

New algae system helps Arizona farmers grow better crops with less water

Project a collaboration between ASU, Phoenix-based company MyLand

By Marshall Terrill , ASU News
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Ed Curry is passionate about the green, red and yellow chile peppers he grows on his 3,000-acre farm in Pearce, Arizona, about 90 minutes southeast of Tucson.

He's also passionate about saving water.

A new technology Arizona State University is analyzing and promoting has combined his love for spice and conservation.

"On the farm we have a saying: Make more crop per drop," said Curry, who founded [Curry Seed & Chile Co.](#) in 1976 and is a member of Arizona Gov. Katie Hobbs' Water Policy Council. "Our goal here is to cut our water usage whenever we can."

Curry said he cut about 50% of his water usage in the 1990s by going to a drip system. More recently, he estimates he's cut another 10% through a new soil service.

ASU and [MyLand](#), a Phoenix-based soil health company, demonstrated how soil health innovation can drive measurable water conservation at Curry's farm at an event on May 14. This is achieved by using live, native microalgae to improve soil so that farmers like Curry can achieve greater water efficiency, increased yields and reduced environmental impact.

With more than 900,000 acres of irrigated farmland in Arizona, the potential for large-scale impact is significant.

"This is a carbon story and a water story because atmospheric carbon is being converted into food, using water as the medium," said [Enrique Vivoni](#), Fulton Professor of Hydrosystems Engineering in the [School of Sustainable Engineering and the Built Environment](#) and the director of the [Center for](#)

[Hydrologic Innovations](#). “Our goal is between 7% to 15% water savings to demonstrate the water efficiency gains from better soil health.”

Thanks to a grant administered through the Water Infrastructure Finance Authority of Arizona, the project will provide free access to a nature-based soil health technology across thousands of acres of Arizona's commercial farmland. This effort aims to enhance water efficiency, reduce water consumption and improve water quality in the state's agriculture sector.

“I’m really excited to see these kinds of efforts,” said Paul E. Brierley, director of the Arizona Department of Agriculture, who was also at the event in Pearce. “I once headed a commission titled the Advisory Commission on the Future of Food and Agriculture Production in the Drying Climate. I found that one of the most challenging things was getting people to focus on agricultural production because everybody wanted to solve climate change, or they wanted to augment the water supply.

“What we’re really talking about is how can we keep agriculture productive, even in the face of less water? Which is what we’re facing here in this county. So, there’s a lot of different ideas, a lot of different solutions.”

MyLand came up with this idea almost 15 years ago, according to Dave Booher, senior vice president of sales.

“The company was founded in 2011 by three individuals with a passion for agriculture and thinking of a better way to regenerate the soil,” Booher said. “We spend a lot of time treating things above ground but haven’t really thought about the potential for what’s below ground.”

MyLand’s “Soil as a Service” approach uses live, native microalgae to improve soil health and influence biological, physical and chemical changes in the soil. These changes enhance the soil’s ability to hold and utilize water, which in turn supports both productivity and sustainability.

“We have growers who have documented a 15% decrease in water use on alfalfa, an extra half-day between irrigation cycles on peppers and a 24% improvement in water-use efficiency on tree nuts. MyLand is helping producers today with an eye on the future.”

MyLand’s service includes installation and operation of the system, which makes it easy to implement for the grower. The system grows the live, native microalgae in algae production vessels, on-farm, and injects directly into the irrigation system.

Greg Sweatt can attest to this.

“I harvest Ed’s pecans for him, and I noticed that last year was one of the better-quality crops,” said Sweatt, owner of Whitewater Irrigation Inc. in Cochise County. “I asked Ed if he had sprayed the crops with pesticides. He said, with MyLand, he never sprayed anything. I was like, ‘Wow, that’s crazy!’”

That’s because when the quality of the crops improves, the insects stay away, according to organic farmer Chad Koehn.

“All insects are nature’s garbage collectors,” said Koehn, who is the owner of Koehn Farms LLC in Pearce. “When you change the health of the plant, those insects will leave it alone.”

The lessons learned in Pearce will be shared with other farmers in Arizona and beyond through outreach and education, said [Lindsay Gaesser](#).

“Our goal will be to engage with farmers about the benefits of this microalgae solution and how they could use it on their farms,” said Gaesser, a research specialist with the [Swette Center for Sustainable Food Systems](#). “We also have students engaged in this research who will be working on a capstone project this summer to support wider adoption of this technology and pursue its approval as a conservation practice with the USDA.”

While Curry is amazed by the technology and achievements of this new service, he said more needs to be done for water conservation.

“Balancing the water basin is akin to balancing a checkbook,” Curry said. “We must balance it for our children, our grandchildren and their children. We must do it if we want society to continue.”

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This story originally appeared on [ASU News](#).

Main image



MyLand senior vice president of sales Dave Booher (left) listens to Cochise County farmer Ed Curry talk about how he's been able to limit water usage thanks to the implementation of a new soil project that uses live, native microalgae. Photo by Charlie Leight/ASU News

Gallery



Enrique Vivoni, director of ASU's Center for Hydrologic Innovations, speaks at a demonstration of a new soil project that reduces water use on crops on Wednesday, May 14, at Curry Farms in Pearce, Arizona. Vivoni's work is also part of the Arizona Water Innovation Initiative, a state of Arizona project aimed at ensuring a secure future water supply.



Lindsay Gaesser, research specialist for ASU's Swette Center for Sustainable Food Systems, speaks at the demonstration at Curry Farms in Pearce, Arizona. The method uses live, native microalgae to improve soil so that farmers can achieve greater water efficiency, increased yields and reduced environmental impact.



Live, native microalgae are produced onsite in algae production vessels at Curry Farms and injected directly into the irrigation system.



MyLand's Dave Booher, senior vice president of sales, talks about the outdoor algae production system during a demonstration at Curry Farms in Pearce, Arizona.



New chile peppers are popping up after seeding and irrigation with the MyLand soil project at Curry Farms in Pearce, Arizona. The project is a collaboration between ASU and MyLand, funded by a grant from the Water Infrastructure Finance Authority of Arizona.