Cultivate Fall/Winter 2018

Utah State University

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People are often advised to mentally prepare an "elevator speech" that would help them quickly explain important points about themselves, their job, a particular project, or their goals.

I could probably tell someone about the bare bones of what goes on in the College of Agriculture and Applied Sciences in the time it takes to travel a few floors. A good start would be Utah State University’s mission of student-centered learning, discovery, and engagement. But as dean of a college with six departments, a School of Veterinary Medicine, a catalogue of more than 80 degrees, and students preparing to become scientists, economists, teachers, landscape architects, pilots, and dieticians (among other things), I’d need a very tall building and a very slow elevator just to briefly mention each aspect of CAAS.

Two of the many great things that happened in the college this fall were the opening of The Aggie Chocolate Factory (read more on page 5) and a very successful Utah Agricultural Products BBQ. We welcomed a record-setting 1,616 people to Craig Aston Park for this year’s BBQ that celebrates local food and raises money for student scholarships. Take a look at video from the day at tinyurl.com/AgBBQ2018, and plan to join us next fall to be part of the many great things going on in CAAS.

Kenneth L. White
Dean, College of Agriculture and Applied Sciences;
Vice President, Extension and Agriculture

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I have had the opportunity to serve as the College of Agriculture and Applied Sciences Alumni Council president this past year. Our CAAS Alumni Council is made up of some amazing members with a wealth of experience and knowledge that benefits not only the alumni but students who will someday join the ever-growing alumni of Utah State University.

I have worked with the committee to select the CAAS Alumni Hall of Honor recipient and was privileged to introduce this year’s addition to that distinguished group, Vern Budge, at the college’s awards and honors banquet. It always amazes me to see the influence and impact an individual who is dedicated to their work can have on the community, state, country, or nation. It reminds me that our education can and should do more for others than ourselves and provide a positive impact wherever we go.

Some other highlights have been participating in a dinner for graduating CAAS seniors in May at the USU Alumni House and honoring their accomplishments here at Utah State University. It was a pleasure visiting with them, feeling their enthusiasm, and hearing their hopes of accomplishing great things as a new chapter opened in their lives.

I think, however, the most significant contribution we as a council are working on is building the CAAS Alumni Scholarship to help students who have dreams and aspirations of acquiring a degree and who cannot afford it. It gives us a way to help students who really need assistance and, in return, gives us the joy of giving back as a token of thanks for all that the College of Agriculture has done for us in our careers.

As with our past presidents, I invite all CAAS alumni to join us in helping these students by supporting their opportunities to obtain educational dreams that will make a difference in the world. To contribute to the CAAS Alumni Scholarship, please contact Brandon Monson at brandon.monson@usu.edu or (435)-797-2208.
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Cultivate is published by the dean’s office of the College of Agriculture and Applied Sciences and distributed free of charge to its alumni and friends.

Submit story ideas, comments and unsubscribe requests to Jean.Edwards@usu.edu or 4800 Old Main Hill, Logan, UT 84322-4800.

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**ONE CHOCOLATE BATCH**

- **20 LBS** of organic sugar
- **46 LBS** of cacao nibs
- **705** total chocolate bars

**CHOCOLATE PROCESS**

1. **Cacao Tree**
2. **Fermentation**
3. **Drying**
4. **Ragged for Shipping**
5. **Sorting**
6. **Roasting**
7. **Pre-Grinding**
8. **Cracking/Winnenowing**
9. **Blocking/Aging**
10. **Refining/Conching**
11. **Tempering**
12. **Wrapping**
13. **Molding**

**ONE CHOCOLATE BATCH**

- **20 LBS** of organic sugar
- **46 LBS** of cacao nibs
- **705** total chocolate bars

**CHOCOLATE FACTORY**

- **Wet Cacao Seeds**
- **Fermentation**
- **Drying**
- **Ragged for Shipping**
- **Sorting**
- **Roasting**
- **Pre-Grinding**
- **Cracking/Winnenowing**
- **Blocking/Aging**
- **Refining/Conching**
- **Tempering**
- **Wrapping**
- **Molding**

**Cacao Tree**
The Aggie Chocolate Factory opened in November for student lab experiences and delicious treats in the chocolate café, managed by Steve Shelton (left).

See the story on page 5.
SOIL IS NOT DIRT

BY BRONSON TEICHERT

The differences between dirt and soil may not be an argument most people take seriously, or even think about. But to soil scientists, dirt and soil are definitely not the same thing. Emma Thompson, a senior studying land, plant, and climate systems with an emphasis in soil science, said soil is much more complex than dirt.

“It drives me nuts because dirt is what you sweep up off of your floor and it’s what collects in your vacuum,” Thompson said. “It’s funny to get worked up about it, but I feel like every soil scientist I’ve ever met has gotten worked up about the word dirt.”

Thompson’s passion for soil and agriculture led her to being a top finisher in regional, national, and world soil judging competitions. This summer, Thompson participated in international competition at the 21st World Congress of Soil Science in Rio De Janeiro, Brazil. She judged individually and with a team representing the U.S.

“The competition consisted of two team pits and two individual pits, and they were doozies!” Thompson said. “They were tough pits, but they were so much fun!”

In these soil pits, different horizons or layers of soil stacked on top of each other are visible, representing the environmental conditions of each time period. Thompson said each of those layers give scientists clues about the history of the soil. By taking samples the students look at the texture to determine what the soil structure looks like and how water moved in the soils.

“All of that kind of gives you an idea of what to name the soil and it tells you exactly how each layer came to be,” Thompson said. “It gives you an idea of how old things are and where the water sits.”

Labeling the soil is the easy part. Thompson said the interpretation can be more difficult.


Thompson said she made friends with other students from around the world, but when it was time for the competition, Team USA was all business. Two teams from the U.S. competed in the contest – Team 1 took second place in the group competition and Team 2, Thompson’s team, took first. Thompson took 12th in the individual category and her team took first in the combined scores category.

Soil judging is like being a soil detective for Thompson. She said the soil is full of life, and humans need it for growing food, building structures, and supporting life; essential things dirt just can’t do.
The Aggie Chocolate Factory opened its doors to the public on November 16, 2018, welcoming a long line of chocolate lovers and foodies who came to taste the factory's first collection of treats. The factory processes chocolate from bean to bar (and bean to beverage, brownie, pastry, and cookie), educates USU students, and serves as a resource for confectioners large and small who want to expand their chocolate offerings or experiment with new flavor profiles.

The workings of the Aggie Chocolate Factory are visible behind a glass wall in the restaurant area of Aggie Blue Square, west of Maverik Stadium.

“The factory serves several purposes, but it is first a laboratory for students in food science,” said Professor Silvana Martini. “It will also facilitate research and outreach to the confectionary industry. This will be the only chocolate factory at a university in the western United States that is processing from bean to bar, and people in the industry are excited about the opportunities for short courses and working with us.”

The factory can work in batches as small as a single kilo of cocoa beans or up to as much as 250 kilos, and all beans are sourced from sustainably farmed operations that receive fair trade prices for their product. To begin with, the Aggie Chocolate Factory produces its dark chocolate from beans grown in Belize and Ecuador.

“Most artisan chocolate makers are involved in ethically sourcing cocoa beans from farmers or co-ops, making sure people get fair market value for their crops, and investing time and money to help farmers develop ways to process their crop, manage fermentation, and provide an outlet for their cocoa,” said Steve Shelton, manager of the Aggie Chocolate Factory. “We have opportunities to do good in the world, and everybody likes chocolate.”

Shelton looks forward to the many possibilities that come from bean-to-bar production because so many flavor nuances can be developed based on where and how the cocoa was grown, fermented, and roasted.

“Ten people can start with the same beans and come up with 10 different flavors of chocolate,” Shelton said. “It is similar to what coffee roasters do to create different flavors, but there are more subtle nuances possible with cocoa beans.”

See news coverage and more photos of the Aggie Chocolate Factory online at CAAS.usu.edu/Cultivate.
Earning a top spot in a national food science competition takes more than proving yourself as a chef, according to Vidita Deshpande, a PhD candidate in food science. Perfecting the chemistry in food is what takes the cake in competitions hosted by professional organizations like the Institute of Food Technologists (IFT).

“A lot of my friends ask me if I’m a chef, and if you taste my food it’s not always that great,” Deshpande said.

But, Deshpande can tell you all about the chemical reactions in food as it is being cooked, or overcooked in some situations. What started as a class project for Deshpande and team members Cheril Lyman and Zachary Cooper, turned into an entry for a national competition.

“We started it as mini-pizzas, which are like 4-inch pizzas,” Deshpande said. “Once we decided to take it to the competition we decided to alter the composition of it. We had to cut down on the cheese, cut down all the flavorful parts of it and make sure it still tastes great and looks great so that kids can really enjoy it.”

The mini-pizzas became cauliflower crust pizza bites, “...a healthy twist on an original cheese pizza” according to the team’s description of the product for competition. The quick snacks for children and adults are 1.5 inch squares of cauliflower-based ingredients and meet the USDA’s requirements for “smart snacks.” Cauli Crust Pizza Bites are designed to be frozen and simple to cook. They have 60 calories per serving (five squares) with just 10 calories from fat, 6 grams of protein, vitamins A, K, C, and B, and minerals such as calcium and magnesium. Before the competition, Deshpande and her team put their creation to the test with senior citizens, adults, students, and kids, and all gave positive feedback.

Judges for the IFT competition were from the USDA, several food companies, and food science professors. Deshpande said each judge had useful insights from their respective industries.

“When we go to compete as finalists, we present our product and a PowerPoint slide,” Deshpande said. “Then you have a sensory tasting where the judges actually taste the product, give you feedback, and then they have more questions for you.”

After placing second in the competition, among 22 competitors, the USU team has a goal of putting the award-winning pizza bites on the market for consumers.
Organic Farm Grows Crops and Leaders

By Bronson Teichert

Watching students and crops grow on the Utah State University Student Organic Farm are two of Jennifer Reeve’s favorite things. As an organic and sustainable farming associate professor, Reeve sees students with a range of farming experience—and no experience—learn and become leaders while working on the farm.

“We give students opportunities to be managers.” Reeve said. “We shepherd them through so they start as volunteers, they become interns, and then become managers.”

This is the case for Lara Gale, a graduate student in landscape architecture and bioregional planning, who had some experience working with chickens, but not growing crops.

“I’m interested in agriculture as part of the overall system of using resources for a thriving human society,” Gale said. “I think it’s really important to have to work with all the variables to really understand what you’re dealing with in any kind of system where you produce things out of the natural environment.”

Unsure of her expertise, Gale took on the manager’s role. She learned as much about dealing with uncertainty as she did about growing crops, and gained an appreciation for the uncertainty that farmers contend with every growing season.

A late start and early hot, dry weather had Gale worried about crops like tomatoes, but by the end of the growing season, volunteers and interns weren’t able to harvest all the tomatoes because they were so plentiful. The farm produced greens including kale and chard, in addition to broccoli, bok choy, shungiku, arugula, eggplants, squashes, and various herbs.

At the start of the growing season, 37 half shares, enough produce for one to two people per week, were sold to USU faculty and staff. This year’s harvest was so plentiful that at the end of the season, people in the community were invited to pick as much as they wanted, and an additional 500-600 pounds of fresh produce that went to the Cache Food Pantry and USU student food bank.

“Given all the limiting factors and how abundant that farm was, if we could organize things so that we maximize the capacity of the land we have here in Cache Valley, I don’t think it would be unreasonable to say that we could abolish food insecurity in our valley,” Gale said.Δ

New Associate Dean Named

By Lynnette Harris

Associate Professor Abby Benninghoff is the College of Agriculture and Applied Sciences’ new associate dean for research and graduate student services.

Benninghoff teaches and does research in the Department of Animal, Dairy and Veterinary Sciences and USU School of Veterinary Medicine. In her new role she looks forward to developing ways to help new faculty, and faculty initiating new research, to accelerate the launches of their programs and help them navigate aspects of running a research project that may be new to them.

“During graduate training you are largely shielded from budgeting processes, environmental health and safety monitoring and reporting, doing university paperwork—what we lovingly sometimes call ‘red tape’—and you are able to be incredibly productive,” she said. “But when you start up a new lab, you are thrust into all that, in addition to grant writing, so if you don’t get good mentoring at the start, the process can be inefficient.”

She is an advocate for interdisciplinary research and her own academic and professional path has moved between disciplines beginning with dual bachelor’s degrees in biochemistry and biology from the University of Tennessee, followed by doctoral research in marine science focused on endocrinology at the University of Texas at Austin, and post-doctoral work at Oregon State University in toxicology and cancer research.

Since joining USU’s faculty in 2010, Benninghoff has built a research program that routinely creates collaborations with faculty in other departments and colleges. Her current research is in toxicology, cancer, and epigenetics, and the intersections of those topics. She also has an interest in science communication and developed a course for graduate students from all disciplines that was rooted in what she wishes her students would have known at the start of her career. In accepting the new administrative role she negotiated to continue teaching the course annually.

“The class fits with the priorities of my office and it will keep me involved with graduate students in our college, and others, so I have a connection with them,” Benninghoff said. “Traditionally, if you are out of the classroom and in an administrative office you don’t have reasons to regularly interact with students. I think the class will be an effective way to keep in touch with their needs while also providing some structured training in important skills related to their professional development like writing, creating presentations, grant writing, and communicating with the public.”Δ

By Lynnette Harris

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A recent visit to Utah State University by top administrators from National Chung Hsing University (NCHU) was an important step in solidifying efforts to create learning and research opportunities for faculty and students at both universities.

In March, a group of faculty from USU’s College of Agriculture and Applied Sciences (CAAS) traveled to Taiwan for a workshop hosted by NCHU and Don Wang, a CAAS alumnus who has been instrumental in connecting USU faculty and students with people and programs at universities in Taiwan. The agreement formalizes a partnership advancing research, education, and outreach in agriculture, climate, and environmental sciences.

A few students and faculty members from the two universities have already pioneered studying, teaching, and conducting research at partnering universities, the result of meetings in Utah and Taiwan over the past 3 years. Professor and State Climatologist Robert Gillies has twice taught a climate science course at NCHU and did so again in December. Two PhD students in the Plants, Soils and Climate Department have also participated in studies in Taiwan. A student from NCHU has been part of food science Professor Don McMahon’s lab, and Parichart Promchote (Noi), a climate science PhD student, has worked two summers at NCHU with Professor Yuan Shen developing crop growth models tied to climate data and Shen also participated...
TYSON SORENSEN
HONORED FOR OUTSTANDING TEACHING

BY BRONSON TEICHERT

Assistant Professor Tyson Sorensen received the Outstanding Early Career Award from the American Association for Agricultural Education’s Western Region. Sorensen is known for preparing future agriculture educators by calling on his experiences as a high school teacher in addition to theory and college course curriculum.

“Dr. Sorensen is very deserving of this award,” said Brian Warnick, associate dean of the College of Agriculture and Applied Sciences, and fellow agricultural education professor. “He is an outstanding teacher and researcher in agricultural education and provides a significant amount of service to the profession on a national, state, and local level. His work ethic is phenomenal and he is an excellent example to his students.”

Sorensen is committed to helping people see that agricultural education goes beyond traditional farming and ranching and opens doors to technology, business, economics, science, and a host of other disciplines.

“It is about cows and plows, but it is so much more,” Sorensen said. “Ag education is about drones, genetic engineering, food science, natural resources, business, public policy, leadership, communications, and beyond. It is about preparing students to solve some of the world’s greatest challenges related to food security, energy, natural resources, and water. I help prepare future teachers to make a difference in the lives of their students by developing their potential for premier leadership, personal growth, and college and career success through agricultural education.”

Applying what students have learned in other classes to agriculture can help confusing concepts make sense and provide real-world context, according to Sorensen.

“For example, we take the x, y and z formula someone didn’t quite grasp in math, and we provide context to it as the student uses it to build something or figure out how much concrete or potting soil to order,” Sorensen said. “Then it makes sense.”

Above: Tyson Sorensen (second from the right) and colleague Becki Lawver (center), were recently in Italy finalizing an agreement to allow USU agricultural education students to do 5 weeks of their student teaching (in English) at an agronomic high school just outside Milan.

on Promchote’s PhD committee.

Dean Ken White said, “This agreement and our ongoing collaborations provide outstanding learning opportunities for students at both universities. Many courses at NCHU are taught in English and giving our students experiences in Asia, especially in areas such as international agribusiness and climate science, helps them develop skills that will give them an edge in their careers.”

Janis Boettinger, vice provost and director of USU’s Office of Global Engagement, participated in the March workshop in Taiwan, and continues to work on formalizing connections and exploring possible degree programs that could be offered jointly by the two universities.

Boettinger considers NCHU an excellent destination for USU students and faculty members interested in experiencing Chinese culture because of the breadth of courses taught in English, especially in agriculture and natural resources, the beautiful and safe campus in Taichung, the friendly nature of the Taiwanese people, and the ease of travel to and within Taiwan.

Professor Paul Johnson said, “Both universities have very strong agriculture and natural science-related programs so it’s a great match. I appreciate the leadership the college and Don Wang have provided to help us connect. Cooperation with NCHU provides a world-opening view for our faculty and students. Looking to Taiwan offers an entry to a dynamic part of the world, one many of us don’t understand that well. It opens that door in a very approachable way. It’s also exciting to see such interest among our Aggie alumni in Taiwan! Linking with them will assist our students in terms of research opportunities, internships, and other career activities.”
Utah State University seniors have many opportunities to gain professional experience that prepares them for the careers that will follow graduation. For two USU dietetics students anxious to share important knowledge about food, launching a nonprofit organization in a country like India seemed like a dream they might realize 10 years into the future.

"Being a dietetics student at USU, I learned a lot about malnutrition and global health challenges, especially related to nutrition," said Marisa Christensen, who graduated in spring 2018. "I’ve heard about these situations and I’ve always had the desire to help and serve."

The phrase, "Knowledge is power" motivated Marisa and classmate Taylor Hale, who also graduated in spring 2018, to follow their dream of teaching nutrition. Marisa said USU classes like community nutrition by Mateja Savoi Roskos, medical nutrition therapy by Rebecca Charlton, and advanced nutrition by Ron Munger helped inspire the big idea.

"The idea was to take a group of people and teach nutrition education," Marisa said. "It wasn’t even a thought of becoming a nonprofit, at first. Once we got into researching more details, we realized, ‘Why not make it sustainable? Why not make it a nonprofit?’"

Their organization, Nutrition Education Ending Malnutrition (NEEM), was started with personal investments and volunteer fees. Marisa said now the organization is on track for government grants and public donations.

More knowledge came to the project with Marisa’s husband, Tanner, who graduated from USU in public health and industrial hygiene. Even with their education and degrees, Hale said the project was still overwhelming.

"We spent countless hours researching India, the culture, everything we thought we would need to know, as well as the nutrition education we wanted to teach," Taylor said.

The USU graduates left the United States at the beginning
From Graduation to Rural India

of August and worked a little over 2 weeks with people in areas close to the city of Dharamshala, in the northern region of India bordering the Himalayas. Once they arrived in India, the team understood just how badly nutrition education was needed and how much people there welcomed the information.

“We chose to start in India because malnutrition rates are high and the statistics are hard to ignore,” Marisa said. “Several articles suggest that despite India’s increase in GDP, it is still one of the highest ranking countries in the world for the number of children suffering from malnutrition. Studies show that it has more than one-third of the world’s malnourished children.”

NEEM’s website (neeminc.org) points out that malnutrition causes 45 percent of deaths in children under age 5. And the effects of malnutrition don’t end in adulthood and often include chronic health problems and weakened immune systems that interfere with people being able to work and provide for themselves and their families. The organization starts with educating women and girls and with a focus on local food and agriculture systems that impact food choices and availability.

One family with the right education can pass that knowledge down to future generations and, Marisa believes, that can change the future of a community and developing country.

“They can tell their friends and they can tell their kids,” Marisa said. “It’s just so powerful, and knowledge really is everything when it comes to being sustainable and providing for yourself.”

While educating people about diet and proper sanitation through entire populations is the goal, it is seeing improvements in the lives of individuals that drives Marisa, Tanner, and Taylor’s passion. Working with organizations in India like The Navjeevan Foundation and the Surya Uday Charitable Trust, the dietitians and volunteers met a single mother with four mentally and physically disabled children. This family helped Marisa and Tanner realize that what they were doing, could change lives in this struggling family.

“She has a very sad story of her being abused by her alcoholic husband, being left, and having neighbors who have threatened to hurt her because they have to deal with the kids and her family,” Marisa said. “It’s just so amazing how she thrives and loves her kids and is able to take care of them as a single parent, as someone who has kids that need her time consistently.”

The experiences that especially impacted Taylor were the lactation education opportunities.

“When I got to teach about things that helped women who were expecting or having problems or had questions with lactation, that was kind of my highlight just because that’s an area that I love assisting and supporting women in,” she said.

Education that stays in a community and is passed down cannot be learned all at once, Tanner said. The trio is growing its team of dieticians who are contributing part time to create nutrition curriculum and prepare to lead future trips.

“Our goal from this first trip to India was to get a baseline understanding of what knowledge people had,” Tanner said. “Then to progress as we go back each year and to monitor to see how they were from our first time until two, three trips down the road. If we don’t monitor that or see where they were before, then we would never know how to help.”

Taylor said classes like community nutrition, the coordinated dietetics program, and internships prepared her and Marisa for the complicated tasks they undertook.

“I think that really prepared us to take this on as our own and to feel confident that we could pull it off,” Hale said. “Marisa and I were partners in a lot of our projects in the dietetics program. That gave us confidence going forward.”

Marisa will work with NEEM full-time and her husband Tanner will contribute part-time, while working at his current job. Taylor will also be contributing part-time to the nonprofit while working as a dietitian at Primary Children’s Hospital in Salt Lake City. NEEM will be expanding with a second project in Indonesia next year.

See more photos from NEEM’s first work in India on the Cultivate website CAAS.usu.edu/cultivate.
Training the next generation of dairy scientists and technologists is an ongoing priority for the Western Dairy Center (WDC), a center focused on dairy research and a new priority to develop and train the future workforce for the regional dairy industry that has grown significantly in the past 10 years.

The dairy industry has become extremely competitive and many companies are looking to increase innovation and introduce new products to the marketplace. Also, passage of the Food Safety Modernization Act in 2011, created a need for additional trained people to enhance quality programs in dairy and other food companies. These efforts to increase innovation and quality development require technically trained individuals who understand milk, food science, and dairy products.

The WDC is housed at USU and directed by Donald McMahon, professor in the Department of Nutrition, Dietetics and Food Sciences. The WDC is one of six regional dairy centers established through the dairy check-off program in 1987 (a fee farmers pay to support dairy research that is based on the amount of milk they sell) and has been a training ground for dairy scientists and technologists. But beginning in the late 1990s, the center began losing funding, and the number of students coming out of WDC significantly declined.

USU alumnus Eric Bastian, who led the Research & Development team at Glanbia Nutritionalis for 18 years and hired many WDC graduates, became acutely aware of the decline in dairy scientists as he was trying to fill roles that were often open for a year due to lack of candidates. He also found that recruiting students from the Midwest or eastern part of the U.S. didn’t fully compensate for the need, especially when many of those people returned “home” after a few years.

In 2012, McMahon and Bastian co-founded the BUILD (Building University and Industry Linkages through learning and Discovery) Dairy program under WDC. In the beginning, the program was solely funded by Glanbia Nutritionalis, but in 2016, the United Dairymen of Idaho, now Dairy West, decided to tackle the problem from within the organization. Dairy West hired Bastian to develop the BUILD Dairy program, revitalize the WDC, and initiate a pipeline of technically trained talent that could be hired into the regional dairy industry. Discussions among dairy processors and universities that comprise the WDC produced 25 research priorities, and a call for proposals went out to WDC universities: USU, University of Idaho, Washington State University, Oregon State University, Brigham Young University (Provo), and Boise State University.

In 2017, Dairy West contributed $1.5 million in check-off funding while Bastian and McMahon were able to raise an additional $600,000 of industry and university co-funding, bringing the overall investment to $2.1 million.
This funding resulted in 19 new dairy research projects with 19 new BUILD Dairy graduate students who are currently being trained in the program. The 2018 investment increased to $2.3 million, adding 17 more graduate students and 21 undergraduate researchers to the program.

BUILD Dairy is unique in many ways. Its focus on student training and the research, though important, is secondary. Professors who submit research proposals are asked to identify students with local ties who, once trained and hired, will be happy to stay in the region.

BUILD Dairy’s goal is to have trained 100 undergraduates, 75 master’s degree students, and 15 Ph.D. students in the next 5 years, with the expectation that most of them will be hired into the region’s dynamic and growing dairy industry.

Learn more about Dairy West at their website: dairywest.com.

In July, the dairy industry came together to celebrate National Ice Cream month. Through a campaign called “Scoop it Forward,” the goal was simple: surprise people with “a random act of ice cream - just because - and encourage recipients to do the same.” Dairy West partnered with Aggie Ice Cream to bring the concept to Logan. Bringing smiles to patrons by offering them a free scoop was a fun and engaging way to give back to the community of ice cream lovers. Local dairy farmers handed out coupons, and a photo booth and visiting dairy calf helped bring #scoopitforward to life online. Watch for next year’s event.

Professors Bruce Bugbee and Scott Jones have been named fellows of their respective professional societies, among each organizations’ top honors.

Bugbee was one of just 14 scientists honored as Fellows of the American Society of Agronomy at the society’s annual conference in November, and Jones is one of 12 who will be awarded the title during the Soil Science Society of America’s conference in January.

“Being named fellow in our professional societies is among the highest honors for our faculty,” said Professor Paul Johnson, head of USU’s Department of Plants, Soils and Climate. “It says loudly that Bruce and Scott are among the best in their disciplines.”

Bugbee teaches plant nutrition, environmental instrumentation, and plant physiology. His research focuses on growing crops in controlled environments, such as green houses and growth chambers with artificial light, soilless media, and controlled climate. It includes work with NASA on problems of plant production aboard spacecrafts and to sustain longer-term human exploration of space. He is an author of more than 340 articles in scientific journals, 12 books or book chapters, and has given a number of invited talks at professional meetings and at other universities. He gave a USU TEDx event talk titled, Turning Water into Food, which can be viewed at https://tinyurl.com/BugbeeTEDx.

Jones is a soils scientist, focused on environmental soil physics. His research focuses on growing crops in controlled environments, such as green houses and growth chambers with artificial light, soilless media, and controlled climate. It includes work with NASA on problems of plant production aboard spacecrafts and to sustain longer-term human exploration of space. He is an author of more than 340 articles in scientific journals, 12 books or book chapters, and has given a number of invited talks at professional meetings and at other universities. He gave a USU TEDx event talk titled, Turning Water into Food, which can be viewed at https://tinyurl.com/BugbeeTEDx.

Jones was recently named director of USU’s new International Partnership in Agriculture, Climate and Environment (iPACE) program that will help develop collaborations among faculty members at USU and several research universities in Taiwan.

In July, the dairy industry came together to celebrate National Ice Cream month. Through a campaign called “Scoop it Forward,” the goal was simple: surprise people with “a random act of ice cream - just because - and encourage recipients to do the same.” Dairy West partnered with Aggie Ice Cream to bring the concept to Logan. Bringing smiles to patrons by offering them a free scoop was a fun and engaging way to give back to the community of ice cream lovers. Local dairy farmers handed out coupons, and a photo booth and visiting dairy calf helped bring #scoopitforward to life online. Watch for next year’s event.

Learn more about Dairy West at their website: dairywest.com.
You may know a child or adult who benefits from therapy for shyness, anxiety, autism, learning delays, or physical challenges. The College of Agriculture and Applied Sciences’ equine therapy programs are moving some therapy sessions from the doctor’s office to the horse barn, helping clients now while also preparing USU students to build careers that blend their love of horses with helping and healing people.

Judy Smith, assistant professor of equine assisted activities and therapy (EAAT) said “Horses have innate qualities that make them unique therapeutic partners and we use these characteristics to benefit people who face special challenges in life.”

Both the therapies and activities facets of the program require a balance of understanding horses and people.

“Equine therapies serve a wide variety of people, and it’s not enough to just be a really good horseman,” Smith said. “We prepare students to become equine specialists who will work with licensed mental health professionals to address clients’ mental and behavioral issues. In the case of hippotherapy, specialists work with a physical therapist or speech therapist to focus on the movement of the horse and the therapeutic results of riding.”

The minor in EAAT appeals to students exploring many majors and careers in psychology, counseling, social work, physical therapy, and occupational therapy. The activities segments of the program help teachers enhance their students’ learning experiences with horses, such as in the Reading Corral program that takes horses to schools and libraries. Smith said Reading Corral is the beginning of what will become a larger literacy project; a larger project with smaller horses. Two miniature horses are being trained and will join the Reading Corral program once they are certified as therapy animals.

“Studies show that the presence of animals can be calming and they reduce people’s stress level, and help develop focus,” Smith explained. “Our miniatures can go into places that our bigger therapy horses cannot. Also, because of their smaller size, they are not as intimidating to small children.”

The Reading Corral was a highlight of the North Logan Library’s 2018 summer reading program as Sherrie Petty in USU’s EAAT program worked with children sharing books and activities that included therapy horses. She pointed out that research shows including an animal in this sort of activity lowers people’s cortisol levels, reduces the heart rate, and puts them in a state that prepares them to learn.

Another program, Ride-Ability, brings children to USU’s equine facilities at the Animal Science Farm in Wellsville.

“Ride-Ability is an adaptive riding program that focuses not on limitations, but rather on what’s possible,” Smith said. “We encourage our riders to explore what they believe they are capable of and challenge them to go beyond.”

Smith, and other USU equine therapy experts and volunteers, focus on building each rider’s independence and confidence. Happily, those improvements often begin to happen in the first lesson. Many children in the program need to work on focus and may, for example, be given an assignment to guide a horse to different buckets containing colored objects and retrieve some of them. Each assignment must be completed in steps in a specific sequence and participants must communicate to instructors.
A new barn is under construction at USU’s Equine Center to better serve growing programs and provide more equine experiences for students in the School of Veterinary Medicine. The new barn will have 51 stalls, three tack rooms, two wash bays, open areas for saddling horses and student lab activities, and spaces for ferriers to trim hooves and shoe horses.
Although Randy Parker’s office in Salt Lake City is less than 40 miles from where he grew up, his career has taken him places he never imagined when he was younger and tending to sheep and cattle on his family’s ranch. His presidential appointment as State Director of Utah for the United States Department of Agriculture Rural Development, is not a position the young Parker would have aspired to because, like most farm kids, he didn’t realize what a big role politics plays in agriculture. And while Parker’s career path has immersed him in agricultural politics and taken him to more than 25 countries, his heart and focus have always been close to home with Utah farmers and ranchers, who he refers to as “the most wonderful people in the world.”

Parker’s parents taught him to work hard and a lot about livestock genetics, especially of their registered “Parker’s Suffolks” sheep. They were supportive of their children getting good educations, but there was no example in his family of what it is like to be a college student.

“It was my vocational agriculture teacher at Pleasant Grove High School, Wayne Cornaby, who said he thought I could do well in college,” Parker recalled. “He was friends with my parents and I was an FFA officer so he became an important mentor to me. He is the one who gave me the push to go to college, the one who made me believe I could do it.”

Parker came to USU—like most freshmen—not knowing exactly what he wanted to study. Eventually, agribusiness and economics seemed like a good fit. He earned his bachelor’s degree in agribusiness and stayed to do research that became his master’s degree thesis, analyzing the impacts of estate and inheritance taxes on farms and ranches. Parker credits his graduate training as an economist with giving him the tools to analyze farm policy and business regulations’ impacts on people in agriculture and the credibility to work on their behalf.

A CAREER IN UTAH AGRICULTURE

His career began with a short stop at Utah Department of Agriculture and Food (UDAF) as information and research supervisor before moving to the Utah Farmers Union and his introduction to agricultural politics. Returning to UDAF as marketing director, he opened new markets nationally and internationally for Utah products. Backed by his wife Shelly’s support at home with their young family, Parker traveled extensively to promote high-value, Utah-produced foods as well as the state’s outstanding sheep, beef, and dairy cattle genetics. They weren’t all simple transactions, even when he connected with potential buyers who were anxious to sell what Utah offered. A notable example was when a high-end retailer in Hong Kong wanted to sell shelf-stable, Ultra High Temperature (UHT) “box” milk produced by Gossner Foods in Logan.

“By their law, anything added to milk was considered an adulteration,” Parker said. “When the temperature is raised to produce UHT milk, it reduces vitamins A and B so Gossners adds those vitamins back into the milk, making it vitamin fortified. The government considered that an adulteration of the milk and wouldn’t allow it to be imported.”
The process of getting Utah UHT milk into the Hong Kong and China markets eventually took Parker, Gossners, and others 3 years of negotiating.

Part of Parker’s efforts to market Utah products coincided with Salt Lake City hosting the Winter Olympic Games. Utah was on a world stage, and the UDAF capitalized on the attention with trade shows in many countries where demand for high-quality food products paired with people’s interest in the beautiful Utah mountain valleys they had seen on TV.

Parker became deeply involved in politics as a member and then president of the North American Agricultural Marketing Of- ficials, a trade group representing agriculture and food in the United States, Canada, and Mexico, and participated in negoti- ating agricultural trade agreements.

When fellow USU alumnus Booth Wallentine retired after nearly 40 years of leading the Utah Farm Bureau (UFB), Park er was hired as the organization’s CEO. During the 13 years he was head of the UFB, Parker’s familiarity with issues that are critical to Utah agriculture led to his being invited five times to testify before congress- sional committees on subjects of public lands management, livestock grazing, and state water sovereignty. He helped draft legislation and amend regulations hurting agriculture and rural Utah. His economic analysis of proposed power rate increases on Utah irrigation pumpers was critical in maintaining an equitable rate structure.

Parker is also a founding member of the Utah Agricultural Products Barbe- cue organizing committee, which he still co-chairs. The barbecue, made possible by food donations and contributions from Utah producers and agribusinesses, has become the College of Agriculture and Applied Sciences’ main annual scholarship fundraising event.

In November 2017, Parker was named state director of USDA Rural Development, overseeing more than 50 programs, 39 em- ployees across the state, and a budget of nearly $500 million focused on problems critical to Utah agriculture, led to his being invited five times to testify before congressional committees on subjects of public lands management, livestock grazing, and state water sovereignty. He helped draft legislation and amend regulations hurting agriculture and rural Utah. His economic analysis of proposed power rate increases on Utah irrigation pumpers was critical in maintaining an equitable rate structure.

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“Opioids hit home. All state directors are asked to serve on teams or committees focused on topics USDA is working to address. Parker con- sidered volunteering to work on something “easy” and familiar like water or energy is- sues, but decided opioid misuse would be where he could make an important difference in Utah. Last year, the state ranked 7th nationally for opioid-related mortality, and Carbon ranked the 5th hardest hit county in the nation.

“We tend to think of drug misuse in big cities, but it has transitioned,” Parker said. “Counties differ, but people in rural communities generally rely on agriculture, mining, and energy sector jobs. They are hard-working people and when they get injured they don’t sit out for long recover- ies. And because they are often far from health care services they may get a pre- scription for 30 days of opioid pain med- icine. These people generally do what the doctor directs them to do and think they should finish the pills, and before 30 days are up, many people have become addicted...People also feel isolated and pride keeps them from telling anyone they have become dependent on a drug.”

Utah, and the rest of the country, have a long way to go in addressing the opioid crisis. But Parker is pleased that critical partnerships with state leaders including Attorney General Sean Reyes, and a number of events to evaluate local opioid-related problems have produced measurable progress in the past year. Drug addiction and its attendant problems are not what Parker expected to be working on, but he is energized about helping rural communities identify problems and offering resources to help remedy them. For example, East Carbon City needed an ambulance equipped to handle opioid overdose patients on-site and to transport them to a hospital.

“We were able to help them get a $100,000 grant to secure that ambulance,” he said. “At Four Corners Regional Behavioral Mental Health, a big problem was that people with substance abuse problems often lose their driver’s license and can’t drive to treatment appointments. We were able to help with a grant for vehicles, a detox center, and ‘sober living’ transitional housing.”
Mastering Human & Animal Public Health

BY DENNIS HINKAMP

USU master of public health student Anja Wutz (third from the left) with the premed, medical, and public health students who worked with Associate Medical Director, Dr. Maame Yaa Nyarko at Princess Marie Louise Children’s Hospital in Accra, Ghana.
though there are many Master of Public Health (MPH) programs across the country, the College of Agriculture and Applied Sciences’ MPH is one of the first to be offered completely online and to include a veterinary medicine track. The program incorporates two of the college’s strengths: veterinary medicine, and dietetics and nutrition.

According to Ron Munger, a professor in the Department of Nutrition, Dietetics and Food Sciences, public health degree programs broke out from medical schools about 100 years ago. It’s only in the last 10 years that land-grant universities have become involved. Some have described the movement as bridging the chasm between agriculture and public health. An example of this is the concept called One Health, which recognizes that human, animal and environmental health are all connected and unites medicine with agriculture, ecology, and environmental sciences. One Health also promotes community engagement on topics such as diabetes prevention and food security on a global scale.

“We hope to attract students with diverse backgrounds and get people out of their academic silos. They might be interested in politics or human rights in addition to veterinary medicine and nutritional sciences. Our MPH includes courses on public policy along with quantitative science and core classes in nutrition.” - RON MUNGER

GLOBAL HEALTH

One of Utah State University’s first MPH graduates will be Anja Wutz, who earned her bachelor’s degree in health promotion at Weber State University. She has an interest in nutrition and health on a global scale and lined up a practicum in Ghana on her own after also volunteering with the Weber County Health Department.

Wutz was attracted to the MPH public health nutrition track because she knew USU had strong agriculture and dietetics programs. She said she also was interested in global nutrition issues and that Ron Munger has a lot of experience in that area.

“I was looking for a resource-constrained environment.” Wutz says. “Though it is not part of the MPH, I was able to find an internship through Child Family Health International. I spent 6 weeks in Accra, Ghana. The children’s hospital where I and nine other students volunteered was primitive even by poverty standards in the U.S. There were not enough beds, no toilet paper in the bathrooms, no computers and none of the diagnostic equipment that we are used to seeing in any hospital here. They had an X-ray machine but it was broken while I was there. So nothing here could prepare me for that.”

On a typical day, Wutz worked in the nutrition rehabilitation ward of a children’s hospital with babies suffering from severe malnutrition, often related to diarrhea. Their malnutrition was also related to yellow fever, typhoid fever, and malaria. The water is not safe to drink and food is often unclean. Wutz also helped educate mothers in an outpatient clinic monitoring their baby’s health progress. On Sundays she helped with a vaccination clinic, walking the streets with a public health nurse administering vaccines on the spot.

Wutz is on track to graduate in the spring of 2019 and is considering a Ph.D. in nutritional neuroscience, but says she might take a gap year and try to line up another practicum.

ANIMAL HEALTH

Jane Kelly, veterinary diagnostician and a member of the faculty in USU’s School of Veterinary Medicine, said veterinarians who receive an MPH degree increase their qualifications to become board certified in veterinary preventive medicine as well as seek employment opportunities in local, state, and federal agricultural and environmental agencies such as the Centers for Disease Control and Prevention or a state’s department of agriculture.

Emerging infectious diseases (EIDs) are a huge burden on global economies and public health, Kelly says. Of particular concern, 60 percent of EIDs are zoonotic (animal diseases communicable to humans). Of the 60 percent that are zoonotic, 72 percent originate in wildlife. This emphasizes the important role that veterinarians play in public health. Examples of zoonotic EIDs include SARS (severe, acute respiratory syndrome), West Nile virus, and Ebola virus. Kelly earned her MPH degree after 25 years of being a veterinarian. The course introduced her to areas of study such as epidemiology, ecology, and food safety.

Since USU has a network of branch campuses across the state, students have the option of taking some of their classes in person, Kelly said.

“We also hope we can develop local practicums near these campuses,” Kelly said. “Students at distance education campuses may also be able to find local practicum experiences. Being online and self-paced addresses the needs of early and mid-career professionals who want an additional degree.”

Doug Winters lives in Salt Lake City and does not fit the mold of a new student or mid-career professional. Winters might best be described as post-career. At age 72 with a long career as a microbiologist, he says he was attracted to the program out of intellectual curiosity.

Winters served 39 years in the U.S. Army and as a reservist. He served in Germany, Washington D.C., and at Utah’s Dugway Proving Grounds as a laboratory animal veterinarian. Although he describes himself as “technically retired,” he teaches biology at Salt Lake Community College and occasionally fills in at the Hill Air Force Base veterinary clinic in addition to working toward his MPH degree.

“It’s just something I wanted to do,” he says. “The only surprise was that I had to take a statistics class. Even though I have had a long successful career with 80 scientific publications to my credit, I always had someone else do the statistical analysis. I was told I couldn’t get out of it this time.”
In late September, the plaza adjacent to the Albrecht Agricultural Sciences Building gained a new tree that stands as a memorial to Frank M. DeLeon Compres, who died July 18, 2016, in a plane crash during a solo flight in Cache Valley.

His family, several friends, and faculty and students in USU’s aviation technology program honored him by recalling the infectious joy and energy Compres brought to everything he did. Aviation faculty member Randy Chesley referred to the “Frank smile” that could lift up those around him who were feeling down.

“July 18 has never been the same for me,” Chesley said. “I’ll always remember a young man who thought and cared more about others than he did about himself.”

Assistant Professor Andreas Wesemann said Compres left a legacy in the aviation program because faculty there will always remember him and his love of flying. Weseman recalled being at breakfast on campus one morning with students—primarily high school students—who were participating in a summer aviation course and Frank stopping by to meet them.

“I remember him coming by to meet the students and to talk about flying,” he said. “And Frank would always say, ‘I can see who got to fly yesterday because they are still smiling.’”

His mother, Maria, has been presented with the diploma for Frank’s bachelor’s degree with magna cum laude honors in aviation technology. She told of how members of his family visited the relatively remote site of the crash a year ago to plant a tree there.

They were careful to get advice on what kind of tree to plant and how to plant it, but it did not thrive and eventually died.

“Now this tree will be here, where Frank was,” she said. “It will be where he grew as a young man. Where he loved people. It makes sense for the tree memorializing his life to be in the midst of the life on campus.”
Vern Jensen Budge grew up in rural Idaho, doing his part in the family bee-keeping business: an undertaking that requires focusing as much attention on natural surroundings as on the bees themselves.

“I was working outside all the time,” he says. “That’s probably where I got my attraction to landscapes.”

After high school graduation, Budge left Malad to attend Snow College where he played football for 2 years before serving an LDS mission in what was then called the Western States Mission. He enrolled in engineering at Utah State University, but transferred to landscape architecture, graduating in 1965. Graduate school took Budge away from the familiar landscapes of the West to the University of Illinois Urbana-Champaign, where he earned his master’s degree in urban planning and architecture in 1968. Later that year, he returned to USU as a part-time instructor and was eventually offered a full-time faculty position. He invested the next 35 years in the department and its students, and retired in 2003.

Budge recalls the 1970s as a period of rapid change in landscape architecture—the department and the profession—as greater environmental awareness took hold, fueled by the publishing of Rachel Carson’s Silent Spring. The advent of computers becoming more accessible, and then ubiquitous, helped drive a shift from site planning to large-scale environmental planning. The department attracted students from all over the United States and Canada. As years went by, enrollment in the department trended toward more in-state students, but the accreditation of a master’s degree in landscape architecture drew more national and international students who brought a wide range of experiences and aesthetic sensibilities to the creative and collaborative program.

Budge recalls the early years of the department, when it was housed in USU’s Mechanical Arts Building (demolished in 1984). It was situated on a beautiful site south of Old Main, but the building itself was falling apart.

“So they didn’t much care what we did with it,” Budge says. “Some students painted the walls whatever color they wanted and others enjoyed repeatedly throwing a javelin into one of the decaying walls. We enjoyed being on that corner of the campus and having a view across the Quad. There were a lot of activities on the Quad, and we had a lot of football games after class out there. In fact, we as a faculty liked to join in. It was a lot of fun. We had a good time with the students and enjoyed being with them. The faculty wasn’t that much older than the student body at that time.”

“We were in the classroom with our students for 4 years—sitting next to them and visiting with them, working with them, and going on trips with them. △
A highlight of College of Agriculture and Applied Sciences Week is the annual Awards and Honors Banquet. The evening brings together students with scholarship donors and highlights a number of student, faculty and alumni achievements.

This year’s award for Distinguished Service to the college went to an alumna of Landscape Architecture and Environmental Planning (LAEP), Jan Striefel, a founding principal and president of Landmark Design. Striefel has broken boundaries as the first woman to be named a Fellow of the American Society of Landscape Architects. She provided the largest gift in LAEP’s history to establish an endowment for student scholarships. She is a member of the department’s Distinguished Alumni Council, has been a member of the LAEP Advancement Board for 16 years, and currently serves as co-chair of the board.

Videos about each award winner may be viewed online at CAAS.usu.edu/awards/.

Niranjan Gandhi, who pioneered work on enzyme-modified cheese, dairy flavors, fermentation-derived flavors, and bio-products, and was a long-time supporter of CAAS scholarships in food science, died last June in Ozaunkee, Wisconsin.

He came to Logan from India to earn his doctoral degree at Utah State University, graduating in 1972. He and his wife, Josephine, launched their first company in 1979, which was later acquired by International Flavors and Fragrances, Inc. Their second company, Jeneil Biotech, Inc., remains family-held and operates throughout the world. Gandhi received the Presidential Green Chemistry Award from the U.S. Environmental Protection Agency in 2004 and was inducted into the CAAS Alumni Hall of Honor that same year. In 2005, he received an honorary doctorate from USU.

“The Department of Nutrition, Dietetics and Food Sciences is most grateful for the generosity of Dr. Niranjan R. Gandhi and Mrs. Josephine N. Gandhi in establishing an endowment to assist future generations of students,” said Department Head Charles Carpenter. “They established the award to recognize and pass forward the teaching and encouragement Dr. Gandhi received while a student in the department under the mentorship of Dr. Carl Anthon Ernstrom and Dr. Gary Haight Richardson. To date, the Gandhi Endowment has funded over $500,000 in scholarships and assistantships for more than 30 students to encourage their studies and future success. That is clearly a great legacy of passing forward!”
Don Olsen, who died in Salt Lake City on August 5, 2018, was a trailblazer who created new paths for doctors treating cardiac patients and was the first scientist in the world to successfully implant an artificial organ into a calf. After placing nearly 3,000 hearts into calves and sheep, Olsen was a part of the 1982 history-making team that implanted the first artificial heart in a human. In Olsen’s book, True Valor, the CAAS alum said of this experience, “It was, of course, the highlight of my career. For me—a veterinarian—to be invited by the main surgeons to assist in implanting an artificial heart in a human patient was an unprecedented and rewarding experience.”

The path to Olsen’s remarkable career, and being named a “Living Legend” by the World Society of Cardio-Thoracic Surgeons, began with bachelor’s degrees in animal nutrition and chemistry from Utah State University. He went on to earn his DVM from Colorado State University, and a doctoral degree from the University of Colorado School of Medicine. He and his wife, Joyce, traveled the world as he trained 23 teams of surgeons on the implantation of the artificial heart. He reluctantly retired from his position as director of the Utah Artificial Heart Institute at age 82.

The Olsens have funded numerous scholarships across the state, including support for students in CAAS and USU’s School of Veterinary Medicine. In his book, Olsen reflected on his education, saying, “I never forgot that my ability to go to college after I graduated from a small, rural high school in Utah relied on a scholarship. It allowed me to go to USU and was the foundation for everything that happened afterward.”

“Western AgCredit is committed to the future of agriculture. One way Western Ag Credit invests in agriculture’s continued success is through sponsoring scholarships. At Utah State, we contribute to the Utah Agricultural Products Barbecue scholarship fund, provide scholarships for the Farm Credit Fellows program, and give to the Alumni Scholarship as well as offer scholarships for students studying ag business or production agriculture.”

“It is our vision that by providing financial support to veterinary students, they will realize their goal of becoming veterinarians and will one day give back to the next generation.”

“The efforts are all aimed at educating the next generation of agriculture leaders, both on and off the farm.”
During my recent interviews to serve in an administrative role for the College of Agriculture and Applied Sciences, I was asked by more than one person, “How did you get your start in scientific research?” I suppose that part of my answer rests in the science TV shows I remember watching as a kid with my dad (anyone remember 3-2-1 Contact?), or that influential science teacher from high school (thank you Ms. Mildred Ketron!). Yet, my passion for research – the research bug as I often call it – was spawned while I was an undergraduate student at the University of Tennessee, Knoxville. I was fortunate to be a student in the biology program at the same time that Professor Neil Greenberg launched the Threshold Scholars Program. In this program, promising young undergraduate science students on the threshold of their professional careers engaged in an intensive mentoring program and performed individual research projects. That hands-on experience was indeed infectious. I caught that research bug.

I learned how to fractionate liver samples to get the genetic material from the nucleus, to use radioactive isotopes to tag specific pieces of DNA, and to use a technique called electrophoresis to separate out specific proteins that were stuck to those DNA fragments. Yes, it was all highly technical – and I loved it. I loved every frustrating failed attempt, because when the method eventually worked, I could proudly show my result to my mentor, who seemed more pleased by my thrill of accomplishment than the result itself. I learned much about the scientific topic I was given to explore, but so much more about resilience and persevering through challenges, about how to see my way around roadblocks and find creative ways to solve problems. See, it is those life skills that make engaging in research so very much worth the time and effort for our students. These are the kinds of opportunities available to students at a high research capacity, public land-grant university, like USU.

Through a research experience in CAAS, our students cultivate lasting relationships with our outstanding faculty, who are among the best and brightest thinkers working to solve agricultural challenges for our community, state, nation, and the world. Our students can engage in research in the laboratory, on the farm, in the field, in the research kitchen, in the veterinary clinic, at a community park, in a home garden, in a middle school, in a greenhouse – the possibilities truly are endless. Our students can apply what they learn from their course work in these settings, and through research gain highly valuable and marketable skills to propel them on a fast track...
toward job placement and career success. The college journey can be so wonderfully enriched through research, through those immensely gratifying moments when a student finds an answer or solves a problem that pushes the field forward.

Discovery happens here. At Utah State, we have the second oldest undergraduate research program in the United States, and undergraduates from our college are leading the way. To highlight a few: This year, Boston Swan was selected to present her research about the effects of different colors of light on plant growth at the Research on Capitol Hill event during the 2018 Utah legislative session. Boston’s work contributes to findings in Professor Bruce Bugbee’s laboratory that impact food producers involved in vertical farming, with an ultimate goal to develop methods for food production in space. A member of the Navajo Nation and a non-traditional USU undergraduate, Benson Ambrose, became interested in research as part of the Summer Undergraduate Agricultural Biotechnology Research Experience program in the Department of Animal, Dairy and Veterinary Sciences. Benson has worked with his mentor, Professor Dirk Vanderwaal, to study how controlling certain hormones can improve the performance of mares in competition. This year’s CAAS Undergraduate Scholar of the Year, Michaela Brubaker, and the Undergraduate Researcher of the Year, Liz Park, are working in my lab on a project to understand how a Western-type dietary pattern impacts gut inflammation and risk of colorectal cancer via changes in the gut microbiome and to identify foods that may help mitigate this risk.

Yes, discovery happens here! Solutions happen here! And our students are working on the front lines helping USU research faculty find answers to today’s most pressing problems and exciting challenges. 

Abby Benninghoff is CAAS associate dean for research and graduate student services and is a past recipient of the CAAS Mentor of the Year Award and USU’s Outstanding Graduate Mentor of the Year Award.
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