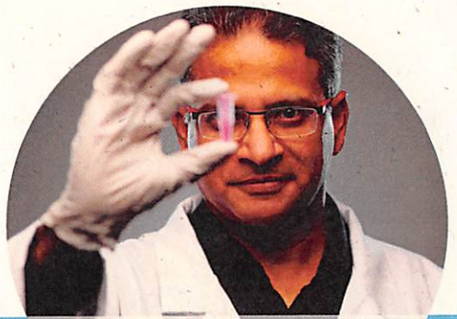
VACCINES & IMMUNOTHERAPEUTICS

The State of Iowa and Iowa State are uniquely positioned to be leaders in the Vaccines and Immunotherapeutics category, especially for animal vaccines, thanks to the university's strengths in basic and veterinary sciences combined with critical infrastructure such as the on-campus Nanovaccine Institute and Veterinary Diagnostic Lab and access to the Ames-based USDA National Animal Disease Center.

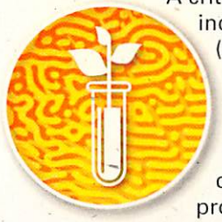
Iowa State allocated a portion of the FY20 state funding to support industry-university collaborations, similar to the seed grant program for the Biobased products category. After receiving proposals in the Fall, the university is scheduled to choose a select few for funding in November 2019.



"There is a heightened need to develop novel vaccines and immunotherapeutics to protect animals and humans from debilitating infectious diseases, so the time is ripe for the state to invest in this critical Bioscience platform. The investments Iowa makes will have a transformative impact on the state's economy by launching new businesses and creating jobs that will be at the forefront of new technologies that will impact public health and place Iowa as a national leader in this area."

Balaji Narasimhan, Vaccines and Immunotherapeutics platform lead and director of the Nanovaccine Institute

BIOBASED PRODUCTS



A critical mass of expertise and infrastructure – including the Center for Biorenewable Chemicals (CBiRC), Bioeconomy Institute (BEI), Center for Crop Utilization Research and BioCentury Research Farm – makes Iowa State the unquestioned national leader in Biobased Products research and innovation. Iowa State committed the largest share of the initial funding provided by the state to build the innovation ecosystem for this platform by:

- Hiring a new Chief Technology Officer – Dr. Sundeep Vani – in October 2019. Dr. Vani is a longtime industry veteran with a proven track record of translating research concepts into commercially successful products. In his role as CTO, he will help identify promising emerging technologies throughout the state and work to develop them into viable commercial products; and
- Implementing a program to seed new industry-university collaborations within the Biobased Product segment. Eleven faculty proposals were considered and in October 2019, four were selected involving industry collaborations with Archer Daniels Midland (ADM), Cargill, Dickinson Industries, Kemin Industries, Kent Corporation, Pella Corporation, Puretein Bioscience and Siegwerk USA.

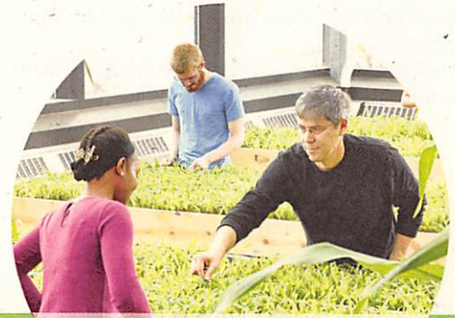
"Sometimes the stars just align, and I believe that's what we're seeing with the increased interest and demand in Biobased Products. There is a societal need and an environmental imperative for better alternatives to petroleum-based products. When we combine the advancements made in biotechnology with our state's existing agricultural and biomanufacturing infrastructure, Iowa can be the epicenter of a new Biobased Products economy."

Brent Shanks, Biobased Products platform lead and director of CBiRC

DIGITAL & PRECISION AGRICULTURE

Iowa State's position of leadership in Digital and Precision Agriculture is built on infrastructure such as the renowned Plant Sciences Institute and the Roy J. Carver Co-Laboratory Business incubator – established to foster economic development in plant science and biotechnology – and the wide-ranging research expertise in the multi-faceted College of Agriculture and Life Sciences.

Iowa State allocated a portion of the FY20 state funds to support the Digital and Precision Agriculture platform through a three-phase market research project designed to analyze the industry landscape and identify priority companies for potential partnerships.



"The convergence of advanced technologies – sensors, precision guidance systems, artificial intelligence and real-time analytics to name just a few – offer extraordinary opportunities for agriculture. To the extent that we can leverage the expertise at Iowa State and the private-sector, Iowa has the potential to be a major player in this emerging field. And this can contribute positively to both increased farmer profitability and increased sustainability."

Pat Schnable, Digital and Precision Agriculture platform lead and director of the Plant Sciences Institute

IOWA STATE UNIVERSITY
Office of the Vice President for Research

What do we do in Iowa better than practically anyone else in the world? We grow things. We grow the crops and livestock that feed our nation and our world. And now, with the support of the State of Iowa and by leveraging the expertise and infrastructure at Iowa State University – one of the nation's leading research-intensive land-grant institutions – we grow new ideas and innovations in the Biosciences that grow our economy by:

- Converting a portion of our abundant homegrown feedstocks into new, value-added ***Biobased Products*** that are better, more viable alternatives to a range of traditional petroleum-based products;
- Spearheading the development of new ***Digital and Precision Agriculture*** solutions that bring unprecedented precision, efficiency and sustainability to crop production and animal agriculture; and
- Pioneering new technologies in ***Vaccines and Immunotherapeutics*** that enhance animal and human life around the globe.

The state has the assets and attributes to lead the nation in these Bioscience initiatives. Building a robust Bioscience economy that sets Iowa apart requires strong innovation ecosystems that accelerate commercially focused research and technology transfer to spur startups and support established industry leaders. Since it received $825,000 in FY20 funding in July 2019, Iowa State has worked closely with the Iowa Bioscience Development Center (IBDC/Iowa Innovation Corporation) to begin establishing these innovation ecosystems. Look inside to see how Iowa State is growing new ideas and new thinking within each bioscience platform.

Creating a winning Biosciences business climate

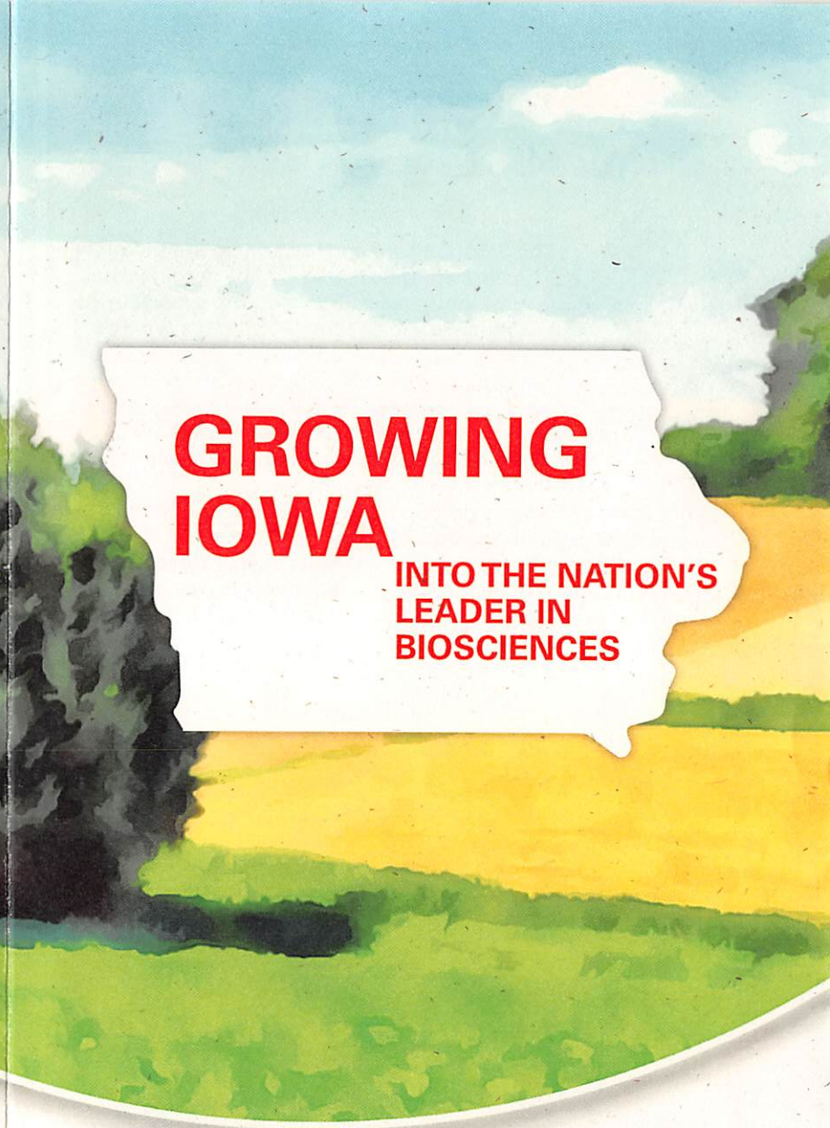
Iowa is capitalizing on its success in agriculture, bio-based manufacturing and commercially-focused research capabilities in plant, animal and human Biosciences to build a thriving Bioscience-based industry in the state. From startups to globally respected industry leaders in research and development, Iowa's Biosciences enterprises are discovering the innovations that will spur future economic growth.

Additionally, companies operating in Iowa benefit from a business-friendly state government, business-minded tax incentives and a skilled and productive workforce. With one of the lowest costs of doing business in the country (*Business Facilities*, 2017), and ongoing support from the Iowa Economic Development Authority, Iowa is a prime location for both new and existing Bioscience firms.

Learn more about Iowa's focus on economic growth through innovation and the Biosciences at www.iicorp.com and www.iowaeconomicdevelopment.com/bioscience.

IOWA economic development

IOWA innovation IOWA INNOVATION CORPORATION



GROWING IOWA
INTO THE NATION'S LEADER IN BIOSCIENCES

IOWA STATE UNIVERSITY
Office of the Vice President for Research