College of Agriculture
Karen Plaut, Glenn W. Sample Dean
February 6, 2019

Where We Are Today

• #9 in the world, #6 in the US

Giant Leaps for Next 150 years

• Excellence and Innovation
  • Lead Global Online Education
  • Make Cutting Edge Discoveries
  • Grow Entrepreneurship
  • Enhance Partnerships
  • Deliver a Global Impact
97% employed or continuing education (May 2017 grads)
- $45,000 average starting salary
- 4 yr graduation rate – 70%
- 6 yr graduation rate – 80%

Leadership and Excellence (last 10 years)

Graduate and Undergraduate Success

Undergraduates
- 76% Indiana

Graduate Students
- 2018
- $2.5 Million in scholarships to 1,061 students
New Hires

Bernie Engel, Assoc Dean
Ag Research and
Graduate Education

Brady Brewer
Ag Finance and
production

Nathan Delay
Ag Analytics and
Production

Brock Harpur
Pollinator Specialist

Sarah LaRose
Ag Education

Meilin Ma
Food Supply Chain

Darcy Telenko
Field Crops Pathologist
Purdue Institute for Plant Sciences
Purdue Moves Initiative

- Returned over $40M in grants and gifts (2 X ROI in 4 years)
- Working across 5 colleges
- 15 Start Up Companies
- 4,500 visitors from 17 countries
- Plant science enrollment increased by 20%
- Launched Center for Plant Biology
- Established the North American Plant Phenotyping Network
- $40M per year phenotyping investment proposed in the Farm Bill
- 100 Graduates from Molecular Ag Summer Institute

THE WABASH HEARTLAND INNOVATION NETWORK

The Wabash Heartland Innovation Network (WHIN) is dedicated to making the Wabash Heartland Region the global epicenter for digital agriculture and next-generation manufacturing empowered by smart "Internet of Things" (IoT) platforms.

Research & Policy INsights

10 counties: Pulaski, White, Cass, Benton, Carroll, Tippecanoe, Warren, Fountain, Montgomery, and Clinton
Digital Agriculture - Phenomics
Indiana Corn and Soy Innovation Center

25,500-sq-ft field phenotyping facility at the Agronomy farm
Over 30 UAS on site and certified for flight
Configurable threshing and shelling lines
Data transfer: 10 GB/s fiber optics (1000 times as fast as average US internet connections)
Phenotyping Gantry in the Field
• Simulating Drone Remote Sensing in the field
• Shade-less operation
• Plants imaged every 30 min
• To be deployed in May 2019
Digital Agriculture - Phenomics

Controlled Environment Phenotyping Facility

- 7000-sq-ft facility for plant science research with precision environmental control
- Imaging systems for plants up to 14’ tall
- Largest growth chamber in North America for crop phenotyping; 256 plant capacity
- Rapid, non-destructive plant trait analysis
The 1st Handheld Hyperspectral Imager for Accurate Crop Health Measurement
Jian Jin, Purdue ABE

Chlorophyll Distribution

- Leaf Spec
- User friendly
- Self-contained real-time data visualization
- Geo-referenced
- Advanced prediction models
High-throughput Phenotyping of Crop Plants in Field Trials Using RGB, LiDAR, and Hyperspectral Imaging
Biomass Predictive Modeling

Hyperspectral Data only

\[ R^2 = 0.49 \]

Hyperspectral Data, LiDAR and Genomic features

\[ R^2 = 0.72 \]

Remote sensed phenotypes for predictive agriculture.
Purdue University is an equal access/equal opportunity institution.
96% said they Would Recommend or Highly Recommend the Course.
Entrepreneurship in the College

- **Ag-celerator™**
  - Training through Purdue Foundry
  - Competition for Funding for new Start Up Companies.

- **ASPIRE**
  - Student Interns for Start ups

**Filia-soy**
Soy-based HVAC filter for use in residential and commercial applications.

**Progeny Drone**
Extract & analyze images of your plots in minutes without internet, supercomputers, or ground control points.
Digital Agriculture & Data Science

- Undergraduate competency
- New faculty hires
- Enhance partnerships

Key Strategic Issues and Plans – 2018-2021

- Strategic Enrollment Growth
- Increase Online Presence
- Enhance Entrepreneurship

Foundational skills:
- Algebra
- Statistics
- Calculus
- Spatial data
- Probability

Data Science Skills:
- Sourcing data
- Relational data & queries
- Trend analysis
- Data wrangling
- Data graphics
- Dynamic graphics

Refining skills:
- Bioinformatics
- Market analytics
- Social media data mining
- Geospatial analysis

AgBot Challenge
May 16-19, 2109
Purdue University