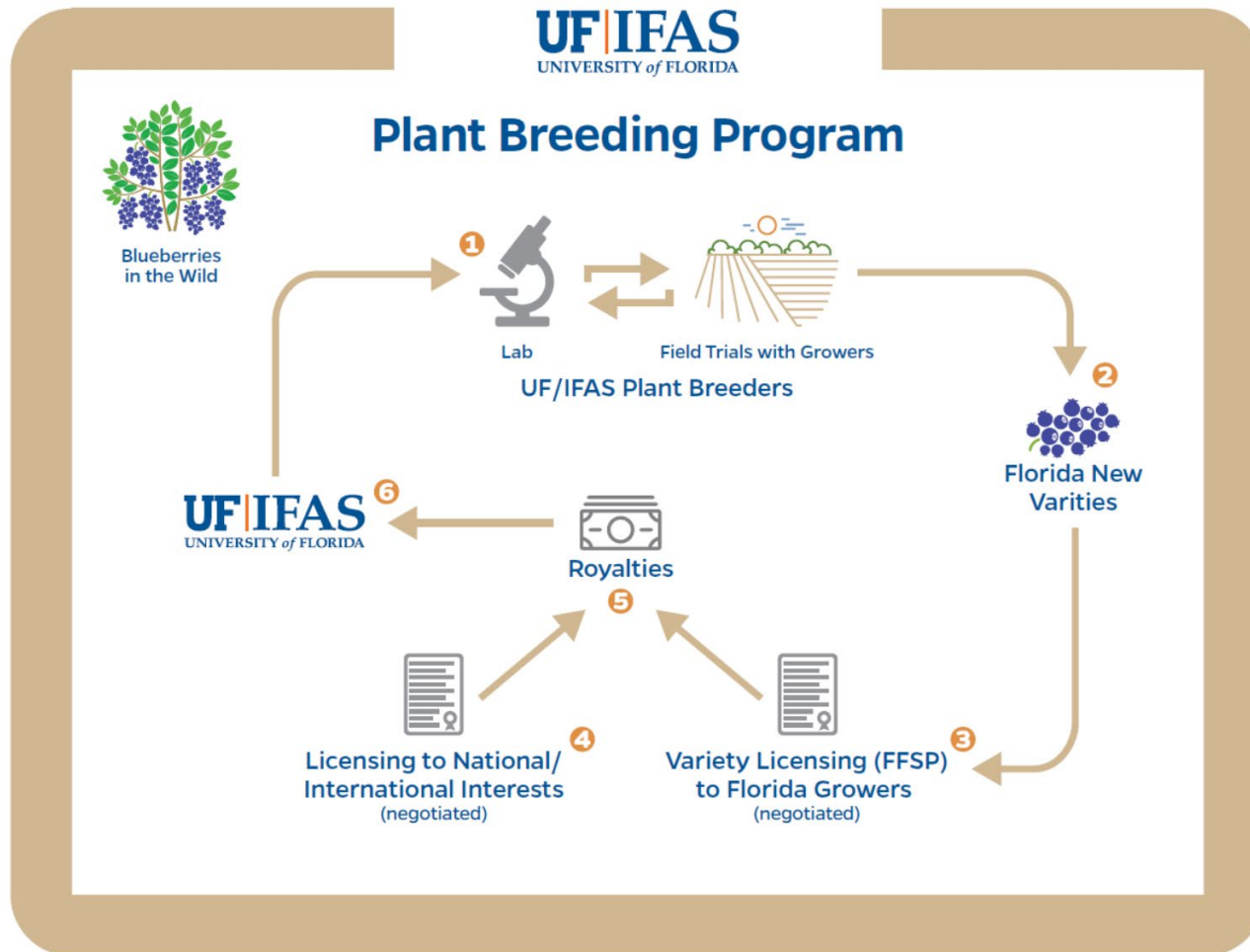
# University of Florida: Intellectual Property Policy

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- Royalty Distributions for Cultivars and Germplasm (FFSP):
  - Costs deducted prior to distribution (patent expenses, etc.)
  - **70%** to Cultivar Development Research Support Program (i.e. the developing plant breeder's research program)
  - 20% personal incentive to inventors/cooperating scientists
  - 10% retained by FFSP



# Fueling Innovations at UF/IFAS



# Plant Breeding @ UF/IFAS

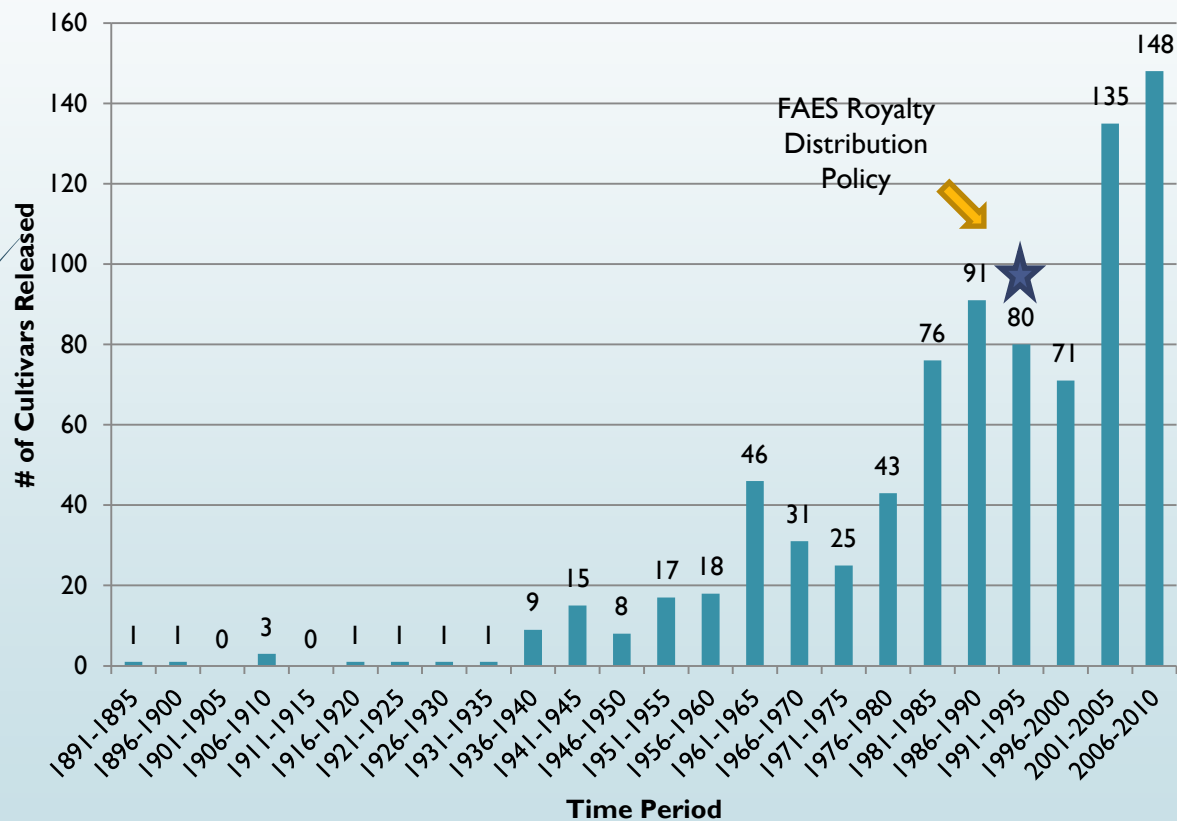
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- 30 plant breeding faculty
- 3 academic departments, 1 school
- Diverse group of species
- Faculty based on campus and across the state at Research and Education Centers (RECs)
- Focuses:
  - Development of improved germplasm and cultivars
  - Graduate student education



# Plant Breeding @ UF/IFAS

**Figure 1. FAES Cultivars Released**



# Collaboration

- Within:
  - A lab
  - A department
  - An institution
  - A group of institutions within a region
  - Multiple agencies
  - State/federal
  - International
  - Public/private
  
- How are multi-disciplinary teams incentivized





# Collaboration

synergism (noun)

syn·er·gism | \ 'si-nər-,ji-zəm \

interaction of discrete agencies (such as industrial firms), agents (such as drugs), or conditions such that the total effect is greater than the sum of the individual effects



# Future Challenges

- There is an increasing need for improved efficiency:
  - Water-use efficiency
  - Nutrient efficiency
    - Fewer inputs, higher yields
  - Produce more food, fiber, and feed on fewer acres
- 9 billion people by 2050



# Future Challenges

- Next year's problems won't be any easier to solve
- The answers to these challenges is found within science



# Synergistic Collaboration

- ▶ We all must have a commitment to leveraging the diversity of our individual strengths, backgrounds, and experiences to work collaboratively across disciplines, institutions, and borders to seek synergies.
- ▶ Our current and future challenges are too important





# Synergistic Collaboration

- Within UF/IFAS
  - Plant Breeder's Working Group
    - 3 academic departments, 1 school
    - Critical to training plant breeding students
    - Promoting the discipline of plant breeding within and across UF
  - Plant Breeding Graduate Initiative
    - Enhance interactions between UF plant breeding faculty and faculty in other disciplines such as plant physiology, entomology, plant pathology, agricultural economics, social sciences and plant molecular and cellular biology (PMCB)



# Synergistic Collaboration

- ▶ With Regional Institutions/Land Grant Universities



- ▶ Started in 2005 (5 institutions)
- ▶ Now includes 6 institutions
  - ▶ University of Arkansas
  - ▶ University of Florida
  - ▶ University of Georgia
  - ▶ Louisiana State University Agricultural Center
  - ▶ North Carolina State University
  - ▶ Texas A&M University



# Synergistic Collaboration

- With Regional Institutions/Land Grant Universities



- Mission:

To increase efficiency and productivity of the breeding programs to ensure development of superior varieties that serve all end users; to enhance graduate student training in applied and basic plant breeding and genetics research; and to ensure long-term viability of these programs by increasing opportunities for program funding through revenues and enhanced extramural funding.





# Synergistic Collaboration

- With Regional Institutions/Land Grant Universities



# Synergistic Collaboration

- With Regional Institutions/Land Grant Universities and State/Federal



- Turfgrass water use – limited irrigation/long-term drought
- Developing grasses that require less irrigation
- 24-member team
  - Turfgrass breeders, extension specialists, plant physiologists, irrigation engineers, molecular biologists, and agricultural socio-economists from five major universities across the southern U.S.
    - Florida, Georgia, North Carolina, Oklahoma, and Texas
- 2010-2015, 2015-2019 - \$8 million in funding



# Synergistic Collaboration

- With International Institutions

- 'Cantara' Oat

- A variety jointly developed by UF/LSU and INIA (Uruguay)



# Synergistic Collaboration

- ▶ With International Institutions
  - ▶ Collaborative Breeding and Development of Grass and Legume Species
    - ▶ UF and Universidad Nacional Del Nordeste (UNNE) - Argentina



# Synergistic Collaboration

## ► Public/Private Partnerships



- QION is a collaborative effort among oat breeders from more than twenty research institutions worldwide
- Sharing of the most productive oat breeding lines with each other, along with their scientific knowledge.
- Collaborative development of new oat varieties that are resistant to diseases and environmental stresses



# Synergistic Collaboration

- Public/Private
- Sponsored Research
  - “Development and Evaluation of St. Augustinegrass for Rooting, Disease, and Insect Responses”



**CitraBlue**<sup>™</sup>  
St. Augustine





# Synergistic Collaboration

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