

People & Places

Looking at the big picture

By BRAD CARLSON
Capital Press

MOSCOW, Idaho — Ed Lewis and Shirley Luckhart help innovations progress as part of a whole picture instead of only an isolated factor.

The husband-and-wife team directs the University of Idaho Institute for Health in the Human Ecosystem, which they founded in 2017.

“The idea was to bring together research, teaching and outreach interests that explore the intersections among plant, animal and human health from the sub-cellular scale up to the ecosystem scale,” Luckhart said.

She said researchers too often do their own work without interacting with each other enough, and do not effectively leverage the many biological parallels and other important drivers of plant, animal and human health.

“We need to break down the intellectual silos in plant, animal and human health,” Luckhart said.

Researchers “can’t just keep going into these complex ecosystems working on one small and narrow focus, not understanding the broader impacts of any intervention, and expect the solution will be sustainable,” she said.

More intentional, cross-discipline communication will lead to better solutions to ecosystem problems ranging from drought and invasive plants to diseases such as malaria, which Luckhart has studied for 27 years.

For example, invasive plants are “a huge problem for plant health, animal health and human health,”



Shirley Luckhart and Ed Lewis in their lab space at the University of Idaho's Integrated Research and Innovation Center in Moscow. They are co-directors of the Institute for Health in the Human Ecosystem.

she said, adding that they are best researched collaboratively because they harbor crop-damaging pathogens, provide a host for insect pests, may poison livestock and often outcompete native plants for water and other resources. In some parts of the world, invasive plants' abundant nectar can help increase populations of disease-carrying mosquitoes.

Lewis said pesticides provide another example of cross-disciplinary challenges. Most pesticides used to spray mosquitos to promote public health were first used in agriculture.

“So there are examples of ‘new’ insecticides for mosquitoes used on mosquitoes already resistant to them,” he said.

Because of that, agricul-

ture entomologists and public health researchers need to work together to find what works best for public health and also best incorporates lessons agriculture learned over years of using a chemical, Lewis said.

Invasive plants and uses of insecticides in agriculture and public health were among the challenges presented at an annual six-day course on vector-borne disease biology the institute hosted in mid-June.

Insect-borne disease is a major problem in much of the world. Lewis said human factors including deforestation, urbanization and climate change, which affect the biology of vectors and pathogens.

But controlling a disease vector insect or invasive plant could come at a cost, such as

crop health. As part of the course, research teams sought comprehensive solutions that address plant, animal and human health.

Luckhart also said local people can provide information important to creating a sustainable strategy, an opportunity researchers often don't pursue enough.

A \$500,000 USDA Research and Experiences for Undergraduates grant supports training more than 100 undergraduates over five years to do research projects, with help from faculty mentors. They deal with plant, animal and human health. Lewis is the principal investigator, and Luckhart and UI's Glen Stevens are co-investigators.

The institute also offers

Western Innovator

ED LEWIS AND SHIRLEY LUCKHART

Occupations: Co-directors, University of Idaho Institute for Health in the Human Ecosystem.

Educations: Lewis — B.S., Cornell University, 1980; M.S., University of Missouri, 1987; Ph.D., entomology, Auburn University, 1991. Luckhart — B.S., University of Florida, 1986; M.S., Auburn, 1990; Ph.D., entomology, Rutgers, 1995.

Family: Married to each other. Met at Auburn University.

Hometowns: Lewis — Auburn, N.Y. Luckhart — Youngstown, Ohio.

Residence: Moscow, Idaho.

Hobbies: Fishing, camping, finding antiques.

supervised access to fluorescence and luminescence imaging technology and supports an advanced containment facility for vector arthropods.

“Ultimately we want to develop sustainable solutions to protect health and mitigate disease,” Luckhart said.

Robotic strawberry harvesters take to the fields

By MOLLY CRUSE
Capital Press

DAVIS, Calif. — Walk into any grocery store this summer, and chances are you will be greeted by rows of strawberries. Until recently, each of those berries would have been individually hand-picked by legions of farmworkers.

But Kyle Cobb, the co-founder and president of Advanced Farm, is changing that. “In the history of the world, no piece of fresh fruit or veg has been picked by anything but a human hand,” said Cobb.

Cobb started Advanced Farm, an agricultural robotics company based in Davis, Calif., in 2018 along with three other founders: Carl Allendorph, Mark Grossman and Cedric Jeanty.

“We decided to take our skills in robotics and apply them to ag,” said Cobb, who along with the same founding team members, had started a robotics company 15 years before in the solar industry.

“Davis is a big ag town and so we are always inspired by the problems that we see and that our grower friends are seeing, with respect to



Advanced Farm's robotic harvesters drive autonomously over strawberry beds. One harvester can pick 100 pounds of strawberries per hour.

labor in particular,” he said. “And the challenge with the hard tasks that humans do today, we wanted to try and automate some of that.”

Strawberries are one of the most labor-intensive crops in the U.S. Unlike some other crops that now are predominantly harvested by machinery, strawberries still require hand-picking.

Strawberry harvesting machines have not existed because harvesting the delicate fruit is a tricky business.

“(The robots) have to be rugged because they're out in real field conditions, so that's been a real challenge,”

said Daniel Sumner, an agricultural economist at the University of California-Davis. “And asking a robot to do delicate things like reach out with little fingers and decide whether a strawberry is ripe or not and look behind a leaf to find it — that's tough.”

According to a UC-Davis Department of Agricultural and Resource Economics 2021 report, harvesting one acre of strawberries costs farmers between \$30,000 and \$50,000 in labor costs.

Cobb believes improving technology is the answer. “When you really look at the numbers and specialty

crops, in particular, so much of the system is designed around humans, which results in really high costs for things like labor that can only be addressed through robotics,” Cobb said.

Four years after starting Advanced Farm, Cobb and his team had developed a strawberry harvesting robot. Each robot features four “picking” arms and, according to Cobb, one person can operate five machines at once.

“This past season, I'd say, is when we really turned the corner,” said Cobb. “We've picked millions of strawberries in 2022 so far, and we have 16 machines contracted. So we're well past the single prototype testing phase, and we're now focused on scaling the business and growing our fleet size.”

But some experts say robotics may not be the be-all-end-all solution for all strawberry farmers. While robotic harvesters may be practical for larger scale growers and shippers, they may not be viable economic or practical solutions for smaller farms.

“Agriculture changes slowly, so I see the integration of robots to be a more

gradual thing,” said Mark Bolda, director of the University of California's Santa Cruz County Cooperative Extension and a berry specialist.

While Bolda agrees that robotics and advancing technology are necessary for agriculture as a whole, he remains skeptical about the incorporation of robots into the industry and the economic viability of the robots.

Yet, Cobb remains hopeful the robotic strawberry harvester will revolutionize strawberry picking and change the face of the industry.

“I think we can have a really big impact on the industry just by, frankly, helping it sustain as an industry here in the U.S. Growers are having a really hard time finding labor that they need,” said Cobb. “So we can bridge that gap and provide another solution and in the meantime also significantly improve the working conditions for the farmworkers that are left and bring them into better jobs that they're much more biologically suited to do, like sorting and packing fruit, operating machinery, maintaining equipment, things like that.”

Submit upcoming ag-related events on www.capitalpress.com or by email to newsroom@capitalpress.com. All times reflect the local time zone unless otherwise noted.

SATURDAY AUG. 13
Family Forest Field Day — Southwest Washington: 9 a.m.-4 p.m. L & H Family Tree Farm, 1309 King Road, Winlock, Wash. Whether you own a “home in the woods” or many acres of land, this “out in the woods” educational event is packed with practical “how-to” information that you need to know. Learn more at <https://forestry.wsu.edu/sw/field2022/>.

SATURDAY-SUNDAY AUG. 13-14
Dufur Threshing Bee 2022: 6 a.m.-3 p.m. Main St., Dufur, Ore. Relive the good old days at the Dufur Threshing Bee. Included will be blacksmiths, a one-room school house, the Dufur Historical Society, petting zoo, food booths and artists' booths, tractor pull, vintage car show, hometown dinner and a steam engine display. Contact: Nancy Gibson, 541-993-3429.

WEDNESDAY AUG. 17
Miller Research Potato Pest Management Field Day: 10 a.m.-

12:15 p.m. Miller Research, 422 E. 200 N. Rupert, Idaho. Plant pathologist Jeff Miller to host. Event to focus on chemical management of diseases, highlight research by Pacific Northwest Potato Research Consortium. Pesticide and pest-management credits have been requested. Lunch to follow. Website: <https://bit.ly/3IC8pon>

AUG. 19-28
Western Idaho Fair: 11 a.m. Western Idaho Fairgrounds, 5610 Glenwood St., Boise. Western Idaho gets together annually for this celebration of country living. Website: <https://idahofair.com>

WEDNESDAY AUG. 24
Oregon State University Malheur Experiment Station Onion Variety Day: 9 a.m.-1 p.m. OSU Malheur Experiment Station, 595 Onion Ave., Ontario, Ore. 97914 Website: <https://bit.ly/3PDBkLb>

AUG. 26-SEPT. 5
Oregon State Fair: 10 a.m. Oregon State Fair & Exposition Center, 2330 17th St. NE, Salem. The Oregon State Fair continues through Sept. 5. Website: <https://oregon-statefair.org/>

CALENDAR

SEPT. 2-10
Eastern Idaho State Fair: Eastern Idaho Fairgrounds, 97 Park St., Blackfoot, Idaho. It's fair time in Idaho. Website: <https://funatthefair.com/general-info/>

SEPT. 2-25
Washington State Fair: 10:30 a.m. Puyallup Fairgrounds, 110 9th Ave. SW, Puyallup, Wash. The Washington State Fair is the largest single attraction held annually in the state of Washington. Closed Tuesdays and Sept. 7. Website: <https://www.thefair.com/>

THURSDAY SEPT. 8
Farm & Ranch Succession Planning and Working Lands Easements: 12:30-4 p.m. OSU Malheur County Extension, 710 Southwest 5th Ave., Ontario, Ore. Attorney June Flores will present on the topics of succession and estate planning, and how to prepare your operation to be resilient for future generations. Easement specialist Marc Hudson will answer your questions about working lands conservation easements — what they are, what they aren't, and how they may be helpful in executing your agricultural

business plans. These in-person events are part of a free 6-workshop series in Lake, Harney and Malheur counties. All are welcome, and the events are free. RSVP for these or any of OAT's other events and refer any questions about the event to diane@oregonagtrust.org 503-858-2683

FRIDAY SEPT. 9
Farm & Ranch Succession Planning and Working Lands Easements: 12:30-4 p.m. Burns Elks Lodge, 18 N. Broadway Ave., Burns, Ore. Attorney June Flores will present on the topics of succession and estate planning, and how to prepare your operation to be resilient for future generations. Easement specialist Marc Hudson will answer your questions about working lands conservation easements — what they are, what they aren't, and how they may be helpful in executing your agricultural business plans. These in-person events are part of a free 6-workshop series in Lake, Harney and Malheur counties. All are welcome, and the events are free. RSVP for these or any of OAT's other events and refer any questions about the event to diane@oregonagtrust.org 503-858-2683

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SATURDAY OCT. 1

Free Waste Pesticide Collection Event in White City: Rogue Transfer and Recycling, 8001 Table Rock Road, White City, Ore. The Oregon Department of Agriculture through the Pesticide Stewardship Partnership is sponsoring a Free Waste Pesticide Collection Event. This event is an opportunity for landowners, farmers and other commercial pesticide users to rid storage facilities of unwanted or unused pesticide products. Contact: Kathryn Rifenburg, 971-600-5073, kathryn.rifenburg@oda.oregon.gov Registration for this event is required by Sept. 16. Website: <https://bit.ly/3FloyFE>

WEDNESDAY-SUNDAY OCT. 5-9

Trailing of the Sheep Festival: Ketchum, Idaho. The five-day festival includes activities in multiple venues and culminates with the big sheep parade down Main Street in Ketchum. Website: www.trailingofthesheep.org

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