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FOR AG TECH, 2021 WAS A YEAR OF ACQUISITIONS, MERGERS, AND GROWING COLLABORATIONS

By [Laurie Bedord](#)

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For producers in California, especially those who raise specialty crops, labor has been an ongoing issue for a decade or more. Today, the lack of labor has left no aspect of agriculture untouched.

“Whether you’re a meat packing plant or a corn farmer in the Midwest, it has become difficult to find production workers or someone to drive a grain cart,” Magenheim says.

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Because it has evolved into such a widespread problem, Magenheim says this past year investors, as well as major ag companies, put more money toward start-ups automating tasks.

“You can’t talk about production agriculture today without recognizing there is a labor challenge,” says Ron Antevy, managing director and cohead of Trimble Ventures. “We are focused on the operational workflows of helping a farmer grow a crop. How can we automate equipment, so it’s smarter and easier to use, to reduce the skill set needed to perform certain actions at a price point that makes sense?”

Investments in farm robotics totaled \$491 in the first half of 2021, a 40% increase over the same period in 2020, according to AgFunder. Noteworthy deals went to start-ups like TerraClear, Monarch Tractor, and Bear Flag Robotics.

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With the purchase of Raven Industries, CNH Industrial is also working to bring more integrated precision and autonomous solutions to customers. The pairing will not only improve productivity and profitability but also promote more sustainable solutions and environmental stewardship as well.

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Scott Wine, chief executive officer, CNH Industrial, says, “The purchase of Raven Industries emphasizes our commitment to enhance our precision farming portfolio

- **Read More:** [Q&A: Scott Wine, chief executive officer at CNH Industrial](#)

The acquisition of Blue River Technology in 2017, says Julian Sanchez, was a down payment in helping farmers do more with less. “Their team actually shifted our mind-set and the way we look at the problem of optimizing inputs, as well as labor,” says Sanchez, director of emerging technology for John Deere.

The company’s acquisition of Bear Flag Robotics this past summer accelerates the development and delivery of automation and autonomy on the farm.

The move, John Marshall believes, will not only enhance Deere’s position in the autonomous space, but continue to set the company apart. “It also will further Deere’s presence in Silicon Valley, showing that it is a major player in technology,” says Marshall, IntelliFarm Director at Wade, Incorporated.

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In December, Deere purchased AgriSync. Founded in 2015, the Iowa start-up is a customer service platform for ticketing and remote support for ag equipment dealers.

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Magenheim says another notable deal in 2021 was the acquisition of Prospera by Valmont Industries, the parent company of Valley Irrigation. An Israel-based company, Prospera has developed artificial intelligence technologies that can use information gathered in the field through remote sensing to provide early detection and enhanced scouting, so a producer can make fast and informed decisions during critical stages of crop development.

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MOST SIGNIFICANT ACQUISITION

Bushel buying GrainBridge, a start-up created by Cargill and ADM, Magennis says. “The fact that they are willing to release ownership to Bushel will be a game changer for the grain supply chain,” he says. “From an industry and adoption acceptance standpoint, it’s exciting because we haven’t seen anything like this before.”

“For us, the more that can be automated, the more benefit the farmer is going to get out of it,” says Jake Joraanstad, CEO and cofounder of Bushel.

Founded in 2011, Bushel has more than 40% of the grain origination in the United States coming into its platform, which translates to about 10 billion bushels annually. “That’s 10 billion bushels of data, which is properly permissioned, that we can make more valuable for the farmer and the grain company. We are trying to embolden these relationships, so both can prosper,” Joraanstad says.

- **Read More:** [Bushel acquires GrainBridge](#)

This past year also saw companies develop new products based on their acquisitions. In March, Deere unveiled See & Spray Select – a technology that sprays weeds in fallow ground, which can help farmers reduce nonresidual, preemerge herbicide use by 77%.

- **Read More:** [John Deere launches See & Spray Select](#)

Tamar Rosati says digitally enabled crop protection will be the next big frontier in ag tech.

“We’ve seen a lot of precision technology in seed and fertilizer, and software such as Granular Insights that helps with on-farm decision making, but not as much development in crop protection,” says Rosati, president, digital business platform, Corteva Agriscience. “Using predictive analytics combined with precision application technology, there are several exciting tools becoming available that can help a farmer better target his spraying. This area is going to see a transformation, ultimately driving an increase in ROI for farmers and better stewarding of the land.”

In 2021, companies offering imagery services also gained traction.

“It’s been pretty pictures for a lot of years, and people didn’t know how to use those images. Companies that have been around for at least five years like Sentera and Ceres Imaging are developing tools that provide actionable analytics. The platforms are also reasonably priced, so the barrier to entry is low,” Magenheim says.

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SIMPLE TECH A POPULAR PATH

On the start-up side, Magenheim says simple technology like an app that collects information, is still a popular path to pursue. Start-ups worth noting include AgWorld, KipTraq, and Conservis.

For example, Conservis helps farms organize data being collected from different sources and platforms, eliminate manual entry, create successful business plans, and confidently manage their cost and production operations throughout the year. Acquired by Telus Agriculture and Rabobank in summer 2021, the purchase combines Telus Agriculture’s technologies with Rabobank’s knowledge and relationships across the entire food value chain. What that means for Conservis customers is a solution that aggregates a farm’s data into a single resource.

- **Read More:** [Conservis acquired by Rabobank, Telus Agriculture](#)
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Start-ups, Magenheim says, are also maturing and have finally figured out what their product is and how to deliver it to the end user. Perhaps more importantly is the increased collaboration that is also taking place.

“Collaboration is a big trend I’ve seen over the last year or so,” he says. “Companies are realizing they’re not going to be the platform that does everything, so they need to work together.”

“Start-ups have a certain ability and freedom to innovate quickly, with access to funding from many different sources,” Rosati says. “However, they don’t necessarily have access to the end customer required to bring the product to market, enabling a technology to scale. The connection between established large players and start-ups are important because it helps bring some of these solutions to customers in ways they wouldn’t have been able to do on their own.”

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While there are a lot of great ideas out there, Nebraska farmer Brandon Hunnicutt says, “Some are very impractical when we try to implement them on the farm. Farmers need to be open to sharing what they need on their farms and what may or may not work. Companies need to be willing to ask for our input in the early stages of development.”

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“Bringing farmers along in the ag tech journey means acknowledging there is no silver bullet to solving the issues facing agriculture,” says Shubhang Shankar, Syngenta Group Ventures. “I think we need to start by not overpromising and underdelivering.”

THE OUTLOOK FOR 2022

Five start-ups Magenheim will pay close attention to in the coming year include [Hectre](#), [Ganaz](#), [Intelliculture](#), [SWARM Engineering](#), and [ARVA Intelligence](#).

“Hectre has developed an easy-to-use orchard management and fruit sizing software,” he says. “It is a simple app that streamlines harvest management by better tracking a crop like oranges from the field to the warehouse,” he says.

Ganaz, a workforce management platform, helps employers recruit, retain, communicate, onboard, train, and pay their workforce. “Instead of taking 20 to 30

agriculture's largest challenges – labor, pest prevention, and machine safety.

Focused on the food supply chain, SWARM Engineering is solving issues such as load planning in logistics, product blending, pricing, and inventory demand plans.

Start-up ARVA Intelligence is combining a farmer's existing data with machine learning models to quantify the impact of current practices. "The company is taking a different stance on sequestering carbon that makes a whole lot of sense," Magenheim says.

- **Read More:** [ARVA Intelligence announces carbon ready program for trusted advisers](#)

Shankar believes that as the conversation continues to move toward how to repair the environment, the definition of efficiency will change. "For decades, we were chasing yield, trying to figure out how to produce large amounts of food cheaply," he says. "It's no longer how much can we produce cheaply, but how much can we produce sustainably. Innovation is going in that direction."

Magenheim also thinks more investments will go toward acquiring later stage start-ups in the coming year. And no matter the technology, he says the industry must continue to work on removing the barriers to entry. "Basically, how do we help producers, so they want to use technology more?" he says.

Magenheim also sees technology innovation and adoption continuing to grow for animal agriculture.

- **Read More:** [Five animal agriculture entrepreneurs from the Alltech start-up program](#)

"While technology for crop production has seen considerable growth, the animal side of things has been behind. As it watches, learns, and figures out what did and didn't work on the crop side, animal agriculture is rapidly catching up," Magenheim says.

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