



ASSOCIATION OF
PUBLIC &
LAND-GRANT
UNIVERSITIES

IOWA STATE
UNIVERSITY



CECE

INNOVATION AND ECONOMIC PROSPERITY AWARDS PROGRAM

IEP CATEGORY - CONNECTIONS

2023
CASE
STUDY

Iowa State University: **Corporate Engagement Among University** **Units - The Secret Sauce to Talent** **Development**

ABOUT IOWA STATE UNIVERSITY'S CORPORATE ENGAGEMENT

BioCentury Research Farm (BCRF)

Ten miles west of the Iowa State campus lies the BioCentury Research Farm (BCRF). BCRF's unique facilities combine biomass feedstock production, harvesting, storing, transporting, and biorefinery processing into a complete scale-up system to develop the next generation of biofuels and biobased products. BCRF serves as an incubator for multiple startup companies spun out from Iowa State labs that utilize equipment alongside industry partners like Chevron. It is also adjacent to several thousand acres of full-scale production farm ground.

In addition, game-changing, on-machine agricultural technology advancements are being developed. University faculty, graduate students, and undergraduate interns are researching, building, testing, and creating machines that impact global agriculture. They are working on technical advancements such as machine learning, vision, automation, data analytics, connected devices, and artificial intelligence. They are also training tomorrow's workforce.

The operation is under the direction of Dr. Matt Darr, Professor of Agriculture and Biosystems Engineering (ABE). Dr. Darr also oversees the ISU Digital Ag Innovation Lab research team, which calls BCRF home, largely in temporary construction trailers, as the demand for the team's expertise has expanded beyond the BCRF facility.

ISU Digital Ag Innovation Lab

The Digital Ag Innovation Lab, along with ISU Research Park (ISURP) staff and industry partners, have crafted a model of corporate engagement that offers industry partners an answer to some of their most challenging technical problems: highly skilled talent, forward-thinking engineering advancements, through robust research and development projects. Their formula is so sought after the team has grown by more than 150 percent twice in the past five years.

The Digital Agriculture Innovation Lab and this approach to partners are responsible for more than 50 percent of all corporate research at Iowa State. This includes 70 patents and distinct tech transfer outcomes, and 32 products sold globally that impact agriculture daily. It is responsible for advances in yield mapping, a reduction in sprayer drift, and moisture sensing capabilities in cotton picking equipment, among many other software developments embedded in partner machines.



It accounts for more than \$60 million in external investment in Iowa through federal and industry partnerships and the support or creation of more than 300 central Iowa-based agriculture technology jobs.

The innovation is developed through strategic partnerships with industry giants like Bayer and John Deere and smaller Iowa-based companies like Almaco, Sukup, and Vermeer. Students in classrooms across campus are exposed to what's possible through the coursework Darr and his team teach. He recruits the brightest students, from undergraduates through post-doctoral students, into his lab. Key industry partners hire graduate students who trained under Darr's supervision to work on their own intellectual property.

ISU Partnership with John Deere

Industry partners come to the Digital Ag Innovation team with various projects. There have been 260 undergraduates and 325,000 hours of undergraduate employment at BCRF on research for industry partner projects. The most refined model of classroom training, experiential learning, and industry engagement is the partnership with Digital Ag Innovation Lab's largest partner John Deere. John Deere is also Iowa State's largest corporate research partner, with more than \$8 million invested last year. They hire more Iowa State graduates than any other company annually and have close to 2,000 Iowa State employee alums.

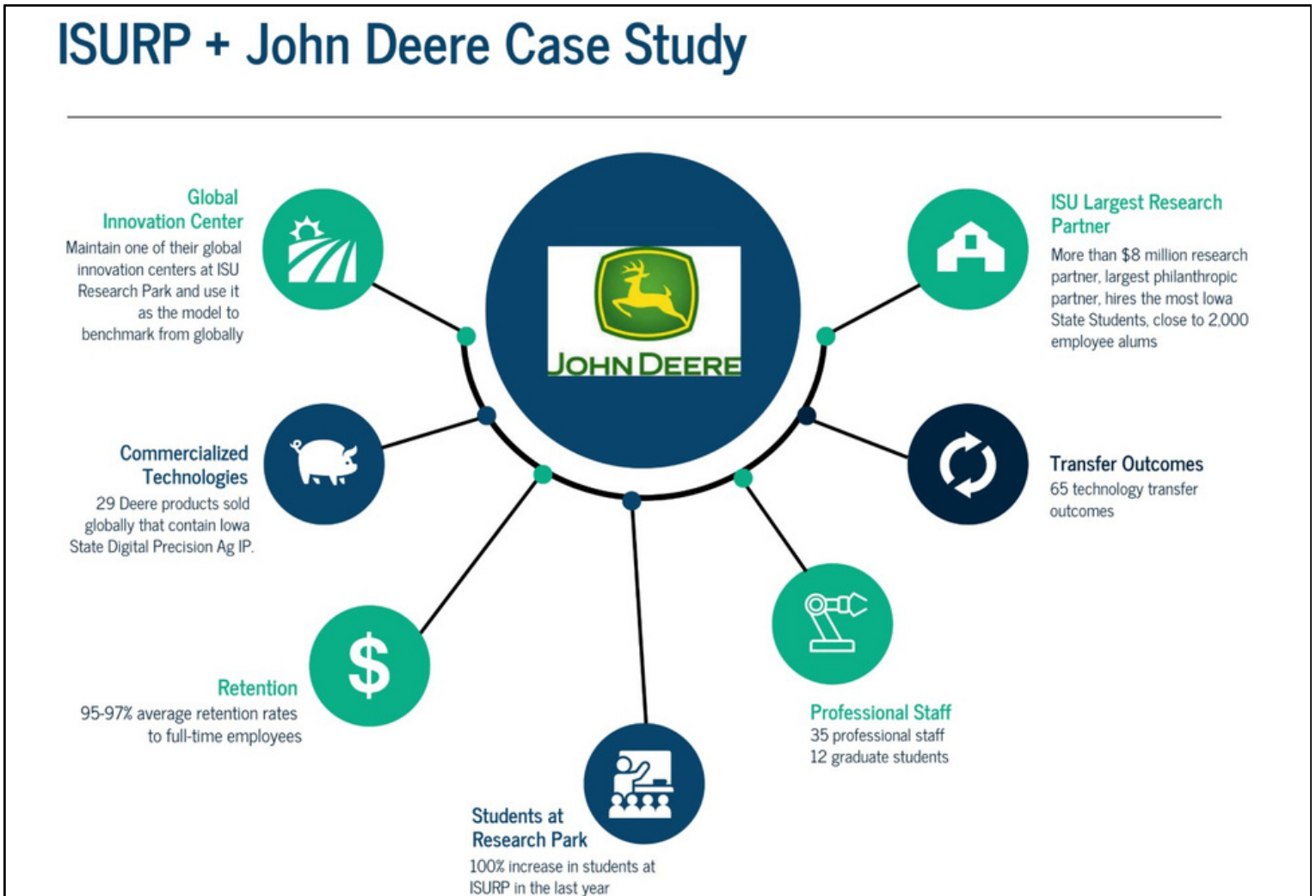
The majority of John Deere's talent pipeline is developed at BCRF and ISURP. At BCRF, graduate students work on research outcomes and projects directly impacting business decisions for John Deere. Ninety percent of the company's graduate student hires are from the Digital Ag Innovation Lab.

At ISURP, John Deere's recruitment efforts typically begin with sophomore-level undergraduates by providing training and real-world projects. These students are vetted and offered internships at John Deere. The conversion rate of interns to full-time positions is 90 percent. The location has scaled to more than 100 students working with project leads on coding and cybersecurity projects.

At ISURP and across the Iowa State campus, there are additional opportunities for students not in Deere's pipeline to gain exposure to John Deere employees. A full-time John Deere lead works alongside the corporate engagement team from ISURP to create additional branding and in-person engagement opportunities across campus, such as speaking engagements with student organizations, lectures in classrooms, and John Deere Day on Campus, celebrated each fall with John Deere equipment, demos, and feeder events.



ISURP + John Deere Case Study



Infographic of various ways John Deere engages with ISU Economic Development and Industry Relations

A second ISURP-based John Deere facility centered on sprayer technology engages primarily graduate students from Darr's research team. At this location, students work with John Deere employees on developing and testing sprayer equipment. John Deere is scaling its "See and Spray" sprayer technology at this facility and, doing so, working alongside Darr's DigitalAg Innovation team. There are full production scale farm fields at ISURP just outside of the SprayLab, where equipment can be immediately tested, which is another asset vital to the partnership. The global innovation center at Iowa State is one of seven Deere locations, and the Iowa State Center is pointed to as the benchmarking model.



A unique, weeklong program was launched at ISURP in January 2023, where early-stage undergraduate students learned about how to use their degrees in industry. John Deere was the lead partner in the program, providing students tours of their facilities, one-on-one job shadows, coding exercises, and panel discussions with leadership and recent ISU alumni. It was well received by students and exposed them to the possibilities of careers with specific degrees.

Additional opportunities are on the horizon for the collaboration between ISU, BCRF, and ISURP, including an announced 88,000-square-foot standalone facility to scale the Digital Ag Innovation Lab's operation and an expansion of the Deere footprint to include a test track facility and additional research and development headcount. ISURP has also seen an influx in precision and digital agriculture companies because of the momentum that comes from a global brand like John Deere, including a nucleus of companies in the heavy equipment autonomy space, that combined with the Digital Ag Innovation team, create an unparalleled center of gravity in autonomy for farm machinery.

LINKS TO FURTHER INFORMATION

Supporting Information:

- [BioCentury Research Farm](#)
- [Iowa State University Research Park](#)

Articles:

- [Iowa State University Research Park announces new Alliant Energy Agriculture Innovation Lab](#)

Videos:

- [Innovators of Iowa State: High-Yield Digital Ag](#)



ABOUT APLU

The Association of Public and Land-grant Universities (APLU) is North America's oldest higher education association. APLU is a research, policy, and advocacy organization dedicated to strengthening and advancing the work of public universities in the U.S., Canada, and Mexico. The association's membership consists of public research universities, land-grant institutions, state university systems, and affiliated organizations.

APLU's mission is to expand access and improve student success to deliver the innovative workforce of tomorrow; advance and promote research and discovery to improve society, foster economic growth, and address global challenges; and build healthy, prosperous, equitable, and vibrant communities locally and globally.

Based in Washington, DC, the association's work is furthered by an active and effective advocacy arm that works with Congress and the administration as well as the media to advance federal policies that strengthen public universities and benefit the students they serve.

ABOUT THE IEP PROGRAM

APLU and its [Commission on Economic and Community Engagement \(CECE\)](#) established the Innovation and Economic Prosperity (IEP) Program to help higher education institutions codify, elevate, and advance their campus enterprise supporting economic and community development.

The **IEP Designation Program** recognizes institutions that have demonstrated a meaningful, ongoing and substantial commitment to economic and community development, growth, and economic opportunity.

The **IEP Awards Program** recognize exemplary and innovative projects in university-based economic and community engagement:

- Talent and workforce development
- Innovation, entrepreneurship, and tech-based economic development
- Place development through public service, outreach, and community engagement

Learn more at: www.APLU.org/IEP

