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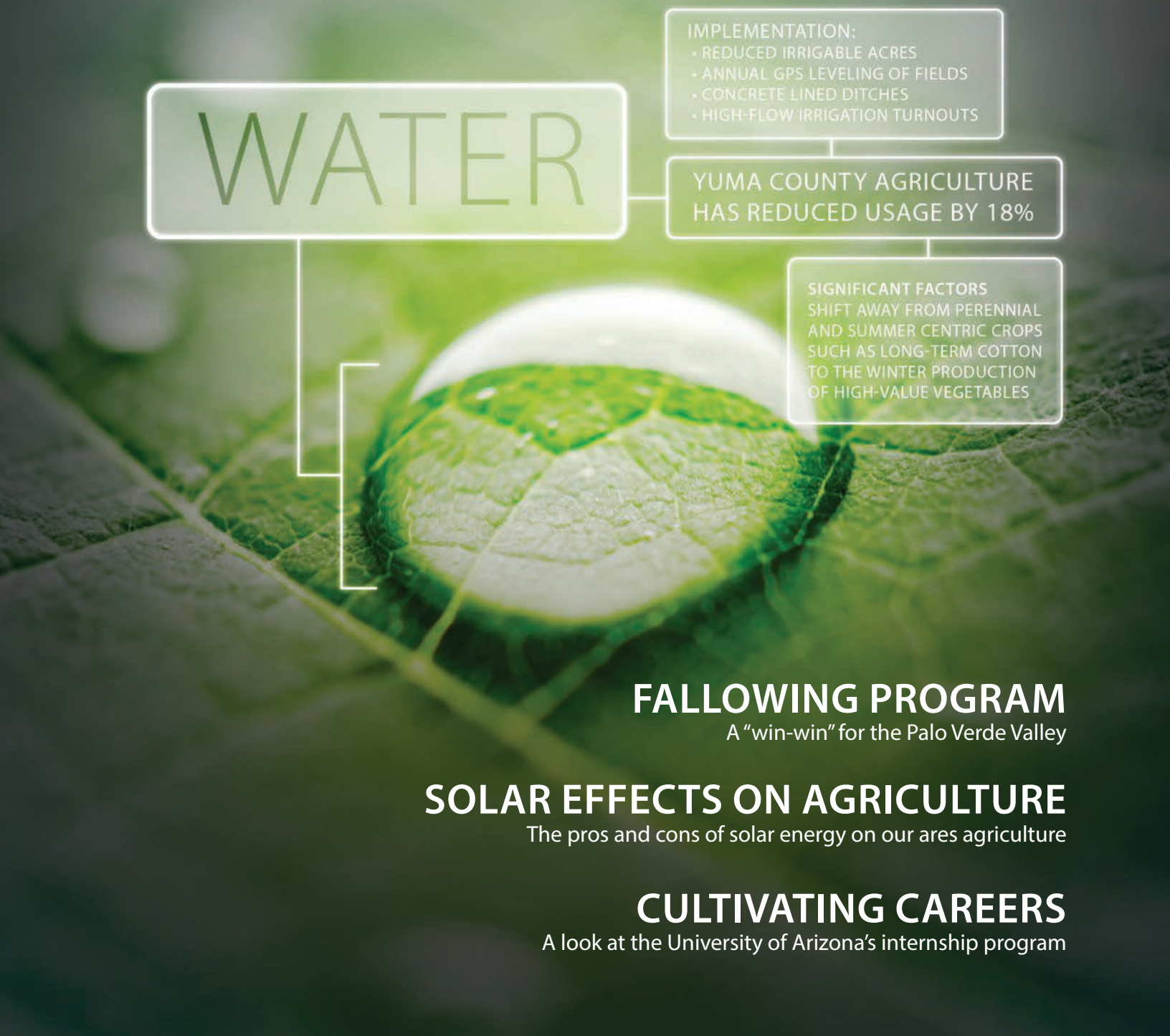

FALLOWING PROGRAM
A "win-win" for the Palo Verde Valley

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A look at the University of Arizona's internship program

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Welcome to the third annual publication of the Seed Trade Association of Arizona. This edition spotlights a subject that continues to heat up in the desert Southwest as the drought lingers and raises concerns about a potential shortage of water being declared for those who depend on the Colorado River for some or all of their water. Learn what they're saying – and doing.

Other topics explore education and new technologies, such as solar power and its impact on agriculture.

As current president of the Seed Trade Association, Doug Henry is focused on promoting the opportunities for careers in agriculture from fields to boardrooms and research labs. That's something he's lived. Henry grew up in Tacna, spending his summers helping his father, a pest control adviser, check fields. In those days, cotton was the main crop. "I checked so much cotton, I knew I didn't want to be a PCA," he said.

After earning a degree in agri-business in 1993 from Arizona State University, he went to work in sales for Genecorp Seeds. Over the years he worked for various seed companies until landing his current position as branch manager for Wilbur-Ellis, a chemical fertilizer business. Throughout most of those years, Henry has been a member of the Seed Trade Association of Arizona. He sees it as a valuable way to keep up on trends in the industry, network with others and a resource to turn to when issues arise that impact the development and movement of seed so critical to the production of future crops. "It helps us stay on top," he said.

The organization also raises thousands of dollars each year in scholarship money to help educate the next generation. "It's a close-knit group," Henry said of the 37 members that range from seed companies to support businesses. "We're competitive day in and day out, but we're a close group that works well together." Henry noted that the desert Southwest with its dry climate is a premium seed production area, especially for vegetables, worth more than $100 million a year. "It's a small but vital part of the vegetable industry here," he said, adding that seed produced here is shipped all over the world.

This year the association will hold its 23rd annual convention May 7-8 at the Talking Stick Resort in Scottsdale. At that time, Henry will pass the gavel on to his successor.

–by Joyce Lobeck

Photo by Alyssa Callahan

Paula Rivadeneira, PhD

Assistant Professor & Extension Specialist, Food Safety and Wildlife
Department of Soil, Water, & Environmental Science
University of Arizona, Yuma Agricultural Center

Paula has been working with wildlife for the past 13 years specializing in the physiology of threatened and endangered species. In 2013 she changed gears and became a Postdoctoral Researcher at the Western Institute for Food Safety and Security at UC Davis where she used her wildlife experience to conduct food safety research. Her food safety research took place in Yuma, AZ where she recently accepted a position with the University of Arizona as the statewide Food Safety Extension Specialist. She is based out of the Yuma Agricultural Center where she established a microbiology lab to test for foodborne pathogens in agricultural and animal samples. Her extension program focuses on all aspects of pre-harvest food safety, including issues associated with wild and domestic animal intrusions.

Our Keynote Speaker

Education:

Apr 2013 – May 2014. Postdoctoral Researcher University of California, Davis Davis CA
Aug 2001 – Dec 2006. PhD in Biological Sciences, Auburn University, Auburn AL
Dissertation: The Physiological Effects of Relocation on Gopher Tortoises
Aug 1988 – May 1992. BA in Psychology and Spanish (double major) New York University, New York NY

Awards and Honors:

2006 Phi Kappa Phi National Honor Society
2006 Margaret McNeal Arant Memorial Award
2005 Gaige Fund Award, American Society of Ichthyologists and Herpetologists
2003 Henri Seibert Student Award, Society for the Study of Amphibians and Reptiles
2003 Linnaeus Fund Turtle Research Award, Chelonian Research Foundation
2002 J. Larry Landers Student Research Award, Gopher Tortoise Council

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Jun 2008 – Mar 2013. Adjunct Faculty Nevada State College, Henderson NV
Jan 2009 – Nov 2011. Conservation Center Program ManagerSan Diego Zoo Institute for Conservation Research, Las Vegas NV
Feb 2008 – Feb 2009. Principal ScientistSWCA Environmental Consultants, Las Vegas NV
Mar 2008 – Jun 2008. Field Researcher Kiva Biological Consulting, Mojave Desert CA
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Aug 2001 – Dec 2006. Field and Lab Researcher Auburn University, Auburn AL
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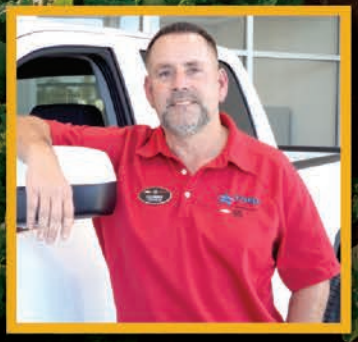

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23rd Annual Convention

Talking Stick Resort | Scottsdale, Arizona

Thursday, May 7

11:00 am **Registration Opens**

1:15 pm **Opening General Session**
President's Remarks

Arizona Department of Agriculture Current Affairs
G. John Caravetta, *Assoc. Director AZ Dept. of Ag., Phoenix*

Update on Current Legislative Issues Affecting AZ Agriculture
Joe Sigg, *Director of Gov. Affairs, AZ Farm Bureau, Higley*

University of Arizona Update
Paul Brierly, *Exec. Director of Yuma Center of Excellence for Desert Agriculture, Yuma*

Committee Meetings
Board of Directors Meeting - Officer Elections

6:00 pm **Hosted Cocktail Reception with Hors D'oeuvres**

7:00 pm **Dinner**

8:00 pm **Door Prizes!**
Raffles!
Dancing to DJ Marc Summersett

Friday, May 8

8:00 am **Breakfast Buffet**

Keynote Speaker
"The role of Wildlife in the transfer of Zoonotic Pathogens from Livestock Operations to Leafy Green Produce Fields in the Southwest Desert"

Paula Kahn-Rivadeneira, PhD
Assist. Professor & Extension Specialist, Food Safety & Wildlife
Department of Soil, Water & Environmental Science
University of Arizona, Yuma Ag Center

STAA Business Meeting

President's Report

Treasurer's Report

American Seed Trade Association Report and Scholarship
Presentation, Pat Miller

Southern Seed Association Report and Plaque Presentations
Tom Bodderij

Outgoing President's Remarks

Incoming President's Remarks

Convention Adjourns

Lunch on Your Own

1:00 PM **Shot Gun Start - Al Simons' 4th Annual Scramble Golf Tournament**
at Talking Stick Golf Resort

Immediately following golf (5:30pm) – Hosted Bar, Munchies & Golf Awards Party at the Talking Stick Golf Resort for golfers and guests

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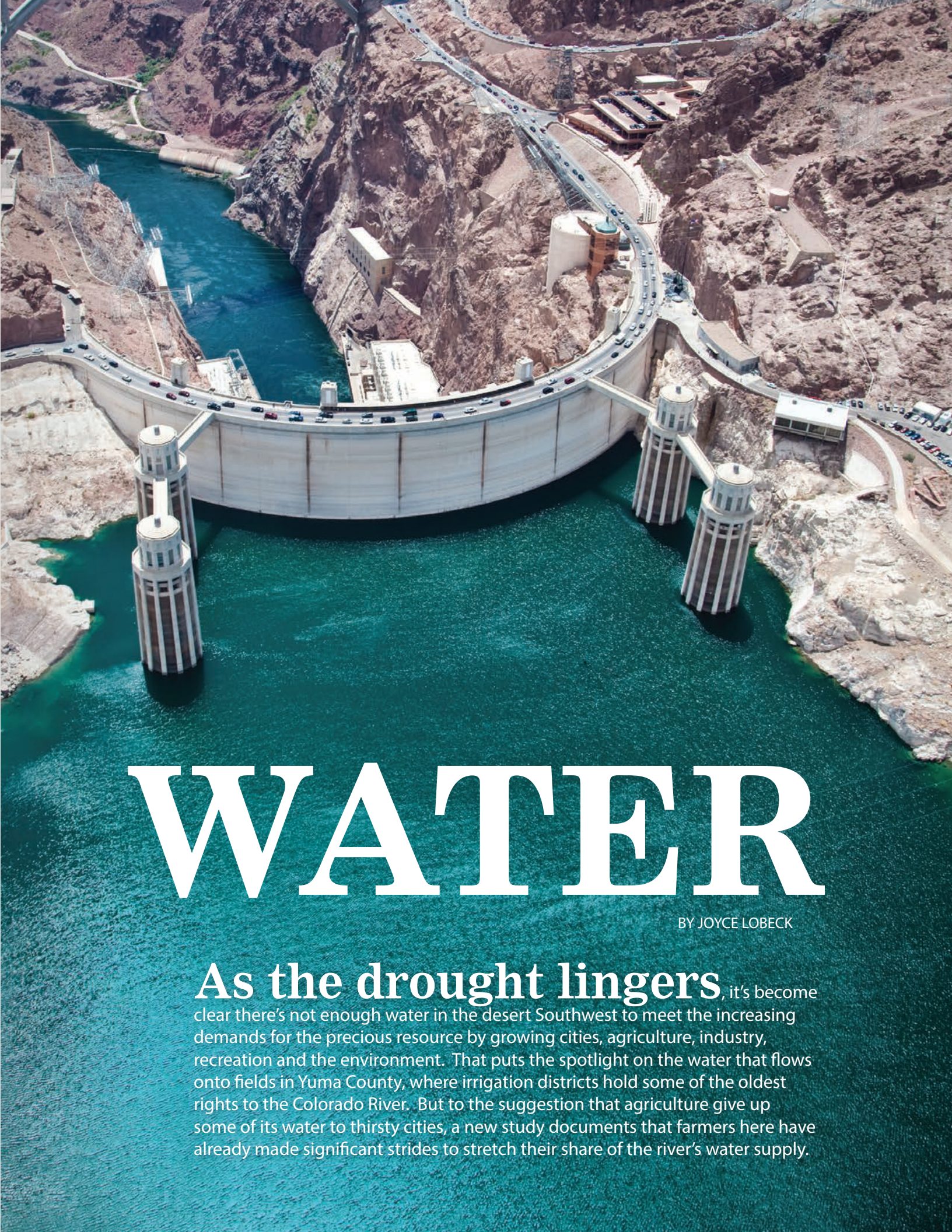

WATER

BY JOYCE LOBECK

As the drought lingers, it's become clear there's not enough water in the desert Southwest to meet the increasing demands for the precious resource by growing cities, agriculture, industry, recreation and the environment. That puts the spotlight on the water that flows onto fields in Yuma County, where irrigation districts hold some of the oldest rights to the Colorado River. But to the suggestion that agriculture give up some of its water to thirsty cities, a new study documents that farmers here have already made significant strides to stretch their share of the river's water supply.

Over the last 20 years, agriculture in Yuma County has reduced its water use by 18 percent, according to the study completed in early 2015 by the Yuma County Agriculture Water Coalition titled "A Case Study in Efficiency: Agriculture and Water Use in the Yuma, Arizona, Area." The study states: "Factors contributing to this reduction in water use include a reduction in irrigable acres, expanded use of multi-crop production systems that require less water and significant improvements in crop and irrigation management and infrastructure." Those improvements include annual mechanical leveling with lasers and GPS of fields, concrete lining of ditches, use of high-flow irrigation turnouts as well as other measures to improve water flow across fields.

Another significant factor in the reduction of agriculture water in the Yuma area is the shift away from perennial and summer-centric crops such as long-term cotton to the winter production of high-value vegetables, the study documented. That means there is less irrigation today during the hottest summer months. And the only months with higher water deliveries than in the 1970s are October, November and December, the establishment months for winter vegetables.

There is "very little room for additional water savings in this sector," the study concluded. "Agriculture here has done its part to save water," said Wade Noble, a local water attorney who moderated a panel convened to discuss water issues during the 2015 Southwest Ag Summit. "When you get as tight as we have it here, there's no more low-hanging fruit."

The elevation of Lake Mead determines whether or not a shortage is declared for the lower Colorado River. It doesn't have far to go. As of early 2015, the lake's surface was around 1,089 feet above sea level, or 42 percent of capacity. A level one shortage would be declared if the lake's elevation drops below 1,075 feet. There have been projections that could happen as early as 2016 with a more than 50 percent chance by 2017. If that happens, Central Arizona Project, which currently delivers 1.6 million acre-feet of Arizona's total river allocation of 2.8 million acre-feet, would be the first to see a reduction under current agreements.

"whiskey is for drinking and water is for fighting."

To prevent - or at least postpone - such a declaration, there's been some "tremendous advances in working

together … a lot of cooperation" in an effort to come up with solutions, said Noble. However, he cautioned, "we have to be careful. Trust but verify is the maxim for those of us who have water."

There's a saying that "whiskey is for drinking and water is for fighting." Over the last nearly 100 years, that fighting has resulted in thick volumes of laws, compacts, court settlements, policies and treaties governing who gets how much of the water carried by the Colorado River from its origin in the mountains of Colorado to the desert of the Southwest.

Under the Law of the River, irrigation districts in Yuma County and southeastern California have the oldest and highest priority water rights to the Colorado River. It's water farmers put to use to feed the nation and even the world, resulting in a multi-billion-dollar industry that is crucial to Yuma County's economy. And it's water they're fiercely protective of, especially when the subject of water transfers and fallowed fields comes up. "There would be open warfare if large transfers (of agriculture water) started happening," Noble said.

Panelist Tom Davis, manager of Yuma County Water Users Association, noted that the organization holds "present perfected water rights" to pump what it needs for the beneficial use of growing crops. In other words, as he pointed out to fellow panelists, YCWUA would have a right to the last drop in Lake Mead, a right the organization intends to hang onto. However, he acknowledged, "there's an old adage about senior water rights that it's sometimes better to be at the top of the ditch with a shovel than at the bottom with a lawyer." He also noted that "the federal government has told the states to figure out how to manage the drought 'or we will.'"

As Chuck Cullom, a CAP official who also sat on the panel, pointed out, 80 percent of Arizona's population resides within that water provider's delivery area. "I get that fallowing isn't popular but change is inevitable," concluded Bill Hassenkamp of Metropolitan Water District that also gets water from the Colorado River. "We need to all work together so everyone's needs are met."

A Case Study in Efficiency - Agriculture and Water Use in the Yuma, Arizona, Area

is available online at
www.agwateryuma.com

Improvements such as annual mechanical leveling with lasers and GPS of fields, concrete lining of ditches, use of high-flow irrigation turnouts as well as other measures to improve water flow across fields, have all helped Yuma County reduce its water use by 18% over the last 20 years.

Fallowing program working for the Palo Verde Valley

BY JOYCE LOBECK

While fallowing is viewed by many in Yuma County as a bad word, it's a program that has been characterized as a "win-win" for the Palo Verde Valley

Palo Verde Irrigation District and the local landowners entered into an agreement in 2004 with Metropolitan Water District to fallow between 7 and 29 percent of the valley's farmland each year for 35 years, with MET to receive the water that otherwise would have been applied to those fields.

"Ten years later, I think pretty much everyone is happy," said Bart Fisher, a third-generation farmer in Blythe, a board member of the irrigation district and chairman of the Colorado River Board of California. He added that he believes the program could serve as a model for short-term rural-to-urban water transfers elsewhere as needed.

"We're still farming, our lifestyle hasn't been diminished and philosophically, we're sharing resources with the cities that I think strikes a balance," Fisher said. "Our perspective is that we don't want to be the primary source of water for anyone else. But we do see ourselves as a backstop in an emergency. The program was our attempt to get our arms around the water issue and put a safety net under our lifestyle as a revenue source to protect our farms."

Under the agreement, MET made an initial payment to landowners of $3,160 per acre to enroll in the program. It also pays an annual fee currently in the mid-$700 range per acre range for the land it "rents." Since most of the landowners in the valley farm their land, this gives farmers a no-risk source of income - money they're spending in town.

"Farmers are out buying pick-ups and tractors and tillers because they've gotten an influx of cash," Fisher said. While it has required some adjustment, "I would say most businesses have benefited significantly."

"Our perspective is that we don't want to be the primary source of water for anyone else. But we do see ourselves as a backstop in an emergency. The program was our attempt to get our arms around the water issue and put a safety net under our lifestyle as a revenue source to protect our farms."

There have even been some unanticipated benefits of fallowing farmland because it gives the good microbes a chance to flourish while the bad microbes diminish, he said. "We found the land was more productive after resting for a year or two … significantly."

In addition, many farmers put their least productive land in the program, focusing their inputs of water, fertilizer and pest control chemicals on their best fields.

Photo by Alyssa Callahan

"Farmers are out buying pick-ups and tractors and tillers because they've gotten an influx of cash…While it has required some adjustment, "I would say most businesses have benefited significantly."

To mitigate the potential impact of the fallowing program on the community, MET put $6 million into a fund that is invested in small businesses and otherwise used to benefit the community, as determined by the residents.

While some were skeptical at first, Fisher said, "if you polled the agriculture community, I think you would get a good sense that the program has not been disruptive to our way of life or to businesses."

He believes the key to the ultimate success of the negotiations with MET is that the water provider already had established a relationship with the community through a two-year test program in the early 1990s, well before there was a drought or a need for MET to reduce its reliance on Colorado River water. "At the end of the day, that provided confidence to the farmers and MET that a program could work if they both agreed," Fisher concluded. "It showed the doubters it would work."

Irrigation canal in the Imperial Valley
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Solar Effects
ON AGRICULTURE

BY JOYCE LOBECK

Over the last 100-some years, the desert with its open spaces and bright sunshine has become a mecca for growing food for hungry families. In much more recent times, those same attributes are being tapped for "farming" another commodity – renewable energy to keep the lights on and electronic gadgets running for those same families. Nowhere is that more clear than Imperial County, where some 20,000 acres of farmland have been converted in the last few years to solar plants or are slated to be developed. This has touched off fierce debate in that community, with proponents painting renewable energy plans as a lifeline for the economically depressed Imperial County. Meanwhile, opponents fear the solar development will turn the area into a "renewable energy sacrifice zone" by disrupting productive farmland and killing agriculture jobs in a county with the highest unemployment rate in the nation.

The Gila Bend area now houses four plants producing solar energy for APS. The plants have a combined output of 316 megawatts, or the equivalent of powering between 70,000 and 90,000 homes.

The largest plant is the Solana Generating Station, owned by Abengoa Solar. Covering 3 square miles, nearly one million mirrored panels compose the solar concentrator plant.

–Source: azcentral.com

"It's a divisive issue," said Linsey Dale, executive director of Imperial Valley Farm Bureau. "To the landowners it looks like a great deal to sell or lease their land for solar. But tenant farmers are being hard hit by rising costs for land rent and service providers are loosing business. And once completed, the plants need only a few employees." She also takes issue with the argument that the solar projects are taking only farmland being used to grow "low-value" crops such as alfalfa, sugar beets, citrus and olives – crops that are also valuable to the local economy.

Kurt Nolte, executive director of Yuma County Cooperative Extension, offered another potential option, that of co-habitation of solar plants and farming. A company had proposed such a research project but ran out of money, he said. However, he believes the idea of planting crops between solar panel placed far enough apart to allow the operation of tractors has merit and would be worth exploring.

"No doubt we're a prime area for solar, but we can't put solar in at the expense of agriculture."

It's a different story in Yuma County, where high-value farmland currently appears to be off-limits. One major project, the Foothills solar plant, is on Arizona State Trust Land while the Hyder I and II solar plants in the eastern part of the county are on abandoned farmland, noted Ray Brooks, senior communications consultant for Arizona Public Service Co.

And there's still considerable infrastructure for future solar development at the site of the Hyder plants, noted Julie Engel, executive director of Greater Yuma Economic Development Corporation. "We really shouldn't be considering (productive) farmland at this time. If someone wanted to develop farmland, that should be discouraged."

On the other hand, she acknowledged, "it's private land if the owners wanted to do that."

He also sees some potential for solar development on farmland in central Arizona, where water is becoming an increasingly worrisome issue with the lingering drought. "Solar uses less water than alfalfa," he said. Furthermore, he added, "solar may not be as catastrophic to land to put back into production … not like building a subdivision on it."

Indeed, that is one of the conditions placed on permits for solar projects in Imperial County, noted Andy Horne, deputy county executive officer for the Natural Resources Department established by Imperial County in response to California's growing demand for renewable energy sources. It's not an empty condition, he said, with the companies required to post bonds to fund it and actually grow a crop before the condition is met.

To date, he said, the county has issued permits for some-30 solar projects on 20,000 acres of farmland that either have been built, are under construction or have been approved. They represent

thousands of construction jobs and millions of dollars in capital investments as well as the potential for sales and property tax revenue for the local economy.

All together, the plants are expected to produce up to 2,500 mega-watts of renewable energy, making Imperial Valley a major contributor in helping California achieve its renewable energy portfolio standards of 33 percent by 2020. There's even a push among state lawmakers, Horne said, to up that standard to 50 percent. "No doubt we're a prime area for solar," said Dale. "But we can't put solar in at the expense of agriculture."

Horne agrees, saying he would like to see a balance between solar development on marginal farmland and on "untouched" public lands. Early on, however, efforts to place solar plants on public land were abandoned because of the challenges of meeting environmental regulations.

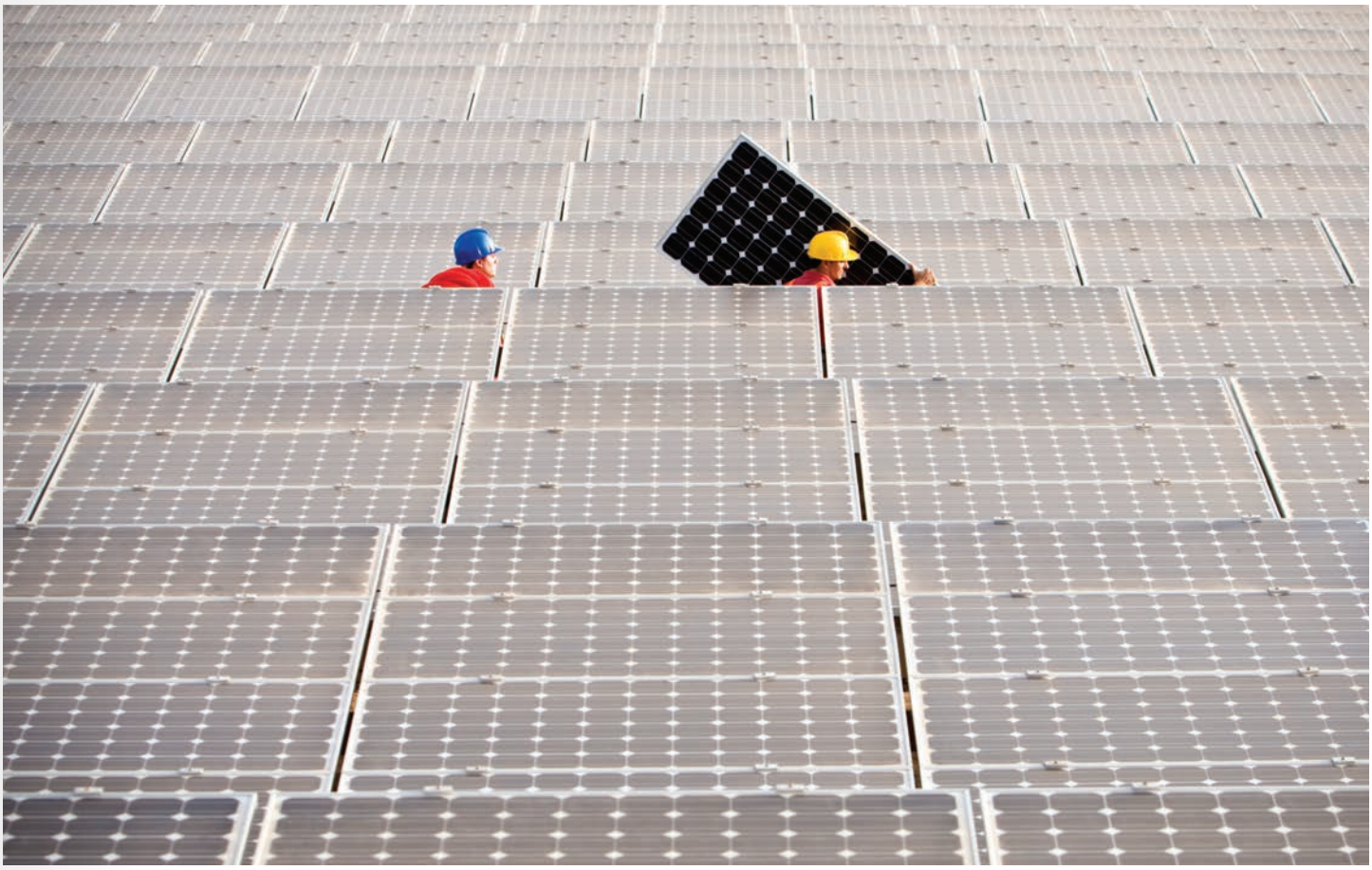
Roadblocks, Dale said, that need to be lifted.

Meanwhile, she is encouraged that the Imperial County Board of Supervisors has recognized the need to protect the area's farmland.

To that end, Horne said, the county is finishing work on revising its general plan to place some restrictions on where solar plants can be developed.

And he would rather see the focus turn to developing more of the area's large geothermal reserves as an alternative source of renewable energy – a resource that is much less disruptive to agriculture. "It's proven technology, produces power 24 hours a day and creates more jobs."

A solar greenhouse in India showcases the co-habitation of solar plants and farming.



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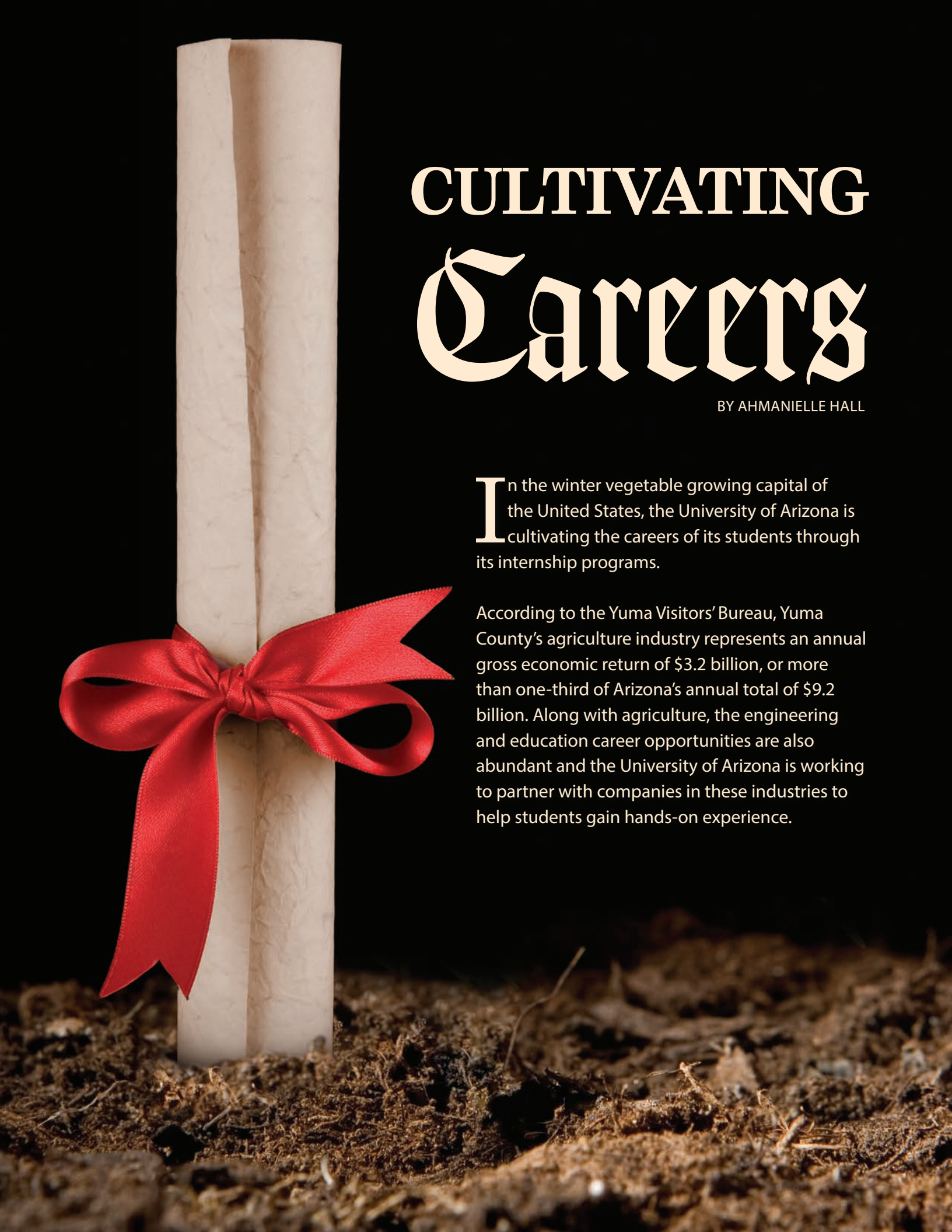

CULTIVATING Careers

BY AHMANIELLE HALL

In the winter vegetable growing capital of the United States, the University of Arizona is cultivating the careers of its students through its internship programs.

According to the Yuma Visitors' Bureau, Yuma County's agriculture industry represents an annual gross economic return of $3.2 billion, or more than one-third of Arizona's annual total of $9.2 billion. Along with agriculture, the engineering and education career opportunities are also abundant and the University of Arizona is working to partner with companies in these industries to help students gain hands-on experience.

Tanya Hodges, academic programs coordinator for the University of Arizona's Yuma campus says that they work to prepare students for careers in agricultural science and technology by adding mandatory student internships to their degree requirements. Hodges, who prepares students for careers and internships, says that these opportunities can also be a chance to learn more about their interpersonal skills and interests.

"On these internships, they're becoming a team player, learning how to work with groups and they are able to see what they like and what they don't like," Hodges said. "They are able to see what their strengths are; it gives them the opportunity to see what they really want to do."

She says that the University of Arizona's commitment to finding the right career fit for students has also expanded outreach at the high school level. Many U of A students also seek degrees in science education, interning in the local Yuma Union High School District classrooms. The university uses its agricultural events to host high school students and share career opportunities with them.

"At the Ag Summit, we had 150 high school students come and we paid for them to have their own breakout sessions, hands-on activities and guest speakers so that they can start thinking about careers," Hodges said. "In high school it is more about thinking about the career you want to go into. We try to go in and start talking about not majors, but more about 'what do you want to do when you're 40 years old? What do you see yourself doing?' Then we can create pathways that lead them there because there are multiple ways to get to where you want to go. Everyone can go to college and graduate; it's about finding a major that you are passionate about."

Hodges believes that interning is all about practice and finding the right match for both the student and the company.

"They are able to see what their strengths are; it gives them the opportunity to see what they really want to do."

"I'm not just going to send interns," Hodges said. I think there is too much matching that has to be done on a professional level, a personality level and a psychological level; you know there are all of these things that have to happen, so we give the companies who are sponsoring these programs to pick their own students."

Companies that partner with the University of Arizona gain the opportunity to learn more about what they look for in potential candidates and what they hope they will bring to the organizational culture.

"From the industry's point of view it's great because they get to trial a student; especially in small rural communities like Yuma, sometimes these specialized educated people are hard to come by; it brings in this relationship with the company where they get to try out a student, and in some cases they can go for one semester, or they can go for years before they graduate."

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Over 50 local Yuma companies have supported the University of Arizona's agricultural, engineering and science education programs, such as TRAX International and Mellon Farms. Hodges says that while that number may appear to be large, they are always looking for more companies to support the 200 undergraduate students who need to complete an internship before graduation.

"Our students have so many different skillsets that we need companies to sponsor. It doesn't have to be just agriculture; it can be the hospital, non-profits-- it can be sales teams that are looking for students to sell something for them. It can be short-term for a few weeks, it can be a semester or even a year; we want these companies to get in touch with us."

For more information on how companies can partner with the University of Arizona's internship program, please contact Sarah Berner in Arizona Western College's Agricultural Department at sarah.berner@azwestern.edu or Tanya Hodges of the University of Arizona's Yuma Academic Programs at thodges@cals.arizona.edu.

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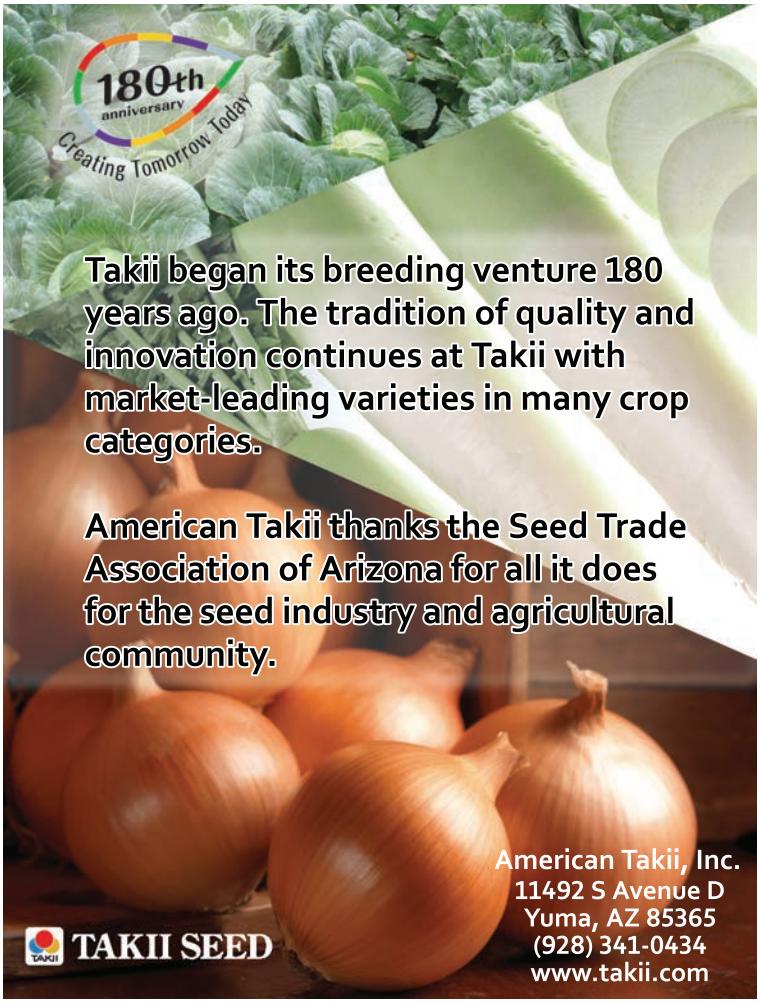

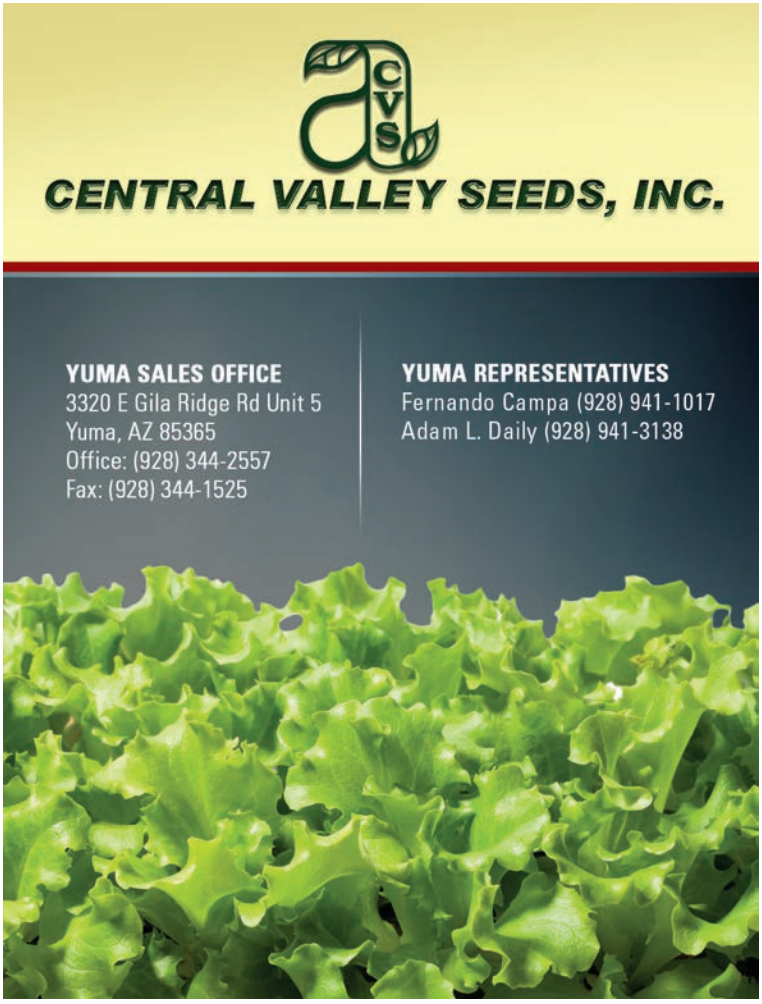

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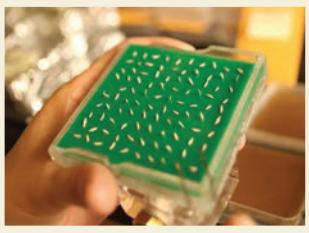

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