INTERVIEW

COREY KINCAID, president, Dean Kincaid Inc.

By Joe Kertzman, managing editor, *Badger Common'Tater*

Growing vegetables in the rich muck soil of Southeastern Wisconsin seems like an ideal way to spend one's career, but it is not without its challenges.

NAME: Corey Kincaid

TITLE: President

COMPANY: Dean Kincaid Inc.

LOCATION: Palmyra, WI

HOMETOWN: Palmyra

YEARS IN PRESENT POSITION: Three

SCHOOLING: 1994 graduate of Palmyra Eagle High School, and Bachelor of Science degree in agricultural sciences, University of Wisconsin-Madison, 1999

ACTIVITIES/ORGANIZATIONS: Wisconsin Potato & Vegetable Growers Association (WPVGA) Research Committee, and treasurer of the Wisconsin Muck Farmers Association

FAMILY: Wife, Stacey, and three sons, Colton (17), Cason (14) and Camden (11)

HOBBIES: Waterskiing, biking, woodworking, hunting and travel

Above: Representing the third and fourth generations of the Kincaid family growing onions and potatoes in Palmyra, Wisconsin, Corey Kincaid (second from left) poses with his wife, Stacey, and sons, from left to right, Camden, Colton and Cason.

Dean and his father, R.E. Kincaid, grew onions in Grant, Michigan, for a few years before selling the land. Dean went to Florida and raised onions there for a year, but he had difficulty controlling diseases due to the humidity and limited fungicidal materials.

That's when, in 1950, he returned to the Midwest looking for land to drain. He found what he was looking for in Palmyra, Wisconsin. Over the years, he slowly expanded the farm with the help of his sons, Gary (Corey's father), and John, to make the farm what it is today.

Dean Kincaid, Inc. specializes in growing onions and red potatoes in Jefferson, Waukesha and Walworth Counties.

Are you still farming 6,000 acres, and how much of it is in fresh market potatoes and onions? We are now down to just under 2,500 tilled acres.

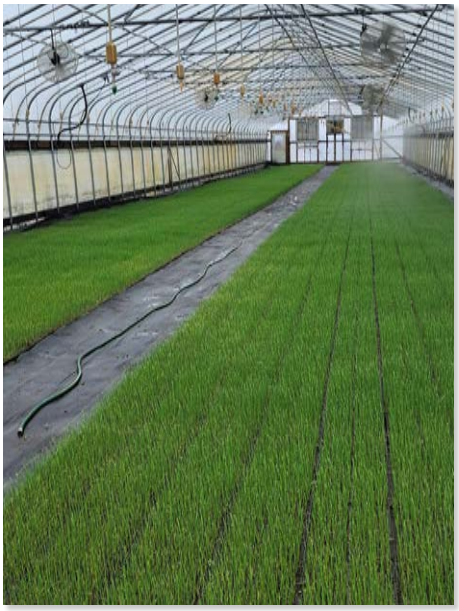
Nine-hundred-and-forty-five acres went to solar and 1,760 of the muck went back to the Department of Natural Resources and is currently being converted into a wetland.

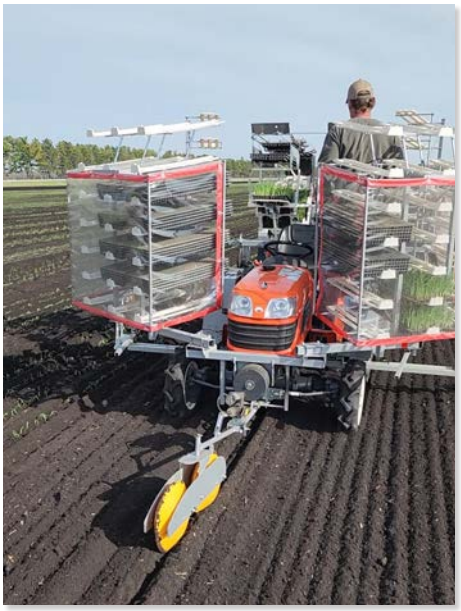
We have been trying to diversify our farm over the years to make it last well into the future. I tried growing other crops, like organics, beets, shallots, pearl onions, and canning carrots, and none of them really panned out or made much of an impact. So, we as a family decided to diversify in other ways.

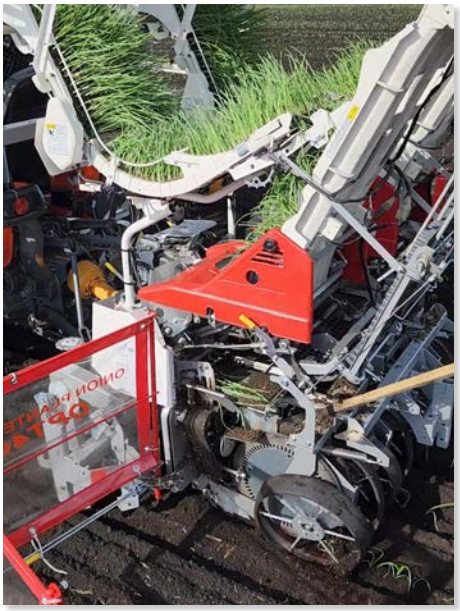
We have a portion of the farm that is in solar that came online last month and have also gotten into apartment and office development projects, mostly in the Milwaukee metropolitan area.

It is nice having some assets with a roof on them and not having to worry quite so much about impacts from the weather.

I'm sure there have been quite a few technology updates on the farm over the years. Can you hit on two or three? We are using four







Above: To have marketable onions in early August, Dean Kincaid Inc. plants them in five greenhouses in early February and transplants the onion plants onto about 40 acres in mid- to late-April using a Minoru OPT 40 Transplanter from Japan.

AI (artificial intelligence) robots on the farm now—a Carbon Robotics Laserweeder, an Ecorobotix sprayer and two Smart Vision Works spider robots to help with grading in the packing shed.

This summer will be the first with the Ecorobotix sprayer, but this past year, we used the Laserweeder extensively.

Onion growth is delayed/stunted by the microdosing of herbicide throughout the growing season, and the Ecorobotix sprayer drastically reduces the use of plant protection products, decreasing labor costs while increasing efficiency.

The Laserweeder and the Ecorobotix will hopefully reduce the hand weeding labor. I currently spend over $300 per acre on hand-weeding labor. These tools will also reduce herbicide usage.

We have seen 20 percent yield gains and a shift in the size profile to a larger crop, which, in the case of onions, the larger sized onions are worth more.

Other things we have seen with this technology include better control of resistant weeds, a crop that matures 7-10 days earlier, and healthier plants that withstand disease, insects and other stress.

After the first year's use of the Laserweeder, I have seen that I can cut my onion acreage due to the increase in yield. This is a significant cost savings and helps with crop rotation.

There are some negatives to the Laserweeder. It is expensive, slow and creates a 24-hour job if you want to get some ground covered. We're able to cover about 1 acre per hour on average.

We were able to run a few stretches of 13 to 14 days, 24 hours a day, stopping only for fuel and quick maintenance. Carbon Robotics is coming with technology this year where they can have someone operate the machine remotely, much like drones in the military.

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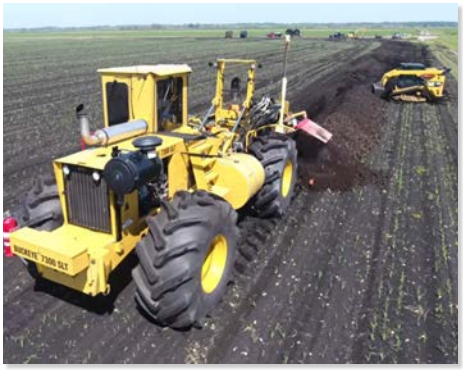
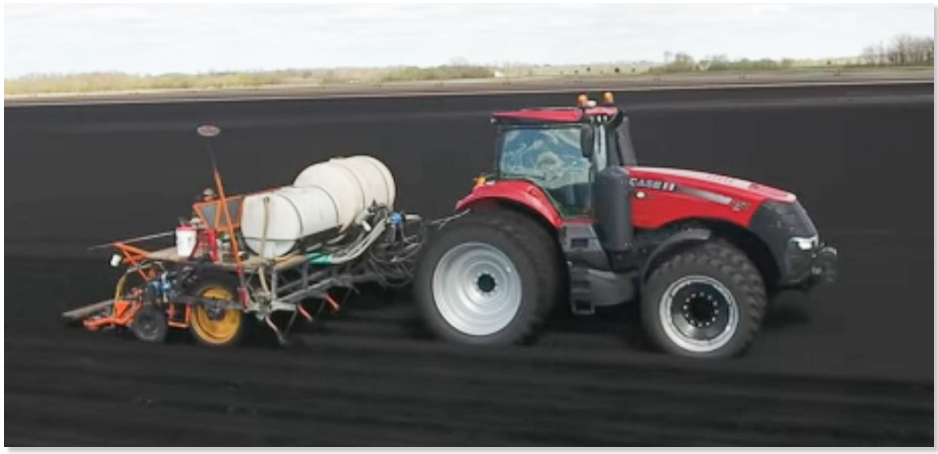




What varieties of potatoes are you growing and on what rotation? We grow red and yellow onions and Dark Red Norland potatoes, the latter entailing only 60 acres for RPE, Inc.

We no longer pack potatoes ourselves and focus mostly on onions. We also grow about 1,000 acres of field corn and 1,000 acres of soybeans on rotation.

What varieties of onions do you raise, and why those? My main onion varieties are Braddock, Bradley, and Safrane, with Oneida and Killington being for early maturity.

We annually plant about a 15-20-acre test plot. Onion varieties don't change very fast over time. Finding one that adapts to our area and is bacteria resistant takes many years.

We also plant 40 acres of transplants to have marketable onions in early August. We used to get plants from Arizona to plant but this was a time-consuming and labor-intensive practice.

We imported a Minoru OPT 40 Transplanter from Japan and grow our own plants in trays placed right on top of the soil within five greenhouses. They are planted in the greenhouses in early February and then transplanted into the field in mid- to late-April.

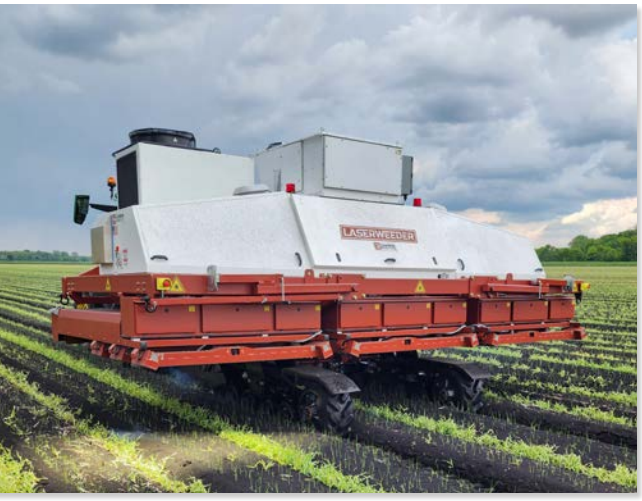
We've been getting better at it over time and have learned much from Japanese YouTube videos trying to figure out their process. The transplants allow us to get our shed running early and use an onion storage warehouse twice in a growing season.

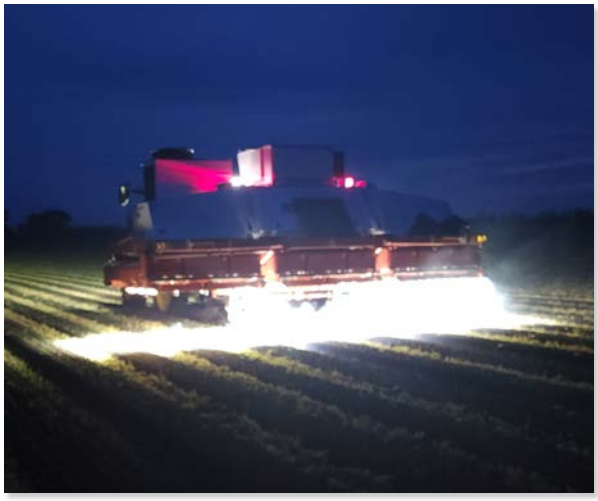
Left: Corey Kincaid says the farm has been tiling fields for water drainage a second time. The old tiles that were installed 4 feet deep are getting hit with tillage equipment at 10 inches, with the muck soil having subsided that much since the first tiling in the 1950s.

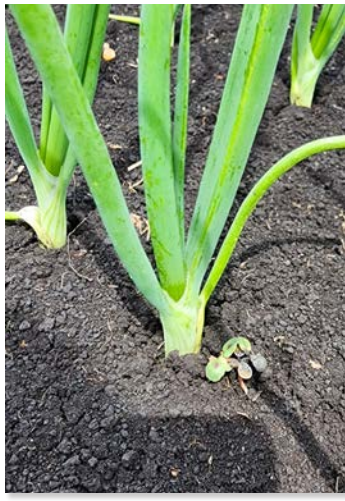
Right: Onion seed is planted in the muck soil at Dean Kincaid Inc., Palmyra, Wisconsin.

Are red potatoes as popular with your customers as they used to be, and if not, how have you weathered that storm? The baby potato market seems to have taken much of the market share from the red potato.

When I started working here, we grew 900 acres of red potatoes and could sell all of them off the field in the fall. Now, it seems difficult







The Carbon Robotics Laserweeder works day and night, stopping only for fuel and quick maintenance as it targets the growing points of weeds, shooting them with a laser. The last image shows a weed at the base of an onion stalk that has been targeted and shot by the Laserweeder.

to sell 60 acres at times. The market also demands much higher quality potatoes with minimal blemishes, which can be a challenge.

Is most of your acreage muck soil, and why is it ideal for onions and the potatoes you raise? We are now about half muck and half mineral soil. The muck is 45-60 percent organic matter and decomposes over time.

We have been tiling fields for water drainage a second time. The old tiles that were installed 4 feet deep are getting hit with tillage equipment at 10 inches. The muck has subsided that much since the 1950s.

As the farm gets lower over time, we build up the dike around it to prevent the river from coming in. The river is now above field level. The muck won't last forever.

I have been experimenting with onions on Plano silt loam and have had decent results and plan another 20-acre experiment this summer.

"We are using four AI robots on the farm now—a Carbon Robotics Laserweeder, an Ecorobotix sprayer and two Smart Vision Works spider robots to help with grading in the packing shed."

– Corey Kincaid

I imagine, then, that you don't have to irrigate as much as on the Central Sands, correct? We have about 60 percent of the farm covered with pivots but usually only use them a maximum of three times per season. We typically spend more time and effort on drainage than irrigation.

But doesn't the muck invite more fungus and diseases, and whether it does or not, how are you treating potatoes and onions for pests and diseases? The muck releases a lot of nitrogen [N] for the crops grown. I only use 50 units of N/acre for my onion crop, 40 N/acre for potatoes and 90 units for field corn.

Excessive N use promotes too much above-ground growth, which can lead to disease issues.

I like to plant soybeans ahead of onions, and white mold can be an

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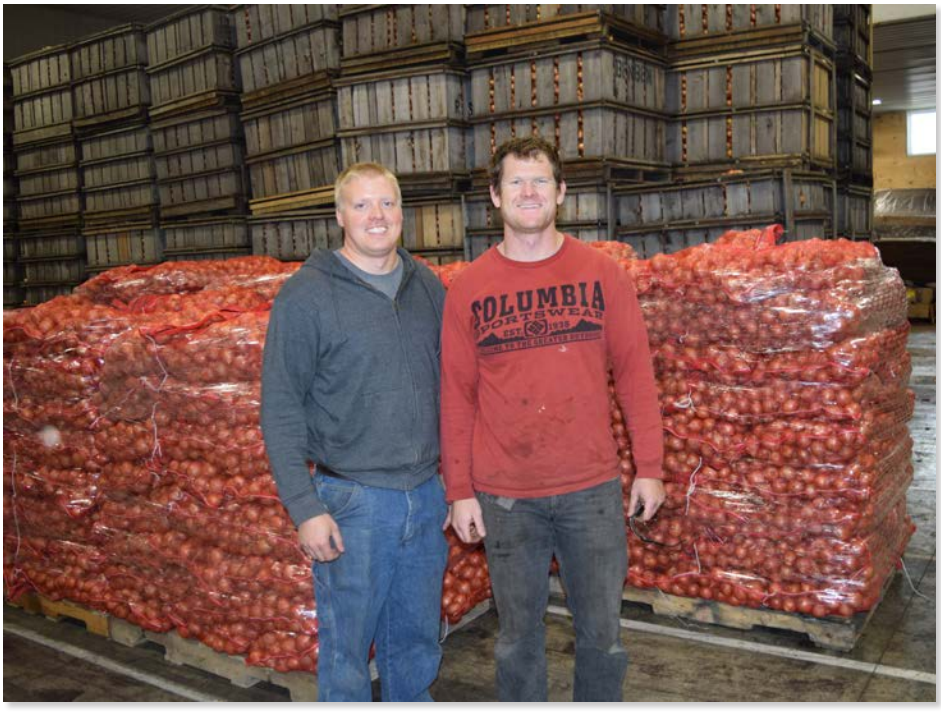
issue. We have been trying to combat that with low populations of 90,000 plants per acre in 30-inch rows. We also use Valent Cobra herbicide to burn them back, followed by fungicides, and yet, we can still get white mold and lodging (the onion tops tipping over when mature) on the muck.

You are secretary/treasurer of the WPVGA Muck Board, on our Research Committee, and I believe involved with state muck organizations. Why is it important for you to stay involved in those boards, committees and associations? There are fewer and fewer farmers, especially muck farmers. Attending meetings and meeting other farmers and researchers have helped our farm continue to increase yields and be the best farmers we can be.

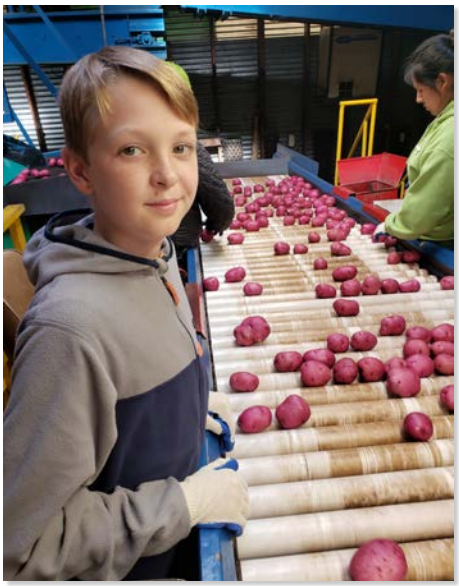
I have been attending National Onion Association meetings across the country and have learned as much from farmers as I have from the meetings themselves.

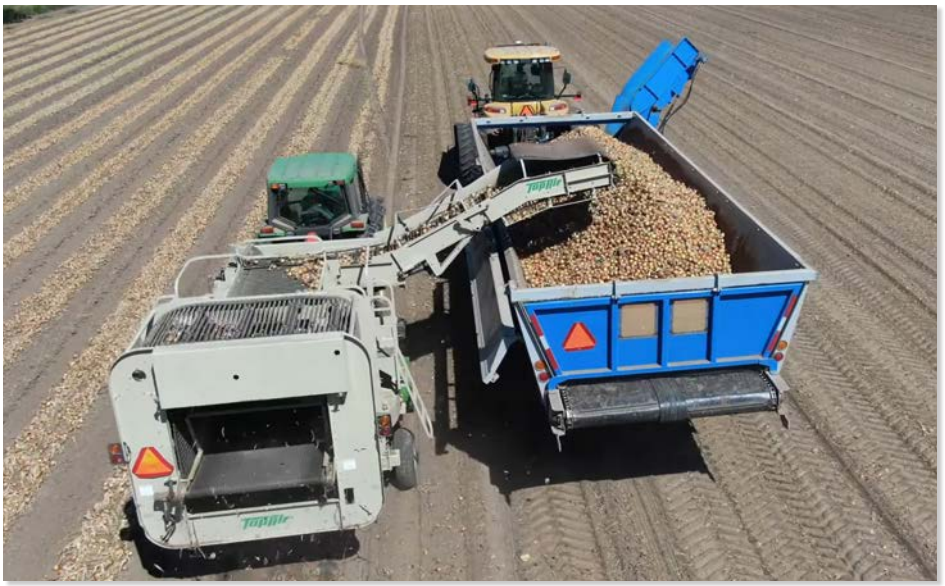
Have GPS (Global Positioning System), remote sensing and larger planters and harvesters changed the way you farm? GPS has definitely helped with driver fatigue and in eliminating any overlap or underlap of seeds and pesticides.



Gary Kincaid has retired, leaving Corey and his brother, Chase (left), and brother-in-law, Jay Wendt (right), alone on the farm.

Above: Braddock yellow onions are ready to be undercut at Dean Kincaid Inc. in the first image, and a yellow onion ridgeline is beginning to lodge (when the onion tops tip over) in the second photo. The onion tops tip over when mature. Undercutting gets the roots and the onions, which are then left in the field a bit to dry before the harvester picks them up.





Remote sensing, such as Climate, along with yield maps have helped make targeted decisions on where to best place new drain tiles and which varieties outperformed others.

The Laserweeder and some of the newer AI machines can count the number of onions in our field and give us stand counts, as well as map the weeds in the field so we can make decisions going forward as to which field to treat next or address a problem area.

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Left: Corey and Stacey Kincaid's oldest son, Colton, represents the fourth generation, here helping grade B-size red potatoes during the last year that the family and employees packed spuds themselves.

Right: Dean Kincaid Inc. onions are harvested on mineral soil in Walworth County.

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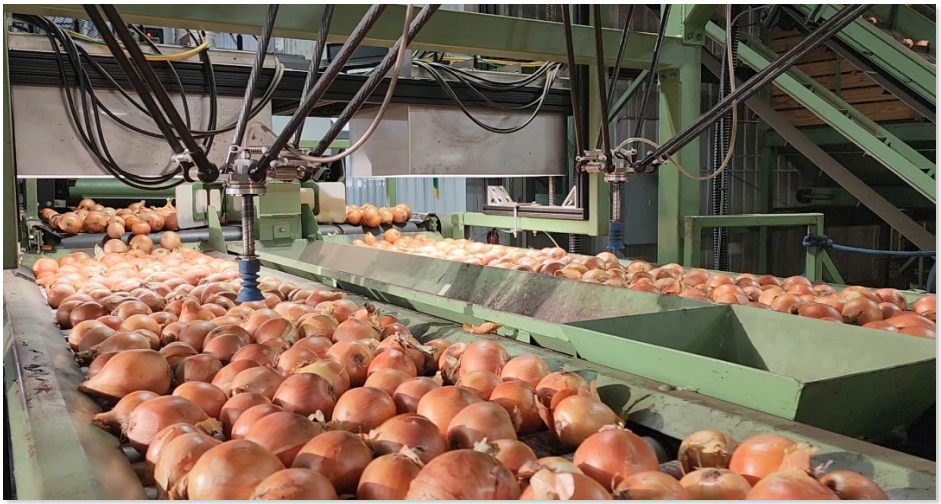
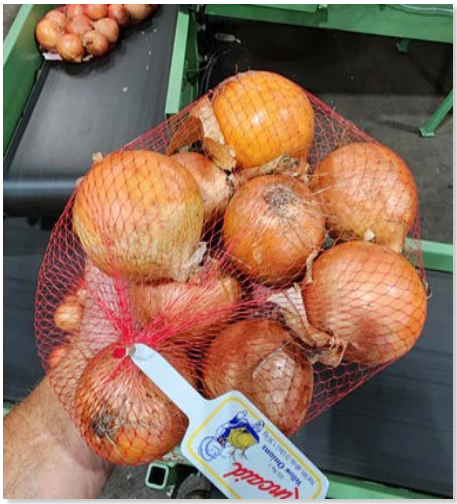




Above: A Smart Vision Works spider robot grades onions at Dean Kincaid Inc. using artificial intelligence. About 60 percent of the farming operation's onions are sold to retail grocery chains in 3-pound bags.

Who are your main buyers of onions and potatoes? Currently all our potatoes go to RPE, Inc. About 60 percent of our onions go to retail grocery chains in 3-pound bags, and the remainder in 50-pound bags to re-packers across the country.

Hopefully, this percentage changes as we grow larger onions and more medium-sized onions with the implementation of the AI driven weeding machines.

Do you have family members involved in the business, and if so, who and in what capacities? My dad, Gary, has retired, which pretty much leaves my brother, Chase, and brother-in-law, Jay Wendt, alone on the farm.

Thankfully, we still have Dad around to consult and help with some of the broader changes we are making on the farm.

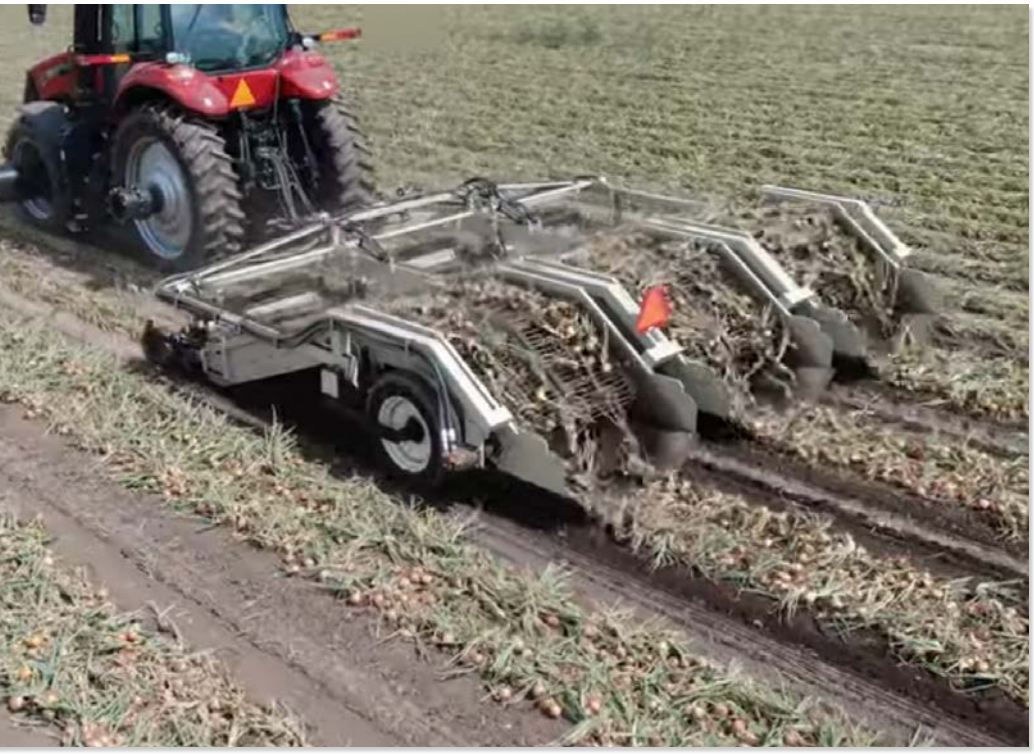
How many full- and part-time employees do you have? Dean Kincaid Inc. has 26 full-time employees and up to 38 additional hands seasonally.

Is there community involvement and pride concerning Dean Kincaid Inc. in the Palmyra area? Yes, we take pride in donating to the local FFA and scouting programs and schools. I also donate 40,000-80,000 pounds of onions to Feeding America in Milwaukee annually.

How are you farming more sustainably now than in the past? We're using grid soil sampling to make informed variable fertilizer applications, and thus, we have cut way back on nitrogen usage.

Using and implementing cover crops to help with soil erosion allows us to be more sustainable, as do the new AI weeding machines to reduce herbicide usage.

The packing shed that was built on the farm in 2014 has also allowed us to be more sustainable because it cut out a middleman/re-packer, and we ship many more onions directly to



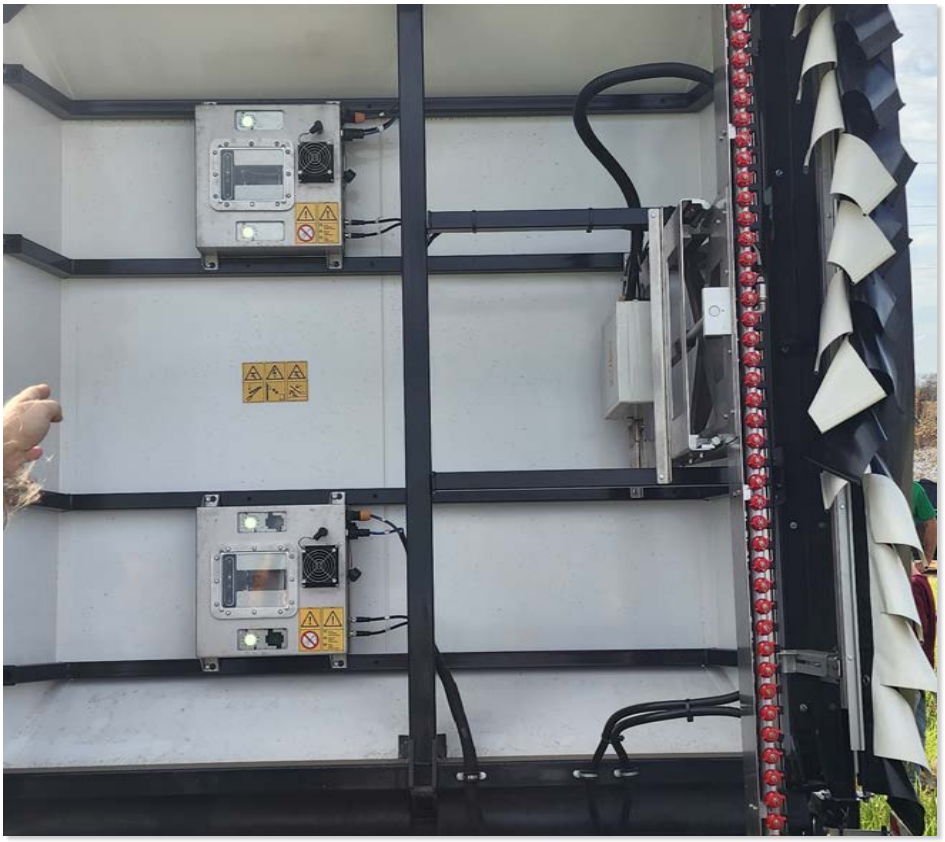
Onions are undercut on mineral soil in Walworth County.

the end users.

It also gives our employees a better working environment and helped the farm recapture some of the money lost to middlemen as we've shipped onions to the store.

What farm safety measures do you take for your employees? In our packing shed, we put perforated metal panels in the ceiling and walls to greatly reduce noise and protect everyone's hearing.

We also installed two dust extraction systems to help keep dust levels down. Onions are quite dusty when packing them, and no water is used as it is in potatoes. BC'T



RIght: The underside of Dean Kincaid Inc.'s Ecorobotix AI sprayer shows the nozzles and camera system.