



PSPP - Plant Science Says

June, 2019

Promotion and Tenure

Chaofu Lu and Rebekah VanWieren recently completed the Promotion and Tenure process. Rebekah was granted promotion to Associate Professor with Tenure and Chaofu was awarded promotion to Professor. Congratulations to both of you!

Right: Chaofu Lu and Rebecca VanWieren, Below: Jinling Kang, Chaofu Lu, Associate Dean Tracy Dougher, Brent Rosso (COB), Rebecca VanWieren, Dean Sreekala Bajwa, Rob Payn (LRES), Lisa Rew (LRES), Jeremy Gay (L&S), PSPP Dept. Head Michael Giroux, and LRES Dept. Head Tracy Sterling.



Skipping winter: A Fulbright Journey in South Australia

By Mary Burrows, Professor

From January to April, I had the opportunity to visit the South Australia Research and Development Institute (SARDI) in Urrbrae, South Australia. This work was funded by a Fulbright Senior Scholar Award. I worked with Jenny Davidson, Rohan Kimber, and a whole host of others. My core project was to learn R (catch up with my students) by developing a series of dashboards in Rmarkdown to display spore trapping data from locations in South Australia over 6 years. First I had to organize the data, which reminded me a lot of my PhD. It was summer there, and very dry, so I didn't get to the field too much other than to run the mobile spore trap through vineyard areas to monitor for fungicide resistant powdery mildew. I did have the opportunity to attend several meetings including the Grains Research and Development Corporation, the main funding body for agricultural research in Australia. I also attended a meeting of all the pulse crop breeders and pathologists in Australia. There were a number of opportunities for information exchange, similar to our system in the U.S. I also visited the Australian Precision Agriculture Laboratory, Australia's leading independent agricultural laboratory, and Australian Grain Technologies, Australia's largest plant breeding company. The agronomists and breeders in PSPP would be jealous of their robots and fleet of semi-automated (and air conditioned) planters and harvesters.

A requirement of the Fulbright Program is for all U.S. and Australian Scholars to attend a two day event together. This year's meeting was held in Canberra, the country's capital. This was the 70th anniversary of Fulbright, and Australia had its largest cohort ever this year. This year's scholar profiles can be found at <https://www.fulbright.org.au/current-scholars/>. There will be 50 more next year thanks to a private donor, so it is a good program to apply for. They provide fellowships at all career levels from student to Distinguished



A robot organizing seeds in containers for small plots, Australian Grain Technologies.



Trapping spores off of canola stubble with Marzena Krysinska-Kaczmarek.



Heading out to monitor for fungicide resistant powdery mildew with the mobile Jet Sampler.



This year's cohort of Australian and American Fulbright Scholars.



Abi's dream come true, holding a koala!

Right: An Aboriginal Elder performing the Welcome to Country ceremony, Stirling, South Australia.



Chairs. At the National Press Club, we had a member of the first Fulbright cohort speak to us. Our gala dinner was at Parliament House, and was extremely well attended by a whole host of sponsors and supporters of Fulbright. At the start of every meeting in Australia is a 'Welcome to Country/Acknowledgement of Country.' This is a short recognition of the native Aboriginal landowners. Aboriginal elders can lead the Welcome to Country ceremony, while Acknowledgement of Country is performed by non-Aboriginals. And yes, there is an app for that – apps help identify the original owners of the land where the event is taking place.

My family was able to come to Australia with me, and the girls spent a quarter at Crafers Primary School, right across the street from our rented cottage. The family owning the property was very nice, and had kids the same age, so we fit right in and the kids were either at the pool or running around the gardens most of the time. The girls enjoyed the animals, the beach, and all the school-sponsored clubs. Both took up an instrument and started knitting. They were very sad to leave, and I had to repeatedly explain to them that we were legally obligated to leave (despite the sobbing). Both have school exchange plans with friends, and we will keep in touch with them. My husband has already proposed going to the Tour Down Under next January. He rode the century with the local group this year on the same course as the professionals.

My time as a Fulbright scholar was extremely rewarding both professionally and personally. I'd encourage anyone to apply, and would be happy to help orient and review applications. There are a number of alumni on campus and there are occasionally events on campus to learn about the process. Fulbright also hosts frequent webinars. In the end, I probably didn't accomplish as much work-wise as I wanted to, but I did accomplish what I promised to do. The time away from normal duties was certainly valuable to help complete my other sabbatical project, the Compendium of Pea Diseases, for APS press. I extended my

professional network, made some new friends, and my family had a great time without the normal distractions of American living. It was a great experience and I'd recommend it to anyone.

Third Meeting of the International Legume Society

By Kevin McPhee

Jake Tracy and Kevin McPhee attended the 3rd Meeting of the International Legume Society (ILS3) in Poznan, Poland from May 21 through May 24, 2019. This organization represents and comprises the legume research community internationally. The meetings are held each third year and the location moves based on the willingness of a local organizing committee. Nearly 200 scientists from 40 countries attended the meeting in Poznan. ILS3 included 56 oral talks across eight sessions covering topics in genetics, genomics, end-use quality, stress management, and agronomy. Each session had a plenary speaker and six supporting talks and posters. Jake presented his research as part of the session, Biotic and Abiotic Stresses in Legumes. The Gala dinner featured traditional fare from Poland and a group of dancers demonstrating traditional dances from across Poland. The contributions of three prominent scientists were recognized with the presentation of Honorary Membership certificates. One of the traditions of the meeting is to have 'friendly' soccer matches. There were four teams assembled and the team Kevin and Jake (scored 2 goals in the semi-final) were on played two tough matches and lost the final 1-0. This tradition allows for comradery outside of science and has been a great chance to meet and get to know colleagues on a more personal level. The next meeting, ILS4, will be held in Granada, Spain in late October 2022.

Presentations at the meeting covered several legume species including lupine, pea, lentil, chickpea, soybean, dry bean, faba bean, adzuki bean, alfalfa, grass pea, mung bean and peanut. The areas of research ranged from discovery of molecular markers for



Traditional dancers from Poland.



Jake Tracy, graduate student, describing his poster to Juan Osorno from North Dakota State University.

traits and a report on the pea genome to molecular bases for establishment of nodules formed by symbiotic rhizobia and intercropping. Dr. Rajeev Varshney from ICRISAT in India reported on the application of molecular markers for the genetic improvement of chickpea and how this technology is being transferred to other orphan legumes. Dr. Valentina Caracuta from University of Montpellier in France and winner of the best presentation award presented a unique perspective on the origin and distribution of faba bean based on archeological records. Dr. M.B. Singh from the University of Melbourne in Australia reported on the discovery and role of long non-coding RNAs in controlling gene expression in soybean. Dr. Tom Warkentin from the University of Saskatchewan in Canada reported on latest development in biofortification in pea. There were many other very interesting talks and poster presentations that highlighted the importance of legume crops in agriculture around the world.

Idaho-Montana American Society of Landscape Architects Conference By Rebekah VanWieren, Associate Professor

I, along with five undergraduates majoring in landscape design (many of whom are also environmental horticulture minors) attended the biennial conference for professional landscape architects practicing in Montana and Idaho. The conference was held in downtown Boise, providing a great location for field tours of local work. The society's board, landscape architecture faculty from University of Idaho, and myself organized an inaugural student poster session and portfolio competition. This offered a valuable opportunity for students to interact with professionals and prepare their design and coursework for public display. Conference attendees also voted on which program as a whole had the best posters and MSU won! This is especially exciting since we were also up against some of University of Idaho's master's students. Congratulations to Johnny Dohner, MSU landscape design major, who won the portfolio competition award! Below are a few comments from students on what they took away from the conference.

"Several presenters discussed how landscape architecture is not a well-known profession, which is why it is essential to collaborate with multi-disciplinary teams, volunteer within your community to spread the word, or get involved in policy making opportunities and politics to advocate for the field. The art and design of connecting



Esben Fiske, Tara Caplis, Julia Arnes, Johnny Dohner, and Rylie Hunt with their posters.



Field session at Idaho Botanical Gardens – highlights included the fire wise, Plant Select, waterwise, Lewis and Clark, and English gardens.

"The conference was very interesting and worthwhile. I really valued the lectures. It was great to hear about the time, work, and research that went into the built projects."

"Hearing presentations and the passion that the landscape architect professionals had in their profession excited me. Many of the professionals have been working in the field for 20+ years and still seem to love their work, and that gives me hope. Shaking hands and making connections with professionals was really great!"

**The Gallatin Valley Farm Fair
By David Wheeler, Assistant Professor**

What happens when you combine 1,200 fourth graders with farm animals, plants, pollinators, scientists, and hamburgers? The Gallatin Valley Farm Fair!

and creating physical connections in a space is essential to everyday life - this is why Landscape Architecture is so important."

"I found it very valuable to go to this conference and meet other professors and students that are part of the ID-MT ASLA Chapter. I also thought it was awesome to have exhibitors there so we could see landscape design-related products first hand and learn from talking with the vendor representatives. This conference also gave us many opportunities to invite people to present at MSU to our students."

Every year, for the past 15 years, bus loads of fourth graders from across the Gallatin Valley flock to a farm in Belgrade to learn about agriculture. For some students this is the first time they have visited a farm. For others, this is just another day on the farm. The result is a mix of excitement from those ready to learn and those ready to show-off their agricultural knowledge.

Over the course of three days, scientists, farmers, ranchers, and foresters tend sixteen tents on the farm fair grounds. Throughout the day, groups of fourth graders come and go, from tent to tent.

The goal of the tent tenders is to capture the attention of the students and convince them that their subject is important. This is easier said than done.

Imagine a bunch of 10 year olds released from the confines of a classroom. Some of them just want to celebrate by playing footsie or sticking grass in the hood of the person in front of them. With the help of their teachers, our goal was to teach them about agriculture. Each tent uses a different method. Everything from baby goats to loud voices are used to focus the attention of the fourth graders on the subject of the tent.

From the Plant Sciences and Plant Pathology Department, several important subjects were represented. Nina Zidack and her team (Anna Jespersen, Becky Evans, Eileen Carpenter, Alice Pilgeram, Brian Ross and Steve Hystad) tended the potato tent, where fourth graders grubbed for tubers and learned about seed potatoes in Montana. Across the farm was Michelle Flenniken's team of beekeepers (Katie Daughenbaugh, Alex McMenamin, Brian Ross, Laurie Kerzicnik, Fenali Parekh, Denise Wiedenheft, Daniel Branch, and Cayley Faurot-Daniels). They used a live display hive plus some engaging props to educate the students about honey bees. Jim Berg was a one man show for the wheat tent. He used his years of practice and endurance to teach the students about wheat and the products we use therefrom. Lastly, the food crops tent was tended by David Wheeler, Sophie McLean, Larry Holzworth, Mary Burrows, and Burcu Alptekin. We used live plants, pretty pictures, seed, food, the Socratic method, and math to engage the students. All in all, we think the students left the fair informed about food and where it comes from.

Fast forward three days and 1,200 fourth graders later. We were mostly physically exhausted but mentally reinvigorated by the enthusiasm and interest of the fourth graders. We look forward to next year. Lastly, if you find yourself in May of 2020 full of energy, excitement, and wanting to hold

some baby goats, get in touch with one of the tent coordinators. We need your help!

See last page for photos of the Gallatin Valley Farm Fair.

Pollinator Garden Volunteer Days **By Michelle Flenniken, Assistant Professor**

MSU's Honey Bee Research Site and Pollinator Garden remaining upcoming volunteer days are set for Wednesday, June 19th from 1 – 5 pm and Monday, July 15th from 8 - 11 am at the Horticulture Farm. Please email Michelle for more information – or just show up!
michelle.flenniken@montana.edu.

Montana Ag Live Spring Schedule

June 2 - Christy Clark, Montana Department of Agriculture, "The role of the Montana Department of Agriculture in agricultural entrepreneurship".

June 9 - Meta Newhouse, MSU, "MSU's role in developing educational programs designed to encourage entrepreneurship in agriculture".

New Employees

Heather Ireland - Accounting Analyst



I recently moved to Bozeman from East Helena. Born and raised in East Helena, I left for the East Coast after my freshman year at MSU. I lived on the East Coast up until 2005 when I decided to return to

Montana to raise my children. Before joining the staff at MSU, I worked as the Assistant to the Associate Dean for Helena College for six years and as an accountant/office manager for Boilermakers Local 11 for the past eight years.

Giving back to the community is a priority for me and I have been able to do that

through being a member of the East Helena School Board Infrastructure Committee, being a key player in the High School Initiative working with state legislators to allow for local control and working closely with Blue Cross/Blue Shield and community leaders to raise funds for a new playground at Main Street Park in East Helena. Especially rewarding were the years I spent leading the East Helena Suicide Awareness and Prevention Coalition.

While community service projects and volunteerism bring me joy, my greatest source of joy is spending time exploring Montana with my wife, three kids and our two dogs.

Abigail Lake - MFSP (Doug Holen)



Hello! My name is Abby Lake and I recently graduated from MSU with degrees in Literature and Philosophy. I grew up in Lake County on the Lake Seed, Inc. farm, experiencing first-hand the perpetually innovative and precision-demanding nature of contemporary agriculture. I have been working for the Montana Foundation Seed Program with Doug Holen since February of 2017 and after graduation moved to a full-time position in the program. Working with Doug has enlivened the details of the processes in which I grew up, and I am grateful to be a part of the diverse and skilled team of researchers and workers at Montana State University. I hope to uniquely contribute to this team with my formal humanities training and promote interdisciplinary collaboration between land and language, all the while assisting in the production of high-quality seed and the smooth running of the Montana Foundation Seed Program.

Grants

Amanda Leckband awarded Gates Grant
Please go to the following website to learn more about the Gates Foundation grant that Amanda Leckband, a senior majoring in Animal Science, was recently awarded. Amanda's



Amanda Leckband

mentor is David Sands.
Congratulations
Amanda!
<https://www.montana.edu/news/18705/simple-request-sets-msu-student-on-path-to-win-grant-from-gates-foundation>

Patents

On Tuesday May 7th Gary Strobel was issued US Patent 10,278,391 entitled "Antimicrobial compositions and related methods of use". The patent represents broadened claims related to the discovery of Muscodor and its production of wide spectrum volatile antimicrobial compounds that have a myriad of practical uses. Jeneil Biotech of Saukville, WI has developed a method of producing these compounds and is now marketing them for uses such as decontaminating slaughter houses, animal hides, drains, and even eliminating microbial contamination of carcasses to name a few. Other uses are being developed.

Where To Go With HORT Questions

Cheryl Moore-Gough, Extension Horticulture Specialist and Dara Palmer, Master Gardener Coordinator, are answering the horticulture questions that previously went to Toby Day.

Cheryl - cheryl@montana.edu, 6523

Dara - dara.palmer@montana.edu, 2120

Is That Tree Really Dead?

By Cheryl Moore-Gough

Extension Horticulture Specialist

Weather fluctuations this winter were brutal, and many of our trees and shrubs are showing the results. I had a call from the agent in Chouteau saying that on April 19 temperatures reached 76° in Ft. Benton and fell to 13° by the 29th! For many woody plants, once their chilling period is satisfied, dormancy can be overcome and once it is, buds swell and are then susceptible to the

icy temperatures. The agent wanted me to help him save a few marriages, as arguments were occurring as to whether the assumed "dead" trees should be removed immediately or given some time to make sure they were dead. Some woody plants have secondary buds for just such an event, and may leaf out, albeit much later than usual. Conifers can experience scorch and survive if given time.

After a particularly brutal winter, I always recommend folks wait to do anything drastic to seemingly dead trees and shrubs until at least the 4th of July. To help determine if you should try and give those plants time to struggle back, the thumbnail test is something to remember – scrape the branch with your thumbnail, if the cambium is green, the branch is still alive. Suppleness is also a good indicator of life.

We know that snow is a great insulator, and plants under the snow weather icy temperatures much better than those fully exposed. Four years ago, against the advice of one of the local nurserymen, I ordered and planted a lacebark pine *Pinus bungeana*, a



Pinus bungeana that was partially buried in the snow and therefore protected when bitter temperatures hit this last winter.

tree that is marginally adapted to much of our area. My little tree was partially covered by snow, and the top was exposed to the bitter cold. Looking at this tree, one might want to pull it out, but the top that was exposed is still supple, and green is showing on some of the top needles. I decided to let it struggle, and the entire tree is now candling (showing new growth).

Recipe of the Month

Key Lime Pie

Ingredients

- 1 (9 inch) prepared graham cracker crust
- 3 cups sweetened condensed milk
- 1/2 cup sour cream
- 3/4 cup key lime juice
- 1 tablespoon grated lime zest



Preheat oven to 350 degrees F (175 degrees C). In a medium bowl, combine condensed milk, sour cream, lime juice, and lime rind. Mix well and pour into graham cracker crust.

Bake in preheated oven for 5 to 8 minutes, until tiny pinhole bubbles burst on the surface of pie. DO NOT BROWN! Chill pie thoroughly before serving. Garnish with lime slices and whipped cream if desired.

June Birthdays

Jill Scarson	3
Li Huang	12
Jennifer Britton	12
Mac Burgess	13
Ron Ramsfield	15
Luther Talbert	18
Eileen Carpenter	22
Bill Hoch	25



Clockwise: David Wheeler and Sophie McClean (top right and Burcu Alptken (below) quizzing 4th graders about chickpeas, quinoa and various other crops; Cayley Faurot-Daniels; Anna Jespersen; Laurie Kerzicnik dispelling insect myths; Alex McMenamain sharing information on bees, and Eileen Carpenter teaching about potatoes.

