



INVEST  
NEBRASKA



THE COMBINE

# ANNUAL REPORT 2022



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## About The Combine

The Combine is a statewide initiative supporting high growth entrepreneurs in food and agriculture. The program consists of go-to-market support through mentorship and a capital readiness program, networking events, a group of partnering producers across the state, as well as incubation space on Nebraska Innovation Campus.

## Ag Innovation Happens in Nebraska

In 2022, The Combine continued its commitment to supporting the technology entrepreneurs in our state's largest industry. Nebraska Combine affiliated companies began the year by sweeping the top three spots of the American Farm Bureau's Ag Innovation Challenge. New incubator applicants included innovators exploring opportunities in irrigation, crop protection, and ranching operations. Program graduates from the past calendar year included Corral Technologies, Bluestem Biosciences, and Sentinel Fertigation. Incubator graduates from years past continued to raise additional capital and create high-paying jobs within Nebraska. 2022 was also our first full year of operations without any pandemic constraints on hosting events. The Combine staff made a concerted effort for increased community involvement. Examples of visiting groups include Lincoln Northeast High School CASNR Early College and Career Pathways Program, UNL Block and Bridle, Nebraska Agricultural Youth Institute, and a start-up in residency program with an entrepreneur from Columbia. Our team hosted the Nebraska AgTech Connect Conference on July 20th at Nebraska Innovation Campus. The event brought together over 150 attendees from the Midwest and showcased pitches from incubator companies. The Nebraska agtech ecosystem continues to compound new growth as new stakeholders, partners and mentors increase involvement.

- The Invest Nebraska Team

## Founding Sponsors



## Visionary Sponsors



## Statewide Sponsors

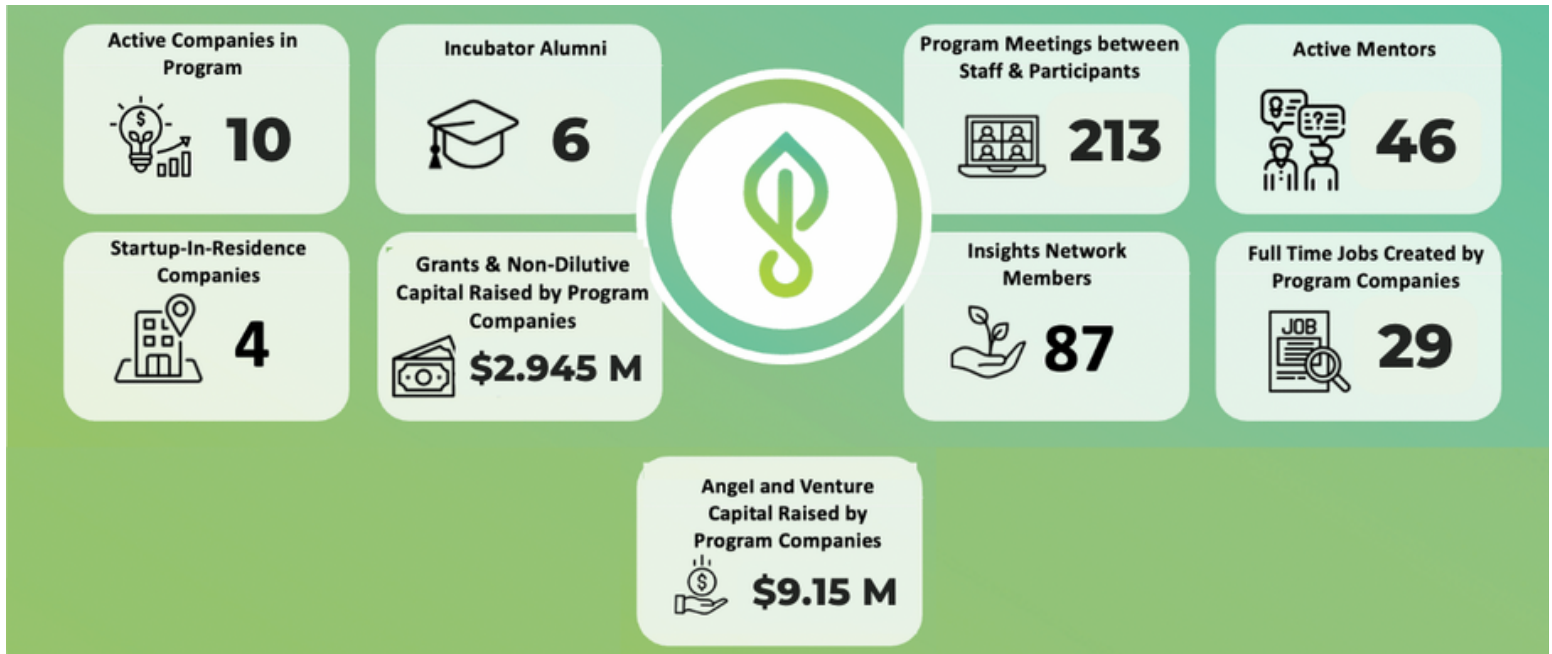


## Supporting Sponsors





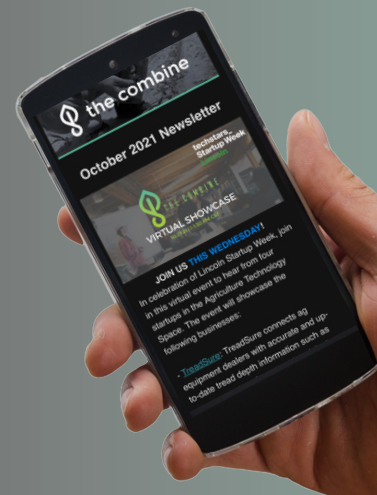
# 2022 Program Metrics To-Date



## The Combine Monthly Newsletter

Program updates delivered to your inbox

[NebraskaCombine.com](https://NebraskaCombine.com)



# 2022 Insights Network

## MEMBERS OF THE INSIGHTS NETWORK:

- **Farmers & Producers Across Nebraska**
- **Assist Entrepreneurs In Customer Discovery**
  - Assisting entrepreneurs through properly defining problems faced in the industry as well as on site feedback.
- **Participate in Pilot Projects**
  - On farm/ranch trials for in-the-field testing and producer feedback on the startup's products.

# 90

*members*

# 72

*communities*



The Insights Network was created to help bridge the gap between agricultural startups and Nebraska producers. The network allows for quick and comprehensive feedback to startups along with real world scenario testing. Meanwhile, producers are exposed to potential technology advancements on their operation and the opportunity to help shape future developments. Current operations grow the following crops: corn,

wheat, soybeans, alfalfa, popcorn, white corn, peas, seed corn, dry beans, sunflowers, oats, millet, sugar beets, sorghum, cover crops, and vegetable production. Various aspects of the livestock industry are represented including cow/calf, backgrounding, finishing, dairy barns, nursery-to-finish hog production, and pullet raising to egg production.



# 2022 AgTech Connect Conference



- 150+ Attendees
- Keynote Speaker, Janette Barnard
- 5 AgTech Startup Pitches
- Investing In AgTech Panel
- Sustainability in AgTech Panel



On July 20, 2022, the first annual Nebraska AgTech Connect Conference took place. AgTech Connect was a half-day program focused on celebrating agriculture technology in the midwest.

Over 150 people gathered for the event, and numerous valuable connections were made during the networking break and happy hour that wrapped up the day.

Mark your calendars for the 2023 AgTech Connect on July 20, 2023, at Nebraska Innovation Campus. The program sponsors made the event possible:



## Combine Incubator Companies



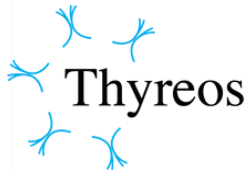
### Nave Analytics

**Opportunity:** In the U.S. alone, irrigation consumes 68% of the total groundwater pumped each day. This equates to nearly 57 billion gallons of water daily. Although less than 16% of the total agricultural acres in the U.S. are irrigated, these acres account for a massive 40% of the total crop production. Today, less than 20% of irrigated farms use advanced on-farm water management decision tools.

**Company:** Nave is an idea-stage company that is interested in exploring how predictive models can be integrated into current planting, irrigation, and herbicide application scheduling. In 2022, the company brought on a contract software developer, applied for multiple SBIR grants, and began a data development agreement with a strategic partner.

**Status:** Incubator Resident

**Last Program Module Completed:** Customer Interviews



### Thyreos Vaccines

**Opportunity:** Bovine Rhinotracheitis (IBR) is an economically significant respiratory disease caused by a herpesvirus. IBR has negative impacts beyond respiratory issues. It can also decrease milk production and fertility, and often leads to secondary bacterial infections.

**Company:** The Thyreos R2 platform is a major breakthrough that allows for production of effective vaccines against many herpesviruses that infect a range of animals from livestock and companion animals, to humans. The company's roadmap includes the human-health market, but initial commercial opportunities are focused on the animal health space. In 2022, the company was awarded a USDA SBIR, built out its technical team and made progress on its research milestones.

**Status:** Incubator Resident

**Last Program Module Completed:** Legal and Accounting Basics



### Treadsure

**Opportunity:** With increasing turnover in ag machinery and equipment there is a strong need for improved pricing accuracy. The employees of the hundreds of ag equipment dealer across the country still rely on paper catalogs for comparable tire information.

**Company:** TreadSure aims to create a stand-alone solution that brings current disparate data sources in user manuals and field sales representatives' information to improve the resale process of agriculture tires. In 2022, the company submitted its USDA SBIR Phase I proposal, was selected as finalist for the Farm Bureau Innovators, and began a pilot program with a large online equipment auction platform.

**Status:** Incubator Resident

**Last Program Module Completed:** KPI's & Operations



## Combine Incubator Companies

### American Edge Grain

**Opportunity:** Historically, grain markets have been broadly commoditized; however, there are increased profit opportunities for Attribute driven marketing such as elevated protein, oil, or starch as well as food-grade corn.



**Company:** American Edge Grain (AEG) is the first data-driven, virtual Grain Attribute Exchange to connect farmers who have grain with premium attributes with the end-users that need them. AEG offers a fully transparent, end-to-end service – from procurement to sales and delivery. This includes grain management and certification, attribute analysis, real-time bushel availability, pricing, logistics and delivery. In 2022, AEG continued to build out its producer network and received a prototype grant to develop its software solution.

**Status:** Incubator Resident

**Last Program Module Completed:** Business Model Canvas

### Idem Irrigation

**Opportunity:** Precision application of water, fertilizer, herbicide, and pesticide is not only a growing need, but a necessity. By completely preventing drift, applying a more uniform mixing process to each individual spraying head, and by significantly reducing nitrogen overuse, technology can make a difference in an industry that is technologically behind and outdated.



**Company:** Idem is developing a patent pending pivot sprinkler head technology. The technology aims to increase moisture percentage, deepen root growth, and reduce crop stress days. In 2022 the company progress into the final stages with numerous tests conducted by the University of Nebraska Panhandle Research and Extension Center as well as a partnership with a large ag chemical company.

**Status:** Incubator Resident

**Last Program Module Completed:** Business Model Canvas

### Platform Cattle

**Opportunity:** The markets for top performing genetics of seed stock producers have historically been geographically confined due to the physical proximity to bull sales. This can lead to pricing disparity across the industry.



**Company:** Platform Cattle aims to develop a software platform helping seed stock producers find customers who desire their genetics and conditioning practices. After customer interviews the company has paused the software initiative and aims to build up initial industry contact and data via ecommerce sales of supplements. In 2022, the company made additional pilot exploration regarding their verified sustainability program.

**Status:** Incubator Resident

**Last Program Module Completed:** KPI's and Operations

## Combine Incubator Companies

### InGrained

**Opportunity:** Labor continues to be a major issue for many Midwest grain farms. Currently, grain bins are being monitored with basic grain bin alarms, that either react when the bin is full or reports how full the bin is on a regular basis. The loading and unloading process frequently requires an employee to be on-site twenty-four hours a day but often takes a trained mechanic or machinery operator out of the field.

#### inGRAINED

**Company:** InGrained is an idea-stage company exploring how integrated sensors can automate grain handling and storage. In 2022, the company began customer discovery interviews and attended several industry trade shows.

**Status:** Incubator Resident

**Last Program Module Completed:** Goal Setting and Road Map

### Field Pocket

**Opportunity:** Current bookkeeping solutions continue to cause frustrations for family farming operations. Data driven insights can help producers make the best operational and financial decisions for a row crop farm.



**Company:** Field Pocket aims to help farmers save time, increase efficiency and profit by helping farmers organize, manage and link all harvest paperwork in one easy to use platform, ensuring farmers get paid for all their hard work.

**Status:** Incubator Resident

**Last Program Module Completed:** Accepted in 2022, Beginning program in 2023

### Stealth Company

**Opportunity:** In order to reduce environmental footprint by lessening reliance on chemicals has widened the opportunity and demand for biological-based pesticides, fungicides, and other non-traditional crop protection products has increased.



**Company:** The company, to be announced in 2023, is researching small proteins with antibacterial and antifungal properties.

**Status:** Incubator Resident

**Last Program Module Completed:** Accepted in 2022, Beginning program in 2023

## Combine Incubator Companies

### Lazy FA Fencing

**Opportunity:** Livestock producers today still face the same challenge producers faced in 1936 when electric fencing started: checking to ensure it has not shorted out. Many producers don't have a more efficient way to find the short other than picking a starting point and driving around the whole fence until you find the problem. This inefficiency expends valuable time, resources, and labor.



Lazy FA Fencing  
FOR RANCHERS. BY RANCHERS.

**Company:** Lazy FA Fencing is a hardware and software solution to help alert cattle ranchers when their fence is down. In 2022 the company joined the Combine, conducted intellectual property reviews, developed its first prototype, and began field trials.

**Status:** Incubator Resident

**Last Program Module Completed:** Customer Interview Module

## Combine Incubator Alumni

### Terrace Ag

**Opportunity:** Rural ag land appraisals entail a time-consuming process managing PDF's, spreadsheets, and state documents. The end results often does not include the most relevant comparable sales.

**Company:** Terrace Ag is an end-to-end software solution for farmland valuations. The platform enables ag land appraisals or evaluations to be performed 40% faster through data, integration and automation. The company allows farm managers and rural land appraisers to access sales database, GIS mapping, comparable sales, and report writing all in one platform. The company is now integrated with Farm Credit Services of America.

**Status:** Incubator Graduate



### Grain Weevil

**Opportunity:** Each year, preventable on-farm deaths occur when farmers climb inside grain bins. Proper grain bin management can lead to less spoilage and higher margins for grain farmers.

**Company:** The Grain Weevil team is exploring how robotics can improve both grain bin management as well as safety, engaging the grain directly with its drive system and a variety of adaptable tools to safely and efficiently aid in the extraction of grain from the grain bin. In 2022, the company expanded its technical team and received a NSF SBIR grant to further development.

**Status:** Incubator Graduate



### Birds Eye Robotics

**Opportunity:** The \$405B poultry market needs labor solutions for the over 300,000 barns worldwide. Many of the jobs associated with the industry are tedious and unappealing.

**Company:** Birds Eye Robotics aims to solve the labor issue in the poultry industry through robotic automation to improve animal welfare. In 2022, the company expanded its engineering and business development teams as well as received a USDA SBIR grant.

**Status:** Incubator Graduate





## Combine Startups-In-Residence

### Aulick Industries

**Opportunity:** Advancements in technology have created an opportunity to new designs and improvements in the manufacturing of agricultural transportation equipment.



**Company:** Aulick Industries is a family-owned subsidiary of Original Equipment Corporation, founded in 1952 by Harry Aulick. Aulick specializes and is a recognized leader in the manufacturing of agricultural transportation equipment. The company's primary manufacturing site is in Scottsbluff, NE consisting of 30+ acres with 84,000 sq/ft under roof.

**Status:** Startup-In-Residence

### AgriRain

**Opportunity:** Mechanized irrigation available to small farmers is too expensive, and often requires subsidies. In addition, the irrigation options are ineffective due to lack of integrated solutions, complex purchasing decisions, inadequate farmer training, high operational expenses for pump/fuel, and requires more labor and time. In effect, vast majority (90%) of small farmers rely on erratic rainfall or sub-optimal methods of irrigation. Small farmer income has remained stagnated and climate change has only aggravated the uncertainty.



**Company:** AgriRain provides irrigation as a service, with no capital expenditure needed from small farmers. The team is led by a former Lindsay Irrigation Executive and is currently focused on smallholder farmers in developing nations. Trained operators use fully integrated and mobile Hosereel technology to provide hassle-free, pay-per-service, and on-demand irrigation. AgriRain's customized irrigation solution is modern and water efficient.

**Status:** Startup-In-Residence

### FarmAfield

**Opportunity:** Traditional institutional investment opportunities in agriculture have been limited with low transparency in deployment schedules and complex tax advantages. These can result in missed opportunities in new developments in agriculture such as solar and regenerative agriculture.

**Company:** FarmAfield is an online marketplace streamlining capital deployments in the ag sector. The marketplace allows for the purchase of real agricultural assets and complimentary risk management strategies. The company is currently partnering with the Department of Energy to conduct a feasibility study of utilizing the platform to increase capital to solar projects in agriculture. In 2022, the company continued testing with several Nebraska producers.

**Status:** Startup-In-Residence



## Combine Incubator Alumni

### Sentinel Fertigation

**Opportunity:** Current row-crop producers spend multiple hours visually inspecting their crops to decide if the field needs additional fertilizer applied. Many times when the crops start to look like they need fertilizer, it is too late or applied broadly without precision. In past years nitrogen prices have hit record highs.



**Company:** Sentinel Fertigation Technologies puts automated, predictive control over center pivot fertigated acres in the hands of growers and consultants, ultimately allowing them to precisely time fertigation events when the crop needs nitrogen most. In 2022 the company raised a seed round and graduated from the incubator program.

**Status:** Incubator Graduate

### Corral Technologies

**Opportunity:** Current cattle producer decisions on stocking and carrying capacity are based on limited financial knowledge which is often constrained by the labor needed to move and re-adjust physical fencing in the pasture.



**Company:** Corral is interested in learning how operations manage their pasture. Corral is a system of cattle wearables proven to be safe and effective. Cow-calf operations utilizing Corral can cross-fence virtually any pasture decreasing the number of rented acres and reducing fencing costs. In 2022, the company raised a seed round and graduated from the incubator program.

**Status:** Incubator Graduate

### Blue Stem Biosciences

**Opportunity:** As global demand for high-value chemicals and materials has risen, the need for more sustainable production methods has become evident. Furthermore, the foreign supply chain issues seen during COVID revealed the need to repatriate the U.S. chemical supply chain. There is a critical need to develop economically viable processes for biomanufacturing through fermentation.



**Company:** Bluestem focuses on the sustainable bio-production of chemicals through anaerobic fermentation. The company aims to produce these chemicals on an industrial scale. Their mission to diversify and decarbonize the chemical industry begins with purpose-built biology for existing infrastructure. In 2022, the company raised a pre-seed round and graduated from the incubator.

**Status:** Incubator Graduate

## Combine Startups-In-Residence

### GreenEye

**Opportunity:** Increasing chemical costs and a broader push for more environmentally friendly application practices is creating a stronger demand for precision spraying. There is an international demand for an alternative and sustainable solution for the current crop protection practice in order to meet the globally growing demand for food while increasing the profitability and productivity for farmers.



**Company:** Greeneye Technologies is an Israeli-based precision ag company expanding to the US. Greeneye utilizes artificial intelligence and deep-learning technology to transition from the practice of broadcast and wasteful spraying of pesticides to precise spraying in real time. In 2022, the company developed field trials with the University of Nebraska-Lincoln's Agricultural Research Division (ARD) to benchmark the performance of its proprietary AI precision spraying system against broadcast application of herbicides.

**Status:** Startup-In-Residence

## Notable Former Combine Start-ups-In-Residence



### Marble Technologies

**Opportunity:** Today, the U.S. meat and poultry industry is a \$100 billion industry employing 500,000 people. Vulnerability introduced by the lack of additional capacity threatens the economic health of the meat industry and the security of the global meat supply as highlighted by the COVID-19 pandemic.

**Company:** Marble Technologies is based in Lincoln and Cambridge Massachusetts. The company aims to support food systems using AI, robotics, and process engineering to add resiliency to the agri-food supply chain. Starting with meat processing (specifically beef and pork) they are automating tasks to mitigate industry-wide labor shortages. In 2022, the team hired additional meat processing specialists as well as mechanical and software engineers.

**Status:** Former Startup-In-Residence



### CropX

**Opportunity:** As more and more on-farm variables and data points are collected digitally producers are looking to make actionable decisions to optimize input application, leading to significant water, fertilizer, energy and labor savings.

**Company:** CropX is an ag-analytics company that has developing advanced adaptive irrigation services, which automatically optimizes irrigation, thereby delivering dramatic crop yield increase and water and energy cost savings to farms. CropX's technology was developed by a team of world-leading scientists and has been validated on-farm over the past five years. In addition to their Midwest team, the company has offices in Israel and California. In 2022 the company announced as partnership with the John Deere Operations Center. This integration allows CropX farm management system users with an Operations Center account to share data bi-directionally between the systems.

**Status:** Former Startup-In-Residence



## 2022 Climate-Smart Commodities Partnerships in Nebraska



Eighteen projects were listed with Nebraska as their primary state. Companies like Tyson Foods, ADM, Western Sugar, Costco, Land O'Lakes, ABS Global, PepsiCo, Cargill, Scoular, Bayer, and many other notable companies were listed as lead or major partners of the projects. The major commodities of the projects vary from more traditional agriculture commodities like corn, soybeans, beef, and pork to more specialty crops like grapes, bison, peanuts, rice, fruit trees, and more.



THE COMBINE

# 10 Top National AgTech Developments from 2022

1



## Investments in Biological Alternatives increase as Input Prices Rise

A combination of geopolitical conflict and ongoing supply chain disruptions have sent global input costs to all-time highs this year. This has created an opportunity for growing ventures. Sound Agriculture offers SOURCE, a “nutrient efficiency” product that enhances nitrogen uptake in crops. In December, the company announced a \$75 million Series D to expand its crop nutrient and plant breeding businesses. Phospholutions, a US-based agtech company that wants to promote more efficient phosphorus fertilizer usage with its fertilizer additive that improves phosphorus delivery to plants, raised a \$5.3 convertible note to commercialize its additive, RhizoSorb, in the US row-crop market.

2



## Mosaic Acquisition of Plant Response

Plant Response, an industry consolidator of leading biological-based solutions, recovered waste fertilizers and other crop input technologies, has been acquired by The Mosaic Company, a global manufacturer of agricultural fertilizers and chemicals. Plant Response brings together a diverse portfolio of biological-based crop inputs and technologies, having recently consolidated Koch Biological Solutions (2019), Pathway BioLogic (2020), and WISerg (2021). Plant Response has a robust portfolio of biostimulant products that touch over 3 million acres according to their website.

3



## Greenlight Biosciences SPAC

Greenlight Biosciences, which develops RNA products for agriculture, became a publicly traded company after merging with Nasdaq-listed special purpose acquisition company (SPAC) Environmental Impact Acquisition Corp. Founded in 2008, early investors in Greenlight included Serum Life Sciences, Fall Line Capital, Viceroy Capital, and S2G Ventures.

4



## FarmWise's weeding robots haul in \$45m Series B funding from Taylor Farms

US ag automation startup FarmWise Labs, which builds weeding robot Titan, has raised \$45 million in Series B funding, it announced today. The FarmWise platform uses artificial intelligence, cameras, and sensors to generate a mass of “plant-level data” — including size, stress levels, and identifying features, which its fleet of Titan robots then relies on to differentiate between crops and weeds.

5



## Bayer Expands Investment in CoverCress Inc

Bayer, Bunge and Chevron, have signed a shareholders' agreement in connection with Bayer's acquisition of a 65 percent majority ownership of the winter oilseed producer CoverCress, Inc. CoverCress is a rotational cash crop that combines grain production with the environmental benefits of a cover crop without displacing other harvests. Oil extracted from CoverCress grain is designed to achieve a lower carbon intensity score and can be made into renewable diesel with Bunge's expertise in oilseed processing and Chevron's proficiency in fuel manufacturing.

## 10 Top National AgTech Developments from 2022 Cont.

6

**BUSHEL**

### Bushel Launches New Payments Network

In a major step on the road to digitizing the ag supply chain, the grain trading platform Bushel has launched a new software platform that facilitates digital payments between farmers and agribusiness partners. Payments in US agriculture are what Bushel CEO Jake Joraanstad calls “the last frontier for digitizing the industry,” with roughly 90% of them still done with paper checks. North Dakota-based Bushel hopes to digitize the process of moving money in the ag sector, fostering a faster, more reliable payment system. Ag Valley Cooperative, based in Nebraska, will pilot Bushel Payments for its growers. Farmers will be able to access Payments through Ag Valley’s app powered by Bushel.

7

  
**CORTEVA**

### Corteva announces decision to sunset Granular Agronomy

Corteva has discontinued Granular Agronomy, which is supported by a network of Certified Service Agents. Corteva provided the following statement: “Corteva regularly evaluates business strategies, operations and product portfolios to ensure we are creating more efficient and reliable supply chains, while also focusing resources. Following this path, Corteva recently announced a business decision to discontinue Granular Agronomy, and will shut down the software, features and services on August 31, 2022. The discontinuation of Granular Agronomy also includes the Nitrogen Monitoring feature within Granular Insights, sold as part of the Granular Insights Platinum Plus package.”

8

**FMC**

### FMC Acquisition of BioPhero

FMC Corporation announced an agreement to acquire BioPhero, a Denmark-based pheromone research and production company. The acquisition adds biologically produced state-of-the-art pheromone insect control technology to FMC's product portfolio and R&D pipeline. BioPhero has pioneered a highly efficient yeast fermentation process for manufacturing pheromones at significantly lower costs and with fewer production steps compared to competitors' traditional chemical synthesis methods. FMC expects pheromones and pheromone-based products to contribute approximately \$1 billion in revenue at above company-average EBITDA margin by 2030.

9

  
**VESTARON**  
THE POWER OF PEPTIDES

### Peptide Research a major presence in Crop Protection Funding

Startup Vestaron raised \$82 million in its Series C funding round. Micropep, a French startup, closed an extension to its Series A round and expand to the US. Peptide Bio emerged from the Danforth Technology Company, a venture formed this year by the Donald Danforth Plant Science Center. Peptides are small, naturally-occurring proteins comprising short chains of between two to 50 amino acids. After being applied to crops, peptides degrade into singular amino acids, which are generally harmless to the surrounding environment, other wildlife, and humans.

10



### Merck Animal Health continues active acquisitions

Merck Animal Health announced that it has signed a definitive agreement to acquire Vence from its founders and shareholders. Vence is an innovator in virtual fencing for rotational grazing and livestock management. “The acquisition of Vence will broaden our portfolio with complementary products and technologies to advance animal health and well-being as well as outcomes for our customers,” said Rick DeLuca, president, Merck Animal Health. Other past examples of Merck Animal Health acquisitions include Poultry Sense, Whisper, and Nebraska based Quantified Ag.



## THE NEBRASKA CORN BOARD

Through responsible stewardship, new genetics, and improved management practices, Nebraska corn farmers are growing more corn with less – less fertilizer, less chemicals, less water, less land, and less of an impact on the environment. Sustaining innovation – an unwavering commitment to doing a better job in every row, on every acre, on every farm, every season. It's how family corn farmers in Nebraska and the nation are ensuring the long-term viability of their industry and our natural resources.



Nebraska's corn farmers – and their fellow corn farmers across the U.S. – continue to make significant advancements that have a direct impact on the sustainability of corn production and the natural, environmental and social systems that are connected to it. These growers are among the first to adapt new technologies and innovation.



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Nebraska  
CornBoard



## President Biden announces \$25 million grant to the Heartland Robotics Cluster

In September 2022, President Biden held a White House news conference today where he announced that the Heartland Robotics Cluster, led by Invest Nebraska, was one of 21 finalists awarded a multi-year grant from the U.S. Department of Commerce, Economic Development Administration (EDA).

The Heartland Robotics Cluster includes Invest Nebraska, the University of Nebraska-Lincoln College of Engineering, Northeast Community College, Metro Community College, Nebraska Innovation Studio, the Nebraska Manufacturing Extension Partnership, and The Combine.

The \$25 million of grant funding will be utilized to: develop an automation demo space and program for Nebraska manufacturers led by the Nebraska Manufacturing Extension Partnership, grow the robotics engineering curriculum for undergraduate students and build R&D robotic lab space at the UNL College of Engineering, create an automation fabrication lab managed by Northeast Community College, develop urban ag/robotics outreach and training by Metro Community College, expand the robotics makers space at Nebraska Innovation Studio, and increase technical assistance for robotic ag-tech startups managed by The Combine.



VISIONARY SPONSOR OF THE COMBINE



# 10 Top Nebraska AgTech Developments from 2022

1



## Nebraska's Success in the American Farm Bureau's Ag Innovation Challenge

American Farm Bureau's Ag Innovation Challenge identifies top entrepreneurs who are addressing both traditional challenges farmers and ranchers face on their operation, such as access to labor, optimizing yield, and reducing operating costs, to entrepreneurs who are addressing new challenges facing farmers, ranchers, and rural communities. Three Nebraska startups were selected in the top four finalists in the Ag Innovation Challenge at the American Farm Bureau Federation's Conference in Atlanta, Georgia in early January. Final Results: Grain Weevil (challenge winner), Birds Eye Robotics (challenge runner-up), Marble Technologies (challenge finalist).

2



## Bluestem Biosciences Closes \$5 million Pre-Seed Funding Round

Bluestem Biosciences, a renewable chemicals company maximizing agriculture and energy infrastructure through synthetic biology, announced today a pre-seed financing round of \$5 million. Zero Infinity Partners led the round, including participation from Matt Vining, CEO of Navigator CO2 Ventures; Invest Nebraska; angel investor Robert Sali and Bluestem Co-Founder & CEO Billy Hagstrom. Founded in January 2022, Bluestem focuses on the sustainable bio-production of chemicals through anaerobic fermentation. The company aims to produce these chemicals on an industrial scale. Their mission to diversify and decarbonize the chemical industry begins with purpose-built biology for existing infrastructure. This 5-million-dollar pre-seed fundraise is a record for a company in Nebraska.

3



## Nebraska Farms a Frequent Partner for Climate Smart Commodities

On September 14, 2022, Secretary Vilsack announced USDA is investing up to \$2.8 billion in 70 selected projects under the first pool of the Partnerships for Climate-Smart Commodities funding opportunity. Eighteen projects were listed with Nebraska as a primary state. Companies like Tyson Foods, ADM, Western Sugar, Costco, Land O'Lakes, ABS Global, PepsiCo, Cargill, Scoular, Bayer, and many other notable companies were listed as lead or major partners of the projects. The major commodities of the projects vary from more traditional agriculture commodities like corn, soybeans, beef, and pork to more specialty crops like grapes, bison, peanuts, rice, fruit trees, and more.

4



## Innovation Hub Attracts Technology Companies as part of Nebraska Ag Expo

The Innovation Hub was the newest initiative by the Nebraska Ag Expo to bring the most cutting-edge innovations in agriculture to the heart of the Midwest. The Innovation Hub converted 51 exhibitors, including entrepreneurs, start-up companies, and major manufacturers. Examples include Chrysalabs, Pattern Ag, Stout Industrial Technology, and Sabanto.

5



## Sentinel Fertigation Pre-Seed Fundraise and Strategic Partnership with Agri-Inject

Sentinel Fertigation, a technology company that has developed a platform to quantify nitrogen status in crops to anticipate fertigation needs, has announced a strategic partnership with Agri-Inject, one of the premier variable rate fertigation dealers on the market. "Sentinel Fertigation's ultimate goal is to lower the annual fertilizer cost for farmers and increase their bottom line," said Sentinel Fertigation CEO & Founder Jackson Stansell. "Internet of things technology revolutionizes agriculture from connected field machinery to center pivot monitoring systems. This technology enables wireless transfer of application prescriptions and data quantifying crop productivity and machinery operations. Agri-Inject is taking the lead in bringing this technology to chemigation through its connected injection pump systems."

## 10 Top Nebraska AgTech Developments from 2022 Cont.

6



### Two Nebraska startups receive USDA SBIRs

Birds Eye Robotics and Thyreos Inc. both recently received Small Business Innovation Research grants from the U.S. Department of Agriculture's National Institute of Food and Agriculture. The Small Business Innovation Research (SBIR) program at the USDA offers competitively awarded grants to qualified small businesses to support high-quality research related to important scientific problems and opportunities in agriculture that could lead to significant public benefits.

7



THE COMBINE

### Combine companies featured on television series

Farm Next, a new Pivot Bio series with the highly regarded ag journalist Max Armstrong, where some of the greatest minds in agriculture take center stage to showcase the next big thing in ag. Two Combine Incubator Companies, Grain Weevil and Corral Technologies, were featured on the series.

8



### Valley Irrigation Announces Completion of Company's First North American Ag Solar Installation in Partnership with Farmers National Company

The installation is located near Davenport, Nebraska, and will provide solar power to a Valley center pivot by offsetting energy consumption used to irrigate the field. The pivot size and configuration will produce green renewable energy for the next 25 to 35 years, equaling the lifespan of the pivot. It will also produce recurring revenue for the landowner through a buy/sell agreement with the local utility group.

9



### Greeneye Technology announces results of a field trial undertaken by the University of Nebraska-Lincoln's Agricultural Research Division

The results reveal the Greeneye system reduced herbicide use in post-emergence applications by 87% – representing a cost saving to farmers of more than 60% – while achieving the same or similar levels of efficacy compared to broadcast spraying. The UNL trial proves that the Greeneye system delivers the ultimate combination of savings and efficacy for farmers. Nadav Bocher, CEO, Greeneye Technology.

10



### GrainWeevil awarded NSF SBIR Grant

Grain Weevil received a 2022 National Science Foundation (NSF) SBIR Research Grant worth \$256,000, and that was coupled with a Nebraska Innovation Fund matching grant worth \$100,000. This Small Business Innovation Research (SBIR) Phase I project explores the use of mobile robots for grain storage assessment. The Grain Weevil is undergoing trials in grain bins on farms in Nebraska, Iowa, and Tennessee. "Our goal is to start by providing a service to farmers while we work on certification," CEO Chad Johnson says. "By the end of next year, we hope to begin direct sales."