

the seed must grow on!



STAA
SEED TRADE ASSOCIATION OF ARIZONA



Holaday Seed

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As general manager of Imperial Vegetable Seeds Inc., Justin Gillies understands well the value of the seed industry. "It all comes back to being good stewards of seed. We produce the seed, farmers plant it to grow crops and that feeds people around the world."

And so, as 2018-19 president of the Seed Trade Association of Arizona he came up with the theme for this year's convention: "The Seed Must Grow On: Feeding the World One Seed at a Time." The convention will be held May 2-3 at the Westin La Paloma Resort in Tucson. It's a time for forging new friendships, renewing old ones, sharing ideas and learning new things, he emphasized.

To that end, he has engaged four keynote speakers who will offer their perspectives on farming, food safety, human trafficking as it pertains to agriculture and border security. "My goal is to bring 'outside the box' information to members," Gillies said.

In addition to his involvement in STAA, Gillies is a member of the American Seed Trade Association that gives him a global perspective and the California Seed Association for that state's perspective. Those all come together with STAA, "where we can learn from each other," he said, adding, "we build relationships. We're competitors but we're friends."

Gillies brings a diverse background to the seed industry and to the leadership of STAA. He was raised in Holtville, where his father was a zanjero (Spanish for ditch rider) for Imperial Irrigation District, "so I was around agriculture my whole life," Gillies said. His first job was in melon fields when he was 14, where he learned to appreciate how hard farm laborers work and their importance to agriculture.

His original career goal was to become a politician; that lasted until his first semester at Sacramento State University. He switched his major to criminal justice and joined the Probation Department for Sacramento County. From there, he worked on building up the child welfare system's technology before being recruited by Oracle Corporation to manage public safety services around the country. With the economic downturn in 2008, he found himself jobless so he returned to Imperial County and using his management and sales experience, became the general manager of Imperial Vegetable Seeds.

When he's not working, he likes to spend time with his wife and four children, enjoys sports and camping and loves to cook. As for the next generation, his youngest daughter is in an agriculture class in high school and "really excited about the concept of planting seeds and growing product." ■



PHOTOGRAPHY BY BRETT FRAME

Our Keynote Speakers



Kevin Austin

Kevin Austin, who as director of the Set Free Movement works domestically and globally to end modern-day slavery, will speak about the impact of human trafficking on the agriculture industry.

A resident of Marysville, Wash., Austin received his education at Seattle Pacific University, Regent University and Gordon-Conwell Theological Seminary.

While serving as a missionary in Thailand in 2005, he faced the prevalence of prostitution and forced labor. In response, he spearheaded a refocus for the denomination on the issue of slavery. In 2009, the Free Methodist denomination invited Austin to help lead the Free Methodist Movement to end modern-day slavery.

According to the Set Free Movement website, there are more slaves in our world today than at any other time in history. They harvest our food, pick cotton for our clothes and contribute to the supply chain of our chocolate, cars and smart phones. The sex industry is fueled by modern-day slavery. Slavery is in our backyards as well as in every country on the globe."



Bryon Strom

Bryon Strom, operations officer since January 2017 within the Liaison Division of the U.S. Border Patrol, Yuma Sector, will address

immigration and labor issues. In that position, he works with the Yuma agriculture community, public lands management agencies and state, local and tribal entities.

In May 2010, Agent Strom was promoted to Supervisory Border Patrol Agent at the Yuma Border Patrol Station. Before his most recent promotion, he was assigned in 2016 to Border Patrol Headquarters in Washington, D.C., as Acting Assistant Chief over the National Border Patrol Public Lands Liaison Program.

Strom has completed the International Association of Chiefs of Police Center for Police Leadership (2010), Arthur Carhart National Wilderness Leadership Center – Wilderness Law and Operations (2015), U.S. Border Patrol Supervisory Leadership Second Level Command Preparation Training (2017) and U.S. Border Patrol Supervisory Leadership Training (2010).



Channah Rock

Channah Rock, Ph.D., will talk about food safety. Her interest in this field peaked when she volunteered at an environmental microbiology laboratory that was investigating protozoan pathogens in surface waters.

As water quality extension specialist and assistant professor for the Department of Soil, Water and Environmental Science at the University of Arizona, Rock utilizes her background in both microbiology and civil and environmental engineering to better understand how pathogens and indicators survive through water treatment and what factors can affect their persistence in the environment.

While working at the Arizona Cooperative Extension, she was asked to help in some investigations related to water quality, microbiology and food safety.

Rock has a bachelor's degree in microbiology from New Mexico State University and a master's degree and Ph.D. in civil and environmental engineering from Arizona State University.



Jack Vessey

Jon "Jack" Jackson Vessey, president of Vessey & Company Inc., will present a grower's perspective of the seed industry.

Vessey's great-grandfather, Elton Vessey, started the business in the early 1920s as a produce wholesaler in the Los Angeles produce market, eventually settling in Imperial Valley to farm. Today his great-grandson oversees the 10,000-plus acres for the nearly 100-year-old family farm based in Holtville, Calif., that has become a premier vegetable operation in the Imperial Valley.

As a fourth-generation Imperial Valley farmer, Vessey said he believes it is important to be a part of the community. "I feel like I have a big responsibility because I was born and raised here in the Imperial Valley to try and do everything in our power to support different causes here."

Vessey currently sits on the boards of the California Leafy Greens Marketing Agreement and the Imperial Valley Vegetable Growers Association. He is the third-generation Vessey serving on the WGA board.

DONATED PHOTOS

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SEED TRADE ASSOCIATION OF ARIZONA

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27th Annual Convention

Westin La Paloma Resort | Tucson, Arizona

Thursday, May 2

11:00 am Registration Opens

1:00 pm Opening General Session

President's Remarks

Keynote Speaker

Dr. Channah Rock
U of A Professor – Water Quality Specialist, Maricopa, AZ

Mr. Jack Vessey
Vessey & Company, Holtville, CA

Arizona Department of Agriculture Current Affairs

G. John Caravetta, *Associate Director*
Arizona Dept. of Agriculture, Phoenix, AZ

Update on Current Legislative Issues Affecting AZ Agriculture

Chelsea McGuire, *Director of Government Relations*
Arizona Farm Bureau, Higley, AZ

University of Arizona-Yuma Update on Current Academic Programs

Tanya Hodges, *Regional Academic Program Coordinator*
Yuma/La Paz/Imperial

Committee Meetings
Board of Directors Meeting - Officer Elections

6:00 pm Hosted Cocktail Reception

7:00 pm Dinner
Following dinner - Dancing with DJ Castillo

Friday, May 3

7:00 am Breakfast Buffet

8:00 am Keynote Speaker

Ofc. Bryon Strom, *Operations Manager*
United States Border Patrol, Yuma Sector

Dr. Kevin Austin
Set Free Movement

STAA Business Meeting

President's Report

Treasurer's Report

Southern Seed Association Report and Plaque Presentations

Tom Bodderij

University of Arizona CALS Students - Recipients of SSA & ASTA Scholarships

Outgoing President's Remarks / Incoming President's Remarks

Convention Adjourns

12:30 PM Shot Gun Start - Al Simons' 8th Annual Scramble Golf Tournament

at Westin La Paloma *transportation provided*

Following golf (5:30-6:30 pm) – Hosted Bar/ Munchies & Golf Awards at La Paloma Country Club - for golfers and guests

1:00 PM "Cook with the Chef!" – Cooking Class/Demo
at the Resort

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- Domed, small beaded
- Crown cut / processing



Emerald Jewel

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- Multi-use



Emerald Star

- Fine-beaded, round shape
- Very firm heads
- Crown cut / short trim

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Hemp Crop?

BY JOYCE LOBECK

Seed producers soon will have a potential new crop they can add to their rotation with passage of a federal law that legalizes commercial hemp production, until now banned in the United States because of its similarity to marijuana.

The 2018 Farm Bill spells out that hemp is legally different than marijuana under federal law and allows for the interstate sale and possession of the plant and any products that can be made from it. But a lot of work remains to be done before that becomes a reality, not the least is determining whether the crop would do well in the desert. Then there will be the delicate balance of production and markets in what is likely to be a highly competitive field.



Alford said there is a lot of interest in the crop by Arizona growers, especially as a potential summer rotation crop. Prices aren't the best for other options, such as cotton, wheat and Sudan grass.

U.S. wanted to get rid of hemp and did so by lumping it in with marijuana. A bill passed in 1937 made it illegal to grow hemp because of its relation to marijuana and the presence in both plants

“It’s not mainstream yet,” Alford said of CBD. “But I think it could be a huge market. It’s been used in Chinese medicine for years.”

And there must be rules governing hemp’s production to ensure marijuana isn’t being grown under the guise of hemp. To that end, a seven-member statewide committee has been crafting rules and regulations for the production of hemp in Arizona. Chairman of the committee is Dwayne Alford, executive vice president of Barkley Seed in Yuma. The Legislature mandated that the rules must be in place by Aug. 31, 2019, Alford said. Supporters argued that was too late to produce a crop this year. As a result, an emergency declaration by the Legislature moved the effective date to June 1 in hopes of getting a crop started. Until then, no one in Arizona can even have hemp seed.

“We need a lot of research to find what varieties will do best in this environment,”

That raises another challenge. Since hemp has been illegal in the U.S. for several decades, little seed is available and it’s very expensive. Currently Canada and China are the top producers of hemp worldwide. No seed varieties have been bred for various parts of this country, especially the desert Southwest. “We need a lot of research to find what varieties will do best in this environment,” Alford said. “There are a lot of unknowns. We need more information on how the crop would perform here. I’ve heard hemp uses a lot less water but I’ve also been told it likes water. With the water situation in Arizona, that’s a big consideration.”



Dwayne Alford
Executive Vice President of Barkley Seed
Chairman-Hemp production in AZ committee

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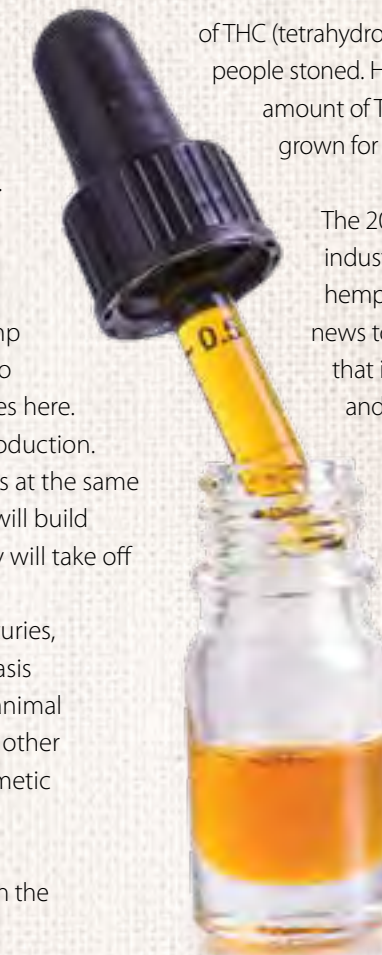
As for the seed industry, he sees a lot of potential for seed research and trials to breed varieties for the Arizona market as well producing seed for other parts of the U.S. There also are products made from hemp seed, including a nutritious grain. It likely will be two or three years before the production of industrial hemp really gets going in Arizona, Alford said. For now, it’s all just talk until June 1. Another complication is the lack of any hemp processing plants in place. “Unless it’s all exported to other states, we need to develop processing facilities here. The industry has to develop at the same time as production. Part of the industry challenge is developing markets at the same time as the crop. There may well be investors who will build processing plants, Alford said. “I believe the industry will take off in Arizona and become a viable crop for the state.” Industrial hemp is an ancient crop, going back centuries, he noted. It can grow about anywhere and is the basis for thousands of products, including human food, animal feed, fuel, textiles, rope, bio-composite plastics and other manufacturing materials, oils for industrial and cosmetic purposes and pharmaceuticals.

In the early part of the 20th century, powerful forces in the

of THC (tetrahydrocannabinol), the compound in marijuana that gets people stoned. However, hemp typically contains only a minute amount of THC, below 0.3 percent. In contrast, cannabis grown for marijuana contains 6 percent or more of THC.

The 2018 Farm Bill separated the two plants, legalizing industrial hemp while marijuana remains illegal. Thus, hemp becomes an agricultural commodity, welcome news to farmers looking for an alternative crop but one that is still subject to rules such as requiring a license and testing of every field for THC.

One thing driving interest in the hemp industry is CBD (cannabidiol) a cannabis compound thought to have significant medical benefits for seizures and inflammatory ailments such as arthritis, Alford said. CBD oil comes from the flowers of cannabis plants; the difference being that the CBD from hemp contains no THC while from marijuana it does. “It’s not mainstream yet,” Alford said of CBD. “But I think it could be a huge market. It’s been used in Chinese medicine for years.” ■



BY JOYCE LOBECK

Barry Case, founder and President of Imperial Vegetable Seeds Inc., has a long history in the seed industry. The other day he settled back in his office chair to reflect on his journey and how a little Devine guidance played a part in his 38 year career.

It all began as a boy growing up in El Centro, Calif., and his friendship with the Dessert family of Dessert Seed. In his teens, he worked for Dessert Seed in the summer months harvesting onion seed and working in the warehouse. Upon completing two years at Imperial Valley College and two years at California State Polytechnic University, Pomona, he acknowledged, "I had no clue as to what I wanted to do as a career." After graduation, he took a job with Pomona Chrysler-Plymouth selling cars. He came to realize this was definitely not the career he wanted to pursue! Tired of the big city, it was now time to go back home to El Centro where he took a job



PHOTOGRAPHY BY BRETT FRAME

Imperial Vegetable Seeds Inc.

driving a harrowbed, raking and baling hay. He then heard about a job opening at Dessert Seed, which at the time was being purchased by Arco. This is where the Devine guidance comes in, Case said. While taking a business communications class at Cal Poly, "I was assigned to send an intro letter and resume to an existing company." He chose Dessert Seed. "Five years later I was actually working for the company!" he said with a chuckle. That was in 1981. Although he eventually left the company to go on to form his own company, he remains truly grateful to the people who trained and helped him in those early days, 38 years ago, especially three members of the Dessert family, Archie, Ray and Tim.

In partnership with Danny Robinson, owner of Robco Farms, Case started Imperial Vegetable Seeds Inc. in 1991. He began working out of his home and using his garage as his first warehouse. The business had grown tremendously since its inception. This was the time he purchased the outstanding shares from his partner and became 100 percent owner. For several years Case ran Imperial Vegetable Seeds solo then it became time to hire on help. There are now five employees in his business including, General Manager Justin Gillies, Office Manager Alex Torres and a warehouse staff. In 1995, Case purchased his building at 1101 S. McCullom St. in El Centro, where he continues to run his business today.

Case realizes his business is small in comparison to the larger companies that dominate the seed industry today. He sees that as an advantage in the niche he's found with a much more personal touch as a seed provider of open pollinated seed while most of the larger companies now focus on the more lucrative hybrids.

Imperial Vegetable Seeds contracts with farmers in Imperial County, Central California, Arizona, Oregon, Washington and Idaho, depending on the seed crop being produced. His company also imports seed from Europe and other countries

He concluded by saying he is in awe of the work going on in laboratories and research trials. "From a technology standpoint, the future is amazing ... what scientists are able to do today in the way of breeding new varieties that increase yields, are



After graduation, he took a job selling cars. He realized this was definitely not the career he wanted to pursue!

when short on supply, Case said. The company offers a wide range of seeds from vegetables and herbs to forage crops, but primarily focuses on baby leaf varieties. "We contract with growers to produce the seed," he said. "The seed is sold to dealers, mostly in California, Arizona, Texas and Florida. We don't sell direct to farmers."

By the way, it didn't take him long to realize, "I could do this for the rest of my life! I like the industry and the people I deal with. It's a wonderful group of people who are more 'down to earth' than many other industries. That's why I've stayed in the industry for 38 years. I'm proud to be a member of the seed industry." And he has no immediate plans to hang it up. "I love to golf and fish but couldn't see myself doing that every day."

disease resistant, heat- and salt-tolerant and more nutritious. All the characteristics that will be needed to continue to feed the world as the population grows. Their work is absolutely amazing! I feel this is some of the most important research being performed in the world today. Our varieties have to continue improving as well as farming practices and the entire process from seed breeding and production to harvesting a clean, disease-free product for human consumption. There will always be a need for food and there will always be a need for the seed industry to meet the needs and demands of our rapidly changing population." ■

OPPOSITE PAGE
Barry Case, President and Owner of
Imperial Vegetable Seeds Inc.

THIS PAGE
Barry Case and
Justin Gillies,
General Manager



Isolation Pinning Map



BY JOYCE LOBECK

During last year's convention, Seed Trade Association of Arizona members debated the future of the seed pinning map that over the years has provided a tool for maintaining the integrity of each field. This year's convention will include a presentation on the new look of the map and how it will be administered.

In the past, the map, which has pins showing where each seed field is located to ensure isolation of each crop, was maintained by the University of Arizona Yuma County Cooperative Extension. But with the departure of Dr. Kurt Nolte, longtime agriculture agent, the question became who would carry on the responsibility for the map.

"The general consensus among the people who use the map is that they



wanted to keep it but improve it," said Tim Butcher, last year's STAA president and chairman of the committee overseeing development of the new map. The project was turned over to the California Crop Improvement Association's technical team to custom build a map to meet the needs of the seed industry in Arizona. It will be an online map, likely on the STAA website, where growers and companies who subscribe to the service will have access to the site and be able to enter their data. The program will be under the control of STAA to keep track of it and fund it with fees paid by users.

"There will be more control over the map," Butcher said. "It will be more timely and accurate and it will provide safety and integrity of the map. It will allow us to trace the companies who use the map and the historical placement of the isolations."

"This program will be superior to the old system in several ways," Butcher said.

- It will allow STAA to track the use and who places pins.
- There will be safeguards to prevent someone moving or removing pins without authorization.
- It will provide a timespan when pins are placed.



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Feeding the World

ONE SEED AT A TIME

BY JOYCE LOBECK

Part of the theme for this year's convention is "Feeding the World One Seed at a Time." And a lot of that seed is getting its start right here in the Desert Southwest.

Seeds are the No. 1 commodity from Arizona for international export, said John Caravetta, associate director of the Plant Sciences Division for the Arizona Department of Agriculture. He noted that the department inspects more than 130 different kinds of seeds that are exported to numerous countries on every continent "It is truly a global reach."

He also noted that reach is growing. "Between 2015 and 2017, there's been a 88.6 percent increase in acreage we inspect

for export. That's an exceptional amount of growth in acres inspected."

The Department of Agriculture inspects the seed crops to be able to certify that they comply with phytosanitary requirements established by the countries to which they're exported, Caravetta explained. The department inspects fields during the growing season to determine the absence of certain diseases among the plants. Requirements vary from country to country.

While there is some seed production in other parts of Arizona, much of the state's seed industry is centered in Yuma County, Caravetta said. "This area is one of the major seed production

areas, especially for the specialty crops ... lettuce, broccoli, cauliflower and other vegetables as well as small grains. There's fewer disease issues due to the dry climate. The area also has the infrastructure to support the seed industry."

He concluded that seed produced in the Desert Southwest "is consistently high quality seed. It's prized around the world. And it represents a significant part of Arizona's commodities to export." He didn't have an exact breakdown of the dollar value of the seed industry, but noted that Arizona's annual value of agriculture commodities is \$4.2 billion. "Seed contributes a great deal to that value." ■

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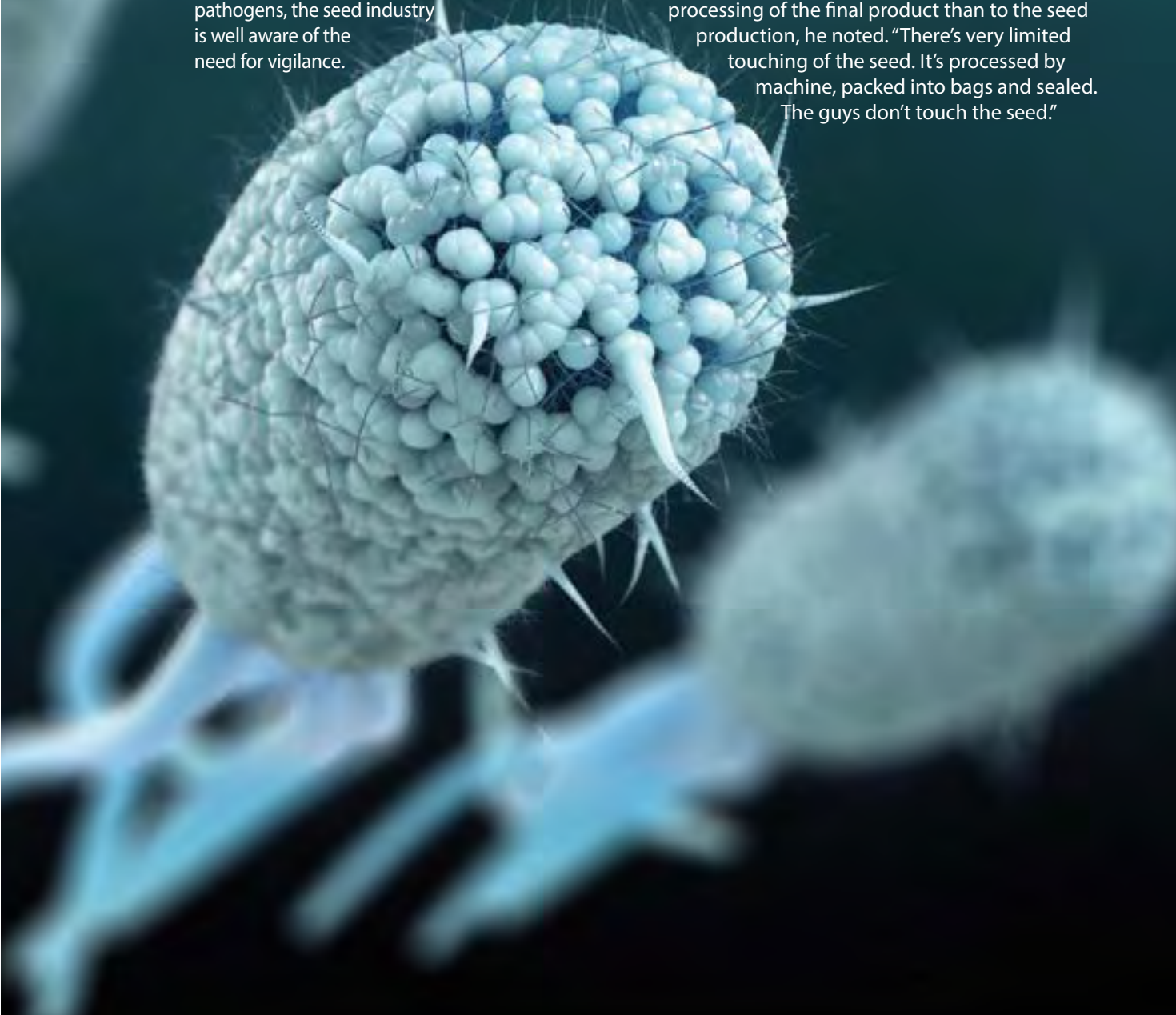
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Food Safety

BY JOYCE LOBECK

After several recent food poisoning outbreaks tied to Romaine lettuce, there is greater pressure on growers and new regulations to ensure they are doing everything in their power to protect public health and produce a safe product. And as they look at all the potential factors, increasingly the question is being raised: Is it possible the e-coli came on the lettuce seed? While it is unknown if the seed itself could be a carrier to the plant for human pathogens, the seed industry is well aware of the need for vigilance.

Justin Gillies, general manager of Imperial Vegetable Seeds and current president of the Seed Trade Association of Arizona, said that in the past year he's been asked to fill out more questionnaires as the produce industry "tries to take every precaution by making sure the product is free from anything harmful." While he agrees on safeguards to grow a safe seed crop, many of the questions he's being asked pertain more to processing of the final product than to the seed production, he noted. "There's very limited touching of the seed. It's processed by machine, packed into bags and sealed. The guys don't touch the seed."



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“An impact on seed industry may be in the form of enhanced surveillance or certification that seed received by a grower is ‘free’ from microbiological contaminants such as E.coli or that the seed industry is implementing the same food safety practices as growers subject to the Produce Safety Rule,”

In most cases, produce becomes contaminated due to impacts in the outside growing environment, said Dr. Channah Rock, a water quality extension specialist and assistant professor for the Department of Soil, Water and Environmental Science at the University of Arizona. This would be the same for seed that is cultivated outside of a greenhouse setting.

“The main players in contamination of seed or produce with human pathogens fall into the areas of animal intrusion, irrigation water quality, biological soil amendments of animal origin (compost), and worker health and hygiene,”

“The main players in contamination of seed or produce with human pathogens fall into the areas of animal intrusion, irrigation water quality, biological soil amendments of animal origin (compost), and worker health and hygiene,” Rock said. “The best way to prevent contamination by any of the above pathways is to be vigilant and to have best management practices in place that focus on reducing the potential sources of contamination and responding to them appropriately when they happen.”

Vicki-Lynn Scott, a food safety consultant with Scott Resources, commends the seed industry for being proactive in addressing

food safety and learning what they can do to ensure they’re producing a safe product through such measures as keeping animals out of fields, testing irrigation water and maintaining workers’ personal hygiene. “It’s a reach to think seed could play a part in the (safety of the) final product that is eaten,” she said, “but we have to consider everything when we’re trying to prevent an outbreak.”

Food safety is getting a closer look not only in response to concerns over the recent outbreaks of E.coli O157:H7 in Romaine lettuce, but also new regulations under the FDA, the Food Safety Modernization Act, said Rock. “An impact on seed industry may

be in the form of enhanced surveillance or certification that seed received by a grower is ‘free’ from microbiological contaminants such as E.coli or that the seed industry is implementing the same food safety practices as growers subject to the Produce Safety Rule,” she said. “While most of the recent research has focused on how contaminants interact with the edible portion of the plant, irrigation water treatment as an example, I expect additional work to support food safety principals for seed producers as well.”

For now, the greater concern for the seed industry is when the seed itself is

consumed, as in sprouts or if the seed is ground up to be eaten, said Tim Butcher, 2017 STAA president. “As the organic food industry gets bigger, these will be used more, even vegetable seed. It’s treated more like a raw food than a seed. When sprouts are used for food, we test for E.coli and salmonella every time. Almost 100 percent of the time the result is negative ... it’s more apt to be contaminated in handling or storage. We’re just making sure it’s not the seed. It’s a precaution.”

The American Seed Trade Association weighed in on the discussion with a statement in 2013: “Since 2006 significant progress has been made to prevent contamination of fresh produce and vegetables with human foodborne pathogens through the development of additional safeguards for our nation’s food supply from ‘the field to the dinner table.’ Fruits and vegetables are essential components of a healthy diet, and ASTA is in agreement that providing a safe and sound food supply, beginning with the seed, is a fundamental priority. Therefore, the seed industry continues to be vigilant by closely monitoring food safety pathogen outbreaks, evaluating and incorporating quality management systems and procedures into its seed production programs where appropriate, and monitoring ongoing research activities to help ensure that seeds do not become exposed to, or contaminated with, human pathogens.”

The statement continued: “As members of the seed industry, we believe it is important to emphasize that existing data has not shown that human pathogens are transmitted from seed planted for field or greenhouse production of fresh produce, to this produce. Therefore, the seed industry and ASTA continue to believe that there is no significant value in requiring testing of these seed lots for the presence of human pathogens and that such testing would not prevent future food illnesses emanating from produce. Procedures used to produce seed products for planting are continuously reviewed by seed industry members as new technology is developed, and these are optimized in accordance with individual company product quality and purity management strategies. Strict quality assurance and quality control procedures are applied to all seed production, and seed must meet product quality standards to be available for sale. Knowledge and technology gaps must be bridged in order to effectively minimize the risk of future human foodborne disease outbreaks, and to improve consumer confidence in fresh produce. Therefore, ASTA continues to support science-based research that prioritizes and focuses on areas of greatest exposure where human pathogens might enter the fresh produce supply chain. It is important that this research be a collaborative effort of industry, academic and regulatory groups, and that it produces the most practical and actionable impact on food handling and safety.” ■



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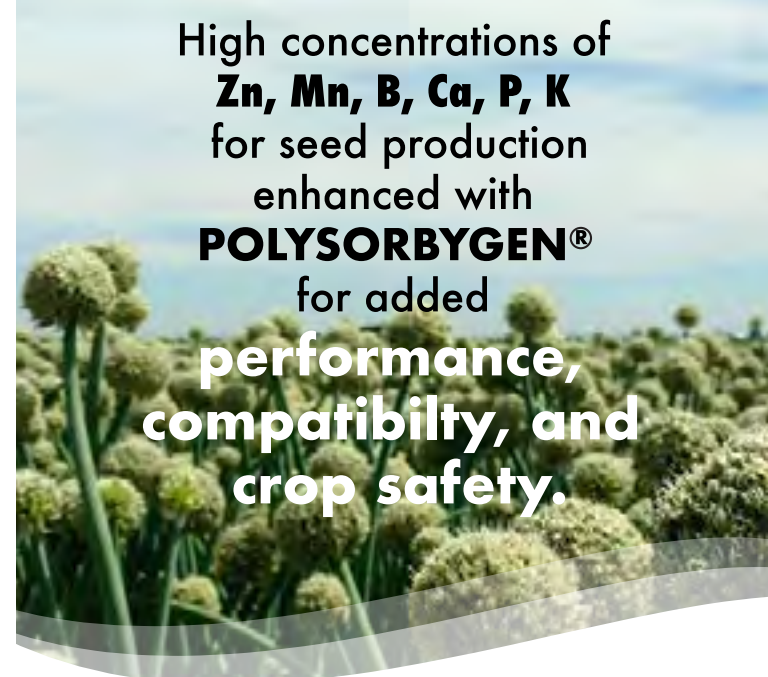
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Water Shortfall?

BY JOYCE LOBECK

With the heavy snowfall late winter storms brought to the western Rockies, it is looking less likely that a shortage will be declared in the Colorado River's Lower Basin in 2020.

But one wet winter won't solve the Southwest's structural water problems. And even if the trigger point for a shortage declaration isn't reached for Lake Mead for next year, Arizona and Nevada may be required to reduce their water use under terms of the hammered out Drought Contingency Plan unless very wet conditions continue.

An official shortage would be declared when Lake Mead drops below 1,075 feet on Jan. 1 (using an August projection to determine this). However, the Drought Contingency Plan requires Arizona and Nevada to reduce water use by a combined total of 200,000 acre-feet when the lake drops below 1,090 feet, reported Paul Brown of the University of Arizona Soil, Water and Environmental Science Department. "So it is a question of semantics ... official shortage is at 1,075 feet but water reductions begin at 1,090 feet."

"We're in jeopardy. I estimate an additional 8 MAF (million acre-feet) above utilization is required (in Lake Powell) to achieve equalization. We need a Biblical snowfall. That's for this year. And what of the years to come?"

As of mid-March, the U.S. Bureau of Reclamation was projecting Lake Mead's elevation to be 1,080 feet at the end of 2019. Furthermore, Lake Mead has not risen above 1,090 feet in more than four years as the drought that began in 2000 continues to linger in the West.

The determining factor in whether a shortage on the river is declared next year is how much snowmelt flows into Lake Powell this spring following last winter's worst snowpack in recorded history, said Brown, a speaker at the annual Southwest Agriculture Summit, held, ironically, on a rainy day in late February. Powell's level needs to rise by 8 million acre-feet to have extra water to release into Lake Mead. "You can't get extra water into Lake Mead

without Powell getting up to a certain level," he said.

If a shortage is declared, it will prompt a first-ever shortfall in Arizona's allocation of Colorado River water delivered through the Central Arizona Project canal system to farmers in the central part of the state.

Whatever happens in the coming months and years, there is a longer-term concern for the cities, farmers and industrial users in the Southwest who depend on water from the Colorado River. The legal framework that divides up the river was established during much wetter times nearly a century ago, with a series of agreements committing more water than flows in the river in an average year,

resulting in a chronic "structural deficit." Factor in a 19-year drought and warmer temperatures resulting in thirstier soil and more evaporation, reducing snowmelt runoff and taking a major toll on the river's flow even as more water is needed.

"We're in jeopardy," Brown said. "I estimate an additional 8 MAF (million acre-feet) above utilization is required (in Lake Powell) to achieve equalization. We need a Biblical snowfall." That's for this year. And what of the years to come? ■

THIS PAGE LEFT: Notice the low level of water behind Hoover Dam

RIGHT: The lower Colorado River running through Yuma





“We’re in the constant process of coming up with new ideas. We’ll custom build for growers to meet their needs. The business is very sensitive to the whole agriculture world. Farmers rely on good equipment.”

much seed they need so they don’t end up with a lot of surplus.

There also was the advent in the industry of transplanting seedlings into fields, giving rise to the design and building of machines to hold the transplanters and workers. Because this is the Desert Southwest, the transplanters are equipped with shades and lights, as transplanting often takes place at night to protect the tender seedlings and workers from the intense heat of late summer.

There are other innovations as well. For example, a hooded sprayer the company builds includes air nozzles that ruffle the leaves of the plants so all surfaces are exposed to the pesticide spray. Then a vacuum sucks up the excess spray to protect the environment. Other equipment is designed to hold up to working thousands of acres of fields in this area, versus the hundreds of acres in other parts of the country. Perhaps a farmer likes a machine but wonders, “Can it do this?” Keithly said. “We make it work, within reason. We strive to make sure the pieces of equipment meet the growers’ needs.”

Another increasing concern for farmers

is labor, not only the rising cost of it but also a shortage of workers, Bahr said. That has the industry turning more and more to machines to do the job of workers. Precise seed planting reduces the need for thinning crews. In addition, automated thinners and weeders are becoming more common. Automatic transplanters are now able to do the job with fewer workers than manual transplanters.

And so the business has grown. Today the busy shop in Yuma meets customers’ needs not only in the Yuma area but also Santa Maria, Salinas, San Joaquin Valley and Holtville in California; Phoenix; New Mexico; Colorado; and the Pacific Northwest.

“We’re in the constant process of coming up with new ideas,” said Keithly. “We’ll custom build for growers to meet their needs. The business is very sensitive to the whole agriculture world. Farmers rely on good equipment.”

A farmer under contract to produce a lettuce field has to plant on a certain date and harvest on a certain date. He can’t afford to be broken

down during those critical dates and waiting for parts. So Keithly-Williams carries an extensive inventory of parts.

Bahr concluded: “We can get as customized as a grower wants. If it fits on the back of a tractor, we want to be involved. We partner with growers. We want to be beneficial to them.” ■

THIS PAGE

LEFT: Monosem vacuum planter is designed to automatically plant two lines on two beds at a time.

MIDDLE: Fence installer, in response to the need of a Tacna-area farmer for a more efficient way to install fencing to keep deer out of vegetable fields.

RIGHT: Nick Bahr, fabrication manager for Keithly-Williams Fabrication

Fabrication

BY JOYCE LOBECK

A farmer in eastern Yuma County had a problem with deer getting into vegetable fields, raising concerns about food safety. Eight-foot high fencing was needed to keep the animals out of the fields. But it was taking 15 workers a day to put up one mile of fence, with results that were less than satisfactory.

Keithly-Williams’ Fabrication Division was asked to come up with a better idea. Nick Bahr, Yuma fabrication manager, played around with some designs and came up with a machine that could do the job, a marvel of simple engineering with a hydraulic post driver and a system that sets the wire fencing and stretches it. Now a crew of five men can install three miles of

fencing a day that is straight and tight. “I didn’t overthink it,” Bahr said as he showed off the machine. “I kept it simple, easy, highly reliable and inexpensive.” And it met the needs of the farmer.

That describes the mission of Keithly-Williams and its farm equipment fabrication shop. “We find out what the farmers need and provide it,” explained Kelly Keithly, head of the company. That’s whether servicing a machine, providing a part, modifying a tiller or custom building a planter – or deer-fence installer.

It all started with repairing Stanhay planters as they broke down, then servicing them before the growing season started, Keithly said. Then the company got

into the business of selling planters in the early 2000s. In those days, the precision planters mostly came from Europe. As the seed industry got more complex with the introduction of pelletized (coated) seed, and seed got more expensive and bed sizes began to vary widely, growers’ needs changed. Keithly-Williams expanded equipment lines and began fabricating parts and machines. For example, today, the company imports seed boxes from Europe and builds the frames to carry them. To accommodate different size seeds, the seed boxes have either plates or belts that can be changed, depending on the crop being planted. And they’re calibrated to release just one seed at a time. That not only provides more precise planting, it helps farmers calculate how



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ANNUAL	PRESIDENT	YEAR	CONVENTION LOCATION
1	Duane Palmer	1993	Yuma - Shilo Inn
2	Duane Palmer	1994	Yuma - Shilo Inn
3	Pat Hodges, Jr.	1995	Phoenix - Pointe Hilton Tapatio Cliffs
4	Larry Taylor	1996	Prescott - Prescott Resort
5	Ernie Milner	1997	Prescott - Prescott Resort
6	Rod Hallman	1998	Sedona - Poco Diablo Resort
7	Manny Martinez	1999	Gold Canyon - Gold Canyon Resort
8	Charlie Cain	2000	Tucson - Westin La Paloma Resort
9	Lynn Adams	2001	Tucson - Leows Ventana Canyon Resort
10	Michael Edgar	2002	San Diego - Embassy Suites, Mission Valley
11	Kevin Ford	2003	Sedona - Sedona Hilton Resort
12	John Hodges	2004	Chandler - Wild Horse Pass Resort
13	Tim Thompson	2005	Prescott - Prescott Resort
14	Denney McKay	2006	Tucson - Omni Tucson National Resort
15	Alan Rubida	2007	Tucson - Westward Look Resort
16	Barry Case	2008	Carefree - Carefree Resort
17	Ron Berens	2009	Tucson - Omni Tucson National Resort
18	Jon Pasquinelli	2010	Tubac - Tubac Golf Resort & Spa
19	JP Tom Bodderij	2011	Litchfield Park - Wigwam Resort & Spa
20	Justin Smith	2012	Tucson - Hilton El Conquistador Golf & Tennis Resort
21	Jose Solorzano	2013	Tubac - Tubac Golf Resort & Spa
22	Pam Ferguson	2014	Tubac - Tubac Golf Resort & Spa
23	Doug Henry	2015	Scottsdale - Talking Stick Casino & Resort
24	Dean Wolfe	2016	Sedona - Hilton Resort at Bell Rock
25	Justin Lewis	2017	Tucson - Marriott Starr Pass Resort
26	Tim Butcher	2018	Scottsdale - McCormick Ranch
27	Justin Gillies	2019	Tucson - Westin La Paloma Resort

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- Duane Palmer (2007)
- Larry Taylor (2007)
- Allan B. Simons (2008)
- Rod Hallman (2010)
- Carrel Loveless (2013)
- Kelly Keithly (2015)
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- Michael Edgar (2017)
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- The award criteria established by STAA are:**
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 - Upper division student status - junior or senior
 - Majoring in plant sciences, crop production or ag-tech management

Here are eight students who have benefited from the STAA scholarship program.



Joy Marie Custer

Joy Marie Custer is an Accelerated Master's at the University of Arizona Honors College. She is studying Environmental Science with an emphasis in land, air, and water. She works in a research lab on-campus as a Molecular Microbiology Intern. Joy is an active member and volunteer of her university's Rotaract club, and she is also the Youth Services Committee Chair for the club. She is a member of Phi Theta Kappa and Omicron Delta Kappa national honor societies as well as American Mensa. Joy also volunteers for the Elks National Foundation.




Melisa Bohlman

Melisa Bohlman is currently a senior, obtaining a Bachelor's of Science in Environmental Science and a Bachelor's of Arts in Spanish/Portuguese, with a minor in Sustainable Plant Systems. She is working toward her Accelerated Master's of Science in Environmental Science at the University of Arizona. She is currently president of the UA Plant Science Club, secretary for the UA Environmental Science Club, ambassador for the College of Humanities, Dean's Leadership member for the College of Agriculture and Life Sciences, and Bike Ambassador for Pima County. She also works for Dr. Monica Ramirez-Andreotta at the Integrated Environmental Science and Human Health Risk laboratory. She is really grateful for the Seed Trade Association's scholarship and all the opportunities it has brought her!

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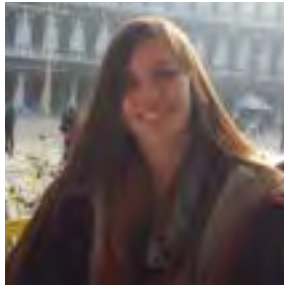
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Savannah Perno

Savannah Perno is a senior at the University of Arizona studying Soil, Water and Environmental Science with an emphasis in Land, Air and Water. She is currently completing an honors' thesis examining the role of soil microorganisms in improving soil structure, increasing water holding capacity and maximizing carbon sequestration. After graduating in May, she plans to attend graduate school in the western United States. In her free time, she enjoys hiking, playing guitar and spending time with friends and family.



Michael Doiron

Michael Doiron was born and raised in Yuma. He is currently pursuing a bachelor's degree in Agriculture Technology Management through the University of Arizona. He has been around agriculture his whole life and has always known that he wanted a career in the agriculture business. It has always been a dream of his to improve the Ag industry and help feed our ever growing population.



Alec Gagliano

Alec is a senior at the University of Arizona and is studying Environmental Sciences with an emphasis in biology. During his time at the university, he found a calling to dendrochronology and was hired on at the tree-ring lab. Where he was able to learn how to measure annual tree ring growth and learn how to collect samples in the field. It was this time in the field that gave him another perspective on the environment and reaffirmed his choice of what he was studying. From there he joined an ASUA, which he is currently a part of. The program is called Students for Sustainability, dedicated to promoting environmental sustainability on campus and the Tucson community.



Megan Bennett

Megan Bennett is a senior at the University of Arizona. Her major is Sustainable Plant Systems. She is currently working on a research project that is studying a plant that is native to the Chihuahuan Desert. She excited to graduate this May, and see what opportunities await for her after college.



Mira Lizabeth Theilmann

Mira is an Accelerated Master's student in the Environmental Science program at the University of Arizona. Thanks to the generosity of the Seed Trade Association scholarship, she will graduate with a Bachelor's of Science degree with Honors in May 2019. Research supported by the scholarship also resulted in the submission of an Honors Thesis, working with Dr. Raina Maier's Environmental Microbiology Lab entitled: Interactions Between Ecosystem Dynamics and Belowground Microbial Community Capacity Under Semiarid and Arid Conditions.

Kaitlyn Daron Fletcher (No photo Available)

Kaitlyn is seeking degrees in Environmental Sciences. Her ultimate career goal is to use her knowledge in environmental science and journalism to change the conversation about global warming and make a difference in both social and political spheres.

Barry Case

2019 Seed Trade Association of Arizona Honorary Member

Barry Case, founder and owner of Imperial Vegetable Seeds Inc. in El Centro, is proof that the state line is no boundary for the Seed Trade Association of Arizona. "They even allowed this California boy to be president."

Case has been a member of STAA nearly since the organization was first formed. He came in as a friend of Pat Hodges Jr., who served as the STAA president in 1995. Case has stayed involved ever since, never missing a convention, serving as a board member for 10 years and was president in 2008. For his service and dedication to the organization, he has been named as the STAA honorary member this year.

"I was the first out-of-state president," Case recalled. "I felt honored to be selected. It's a wonderful group of people to deal with. I feel fortunate to have a relationship with all of them."

In 2016, he relinquished his seat on the board so his general manager, Justin Gillies, could serve. This year Gillies is following in Case's footsteps as the second out-of-state president and his

boss couldn't be prouder. "I'm looking forward to going to the convention and supporting Justin," Case said.

He added that his wife, Becky, enjoys the conventions as much as he does and values the friendships she's made among the wives of the STAA members, even earning the nickname, "Peaches." The ladies actually formed a sisterhood and named themselves the "Seedy Wives."

For more than 35 years, Case has also been a member of the American Seed Trade Association and the California Seed Association. As with ASTA and CSA, the STAA is special. "It's a fun group to work with, socialize with, become friends with, do business with." Case feels very blessed to have made a career in such a rewarding industry.



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A leader in the Western United States seed industry, Top Notch Seeds is located in Brawley, California and specializes in innovative seed solutions including processing, sales and marketing both domestically and internationally. While the company has grown tremendously since its founding in 2007, its family owned customer-first service has remained the cornerstone of their operation.



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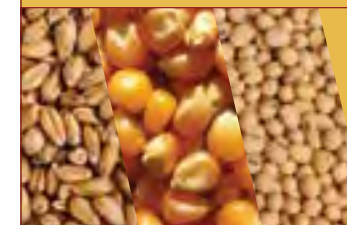
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