PSPP - Plant Science Says *March, 2019*

2019 Phenome Conference
By Jennifer Lachowiec, Assistant Professor

I recently attended the Phenome 2019 Meeting, held in Tucson, Arizona, from February 6-10. One aspect of my lab's research program is understanding molecular mechanisms that control consistency in traits. This requires a lot of phenotyping to gain an accurate measure of consistency, and Phenome 2019 proved to be a place to learn what kind of high-throughput phenotyping is up-and-coming in the plant world.

During the conference, presentations covered two basic areas: Image acquisition and image analysis. Image acquisition refers to all the ways that folks are gathering data from the field ranging from Camera On A Stick (COASt) to UAVs to the Terra-Ref two acre robot in Mericopa, Arizona! I specifically was interested in work using Raspberry Pis, $15 computers the size of a credit card that can be used to control cameras to collect images from the growth chamber to the field. I met colleagues developing these systems, and I hope to deploy these tiny computers to image our plants soon.

Collecting images is the easy part. This meeting was particularly exciting as it included many computer scientists that are developing ways to actually process and analyze these data quickly and accurately. I watched amazing movies of ground drones moving through apple orchards counting the apples and moving through vineyards, counting the grapes.

Dr. Ian Stavness presented on his lab's work with a COASt - https://p2irc.usask.ca/theme-pages/computing/project-3-2.php#ProjectSummary.

Finally, at the meeting I learned about, and joined, a network of scientists that are phenotyping 28,000 *Arabidopsis thaliana* mutants. This program is called unPAK (Undergraduate Phenotyping of Arabidopsis Knockouts). My lab group is already

This is the two-acre robot in Mericopa, AZ imaging plots of sorghum - https://terraref.org/.

examining mutants in similar ways and this will be a great opportunity to identify broad patterns of how mutations affect plant growth.

I look forward to attending the meeting next year, and strongly encourage others interested in adding UAVs to their projects to attend.

Pulse Crop Working Group Meeting
By David Wheeler, Assistant Professor

Every year researchers from the north-central region of the United States meet to discuss current and future pulse research. This group, comprised of researchers and extension specialists, is the Pulse Crop Working Group (PCWG). To maximize productivity, the PCWG meeting also overlaps with the U.S. Dry Pea and Lentil Council grant review committee, comprised of growers and industry professionals. This year both groups met in Fargo, North Dakota, from 2/10-2/12. This location seems to be strategically selected to prevent any participants from straying outside, lest they get frostbite.

From MSU's Plant Science and Plant Pathology Department, four scientists attended the PCWG meeting. Bright Agindotan, from the Regional Pulse Crop Diagnostic Laboratory, Monica Brelsfold and Syd Atencio, both from Mary Burrow's lab, and the author were all in attendance.

The PCWG started and ended with a combination of productive brainstorming sessions and unanticipated comedy. Between presentations, smorgasbords of food and coffee punctuated our days in Fargo.

On Sunday evening, 2/10, Monica, Syd, and myself awaited at the Fargo airport for the hotel shuttle to usher us to the PCWG working dinner. When our ride finally arrived we were pleasantly surprised that our driver, Douglas, was able to safely navigate the icy roads flanked by walls of frozen snow and narrate our journey with his stand-up comedy routine. We learned about the key places to visit in Fargo, Douglas's history of blind dates, and that the weather, although cold, was warm compared to the -60°F temperatures endured in weeks prior. Clearly, we arrived at the right time.

The PCWG welcome dinner provided us with the opportunity to informally chat with other attendees and identify key areas for future research. About 20 of us crowded in a side room of the hotel's restaurant, ate tacos (with pulse toppings), and sipped beer. By the end of the dinner we decided that we needed to focus on cultivating and maintaining grower-researcher and researcher-researcher interactions.

During the meeting on Monday, Bright presented exciting results on the fungicidal effects of plant essential oils. Not only do these look like effective controls but they should smell much better than traditional fungicides. Monica presented plans for Syd's and Collins Bugingo's future research on soilborne diseases of pulses. I presented a proposal to develop a fungal identification app with artificial intelligence and identify how fungal pathogens of pulse

respond to crop rotation over time.
By Monday evening we were all over-caffeinated, sated, and buzzing with research ideas. Regardless of our appetites, dinner was around the corner. This time we shared a meal with various growers from the north-central states whom would later serve on the USA Dry Pea and Lentil Council review panel to select grant applications for funding.

Sometimes you have to go to Fargo to meet growers from Montana. This was true for me. During dinner, Bright introduced me to a pulse grower from northern Montana who had driven to Fargo for the meeting. This was a great opportunity to learn about pulse production and pathology from a grower with decades of experience. After a good dinner, a presentation on an app for weed and disease identification, and a brainstorming session, the day was coming to a close. Tuesday was the last day of events of PCWG and the first full day of proposals for the USA Dry Pea and Lentil Council. The PCWG attendees spent the day touring the well-equipped and expansive greenhouses at North Dakota State University (NDSU). The USA Dry Pea and Lentil Council review panel spent the day evaluating proposals, one of which was presented remotely by MSU professor and pulse breeder Kevin McPhee. While the PCWG toured NDSU, I realized that my flight out of Fargo was scheduled for 3/12, not 2/12. It seemed like I was destined to stay in Fargo for a couple extra weeks…

What it Takes to Incorporate More Insects into our Daily Diet
By Florence Dunkel
From February 8-15, MSU faculty and students worked together with MSU Culinary Services and guest chef, Chef Joseph Yoon from Brooklyn, New York, to gather new knowledge and skills to prepare, serve, and appreciate edible insects.

Student Cook-Off
Friday, February 8, twenty students from BIO 162CS and MSU's Culinary Arts program huddled with their teammates around a table in the new Hannon Hall teaching kitchens to hear MSU Chef Marcy Gaston give cook-off rules for the next day's competition. By noon Saturday, these students looked like professional chefs preparing for high stakes prizes in a professional kitchen. Eight teams presented an insect entrée and dessert before the judging panel that included Yellowstone Public Radio's Stella Fong and The Brooklyn Bug Chef. Teams then circulated through the public audience, about 35 people from 8 to 80 years old, with tasting trays. Freshman art education major, Laurel Aytes, and her team won first prize using her grandmother's recipe for potato latkes and her own recipe for key lime pie. Maria Abbott, Liberal Studies senior from Phillipsburg Montana, won both the People's Choice and third prize with her insect sushi and ginger cricket cupcakes. Big black ants were favorites of these amateur chefs. They lent a lemony burst to risotto for one team, an ironic combo for the picnic fruit salad team, and a delicious taste surprise for the tuna fish sandwich team. A never-forget-dessert creation was peppermint cricket whoopie pies, created by pre-vet student, Cameron Doran, from Hamilton Montana.

Workshops with visiting Chef Joseph Yoon
One hundred and fifty students from Chief Joseph Middle School, faculty from three MSU colleges, and MSU culinary staff learned insect cooking skills and basic facts in their classrooms from our visiting chef, Chef Yoon. Favorite tasting in the workshops were the jumbo shrimp and black ant combo, and an ocean shrimp/"land shrimp" combo!

Film Festival
Tuesday evening in the Procrastinator Theater, 35 attendees gathered to munch popcorn with agave beetle larvae salt and view shots from Chef Yoon's TV appearances and the full-length Canadian film, *Bugs on the Menu,* captured in part on the MSU campus in the Plant Growth Center and the College of Business.




Clockwise from top left: At the 31st annual Bug Buffet, Chef Joseph Yoon, Brooklyn (NY) Bugs, Inc. and Dr. Dunkel surprised President Cruzado with her favorite Puerto Rican cake (decorated with Japanese edible wasps and black ants); Laurel Aytes (left) garners Cook-Off's first place with her meringue pie helped by her teammates; MSU Crop Science students YueX-iao Lyu (left) and Ruiping Fang (right) from Fujian Province, China prepare Jiaozi for the Cook -Off competition during Bug Buffet Week.

<u>Academic Conference</u>

On Thursday, PSPP hosted the 2nd annual MSU edible insect academic conference in the Thayer Conference Room. Several guest lecturers shared valuable information with the 120 attendees. A lentil lunch was served in the atrium. Montana lentils were provided from the lentil breeding program by Kevin McPhee and the recipe was from Mrs. McPhee. Montana Smokey Jumper topping was provided by Cowboy Crickets Farms, Inc. Belgrade, Montana, now a farm with five Montana affiliates and a commercial kitchen.

<u>31st Bug Buffet and field trips</u>

The day began with a private buffet for preschool children. At 12:30, President Waded Cruzado welcomed guests by specifically pointing out the interdisciplinary history of the event before such interaction was encouraged. Favorites at the Luncheon were Chef Yoon's signature Korean

cellophane noodle dish, butternut curry soup topped with whole roasted crickets, and black ant beet/arugula salad. Amber Wivholm, MSU catering, and Dustin Schreiner, MSU food safety officer, chaired the event with visiting Chef Yoon. By 4pm, 1,000 guests had come for tastings.

MSU is one of the most innovative U.S. Land Grant universities in their preparation of students, faculty, and culinary staff for a steady increase of insects in our human, domestic animal, and farmed fish diets.

Co-chair of the week's events were Florence Dunkel, PSPP and Holly Hunts, Health and Human Development. Student coordinators were Claire Zahner (Plant Biotechnology), Michael Thienes (Organismal Biology), Hannah Brousseau and Larson Brandstetter (Food Science).

2019 Wheat Quality Council Meeting
By Jim Berg, Research Associate

The Wheat Quality Council (WQC) held its 69th annual meeting, forum, and technical review sessions on February 20-21, 2019, at the Embassy Suites Airport Hotel in Kansas City, Missouri with over 125 university and industry participants in attendance. Cassidy Marn, Trade and Marketing Manager for the Montana Wheat and Barley Committee (MWBC, Great Falls), Peggy Lamb (Northern Ag Research Center, Havre), and myself, representing the MSU Winter Wheat Breeding Program, were in attendance from Montana.

The WQC is the only industry-wide organization that brings together all wheat interests from breeders and producers to millers, processors and bakers. These participants are provided information on the milling and baking qualities of wheat varieties that will be released, grown and processed in the next few years. Wheat breeders have an opportunity to network with the industry to determine what quality characteristics the millers and bakers would like to see in new wheat varieties.

Quality of the 2018 wheat crop and planting projections for the 2019 crop started off the meeting discussion on Wednesday. 2018 was a low acreage year and 2019 may follow due to continuing low wheat prices. The 2018 crop quality, for both spring and winter wheat, was greater than 2017, due to higher protein levels. Wheat acreage in Texas and Oklahoma may be lost to more cotton and sorghum production. South Dakota may lose acreage to oats. According to Cassidy Marn (MWBC), winter wheat acreage is projected at 1.8 million acres, while spring wheat and durum should account for another 3+ million acres, keeping Montana's acreage steady.

Forty-one breeder-submitted lines and checks were entered for evaluation from the 2018 growing season. These lines were hard spring (9) and hard winter wheats (32). Yukiko Naruoka, a former PhD student with Luther Talbert, now residing in Glyndon, Minnesota, represented Syngenta/AgriPro in a spring wheat variety (SY McCloud) evaluation. The second year of a spring wheat grow-out nursery in Havre, Montana was managed by Peggy Lamb at Northern Ag Research Center. Peggy gave a slide presentation about small plot management and the research being done at Northern that was well received by the attendees.

Winter wheat evaluations ranged from Montana to central Texas. For the first time, northern states (Montana, North and South Dakota, and Nebraska) participated in a common grow out. All states in this "Northern Grow Out', grew three of their own experimental lines and three for each of the other participating states. Each state was allowed to pick two entries for quality evaluation. The MSU winter wheat breeding program's two experimental lines were MT1564 (hollow-stem) and MTS1588 (solid-stem); both are approved for release (names

pending). Within this group of public breeding programs, the Montana lines ranked 1 and 2 overall. I presented an update to the group as to how these lines were selected to go forward through our breeding program, along with sharing data from trials across Montana.

The theme of the forum for 2019 was "The Science of Wheat Quality", essentially how new technology can improve quality. Discussion started with the CoAXium wheat production system that marries new non-GMO herbicide resistant wheat varieties, for control of downy brome, jointed goatgrass, and other weedy grasses, to a Group I herbicide (Aggressor) for herbicide tolerance. It can be a useful tool in increasing yield and decreasing weed seed contaminants. Kevin Kephart (yes, Ken's brother) from Indigo Wheat talked about increasing plant endophytes by applying seed treatment to decrease abiotic stresses, such as heat and drought. In side-by-side field comparisons, Indigo claims a 13% increase in yields with their production system. Eduard Akhunov (KSU) talked about using CRISPER-Cas9 gene editing technology to knockout genes that affect seed size (TAGW2). Initial work shows a 16% increase in seed size that leads to greater flour extraction from the grain. Will Zorilla of Earth Harvest and KSU's Wheat Genetics Resource Center talked about introgressing novel flavor and nutrition components from wild wheat relatives, as well as novel disease resistance genes to improve yield. Steven Baenziger (UNL) is using genetic markers through genome wide selection to identify better potential parents for making crosses. Sarah Battenfield (breeder, AgriPro/Syngenta) talked about resurrecting the promise of heterosis in hybrid wheat to potentially fix more desirable traits, including those associated with end-use quality.

The keynote dinner speaker on Wednesday was Hayden Wands from Bimbo Bakeries USA (est. 1998). Bimbo (a contraction of kid-friendly words "bingo" and "Bambi") is the largest bakery company in the U.S. The parent company, Grupo Bimbo, is Mexico's largest baking company, with operations in over 20 countries around the world. Bimbo USA started out by buying regional bakeries in the U.S. 20 years ago and now owns nationally recognized brands such as EarthGrains, Sarah Lee, Orowheat, and Boboli. Hayden explained that some regional acquisitions had to be closed because they were too antiquated and expensive to update. Line speeds at large, modern bakeries now exceed over 100 loaves per minute. Faster bakery output requires good gluten and higher dough strength. To that end, Bimbo is looking to source and reward growers (through premiums) for particular wheats that fit their product lines.

Technical quality concerns in the next few years include Bioengineered Food Disclosure Standards implementation starting January 1, 2020, with mandatory compliance starting January 1, 2022. This could require text on packaging, symbols, electronic digital disclosure, and/or text messaging concerning bioengineered additives on bakery products. Other concerns, expressed by Mike Goscinski of the American Baking Association, include changing USDA food lunch requirements from 100% whole grain products to 50% whole grain. There appears to be acceptance issues with 100% whole grains leading to food waste in school lunches. Another interesting concern was raising the level of non-edible grains in bakery products from 2% to 5%. English muffins, at present, cannot be served in the federal school lunch program because they contain more than 2% non-edible corn meal.

Millers and bakers, in general, conclude that new wheat varieties, in both the winter and spring wheat breeding programs in the U.S., are favorable to their needs.

Barley Program Draws Maltsters From Around the Globe
By Hannah Turner, Manager of the Barley Breeding Lab

The barley program recently hosted two events (the Advanced Craft Malting Course & the 2019 Craft Malt Conference) which brought roughly 170 maltsters, growers,

Flavor panel judges evaluate wort samples for the 1st annual Malt Cup competition.

brewers, and others interested in the Craft Malt industry to our campus. The class was a four day intensive course taught by myself, Aaron Macleod of Hartwick College in New York, and Patrick Boivin, an industry expert in malting technology from IFBM in France. Twenty individuals were steeped in the details of barley quality and biochemistry, malting equipment and best practices, specialty malt production and malt quality. The students participated in daily lectures and afternoon labs which focused on various tests maltsters should be employing to inform their process and ensure high end product quality.

The 2019 Craft Malt Conference covered three days and boasted 38 speakers touching on topics from the grower's perspective, climate change and disease impact on barley, optimization of malting facilities, marketing, food safety, and malt from the brewer's standpoint. Jamie Sherman was involved in two talks over the weekend, the first outlining the current work of the MSU's Barley Program, and the second presented by our collaborators at Colorado State University on the chemistry and impact on flavor from several hundred heirloom varieties which Jamie collected from around the world and which represent the parentage of historical malt barleys.

Two exciting side projects were highlighted at the 2019 CMC. The first ever Malt Cup – a malt competition modeled after the Brewer's Association GABF beer competition - included Pale Malt submissions from 21 malthouses from around the country. The samples were first evaluated for quality by the barley program's Malt Quality Lab. Those falling within prescribed quality parameters were then evaluated on flavor aspects by a panel of sensory judges. This competition is the only one of it's kind in North America and offers this year's winners significant marketing and bragging opportunities.

The second project was the Beer Collaboration Project – an endeavor which

Hannah Turner (front row, 3rd from left) along with Aaron Macleod (middle row-red shirt) and Patrick Boivin (bright blue jacket) pose with attendees of the 2019 Advanced Craft Malt Course held in 108 Plant Bioscience.

paired nine malthouses nationwide with nine brewers around the state of Montana. Each pairing worked to develop a beer which fit their style and the result was 9 awesome beers that were served Saturday night. These beers are still available for a limited time, on tap at many of the breweries and/or in cans at your local grocer.

All in all, the class and conference brought a hugely positive spotlight to the Montana State Barley Program and our Malt Quality Lab which services Craft Malsters via third party malt quality analysis. Over the course of the weekend, the lab was toured by more than 30 individuals who were interested in learning more about the lab and malt quality analysis.

To learn more about the conference, check out the Craft Malster's Guild webpage: craftmalting.com. Next year, the conference will be in Fort Collins, Colorado. For more info on the barley program and the malt quality lab, check out the website at montana.edu/barley breeding.

New Graduate Students
Isaac Dell (Wanner)

I graduated from Colorado State University in December of 2018 with a Master's Degree in Forest Science. My research focused on the effects of regional thermal variation on flight synchrony and phenology of spruce beetle. I am joining Dr. Kevin Wanner's lab as a PhD candidate, studying the developmental biology of three genetic strains of alfalfa weevil found in the inter-mountain west with the goal of applying our findings to improve the timing of management actions for this serious alfalfa pest. For recreation, I like to downhill & cross-country ski, snow-shoe, hike, cycle, run, and rock climb (beginner).

Grants

Jamie Sherman, Brewer's Association, "Winter and Spring 2-row Malt Barley for Conventional and Organic Systems"

Jamie Sherman, Brewer's Association, "Interaction Between Barley Genetics and Malt Process Impact on Flavor"

Jamie Sherman, Brewer's Association, "Stable and Sustainable Dryland Production of High Quality Malt Barley"

Montana Wheat and Barley Grants

Phil Bruckner, "Genetically Improved Winter Wheat Cultivars for Montana"

Mary Burrows, "Wheat Streak Mosaic Virus Variety Trials"

Jason Cook, "Molecular Breeding Pipeline for Wheat"

Bill Dyer, "Herbicide Effectiveness and Resistance in Acidified Soils"

Alan Dyer, "Advance Disease Resistance in Montana's Wheat"

Andreas Fischer, "Drought and Grain Protein Concentration: Two Related Problems"

Mike Giroux, "Assessment and Management of Pre-Harvest Sprout and Falling Number"

Mike Giroux, "Durum Varietal Improvement and Quality Testing"

Jennifer Lachowiec, "Improving yield stability to climate stress in wheat"

Deanna Nash, "Improved Quality of Montana Hard Red and Hard White Wheat"

Jamie Sherman, "Improved Winter Barley Varieties for Montana"

Jamie Sherman, "Identifying and Developing Improved Spring Barley Varieties"

Jamie Sherman, "Malt Quality Data for the Spring Barley Off-Station Nursery"

Luther Talbert, "Spring Wheat Breeding and Genetics"

Jack Riesselman, "Continuing as an Underwriter for MONTANA AG LIVE!"

Publications

Cripps CL, Eberhardt U, Schutz N, Beker HJ. Evenson VS, Horak E. The genus *Hebeloma* in the Rocky Mountain alpine zone. Mycokeys 46: 1-54 (2019).

Wheeler, DL, Scott, J., Dung, JKS., and Johnson, DA. 2019. Evidence of a trans-kingdom plant disease complex between a fungus and plant-parasitic nematodes. PLoS ONE. doi.org/10.1371/journal.pone.0211508

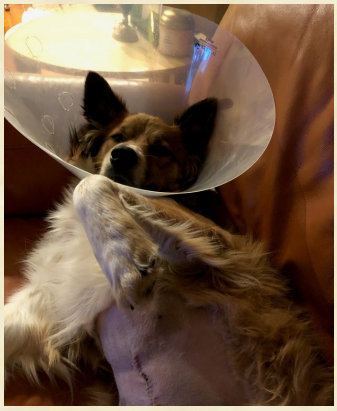
Wheeler, DL, and Johnson, DA. 2019. Does co-inoculation with different *Verticillium dahliae* genotypes affect the host or the fungus? Phytopathology. doi.org/10.1094/PHYTO-11-18-0430-R

Moving On
By Andy Burkhardt

The time has come to move onward! Starting March 4, I will be the new Agronomic Research Scientist for Syngenta Seeds in Seward, Nebraska. The last month has been jam packed with activity: Interviewing, house hunting, packing, publishing my research, and on and on. Emily and I found a home in Lincoln and we're excited about what lies ahead! I'm most excited to have our own garden full of tomatoes. My time with MSU, and the barley program specifically, has been incredible and I wouldn't trade my experience here for anything. I will miss my time in the office shooting the breeze and airing our grievances with the other grad students. If you find yourself in Lincoln, look us up!

Toxic Houseplants for Pets
By Toby Day, Horticulture Extension Specialist

My wife Jennifer and I just passed our 1st anniversary of owning a dog. What a year it has been! Murphy, a border collie/Australian shepherd mix we rescued from the Beaverhead County Animal Shelter has been a wonderful addition to the family. However, it hasn't been super easy. He is a chewer, and in the last year, he has chewed the leg off the coffee



The look you get when a herding dog has to stay home.

Back to his old self

table along with countless dog toys, devoured dozens of bones and even ate an entire tennis ball – whole. It got lodged in his large intestine and after surgery, $3,000 from our bank account, and two weeks with the "cone of shame", he was back to his normal self.

Until he got the ole' Bozeman kennel cough. When a dog has kennel cough, they are not to have any contact with other dogs until 10 days *after* they stop coughing. No dog park, no walks on Bozeman's trails, and no visits with friends who have dogs. That kind of non-exercise for a herding dog means they get frustrated, and chew on *everything.* Getting to the point of this article is that Murphy decided that houseplants were the next thing to chew on. While I was traveling across the Hi-Line of Montana for work, I got a frantic email from my wife with a picture of what was left of the houseplants that the Murph decided to eat. Luckily, none were toxic, but that got me thinking – have I ever produced a list of houseplants that are toxic to pets?

In my search of a list of toxic houseplants for pets, I found the article "Dealing with Plant-Eating Pets," from Iowa State University which had the following list of toxic houseplants:
Aloe (*Aloe vera*)
Arrowhead vine or Nephthytis (*Syngonium podopyllum*)
Asparagus fern (*asparagus sprengeri*)
Azalea (*Rhododendron* spp.)

Boston ivy (*Parthenocissus tricuspidata*)
Caladium (*Caladium hortulanum*)
Corn plant (*Dracaena frangrans massangeana*)
Cyclamen (*Cyclamen* spp.)
Dracaena (*Dracaena marginata*)
Dumb cane (*Diefenbachia* spp.)
Elephant's ear (*Colocasia esculenta*)
Lilies (*Lilium* spp.)
Peace lily (*Spathiphyllum* spp.)
Philodendron (*Philodendron* spp.)
Plumosa fern (*Asparagus plumosa*)
Pothos (*Scindapsus* spp.)
Umbrella plant or Schefflera (*Brassaia actinophylla*)

I do not know the level of toxicity of each plant or whether it is toxic to dogs, cats, or rats, but it is a good start to see if you may have a houseplant that your pet should stay out of. Finally, if you have a pet that has ingested something you think might be poisonous, you can always contact the ASPCA Animal Poison Control Center Phone Number: (888) 426-4435.

Murphy is back to his usual self with no side effects. However, I wonder what he will eat next?

Sources: *Dealing with Plant-Eating Pets*, Iowa State University Extension, Linda Naeve and Jean McGuire, Authors
Animal Poison Control, American Society for the Prevention of Cruelty to Animals, https://www.aspca.org/pet-care/animal-poison-control

Recipe of the Month

Irish Soda Bread - Happy St. Patrick's Day!

4 cups all-purpose flour
3/4 cup white sugar
1 teaspoon salt
1 teaspoon baking powder
1 teaspoon baking soda
1/2 cup butter, at room temperature
1 1/2 cups raisins
1 1/2 cups buttermilk, at room temperature
3 eggs, at room temperature
Preheat oven to 350 degrees F. Grease a 9-inch cake pan. Stir together the flour, sugar, salt, baking powder, and baking soda in a large bowl. Using a pastry cutter, cut the butter gently into the flour mixture until well combined, and stir in the raisins. In another bowl, whisk the buttermilk and eggs together; lightly beat the buttermilk mixture into the flour mixture. Place the dough into the prepared cake pan.

Bake in the preheated oven until the bread has risen and the top is golden brown, 45 minutes to 1 hour. A knife inserted into the center of the bread should come out clean. Cool the bread in the pan on a wire rack for 10 minutes before removing. Serve warm.

March Birthdays

Sarah Olivo	2
Eva Grimme	9
Richelle O'Leary	13
Jason Cook	16
Anna Jesperson	24
Erin Gunnink-Troth	24
Rachel Black	30
Elaine Nichols	31

Alanna and Guthrie Oiestad welcomed Haakon (pronounced Hawken) into the world on February 13. He weighed 8 lbs, 7 oz and joins brother Wesley.