Jenny Rees 1-6-2019

It feels like a long time since I wrote! Being burned out, I wasn't ready to reflect on 2018 in my previous column. Perhaps some of you felt that way too? There were plenty of challenges for agriculture in 2018. Grateful for breaks. Grateful for a new year! Grateful for good new hires in Extension to help with the work load throughout the State! As I reflect on the past several years, thank you for your support as I've done my best to cover a lot of counties to the best of my ability. Grateful for the opportunity to serve Nebraskans via Extension and to enjoy this work! And while it comes at the expense of our farmers, I'm grateful for the continual opportunity to learn with every new crop/pest problem. I know a few of you have wished these problems didn't have to happen to you so I could learn! Yet I do appreciate the phone calls to work through situations with our farmers and ag industry professionals. While each year presents unique challenges, I'm always inspired by the resiliency of our farmers and those in the ag community. Looking forward to serving you in 2019!

Short Survey: In Extension, we always need to prove that what we do in our work brings value to those of you we serve. Would you please consider completing this short survey for me to provide feedback, specifically regarding my email newsletter, news column, any specific way I helped you last year, and ways I can improve in my Extension role in 2019? All feedback is anonymous. Please go to the following direct link: https://app2.sli.do/event/q2p1sedv/polls or you can also go to https://www.sli.do/ and enter the code 7708. Thank you for considering this!
York Ag Expo: Reminder of the York Ag Expo this week! Hoping to see many people come out to view the exhibits and also come to the educational sessions. I try to train people to RSVP for all my educational events, but walk-ins are always welcome. Chemigation is on January 9th from 9 a.m.-Noon with Steve Melvin. Then come out and hear the latest on the Farm Bill, Crop Insurance decisions, and Farm Taxes from 1-4 p.m. from Brad Lubben, Cory Walters, and Austin Duerfeldt. On January 10th, I will present private pesticide training from 9 a.m.-Noon. Then come out for residue and manure management from 1-4 p.m. with Mary Drewnoski, Michael Sindelar, Tim Mundorf, and myself. From 4-5 p.m. will be the keynote speaker Chad E. Colby. Agribusiness after-hours from 5-6 p.m. Ag appreciation lunch both days and all exhibitors and sponsors can be found at: https://yorkchamber.org/event/ag-expo/. Hope to see you there!
RUP Dicamba Training: On the Nebraska Department of Ag website, you will now see the list of UNL face-to-face trainings, the link to the UNL online dicamba training, and a list of certified applicators who have completed dicamba training. I took the online course on Friday so I could better answer questions. This year, it allows you to take one of two tracks: presentations by Dr. Bob Klein or Dr. Greg Kruger. You are also welcome to take both for more information. There are instructions with screenshots on the online dicamba training webpage: https://pested.unl.edu/dicamba-training-instructions. Some reminders regarding this, **the applicator's name and applicator ID number** need to be listed when registering for the online course. Last year we had some wives complete the registration for husbands and then

the wives were listed as certified and not the husbands. This year anyone applying RUP dicamba must complete approved RUP dicamba training and must also be a certified licensed pesticide applicator. Regarding face to face trainings, I am not having a dicamba training during the York AgExpo, but there are many options available that can be viewed on the NDA website. For that training, you will need to bring your certified applicator number. If you are a new pesticide applicator who hasn't received a number yet, you will put 'pending'.

York-Hamilton Cattlemen's Banquet: The York-Hamilton County Cattlemen are planning their 71ST Annual Cattlemen's Banquet for Tuesday January 29, 2019 at the Holthus Convention Center in York. Dave Thorell of Loomis, NE will be the featured entertainment. Dave Thorell is a regionally known speaker, avid agriculture advocate, humorist, story teller and was the voice of Agriculture News for over forty years on KRVN Radio. Thorell was elected into the Nebraska Broadcaster Hall of Fame. The Cattlemen will also recognize Rich Pearson of Hordville and Allen Roehrs of Bradshaw as Honored Guests for the evening for their contributions to the area livestock industry and the Cattlemen's Association. The evening starts at 6:30 with social time, a Prime Rib meal at 7:00 with entertainment and recognition of honored guests to follow. Cattlemen's Banquet tickets are $25 per person. Sponsorships are also available that include two banquet tickets and recognition at the banquet for $150. Cattlemen's Banquet tickets can be purchased from any of the York-Hamilton County Cattlemen's Directors including Brian Blase of Hordville; Brock Ekhoff and Terry Ross of Aurora; Jeff Underwood of Exeter; Allen Klute and Mark Klute of Hampton; David McDonald of Phillips, Jeff Meradith, Kim Regier and Josh Chrisman of York; Kim Siebert of Henderson, plus the Extension Offices in York County and Hamilton County.

Jenny Rees 1-13-19

Thank you to all the committee members, sponsors, exhibitors, presenters, attendees, and media coverage of the York Ag Expo last week! Great to see so many turn out for the educational sessions as well!

Packed room for chemigation training at York Ag Expo.

Farm Bill: I was extra pleased with the excellent questions and discussion with the afternoon educational sessions at the York Ag Expo. The following are the major changes that Dr. Brad Lubben, Extension Farm Policy Specialist, shared during the Farm Bill presentation. Farmers will have the opportunity to make a new election for either ARC-CO or PLC for the years 2019-2020 (a two year decision), after which the decision will be a yearly one (beginning in 2021) until the end of the farm bill period. There's more changes to the ARC program than PLC. For ARC, the primary source of yield data will most likely be RMA crop insurance data instead of NASS survey data. The 25% factor used to establish ARC-CO coverage by irrigated or non-irrigated practice is no longer in effect. Instead, a farmer can make a request to the FSA committee if not less than 5% of the acreage was irrigated or not less than 5% was non-irrigated during the 2014-2018 crop years. Coverage is now tied to a physical county regardless of administrative county. The plug yield in ARC-CO increased from 70% to 80% of the transitional yield. There will also be a trend yield adjustment similar to the Federal crop insurance trend-adjusted yield endorsement. When Brad showed what this looked like if applied to the previous farm bill, it increased the bu/ac in all the examples he showed. Thus, he speculates it should improve the ARC-CO benchmark. Regarding PLC, producers will have the opportunity to consider updating yields on farms. There's a specific equation that will be used and because it's focused more on the 2008-2012 period to help those farms most effected by drought, it may not provide a benefit to all farms. It would still be worth working through the equation just to make sure for your individual farms. The other change to PLC is the equation for the effective reference price. In 2014, several of us in Extension worked individually with you to help you through these decisions using decision

support tools. Money was not provided in this farm bill to support the computer tools so we're still waiting to see if they will be developed. We're assuming they will be. Yet the decisions this time may be more straightforward with making a decision for the first two years followed by annually vs. the life of the farm bill like what happened in 2014. All resources and information can be found at http://farmbill.unl.edu. Regarding ARC vs. PLC decisions, Brad shared the following points:

- Under stable, lower price levels, PLC support will kick in before ARC support for downward price movement.
- Under modestly increasing price levels, ARC and PLC support may quickly disappear.
- Under substantially higher prices, moving average price in ARC benchmark and moving average price in PLC effective reference price could ratchet up support to near equivalent levels.

Survey: Every year in Extension we write annual reports to justify the work we accomplished during the year. Last week I shared a survey link to provide me feedback regarding 2018 efforts. Thank you for those who have responded; I appreciate it!!! The survey truly is anonymous. For those who haven't responded, I would greatly appreciate your feedback on this short survey at: https://app2.sli.do/event/q2p1sedv/polls. A year ago I changed the way I did my email list and news columns. My hope is that the format is more beneficial for us all in spite of the extra time it takes me each week. I'm genuinely open to and desirous of your feedback. Also, if you're reading this and would like to be added to my email list, please email me at jrees2@unl.edu and I will add you.

Crop Production Clinics and Nebraska Crop Management Conference: Thank you to all who requested via surveys, emails, or phone calls in 2018 that you wanted to see the Crop Production Clinic back in the area! You were heard and one will be held in York at the Holthus Convention Center on January 17th! You can see the full schedule at http://agronomy.unl.edu/cpc. The Nebraska Crop Management Conference in Kearney on Jan. 28-29 has the same topics as Crop Production Clinics with additional topics and out of state speakers. You can view the registration for that conference at: https://agronomy.unl.edu/NCMC. While I realize many of you attend CPC for specific reasons, there is an opportunity this year to participate in a university research study *and* be paid for your time. Simanti Banerjee, an assistant professor in the Department of Agricultural Economics, is studying producer behaviors in response to farm bill programs. The study will take up to two hours. Average earnings from participating in the study are expected to be up to $100, depending on your decisions and those of other participants. All information collected is confidential and your responses are anonymous and will not be connected to your name. You can read more and register to participate in this study at this site: https://agronomy.unl.edu/crop-production-clinic-study-consent. Looking forward to seeing those who attend the upcoming CPC and NCMC!

Jenny Rees January 21, 2019

Stress. We all have it in life. I didn't really think about how stress can be good until my colleague Brandy VanDeWalle asked us some questions during her presentation at the Cow-Calf College. She asked us what we look like with good stress. Thinking about it, good stress allows me to be that much more productive in achieving tasks. I'm not a procrastinator, but long gone are the days where I used to color code my planner. My experiences with the military and being in Extension allowed me to give all that up for being spontaneous and flexible with the changes and deadlines placed upon me each day. So that's me and good stress. We were also asked what we look like with bad stress. Many of us shared we tend to withdraw from others and be shorter/abrupt in responses than we intend. Weather perhaps plays a huge role in adding stress to lives for those of us in agriculture.

Research has shown each person has around 70,000 thoughts per day with 80% of the more repetitive thoughts being negative. Wow-80% negative! That blew me away. But they don't have to be. Research also showed that taking a 10 minute walk reduced cortisol (stress hormone) in the brain by 50-70%. Even if a person doesn't walk, taking a break can help. Last week we lost a couple of Nebraska farmers and my heart goes out to their families. The National Farm Medicine Center in Wisconsin tracked farm suicides during the 1980's in the Upper Midwest and found that the suicide rates were 58 for every 100,000 farmers and ranchers. Suicide rates today are more than 50 percent higher than they were in the 1980's at the peak of the farm crisis.

It's so hard to know what others are going through; so often we wear masks. I've done this too. We're all prone to much pride in life, especially in the midst of struggling. I challenge us all to do more in 2019. Let's pay more attention to those around us, spend more time connecting, be more honest about our situations. There's so many times a simple text, phone call, email, or visit changed the outlook on my day. Last week a farmer shared how the weather made for a challenging time with calving; a neighbor stopped by and brought him a slice of breakfast pizza. That simple act of noticing his struggle and taking time to talk changed his outlook. So let's check in with each other more and have the courage to be honest about how things are truly going. There's also a number of free resources for help including: Nebraska Farm Hotline – 1-800-464-0258; Farm Mediation Clinics 1-800-464-0258; Nebraska Legal Aid: http://www.legalaidofnebraska.com.

Economics: In thinking through options for lowering input costs, there's several things that come to mind. Some may even be good on-farm research projects to test. One consideration with the new farm bill is the fact that there will be an increase in CRP acres. So, producers have a decision to make regarding potentially enrolling acres into CRP. And, if doing that, perhaps converting some land next to that area into an annual forage system is another option if you have cattle. I will go into the details of this in another column. We have had some guys doing this and it's just another alternative to consider.

Reducing soybean populations without affecting yields has been proven via on-farm research for 12 years now. I've documented this regardless of what has happened in-season. We even had a York county producer who did this study in 2018 and raised 93 bu/ac with a final average stand of 67,000 plants/ac! And, for those with dectes stem borer, my observation has been that dectes doesn't penetrate the stems as easily on these thicker stems in lower population fields. I don't have any research, though, so if you're interested in testing that, please let me know.

Common thinking is that max yield provides max returns. There's some things like early soybean planting that I will always push for increasing yields. But otherwise, I tend to look at that statement differently and ask if we always have to look at max yields. What if we looked at maximizing economics instead? I realize a lot of seed purchases have been made. There's some strong flex hybrids that yield really well in non-irrigated environments. A couple of farmers have also mentioned this to me. We're curious what would happen if we put them under irrigation at lower populations. It could even be an on-farm study to compare a low pop (28K or less), lower input system to one's current system with higher inputs. However, the question would be which is most economical in the end. Please let me know if you'd be interested in trying this.

I've also had a handful of guys mentioning they were interested in sorghum because of the reduced input costs. For those of you who I worked with during the last farm bill who kept sorghum base acres, I mentioned it may be wise to plant sorghum somewhere on those farms before the next farm bill because we never know what will happen regarding payments. We've learned in this new farm bill that there will be a payment reduction for any crop not grown in the last 10 years that you have base acres for. So that may be another reason to consider planting some sorghum for the future. If it's been awhile since you've planted sorghum, there's a free sorghum symposium on January 24 in Grand Island at the Extension Office. Registration begins at 9 a.m. and you can RSVP at: 402-471-4276.

Farm Bill: I need to clarify something I mentioned last week and I apologize for misunderstanding this. I heard the farm bill presentation for the third time this winter and after asking this question, realized I had misunderstood and incorrectly informed you all last week. This is in regards to base acres and which crops were planted the past 10 years. I incorrectly told you that (for example) if you had sorghum base acres and hadn't planted sorghum the past 10 years, that your payments would be reduced. It is true that this idea was proposed in negotiations (so keep in mind for the future). However, that idea did not pass; the correct statement is if you planted a crop that is not approved for program payments, your base acre payments will be reduced. So, for example, if you planted industrial hemp instead, which currently is not an eligible crop for program payments, your base acre payments would be reduced. So just wanted to correct this on my end.

York County Corn Grower Tour Feb. 5: The York County Corn Grower's Association is sponsoring a tour on February 5th. We will meet at the York County Extension Office at 6:45 a.m. and plan to leave for Grand Island by 7:00 a.m. Morning tour stops include the Case IH Axial-Flow Combine Plant followed by Hornady which produces bullets, ammunition, and reloading products. Lunch will be held at Kindaiders Brewery in which attendees will also receive a tour. The group will then tour Klute Manufacturing near Bradshaw which produces Warren dump boxes, Circle D and H&H trailers, pickup flatbeds, and vehicle accessories. The final stop will be the York Agricultural Education Program which was recognized as one of the top six programs in the nation by the National Association of Ag Educators. Attendees must wear closed toed shoes and be able to walk without a cane/walker based on the requirements of the places we're touring. Please RSVP no later than Feb. 4th to the York County Extension Office at (402) 362-5508.

Nebraska Ag Technologies Association Conference: Learn about the latest developments in precision agriculture technologies January 31 at the Nebraska Agricultural Technology Association (NEATA) Conference. The group's annual meeting and agriculture industry conference will be held at the Kearney Holiday Inn and Conference Center in Kearney. Conference topics will include precision economics, nutrient and water management, data collection, and precision equipment. Featured guest speakers include Brian Arnall, precision nutrient management extension specialist, Oklahoma State University; Jim Smith, executive director, Blueprint Nebraska; and Cathy Anderson, chief specialist, Nebraska State Farm Services Agency Office. Attendees will also be able to choose from 10 breakout offerings. The conference will be held from 8 a.m. to 5 p.m. To view the conference program and register, visit https://neata.org/. The fee is $175 when pre-registering and $195 the day of the conference. Students may register for $25.

Managing Ag Land for the 21st Century: This workshop for current and future landowners and tenants will cover current trends in cash rental rates, lease provisions, and crop and grazing land considerations. There will be two meetings in the area. One on Feb. 12 at the Fillmore

County Fairgrounds in Geneva. The other will be held on Feb. 25 at the Butler County Event Center at the Fairgrounds in David City. Both meetings will begin with registration at 9:15 a.m., with the program starting at 9:30 a.m., and ending by 3:00 p.m. There is no charge for these programs. To attend in Geneva, please RSVP at (402) 759-3712. To attend in David City, please RSVP at (402) 367-7410.

Hamilton County Ag Day will be held Feb. 13 with registration at 9 a.m. and program from 9:30 a.m.-3:30 p.m. The program will include updates from Nebraska Corn Growers, Farm Service Agency, and Natural Resources Conservation Service. Additional topics include Managing Soil Microbes 101, Stalk and Grain Quality Concerns with Corn, Land Rental Considerations for 2019, Pivot Wheel Track Management, Corn Stalk Grazing Economics, Benefits of Corn Stalk Grazing, and a weather update from Al Dutcher. There is no charge for the program but please RSVP to (402) 694-6174 for lunch count.

Nebraska Cover Crop and Soil Health Conference will be held Feb. 14 at the Eastern Nebraska Research and Extension Center (former ARDC) near Mead. The program runs from 9 a.m.-3:30 p.m. with registration at 8:30 a.m. Topics and presenters include: "Growing a Revolution: Bringing Our Soil Back to Life," David R. Montgomery, professor of geomorphology, University of Washington; "Rebuilding and Maintaining Life in the Soil," Jay Fuhrer, soil health specialist, Natural Resources Conservation Service, Bismarck, North Dakota; "How My Farm has Responded to Cover Crops and Crop Rotation," Ray Ward, founder, Ward Laboratories; "Northeast Nebraska Farmer's Perspective on Cover Crops," Jeff Steffen, Crofton farmer; "How I Graze My Cropland Without Owning Livestock," Scott Heinemann, Winside farmer; and a farmer panel. There is no fee to attend, but individuals must pre-register by 5 p.m. Feb. 8 to ensure meals and resource materials are available. Seating is limited. To register, call 402-624-8030, email cdunbar2@unl.edu or use the form at https://go.unl.edu/tmj5.

Jenny Rees 2-3-2019

Ag Land Management Webinars: Extension Ag Economists will be presenting quarterly webinars The first episode on February 18th at 6 p.m. CST will examine recent trends in Nebraska cash rental rates and considerations for updating agricultural leases for 2019. Future episodes will address landlord-tenant communication, lease decision-making issues, and seasonal lease considerations. The webinars will conclude with an "Ask the Experts" session where participants can get answers to their land or lease questions. The webinars can be viewed online at agecon.unl.edu/landmanagement. Webinar dates are: Feb. 18, May 20, Aug. 19, and Nov. 18.

RUP Dicamba Information: Several have asked this question: if you plan on applying RUP dicamba products this year, you do need to take RUP dicamba training again. It's an annual certification which can be obtained through online or face to face training. NDA also shared the 2019 record keeping form which can be found at: http://www.nda.nebraska.gov/pesticide/dicamba/RUP_DicambaApplicationRecord2019.pdf . A team of us also updated a Frequently Asked Questions document which can be found at: https://cropwatch.unl.edu/2019/2019-faq-rup-dicamba.

Shark Tank Coming to UNL: If you've got an innovative idea or product you want to develop commercially, start prepping your sales pitch. ABC's "Shark Tank" television show is coming to Lincoln on April 5-6, courtesy of the Engler Agribusiness Entrepreneurship program at the University of Nebraska–Lincoln. Entrepreneurs from across Nebraska and the northern Great Plains are encouraged to come to Lincoln to present their ideas and products to "Shark Tank" casting producers. The one- to two-minute pitches are the first step in being considered for pitching on the show's 11th season. On the show, "sharks" — successful business people and potential investors — hear pitches and question presenters, seeking out those most likely to be successful and warrant investment. For the first time, an open Shark Tank Casting Call is taking place in Nebraska. This is your opportunity to help us showcase the entrepreneurial spirit of the heartland. The Heartland Shark Tank, presented by the Engler Program and local partners, is more than a simple pitch. It's a unique opportunity to network with other small business owners, hear from local small business leaders, celebrate midwest entrepreneurship, and take your shot at Shark Tank. You can learn more at: https://heartlandsharktank.com/.

UNL's 150th Birthday Celebration: The University of Nebraska was chartered on February 15, 1869 and charged with its land-grant mission of public education and service to Nebraska. In 2019, we mark a 150-year legacy of improving the quality of life for Nebraska and beyond. From February 11-15, UNL is celebrating Charter Week and Charter Day on Feb. 15. You can learn more about all the activities at: https://n150.unl.edu/. Specifically on the 15th is an open house at the Wick Alumni Center from 10 a.m.-Noon where attendees can enjoy a cupcake and view the Nebraska charter along with other historic items on display. Tune in to a live stream of the event on the official University of Nebraska–Lincoln Facebook page. Dairy Store N150 ice cream called "Nifty 150" will be served from 1-2 p.m. at the East Campus Dairy Store. Then at 7:30 p.m. is the Charter Day grand finale at the Lied Center for Performing Arts with a multimedia concert showcasing the university's incredible history with over 300 artists, two world premiere musical works, fireworks and a toast to the next 150 years.

There's also a new book ""Dear Old Nebraska U: Celebrating 150 Years," published by the University of Nebraska Press that is available for sale. The book traces the history of UNL from one building in a small prairie town to more than 43,020 acres of campuses statewide. The book is available for purchase in the University Bookstore, local booksellers and through the University of Nebraska Press website at https://www.nebraskapress.unl.edu/university-of-nebraska-press/9781496211811/. A book signing is planned as part of the N150 Charter Day Open House, 10 a.m. to noon Feb. 15 at the Wick Alumni Center, 1520 R St.

Jenny Rees 2-10-2019

On the first day I started Extension nearly 15 years ago, I met two other Extension Educators and a farmer in a Clay County farmer's field. The farmer was cooperating with us in an on-farm research project. It was great for me to see farmers answering their own questions by partnering with Extension to conduct field-scale, replicated research on their own farms. It also became a key tool for me to learn via field observations and build relationships with growers.

Any of you who know me know on-farm research is something in which I'm pretty passionate! The reason? You're all going to meetings and reading information regarding various practices/products and you may wonder if any of those things will work on your farm. You may try various tests on your own, which can provide some information. But because fields are so variable, scientific tests can't be conducted by just splitting fields in half or without true randomization and replication. Another reason I believe in on-farm research is because we answer much with minimal money invested! I think of numerous studies our farmers have partnered with us in which University faculty wouldn't have been able to obtain grants because they were too applied. However, in farmers utilizing their equipment on their own ground partnering with Extension to collect and analyze data, we've been able to conduct these studies with minimal cost other than some additional time and travel to fields. We've tested numerous products including soybean inoculants, growth promoters, soil health, and nutrient management ones. We've tested various practices such as populations, planting dates, planting depths, nutrient timing, cover crops, and much more. A good portion of our results can be found at http://resultsfinder.unl.edu. That site is still missing the first 15-20 years of Greater Quad County on-farm research studies, but everything is there from 2010 on. (I hope to one day help get the rest added).

I'm so grateful for all of our on-farm research cooperators-especially to all of you who have worked with me-for your investment of time and trust in partnering! We can't do this without you! And, I hope more growers consider partnering with us in on-farm research in the future!

On-Farm Research Updates: Next week will be our Nebraska On-Farm Research updates. It's an opportunity to hear from the growers themselves who conducted studies in 2018 regarding why they chose their studies, how they conducted them, and what their plans are for the future. I really enjoy these meetings and learning from the discussions! While many of the studies may show there's no differences, those are still answers to specific questions! Research projects include: cover crops, variable rate seeding, planting populations, starter fertilizer, fungicide applications, alternate crop rotations, seed treatments, and sidedress nitrogen management technologies including drone and sensor-based, variable-rate nitrogen management. Certified Crop Advisor Credits have been applied for and are pending approval. Call (402) 624-8030 or e-mail onfarm@unl.edu to register. Locations and times are listed below. There's no charge with lunch included due to the partnership of the following: Nebraska Corn Growers Association, the Nebraska Corn Board, the Nebraska Soybean Checkoff, and the Nebraska Dry Bean Commission.

- Feb. 18: Grand Island, Hall Co. Extension Office, College Park, 9 a.m.-4:30 p.m. (Reg. 8:30)
- Feb. 19: Norfolk, Lifelong Learning Center, Northeast Com. College, 9 a.m.-4:30 p.m. (Reg. 8:30)
- Feb. 20: Beatrice, Valentino's Restaurant, 701 E. Court St., 9 a.m. – 4 p.m. (Reg. 8:30)
- Feb. 26: North Platte, West Central Research & Extension Center, 9 a.m. – 2 p.m. CST (Reg. 8:30)

Soybean Yield Gap On-Farm Research Project: A number of you have helped through the years in providing field history information for Dr. Patricio Grassini for the Soybean Yield Gap project. That's the difference between current farm yield and potential yield as determined by climate, soil, and genetics. An analysis of survey responses from over 2000 soybean producers indicated a 20%-30% yield gap for soybean. In Nebraska, three practices have been identified as being important for improving yield and producer profit: planting date, seeding rate, and the use of foliar fungicides and insecticides. An on-farm research study in eastern Nebraska is seeking 20 growers to test "improved" practices versus "baseline" practices in 2019 and 20 again for 2020. A PDF handout with the regions and more details can be found at: https://go.unl.edu/h8hc. Please let me or your local Extension Educator know if you're interested in this!

Jenny Rees 2-17-2019

We had our 4-H Festival tonight in York. Sometimes I need to be reminded how cool ag is and not take it so easily for granted. Watching the kids exclaim “that is so cool!” when looking at fungal spores under the microscope or seeing both youth and parents be amazed to see the root and early leaves with soybean dissection repeatedly brought a smile to my face. Any youth ages 6-18 are welcome to join me every month for Crop Science Investigation (CSI). At each meeting, the youth become detectives to solve a real-life problem about plants. Learning is hands-on, youth don’t have to be in 4-H to attend, and also can be from outside of York County. Our next meeting will be March 25th from 5-6 p.m. at the York Co. Extension Office and every third Monday of the month after that. Please contact me at jrees2@unl.edu to RSVP or for more information.

On-Farm Research Brainstorming Meeting: Last week I shared about on-farm research and the updates that are occurring this week throughout the State. Because we cover so many research projects at those updates, there’s not a lot of time for growers to just brainstorm and talk about projects they’re considering for this year. So, I’m having an on-farm research brainstorming meeting on Monday, February 25th from 10 a.m.-Noon at the 4-H Building in York. I will also provide lunch at Noon for those attending in person. We will also have a distance connection available for Extension Offices in other parts of the State and I can share that link with anyone who is unable to attend in person. Please RSVP to me (jrees2@unl.edu) if you plan on attending or if you would like to join us via weblink. Purpose: Brainstorm on-farm research topics to conduct this year and better determine who is interested in which studies to see if we can get several to conduct the same study. A number of growers have contacted me since harvest with project ideas. What has been shared thus far include: interseeding covers at V3-V5; biological products including some heard about during No-Till on the Plains; renewed interest in applying sugars; soy pop looking at impact on soybean stem borer; economics of lower corn pop with high flex hybrid under irrigation vs. current pop; second year for some on early vs. later maturity group soy planted early; Chris Proctor and my interest in small grain or other cover on soybean endrows (document palmer); comparison of sorghum vs. corn in non-irrigated setting looking at economics for Nebraska. Come with any topics you’re interested in discussing and looking forward to the discussion!

Soybean Seed Quality: The wet fall brought challenges with harvest and seed quality.

Purple Seed Stain (left) and Phomopsis Seed Decay (right). Photo by Jenny Rees, Nebraska Extension.

Not surprisingly, we're hearing about reduced germination for soybean seed next year. There's an article in this week's CropWatch at http://cropwatch.unl.edu that goes into more details. Essentially in seeds infected with fungi causing purple seed stain and also phomopsis seed decay, reduced germination is occurring. Steve Knox, manager of the Nebraska Crop Improvement Association shared that while a few lots came in at or above 95% germination, results are averaging in the mid 80% range. In a typical year, soybean seed lots tested by the Nebraska Crop Improvement Association (NCIA) range from 88% to 98% germination. This year samples thus far ranged from 43% to 98% germination. The minimum germination for certified soybean seed is 80%, as set by the Association of Official Seed Certifying Agencies (AOSCA). The Nebraska Department of Agriculture has set a minimum germination standard of 75% for soybeans. On a phone call, Steve mentioned that all the moldy and dead seed were removed from the samples before conducting germination tests. They did test the purple seed stained soybeans and found little to no germination reduction in infected seeds. Purple seed stain is seed transmitted; thus, if you have seed lots that are infected at planting, you may notice it at harvest as well. You may also have noticed soybean seed last fall that had very tightly wrinkled seed coats. This was due to the continual wetting/drying process beans went through with rain and wind events. Steve said soybeans with those characteristics didn't germinate at all thus far but there's few soybeans with those characteristics in most seed lots tested thus far. Iowa State research found that adding a fungicide seed treatment to lower quality seed could increase the germination percentage up to 15%. However, a fungicide seed treatment won't improve germination of dead or dying seeds. Seed treatments should be considered when germination rates are below normal and when you're planting into cold, wet soils. It's important for growers to check the germination rate of soybean seed this year. Regarding any adjustments for seeding rates, when we conducted on-farm research soybean seeding rate studies, we did not adjust for the germ on the bag (seeded 90K, 120K, 150K, and 180K with no adjustments). However, every seed lot had at least 90% germ in those studies. We're not recommending to adjust for 80-98% germ if the grower seeds 150K+ because there's already enough seed planted without adjustment based on our research. However, those planting less than 150K may wish to consider adjusting this year if germination for their seed is in the 80-89% range.

Jenny Rees 02-24-2019

Change. Sometimes it can motivate us to move forward and sometimes we can allow unwanted change to cripple us. The theme of the Women in Agriculture conference last week was "Taking Charge of Change". There's a number of changes we all face, especially for those involved with agriculture. Many are outside of our control yet we can control how we respond. We were challenged to write down 2-3 changes currently occurring in our lives and then what parts of those changes, if any, we had any control over. The first keynote speaker then built off of that in speaking on "Getting Clear on our Impact". He was talking about life's changes and our yearly goals. In clarifying impact around our goals, he mentioned three steps including: thinking long term, clarifying values/intentions, and optimizing for the starting line. The first two were pretty intuitive for me, but I wasn't sure what he meant by the last one till explaining. In optimizing for the starting line, it's about taking the first step. How many of us have made goals that have seemed too daunting to achieve such as fitness, nutrition, or other personal goals? He gave the example of a man who made the goal to run 5 miles every day for a year. Even though it's measurable, it may not be achievable every day. He said the past three years, he made the goal each year to play his fiddle. He had been a fiddle player before having children but failed to even play once in spite of the goal. "Optimizing for the starting line" is about taking the first step. For the first man, it became simply putting on his running shoes. Once the shoes were on, it was the first step to any type of exercise. For himself, it was scheduling a time each day to only 'pick up his fiddle'. Once he picked it up, it was the first step to begin playing again and he has been successful at playing since. The thought of this is so simple yet profound. It makes a lot of sense. In these cases, it can be change that's positive by taking the first step, including in changing negative habits. It goes along the lines of other things we've heard such as "just making one's bed" to complete one task, etc. For me, it will be to pick up a note card which is the first step to writing long-overdue thank yous and notes of encouragement. What first steps would allow you to achieve some of the goals you have in life or more positively help you deal with change occurring in your life right now?

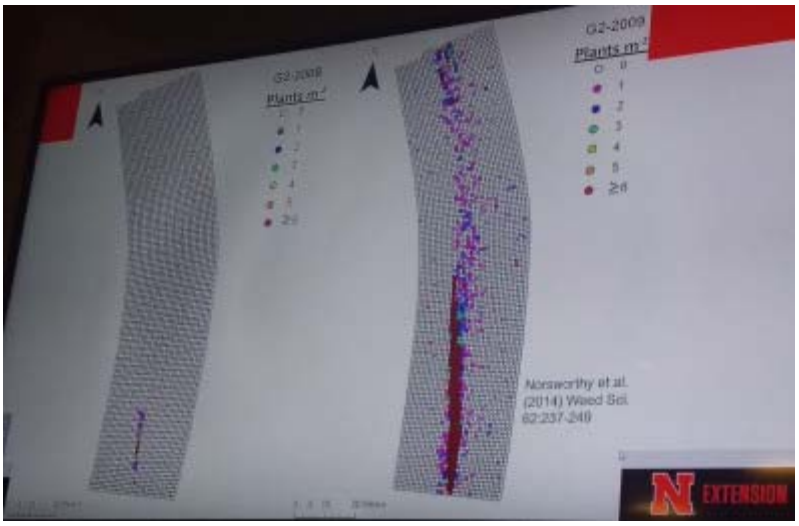
Women's Farmers & Ranchers College Program: Another opportunity for women in agriculture is upcoming on March 14. Michele Payn, founder of Cause Matter Corp., will be speaking to women on "Gate to Plate" at the next Farmers & Ranchers College. This informative and light-hearted program will start with registration at 6:00 p.m., a light meal and program to follow. The venue will be Lazy Horse Vineyard & Brewery near Ohiowa, NE or at 211 Road 20, Ohiowa, NE. This program is for women involved in agriculture to learn strategies for sharing their story of agriculture to today's consumers. This program is free, however space is limited so please

RSVP to 402-759-3712 or at go.unl.edu/farmersrancherscollege. Cause Matters Corp. focuses on addressing food myths, developing science communication, and connecting farm to food. In each of these core areas, Michele helps organizations clearly identify issues, understand their audience and grow solutions. Michele's goal is to help you communicate "why your cause matters" – whether you're a scientist, dietitian or in agribusiness. Michele's resources and website can be found at http://causematters.com. For those of you on Twitter, Michele also founded the weekly #agchat conversation.

CropWatch and BeefWatch Podcasts: Dr. Roger Elmore, Extension Cropping Systems Specialist joins Michael Sindelar, Extension Educator, to talk about Corn Planting and Early Growth Stages in this month's CropWatch podcast. You can listen to it at: https://cropwatch.unl.edu/2019/cw-podcast-corn-planting-and-early-growth-stages. The monthly BeefWatch newsletter now has entire articles available via podcast. You can click here to subscribe if you're interested: https://beef.unl.edu/beefwatch-podcast?platform=hootsuite.

Grain Marketing Workshop in David City: Are you getting the most profit out of your grain? A free Nebraska Extension Grain Marketing Workshop will help you build your own marketing plan for next year's crops. The workshop will be 10 a.m. to 3 p.m. Tuesday, March 5 in David City at the Hruska Memorial Public Library, 399 Fifth St. Austin Duerfeldt, Nebraska Extension ag economist and extension educator, will lead the morning session on how to develop a grain marketing plan. In the afternoon participants will get to test two scenarios using the Marketing in a New Era simulator. MINE is a commodity simulation game designed to help producers develop and improve their commodity marketing skills. Also speaking will be Eric Erickson, Risk Management Consultant at Thrive Ag LLC. The workshop, workshop materials and lunch are free. Seating is limited to the first 20 registrants and please RSVP to: Melissa Bartels at melissa.bartels@unl.edu.

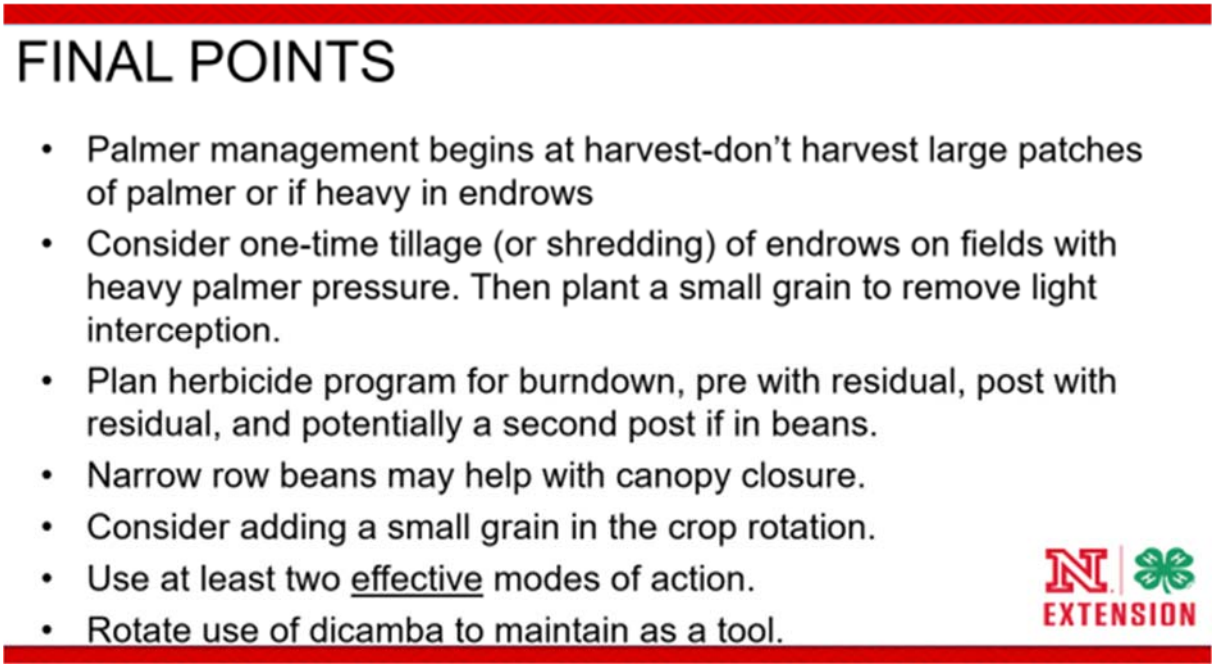
I'm assuming we can say March came in like a lion, so hopefully, it goes out like a lamb! My thoughts have also been with our livestock producers, especially everyone calving with this extra difficult winter. It's also been an interesting winter programming season for me-probably the worst travel wise ever with some scary trips. Grateful winter programming is concluding and extra grateful for safety on all the bad roads. My out of state travels often were to speak on palmer amaranth management. I don't claim to be an expert on this, just seek to read, observe, and learn for helping our farmers. Well, palmer had another 'win' with the announcement this week of a population in Kansas being confirmed to be 2,4-D and dicamba resistant. Populations in Kansas had already been confirmed to be resistant to ALS, atrazine, glyphosate, and HPPD chemistries. The 2,4-D and dicamba resistant population was found at K-State Agronomy's long-term (45 year) conservation tillage study in southern Riley County. This study compares long-term monocrops to various crop rotations. The seeds from plants that survived in the field were collected, grown, and exposed to dose rate studies at the K-State Agronomy Department greenhouse. Twenty-one days after treatment, the resistant progeny survived up to a 16X rate of 2,4-D (8 lb acid equivalent/acre (ae/a)) while susceptible progeny were killed with 1 lb ae/acre or less. The seed from plants that survived in the field were also treated with 0.5 lb ae/acre rate of dicamba with 81% of the plants surviving. Studies are ongoing to determine the level of resistance and additional cross-resistance to other growth regulator (Group 4) herbicides.



That's why when I talk about palmer, waterhemp or frankly any of our weeds, to me, it's about a system's approach. We can't rely on herbicides alone. I think of weed control beginning at harvest by not combining patches of weeds or extra weedy endrows. There's research documenting 99% of palmer seed survives the combine. There's also research proving seed dispersal from the combine throughout the field the following growing season by counting plants that resulted from the first several combine passes. Instead, I recommend to consider disking once or shredding those areas at harvest. Then get a small grain seeded to reduce light interception onto the soil surface. Why? Natural and red light has been proven by the research to stimulate germination of palmer seed more than soil temperature. Light interception onto bare soil can allow for a flush of palmer to germinate. So in managing palmer, I'm thinking of anything we can do that can delay or reduce germination. Palmer seed in general is short lived…7-10 years. But plants are prolific seed producers. A plant inside the field can produce up to ½ million seeds. The large plant at the field edge can produce up to 1.8 million seeds. Adding a small grain such as wheat or rye for grain back into the rotation can delay palmer germination for a few months as the crop canopy delays germination until after harvest. Research and observation has proven this as well. The exception to this has been when tram lines were in the field as the bare soil in the tramlines has allowed for palmer germination. After using a burndown to kill the germinating palmer flush after small grain harvest, a cover crop can keep the ground covered for the rest of the season and allow for managed livestock grazing if

desired. Even if the small grain crop isn't taken for grain, the cover alone helps reduce light interception onto the soil surface and palmer germination.

Going back to the tillage, the southern U.S. has gone back to the plow. We can't afford that. There's also many no-till guys where disking is a hard option to consider. Several research studies showed that a 1 time tillage to bury the seed at least 3-4" and keep it buried for at least 3 years reduced palmer seed viability by 80-100%. That's why I've mentioned the tillage. I did ask Dr. Jason Norsworthy from the University of Arkansas about the possibility of just shredding weed patches at harvest instead. He doesn't have research on that and I don't have observation but it could be another option to consider instead of running the combine through weed patches at harvest. Regarding herbicides, I'm so proud of an increasing number of farmers last year using pre's with residual followed by posts with residual. Herbicides are part of the strategy, but we've got to look at the whole system. And, we've got to rotate our use of dicamba! We rely on dicamba a lot for our corn apps. But if we use it in corn and soybeans, we have the potential in 3-4 years to have resistance develop here. Take Home Considerations: palmer/waterhemp/weed management begins at harvest by not combining major weed patches; Consider one-time tillage (or shredding) of endrows on fields with heavy palmer pressure. Then plant a small grain to remove light interception; Plan herbicide program for burndown, pre with residual, post with residual, and potentially a second post if in beans; Narrow row beans may help with canopy closure; Consider adding a small grain in the crop rotation; Use at least two effective modes of action; Rotate use of dicamba to maintain as a tool. What is perhaps positive is we have an opportunity to learn from the southern U.S. and manage palmer better here! If you missed the palmer amaranth webinar by Dr. Jason Norsworthy, you can view it here: https://unl.box.com/s/al5zrhxjwml7s31liv1bryne320bf6r6.



Jenny Rees 3-10-2019

Been hearing reports from our cattle producers about calf loss prior to birth and also after birth. Wet hair coats, low air temps with the windchills we've experienced have been brutal. We would recommend reporting your losses. We realize that the Livestock Indemnity Program has criteria for wind chills that may not have been met for each part of the State. However, the unusual weather events this year compounded upon each other led to a very extreme winter and we feel additional factors should be considered. Some Farm Service Agency (FSA) offices have contacted us for additional considerations as well. There's a team of us working together on this and we hope to release information for consideration by local Farm Service Agency offices and others.

Tyler Williams, Extension Educator in Lancaster County who specializes in weather, shared the following stats with the team of us working on the additional considerations for FSA. Since February 1st:

- Above normal snowfall: 5" (West) to 20" (East) above normal
- Total Snowfall at least 10" for most of Nebraska – Eastern Nebraska 20-30"
- Average temperature was 10°F North/East and 20°F South/West
- Min temps were 10-15°F below normal, Max Temps 10-20°F below normal
- 20 (Southwest) to 30 (Northeast) days the max temp was below freezing
- 6-10 (South) to 20-24 (North) Days the temp dropped below zero
- 10-15 days with measurable precipitation

In the last two weeks:

- Minimum temps dropped to 20 below Central and West, 6-12 below East
- 4-6 (North) to 7-11 (South) days with min temp above zero i.e. 8-10 (North) to 3-7 (South) days the temp dropped below 0
- 4-7 days with measurable precipitation – Almost every other day
- 0 days temps were above 32°F, except for NE/KS border and Southwest Panhandle
- Snowfall 2 (Southwest) to 10 (Central/East Central) inches above normal
- Snowfall ranged from 2-4" in Southwest and Northeast to 7-12+ in Northwest, Central and East Nebraska
- Wind chills dropped to 20-30°F below zero
- Cattle comfort index in "extreme" category

I know a lot of crop farmers have been concerned about field work and how far behind they feel due to the fall. Right now our livestock producers could really use some encouragement too with the brutal calving season, ice/snow covered stalks, high hay prices and blowing through feed with the added energy requirements due to the cold. Another thing that put this winter into perspective for me was seeing the tornado damage in parts of the U.S. There's just been a lot of crazy weather! Al Dutcher's forecast doesn't sound great for the next few weeks either and I realize our next challenges may include potential flooding and muddy lots. However, for now, just seeing the sun shine does wonders in lifting my spirits and have heard several others remark on this too!

Kiwanis and SCCDP Ag Banquet: The 51st Annual Agriculture Recognition Banquet will be held on Monday, March 18 at the Seward County Fairgrounds in Seward. The banquet begins with wine and cheese at 5:30 p.m. and a prime rib meal at 6:30 p.m. Rancher, humorist and cowboy

poet R.P. Smith will be the evening's entertainment. The Brett Borchers family of Utica will be honored as the 2019 Kiwanis Farm Family. Bill Hartmann, owner of Hartmann Construction, will receive the 2019 Seward County Chamber and Development Partnership Ag Business award. Fifteen Seward County students will also be recognized by the Briggs family and the Seward County Ag Society for their agricultural achievements. Tickets for the prime rib dinner are limited to 500. Contact Pam Moravec, banquet chair, (402) 643-7748, or Shelly Hansen, (402) 643-3636, for tickets or information about becoming a banquet sponsor. Tickets are $30 each. The Kiwanis Club of Seward will use the proceeds from the event to support the youth of Seward County through a variety of programs and events, including the Agronomy Academy.

Jenny Rees 3-17-2019

Perspective. I spoke a little of this last week. This week, in the midst of much occurring, it was all about perspective for me. It's hard to find words for the devastation occurring in Nebraska. Perhaps like me, you found yourself feeling a tad overwhelmed or helpless by the images of damage…cattle being dug out of snow or stranded on islands and whole communities engulfed by water… I think what made this extra hard for me is that so many of our people are hurting and affected. Tornadoes and hail damage are somewhat more isolated for allowing people to more easily respond. This has been harder to help with road and bridge infrastructure damaged in so much of the State. And, unfortunately, we will feel these effects for a long time.

Perspective for me was counting my blessings. Because I rely a great deal on my faith, considering worse things I've personally gone through and remembering God's faithfulness to me helps me with perspective. My family is all safe and we have each other, and my dad's livestock are also safe. Those statements aren't true for some I know who lost family and livestock this week and many more that I don't know. In talking to a farmer friend, he was also sharing how he kept thinking about his blessings and that was the message he was sharing with others. So perhaps thinking of our blessings can help all of us with so much loss all around us? That actually is one of the research-based tips mentioned in this article: https://cropwatch.unl.edu/2019/coping-stress-during-crisis.

Nebraskans are so resilient! In the midst of tragedy, the stories of people pulling together to help however they can is heart-warming. Though we may experience more devastation for a time, we will get through this! #NebraskaStrong.

Considerations and resources for now:

- Please heed the warnings of emergency management and Nebraska State Patrol regarding road closures, bridges, etc. People not doing so has put them at additional risk for rescue operations.
- There may be additional places in the future, but this is what was shared with me thus far. Anyone in need of feed for livestock or wishing to donate to help farmers/ranchers affected can consider doing so at Nebraska Farm Bureau's website: https://www.nefb.org/get-involved/disaster-assistance
- For anyone who has lost livestock, feed, fences in the past month due to weather or flooding, please call your local Farm Service Agency office to report those losses. Losses have to be reported within 30 days and a phone call will start that process. We have additional information regarding considerations for livestock losses that occurred due to extreme weather conditions before this most recent blizzard and flooding. I just don't have room to cover all that here now.
- We also realize that loss of livestock, farms, etc. is more than a source of income; it's a livelihood. There's an emotional component to loss that financial compensation can't replace. Nebraska Extension cares about you and recognizes the additional stress that can occur to producers and your families during times of crisis and loss. A number of resources are available. The following has helpful tips on how to cope during crisis: https://cropwatch.unl.edu/2019/coping-stress-during-crisis
- I'd also ask us all to consider two things. One: continue checking in on each other and seeking to encourage as I wrote about in an earlier news column. Two: consider adding two phone numbers into your address book as we never know when we may need them.

    - The **Nebraska Counseling, Outreach and Mental Health Therapy (COMHT) Program,** 800-464-0258, offers no-cost vouchers for confidential mental health services for persons affected by the rural crisis.
    - **Nebraska Farm Hotline/Rural Response Hotline** – 1-800-464-0258.
- All our flood information can be found at: http://flood.unl.edu.
    - We've seen entire farmsteads and elevators engulfed by water. Flood-damaged grain is considered adulterated due to the potential for chemicals and other contaminants in the water. It's also at higher risk for mold damage. More info here: https://cropwatch.unl.edu/flooding-and-stored-grain-cropwatch-june-27-2011.
    - If you're concerned your private well may have been contaminated by flood water, here are some considerations for protecting your well, testing your water, and how to treat it if necessary: https://flood.unl.edu/well-water.
    - All disaster recovery resources can be found at: https://extension.unl.edu/disaster-recovery-resources. In particular, those dealing with food safety after power outages: https://extension.unl.edu/disaster-recovery-resources/#tab4

Jenny Rees 3-25-2019

This past week was tough at times yet also incredible to see people pull together, rally around each other, and donate so much. All of this is so hard to put into words…praying for those impacted and grateful for the many heart-warming stories amidst all the loss! I realize not everyone reading this is directly affected by the flooding. However, we all most likely know others affected and there's several resources and information Nebraska Extension wishes to share. Please help us in sharing this information!

Flood Website: http://flood.unl.edu Information for Rural/Urban, Families, Business, Crop and Livestock Producers, Home Damage, and English/Spanish resources all in this one spot. Grateful for all my colleagues working really hard to redo/update this site! Also, all flood-related questions can be directed to: floodresponse@unl.edu
Volunteers: https://flood.unl.edu/how-can-i-help Individuals and organizations should never self-deploy. Support relief organizations that are already established in the area by contacting local organizations to see what support they need. You can also check with your county Emergency Manager. It's also recommended to get a tetanus shot if you're cleaning up in flood affected areas.
Homeowners: https://flood.unl.edu/cleaning-after-flood

- Get a tetanus shot before removing flood damaged items.
- Test private wells that may have come in contact with flood water before drinking or cooking. Kits can often be obtained from your local Health Department or Extension office. More info: https://flood.unl.edu/well-water
- First Steps for flood recovery: https://www.extension.purdue.edu/extmedia/ACS/ACS-101-W.pdf
- Cleaning up after a flood (includes videos and also questions to ask to ensure contractors are trustworthy). Remove drywall and carpeting as quickly as possible (24-48 hours) to prevent mold growth: https://www.cdc.gov/disasters/cleanup/facts.html
- Free legal assistance for low-income flood survivors: https://flood.unl.edu/legal-aid
- Financial recovery and documentation: https://flood.unl.edu/family-financial
- Handling food following a flood: https://flood.unl.edu/foodsafety

Livestock: https://flood.unl.edu/livestock Our livestock producers care so greatly for their animals and work so hard to keep them safe and healthy. Prayers for all affected.

- Options for Disposal of Animal Carcasses including rendering and landfill locations, burial and composting considerations. EQIP assistance for disposal costs may be available; apply for waiver through local NRCS office before disposal: https://beef.unl.edu/beefwatch/options-disposal-animal-carcasses
- Contact local Farm Service Agency regarding losses. Phone call starts the process and only have 30 days to report for Livestock Indemnity Program. Can report losses from severe winter prior to flooding in addition to flood and blizzard events: https://beef.unl.edu/beefwatch/extreme-weather-events-and-livestock-indemnity-program

- Article I've promised for a few weeks regarding the extreme winter before the flood/blizzard event: https://beef.unl.edu/beefwatch/considerations-attributing-livestock-losses
- Flood damaged grain and hay is considered adulterated and cannot be used as a food or feed source; it must be properly disposed: http://deq.ne.gov/publica.nsf/pages/11-023
- Post bomb-cyclone recovery
- Wet hay has the potential to combust so remove hay from building structures if impacted by flooding. Best practice for flooded hay and silage is to dispose of by spreading on fields as a fertilizer. Most practical way may be just unrolling bales for now. Hay bales that are at 30 to 40 percent moisture content pose the greatest risk of fire. Check hay storage often for pungent odors, hot damp areas on the stack, emission of water vapors and other signs of heating. To check a stack's temperature for fire risk, drive a sharp pointed pipe into the hay, lower a thermometer inside the pipe and leave it there for about 20 minutes. At 150 degrees F, the hay is approaching the danger zone. At 170 degrees F, hot spots or fire pockets are possible. Have the fire department on standby.

Flooded Grain Bins: Flooded grain is considered adulterated and needs to be disposed. Grain above that can be salvaged by removing it from the top or side of bin with a tool like a grain vacuum. This article shares info. on considerations and grain vac service/suppliers: https://cropwatch.unl.edu/2019/grain-vacuum-services-rentals-suppliers
Flooded Pesticides: https://www.ag.ndsu.edu/flood/farm-ranch/flooded-pesticides
I don't have room to mention all the resources! Please check out: https://flood.unl.edu/

Please keep talking to each other, share your stories, and don't isolate! Eat a good meal, drink plenty of water, get some rest and be mindful of your personal well-being. Recovery is a marathon, not a sprint. We're all being impacted by this. #NebraskaStrong is so true. It also takes strength to ask for help when we need it; help is always available!

- Nebraska Farm Hotline/Rural Response Hotline: 800-464-0258.
- The Nebraska Counseling, Outreach and Mental Health Therapy (COMHT) Program: 800-464-0258.
- Nebraska Family Helpline: 888-866-8660

Jenny Rees 4-1-19

Our climate and weather experts speak of the past 60 days as "Nebraska's most challenging days of weather". In their article recapping events that have occurred since January 15th, Tyler Williams and Al Dutcher share, "The recent string of weather events is definitely one for Nebraska's history books. The key word to that sentence is "string" because it took a combination of patterns and extremes to get us to this point. Beginning in mid-January, the weather pattern shifted from warm and relatively wet to a very cold and highly active pattern that brought snow, rain, and ice. This pattern lasted well into March. This almost 60-day period from mid-January to the March 13-14 storms and resulting flood will leave a lasting mark on Nebraska. Following is a description of how this scenario developed…" I would encourage us to read the full article at: https://go.unl.edu/0gbr.

In spite of more crazy weather last week, March did go out like a lamb! It's hard to believe this week is April. Grateful for signs of greening up and new life after a long, hard winter such as greening wheat, rye, lawns, and new life with buds swelling on trees and various bulbs poking through the ground! For whatever reason, the first signs of green after winter seem so bright and stark to me, perhaps even more so this year!

And, I also realize with April upon us is the added stress that there's so much to do yet for this growing season. Perhaps a bright spot is that the moisture has allowed for stalk deterioration which helps with the residue management side. Nutrient management is also on growers' minds. Charlie Wortmann and Bijesh Mahajan, Extension Soil Fertility Specialists, addressed considerations for nutrient management going into 2019 in a CropWatch article as well this week: https://go.unl.edu/7u7u. I'll share a few thoughts from it here and would encourage you to check out the full article in the link above. For those with wheat, the following addresses top-dressing winter wheat: https://go.unl.edu/pk6f.

Of concern is broadcast applications of phosphorus that occurred on frozen ground in January and February. It's not a practice we recommend and unfortunately, this year may have resulted in quite a bit of loss as runoff from fields. The only way to really know where you're at for phosphorus is to do soil samples and they're recommending 0-8" depth.

For any nitrogen applied last fall, it's not anticipated to have been lost yet due to the low soil temperatures. However, because of the full soil profile and gravitational water, there's concern of nitrogen leaching as soil temperatures warm. In May there will be much potential for leaching of nitrate-N when the soil becomes warm enough to allow ammonium-N conversion to nitrate-N. The soil specialists share "residual soil nitrate-N from 2018 is already subject to leaching and that, on average, approximately 60 lb N/ac of residual soil nitrate-N is available annually in the upper 4-feet of soil." They also share the potential for denitrification in June if we continue to see water-logged soils. So, I realize this isn't good news on top of the stress you're already under. The opportunity I see in all of this is the potential to move more nitrogen in-season. They're recommending to move at least 50% of nitrogen application in-season. I realize this is a mind-shift and challenging equipment and perhaps cost-wise for some. I also

think, perhaps hope, that it allows a future culture shift to more in-season nitrogen applications for future years.

A study from Purdue University found that between flowering and maturity, today's hybrids can take up from 30% to 40% of their total N, over 50% of their total P and over 40% of their total sulfur. On the nitrogen side alone, hybrids today remove 27% more nitrogen from the soil after flowering than hybrids developed from 1950-1990. Thus, anything we can do to spread out nitrogen applications and aim for more in-season applications, can aid in nutrient uptake, yields, and reduce nutrient loss. Next week I'll share more of our on-farm research and other research results regarding moving nitrogen in-season.

Also wanted to share that we have several updated articles on our http://flood.unl.eduregarding spreading flooded adulterated grain on ag land, considerations for gardens in areas that were flooded, reclaiming pastures and fields with silt/sand deposits, lease considerations on flooded ground, and fencing considerations. Prior to the flooding/blizzard, livestock producers were struggling with the weather and losing livestock. A team of us put together information for FSA regarding the severe winter as a disaster consideration. While that information was submitted several weeks ago, you can find our article at: https://go.unl.edu/6agf.

#NebraskaStrong also means being strong enough to ask for help. Nebraska Family Helpline: 888-866-8660. Nebraska Farm Hotline: 800-464-0258.

Jenny Rees 4-7-19

Reflecting on conversations the past week, I think of the challenges those dealing with disaster and cleanup continue to face, the perhaps blessing in the fact more fall tillage didn't occur for additional soil loss due to the rainfall and flooding, and the anxiety surrounding this planting season for many.

Waiting is hard for many of us in any aspect of life, yet has its benefits. As we think of this planting season, we can mess up the entire growing season with wrong decisions now through planting. Mudding in fertilizer and seed or tilling when too wet will have lasting effects. This also goes for planting in cold soil temps and/or planting shallow. Economically we also can't afford these practices either. While I mentioned I'd share research on in-season fertilizer applications this week, I need more time to compile the results. So I'll share on that and other planting considerations next week.

April 29 Application Deadline for Livestock Losses: On the livestock side, we know livestock losses had occurred due to the severe winter in January/February/March prior to and including the Blizzard/Flood event. Nebraska Extension worked with Farm Service Agency (FSA) to provide additional criteria for consideration of these losses qualifying for the Livestock Indemnity Program (LIP). There is now an extension granted for livestock producers to report livestock losses for LIP till April 29th for any losses that occurred the past three months due to adverse weather event or loss condition. An FSA press release last week shared, "Extended cold combined with above-normal precipitation during the months of January, February and early March created an adverse weather event that has had a significant impact on some livestock producers. We encourage them to reach out to our (FSA) office by the April 29 notice of loss deadline. LIP compensates livestock owners and contract growers for livestock death losses in excess of normal mortality due to an adverse weather event. The payment rate is based on 75 percent of the average fair market value of the livestock." Documentation of loss can include beginning inventory and losses, pictures or video records documenting loss, records of the number and kind of livestock that died, vet records, or other production records.

The following is an excerpt from some information Extension provided: "As we think about February weather data, what created challenges in particular for cow-calf producers was the extended period of wet combined with cold. Most recently, additional challenges have included blizzard conditions and flooding. The draws and sheltered areas that protected calves from the cold and wind are sometimes the same places that were swept away during the most recent flooding events. Even for cattle out in pasture or grazing cornstalks, for many locations, there hasn't been an opportunity for cattle to truly dry out, prolonging stress. Even for producers that bedded cattle, the bedding would get wet quickly because of saturated soil conditions. Cattle with a wet hair coat are much more susceptible to cold and windchill. A wet hair coat raises the lower critical temperature at which cattle experience cold stress (from a temperature of 19° Fahrenheit to 59° Fahrenheit). This higher critical temperature means that cattle have to use more energy to maintain their body temperature and creates a situation where often the cattle just can't eat enough to meet their energy requirements. When this occurs, they begin to use

body fat reserves. If this happens for an extended period of time, those reserves can become depleted and the animal will not be able to maintain body temperature and will die."

Wellness in Tough Times Webinar: Farmers and ranchers have many stressors in their lives. A free webinar will be offered April 23 from Noon-1 p.m. CST for farm and ranch families and will provide strategies for dealing with the stress of farming or ranching in today's difficult economic environment. Perhaps anyone involved with agriculture could benefit from this additional information? The webinar can be accessed at http://go.unl.edu/farmstresswebinar and will be presented by Nebraska Extension Educators Glennis McClure and Brandy VanDeWalle. Participants will learn: How to recognize the signs and symptoms of stress; understand the role stress plays in our lives; and strategies and resources to manage stress. For more information, contact Brandy VanDeWalle at brandy.vandewalle@unl.edu or (402)759-3712. Dates and locations for a separate workshop available to agribusiness professionals and service providers working with farmers and ranchers will be released soon: *Communicating with Farmers Under Stress.* For more information on this workshop contact Susan Harris-Broomfield susan.harris@unl.edu

Gardening Expo in York: Join the Upper Big Blue NRD's Project GROW, Nebraska Extension-York County and Common Ground for a Gardener's Expo! It will be held on Saturday, April 27 from 10 a.m.-Noon at the Killgore Memorial Library in York. Vendors from the Prairie Plains Research Institute, Nebraska Extension, Nebraska Bee Keepers Association, Miller Seed & Supply, Harmony Nursery, and Project GROW will answer questions about gardening, soil health, pollinators and trees. Door prizes include a rain barrel and composting bin. There are also free trees for the first 25 attendees.

#NebraskaStrong also means being strong enough to ask for help. Nebraska Family Helpline: 888-866-8660. Nebraska Farm Hotline: 800-464-0258.

Jenny Rees April 14, 2019

Some commented we've felt all four seasons last week! This additional weather event didn't help with stress levels. Disaster stress stages can include heroic, honeymoon, disillusionment, and reconstruction. Heroic was at the beginning of the blizzard/flood disaster. This quickly progressed into the honeymoon phase where we've seen an outpouring of support to help with donations, clean-up, etc. It's very heart-warming and provides some hope in the midst of disaster. While there's overlap of phases, we're seeing more of the next stage called 'disillusionment' now. This phase can last a year with events like this past week's weather triggering new anger, grief, loss. It's during this phase that people more affected by disaster can feel forgotten as others not affected move on with life. And, those not as affected as neighbors/others may experience guilt. For any type of stress, it's important to talk to a trusted friend, family member, counselor, pastor and not isolate. Unhealthy coping can include turning to substance abuse or other unhealthy options. I've been asked what can be done to help. Perhaps the biggest help is to keep praying. Also, keep checking on and reaching out to friends, family, neighbors. These things are more helpful than I can express here! Reminder: the Wellness for Farm and Ranch Families webinar will be held on April 23rd from Noon-1 p.m. at: http://go.unl.edu/farmstresswebinar.

In-Season Nitrogen: I know several were glad to get some nitrogen on last week! For those in NRDs which require nitrogen rates based on UNL recs, it's important to note that the UNL nitrogen equation uses a weighted average soil nitrate test for the ppm Nitrate. A minimum of 2' is required. Thus, if you only have a 0-8" soil sample, you have to account for a weighted average or the equation will overestimate the amount of soil nitrate and result in a lower requirement than what may be needed. The Extension circular "Fertilizer Recommendations for Corn" (http://extensionpublications.unl.edu/assets/pdf/ec117.pdf) explains this in detail with an example. There is also an excel spreadsheet that does this for you when you input the depth of soil samples taken. If you'd prefer to use the excel spreadsheet, you can find it at the following website by scrolling to "Corn Nitrogen Recommendations Calculator" https://cropwatch.unl.edu/soils.

With a full soil moisture profile, some have wondered at the impact of using a nitrification inhibitor with their anhydrous this spring. We have a couple farmers testing this and if you're interested, here's an on-farm research protocol: https://go.unl.edu/j9dg.

We've had some on-farm research studies recently look at sidedress applications using either the UNL equation/Maize N model or industry models such as Climate Field View. In all these studies, the recommended rate was compared to rates that were at least 30 pounds over and under the recommended rate. Some of the studies went as high as +/- 50 lbs/acre compared to recommended rate. I've compiled these results in a table at http://jenreesources.com. Take homes: In none of the studies did the addition of 30-50 lbs N/ac above the recommended rate

increase the yield statistically. A few of these studies also compared side-dress applications vs. pre-plant alone. One situation resulted in a statistically lower yield with pre-plant alone while the other two resulted in no yield differences. In-season nitrogen studies is our featured on-farm research study this year. You can find protocols at: https://cropwatch.unl.edu/farmresearch/extensionprotocols.

For chemigating fertilizer, often we tend to apply 30 pounds of nitrogen with each quarter inch of water. However, Randy Pryor shared: "did you know that a high capacity injector pump on a pivot can supply 50-60 pounds of nitrogen with a quarter inch of water safely on corn with one application? A soil at field capacity will still intake a quarter inch of irrigation water. Split applications of nitrogen reduces risks with corn injury when the time window is shortened between pre-plant anhydrous applications and corn planting."

Soil Temperatures: Soil temperatures are available at https://cropwatch.unl.edu/cropwatchsoiltemperature. Your local field and lawn conditions may vary, so you can check with a meat thermometer at 4" depth. It's too early for crabgrass preventer. More on that and planting considerations next week.

#NebraskaStrong also means being strong enough to ask for help. Nebraska Family Helpline: 888-866-8660. Nebraska Farm Hotline: 800-464-0258.

Jenny Rees 4-22-19

Planting Considerations: Everything we do at planting sets the stage for the rest of the year. We're blessed to have equipment that can allow for many acres to be planted in a short amount of time. And, we have the ability to mess up a lot of acres in a short amount of time.

For soil conditions, it's important that we're not mudding in fertilizer and seed to avoid compaction and uneven emergence issues. Soil temperature information can be found at: https://go.unl.edu/soiltemp. It's best to plant when soil temps are as close to 50°F as possible, check weather conditions for next 48 hours to hopefully maintain temps 50°F or higher, and avoid saturated soil conditions. If planting a few degrees less than 50°F, make sure to check with seed dealers on more cold-tolerant seed and only do so if the forecast is calling for warm temperatures the next few days that would also help increase soil temperatures. Once planted, corn seeds need a 48-hour window and soybeans need a 24-hour window when the soil temperature at planting depth does not drop much below 50°F. Otherwise chilling injury is possible.

With the variability of weather each spring, we perhaps need to shift our focus from "calendar dates" to "planting windows". The optimum planting date for corn may not be in April every year. Research from Iowa State found optimum planting date windows to obtain at least 98% yield potential range from April 15-May 9 for northwest and central Iowa; from April 17 to May 8 for southwest Iowa; and from April 12-30 for north central and northeast Iowa. To achieve at least 95% yield potential, those ranges extend from April 15 to May 18 for northwest and central Iowa; from April 12 to May 13 for southwest and southeast Iowa; and from April 12 to May 5 for north central and northeast Iowa. It's not Nebraska data, but could be considerations for us for similar areas of Nebraska. And, while we don't have a lot of data in Nebraska, one can use USDA ag statistic yields and I've also used the Hybrid Maize Model to show how yearly weather can impact optimum planting windows for best potential yield.

Planting soybean early is critical to maximizing yield. Beyond genetics, this is the primary way to increase soybean yield through numerous University studies in addition to grower-reported data. Because of this, an increasing number of growers are planting soybean earlier than corn or at least at the same time as planting corn. 'Early' is within reason, though. While we've had on-farm research fields and many growers' fields planted from April 22 and after (in good field conditions), be aware that crop insurance date is April 25. We also recommend adding an insecticide + fungicide seed treatment when planting in April as we have no data without seed treatment in our planting date studies.

Planting depth is also key. Aim to get corn and soybean in the ground 1.5-2" deep. This is critical for correct root establishment in corn to avoid rootless corn syndrome. While not as critical regarding root establishment for soybean, our UNL research showed lowest yields when soybean was planted 1.25" or less or 2.25" or greater with the highest yield at 1.75" deep. This is most likely because moisture and temperature were buffered, particularly when soybean was planted early. It's important to get out and check seeding depth for all planter units within every field. Even with monitors showing down force and seeding depth, it's still important to check. I've seen how adjusting down force can lift up planter

ends resulting in shallow planting in the outside rows, particularly with center-fill planters. Results of improper/uneven planting depth can be seen all season long and may affect yields. While this takes time, you'll be glad you caught any issues before too many acres are planted incorrectly!

For corn seeding rates, it's best to check with your local seed dealer as all our research shows that optimal corn population varies by hybrid. However for soybean, our recommendation after 12 years of combined on-farm research studies continues to be: plant 120,000 seeds/acre, aim for a final plant stand of 100,000 plants/acre and you'll save a little over $10/acre without reducing yields. If that's too scary, try reducing your populations to 140,000 seeds/acre or try testing it for yourself via on-farm research! Please contact me if you're interested in that. We have an article on our soybean seeding rate data in this week's CropWatch at http://cropwatch.unl.edu.

Lawn Crabgrass Preventer and Fertilizer Application: Crabgrass is a warm season grass and needs soil temperatures to reach 55 degrees F for a few consecutive days to germinate. It doesn't all germinate at once, thus the potential for a second flush in the summer. The targeted window to apply pre-emergence herbicides for crabgrass in eastern Nebraska is April 20 to May 5. Keep in mind that the product needs to move into the soil within 3 days or it will start breaking down due to sunlight exposure. You may also consider applying your crabgrass preventer with first lawn fertilizer application around the beginning of May.

Jenny Rees 4-28-19

Perhaps it was the hard winter, but I'm finding the flowering trees to be exceptionally pretty this year! Corn and even some soybean went into the ground this past week too. In last week's column I shared regarding planting considerations yet would still encourage growers to keep considering your local field conditions before planting. You're hearing some of these same things from both Extension and Industry partners and we realize field situations differ. We keep repeating these things to provide reassurance when you're questioning decisions. We've already seen problems with anhydrous application in too wet of conditions in some fields. We've already seen some situations that were too wet when corn was planted leading to problems with compaction, depth issues, and not closing seed vee's. With the cold snap, it's important to consider soil temperatures (preferably around 50F or warmer for next 48 hours), soil moisture conditions, air temperatures for the next 48 hours, potential for cold rain, and cold tolerance of seed. Soil temperatures are listed at http://go.unl.edu/soiltemp and I would also encourage you to check your own particular field conditions. Last week, I was finding soil temperatures in local field conditions to be cooler than what was being reported from high plains regional climate center. If you don't have a soil temperature thermometer, you can do this with a meat thermometer (and just dedicate it for field use).

I can appreciate the added concern and stress with this week's forecast. There's several planting-related articles in this week's CropWatch at http://cropwatch.unl.edu. Two really helpful articles from Roger Elmore share on corn planting windows where he used USDA NASS data to show Nebraska data and also shared how other states throughout the Corn Belt have found similar results regarding planting windows. The key point is there's a planting window between mid-April to mid-May within which optimum yields are usually obtained. After this period, yields decrease rapidly. So there's still time and the planting conditions play a role in determining final yield by getting that seed off to a good start. You also keep hearing me talk about planting soybean early. Even as early as you can in May is better than mid to late May for higher yields if that works for your situation.

Browning Evergreen Trees and Shrubs: This past winter was hard on many things. When it comes to evergreen trees, the deep frost line and extreme cold led to the inability for transpiring trees to uptake moisture. This resulted in needles appearing brown and looking dead, particularly on the north and sometimes west sides of trees. I'm seeing this particularly on junipers, cedars, arborvitae, white pines, and some spruce. We'd recommend waiting till June before pruning any dead portions out or removing any trees/shrubs to see what happens with new growth.

Rhizosphaera Needle Cast in Spruce has been really bad the past few years. If you're seeing spruce needles on lower parts of the tree turning yellow/reddish-purple/brown, then this disease may be the problem. The fungus continues moving upward on the tree. Affected needles are prematurely cast from the tree. Above average moisture during the growing season in parts of the State led to an increasing number of spruces affected by the Rhizosphaera fungus. What's interesting is that the fungus infects the needles in spring but the symptoms often don't appear till the following spring. One way to double check is to look for tiny black

specks on the needles and on the twigs. The good news is that fungicide applications of chlorothalonil (Fungonil, Daconil, Bravo) or Bordeaux mixture in May can help when shoots are ½ to 2" in length! If we get frequent rains this growing season, applications can be repeated every 3-4 weeks.

Vegetable Planting Guide: Gary Zoubek had put together an excellent vegetable planting guide for the area which can be obtained at the Extension Office or at: https://go.unl.edu/d7qk.

Spring Lawn Seedings: With the difficulty of this past year, many didn't get dormant seedings on because of all the snow and typically lawn renovation in the spring is difficult because of the inability for applying crabgrass preventer to newly seeded areas. However, a new product has changed this! Scott's Turf Builder Starter Food for New Grass contains mesotrione which provides PRE and POST control of weeds without affecting the new bluegrass or fescue seeding. We'd still recommending seeding as soon as possible or else wait till August. Tenacity is also a product containing mesotrione that works as a POST for emerged crabgrass, foxtail, and for those dealing with nimblewill (best to apply on troublesome grassy weeds up to 1" tall).

Rhubarb and Frost: For those impacted by frost/freeze this past weekend, if rhubarb leaves are not damaged too much and the stalks remain firm, it is still safe to eat. If the leaves are severely damaged or the stalks become soft or mushy, do not eat these stalks. Remove and discard them. New stalks can be harvested and eaten. Rhubarb often develops seedheads following cold temperatures, but this also does not affect eating quality of the stalks. Remove rhubarb seedheads and discard.

Jenny Rees May 5, 2019

Crop Update: Every year provides ample opportunities to learn and this year will be no different. We'll learn a lot in the next few weeks with corn/soybean germination and emergence and the cold tolerance of seed. Grateful for the planting that's been accomplished thus far! Some rainfall hopefully is providing a much needed break for some and could also help with the dry seed bed and crusting concerns with some fields.

I've seen information going around regarding delayed planting and changing to early relative maturities for corn. The concern is regarding frost occurring before the crop reaches black layer. We're honestly too early for that conversation until we hit early June, but that may be a reality in portions of the State. When looking at the number of GDDs to Black Layer, it's important to ask your seed company if that number is based on 'from planting' or 'from emergence'. Bob Nielsen, Extension Specialist at Purdue, found from research conducted in the early 2000's that when hybrids were planted late, they matured in fewer growing degree days (GDDs) than predicted. In their research, Bob and his team found that hybrids matured around 6.8 fewer GDDs for every day planted after May 1. This continued through the second week of June and they didn't evaluate planting dates beyond then. He gives the example, "a hybrid rated at 2700 GDDs from planting to physiological maturity (kernel black layer) and planted on May 31 reaches physiological maturity in less than 2500 GDDs after planting (e.g., 2700 – (30 days x 6.8))." Roger Elmore, Nebraska Extension Cropping System Specialist, put this in perspective in an older CropWatch article, "A 115 CRM hybrid (2782 GDD) planted on May 15 would behave like a 111 CRM hybrid and when planted on May 30 it would behave like a 107 CRM (2578 GDD) hybrid. If planted on May 30 this hybrid should mature around September 14 in southeast and southern Nebraska and around September 27 in central and northeast Nebraska." So hopefully this is helpful with the upcoming weather forecast potentially delaying getting back into the fields. Bob does have a calculator at the following site which provides an estimated GDD adjustment when you plug in the GDDs of your current hybrids and your expected planting date:
https://www.agry.purdue.edu/ext/corn/news/timeless/HybridMaturityDelayedPlant.html.

Renovating Flooded Pastures Workshop: After spring flooding, many river frontage pastures and crop fields were left with sand and silt deposits ranging from a few inches to up to three feet. Recovering that land for production will be the focus of a May 13 on-site workshop near Ravenna at 1:30 p.m. Jerry Volesky, Extension range and forage specialist, will discuss treatments and practices to aid land recovery. Participants are invited to park at McAuliff Farms at 41465 325th Road south of Ravenna. A tractor and trailer will transport attendees to the workshop location, where there are heavy deposits of sand and silt from flooding of the nearby South Loup River. For more information, contact Volesky at 308-696-6710 or jerry.volesky@unl.edu or the program sponsor, Town and County Bank at 308-452-3225.

Tree and Lawn Care Programs for York and Seward Counties: Two upcoming tree/lawn care will be held in York and Seward Counties. Sarah Browning, Nebraska Extension Educator, will be presenting the programs. There is no charge but please RSVP to (402) 441-7180 to attend either or both programs.

- “Made in the Shade: Trees for Nebraska’s Landscapes” will be held on May 30th from 6-7:30 p.m. at the 4-H Building at the Fairgrounds in York. Trees are the backbone of our landscapes, providing beauty, shade, noise reduction, wildlife habitat, and reduce home heating and cooling costs. In this program, learn how to keep your trees healthy and vigorous. We’ll also discuss tree species well-adapted to Nebraska’s challenging growing environment.
- “Troubleshooting the Landscape” will be held on June 5th from 6-7:30 p.m. at the Civic Center in Seward. Learn how to better manage these common problems in your landscape: Emerald Ash Borer, Weed control in lawns and landscapes, Summer and fall lawn care, and Pruning trees and shrubs.

Crop Update: It is really nice to see crops emerging! The corn, soybean and wheat looked at didn't seem too impacted by the frost. There may be places where crops were more affected. For corn and wheat, it's important to look at the growing point and make sure it's white/yellow and firm and not discolored and soft. Impacts to wheat later on can also be seen at heading in white awns. Soybean are more susceptible to frost when those hypocotyls are just emerged at soil level or above and exposed when frost occurs. Soybean with hypocotyls that are pinched and brown will probably not survive. Soybean that have light scarring of hypocotyls and cotyledons most likely will survive. Look for the plumule (first true leaves from the shoot) within 7 days post-frost to ensure the growing point wasn't injured. (You can see the plumule between the cotyledons in the upper right-hand picture below).

Hopefully we don't have to deal much with replanting. As we assess stands, this week's UNL CropWatch at http://cropwatch.unl.edu has an article regarding stand and replant considerations for corn. It's important to take stand counts in several areas of the field. There's a table on the CropWatch website which shows original planted stands with planting date and what can be expected for potential yields based on stand counts and replanting at a later date. Roger Elmore shared the following example, "If the original planting date was April 30, a population of 35,000 plants/acre is expected to provide maximum yield. If the population is only 20,000 plants/acre, yield potential is 89% of the maximum for the April 30 planting date. If several 4- to 6-foot gaps occur within the row, yields will be reduced an additional 5% relative to a uniform stand. Stand gaps of 16 to 33 inches will only reduce yield by 2%. Estimate replant yield with *Table 2*. Use planting date and target plant population to estimate the yield potential of the replanted field. Replanting on May 20 at 35,000 plants/acre will result in approximately 87% of the maximum yield. Compare the replanted crop to the original crop which was planted on April 30 that now has a population of 20,000 plants/acre, and consider the costs of replanting. Expected yields are 89% for retaining the old stand versus 87% for a replant. Remember though, there is no guarantee of getting a good stand with replanting. Insect and disease pressure may be greater in replanted fields." You may also be interested in checking out a new CropWatch podcast on corn seedling diseases at: https://go.unl.edu/a5zf.

Interseeding Cover Crops: The past four years, some growers have shared with me an interest in interseeding cover crops into corn or soybean. The growers have different goals which may include fall grazing, additional nitrogen from the cover, or soil health impacts such as increasing soil organic matter. Because cover crop establishment after corn and soybean is more difficult and inconsistent year to year, there's been an increasing interest in interseeding. Basically, the thought is to plant the cover before the corn or soybean crop reaches canopy closure. The cover emerges and then essentially doesn't grow much during the growing season due to minimal light

interception. After harvest, the hope is the cover has greater biomass production since it's already established. Research in general from other states hasn't shown yield reduction in corn when the cover was planted after V4…typically from V5-V7. When the cover was interseeded earlier, some states have found yield reductions as the cover basically competes like a weed with the corn for resources. A question we often receive is regarding herbicides. Wisconsin shares that Sharpen and Resolve for herbicides allowed for greater success with short half-life. They planted radish, oat, pea, rye, red clover in their trials. A family conducting on-farm research in Merrick County has been interseeding the past three years. In their 2018 trial, they used 32 oz. glyphosate + 5 oz. Status per acre post on 6/1/18 (planting date 5/17/18). They interseeded on 6/26/18 with 6 lb. cowpea, 6 lb. soybean, 0.5 lb. crimson clover, 5 lb. sunhemp, 2 lb. hairy vetch, 3 lb. buckwheat, 0.5 lb. chicory, 0.5 lb. flax, 0.5 lb. rapeseed/canola, 6 lb. Elbon cereal rye, 6 lb. spring oats per acre. From conversation they were happy with cover emergence after Status application but I failed to ask which species looked the best. They will continue the study for several years. Outside of this, we have very little research from Nebraska and my hope is to obtain more research via on-farm research this year! We've created a 2 treatment and 3 treatment protocol which can be found at: https://go.unl.edu/kvjf. The three treatment protocol can be altered a number of ways: including looking at 2 different mixes compared to a check, looking at different ways of seeding the cover crop vs. check, and looking at different interseeding timings vs. check. Please contact me if you're interested in trying this!

What a blessing last week was for many to be in the fields to either finish or start planting! And, while some may not want it, we could also use some rain to help with the crusting issues that have been developing in various fields due to the warm temperatures and wind. As you assess stands, the following article provides some guidelines on what to look for and any replant considerations for corn: https://go.unl.edu/j727.
For those who planted soybean earlier into cooler soil conditions, Dr. Jim Specht also did so on different dates this year and monitored air/soil temperatures at the former ARDC near Mead. Air temperature daily lows were less than 36°F on eight days (five of which were 32°F or lower), were less than 40°F on 17 days, were less than 44°F on 23 days; and notably, were less than 48°F on 31 of the 37 days. I've talked about desiring a 24 hour window of near 50F temps for avoiding potential seed chilling of soybean. It's based off some Canadian research that showed soybean completing the imbibitional (water uptake) phase in as little as 8-24 hours. Jim had a demo study this year in which he placed water into furrows and planted soybean seed 1.25" deep into the furrows on various days in April at 2:30 p.m. Adding water to the furrow was to hasten the imbibitional phase. There's a slideshow with the full article in this week's CropWatch at: https://go.unl.edu/yu2m. The article shows the seeds in this demonstration did not appear to be impacted by chilling injury in spite of low air/soil temperatures on some of the days including within a 24 hour period. The hypothesis is that planting in a warmer part of the day with good soil moisture allowed the imbibitional phase to complete more rapidly before the cold snaps occurred in the evening/following day. While this was only a demo, it spurs many questions. Further research to better document chilling injury and imbibitional period for different soil temps/moisture contents would hopefully help growers planting soybean in April.

Silver and Red Maple Trees: While back home helping with planting, I was also receiving numerous tree questions. For those with malformed leaves or various leaf coloration, I'm thinking that's mostly due to the cool temperatures we've experienced. Malformed leaves can also be due to growth regulator herbicides such as 2,4-D (from weed and feed products or sprays) being applied to lawns when trees are beginning to leaf out.

For the past few weeks, I was observing the slow leaf-out of silver maples in town…even where portions of trees were leafing out and other portions seeming bare. Now, if your maples look like mine, they look brown and barewith huge seed production and minimal leaves. This can also be seen in red maple varieties such as the popular 'Autumn Blaze' maples from my observation. For everyone who called or texted, I told you I was assuming it was due to the cold snaps and frosts affecting trees leafing out. It also could be a result of the hard winter. Trees are interesting as stresses from previous years can also affect them several years down the road. While all that's true,

what I didn't realize is that based on information from Ohio and Michigan State, frost at specific times trigger whether a tree goes into seed or leaf production. Maple trees produce very small flowers that turn into seeds every spring. Frost will kill some of the blossoms if received at the right time which leads to less seeds and more leaves. Even though it was a cold spring, perhaps fewer blossoms were killed than normal at the right time? It could also just be the natural cycle of heavy seed production this year? Regardless, the trees can't support both massive seed production and leaf production, so many opted for seed production. The good news is that shade trees in general have an ability to shoot new leaves after being stressed. I see this every year after trees lose leaves due to herbicide damage, insects, diseases, or environmental conditions. So, give the trees a couple of weeks and you should begin to see new leaves developing. Don't add fertilizer or other products to them as it's not necessary and can actually stress trees that are stressed even more. By summer, the trees should look fairly normal. If they don't, perhaps there's another stressor occurring with your tree? The biggest culprits I see are roots that girdle (choke) the tree by wrapping themselves around the trunk or damage to the trunk from weed whackers.

What about those seeds in lawns and gardens? Some pre-emergent lawn herbicides will keep them from sprouting. Pulling them is time consuming, yet a valid option that's best done as soon as seedlings emerge. Mowing may help keep some of them at bay. Weed and feed products for lawns often contain 2,4-D so using that or lawn care products with 2,4-D can be an option (just be sure to read the pesticide labels). Products like Preen can be pre-emergent options for flower beds/gardens.

Jenny Rees May 28, 2019

Driving through Nebraska towns around Memorial Day, I find the streets lined with flags such a beautiful site. Grateful to live in our Country with our freedoms. I'm also grateful for those who paid the ultimate price for our freedom and for their families left behind.

Flooding/Ponding and Crop Effects: With the rain, some may be experiencing ponding/flooding of crops. Emerged corn prior to 6 leaves can survive from two to four days depending on temperatures and if entire plants are submerged or not. Cooler air temperatures (60's and cooler) allows for longer survival than temperatures in the mid-70's and warmer. Little data exists for germinated seeds and seedlings prior to emergence, but they most likely would experience soil oxygen depletion within 48 hours. Once emerged, soybean may handle a fair amount of flooding due to the growing point being above ground (depending on if they're submerged or not). Four or more days of flooding may result in shorter plants due to shorter internodes and/or perhaps fewer nodes. Stand reductions may be observed after seven days of flooding (depending on size and if completely submerged or not).

Prevent plant may be another topic on some growers' minds in addition to considerations after the May 25 corn planting date for crop insurance. These are addressed in this week's CropWatch at http://cropwatch.unl.edu.

Interseeding Cover Crops: In a previous news column, I touched on the topic of interseeding cover crops into corn or soybean. For this week's CropWatch at http://cropwatch.unl.edu, we provide more information based on the research available. For those considering this as an on-farm research study, please contact me or your local Extension Educator soon to work out details.

Wheat: Michael Sindelar and I looked at wheat in Clay and Nuckolls counties last week. For diseases we're mostly seeing powdery mildew and septoria leaf blotch. Backlighting revealing yellow specks on upper leaves in some fields will most likely develop into leaf rust. Wheat ranges from nearing flag leaf to beginning flowering. My concern for wheat in the heading to flowering stage is risk of fusarium head blight (scab) with the rain we've been receiving at heading/flowering. The scab risk tool (http://www.wheatscab.psu.edu/) is showing a low to medium risk for our part of the State right now. If you do consider a fungicide, your best options include Prosaro, Caramba, or Miravis Ace as these products will help protect against scab in addition to kill any fungal diseases on your wheat leaves. Other products are off-label

once flowering begins or are not as effective preventing scab based on research. Best application timing to prevent scab is when 30% of the plants in the field are at 15% flowering (early flowering stages).

Lawn Care: I know some are getting tired of mowing already! Just a reminder to keep mowing heights at 3”. Spring is an important time for deeper root establishment before the summer heat sets in and maintaining a higher lawn height allows the grass to develop that root system. I’m seeing several lawns being scalped in an effort to reduce amount of mowing. Mowing too short stresses the grass impacting its ability to set deeper roots for later. It will also allow for more weeds to germinate in the lawn.

Jenny Rees 06-02-2019

Flooded Gardens: This was my top question last week. For those of you with flooded gardens due to ponding of rain water, it will be fine to use your produce and the following information won't pertain to you. However, most of the calls I received were from those with creeks or rivers that flooded their gardens. In that case, it's difficult to know what contaminants may be in the water. It's recommended by our Extension horticulturalists to wait 90 days to use any produce that does not have contact with the soil and 120 days to use any produce that does have contact with the soil. For example, tomatoes, peppers, eggplant, green beans could be harvested and eaten after 90 days. Fruit from trees and shrubs could be harvested and used after 90 days. However, rhubarb, potatoes, asparagus, squash and melon crops would need 120 days before harvesting to eat. Vegetables/fruits that are produced prior to the 90 and 120 day waiting period should be removed from plants and discarded. If the actual plants such as tomatoes, peppers, beans, etc. survive flooding, they do not need to be removed or replaced. You can allow them to continue to grow, just don't use the fruit till 90 days post-flooding. Additional information can be found at: https://grobigred.com/2019/03/22/gardenflood/amp/?. Also, don't harvest the morel mushrooms that are abundant this year due to the contaminants they've potentially been in contact with.

Crop Considerations: If you'd like more in-depth information regarding flooded/ponded corn/soybean, please check out this week's CropWatch at http://cropwatch.unl.edu. We also shared a replant considerations article for corn in CropWatch. The tables in that article will be helpful as one assesses stands. Check corn, soybean, and milo for new regrowth 3-5 days after water recedes to determine potential survival. When it comes to assessing soybean stands for replant considerations, most UNL agronomists would say to leave stands of non-irrigated at 60,000 plants per acre and irrigated at 75,000 plants per acre. Honestly, my cutoff is 50,000 plants/acre for both irrigated and non-irrigated based more off of observation. A few on-farm research studies with lower actual stand counts include the following examples. 1-A non-irrigated field in Nuckolls County in 2006 was hailed at the cotyledon stage, so planted populations of 100K, 130K, and 160K became average actual stands of 74,417; 89,417; and 97,917 plants per acre with a 4 bu/ac yield difference between highest and lowest plant populations. 2-An irrigated field in Hamilton County in 2010 showed a 3 bu/ac yield difference between planted stand of 80K vs. 120K seeds/acre. 3-A York County irrigated field in 2018 comparing 90K, 120K, and 150K became final plant stands of 60,875; 88,125; and 121,750 plants/acre with yields of 93; 94; and 97 bu/ac respectively. So soybeans greatly compensate for reduced populations. Weed control may be another factor, depending on time of year, for soybean replant consideration. When in doubt, leaving some strips with the original stand and others with replant to test is also an option. I've also received questions regarding how much nitrogen to expect in the flooded/ponded soils. I don't have a good answer other than soil samples will be helpful in determining this.

Wheat Diseases: I didn't find any pustules looking at wheat in Nuckolls and Clay this past week. Stripe rust was confirmed in Perkins County and it was also found in Hamilton County by a crop

consultant. While the model wasn't showing as high of a risk, I've been concerned about our potential for wheat scab this year with all the rain. There are early planted wheat fields in which the flowering process has been completed. But there are a number of fields that are just fully headed now with beginning flowering to start soon. Upon flowering, your options for controlling any fungal diseases present on leaves as well as preventing scab are Prosaro, Caramba, and Miravis Ace. Research has found best timing to prevent scab is when 30% of the heads are at 15% flowering…basically early flowering. Flowering in wheat begins in the middle of the head.

South Central Ag Lab Weed Science Field Day: June 26th will be the South Central Ag Lab Weed Science Field Day near Clay Center. The field day will run from 8:30 a.m. to 1 p.m. with registration beginning at 8 a.m. Tours include: New Technology/Herbicides for Weed Control in Soybean; Herbicides for Weed Control in Corn; and a presentation by Bob Klein on "What Works and Doesn't Work in Managing Spray Drift". There is no cost to attend and CCA credits are available. Please pre-register at: http://agronomy.unl.edu/fieldday.

Keeping Rural Worksites Strong: This is a workshop for those who work in human resources, leadership and wellness roles, agriculture, and safety to create a mental health friendly workplace. It will be held on Tuesday, June 25 from 9 a.m.-4 p.m. (Registration 8:30 a.m.) at the Seward Medical Center in Seward. Topics include: stress and employee health; substance use issues in the workplace; identifying risk for violence in the workplace; employer's role in preventing suicide; caring for employees; and being a mental health friendly worksite. Cost is $20 and includes light breakfast, lunch, and materials. Please RSVP to Four Corners Health Dept. at: http://www.fourcorners.ne.gov or (877) 337-3573.

Jenny Rees 6/10/2019

Crop Updates: It's been interesting seeing growers sharing pics comparing crops on the same dates in 2018 to 2019. They are behind in many cases compared to last year. Yet, we can be thankful for every field that we've been able to plant in Nebraska this year! Weed control is something on many minds right now. On corn, please be sure to count collars to determine growth stages. First leaves are sloughing off on V5-V7 plants right now, so slitting open stalks to aid in counting collars is important as we think of herbicide applications. Bob Nielsen from Purdue has a nice recent article with photos to help you with this: http://www.kingcorn.org/news/timeless/VStageMethods.html. When it comes to beans, I'm concerned how much longer the PRE's will hold. I share this every year in pesticide training to have the POST with residual on a week before you think you need it, even if you don't see weeds in the field yet. So assess each field as to when your PRE went on, current weed emergence, and plan on your POST a week earlier to overlap when your PRE residual should be running out. Also, with palmer amaranth on people's minds, consider attending a glyphosate resistant palmer amaranth field day July 10th near Carleton, NE. Dr. Jason Norsworthy from the University of Arkansas will be the featured speaker. For those who've heard me speak on palmer or at my pesticide trainings, much of what I share has been what I've learned from his presentations and research papers. You can learn more and register at: http://agronomy.unl.edu/palmer. Adding a small grain and diversifying our cropping systems is one way to aid in palmer/waterhemp management. There are several upcoming wheat and pulse crop field days occurring throughout Nebraska in the next two weeks and you can read more about them at: https://go.unl.edu/b65e.

At some point, irrigation may be needed again. Installing irrigation scheduling equipment now allows you to watch your soil moisture profile as your crops grow, gain better confidence in your readings, and it's just easier to install them at earlier growth stages when there's moisture in the profile. Here's some tips for those using watermark sensors. (As I walk through this, I'm using kilopascals (kpa) for the sensor readings but the same numbers apply to centibars (cb)). First, be sure to prime the sensors to ensure they're working correctly. Do this by soaking the sensors for at least 24 hours in water. If you still have mud on the sensors, gently remove with your fingers, not with a brush. Then check the readings to ensure they read 10 or less. If they don't, I allow them to soak another 24 hours and recheck; replace any that don't read 10 kpa or less. Allow the sensors to dry out to 199 kpa again by setting out in the sun/wind/blowing fans. (Note that water will move into the PVC tube during soaking, so you'll need to remove the cap and dump the water out if you don't have a hole drilled at the bottom of the PVC tube. This is also true

during the installation process.) When you're ready to install the sensors, they need to be soaked again, but it should only take them 1-5 minutes to read 10 kpa or less prior to installation. There's a couple things I've learned with installations that help me. First, use an ag consultant's tube on soil probe to dig the foot wherever the sensor is installed. This allows for a better fit with no air gaps along the sensor. I use a regular soil tube to dig the hole the foot/feet above that to aid in pushing the sensors. In wet, clayey soils, it can be difficult to push the PVC pipe into the ground, so digging the upper holes with a bigger tube helps me with that. The other thing I do is carry my bucket with water for the sensors to the field with me with the sensors. To aid with pushing the sensors in the ground, I wet the PVC tube with water from the bucket prior to installing it. NEVER pour water into the holes and don't make a slurry mix. I'm hearing several were taught to do this, but it's not what Nebraska Extension teaches based on Dr. Suat Irmak's research as it will change the soil moisture of the holes compared to the surrounding soils. Make sure the sensors hit the bottom of the hole and fill in soil where the PVC pipe meets the soil line. Suat shared how he used rubber washers around the top of the PVC pipe at the soil line to aid in water not running down the PVC tube when soil cracks at the surface. For those installing ET gages, a reminder to remove the stopper from the ceramic top and fill the ceramic top with distilled water in addition to the main tube of the ET gage. I fill the ceramic top, allow it to soak into the ceramic plate a little and refill it. Then prime the inner tube with stopper ensuring there's no air bubbles in the small tube after placing it into the ceramic top. You can also double check for air bubbles by gently removing the glass site gage (by pressing down on the rubber tubing at the base of the site gage), allowing some water to cycle through, and then replacing it.

Maple seedlings: Maple trees have now leafed out and the rain has allowed the abundance of seeds to produce seedlings in people's lawns and gardens. I know they look bad because they do at my place too. Mowing is the best way to take care of them in your lawn and it will take several mowings to do so. Don't lower your mowing height as you want to maintain a healthy grass canopy. Eventually the seedlings will continue to grow to where the mower blade cuts off below the growing point and the seedlings will die. In the flower beds, they are very easy to pull right now. It takes some extra time, but that's the best way to rid them there.

Jenny Rees June 17, 2019

Crop Update: This past week's top question was about yellow looking and/or buggy whipped corn and weed control. Much of what we're seeing can be attributed to cool, wet conditions this spring. Yellow striping on leaves is often due to sulfur deficiency but could be combined with other nutrient deficiencies depending on conditions. Purdue University has a nice guide with pics if you'd like to check it out: https://www.agry.purdue.edu/ext/soilfertility/news/Striped_Corn.pdf.

Most of what I looked at or received questions about was yellow and/or buggy whipped corn due to herbicide injury. This isn't uncommon for pre-plant residual herbicides to impact corn more in years where we have wet conditions, cooler temps, and plants that are slower to emerge/grow. Yes, some of these products are considered 'safe' for corn, and they shouldn't kill it. It's just we're experiencing a strange year with cool, wet conditions and the corn is metabolizing the chemical but not growing fast enough, thus the injury. Situations which may be extra sensitive are ones in which corn was planted too wet with slots not closing or if corn was planted too shallow. Soil applied grass herbicides and those with pre-mixes containing atrazine may be experiencing more of the buggy whipping or yellowing from Group 15 growth inhibitor herbicides. Yellow/purple leaves and sometimes 'bottlebrush' looking roots can be exhibited from Group 2 ALS-inhibitor herbicides. Herbicides in Group 27 with 'bleacher' chemistry are re-activated with rain events and we're seeing some yellow/white corn and milo due to that. Dr. Kevin Bradley, University of Missouri, wrote an article that shares photos and trade names if you're interested in checking that out: https://ipm.missouri.edu/IPCM/2009/4/Cool-Wet-Soils-Can-result-in-More-Corn-Injury-from-Preemergence-Residual-Herbicides/. I realize it's frustrating, but overall these are good products and it's the weather conditions causing the problems. Each day of sunshine and warmer temps are helping corn to grow out of the symptoms and look greener/healthier in most cases.

The other concern is the rain has moved herbicides down into the soil and we're beginning to see weed flushes of waterhemp and palmer on the soil surface. Chris Proctor, Extension Educator, addressed this in *CropWatch* and *Nebraska Farmer* as we think of post-emergence control right now in both corn and soybean. There are additional trade names with similar chemistries mentioned and this isn't an endorsement of specific products. "There are a number of effective herbicide options in corn such as Acuron, Laudis, or Diflexx Duo. In soybean, herbicide options are much more limited. When coupled with traited seed, Liberty, or Xtendimax can be effective at controlling these weeds postemergence, and in a Roundup Ready system Warrant Ultra or Flexstar GT are good options. It's not too early to plan how to improve weed control in fields with a history of difficult-to-control weeds. A good preemergence herbicide program, use of narrow row-spacing, and even cover crops, when used as part of an integrated management plan, can improve control of herbicide-resistant weeds."

Thistle Caterpillars: Painted lady butterflies migrate north from the southern U.S. and Mexico each spring. The butterflies have been around for a little over a month and thistle caterpillars have been found feeding in soybean the past few weeks. Last week, I was seeing higher populations in early planted soybeans in Clay and Nuckolls counties. Larvae can feed

from 2-6 weeks depending on weather. Treatment thresholds for vegetative stages are 30% defoliation. Each field needs to be assessed regarding percent defoliation and larval stage. Some fields I checked had larvae that were pupating or already emerged as adults. Other fields had larval stages that will still feed 2-5 weeks, depending on weather. Much information we read says they stay on field borders, which I've seen to be true later in the growing season. But right now, I'm finding situations where they're fairly consistently infested throughout the field. Some may consider adding an insecticide to your post-herbicide application. If you have dicamba-tolerant soybeans, be sure to check the product's website regarding approved tank-mix partners.

This caterpillar still has several weeks (2-5 depending on weather) of feeding.

This caterpillar will begin pupating within a week.

Irrigation Scheduling Workshops for wet years will be held Wednesday June 19th, 12 noon, at The Leadership Center, 211 Q St (E Hwy 34) in Aurora and Tuesday June 25th, 12 noon, at the Chances R Restaurant, 124 West Fifth Street, York. The program will start with lunch at 12:00 pm, followed by the speakers and wrap up around 1:30 pm. The Upper Big Blue NRD will provide the lunch. RSVP is not required but appreciated for a meal count. Call the Hamilton County Extension office at 402-694-6174 or email Steve Melvin at steve.melvin@unl.edu. Dan Leininger with the Upper Big Blue NRD will speak on installing sensors and Steve Melvin will speak on deciding when and how much water to apply using watermark sensor readings.

Jenny Rees June 24, 2019

Crop Updates: It was nice to see corn greening up and getting some growth this past week! Also on people's minds is the 45 day post-planting application deadline for RUP dicamba herbicides. The announcement that Risk Management Agency (RMA) adjusted the 2019 final haying and grazing date from Nov. 1 to Sept. 1 for prevented planting this year opened up additional options for our farmers affected by flooding and/or excess rain. An additional option was that "silage, haylage, and bailage should be treated in the same manner as haying and grazing this year. Producers can hay, graze or cut cover crops for silage, haylage or baleage on prevented plant acres on or after September 1 and still maintain eligibility for their full 2019 prevented planting indemnity."

So how did this change things? Many I talked with, including my family, were originally planning on going with cool season covers like oats planted the first week of August. However, with the ability to harvest a cover crop for forage on Sept. 1, interest increased in utilizing warm season cover crops. For those planning on haying, our forage specialists recommend using millets. The regrowth after haying could then be used for grazing in the late fall/winter. They also said if you're planning on a mix, don't add brassicas into whatever you decide to hay as they don't dry down and tend to create a moldy spot within hay. If you're looking at grazing only, sudangrass, sorghum sudan, millets, and/or mix with other species are great options. Forage sorghum is a great option for silage.

The other consideration is that some of this ground going into prevent plant already had PRE herbicides applied, making legal options for cover crops that could be grazed or hayed difficult. So Friday was kind of a crazy day for me walking people through options. Honestly, sometimes corn or milo for silage ended up being the most feasible option based on labels. There are also acres of corn and bean fields that were drowned out due to recent flooding and are now considered a "failed crop" by FSA. Herbicides that were applied can make planting covers in those fields difficult too. Some farmers had contracts with seed companies providing free seed for replant. Thus, once again, corn for silage seemed like a feasible and economical option. So, I called Jeff Peterson at Seward Co. FSA to see if this could be an option. He said that it would be a feasible option in 2019 if it was also approved by the person's crop insurance agent. The first step is to contact your crop insurance agent to discuss your options for prevent plant and/or failed crop. Then go to your FSA office and fill out their form for failed crop and/or prevent plant. Your crop insurance company may require a letter from Extension stating that corn can be used as a forage crop for silage. Again, it will be important to talk with your crop insurance agent and your FSA office about your options for the fields in your counties as I can't guarantee these are options for every situation.

Tree Problems: The rain and humidity have allowed for numerous fungal diseases on our evergreen and deciduous trees. On deciduous trees, leaves with black/brown spots may be found. We don't typically recommend fungicides for them and if the diseases get bad enough, the leaves may eventually fall off the trees early. A new flush of leaves typically

follows 10-14 days later. On evergreen trees, we're seeing a number of needle blights and shoot tip blights. We do recommend fungicide applications for them (typically in April or May). However, it is recommended to repeat them every 3-4 weeks when frequent rains occur. Product options for most evergreen diseases include chlorothalonil or a product containing Copper that is labeled for evergreen tree diseases. Bordeaux mixture is often recommended, but I have a hard time finding anyone that carries that.

Sirococcus blight of spruces is one of many diseases being seen this week due to frequent rains and high humidity. Tips of spruce needles appear to be red/brown/purple and dying along with drooping new growth on trees.

Also, be checking trees for bagworms. They're later this year and just forming new bags. In order to see them, what I do is walk up to the trees (especially cedars or spruces) and just watch the branches for any movement occurring on them. If you've had a bagworm problem in the past, what you'll see is tiny, new brown bags moving as the larvae is building a new bag. I have more info and a video to help visualize what to look for: https://jenreesources.com/2015/06/27/bagworms-in-evergreens/. The best time to spray them is when the bags are less than ½ inch in size. More info and products can be found here: https://go.unl.edu/rgju.

Prevent Planting and Herbicides for Cover Crops: This past week, corn for silage was approved as a cover crop in prevent plant situations, primarily because of the herbicide restrictions on cover crops for forage. A team of us wrote an article about how to understand herbicide rotation restrictions and also shared the information from NRCS regarding corn as a cover crop in this week's CropWatch. You can see these and more articles about soybean gall midge and Japanese beetles at http://cropwatch.unl.edu.
Hail Damage: For a 'slight chance' of rain, it was interesting to have the hail and 4" of rain in the gauge Wednesday morning! It appears we had hail from the York area through Cordova area and I heard there was also hail in Butler and Platte counties. The larger hail appeared to have damaged crops into Kansas through Superior, south and west of Lawrence through Blue Hill and Holstein. What was encouraging was not even 24 hours after the storm, signs of recovery could be seen in corn and soybean. Warm temps, no rain, and sunshine make all the difference in recovery after hail compared to cool, wet, cloudy conditions. I went back to look at fields in the southern tier of counties into Kansas and in York area southeast on Friday and was further encouraged by the regrowth. You can view photos on my blog at https://jenreesources.com. The bruising on stalks and stems can allow stalk rot to set in on corn and soybean stems to become brittle and break off with wind…so keep this in mind towards harvest and plan to get these fields out first if possible. What's hardest is wheat fields that were nearing harvest that shattered or were totaled due to hail. Also difficult is the fact we've lost so much canopy in crops at the peak of palmer growth for those who have fields with palmer problems. And speaking of palmer, a reminder of the palmer amaranth field day near Carleton on July 10th. View herbicide options for palmer control and listen to keynote speaker Dr. Jason Norsworthy from the University of Arkansas. Registration at: http://agronomy.unl.edu/palmer.

So, this may sound crazy, but I was curious about the potential of interseeding a cover in these corn fields with extreme canopy missing right now. I was standing in one field of V11-12 corn with all the leaves gone listening to the growers tell me how much of a palmer problem this field has, even though it is clean right now. We know from research that interseeding at this growth stage typically doesn't work due to canopy closure, but I'm wondering if it could help with weed pressure since the remaining leaves may be more upright and may not completely shade the rows? The keys to this consideration would be the herbicides used and considering rotation restrictions if you plan on using the stalks and cover for forage after harvest. If you don't plan to use the cover for forage, there wouldn't be restrictions as you'd assume planting at your own risk. We can't predict if it will keep raining for non-irrigated fields. It would also be wise to talk with your crop insurance agent about this.

Fungicides in Hail Damaged Crops: Several have asked about fungicide use on hail damaged crops. There's no good research to support this and fungicides only control fungal diseases. Bacterial diseases such as bacterial leaf streak and Goss' wilt are favored after hail events. We've already seen both of these diseases in this part of the State due to heavy

rains. Fungicides at some point may help with stalk strength with all the bruising and we may need fungicides later this season for disease if the humidity and rains continue.
The available research had fungicides applied at tassel instead of the earlier growth stages we're currently at. ISU did a one-year study to simulate hail damaged corn at tassel stage within an average of 3 or 8 days post-hail. They didn't find the timing to provide any yield effects. They also didn't find a statistical yield increase (90% confidence level) in fungicide application to hail damaged plants vs. those which weren't hailed (although they also reported a numerical yield increase in 12 of the 20 fields). A study was also conducted by Carl Bradley at the University of Illinois in 2007-2008 to evaluate the effects of fungicide applications at tassel in simulated hail-injured corn on gray leaf spot severity and yield. In that study, fungicide applications did not statistically increase yield when applied on corn that was damaged to simulate hail injury.
If you're considering a fungicide now, you could consider an on-farm research study depending on equipment, ability to get in the field, and crop height. Spray fungicide in enough width to complete 2 combine passes. Then skip an area for 2 combine passes. Then treat again and repeat across the field. View: Fungicide Protocol for Hailed Corn and Soybean. Some talking about this wondered about aerial applications. If we had enough people who left a check, we could look at combining the data to make up for lack of reps in one field. Please let me know if you're interested in either of these options.

Butterflies and Soybean

Defoliators: Painted lady butterflies and others like sulfur butterflies can be seen flying around as they're emerging from soybean fields. I really wish they'd move on but I'm seeing butterflies in my gardens now too, so we're just going to have to keep scouting fields. There's also a lot of yellow striped armyworms out there of various larval stages. If your soybeans don't seem to be growing or you seem to be losing canopy beyond hail damage and 'burner' herbicides, be looking for various larvae. In this heat, if you have a lot of residue in the field, they may be hiding under it, so be sure to look there too if you have a spot in the field especially affected.

NOTE: End of News Column. Photos below to document recovery.

Soybeans with new growth seen in axillary buds and/or main shoot within 24 hours of June 26 hail storm (first two photos) and 3 days after hail storm (last two photos). Soybeans were V4 to R1. Note, temperatures were hot with sun and dry conditions post-hail.

Wheat grain shelled from heads and broken heads in both early and later planted wheat. Warm season forages may be a good option to consider in totaled out wheat fields.

First photo is corn west of Lawrence on July 26 and showing regrowth in second photo 3 days later. Third photo is corn near York on July 26 showing growth in whorl not damaged. Last photo is worst hail damaged area I saw near Webber, KS. There was nothing left of soybean in the nearby fields.

Hail damage on stems may be only on the outer surface of leaves with no bruising below that (as in first two photos). Or, it can be more severe where bruising is leading to rot setting into the stem (as in last two photos).

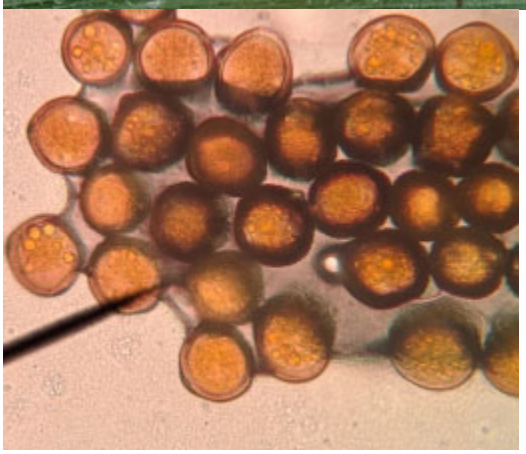
Crop Updates: I really appreciate all those in ag industry who share what you're seeing in the fields; it's a blessing to have a great network of people looking at fields in different areas of the state and sharing what we're all seeing!

Western bean cutworm (WBC) moths were seen in corn whorls the past week. They're

Western Bean Cutworm Moth courtesy UNL CropWatch

also showing up in UNL light traps in addition to industry ones. To view the UNL light trap reports near Clay Center, please go to: https://scal.unl.edu/ltr2019.pdf. The light trap near Mead is currently having black light issues, but the report can be viewed at: https://go.unl.edu/2usz and the light trap report from North Platte is at: https://go.unl.edu/a56b. WBC moths prefer laying eggs on upper leaf surfaces in corn that is in the late whorl to early tassel stage. UNL entomologists recommend scouting at 25% of moth flight. It's unknown how larval survival will be impacted by corn growth stage at this time. Larvae survival is highest when they have fresh tassel tissue and pollen to feed on before moving down to developing ears and silks. Larval survival is lowest when only vegetative tissue is available to feed on. So, the delayed planting and growth in some fields may allow for less western bean cutworm damage in 2019. However, our entomologists say that air and soil temperature can also impact insect development leading to slower development of the insects. UNL Entomologists Tom Hunt and Bob Wright, along with University of Minnesota researchers, developed a degree-day model to predict when WBC moths will emerge to begin mating and laying eggs. In a recent CropWatch article, they were predicting 25% moth flight to occur for the following dates/locations: July 7th in Lincoln; July 11 in Hastings and Ithaca; July 12 in Grand Island and York; July 13 in Clay Center; July 15 in Holdrege, and July 23 in North Platte. Corn expressing VIP3A proteins are highly effective for WBC control. Corn expressing Cry1F (Herculex) proteins may provide some WBC feeding suppression but shouldn't be relied upon for control. The current UNL economic threshold for treatment is 5-8% of corn plants with eggs or larvae.

Common Rust in Corn: The rainfall, humidity, and wet canopies have allowed for



increased common rust to be seen in corn this past week. I was seeing larger numbers of pustules on lower leaves of plants, but this week could also see pustules occurring in upper canopies. Pustules of common rust are typically brick red in color, larger, more separate, and can appear on both the upper and lower leaf surfaces. Southern rust typically has smaller, orange to tan colored pustules occurring in tight clusters on upper surfaces of leaves. However, the past few years, we've seen common rust looking more orange in color, including this year. The best way to confirm for sure if it's common or southern rust is to check the spores under the microscope, and I'm happy to do that. The spores of common rust will be circular in shape whereas southern rust spores are more oval to football shaped. Samples can also be submitted to the UNL Plant and Pest Diagnostic lab. So far, every sample I've looked at has been common rust. Southern rust hasn't been found further than Georgia and Louisiana to my knowledge right now. We don't typically recommend fungicides for common rust. It will be important to continue scouting for diseases with the humidity and leaf wetness we're experiencing this year.

Lawn and Garden Questions: The wet weather has allowed slime mold (gray-black fungal growth on leaves) in patches in lawns in addition to mushrooms in lawns and landscapes. They are

harmless and fungicides aren't effective. They will go away upon drying out and with warmer weather.

Bagworms are out and it's time to control them if you have them. The following gives more detailed info on their life cycle: https://go.unl.edu/rgju and this YouTube video shows what you're looking for this time of year on your trees: https://jenreesources.com/2015/06/27/bagworms-in-evergreens/.

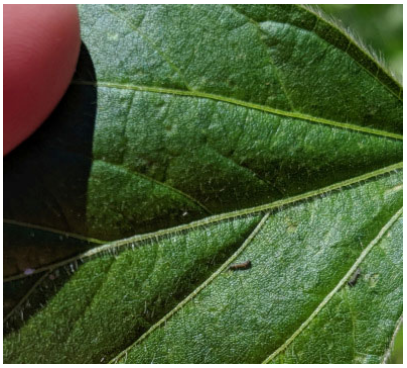
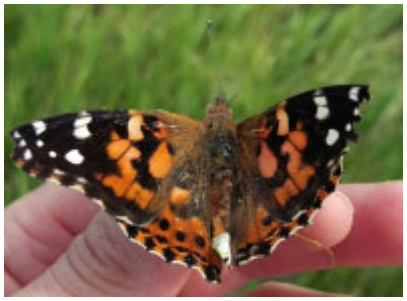
Japanese Beetles may be causing holes in Linden trees or rose leaves. They are

Green June Beetle (left) and Japanese beetle (right). Photo via Purdue Entomology.

green/brown beetles with white hairs that look like rows of white spots near each wing. Kelly Feehan in Platte County shares that "applying insecticides to lawns to control grubs will not prevent beetles from feeding on landscape plants. The product 'Milky Spore' sold to kill them, does not work. On landscape plants, hand picking or knocking beetles into a bucket of soapy water around 7 PM is the best time of day to do this as it prevents plants producing a distress pheromone that attracts more beetles. Japanese beetle traps work very well – IF you want to attract them to your yard – so traps are best NOT used. If a Linden tree has Japanese beetles, know these trees CANNOT be treated with Imidacloprid or other Neonicotinoid insecticides." Carbaryl (Sevin) is effective to use for Lindens and landscape plants where it's not feasible to remove beetles by hand.

Jenny Rees 7-15-19

Interesting, memorable don't seem to capture this year. While portions of Nebraska are flooding again, many growers in this part of the state and east would like some rain. Dr. Suat Irmak shares on understanding matric potential and water content thresholds on sensors for irrigation scheduling in this CropWatch article: https://go.unl.edu/miym.


Soybean: The large number of painted lady butterflies we experienced in late May/June was due to a wet season in Mexico that allowed for greater vegetative growth and survival for northern migration, according to Bob Wright, Extension Entomologist. The cooler conditions may have caused more to stay here instead of move north. Saw newly hatched to early instars of thistle caterpillar (the larvae of painted lady butterflies) this week. Yet, a tremendous number of butterflies are still laying eggs. A painted lady female can lay up to 500 pale green eggs on plants individually instead of in egg masses. The larvae hatch in around a week and can feed from 2-6 weeks depending on weather conditions. Other defoliators including various worms, grasshoppers, Japanese beetles are also present. Thresholds for damage for all soybean defoliators is 20% defoliation of plants during the reproductive stages. If you're unsure what 20% defoliation in soybean looks like, check out the graphic in CropWatch at: https://go.unl.edu/v0ts. If your primary defoliator is thistle caterpillars, it's important to use insecticides that can be effective on them once their 'tents' are built. The 2019 Guide for Weed, Disease, Insect Management gives information regarding products that may work better on pages 308-314.

Gall Midge in Seward County: My colleague Aaron Nygren found soybean gall midge in

Gall midge (orange colored worm)

Seward County north of Bee this past week. I was a few miles away so met him at the field. Being a new insect pest, little is known about it. Infected plants show signs of wilting from larvae feeding within the base of the stem. These plants will eventually die. To scout for soybean gall midge, focus on plants that are close to the field edge and adjacent to fields

that were planted to soybean in 2018. If you're seeing wilted/dying plants, particularly in early planted beans this year, please contact your local Extension educator. More information at: https://cropwatch.unl.edu/gallmidge.

Bob Wright is asking for help to understand distribution of the green June beetle, Japanese beetle, and brown marmorated stink bug. If you see these insects, please take a picture and upload it to: inaturalist.org, including information on where the photo was taken. You need to make an account with inaturalist.org before you can upload photos. And, if you're unsure what these insects look like, you can view them at: https://go.unl.edu/uzd0.

Corn: Looked at numerous corn leaves but so far, only common rust in Nebraska. Southern rust was confirmed in southern Kansas and Missouri this past week. You can view U.S. counties where southern rust has been confirmed at: https://corn.ipmpipe.org/southerncornrust/.

As we approach tasseling: 1-Areas of fields that had water ponded this growing season may show crazy top of corn. Crazy top symptoms include when the tassel appears strange and leafy. Plants can be barren, have barren kernels on ears, or have multiple ears at shank. 2-Automatic fungicide applications at tassel: I prefer waiting till disease warrants application & Nebraska research shows fungicide applications later in the season are effective. Be careful if you automatically spray at tassel! Canopy closure covered problems in fields, including uneven growth stages. Plants in the field may have tassels with others several growth stages behind. Arrested ear development primarily occurs on plants from 12-14 leaves when surfactants (particularly non-ionic) are applied with fungicides. So, it's important to know your growth stages and consider what you're applying. 3-Japanese beetles in corn threshold: Three or more Japanese beetles per ear with silks clipped to less than ½ inch and pollination is less than 50% complete. 4-It's OK to fertigate pollinating corn. Avoid running pivot from 6 a.m.-Noon during pollination. Can apply 30 lbs N in 0.25" water or up to 60 lbs N in 0.50".

Tassels appear leafy in crazy top of corn. Took this pic from flooded waterway area in 2017.

Linden trees and Japanese beetles: Last week I didn't stress the importance of insecticides and impact to bees when spraying linden trees. 'Sevin' is effective but highly toxic to bees. It's better to use heavy streams of water in late afternoon to knock Japanese beetles down (then drown in soapy water), pyrethroids, or permethrin like 'Eight' as those products are not taken back to the hives.

Heat and Pollination: With last week's heat and anticipated heat later this week, we were receiving questions regarding the impacts of heat and humidity on pollination. You can view the entire article in this week's CropWatch at https://cropwatch.unl.edu. Key points include: Heat over 95°F depresses pollen production and prolonged periods of heat can reduce pollen production and viability. When soil moisture is sufficient, one day of 95-98°F has little or no impact on yields. After four consecutive days, there can be a 1% loss in yield for each day above that temperature. Greater yield loss potential occurs after the fifth or sixth day. High humidity, without a drop in humidity during the day, can delay pollination or prevent pollen from leaving anther sacs. We've been blessed we only had days of extended high heat around pollination, received a break in the heat in addition to weekend moisture.

Insect Pests: From light trap reports, peak western bean cutworm (WBC) flight appears

I'm pulling for the soldier bug predator

to have occurred last week, so scout for egg masses and live larvae with a 5-8% treatment threshold. Thistle caterpillars grew rapidly last week. Others are with me in considering spraying closer to 15% (instead of 20% threshold) with stressed fields from flash drought and/or off-target dicamba injury that don't have canopy cover yet. In CropWatch, check out the articles regarding scouting for grasshoppers in field borders and what to expect for insects depending on crop growth stages yet this year.

Cattle Losses from High Heat: If the recent heat/humidity conditions are determined to be an extreme weather disaster event, then livestock losses would be covered by the Livestock Indemnity Program (LIP). Livestock producers who lost livestock should document losses in the expectation that they may be covered by LIP and contact your local Farm Service Agency (FSA) to report those losses.

South Central Ag Lab Field Day Aug. 1: View current field trials on improving crop production and profitability at UNL's South Central Ag Lab (SCAL) on August 1 near Harvard. Guests can customize their day to select the tours they're most interested in. Presentation topics include: Cover crops, pollinators and weed management; European corn borer, corn rootworm, and cover crop insect control; Herbicide-resistant weed management; Assessing injury and management decisions in corn and soybeans; Corn and soybean disease updates; Sensor-based nitrogen management in irrigated corn; Corn stover harvest management and impacts; mobile beef lab and hail machine demonstrations. Registration is at 8:30 a.m. followed by tours through 4 p.m. Lunch and

refreshments are included. CCA credits have been applied for. For more info. see the program brochure and register at: https://go.unl.edu/2019scalfieldday.

Silage Webinar Aug. 2: With this year's challenging weather and the need for forage, there may be more opportunities for harvesting corn for silage. Aimed at feedlot, cow-calf, and dairy producers, a silage webinar on August 2 at Noon CST will focus on moisture at chopping, chop length, inoculants, proper packing, silage covers and more. Pre-registration for the webinar is necessary and can be done at: https://go.unl.edu/vau7.

Trees Losing Leaves: The wet spring and humidity allowed for fungal diseases on leaves of shade trees with flowering pears and crabapples in particular dropping leaves early. I've also had a number of questions regarding red maple leaves (Autumn Blaze and Sunset) suddenly turning brown on trees. These symptoms may also be experienced on ash, tuliptree, and other maples. We think it's environmental stress from having so much cool and wet early to almost a 'flash drought' situation in eastern Nebraska prior to this weekend's rains. Sarah Browning has been recommending watering and mulch as the best ways to reduce stress and to prevent additional root death and tree decline. I've been seeing new growth starting to occur on trees so my hope is if your tree is experiencing this, that 10-14 days from now you will also see new growth occurring on your trees.

Southern Rust in Nebraska was confirmed in Nuckolls, Thayer, and Fillmore counties last week. The lesions were typically on one leaf in an isolated portion of fields at low incidence and severity. I was recommending to watch the fields instead of spraying right away. Greatly appreciate everyone who has gotten samples to me this month and to neighboring Extension offices serving as drop off points for samples. I've been looking at samples since early July and honestly, common rust at times has exhibited signs similar to southern rust. At my blog site (https://jenreesources.com), I've posted photos showing the differences of common vs. southern rust that we're seeing this year. Southern rust typically is orange to tan colored with tiny, clustered pustules on the upper leaf surface. Common rust has had an orange appearance to it at times with smaller lesions than the 'typical' brick red larger ones. However, in every southern rust sample I've confirmed, the pustules have not gone through the back of the leaf…there's been indentations but nothing has produced pustules on the backside. That doesn't mean that the fungus can't; it just rarely does. Also, these leaves have all occurred in the mid-canopy. I realize lowest leaves of plants often have a great deal of rust on them, but it's been common rust in leaf samples I've pulled and received to date. I've also posted photos of another disease called Physoderma brown spot on my blog. Physoderma is the disease that has purple/brown on the midribs, around leaf axils and sheaths and it also can have tiny yellow-brown spots without pustules that look a lot like southern rust on leaves of plants. It's one that we tend to see around pollination as the fungus-like pathogen swims in water on the leaf surface and feeds off of decaying pollen.

Confirming southern rust in a few Nebraska counties thus far doesn't mean that every field has it and we don't know how it will progress. So our recommendation is to continue scouting and if you have a suspect sample, you can get it to me (if you're in the area) or to our Plant and Pest Diagnostic Lab in Lincoln. You can keep updated with counties that are confirmed by checking out the Southern Rust tracking site at: https://corn.ipmpipe.org/southerncornrust/. The wide range of planting dates across Nebraska this year has resulted in a wide range of corn growth and reproductive stages in fields, some of which are still in the vegetative growth stages. Keep in mind that late planted fields are at particular risk for southern rust if it increases in development. Right now corn disease pressure in general is low. I'm anticipating that to soon change for gray leaf spot susceptible hybrids. Some growers added a fungicide in with an insecticide treatment for western bean cutworm, which made sense to save an application cost. However, in general, automatic fungicide applications when one treats before disease develops may lead to loss of full product efficacy before critical disease levels. This can also result in the need for reapplication later if the disease worsens after the previous fungicide application and residual has worn off. And, always in my mind is eventual potential for pathogen resistance…so utilizing fungicides when we need them vs. automatically applying is wise for maintaining these fungicide chemistries.

York County Fair: This week is the York County Fair! All events and details can be found at: http://www.yorkcountyfair.com/. One special addition this year is "Brownies for Bergen" on Saturday, August 3 from 5:30-7:00 p.m. The late Gene Bergen was a 4-H icon and was planning on celebrating 50 years as a York County Ag Society Member at this year's fair before retiring. While he won't be with us in person, the York County Ag Society, 4-H Council, and Extension Office would like to honor him and his original plans to celebrate. So please join us for brownies and ice cream and share your favorite memories and stories of Gene!

Lower corn leaf that is dying early and has a great deal of rust on it. So far, this has all been common rust as pictured here in spite of smaller, clustered pustules or even orange colored pustules.

Common rust spores are circular in shape.

Southern rust was confirmed on this leaf in 2019. Small, clustered, tan-orange colored pustules can be seen on this leaf.

Southern rust spores are brown and oval in shape. Sharing this photo as the clear structures are spores (condia) and spore-holding structures (conidiophores) of *Cercospora zeae-maydis* which causes gray leaf spot (gls) in corn. Was seeing these spores/structures with only ‘specks’ of gls lesions on this leaf. With humid weather and longer leaf wetness from dews, we may see an increase in appearance of gls lesions in the next 7-10 days.

Physoderma brown spot. Symptoms include both the purple/brown midrib in addition to the yellow-brown lesions on the leaf. These lesions are flat in comparison to southern rust which would have raised pustules.

Thank you to everyone who "pulled together" to make the 2019 York County Fair a success! Reminder of the Seward County Fair in Seward August 8-11 and you can find details at: http://sewardcountyfair.com/.

Cash-Rent Workshops: Nebraska Extension land specialists will address common agricultural landlord and tenant questions such as: What does an equitable rental rate look like for my land? How do I manage a farmland lease? How could the lease be adjusted for recent flood damage? What should I expect for communications between the landlord and tenant? What are key pasture leasing considerations including stocking rates? Who is responsible for cedar tree removal from grazing land? What does it cost to raise crops on my ground? The closest locations to our area are listed below. Registration is 15 minutes prior to start time. The cost is $15 per person or $25 per couple. Registration will include refreshments and handouts.

- Aug. 8, 10 a.m. – 2 p.m.: Eastern Nebraska Research and Extension Center near Mead (includes lunch). RSVP: 402-624-8030 or kglewen1@unl.edu
- Aug. 19, 10 a.m. – 2 p.m.: St. Paul Community Library, 1301 Howard Ave., St. Paul (includes lunch). RSVP: 308-754-5422 or troy.ingram@unl.edu
- Aug. 20, 9 a.m. to noon: Saline County Extension Office, 306 W 3rdSt. Wilber. RSVP: 402-821-2101 or randy.pryor@unl.edu
- Aug. 21, 1 – 4 p.m.: Lancaster County Extension Office, 444 Cherrycreek Rd., Lincoln. RSVP: 402-441-7180 or tyler.williams@unl.edu

Nebraska Soybean Management Field Days will be held August 13-16 and will offer farmers research-based information to improve their soybean profitability. Locations are Sargent on Aug. 13; Pilger on Aug. 14th; Plymouth on Aug. 15; or Waverly on Aug. 16. The field days begin with registration at 9:00 a.m. and conclude at 2:30 p.m. More details at: https://go.unl.edu/2019smfd. Topics include: Making Sense of Production Costs and Policy Changes; Soybean Insects & Cover Crops; Hail Damage Impact on Growth & Development of Soybeans; Management of Cover Crops & Soybean Insects and Pathogens; Soybean Weed Control & Cover Crops; Cover Crop – Pros & Cons Associated with Soybean Production; Soybean Production & Agronomic Topics Associated with Cover Crops – Planting Rates, Row Spacing, Planting Dates, Maturity Groups, Irrigation Management. CEUs available for Certified Crop Advisors.

Soil Health Workshop will be held on August 22 at the Eastern Nebraska Research & Extension Center near Mead. This hands-on workshop is geared for anyone interested in learning more about soil health including home and acreage owners, farm operators, and industry consultants. Topics include: management considerations to improve soil health; measuring bulk density, porosity and infiltration and the impact on soil health; physical soil properties – the foundation for soil health; cover crops for improving soil health; what is soil biology – active carbon test; soil characteristics, productivity and landscape position; and chemical soil properties. CCA credits have been applied for (6.5 Soil & Water Mgt.). Details at: https://enrec.unl.edu/2019MidwestSoilsClinic.pdf or call (800) 529-8030.

West Central Crops and Water Field Day will be held on Aug. 22 at the West Central Research & Extension Center in North Platte. Registration begins at 8 a.m. with program from 8:45 a.m.-5 p.m. This Field Day offers a unique opportunity for anyone interested in water to learn and see

irrigation practices and cropping systems on a farm scale that maintain or increase crop production while conserving water. Approximately 25 commercial vendors will be on hand to provide live demonstrations of how their products can help farmers manage their fields. UNL-TAPS updates and field tours will be included. Details at: https://extension.unl.edu/statewide/westcentral/water-crops-field-day/.

Crop Update and Hail Damage: While I don't remember numbers as well, calendar dates are something I tend to remember. And, in agriculture, there's numerous dates that accumulate over one's life from hail, tornado, blizzard, flood, and wind events. I was reflecting on the Aug. 6th hail storm that occurred in Merrick, York, and Seward counties in 2018. This past week on August 7th, some woke up to hail/wind damage in Adams, Clay, and Nuckolls counties. The tree damage was incredible. Michael Sindelar, Clay Co. Educator, and I surveyed damage a day later. My estimation of the worst hit crops: corn around 80% defoliation with varying percentages of greensnap above/below ear and soybeans around 50% defoliated/broken off/with at least 50% pods on the ground. Where hail stones hit the ears, the kernels are mushy and mold is already setting in on corn at milk stage. There's also mold setting in on soybean pods hit with hail stones. It's hard to receive crop damage any time. The good news is that nothing appears to be a total loss; the majority of what we looked at was less than 40% defoliated and in general, the hail did not seem to penetrate the stalks, thus early stalk rot doesn't appear to be setting in. Pictures at https://jenreesources.com.

Tree Problems: The majority of my questions the past 10 days were regarding tree leaves turning yellow and dropping from trees. They look stark against green grass. In general, what's happening is the fact that we've had high humidity for a period of time now and we've had rain throughout spring and summer. Fungal pathogens thrive in these conditions. So, ornamental/flowering pears have pear rust; crabapples and apples have scab and also cedar-apple rust (depending on varieties); maples, ash, sycamores are showing anthracnose; and a number of other fungal leaf spots are observable on shade trees in general. Evergreen trees show various fungal needle spots. Ultimately, we don't recommend doing anything for these diseases this time of year. We typically don't recommend to spray shade trees in general, but fruit and evergreen trees should be sprayed in the spring if fungal diseases have occurred in the past. So, fungal diseased leaves may drop early and you may or may not observe a new flush of leaves yet this year. These fungal diseases won't kill deciduous trees. They can kill evergreen trees over a period of years.

Oak leaves turning brown in clusters was also observed this past week. Sometimes

browning of leaves can be due to a fungal disease called anthracnose. Most of what I'm seeing, I believe, is environmental. It could be due to changes in hot/cool and periods of heavy moisture followed by lack of moisture on trees that had a huge flush of leaves due to moisture this spring. I really don't know the cause for sure, but it doesn't appear to be disease related from what I can tell. We wouldn't recommend doing anything for the trees at this time.

UBBNRD Public Hearing: The Upper Big Blue NRD will hold a public hearing and informational open house on Aug. 19 at 7:00 p.m. at the Holthus Convention Center. The purpose is to receive comments on proposed changes to District Rule 5 – Ground Water Management Area Rules and Regulations. A complete copy of Rule 5 and the proposed changes are available at the district office and at www.upperbigblue.org/publichearing. The public will have the opportunity to learn more about these proposed changes and their effects, and address NRD board members about their concerns or support.
The proposed changes would stipulate that an approved nitrification inhibitor must be applied at the manufacturer's recommended rate with pre-plant nitrogen fertilizer in the following situations: The application of anhydrous ammonia prior to March 1; The application of all nitrogen fertilizers other than anhydrous ammonia after February 29. In addition to these requirements, in Phase II and Phase III areas pre-plant application of nitrogen fertilizer shall not exceed 120 lbs. per acre. The remaining nitrogen fertilizer may be applied post plant. Prior to applying nitrogen fertilizer, but no later than April 1 of each year, each operator in the management area will be required to report information regarding the use of best management practices. For more information, visit www.upperbigblue.org or call (402)362-6601.
York County Corn Grower Plot Tour will be held Aug. 20th from 5-7 p.m. at 1611 Rd. 14 east of York. Pizza and refreshments will be provided and check out the latest hybrids. Guess the winning yield without going over and win a $50 gas card. All are welcome!

*End of News Column. Hail damage photos below.

Pitting from hail stones can be observed on corn stalks and husks. The damage doesn't seen to be penetrating stalks beyond the surface, thus stalk rot is not setting in at this time. This field also had wind damage where plants were broke off both above and below the ears.

Kernels are mushy and damaged where hail stones hit and mold is already setting in.

Soybean in worst areas were bent over/broken off with hail damage evident on stems.

Soybean defoliation and soybean bent over from wind and hail damage. They will most likely try to upright themselves somewhat. Stems will become brittle over time and many pods were visible on the ground when lifted up.

Jenny Rees 8-18-19

Reducing Nitrogen Losses: Most growers I've interacted with desire to be good stewards of the land and leave it better for future generations. Economically, they also need to be increasingly efficient in how they farm. One of these stewardships and efficiencies comes in preventing nitrogen losses and individual farm situations may differ in how the risk of those losses is reduced.

Nitrogen losses occur three primary ways: Leaching, Denitrification, and Ammonia Loss.

1-Leaching: All nitrogen fertilizer eventually converts to the nitrate-Nitrogen (nitrate-N) form. This form has a negative charge and is not held by negatively charged soil particles. Thus excessive rains can allow for leaching of nitrogen below the plant root zone, particularly in sandier soils. Fertilizers that are already in the nitrate form such as urea ammonium nitrate (UAN) and ammonium nitrate are susceptible to leaching upon application. Soil microbes can convert urea to nitrate-N within two weeks in late spring, making it susceptible to leaching loss. Anhydrous ammonia takes longer to convert to nitrate-N because it initially kills soil microbes that would convert it. Less conversion occurs once soil temperatures consistently reach 50°F and lower without excess soil moisture.

2-Denitrification occurs in saturated soil conditions where certain soil bacteria can survive and thrive. The bacteria convert nitrate-N to oxygen and nitrogen gases resulting in nitrogen lost to the atmosphere. Heavy, poorly drained, compacted soils are most susceptible to loss via denitrification.

3-Volatilization occurs primarily in urea based products such as dry urea or liquid urea-ammonium nitrate (UAN) when applied on the surface and not incorporated via rain or tillage. The urea in these situations is converted to ammonia gas via urease enzymes in the soil and plant residues. Up to 15-20% of urea can volatilize within a week after application if the conversion occurs at the soil surface during warm, sunny days, particularly in high residue situation, pH levels greater than 7.0 and on light textured soils. If the urea is injected or incorporated after application, or if half-inch of rain/irrigation is received within 24 hours after application, volatilization risk is essentially eliminated.

In general, to reduce the risk of leaching or denitrification, our Extension Soil Fertility Specialists recommend considering applying the majority of nitrogen close to when crop demand is high with more nitrogen applied during the growing season vs. pre-plant. Research has included in-season and split applications including side-dress with and without use of crop sensors, and/or fertigation. The use of inhibitors is not advised in season as research showed they can release N too slowly for the crop demand resulting in yield loss and/or resulting in increased leaching of nitrogen when it was released too late

in the growing season for crop uptake. Inhibitors may help reduce risk of leaching or denitrification pre-plant, but they are not a silver bullet and need to be well targeted in order to aid in reduced nitrogen losses. In general, the research is more supportive for inhibitor use in sandy soils vs. heavier textured soils; yield benefit to a nitrification inhibitor may be none to a few bushels/acre for silt loam or silty clay loam soils. The duration of inhibitor effects depends on soil temperature and may be as little as 1-2 weeks or as much as 6 weeks with spring pre-plant applications. Split application was likely more effective than use of most inhibitors to reduce leaching loss.

Places where inhibitors could be well-targeted to high risk nitrogen loss situations include: urease inhibitor reducing ammonia volatilization with delayed rainfall after urea or UAN broadcast to no-till fields, wheat and pastures, and/or soil pH >7.2; nitrate leaching in a wet spring, especially with sandy soil; denitrification and nitrous oxide emission for poorly drained soil subject to flooding. Other research-based recommendations include considering the addition of alfalfa in rotation 5 of 10 years and including a cover crop in situations where excess nitrate-N may occur, such as seed corn. Two tools developed by UNL for helping quantify the risk of nitrogen loss include the Nitrogen-Loss Assessment Tool (N-LAT) and Maize N which can be accessed at: https://cropwatch.unl.edu/soils.

Crop Updates: An increase in disease pressure has been the theme the past few weeks. Sudden death syndrome is increasing in soybeans, but there's also brown stem rot (BSR) and frogeye leaf spot in some fields. The foliar discoloration is the same for SDS and BSR with the yellow/brown discoloration between leaf veins. You can tell the difference by pulling a plant out of the ground. SDS is usually easy to pull as the taproot is rotted. Splitting the stem open, the root will show rot at the soil line but the stem pith will be white and healthy. With brown stem rot, the pith will have brown discoloration. The addition of stem borer can make it more difficult to tell the difference sometimes. Unfortunately there's nothing one can do for SDS or brown stem rot now as both are caused by soil borne fungi. I would recommend taking soil samples for soybean cyst nematode (SCN) in areas currently impacted by SDS as the combination of diseases is synergistic in impacting yield loss. You only need 0-8" samples and they can be taken during soil fertility samples if you don't want to take them now. The samples are free via your checkoff dollars and they can be sent to the Plant and Pest Diagnostic Lab at UNL in Lincoln.

In corn, foliar disease is increasing in mid-canopies. Most concerning are the number of stalk rot samples/situations I was called to the past week. They all appear to be bacterial stalk rotthus far. Symptoms include water soaked nodes and below the nodes with plants breaking off/falling over. Damaged nodes are from the soil line to upper canopy. The bacteria disintegrates these stalks creating a stringy appearance within them where the nodes break and when slitting open stalks. It also has a distinct foul smell. This is more of a problem in wet years such as this and hybrid susceptibility varies. The bacteria doesn't typically transfer from plant to plant. I have photos of what I'm seeing on my blog at https://jenreesources.com.

There have been multiple late-season hail events in the area. For those fields hit by the August 6th storm, the rainy, cool conditions have allowed for increase in mold on the hail damaged side since many of those damaged ears were at milk stage. However, I'm also seeing mold damage on some back-side of ears in hybrids with tighter husks. The white/pink fluffy growth on the hail damaged side is caused by Fusarium/Gibberella fungi. The presence of these fungi does not automatically mean mycotoxins are present; they do have the potential to produce mycotoxins. The green fungal growth in ears are caused by secondary and minor fungal pathogens that don't produce mycotoxins. The white fungus overtaking ears on some tight-husked hybrids is diplodia which can cause for light test weight but does not produce

a mycotoxin. It will be important to continue to watch grain quality over time prior to harvest.

Wild Cucumber on Trees has also been a huge question. Do Not apply 2,4-D to trees for control as that has been the most common question! The simplest way to kill wild cucumber is pull or hoe the plant at its base below the tree. There's not much to the plant root and the vines will then die on the tree!

Thanks to Randy Pryor for demonstrating how easy these are to pull while we were on a field call together!

It's been a hard year for our growers and livestock producers with continued challenges. Seeking to end this column on a positive note, this year is the 10th year of the Nebraska State Fair in Grand Island and the 150th Fairabration. I'm grateful for the focus on agriculture, families and youth! And, it's encouraging to me to see youth learning life skills whether competing in public speaking, working with and showing livestock, or studying and competing in contests such as weed and grass ID at the State Fair. 4-H is where I got my start and it's exciting for me to wonder at the futures these 4-H and FFA youth have ahead of them as they continue to work hard and put into practice the life skills they are learning! Hope you can make it out to the State Fair at some point!

*End of News Column. Bacterial stalk rot photos below.

Plants still standing showing various symptoms of dying and death

Some plants exhibiting bacterial stalk rot are already lodged or broke off at or around plant nodes.

Plant nodes show discoloration with watersoaking around the nodes (notice the soaked appearance on internode where I removed the outside sheath).

Majorly impacted nodes and internodes by bacterial stalk rot. There's a distinct foul odor. Notice how wet and watersoaked nodes and internodes are and there's even bacterial ooze in this case on the stalk.

Plants break at nodes. Also notice the stringy appearance of stalk pith.

Commonly seeing this with impacted nodes from the soil line through upper canopy…stringy appearance of pith tissue.

Jenny Rees 9-1-19

**I'm grateful to Dr. Richard Ferguson, former Extension Soil Fertility Specialist, for reviewing this article; Dr. Charlie Wortmann, Extension Soil Fertility Specialist, for sharing research-based studies with me; and Glen Slater, SCAL Research Technician, for sharing details of the SCAL study mentioned below.*

Nitrification Inhibitors: Two weeks ago, my column included a general overview regarding nitrogen losses in addition to general summary statements based on research. Nitrification inhibitors are best thought of as an insurance policy against loss of applied ammonium-based fertilizer due to excess rain in the first month or so after fertilization. Dr. Richard Ferguson, former Extension Soil Fertility Specialist, and his team have conducted much research regarding the use of nitrification inhibitors over time. Much effort has occurred in sandier soils within the Central Platte NRD. However, an ongoing study at UNL's South Central Ag Lab (SCAL) near Clay Center is conducted on silt loam soils which are more common in the UBBNRD. Twenty-eight years of this study are summarized here. The majority of the study at SCAL compared Spring pre-plant anhydrous vs. side-dress application with and without the use of nitrification inhibitor N-Serve (nitrapyrin). This product was the product available back in the 90's. The study actually began by comparing 2 different in-season side-dress applications before switching to pre-plant vs. side-dress in the early 2000's. Soil samples for nitrate and ammonium content were taken when funding was available. In talking with Dr. Charlie Wortmann, UNL Extension Soil Fertility Specialist, he mentioned that they found yield to be correlated to amount of nitrogen in the soil. A yield increase due to nitrapyrin applied pre-plant was observed in 6 of 28 years with a mean yield change of 2 bu/ac/year. Only 1 of 28 years was a yield increase observed when nitrapyrin was applied in season during side-dress application with a mean yield change of 0 bu/ac/year. In this study, they found that delayed side-dress N with nitrapyrin could reduce plant N uptake. A detailed analysis of nitrapyrin effects on N uptake and soil accumulation from early years of this study can be found in Ferguson et. al (1991). The duration of inhibitor efficacy was measured in other studies where it was found a nitrification inhibitor such as nitrapyrin to last around two weeks with Spring applications. They've seen it last as little as 1 week to as long as 6 weeks depending on soil temperatures and moisture. The use of inhibitors is not advised in season as research showed they can release N too slowly for the crop demand resulting in yield loss and/or resulting in increased leaching of nitrogen when it was released too late in the growing season for crop uptake. In general, the research is more supportive for nitrification inhibitor use in sandy soils vs. heavier textured soils; yield benefit to a nitrification inhibitor may be none to a few bushels/acre for silt loam or silty clay loam soils.

In-Season Applications of Nitrogen: In-season application means the nitrogen is applied when the crop is actively growing and utilizing it, greatly reducing potential for loss. Recent on-farm research studies compared side-dress applications using either the UNL equation/Maize N model or industry models such as Climate Field View. In all these studies, the recommended rate was compared to rates that were at least 30 pounds over

and under the recommended rate. Some of the studies went as high as +/- 50 lbs/acre compared to recommended rate. I've compiled these results in a table at https://jenreesources.com/2019/04/14/jenrees-4-14-19/. Take homes: In none of the studies did the addition of 30-50 lbs N/ac above the recommended rate increase the yield statistically. A few of these studies also compared side-dress applications vs. pre-plant alone. One situation resulted in a statistically lower yield with pre-plant alone while the other two resulted in no yield differences. Many of you have most likely heard of Project Sense in which a grower's nitrogen application was compared to 75 lbs pre-plant + variable rate in-season application using sensing technology. This project was an on-farm research partnership with Nebraska Extension, Nebraska Corn Board and Corn Growers, and numerous NRDs including UBBNRD. From 2015-2017, 48 site-comparisons were conducted. The results showed 28.7 lbs less nitrogen was applied using the Project Sense method with a loss of 1.4 bu/ac in yield, and greater profitability of $7.24/ac. All of these results were statistically significant at the 95% level.

To reduce the risk of leaching or denitrification, consider applying the majority of nitrogen close to when crop demand is high with more nitrogen applied during the growing season vs. pre-plant. Also for consideration is the fact that farm operations differ in equipment and labor and growing seasons like 2019 present additional challenges, including for nutrient management.

I'm writing this column from our National Agriculture Agents meeting. Tonight was our inspirational service. Our speaker was Marine Corporal Joshua Bleill. He was conducting combat patrols in Fallujah in October of 2006 when his vehicle was struck by an improvised explosive device. He suffered multiple injuries, including the loss of both legs. He shared about his background in ag, learning how to walk again, and the importance of family. He also shared how grateful he was for everything that happened to him for how it grew his faith and made him who he is today. I could relate to gratitude for difficult things in life for how they can shape us. I think many of us have been through difficult things. This year has been especially difficult for many in agriculture. Sharing two things that helped my perspective right now. These things aren't new, but I needed a reminder. One: Remember the 'why' behind what we do every day and keep that fire within us to do our best. Two: Live life so at the end of each day we hopefully made a difference to another person. Again, not new, but good for me to have these reminders when I'm a bit weary right now. Sharing in the event these reminders help you too!

Crop Updates: Grateful for sunshine and some heat last week to help with seed fill and moving along maturity! Seeing some early death and/or compromised stalks in corn plants that are nitrogen deficient, in compacted/formerly ponded areas of fields, or plants with sidewall compaction. I'm not always finding a stalk rot pathogen present right now, but the stalks are compromised and crush easily. So it will be important to continue monitoring fields to assess which should be harvested first. In soybean, sudden death syndrome is causing early maturing and death in some situations. If you're also seeing pods on plants shriveling up and dying, look for symptoms of pod and stem blight (rows of black dots on the soybean stem). Anthracnose is also present in fields and is indicated by black 'blotches' on soybean stems. I have photos on my blog at https://jenreesources.com. There's nothing to do for either of these right now. Pod and stem blight is part of the Phomopsis/Diaporthe complex that caused dark and chalky looking seed at harvest in 2018. Also note what varieties appear more impacted.

Soybean Quality Research Project: Speaking of seed quality, a study funded by the Nebraska Soybean Board is focusing on influence of water regime (irrigated vs. non-irrigated) on soybean seed quality parameters (seed protein, oil concentration, and test weight). We're looking for farmers who have BOTH irrigated and non-irrigated fields (dryland field corners don't count as non-irrigated fields) and asking for help collecting seed samples at harvest time. Plastic jars will be provided to collect samples in each field (at around 25%, 50%, and 75% of the field being harvested). This seems like a lot of sampling, but it's to help understand any variability of seed quality across fields. If you are interested in helping, please contact myself or your local Extension educator.

Wheat Information: I've had a few calls regarding wheat planting. Some have asked about using seed that has scab. Using that seed can greatly reduce the germination and seedling vigor. It's best to clean the seed and have a fungicide seed treatment applied. I recommend a fungicide seed treatment for all wheat seed regardless if it is bin-run or certified seed. The August 30th UNL CropWatch edition at https://cropwatch.unl.edu has wheat information including seeding rates, disease and insect management, and variety information so be sure to check it out!

Fall Invaders: It's that time of year for fall invaders such as millipedes, centipedes, crickets, spiders, roly polys, earwigs, and lady beetles. Control fall invaders once they enter the home by vacuuming them. There are home-owner sprays that can be used on the outside perimeters of homes to help reduce the number that enter your home. Sealing any cracks and crevices is another way to help exclude them.

Pod and stem blight symptoms are rows of black dots on the stems. Soybean pods are shriveled with very small seeds. As part of the Phomopsis/Diaporthe complex, seed can also have dark discoloration and a chalky appearance.

Anthracnose appears as dark 'blotches' on the soybean stem (seen here as the dark areas near the nodes).

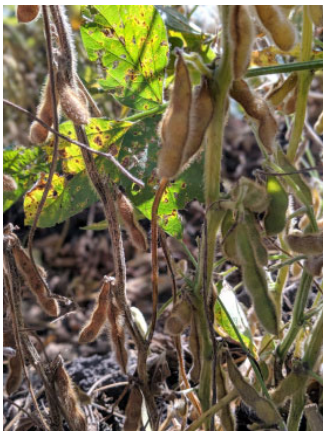
Crop Update: Thinking about harvest as we continue to watch corn and soybeans progress toward maturity. And as I write this, my desire is to be honest about what I'm seeing and the concerns growers and other agronomists are seeing too. Perhaps part of my perspective is the fact that I'm typically called out to problem situations! But hopefully that perspective helps you in some way know what to watch for in your own fields. So before harvest occurs, would encourage growers to get out in your fields and see for yourself how your crops look. It's just a great way to estimate what your true harvest potential is prior to harvest. And, it's always easier to diagnose yield potential problems now vs. post-harvest. There are some tremendous looking fields out there, especially non-irrigated ones! Yet sometimes (once we hit canopy closure) we forget about the early season challenges and the variability that can occur. Variability such as plant stands and plant emergence based on variable seed depth that can be seen now with variable ear sizes. There's misshapen ears due to various stresses based on specific field practices/situations as well.
The warm, drier weather this week allowed for some noticeable changes. Perhaps the biggest one is the concern regarding tops of corn plants rapidly senescing. This could be due to either anthracnose top dieback or another disorder called 'top leaf death or dieback in corn'. Anthracnose can cause leaf lesions, top dieback, or stalk rot. To diagnose if anthracnose is the culprit, you can look for black fungal anthracnose lesions which may be blotchy in appearance on the stalk underneath the leaf sheaths. You can also split the upper or lower stalk looking for any discoloration in the pith or nodes. If you don't see the lesions or pith/node discoloration, the discoloration in the top of the plant may be due to top leaf death or dieback. A Canadian researcher documented greater top leaf senescence during a period of warm, dry weather during grain fill. Another researcher documented this tends to be more common during good grain fill years. We have experienced that type of weather with a good grain fill period, so top leaf death/dieback may be the bigger culprit.

Yet, be sure to check for stalk rot in these fields. I'm finding stalk rot increasing with each week especially where there's nitrogen deficiency, areas where water ponded, high plant populations, higher disease pressure, and areas with hail damage. There's also something interesting happening where in specific hybrids, it appears the refuge in a bag plants are dying early (and have stalk rot) in comparison to the primary hybrid planted (I'm unsure exactly why).

The other thing noticeable this week was husk tissue turning color and ears turning down as hybrids mature. We've had a long grain fill period creating large ears with deep kernels. There are specific hybrids where I'm concerned about large ears and small shank diameters. Shanks appear firmly attached for now, but it's still something to watch. Been recommending growers get those fields out earlier if possible.

To evaluate percent stalk rot, at least 100 plants throughout the field should be assessed. I prefer the 'pinch test' and do this by taking my thumb and first finger and pinching the stalk internode that occurs between the lower nodes above the soil line. Do this for 20 plants in an area and get a percentage for those that crush. Then do this for several areas of the field. This YouTube video helps show how to do this: https://www.youtube.com/watch?v=7z75VN1c51Q. Fields that have the greatest percentages of stalk rot prior to harvest may be prioritized over others. Where it worked in their operations, some growers in 2018 chose to harvest at a higher moisture content in order to get at fields in a more timely manner.

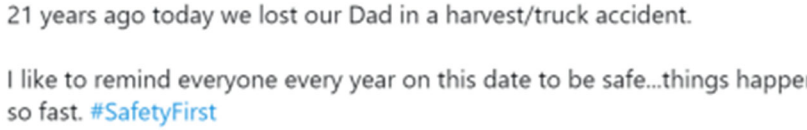
Some soybean harvest has started. Taking my final on-farm research notes in fields, I'm noticing dead plants next to green ones. The dead plants often have anthracnose and/or pod and stem blight. In some fields early death is due to sudden death syndrome. Also noticing red/purple leaves on some varieties indicative of cercospora leaf blight. Thus, we have potential for discolored, chalky seed and also purple seed stain again; hopefully nothing to the extent of 2018.



Harvest: Grateful to see harvest going last week! There's a good article in CropWatch from Roger Elmore, Tom Hoegemeyer, and Todd Whitney regarding how cool weather and reduced solar radiation (sunlight) in August impacted yields. Part of our problem with stalk quality is also due to this. Yield potential can be reduced by cool, cloudy weather yet it can also increase grain fill period allowing for heavier ears as we've also seen. You can read the article with full details at https://cropwatch.unl.edu. We would also ask for your input regarding the most important weed problems/issues in your part of the State by completing this survey at: https://www.surveymonkey.com/r/QZV8Z2T.

A reminder for all of us to *please be safe* during harvest! It was sobering scrolling through Ag Twitter last week seeing the number of people posting pictures of farm accidents. Most common were truck drivers taking corners too quickly, overturning vehicles. It was extra sobering that some of the accidents led to death of family or friends. Others posted remembrances of this time of year when they lost someone due to a farm accident.

From Ag Twitter Sept. 18, 2019



From Ag Twitter Sept. 19, 2019

For all of us as we're on the roads, please be alert and slow down. It's also important to talk about safety with teens who drive. Gravel roads are especially dangerous with dust blowing as vehicles travel, limiting visibility. Slow down at intersections. On highways, slow down when coming upon slow-moving equipment. And, be aware of equipment turning. Collisions involving 1,432 Ohio farm vehicles and other motor vehicles were analyzed for a four-year period (1989-1992). Seventy-eight percent of two-vehicle collisions occurred during daylight hours, with a peak occurrence during the time interval from 3:00 to 6:00 P.M. Forty-two percent of the nighttime crashes were rear-end collisions, compared to 8% of the daylight crashes. Fifty-two percent of daylight crashes occurred when the tractor operator was making a left-hand turn. It's hard to know if the drivers behind a tractor will try to pass when you want to make a left-hand turn. To avoid this some will pull off to the right and square up to go straight when they want to make a left-hand turn. I also read an

interesting publication from Purdue University called "Learning from Truck and Equipment Collisions"-interesting actual accounts and photos. Bottom line: even if the tractor or truck driver wasn't at fault, there's a checklist of items that will be asked as the other party will look for any potential way to place fault. I think it's a helpful read, especially if you have employees within your farm or ag operation: https://ppp.purdue.edu/wp-content/uploads/2019/07/PPP-127.pdf. Reading an article on harvest safety by Iowa State University, I was surprised the greatest number of harvest accidents actually involve slipping or falling off equipment. But it makes sense as people are mounting and dismounting tractors and combines several times a day. Painted metal on ladders and platforms can become slippery especially when wet or with factors such as mud, crop residue, snow, or ice. Reminder to use grab bars when mounting or dismounting machinery; wear well-fitting shoes with non-slip soles; and recognize that fatigue, stress, drugs/alcohol, and age can affect stability.

Double check where all people are. Keep children away from machinery and grain bins. Double check to make sure all machinery is working properly and that safety shields are in place. When moving equipment, especially grain augers, watch for power lines, keeping equipment at least ten feet from them. Don't get into grain wagons or bins while the grain is moving. There's a new film that every farm family should consider seeing called "Silo" where it talks about the dangers of entering grain bins. This week's Market Journal highlighted the movie and you can learn more here: https://www.silothefilm.com/. Shut down moving equipment when it gets plugged. It only takes a few extra seconds and is well worth it to save a limb. In the rush of harvest season, our ultimate goal is everyone gets home safely each day/night! Here's wishing you a safe harvest season!

Warm weather with sunshine this time of year prompts a tiny insect looking for final food before winter to cause a painful bite on humans. I've received several questions about "what is that tiny black bug with white marks on back that bites?" The insect, known as the minute pirate bug (and insidious flower bug), is actually a beneficial predator of thrips, mites, aphids, tiny caterpillars, and insect eggs. People will even purchase these insects for biological control, particularly in greenhouse settings. They're found throughout crop, garden, landscapes, and wooded areas in the summer preying on other insects. However, this time of year they start biting humans they land on. One doesn't need to worry about them injecting a venom, feeding on blood or transmitting disease. People's reactions to the bites range from no reaction to swelling like a mosquito bite. Unfortunately there's also no method of controlling them. Insect repellents don't work as they aren't attracted to carbon dioxide like mosquitoes are. They are attracted to light colored clothing, so wearing darker colors and long sleeves can help when being outdoors during warm, sunny days. Otherwise, work outdoors on cool, cloudy days.

Minute Pirate Bug (photo courtesy Jim Kalisch)

Bagworms: This year was a heavy year for bagworms and I'm still receiving calls about treating for them as people find damage. We would recommend it's too late to treat now as eggs have been laid in most bags at this point and insecticides, including systemic ones, won't move inside the bags to kill any adults or eggs within the bags. Wherever feasible, you can reduce next season's load by picking off bags and either squishing them or drowning them in soapy water. Simply throwing them on the ground doesn't help. I was even finding bags that had dislodged from windbreaks in adjacent crop fields this year with larvae traveling back towards the windbreak! Between 500-1000 eggs can be found in one bag. Aim for insecticide applications next year when larvae hatch and feed, usually at some point in June.

Harvest Thoughts: Several times the topic of palmer amaranth came up this week while in the fields with palmer in patches or especially on field edges. I believe the first step of palmer management begins at harvest by choosing to not run the combine through those patches. Research from the southern U.S. showed 99% of palmer seed survives the combine and we also know the

combine is very effective at seed dispersal. Several farmers have shared they could see the worst palmer spreading in their fields the following year where the first combine pass occurred. Research supports this. The highest number of new palmer plants counted in a field were found the successive year where the first combine pass occurred after combining a patch of palmer. So some suggestions to consider: 1-Consider disking or shredding patches of palmer. 2-Plant a small grain like rye or bin-run wheat into end rows and/or patches where palmer was present. Research has shown that burying palmer seed 3-4" and leaving it buried for 3 years can reduce germination 80-100%. I realize disking doesn't necessarily go that deep and that it's difficult for no-till guys to want to do any tillage. Shredding won't kill seed, but it will keep the seed from going through the combine. The small grain will help reduce light interception to the soil surface next spring. That's the #1 trigger for palmer germination-light penetration on bare soil.

Also, I realize it's difficult to achieve, yet a reminder to check your beans and harvest as close to 13% as possible. A number of fields last week even with green stems and some leaves remaining on lower plants were actually at 13% when harvested. Delivering soybeans below 13% reduces profits while there's a dock for delivering wet beans. While not a dock, less than 13% moisture results in fewer bushels to sell (load weight divided by 60 lbs/bu assuming 13% moisture). Selling soybeans at 8% moisture, you're losing about 5.43% yield; at 9% moisture, it's 4.4%; at 10% moisture, 3.3%; at 11% moisture, 2.25%; and at 12% moisture, it's 1.14% yield loss. That doesn't take into account additional risk for shatter losses during harvest. So another consideration as we consider economics and profitability this year.

Jenny Rees 10-6-19

As I reflect, it was a hard week for many of you in our farming community with the weather and harvest delays. Many of us would say the challenges of 2019 actually started in the fall of 2018. From that perspective, it's been an extra hard year! As we continue with a delayed harvest, I'm truly hoping the fall of 2019 doesn't result in an extra challenging 2020 as well. I'm sure that's a hope for us all!

It's amazing how something as simple as the sun shining or incredible sunrises on then dreary, drizzly days lifted my spirits and the spirits of many of you I spoke or texted with this past week. For those who receive my email newsletter, you've seen me share each week a set of tips to consider for help in relieving stress/changing current mindset based on how much time you have in the day. And, some of you have rightfully put it back on me when I've needed a mindset change! While you may not want to take 30 minutes or even 10 minutes, we all have 2 minutes. So, my challenge for all of us is utilize one of the following tips for two minutes or use something else that works for you each day this week to change our mindset/lift our spirits when needed. Two minute tips *(Adapted from: Gilbert Parra, PhD; Holly Hatton-Bowers, PhD, and Carrie Gottschalk, LMHP, MS)*: Breathe; Stretch; Laugh; Doodle; Acknowledge one of your accomplishments; Say no to a new responsibility; Look out the window (or go outside); (adapted) Faith based prayer. Please go to jenreesources.com for the full list.

Soybean Cyst Nematode (SCN) Sampling: With the increase in sudden death syndrome this year, several have asked for soybean cyst nematode sampling bags (as the two diseases are synergistic with each other). Free sampling is via the Nebraska Soybean Board through your soybean checkoff dollars. Sampling bags can be obtained from your local Extension Office or call 402-472-2559 to obtain bags. Crop consultants should contact Extension Plant Pathology directly (402-472-2559) for larger numbers of sample bags. Samples should be done for areas 40 acres or less (less is better). If you had areas with higher SDS this past year or places where yield maps showed lower yields, plan to take a sample from those areas of the field. Also take a sample from a good yielding area of your field for comparison. Take around 20 cores 6 to 8" deep. If you or an agronomist is taking soil samples, taking a few extra cores will allow for part of the sample to be sent in for fertilizer

recommendations and the other part for SCN. Make sure to thoroughly mix the cores collected before transferring to sample bags. If you take them from a soybean field, taking the sample a few inches off the old soybean row may provide the highest potential numbers if SCN is present in the field. However, SCN samples can be taken from corn or sorghum fields as well to help inform decisions if rotating to soybean next year. Other places in fields which may first show SCN include: low areas where water drains after rain; along a stream that periodically floods; along fence lines; field entryways or driveways as that's the first place equipment enters from other fields. Anything that moves soil will move SCN.

Lawn Weed Control: Now is an excellent time for weed control in lawns, especially for dandelions, clover, ground ivy, and plantain. This is because carbohydrates are being transferred to the roots of perennial weeds and thus allows for the chemical to move to the roots as well. If using granular products that contain weed killer, they're best applied on mornings with heavy dew and no rain in the forecast for 24 hours (however, read the herbicide label). Most herbicides labeled for use around the yard will contain 2,4-D and/or dicamba. I'm often asked for names but this is not an exhaustive list and not intended to exclude anything available (2,4-D, dicamba, Weed B Gon, Trimec Plus, Trimec Classic).

Crop Update: The sunshine, hard freezes, and wind are helping dry things out. Grateful this week looks favorable for harvesting! Please continue to think safety. With the increase of late season diseases this year, I've been hearing reports of combines turning orange and/or black from fungal spores and running hot. This week's CropWatch at https://cropwatch.unl.edu addresses fire safety during harvest if you're interested in checking out those tips. Masks/respirators may help those affected by fungal spores.

The rains/humidity and also *Fusarium*/*Gibberella* fungal growth (which producegiberellins) have allowed for some kernel sprouting on ears over the past month. Sprouting can occur anywhere on the ear, particularly at the base or places where hail and/or insect damage occurred. Upon reaching maturity, hormone levels within the kernels change allowing for higher levels of gibberellin compared to low/no abscisic acid. This gives kernels the ability to sprout. We just prefer not to see this in fields prior to harvest; thus, you may wish to alert your crop insurance adjuster of these situations. Be aware sprouted kernels lead to higher kernel damage and can increase fines in a load. These kernels may also be lighter and blown out the back of the combine. In case they're not, drying to 14% will help kill the sprout and be sure to monitor stored grain closely for hot spots, mold, and additional sprouting grain.

Soybean and Freeze: Prior to the frost, I was receiving questions about yield loss to soybean at various growth stages, including, how to determine R7 (physiological maturity). Dr. Jim Specht took the lead on two CropWatch articles this week to address these questions. Ultimately, for each pod, physiological maturity occurs when the pod membrane no longer clings tightly to seeds in that pod. For pods still at R6 (green bean stage with membrane clinging to seed), yield loss can be significant, anywhere from 35-50% depending on if the plant is in early or late R6. At R7, 0-5% yield loss is expected.

Oct. 16 Ag Bankruptcy Webinar: Lower commodity prices, extreme weather, and ongoing trade tensions in world markets have contributed to widespread financial strain throughout American agriculture. The American Farm Bureau Federation recently **reported** that "the delinquency rates for commercial agricultural loans in both the real estate and non-real estate lending sectors are at a six-year high" and that Chapter 12 bankruptcies increased the previous year in all but one region of the country. Recently, the Bankruptcy Code was amended to ease eligibility requirements for family farmers considering filing for Chapter 12 bankruptcy. A webinar on October 16th from 11-Noon (CST) will provide a basic introduction to Chapter 12. It will discuss eligibility requirements,

advantages of filing a Chapter 12 over other types of bankruptcy, and uses of a plan to make changes in the farming operation. For more information and to register, please go to: https://nationalaglawcenter.org/consortium/webinars/chapter12/.

Horticultural Plants and Frost: While many plants succumbed to the hard frosts, some protected plants did not. I've been asked when should perennial foliage be cut back in the fall. The answer is to wait until a hard freeze kills the foliage. This is because photosynthesis is still occurring on plants with green foliage, so carbohydrates and sugars are being moved to roots for winter storage, increasing plant vigor for next spring. You can also leave the foliage till early spring for winter interest.

Vegetables/Fruits and Frost: Rhubarb should not be harvested or eaten when leaves are wilted and limp and stalks become soft/mushy after a hard freeze. Otherwise, there's no toxicity concerns with other vegetables/fruits after frost. The texture and storage potential of other vegetables are affected by freezing temperatures, such as lettuce, peppers, summer squash and sweet potatoes. Some vegetables may actually improve in flavor following freezing temperatures, including parsnip, Jerusalem artichoke and horseradish.

Crop Update: So grateful for this past week's weather in aiding harvest progress! Also grateful to all the growers who worked with me in on-farm research this year and for all the studies harvested this past week!

One of the more frequent questions/comments I've received the past few weeks is regarding yields. It sounds like irrigated yields for corn and even soybean are around 5-15% lower than what farmers hoped for in this part of the State. Most aren't necessarily 'bad' yields, just not what was desired. Irrigated corn is mostly going 225-245 bu/ac with high-yielding genetics and everything else aligned correctly going 250-265 bu/ac. And, as more fields are harvested, there may be some better yields due to the long grain fill period. There's irrigated fields of soybeans that did 50-60 bu/ac. What is positive is non-irrigated yields for both corn and soybeans with non-irrigated beans sometimes out-yielding the irrigated ones.

The impacts of the difficult cold, wet planting season could be seen season-long in fields with uneven plant emergence and eventually variable ear height and kernels/ear. That plant to plant variability can add up to yield impacts more than one realizes. There's also field variability due to ponding/flooding in fields, hail/wind damage, and additional challenges during harvest with wind and moisture leading to lodging and/or ear loss and some soybean shatter.

Plant to plant variability impacting kernels/ear.

The high humidity and leaf wetness along with cool, wet weather allowed for more disease in both corn and soybean. Perhaps one reason why non-irrigated corn and soybean are yielding well was due to reduced disease pressure from reduced plant population and increased air flow. I know of a handful of irrigated soybean fields in 2019 planted on seed corn acres where, to the line, the soybean on seed corn had more sudden death syndrome (SDS) pressure and less yield than the soybean on soybean corners of fields. I had never before seen this so striking.

Same soybean variety. Yellow area is soybean planted on seed corn residue under pivot with heavy SDS pressure. Green area to the line is soybean on soybean in pivot corners.

My hypotheses: 1-Test for soybean cyst nematode in the seed corn acres vs. corners. Anything that will move soil will move SCN, including equipment. 2-*Fusarium virguliforme* (pathogen that causes SDS), reproduces best on corn kernels followed by corn residue, followed by soybean seeds and residue. Even if the seed corn acres had a cover crop and were grazed, cattle don't easily pick up loose kernels lost to the 2018 hail storm or harvest loss. 3-SCN in the field + great conditions for SDS in 2019 allowed for synergistic effect of more SDS and yield loss.
Cloudy weather also played a role in photosynthesis and ultimately yield. Dr. Roger Elmore and colleagues shared the following research on shading and yield impacts. "Many researchers have investigated the effects of lower solar radiation on corn using shade cloth of different densities. These can effectively block solar radiation by 10% to 90% or more (e.g., Schmidt and Colville 1967, and Reed et al. 1988). Invariably they found that shading the crop two to three weeks after silking (R1) reduced yields more than shading before R1. Most also find that hybrids differ in their responses to shading." (This can help explain the tip back due to kernel abortion some of you asked me about after pollination). "Very few researchers used shade cloth during the grain-fill period, which would be similar to the reduced solar radiation period central Nebraska experienced the third week of August.

Early et al., 1967, shaded plants around the "reproductive phase" for 21 days as well as during the "vegetative stage" for 54 days and the "maturation phases" for 63 days. Shading during reproductive stages reduced plant yields the most, but 30% shading during the maturation stages — what we consider the seed set and grain-fill periods (R2-R6) — not only reduced yield per plant 25% to 30% but also reduced kernels per plant and the amount of protein per plant. Researchers in a new study shaded plants from silking to maturity (R1-R6) (Yang et al., 2019). Shading reduced yields more with higher plant populations than with lower populations." (This may also help explain why non-irrigated fields with lower plant populations may have good yields in spite of cloudy conditions in 2019).

Jenny Rees 10-26-2019

Fall Weed Control: With snow in the forecast and harvest wrapping up for some, I received a couple of questions regarding how cool weather and frost impact fall weed control. Following is a portion of what Dr. Amit Jhala and I shared in CropWatch a few years ago. Applying herbicides in the fall for control of winter annual weeds or other fall-emerging weeds can be an important tool for weed control. Some winter annual weeds also serve as hosts for pathogens like soybean cyst nematode (SCN): purple deadnettle (strong host), henbit (strong host), field pennycress (moderate host), shepherd's-purse (weak host), small-flowered bittercress (weak host), and common chickweed (weak host). SCN can reproduce in the field on henbit and purple deadnettle.

Fall herbicide application isn't necessary in each field. It's important to scout fields for current weed pressure. Also consider targeting fields that have a history of winter annual weeds or marestail. Recent Nebraska research shows that up to 95% of marestail (horseweed) germinates in the fall, so fall application is the primary way to help manage marestail. Tank-mixing a residual herbicide with a burndown product will improve marestail control because the residual activity will control marestail emerging after herbicide application. Be sure to check labels for any grazing restrictions if livestock will graze cornstalks after a fall herbicide application. If the label doesn't specify and you want to be on the safe side, a rule of thumb is to use the pre-harvest interval for the amount of time to wait before grazing stalks.

The likelihood of reduced weed control due to cool temperatures will vary depending on the target weed, herbicide, and rate of application. The ideal temperature for applying most post-emergence herbicides is between 65°F and 85°F; however, that window is not always practical with other fall practices. Herbicides can be applied at temperatures of 40°F to 60°F, but weeds may be killed slowly. When the temperature is below 60°F, absorption of herbicides such as glyphosate and translocation of herbicides such as 2,4-D are lower compared with applications at higher temperature; therefore, they act slowly. When the temperature is below 40°F for an extended time after burndown herbicide application, weed control will most likely be reduced, specifically for a systemic burndown herbicide such as glyphosate. Additionally, weed control may be reduced under cloudy conditions following an initial temperature drop below 40°F. With late-fall herbicide applications be sure to add labeled adjuvants to improve herbicide efficacy. For example, if you are planning to apply 2,4-D, add crop oil concentrates at 1% v/v (1 gallon per 100-gallon spray solution) or non-ionic surfactant at 0.25% v/v (1 quart per 100-gallon spray solution). Spray volume should be 15 gallons per acre for better coverage when a dense weed population is present.

Actively growing weeds are key to achieving good control, whatever herbicide you use. When weeds are under stress, herbicide efficacy drops. Frosts of less than 25°F usually cause leaf damage to annual plants, making them poor targets for herbicide applications; however, winter

annual weeds may tolerate a frost up to 20°F and continue growing when conditions improve, with little tissue damage. Symptoms of frost damage to leaves are a water-soaked appearance shortly after the frost. After weeds experience frost, active growth may not begin again for a few days. Growers should wait until new leaf tissue is produced, scout the field, and then consider applying herbicide. Generally, this would be when nighttime temperatures are 35°F or greater and daytime temperatures are at least 50°F for two consecutive days. Additionally, sunshine is needed for plants to recover.

Dr. Kohl to present at Farmers and Rancher's College: A date you may wish to save on your calendar is December 9th as Dr. David Kohl, Professor Emeritus at Virginia Tech and popular for his insights, will be presenting at the Bruning Opera House in Bruning from 1-4 p.m. about "Agriculture Today: It is What it is…What Should We Do About It". There is no charge for the program due to the Farmers and Rancher's College sponsors, but please RSVP for meal at: (402) 759-3712 or online at: https://extension.unl.edu/statewide/fillmore/agriculture-0/.

Jenny Rees 11-3-19

York County Corn Grower Plot Results and Banquet: The results of the York County Corn Growers plot can be found at: https://jenreesources.com/2019/11/03/2019-york-county-corn-grower-plot-results/. Special thanks to Ron and Brad Makovicka for their dedication and work in hosting! Also appreciate all the seed companies who participate! The York County Corn Grower's Banquet will be held Tuesday, November 26 at Chances 'R in York with social at 6:30 p.m. and dinner at 7:00 p.m. Tickets are $10 and may be purchased from any York Co. Corn Grower director or at the York Co. Extension Office.

Fall Nitrogen Application: With November here, a reminder to check soil temperatures before applying anhydrous ammonia to crop fields. Soil microbial activity and the rate of conversion of ammonium to nitrate is very low when the soil temperature is less than 50°F. Thus, apply fertilizer-N (and manure) when the soil temperature at the 4" soil depth is below 50°F and trending cooler. Daily and weekly soil temperatures (taken 4" below the surface of bare soil) can be found at: https://cropwatch.unl.edu/soiltemperature.

Extension Soil Fertility and Nutrient Management Specialists Javed Iqbal, Charlie Wortmann, Bijesh Maharjan, and Laila Puntel shared additional considerations for fall Nitrogen application in this week's CropWatch: Apply anhydrous ammonia rather than other N fertilizers; Limit fall application of N to silt loam, silty clay loam, and finer textured soils; Use nitrification inhibitors to slow the conversion of ammonium to nitrate, especially on sand-dominant soils; Avoid fall application on wet soils; and Consider applying a lower base rate of nitrogen in the fall and plan on applying the rest at planting, or as a side-dress application.

On-Farm Research Protocols are available for anyone interested in fall vs. spring nitrogen management studies, inhibitor studies, or other potential on-farm research studies by contacting your local Extension educator. For growers within the UBBNRD interested in on-farm research studies that have a water quality focus, you may be eligible for additional support through the UBBNRD. In some instances it may cover district staff and equipment use; in others, it may cover a portion of the costs of lab analysis of soil, plant tissue, or water samples. If you're a grower interested in this type of study, please contact the UBBNRD or your local Extension Educator to talk through your study idea and for additional information.

Farm Bill Meetings: Joint Nebraska Extension and Nebraska Farm Service Agency (FSA) producer education meetings are scheduled at 28 locations across the state from late November to mid-December in advance of the coming ARC/PLC enrollment deadlines in early 2020. The meetings are free and open to the public. Advance registration is encouraged for

planning purposes for materials and facilities. Attendees can register for any of the meetings conveniently on the web at farmbill.unl.edu or by calling or visiting their county FSA or Extension office. The educational programs will feature information and insights from FSA specialists and Extension experts, as well as other relevant information from local agencies.

Nearest locations for this area of the State include: Nov. 25. Community Center, Red Cloud (1-4 p.m.); Dec. 3 ENREC near Mead (9-Noon); Dec. 4 Ag Park in Columbus (9-Noon); Dec. 5 College Park in Grand Island (1-4 p.m.); Dec. 5. Opera House, Bruning (1:30-4:30 p.m.); Dec. 6 Fairgrounds Cornerstone Building York (9-Noon); Dec. 16. Extension Office Lincoln (9-Noon); Dec. 17 Fairgrounds 4-H Bldg. Beatrice (9-Noon); Dec. 17 Fairgrounds in Kearney (1-4 p.m.).

Jenny Rees 11-11-19

With harvest wrapping up, many of the questions/conversations this week involved economics in some way. So this week's column will focus on upcoming learning opportunities. But before I get to that, thank you to all our veterans for your service and sacrifices! Thank you also to your families!

Ag Land Management Webinar: On Monday, November 18th at 6:30 p.m., Jim Jansen, an agricultural economist, and Allan Vyhnalek, a farm and ranch succession specialist, will lead their final 'Agricultural Land Management Quarterly' webinar of the year. They will provide an overview of the 2019 Cash Rental Rate Survey, conducted by the USDA National Agricultural Statistics Service, and discuss prevented planting considerations for Farm Service Agency programs and crop insurance. The importance of landlord/tenant communication during the winter months and tips for leasing also will be discussed. The free session is open to everyone at https://agecon.unl.edu/landmanagement. The recorded webinar will be archived there, along with past sessions. There will be time for participants to ask questions at the end of the session. Questions also may be submitted in advance at https://agecon.unl.edu/landmanagement.

Dr. Kohl to present at Farmers and Rancher's College: On December 9th Dr. David Kohl, Professor Emeritus at Virginia Tech and popular for his insights, will be presenting at the Bruning Opera House in Bruning from 1-4 p.m. about "Agriculture Today: It is What it is…What Should We Do About It". There is no charge for the program due to the Farmers and Rancher's College sponsors, but please RSVP for meal at: (402) 759-3712 or online at: https://extension.unl.edu/statewide/fillmore/agriculture-0/.

Women Managing Ag Land Conference: Female agriculture landowners, farmers, and ranchers looking to increase their business management skills are encouraged to register for the 2019 Women Managing Agricultural Land conference. The conference will be held Dec. 11 at Nebraska Innovation Campus, 2021 Transformation Drive in Lincoln. Participants will have the opportunity to hear from leading experts in land values, Nebraska property taxes, cash rental rates and cultivating landlord-tenant relationships. Jim Jansen, co-author of the Nebraska Farm Real Estate survey, will discuss trends in Nebraska land values. Mykel Taylor, of Kansas State University, will share resources related to negotiations and communication between landowners and tenants. Cathy Anderson, from the Nebraska USDA Farm Service Agency, will discuss the 2018 Farm Bill and its implications for Nebraska agriculture. The full conference schedule and registration form are available at https://wia.unl.edu/wmal. A registration fee of $45 per person covers materials, meals, and breaks. The conference is hosted by Nebraska Extension and is inspired by Annie's Project. In Nebraska, Annie's Project is supported by Farm Credit

Services of America. Also, a reminder that all Farm Bill information and upcoming meetings can be found at: http://farmbill.unl.edu.

Cover Crop Day: On November 20, a workshop focusing on cover crops will be held from 9 a.m.-1 p.m. (Reg. 8:30) at the 4-H Building in York. Presentations from NRCS, UNL, and Pheasants Forever will cover using cover crops to address soil compaction and improve soil health; precision conservation opportunities to increase farm profitability while conserving soil, water, and wildlife; and opportunities for cover crop on-farm research and cost share options. A free meal and optional field tour is provided but please RSVP to: http://nebraskapf.com/product/cover-crop-field-day-habitat-tour/ or call the Extension Office at (402) 362-5508.

On-Farm Research Searchable Database: A helpful resource to view studies growers' peers have conducted with the economics provided can be found at https://resultsfinder.unl.edu. It's a little picky based on the words one chooses, but has a lot of great info. Also, for anyone interested in conducting studies involving anhydrous with and without inhibitors this fall or spring, I have on-farm research protocols developed, so please let me know.

Jenny Rees 11-17-19

Trees Hanging onto Leaves: Driving in the country or in towns I tend to observe what's going on in the fields, but also observe what's occurring with the trees. Right now I'm noticing many maples trees looking like mine: hanging onto a portion of greenish/gray/brown leaves. Typically my silver maples are the first to lose their leaves each fall along with a neighboring ash. But the season didn't start off typical for them either! Some of you, like me, have dealt all year with the huge seed load produced by these and other trees this spring. So why are some trees hanging onto leaves this fall? Most likely a cold snap in early fall interrupted the normal process deciduous trees follow to prepare for winter survival. As days shorten, a layer of cells (abscission zone) form between the tree branch and the individual petioles (stems of leaves), allowing the leaves to fall from the tree. This helps protect the tree from water loss in the winter. Some tree species, such as oaks, have an adaptation to maintain their leaves during the winter called leaf marcescence. It's unknown exactly why. The hypotheses for why oaks maintain their leaves include: better protection of winter buds, allow for trapping of snow around the tree base, and allow for a flush of nutrients when leaves drop and are decomposed in the spring. So while it's not normal for maples, lindens, ash, and other species to maintain leaves over the winter, there's nothing we can do about the delay in leaf drop. If the leaves don't drop this fall/winter, they will be pushed off by new growth from buds next spring. Leaves may continue to drop this fall/winter with wind and snow events. One thing to be aware of is the potential for increased limb breakage from wind/snow events in trees maintaining heavy leaf loads.

Are you interested in helping understand the noise of farming? Researchers at the University of Iowa developed (and are currently testing) a 'HearSafe' system to measure noise exposure of farmers. The goal is to provide information about exposure to loud sounds on the farm and how to protect one's hearing. This system will consist of a small noise monitor, smart phone, and a laptop. They are looking for farm workers to try these new devices. The research activities are short term (between 1 day and 2 weeks), equipment and training are provided, and there's compensation for participation. Those ages 18-65, active in farm production (20+ hours per week on average), who have access to a device with high-speed internet are eligible to participate. For more information please contact Jackie Curnick at jacqueline-curnick@uiowa.edu or (319) 335-4425.

Nov. 25 Heuermann Lecture Focuses on Protecting Ecosystems while Advancing Agriculture: Strategies for achieving agricultural advances while preserving Nebraska's healthy agricultural ecosystems will be discussed at the Heuermann Lecture Nov. 25. It will be held at 3:30 p.m. at the Nebraska Innovation Campus Conference Center in Lincoln and via livestream at: https://heuermannlectures.unl.edu. Following the discussion will be a showing of the documentary film "Follow the Water." Dinner is included to those staying for the showing. The event is free and open to the public.

Panelists will include Craig Allen, professor in the School of Natural Resources and director of the Center for Resilience in Working Agricultural Landscapes; Andrea Basche, assistant professor in the Department of Agronomy and Horticulture; and Michael Forsberg, co-founder of the Platte Basin Time-lapse Project and assistant professor of practice in the Department of Agricultural Leadership, Education and Communication. The film tells the story of connections between the environment and people, and a river that shaped the land. Forsberg, a conservation photographer, and Pete Stegen, a filmmaker, journeyed for 55 days through the watershed by bike, foot and canoe, gathering footage with their smartphones. A panel discussion will follow the viewing so the audience can explore the themes of the film with Forsberg and his team.

Heuermann Lectures are funded by a gift from B. Keith and Norma Heuermann of Phillips. The Heuermanns are longtime university supporters with a strong commitment to Nebraska's production agriculture, natural resources, rural areas and people.

Jenny Rees November 24, 2019

I've often thought about two words the past few months: Grief and Gratitude. It's been a hard year for many with grief coming in the form of various losses. The stories I've been blessed to be entrusted with this year included losses in the form of livestock, land, fences, feed, finances, crops, homes, health, relationships, family members, pets, farms, jobs…

It's important to take the time to grieve and acknowledge the losses while not getting stuck there. I think sometimes we want to push forward and avoid the mess of grief, but there's healing in acknowledging it. At our Extension Fall Conference, we spent time talking through 2019 and the experiences we had as Extension faculty with boots on the ground serving people. While it was uncomfortable for many, there was healing in the discussion and sharing, in the tears and triumphs of helping others during a really difficult year. I would encourage us all to acknowledge losses we've experienced and ultimately keep talking with others instead of isolating.

Our keynote speaker at our conference was David Horsager who wrote the book *The Trust Edge*. One thing he asks his audiences, "What is the most endearing quality a person can have?" What do you think? Often people say kindness, compassion, generosity, being positive, humor, etc. His company does a great deal of research and they've found the most endearing quality is…Gratitude…sincere gratitude. According to Oxford's Dictionary, gratitude means "the quality of being thankful; readiness to show appreciation for and to return kindness".

There's been a lot of research on gratitude! Harvard University shared, "In positive psychology research, gratitude is strongly and consistently associated with greater happiness." Summarizing several studies I read, most would say finding a way to count one's blessings or focusing on gratitude greatly improved a person's sleep, health, attitude, focus, and relationships. Many of those studies didn't involve individuals who struggled with mental wellness. However, one study in Indiana focused on 300 adults who suffered from anxiety and depression. The researchers wanted to see if focusing on gratitude could help with mental health concerns. Adults were split into three groups and each group also received counseling. One group wrote a letter of gratitude to someone each week (but wasn't required to share it). Another group wrote down negative thoughts and experiences while the third group didn't do any activity involving writing. Individuals who wrote the gratitude letters were found to have significantly improved mental health 4 and 12 weeks

after starting the activity (in spite of only 23% actually sending the letters). The gratitude activity on top of receiving counseling resulted in better mental wellness for the individuals than counseling alone. Regardless of if one is in the midst of a difficult time or not, research ultimately shows the benefits of seeking gratitude!

Grief and Gratitude. With Thanksgiving this week, for what are you and I grateful? Perhaps there's someone who came alongside you this year during a difficult time or someone who showed you an unexpected kindness that you wish to thank in some way? Perhaps you choose to make a list of things for which you're thankful or jot a few things down each day? Perhaps you choose to write one letter or note to someone each week expressing thanks? Or perhaps your family starts a tradition of expressing gratitude in some way during Thanksgiving dinner? Additional ideas for expressing gratitude, particularly for those with children, can be found at: https://go.unl.edu/q04v. Here's wishing everyone a blessed Thanksgiving!

Jenny Rees 12-1-19

This time of year transitions to winter programming for me. The past few weeks I've mostly talked about cover crop results we've received from our on-farm research studies. I'm pretty passionate about on-farm research! On-farm research allows us to study topics we often wouldn't receive funding for, with minimal monetary investment while conducting them on growers' farms. It wouldn't be possible without our grower cooperators and I'm so grateful for them!

We have an on-farm research database at: http://resultsfinder.unl.edu/ where you can click on a county or enter a keyword to search for various studies. It's kind of picky on the wording, but it's still a nice tool. I used this to compare cash crops planted into either cereal rye or cover crop mix for 1 year or for 3 years. Results can also be viewed via tables on my blog at: jenreesources.com.

One Year Studies: From 2008-2018, there were 7 studies in which corn or soybean was planted into cereal rye. They all showed either no yield difference or yield loss when the cash crop was planted into the cereal rye regardless of terminating pre- or post-planting. In 3 studies conducted in Clay, Franklin, and Phelps counties in 2014, either non-irrigated corn or wheat was planted into a cover crop mix. They all showed yield loss and moisture was anticipated to be a limiting factor, but no moisture sensors were used in the studies.

Three Year Studies: In three Saunders county locations where they planted cereal rye after harvest on the same strips for three successive years, there was either no yield difference or a yield increase in year three when the cash crop was planted into the cereal rye. We also have a long term study in Nuckolls county and will share more on that in an upcoming column.

We encourage growers to conduct studies more than one year where feasible. It's especially important when looking at studies that have longer term implications to soil to maintain studies in the same location over time. Maybe some of you have tried a cover crop once but didn't see positive yield results after year one; perhaps yield results would be different over time? The on-farm research studies summarized here don't go into enough detail to specify why yields were the same or improved in the three studies in year three. During different meetings, some also asked about nitrogen tie-up in the cover contributing to yield loss. There are other studies showing addition of nitrogen at planting can reduce yield loss impacts due to nitrogen tie-up. Where we had information about nitrogen applied at planting, I added this to the tables on my blog. Ultimately, there wasn't consistency in rates applied nor improved yield in all cases with these studies.

Farm Bill Meeting York Dec. 6: A reminder of the Farm Bill Meeting to be held at the Cornerstone Event Center at the Fairgrounds in York from 9 a.m.-Noon on Dec. 6. Please RSVP at: go.unl.edu/farmbill to select this or any other location. This helps us prepare and helps save

time at the door during registration. If you prefer not to RSVP via computer, you can call your local Extension or FSA office and we will get you registered.

Nebraska Soybean Day and Machinery Expo Dec. 19 will assist soybean producers in planning for next year's growing season. The expo will be in the pavilion at the Saunders County Fairgrounds in Wahoo. The Saunders County Soybean Growers Organization will be collecting non-perishable food and monetary donations for the Saunders County Food Bank backpack program. Complimentary noon lunch will be served. Registration is available the day of the expo at the door and there is no registration fee.

The event opens with coffee, doughnuts and the opportunity to view equipment and exhibitor booths at 8:30 a.m. Program begins at 9:10 a.m. Topics include: A New Marketing Tool for Soybean Growers-The Role of Harvest Moisture (Cory Walters, UNL); Decision Making in Uncertain Times (Richard Preston, Preston Farms Kentucky); Managing Soybean Diseases with Fungicides (Daren Mueller, ISU); Managing Waterhemp (Chris Proctor, UNL); Soybean Gall Midge (Justin McMechan, UNL); and Nebraska Soybean Checkoff Update and Association Information.

*End of Column. Cover Crop Tables Below.

Table 1: Corn or Soybean Planted into Cereal Rye Cover. One year studies. Yield values with the same letter are not significantly different at a 90% confidence level (for each individual study).

County-Year	Irrigation	Check Yield (bu/ac)	Cereal Rye Yield (bu/ac)	Rye Termination	Nitrogen at Planting?
Dodge-2008	N/A	141 A	128 B	Pre-Plant	No
Dodge-2009	N/A	187 A	175 B	Pre-Plant	90 lb/ac liquid N
Seward-2014	Pivot	248 A	247 A	Pre-Plant	6 gal 10-34-0
Kearney-2017 (Soybean)	Pivot	80 A	81 A	Pre-Plant	No
Kearney-2018	Pivot	227 A	228 A	Post-Plant	100 lb/ac N, 50 lb/ac P, and 10 lb/ac S on 4/12/18 as strip-till application
Lancaster-2018	Non-Irrigated	213 A	208 B	Post-Plant	5 gal 10-34-0
Cedar-2018	Non-Irrigated	214 A	219 A	Pre-Plant	30 gal/ac 32% UAN with herbicide on 4/27/18; 7 gal/ac 32% UAN, 7 gal/ac 10-34-0, and 2 qt/ac Zn with planter

Table 2: Corn or Wheat Planted into Cover Crop Mix. One year studies. Yield values with the same letter are not significantly different at a 90% confidence level (for each individual study).

County-Year	Irrigation	Check Yield (bu/ac)	Cover Crop Mix Yield (bu/ac)	Cover Crop Termination
Franklin-2014	Non-Irrigated	158 A	148 B	Winter-Killed
Clay-2014	Non-Irrigated	178 A	173 B	Winter-Killed
Phelps-2014 (Wheat)	Non-Irrigated	68 A	48 B	Pre-Plant

Table 3: Three year studies utilizing cereal rye as cover crop in same strips over time. Yield values with the same letter are not significantly different at a 90% confidence level (for each individual study).

Saunders Co. Crop-Year	Irrigation	Check Yield (bu/ac)	Cover Crop Yield (bu/ac)	Rye Termination
Corn-2010	N/A	207 A	200 B	N/A
Soybean-2011	N/A	56 B	59 A	N/A
Corn-2012	N/A	261.4 A	262.8 A	Pre-Plant
Saunders Co. Crop-Year	Irrigation	Check Yield (bu/ac)	Cover Crop Yield (bu/ac)	Rye Termination
Corn-2010	Non-Irrigated	197 A	195 A	N/A
Soybean-2011	Non-Irrigated	68 A	68 A	N/A
Corn-2012	Non-Irrigated	107.8 B	111.9 A	Pre-Plant

Saunders Co. Crop-Year	Irrigation	Check Yield (bu/ac)	Cover Crop Yield (bu/ac)	Rye Termination	N at Planting?
Corn-2016	Pivot	229 A	229 A	Pre-Plant	N/A
Soybean-2017	Pivot	63 A	61 A	Pre-Plant	N/A
Corn-2018	Pivot	276 B	282 A	Post-Plant	120 lb/ac N as 32% UAN and 1 gal/ac Humate with herbicide on 5/5/18; 7 gal/ac 6-24-6 and 1 pt/ac Zn in-furrow at planting (4/29/18)

Jenny Rees 12-8-19

Farm Bill: A special thank you to Leann Nelson and her staff from the York/Hamilton County Farm Service Agency (FSA) for their help in Friday's Farm Bill meeting in York! We had 130 pre-registered with at least double that actually attending. Greatly appreciate their help keeping coffee going and the help with set up and tear down! Farm bill decisions are complicated. For this column, I will provide a little perspective and also some first steps for consideration. In future columns, I will walk through options for decision making using the Texas A&M tool and other calculations.

Perspective: We need to keep in mind the current decision is for the 2019-2020 signup only…not the life of the farm bill. The decisions for the 2014 farm bill were extra daunting when we had to speculate what would happen with prices for the duration of the farm bill in addition to considering base acre reallocations. So, this two-year decision followed by the opportunity to change annually from 2021-2023 may be a blessing and take a little pressure off as you're not 'stuck' with your decision for five years.

First Steps: Currently you need to: make an election for 2019/2020 and enroll for 2019, enroll for 2020, and determine whether or not you will update your yields. Your program election and enrollment for 2019 need to be complete by March 15, 2020; enrollment for 2020 by June 30, 2020; and your PLC yield update deadline is September 30, 2020. With making crop insurance decisions these winter months and having RMA data fresh on your mind, consider looking at yield updates now instead of waiting. My recommendations for first steps:

1-Contact your local FSA Office asking for their yield spreadsheet that shows your yields and base acres for each farm number. The spreadsheet will also show what actual yield is necessary in order to update your PLC yields. Even if you choose ARC-CO for your program election, it's important to at least look at PLC yields as this gives you the opportunity to increase them in the event you ever choose PLC in the future. Because of the adjustment factors, a substantial yield improvement may be necessary to update PLC yield. So, knowing what yield you actually need in order to update can save you time before going through all your RMA data. Any yield updates will apply only to the 2020 year and beyond (not to 2019).

If you choose to update yields, you will need to use actual yields (designated with 'A') on your crop insurance forms (not APH). Sometimes crop insurance units are on the same sheet encompassing several farm numbers-so be aware of that as you will need to separate them out (irrigation practice doesn't matter). If a crop insurance unit includes multiple FSA numbers, you can pro-rate those bushels to split the unit using acres. You also could go back to yield map data or scale tickets if you prefer. Ultimately, keep records of how you determine your yield updates as you will need them if you are spot-checked anytime before the end of this farm-bill period. The landowner also needs to sign off on the yield update and Power of Attorney (POA) is acceptable. The 2014 and 2018 farm bills specified that PLC yield could be certified from a minimum of 0.01 acres planted 1 year of the farm bill period. Randy Pryor shared that with me and he would recommend planting at least 1 acre. He had a grower with milo base acres who planted a 25 acre milo plot one time during the last farm bill period; it yielded well allowing him to update his milo yield. We don't know what future farm bill rules will entail yet something to consider for the next 5 years if rules for PLC yield updates end up the same as the previous farm bills.

2-If you have any idea on farm program elections for 2019-2020, make an appointment now with your FSA Office and go ahead and enroll for 2019. They will also work through the enrollment paperwork for 2020 if possible. You can always change your election prior to March 15, 2020! All Farm Bill information can be found at farmbill.unl.edu.
Keeping Stress Levels in Check Webinar: A free webinar will be offered December 17 geared for farm and ranch families. The webinar will take place over the noon hour (12:30 p.m. CST) and can be accessed at go.unl.edu/stresswebinar. This webinar will provide strategies for dealing with the stress of farming or ranching in today's difficult economic environment.

Jenny Rees 12-15-19

The past few weeks I've had several questions regarding cash rents/leases. My colleague Allan Vyhnalek wrote an article addressing several of these questions, so sharing some of his thoughts. You can read his full article here: https://go.unl.edu/qxt7.

"What should I rent my ground for? (How do I calculate a fair rental rate?): Land rent can be based on several things. Rental rates of the local area, percentage return on investment, survey data showing rental rates, percent of gross income, and many others. The recommendation is to calculate the estimated rental rate based on three or four of these calculations and then decide.

1. The local rental rate might be obtained from an ag loan officer at your local bank, by ag real estate professionals, or from professional farm managers.
2. To calculate a percent return on investment, multiply the value of the land by the percent return that you'd like to receive. Be sure to factor in expenses such as land taxes when making this calculation.
3. Land Value Surveys:
   UNL land value survey: https://agecon.unl.edu/realestate/2019-farm-real-estate-report
   Nebraska Ag Statistics Service (NASS)
   survey: https://www.nass.usda.gov/Statistics_by_State/Nebraska/Publications/County_Estimates/19NEcashrents.pdf
4. The percent of gross income is calculated by taking the average yield of the commodity grown multiplied by the expected price for that commodity which equals the gross income per acre. The landlord would typically receive about 30% of the gross income calculation; however, the number will change based on yield and price. The percentage should represent an average across 5 or more years.

The bottom line on rental rate is that it will be what the renter agrees to pay and the landlord agrees to accept. Pricing will also be based on supply and demand of farmland rental ground in the area. There is no right or wrong definitive rental price. The final rent is simply an agreement between parties involved. Typically this constitutes a fair and equitable trade price for the use of the ground.

Is a Crop Share Lease still a valid lease? Yes, it is still a fair lease. It is probably the fairest lease that you can have. In periods of commodity price stability, the cash lease gained popularity because the landlords didn't like to pay for their part of the expenses and most didn't care to have to market their share of the crop. A crop share lease indicates your willingness to share the risk of farming. Crop Share leases share the risk between landlord and tenant. Cash leases put all risk of production on the tenant solely.

What is the Most Common Share Lease Used? There is no share lease that is more or less correct or appropriate for one situation or another. The distribution of the share (50/50, 60/40. Etc.) depends largely on the agreement between the land owner and the tenant. In some cases, the agreed to distribution in the lease, is 60% tenant and 40% landowner; in other cases the distribution depends on the final inputs, for example, the tenant would pay all seed and chemical, and landowner paying all land and drying. Your final distribution will depend on your expectations and the agreement with the tenant."

Farm Real Estate Resources: https://cropwatch.unl.edu/economics/realestate

Fillable Lease Templates: https://aglease101.org/DocLib/default.aspx

Flexible Cash Lease Calculator: https://farm.unl.edu/cash-rent-flex-calc

Landlord/Tenant Cash Rent Workshops: These three-hour workshops will cover: agricultural finance and the real estate market; current trends in ag finance across Nebraska; negotiation skills for effectively managing land leases; current considerations on lease provisions; and strategic farmland succession and communications. There is no charge and please RSVP to the Extension Office in the county you wish to participate. Closest locations to this area will be: Jan. 7, 1:30 p.m., Extension Office in Seward; Jan. 8, 9 a.m., 4-H Building in York; and Jan. 15, 1 p.m., Fairgrounds in Clay Center.

Jenny Rees 12-22-2019

Thanks to Randy Pryor, Extension Educator Emeritus, for reviewing this article. Also, appreciate the growers who shared data and Farm Service Agency (FSA) personnel from several counties who answered my questions. Here's more farm bill information.

PLC Yield: A few weeks ago, I mentioned you can obtain a sheet from your local FSA Office which shows PLC yields and necessary yield in order to increase PLC yield. If you don't have that sheet, you can use your 156EZ form. Take your PLC yield and divide by 0.81 to get the yield necessary to increase your PLC yield. For example, a PLC corn yield of 190/0.81= 234.57 bu/ac. Your 2013-2017 RMA actual yields would need to show you've achieved at least 234.57 bu/ac in order to increase your PLC yield.

Seed Corn Yields: For seed corn yields, if the farm has commercial corn in addition to seed corn in rotation, the commercial corn yield will be applied to the seed corn. If no commercial corn is grown in rotation on the farm, use the Plant Base Yield (PBY) not to exceed 120% of the county irrigated corn yield. For example, in 2013, York County Irrigated Corn Yield was 235.92 bu/ac. Multiply this by 120% = 283.10 bu/ac. Compare this to the PBY for the same year and use the lower of the two numbers.

Historical Irrigated Percentage (HIP) is taken into account for ARC-CO payments. For those of you who are using the Texas A&M decision tool, you will see a box to input HIP. As you look at your 156EZ form, you will see an area for HIP. Counties that had to split out irrigated vs. non-irrigated acres for certain crops in the 2014 Farm Bill will have a HIP listed. Counties that didn't have to do this will not have one listed. For those with HIP listed, it may or may not be accurate depending on if you incorporated/lost irrigated ground in the past 5 years. For purposes of the Texas A&M tool, you can use your best estimate of irrigated vs. non-irrigated percentage.

ARC-CO Calculation: Regardless if you'd like to try the Texas A&M tool or not, you can also get an idea of the price in which ARC-CO would trigger a 2019 payment by doing a simple calculation. Take your county guaranteed revenue and divide that by the county benchmark yield. For example, for irrigated corn in York County, the 2019 Guaranteed Revenue is $731.07. The 2019 Benchmark Yield (which is an Olympic average yield from 2013-2017) for irrigated corn in York County is 229.75 bu/ac. Taking $731.07/229.75= $3.18. What this means is that based on these numbers, if the York County RMA Yield comes in at 229.75 bu/ac, which is a trend adjusted yield, a payment would not be triggered for ARC-CO for irrigated corn in York County until a $3.18 corn price is achieved. This is in comparison to PLC in which the trigger is $3.70 for the corn price. Many of the counties in which I've done this calculation for irrigated corn have around a $3.18 trigger price for ARC-CO currently. That alone tells you a lot regarding decision making. If the trendline yield remains close to current one, it leans towards

enrolling in PLC for irrigated corn, but it is a two year decision. You can also try other figures (ex. trying 235 and 220 bu/ac) if you think the trendline yields may be higher or lower than the current estimate to see other potential ARC Co price triggers. Randy Pryor shared a spreadsheet with me from USDA that had all the yearly yields, trend yields, and revenue guarantees for each county and each crop in Nebraska to date. I've placed tables with these numbers on my blog at jenreesources.com for the counties in which I helped growers for the 2014 Farm Bill. You can also ask your FSA Office if they can provide this information for you.

FSA Meetings: If you missed the Farm Bill meetings and would like to better understand the differences between the 2014 and 2018 Farm Bills, please contact your local FSA Office. Many of them are having small meetings certain days of the week but can't share which way you should enroll.

Texas A&M Decision Aid: Randy Pryor and I are recommending that if you use a decision aid, that you use the Texas A&M one. For those of you I worked with during the 2014 farm bill, I have your username and password if you no longer do. You can also reset it by calling their help line. I've assembled screen shots at https://go.unl.edu/texasam that walk you step by step through inputting data into the tool. If you have questions, please let me know. Hoping this is helpful!