



Wheeler Joins PSPP Faculty



David Wheeler joined the PSPP faculty on January 15, 2019. He is the new Extension Plant Pathologist focusing on row crops such as potatoes.

David was born and raised in Lebanon, Pennsylvania. He is the youngest of

seven children and grew up amidst Amish farming communities and rich mixed wood forests. David received his undergraduate degree in horticulture with a minor in Fine Arts from Temple University in Philadelphia, PA. Thereafter, he moved to the Pacific Northwest to study Mycology, Plant Pathology, and Statistics at Washington State University. David completed his M.S in Plant Pathology in 2015 and his Ph.D in Plant Pathology with a minor in Statistics in 2018 at WSU.

David is looking forward to joining the academic and agricultural communities at Montana State University. He hopes to develop a strong and internationally recognized extension and research program that contributes to the pulse, seed potato, and sugar beet industries in Montana.

When not completing research projects, David enjoys being outside, taking photographs, reading books, and making music. He is excited to live in Bozeman and enjoy the nearby wilderness.

Fall 2018 Graduates

Congratulations to the following graduates!

Undergraduates:

Biotechnology- Plant Systems:

Christensen, Scott; Honors

Landscape Design:

Eisner, Erin; Honors

Martin, Leanna

Environmental Horticulture Science:

Korff, Jeffrey; Honors

Long, Quint

Plant Biology:

Good, Claire; Honors

Crop Science:

Brown, McKenna; Honors

Huyser, Zachary; Honors

Kerzner, Nathan; Honors

Laubach, Chelsea; Highest Honors

Schneider, Tavin; Highest Honors

Skaley, Jordan

Sustainable Crop Production:

Albers, Kaitlyn

Bergeson, Ariana

Ward, Thomas

Graduate Students:

Owati, Ayodeji; PhD in Plant Science- Plant Pathology

U.S. Wheat Associates Trip to Latin America

by Mike Giroux, Department Head

From December 9-18, I traveled with a group of U.S. wheat breeders organized and led by U.S. Wheat Associates to the top Latin American markets for U.S. Wheat. The Wheat Quality Improvement Team (WQIT) traveled to Mexico, Guatemala, Costa Rica, and Peru to meet with each country's major flour milling and baking associations. The goal of the WQIT trip was to educate U.S. wheat breeders about the specific attributes that overseas markets require in wheat. Another goal of the trip is to emphasize to wheat millers and bakers in export markets that we are actively doing all we can to meet their quality needs.

The WQIT was led by Steve Wirsching who is the Vice President and Director of the U.S. Wheat West Coast Marketing Office. The wheat breeders, in addition to myself, were from Kansas State, Oklahoma State, Texas A & M, and Washington State University. I was there to represent not just myself and durum wheat breeding but also Montana State's spring and winter programs led by Luther Talbert and Phil Bruckner, respectively. The trip was sponsored by the wheat commissions from each of the states with representatives on the trip (thank you Montana Wheat and Barley Committee!).

The first stop on the trip was Mexico, the 2nd largest buyer of U.S. wheat (2nd only to Japan). We met with representatives of two of the largest milling associations that gave presentations on what they value in wheat varieties. They value varieties that have a balance between dough strength and extensibility. The Montana State CQL runs tests on all new and potential new wheat varieties for both dough strength and extensibility and, in fact, a balance between dough strength and extensibility is one of the major flour quality traits that Luther and Phil select for in their new varieties.



The street outside our hotel in Mexico City was lined with Poinsettias. Pretty cool as it went on for more than a mile, more Poinsettias than I have ever seen at one time.



A Costa Rican cracker production line. It seemed to take surprisingly few people to run the giant factory with near total automation of everything except picking out the damaged crackers at the end of the line.



The WQIT group ready to tour the cookie plant. From left are Steve Wirsching, Marcelo Mitre, Brett Carver, Arron Cartor, Mike Giroux, Jackie Rudd, Guorong Zhang, and the cracker production manager.

The second stop on our trip was Guatemala where we met with the two major milling associations. They use U.S. hard red winter wheat to make noodles and pasta and prefer low polyphenol oxidase (PPO) wheat varieties as well as wheat varieties that make more extensible doughs. PPO is the enzyme that creates off colors in noodles or in a cut apple or potato. With funding from the Montana Wheat and Barley Committee, Steve Hystad, one of my former grad student advisees and current lab manager of the MSU Potato Lab, identified PPO null mutations that would enable selection of null PPO wheat varieties. The other wheat breeders on the trip weren't aware of that project so they will likely start introgressing the null PPO trait as well since I sent them all seeds when I came back.

The third stop on the trip was Costa Rica and we ended up arriving in Costa Rica late on a Friday night and so had the day free on Saturday to explore. We did a group trip to an extinct volcano (still producing smoke). While that was interesting, it was amazingly cold and windy at the top of that hill (others on the trip described it as a mountain, but they are not from Bozeman). Later that day we visited a local farmers market which was much bigger though no more crowded than our summer farmer's markets. The biggest difference in their farmer's market was that many of the vendors sold raw meat and fish in addition to produce and I didn't see any organic produce. We then visited with a large cookie and cracker company that uses U.S. soft red winter wheat to produce cookies and crackers.

The second visit that day was to a large bakery that uses both Canadian hard wheat and U.S. soft wheat to produce bread. They were using Canadian wheat because they felt that it had a higher water absorption and better extensibility than U.S. wheat.

The final stop was in Peru where we met with the major milling association. Most of the wheat they import comes from Canada because they prefer their wheat to U.S. wheat; I am not exactly sure why, the

preference may have begun with price differences. While we were visiting with them, they mentioned that they were all still working overtime to make sure they produced enough flour to make Christmas holiday Panettone bread. Panettone bread is in theory like a fruitcake in that it has bits of fruit in it, but it is unlike a fruitcake in that it is light and airy like a sponge cake and is perhaps less than 10% fruit. We visited a local supermarket and Panettones were indeed very popular, taking up several shelves of a long grocery aisle and each person's shopping cart seemed to have several. We departed Peru at midnight and luckily, we all had lay flat seats and so were able to sleep some on our flights back to the U.S.

No matter the country we visited, the main message conveyed to us by wheat millers and bakers was that they valued uniformity and consistency from shipment to shipment and from year to year. What that means to us, I suppose, is that we would need to select and release wheat varieties that collectively don't vary substantially from each other.

2019 Crop and Pest Management School By Kevin Wanner, Associate Professor

Time does fly! The Crop and Pest Management School has a two-decade history at MSU. This 2½ day workshop for a wide range of agriculturalists from across Montana is offered every year early in January. It originated with William Lanier, at least as early as 2000, the earliest reference I have found so far, and I took over responsibility in January of 2009 after starting my new position. This year was number 11 for me. Time does fly!

The intent is to provide Montana's agricultural industry with the most current scientific information on topics related to crop and pest management in Montana. As the event organizer, I always profusely thank all of the MSU and external guest speakers for making the CPMS a success with our Ag clients. This year saw a few changes; the CPMS was held the second week of January (14th – 16th) rather than the first week, a



Crop Pest Management School attendees



Jessica Torrion, Northwestern Ag Research Center gave a talk entitled, "Five Years of Wheat Irrigation Research, What did we Learn?"

schedule appreciated by most of the participants. But this forced us to move from free classrooms available before teaching starts in the new semester to Ballroom C & D in the Strand Union Building (SUB). Again, the participants liked this new venue, but we did not like the new price! (from free to close to \$2,000 space fees).

Attendance reached 57 students this year. "Small Grain Crops" was the theme and MSU speakers from four different departments participated. I would like to particularly thank the speakers who traveled to Bozeman from five different MSU research stations! Lyle Benjamin, President

of the Montana Grain Growers Association (MGGA) kicked things off with an overview of the small grains industry. Our Ag clients always like hearing different perspectives from our neighboring states and this year's guest speakers did not disappoint. Juliet Marshall from the University of Idaho, Aaron Esser from Washington State University, and Andrew Kniss (by remote presentation) from the University of Wyoming all provided splendid and valued talks.

The students always appreciate hands on activities. Tim Seipel and Jane Mangold provided a session on identifying herbicide damage to crop seedlings and David Weaver's lab had students identify stored grain insects and their damage to wheat kernels. The class was a great mix of producers, crop consultants, commercial and government agriculturalists, and county agents. The quality of the students definitely helps motivate everyone to provide excellent quality information to support Montana's agriculture.

Of course, none of this would have come together without the support of Ruth O'Neill, research associate in my lab, and the administrative support of Irene in our office. Many thanks to everyone who took the time to speak at the workshop or otherwise help out this year! Now, I will start working on the 2020 CPMS, since time really does fly!

Montana Seed Trade Association Meeting By Doug Holen, MFSP Manager

The Montana Seed Trade Association (MSTA) had their annual winter meeting and convention in Bozeman on December 3-6. This organization, established in 1979, consists of Montana seedhouses, independent seed growers, other seed agencies, and agricultural private entities. This year's event topped 120 registrants.

I attended the full program for the third year as MSU's Foundation Seed Program is now an Associate member of this professional seedsman organization. Topics for the convention included chemical company



conference brought together over 3,000 leading scientists in plant and animal research and there were more than 100 exhibits and workshops together with thousands of posters and abstracts.

The conference brought attention to some important topics of plant science and plant breeding. Several talks covered intense effort for

Montana State Seed Trade Association meeting attendees, photo courtesy of Heather DeVries.

mergers, Montana Grain Grower update, American Seed Trade Association update, innovation technology, and international trade agreements. There was also a 2 hour workshop on working with multi-generational employees in outlining how we traditionally get things done based on the era you were born in. This was in addition to many breaks and evening programs with industry vendors and colleague networking. Many of those in attendance have strong ties to growing MSU varieties and their distribution to producers across the state.

large-scale phenotyping, approaches for the utilization of extensive data coming from reference genomes and pan-genome efforts for several crops. In 2018, the bread wheat reference genome was completed and made available to researchers; now it seems like an important time for extensive effort to understand this complex genome. Many researchers are focusing on new gene discovery techniques with machine learning, functional gene annotations, regulatory networks, and non-coding genomic DNA.

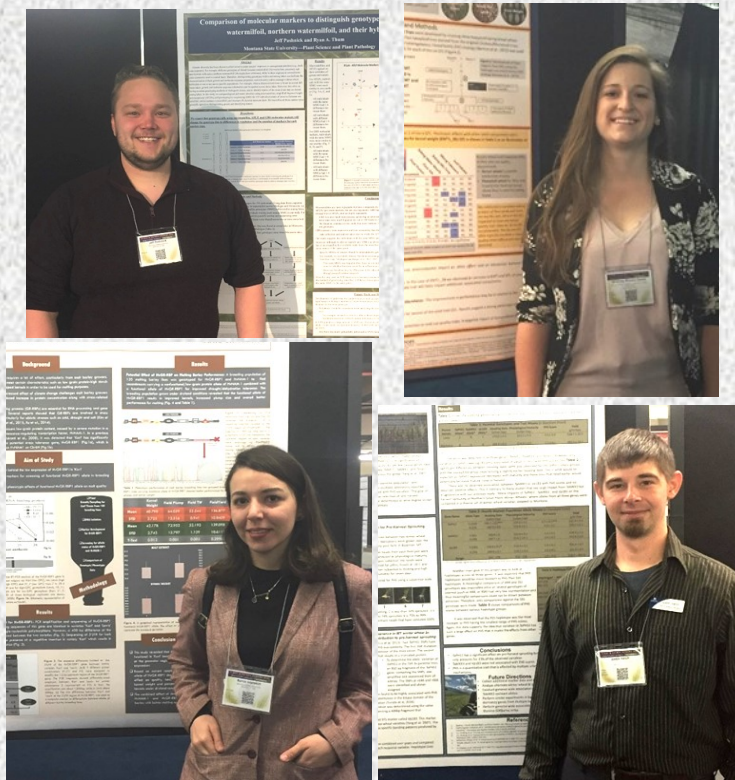
The MSTA convention is a great place to be visible, make contacts and get to really know many of our Foundation seed customers and partners. The program is always held in December and Bozeman has become the mainstay host town. Registration is open for anyone to attend and many presenters have come from campus over the years. Visit the MSTA website at mtseedtrade.com for more information regarding their activities, purpose, and mission statements.

With the availability of reference genomes, the focus of future research seems to be shifting to a functional understanding of important genes underlying complex traits such as yield. Another important topic covered during the meeting was, of course, CRISPR-Cas9 based genome editing. Many groups were able to get successfully edited plants, in particular, for energy crops such as sugar cane. A concentrated effort for genome editing has also been shown for wheat and barley even though the progress is slower. However, combining speed breeding approaches with powerful gene editing techniques seems like the future for plant improvement.

Plant and Animal Genome Meeting by Burcu Alptekin and Brittney Brewer-Jones, Graduate Students

One of the largest genomics meeting of the scientific world, PAG XXVII – Plant and Animal Genome, was held in San Diego from January 12th to the 16th, 2019. Our department was well represented at the meeting with attending Ph.D. students: Burcu Alptekin, Brittney Brewer-Jones, Justin Vetch, and Jeff Pashnick. The

MSU students represented a variety of work that has been done in the department during the poster session. Brittney Brewer-Jones' and Justin Vetch's posters focused on introgressing durum wheat yield QTLs into spring wheat with the aim of discovering yield-related genes and



Grad student attendees at the PAG. Clockwise from top left: Jeff Pashnick, Brittney Brewer-Jones, Justin Vetch and Burcu Alptekin.

identifying the genes associated with pre-harvest sprout in wheat; respectively. Burcu Alptekin's poster presented the discovery of a new molecular marker for a drought tolerance gene in malt barley where Jeff Pashnick presented his work on the comparison of molecular markers for different types of watermilfoil. Overall, PAG was a great opportunity for networking, getting feedback from pioneers of the field, and following up with scientific advances.

WheatCAP 2019 Plant Science Symposium
By Brittney Brewer-Jones, Graduate Student

On Friday, January 11th, 2019 the first WheatCAP Plant Science Symposium was held on the San Diego State University Campus. As part of the Corteva Plant Science Symposia series, the event included talks from four notable keynote speakers, a panel discussion and six student research talks.

The title of the symposium was "Bridging the Gap: Using Functional Genomics to Unlock

Yield Potential". The aim of the symposium was to further explore the current and future application of functional genomics techniques in addressing the challenges of yield gaps as well as yield improvement in cropping systems. Furthermore, this event aimed to provide the next generation of plant scientists, geneticists, and breeders the tools to address the existing and emerging challenges related to global food security and production.

We had the privilege of hearing from Corteva spokesperson Dr. Jason Rauscher, Dr. Gina Zastrow-Hayes the Genomics technology leader at Corteva Agriscience, Dr. Ronan O'Malley leader of the Sequencing Technologies Group at the Joint Genome Institute, Dr. Scott Boden a royal society research fellow at John Innes Centre, and Dr. Scott Jackson professor and director of the Center of Applied Genetic Technologies at the University of Georgia.

As a student supported by the WheatCAP project, the ultimate goals of this coordinated agriculture project (CAP) are the validation, characterization, and deployment of QTL for grain yield components in wheat. To learn more about the WheatCAP please visit: <https://www.triticeaecap.org/about/>

During the planning of this symposium, I had the privilege of acting as the planning committee co-chair. The highlight of this event for me was seeing the many hours of planning, video conferencing and just genuine hard work pay off.

In total, there were nine members on the planning committee all located at different universities. Dr. Jason Cook also acted as our planning committee advisor as well as the WheatCAP educational team coordinator. A large goal of having the WheatCAP students plan and host a symposium was to aid in the development and training of soft skills and the practical application and execution of these skills. Seeing as none of the students from the planning committee were located in San Diego, it was the perfect



Planning committee, Keynote Speakers, Discussion Panelists and Student Speakers:

Front Row (left to right): Burcu Alptekin (student speaker - MSU), Gazala Ameen (student speaker - NDSU), Dr. Scott Haley (panelist CSU), Chia Cheng Kan (committee - OSU), Dr. Jason Cook (committee advisor - MSU), Jeff Neyhart (student speaker -UMN), Brittney Brewer -Jones (committee co-chair - MSU), Dr. Gina Zastrow-Hayes (keynote speaker - Corteva), Saarah Kuzay (committee - UC Davis), and Max Fraser (committee co-chair, UMN).



Burcu Alptekin – student speaker at the WheatCAP 2019 Plant Science Symposium, speaking on the genome-wide characterization of autophagy-related genes in bread wheat

scenario to practice important skills such as communication.

Two additional MSU students also joined the symposium - Burcu Alptekin (Fischer Lab) and Justin Vetch (Giroux Lab). Burcu was selected as one of our six student speakers and was given a student travel award.

The goal of this symposium was to bring together graduate students to encourage networking and the sharing of science among grad students. I truly believe these goals were met and at the completion of the event I could not help but feel inspired and motivated to continue in my own attempts to better understand and illuminate the black box of crop yield.

Dunkel Wins Award

On December 6, MSU Mortar Board Professor of the Month Award was presented to Florence Dunkel in recognition of her "outstanding contributions to the academic achievement and personal growth of the students of Montana State University." It was a surprise ceremony at the close of the Share-the-Wealth

Symposium 6 December, 2018 in the Thayer Conference Room in PBB. The presentation was made by Mackenzie Bernhardt, MSU Mortar Board Vice President. Claire Zahner, senior in Plant BioTechnology gave the award speech. Mortar Board is a national college senior honor society.

New Employees



Emma Rice (Thum)

Emma Rice joined the Department this week to work with Ryan Thum as a Laboratory Technician. She comes from Grand Valley State's Annis Water Resources Institute where she recently graduated with

a M.S. in Biology with an aquatic emphasis. The overarching goal of her master's research was to assist managers involved in the restoration of dune habitats in northwest Michigan by providing new information on the effectiveness of current management methods for baby's breath (*Gypsophila paniculata*). Before moving to Michigan, Emma worked for the Maryland Coastal Bays Program on various

restoration and outreach projects. These included post construction monitoring of a dam removal, initial work to restore forested wetlands from a former pine plantation, maintaining the Coastal Bays volunteer water quality monitoring program and managing problem invasive species in the watershed.

Emma is excited to be a part of the Plant Sciences and Plant Pathology Department team. She enjoys applied ecology and is looking forward to using molecular techniques to inform invasive aquatic plant management. Emma also loves to travel, hike, bike, and kayak and is an enthusiastic (yet minimally talented) baker and avid watcher of The Great British Bake Off, so look out for cookie platters!

New Graduate Students

Collins Bugingo (Burrows)



My name is Collins Bugingo. I am originally from Uganda. I am now in my ninth year of studying agriculture in higher education. There has been no break since 2011 but everyday I find a lot of interesting Agbio related stuff. I have narrowed down my interests to plant disease management which started in 2017 at South Dakota State University. I am excited to take on a PhD with MSU in the same field. I have a vision of working in research for ten years and later transitioning to policy and leadership in agriculture. I love outdoor activities like site seeing and nature walks. This, in addition to the great academic programs, were the reasons I chose MSU. Bozeman is as beautiful as my home district (Kisoro). Google this and you be astounded at the similarities these places share except for snow. I am excited to get to know all of you. Reach out to me with any questions. I am open to learning new things and meeting new people.

McKenna Brown (Giroux)



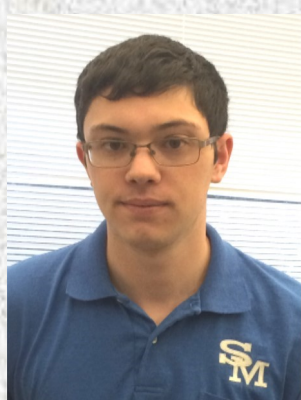
My name is McKenna Brown and I am working on my Master's degree in Plant Science in Dr. Mike Giroux's lab. My graduate work will focus on genes that affect height and tillering in durum populations. I have two Bachelor's degrees both from MSU, one in Rangeland Ecology and Management in 2014, and more recently Crop Science in 2018. After getting my first degree and spending several years working with agricultural producers as a soil conservationist for USDA-NRCS, I decided that I wanted to change paths and pursue a career in ag research. Growing up on a farm in Eastern Montana, I have seen how important this research is to farmers firsthand and am excited to have this opportunity to be a part of it!

Zoe Pritchard (Ivie)



My name is Zoe Pritchard and I am a new Master's student in Entomology. I will be working in Dr. Mike Ivie's lab studying native bee diversity and distribution in Montana. Previously, I studied native bees and honey bees in the prairie landscape as part of my undergraduate degree in Biology at Iowa State University. I'm looking forward to getting to know the department here at MSU and exploring Bozeman. I'm happy to be in Montana for all the outdoor opportunities as I'm a hiker, skier, and runner in my spare time.

John Paul (JP) Kole (Ivie)



I did my undergrad at the other MSU (Michigan State) with a BS in Entomology, graduating in December, 2018. I am interested in beetle systematics and came to MSU to work with Michael Ivie. I spent the summer of 2018 here working in the Ivie lab, and decided to return for an

Entomology MS. I am looking at thesis topics involving tiny fungivorous beetles in the former Endomycidae, but the exact project has not yet been identified.

My hobbies and interests are hiking, fishing, camping, and collecting beetles.

Jessica Williams (Sherman)



My name is Jessica Williams. I am a new master's student in Jamie Sherman's lab, and will be studying the genetics of root growth and drought tolerance in barley. I'm from Golden, Colorado and received my bachelor's in biology from the

University of Denver in 2012. After graduating from college, I worked in a *Drosophila* genetics lab in Denver for two years, took some time off to travel, then moved to Bozeman for the skiing. I worked in another *Drosophila* lab here at MSU before joining the barley field crew last summer. While fruit flies are cool, I am very excited to be switching gears and moving into the messier but more applied field of crop genetics. If I'm not doing school related things, I'm probably hanging out with my buddy, Porter, the best dog ever.

Publications

Grozinger, C.M. and Flenniken, M.L. (2019) Bee Viruses: Ecology, Pathogenicity, and Impacts. Annual Review of Entomology Vol. 64:205-226, doi.org/10.1146/annurev-ento-011118-111942.

Mathre Endowment

In the February newsletter of the American Phytopathological Society (Phytopath News), there is a story about graduate students at the University of California-Riverside who last year received funding from the Mathre Endowment for Education (through the APS Foundation). The students hosted 100 students from John North High School in

Riverside who came to UCR to enjoy and learn about plant pathology. Don Mathre, Emeritus faculty member and former Department Head of the MSU Plant Pathology Department, taught introductory plant pathology and a graduate class in soil borne diseases during his career at MSU and was interested in helping to encourage new students to consider a career in plant pathology. Therefore, Don and his wife Judy established this endowment in 1995 to encourage this process. Don would encourage any of you to consider supporting the Foundation of your professional society to further the goals of the society. Check the story out by going to <http://www.apsnet.org/publications/phytopathologynews/Pages/Vol53iss02.aspx>



High School students learning about plant pathology at UC Davis

Grants

Mary Burrows, "Building a better lentil from the ground up", USDA.

Invited Talks

Michelle Flenniken, Alex McMenamin, and Fenali Parekh, gave the following talks at the American Bee Research Conference in Tempe, AZ, Jan. 10-12.

Michelle Flenniken, keynote lecture, "The impact of viruses on honey bees at the colony, individual, and cellular levels".
Alex McMenamin, presentation, "AmMF116383 is important for dsRNA mediated reduction of virus infection in honey bees and honey bee immune cells".

Fenali Parekh - poster, "Investigating the impact of honey bee genotype and Varroa destructor mites on virus prevalence and abundance".

Free Tax Assistance

Get your income tax returns (both Federal and Montana) prepared and filed electronically for free. Don Mathre is once again participating in the IRS sponsored program called Tax-Aide. He has been doing this for 11 years and is certified by the IRS to prepare income tax returns. Returns are done by appointment only at the Bozeman Public Library on Tuesdays beginning in February from 11 am until 6 pm. Contact Don at 587-8666 or mathre@q.com if you would like to make an appointment or if you have income tax related questions. He is also either in 327 or 315 PBB Monday through Wednesday from approximately 10 a.m. to 11 a.m.

National Strawberry Day By Toby Day, Horticulture Extension Specialist

Nearly every day on the calendar is a "National Day" of something. For example: February 4 is National Soup Day, February 11 is National Clean Out Your Computer Day, and February 16 is National Do a Grouch a Favor Day. If you want to see more national holidays, there is a website with a calendar you can follow at <https://nationaldaycalendar.com/>.

In my opinion, the most important of all days is National Strawberry Day on February 27! Many of you know my fascination with this delectable, sweet, and juicy treat! I love strawberries so much, I planted and weeded



about 1000 plants last year. The only problem with this National Day in Montana is we often enjoy strawberries in JUNE! However, California is the largest strawberry producer in the U.S. and has begun picking. You will start to find "fresh" strawberries hitting the markets soon. Most of the strawberries I have seen in the stores are as large as chicken eggs (unfortunately, they have about the same flavor). The reason the strawberries are so large is partially due to environment and cultivar, but mostly because they pour the water to them. Extra irrigation will increase fruit size, but the drawback is flavor and hollow fruit.

While I am enjoying eating these behemoths (as I have run out of frozen berries from last year), I dream of my sweet homegrown strawberries I enjoy in early summer. There is nothing better than



Strawberries from my garden

homegrown, especially when it comes to strawberries. If you would like to grow strawberries in your home garden, MSU has a fact sheet *Strawberries in the Home Garden* you can download at <https://www.msuextension.org/publications/YardandGarden/MT199320AG.pdf>. And, as I reported about blackberries in a past article, I will personally be purchasing more strawberry plants this year. If you would like to get on the order, let me know and I can add them to the order.

Incidentally, February 27 is also National Retro, Kahlua, and Polar Bear Day. I think I will wear my derby, drink a mudslide, give an emotional toast to the polar bear, and finish off the night with strawberry ice cream.

Finally, a little known fact about strawberries is that the New England Patriot's star quarterback, Tom Brady, hates strawberries – and won't eat them. What kind of monster doesn't like strawberries?!? That is why I am rooting for the Rams to win the Super Bowl (If I really cared that much about football).

Recipe of the Month

Following are the recipes for Kevin McPhee's contributions to the Friday Coffee on 2/1/19.

Spicy Lentil Chicken Salad

1 cup/200 grams dried lentils
1 tsp garlic powder
1 tsp onion powder
1 1/2 tsp chili pepper
1 tsp cumin
1 tsp dried cilantro
1 tsp oregano
1/2 tsp salt
1 TBSP olive oil
1 cup Salsa
1 tbsp lime juice
2 cups cooked chicken, shredded
1 cup cheddar cheese or to taste

In a large pot cook lentils until done, about 30-35 minutes. Drain lentils if needed. Put the lentils in a large salad bowl. Add the rest of the ingredients. Mix everything well. If needed add a little salt, but the lentils should actually be seasoned already. Chill until ready to serve.

Spicy Lentil Dip

1 cup/200 grams dried lentils
1 tsp turmeric
1 tsp marjoram
1 clove garlic, sliced
1 tsp chili pepper
1 tsp cumin
1/2 tsp salt
2 TBSP olive oil
1 cup Salsa
1 tbsp lime juice
1 tb
3 fresh spring onions

In a large pan cook lentils with salt and around 2 cups of water at

medium heat. Add garlic, turmeric, chili, and majoram. Bring to a boil and reduce heat. Cook 30-35 minutes. Check if lentils are done. The water should almost be gone, but there still should be some. If there isn't add a little.

Add olive oil.

Put the lentils in a large salad bowl. If you haven't done it, remove the little garlic clove you cooked the lentils with. Add the rest of the ingredients. Mix everything well. If needed add a little salt, but the lentils should actually be seasoned already. Enjoy!

Lentil Soup



2 tbsp olive oil
1 onion, chopped (*white, brown, yellow*)
2 garlic cloves, minced
1 large carrot, *chopped (about 1 1/4 cups)*
2 celery ribs, *chopped (about 1 1/4 cups)*
2 cups / 400g dried lentils, *green or brown, rinsed*
14 oz crushed tomato
6 cups vegetable or chicken broth
1/2 tsp cumin
1/2 tsp coriander powder
1 1/2 tsp paprika powder
2 dried bay leaves
salt and pepper to taste

Directions:

Heat oil in a large pot over medium heat. Add garlic and onion, cook for 2 minutes. Add celery and carrot. Cook for 7 - 10 minutes or until softened and the onion is sweet. Add all remaining ingredients except the salt. Stir. Increase heat and bring to simmer. Scoop scum on the surface off and discard (do this again during cooking if required). Place lid on and turn heat down to medium low. Simmer for 35 - 40 minutes or until lentils are soft. Add a touch of water if you want to adjust soup consistency. Season to taste with salt and pepper.

February Birthdays

Jeff Johnston 2
Carmen Murphy 14
Alan Dyer 15
Phil Bruckner 17
Hwa young Heo 24

*Happy
Birthday!*

**Next Page—Carpenter Retirement
Reception**

Eileen Carpenter Retires

Congratulations to Eileen Carpenter on her recent retirement from MSU after 32 years. During her time in the Potato Lab, Eileen started out doing tissue culture and then went on to do research and field inspections.

Eileen states, "I thoroughly enjoyed working with the potato growers and my coworkers. Also, walking the fields during field inspections allowed me to see some of the most beautiful parts of Montana. I am planning on helping with field inspections this summer but I won't miss the 8-5. I plan on attending a Friday coffee now and then and hope to you there."



*Eileen Carpenter
Theresa Meeker
Peggy Bunger
Elaine Nichols
Barbara Oyster
Steve Hystad
Becky Evans
Alice Pilgeram
Nina Zidack
Pawan Sidhu
Manish Yadav*



*Eileen Carpenter and
Gallatin Valley potato
growers Vernon
Droge, Martin Kimm,
John Schutter,
John Venhuizen, and
Tim Venhuizen.*