

Jenny's REESources-January 8, 2017

Reminder of several events this week including the York Ag Expo at the Holthus Convention Center January 11-12 (yorkagexpo.com); Crop Production Clinic in Hastings January 11 (agronomy.unl.edu/cpc); and Precision Ag Clinic in York January 12-13 (agronomy.unl.edu/precisionag).

Chemigation: For those desiring to put fertilizer (fertigation) or any chemicals through your irrigation system, you will need a chemigation permit. Your private and/or commercial pesticide applicator's license do not allow you to do this. If this is your first time attending a chemigation class, we'd encourage you to ask for study materials to be sent to you when you contact the Extension office to pre-register for the training you plan to attend. There is no charge to attend the training. Training dates include: Jan 19: 1:00 p.m., Younes Conference Center, Kearney; Feb 15: 1:00 p.m., Hall Co Ext, Grand Island; Feb 21: 2:00 p.m., Fairgrounds, Franklin; Feb 28: 1:00 p.m., Fairgrounds, Central City; Mar 1: 1:00 p.m., 4-H Building, York; Mar. 1: 1:00 p.m., Pinnacle Bank, Columbus; Mar 6: 1:00 p.m., Opera House, Bruning; Mar 8: 9:00 a.m., First Lutheran Church, Wilber; Mar 16: 1:30 p.m., Fairgrounds, Hastings; and Mar 23: 9:00 a.m., ARDC near Mead.

Financial Literacy Class for Farmers and Ranchers: Brandy VanDeWalle, Extension Educator for youth crops in Fillmore and Clay counties shared the following regarding upcoming programs in Clay County.

Are you ready to renew your farm or ranch operating note? Learn about preparing the information your lenders need and how to develop a solid financial record keeping system at a Financial Health Check workshop. The workshop will be held January 19th, 9:00 a.m. to 12:30 p.m. at the Clay County Fairgrounds in Clay Center, NE. RSVP to Clay Co. Extension at (402) 762-3644 by Jan. 13th. The cost to attend this workshop is \$20 per person. The ideal class size for the financial health check class is 10-12 participants; classes will be limited to 15.

This workshop is designed to help farmers and ranchers develop a financial plan for their operation during this period of low income. Upon completion of this program, participants will have a better understanding of how financial records can be used to make management decisions and confidently discuss their financial position with their family, business partners, and lenders.

Topics covered include: Basics of balance sheet construction and analysis; Cash flow and keeping farm/ranch financial records; and Income statements for measuring profitability. Contact: Brandy VanDeWalle, Extension Educator, (402) 759-3712, brandy.vandewalle@unl.edu

Quicken Workshop for Farms & Ranches: Keep books for more than just your taxes! In this 2.5-hour class, you will learn to use Quicken (a minimum cost bookkeeping software) to keep farm/ranch financial records, as well as your household expenses. This "hands-on" training will help you understand how to set up categories & classes (for taxes & management), use the budget & loan features, and separate enterprise expenses. You will also learn where to find online Quicken help resources directly related to farm records.

This workshop will be held January 19th, 2:00 p.m. to 4:30 p.m. at the Clay County Fairgrounds in Clay Center, NE. RSVP to Clay Co. Extension at (402) 762-3644 by Jan. 13th. The cost to attend this workshop is \$20 per person. The ideal class size for the Quicken workshop is 10-12 participants; classes will be limited to 15.

Farmers and Ranchers Cow/Calf College: The annual Farmers and Ranchers Cow/Calf College "Partners in Progress – Beef Seminar" will be held at the U.S. Meat Animal Research Center and Great Plains Veterinary Education Center near Clay Center on January 31, 2017 with registration, coffee and donuts starting at 9:00 a.m. The program will run from 9:30 a.m. until 4:00 p.m. This program is sponsored by

Nebraska Extension's *Farmers and Ranchers College*. Topics include Annual Forage Systems-A Pasture Alternative; Cattle Market and Industry Update; Management Tips and Strategies; Strategic Ranch Management during an Economic Downturn; Veterinary Feed Directive; and Coffee Shop Panel of all presenters. There is no cost for the event and the public is invited. It does include a noon meal, which means that early registration is necessary to reserve materials and a meal. Pre-register online at <http://fillmore.unl.edu>. You can also pre-register by January 24th to the Fillmore Co. Extension Office at (402) 759-3712 or to Brandy VanDeWalle at brandy.vandewalle@unl.edu.

Nebraska Extension Crop Management Conference: This new program to be held Jan. 19-20 at the Younes Conference Center in Kearney includes two half-day workshops, 23 program sessions, and recertification options where attendees will be able to customize their learning experience by registering for those sessions most pertinent to their farming operation. Guest speakers include: Chuck Schroeder, founding executive director of the Rural Futures Institute at the University of Nebraska; Bob Nielsen, professor of agronomy at Purdue University and host expert for two national corn information websites: Chat 'n Chew Café and the Corn Growers' Guidebook; Seth Naeve, associate professor in the University of Minnesota Department of Agronomy and Plant Genetics focusing on soybean issues; and Andrew Kniss, associate professor in weed biology and ecology at the University of Wyoming. Workshops include Pesticide Application Technology and Soil Nutrient Management. Individual sessions cover a range of topics from bacterial leaf streak and corn rootworm resistance to precision ag technologies, crop resistance and climate variability, manure management, dicamba drift and resistance gene transfer, and Nebraska cover crops research. For more detail, see the conference agenda and workshop and session descriptions.

The conference also includes commercial and private pesticide applicator recertification, chemigation recertification, and nutrient management recertification for the Central Platte Natural Resource District. Industry representatives will be available at a commercial expo Thursday evening. Registration and more information can be found at the Conference website at: <http://agronomy.unl.edu/NCMC>.

Jenny's REESources-January 15, 2017

Preparing for Farm Loan Renewal Time: As winter meeting season has begun, I've had conversations with farmers having appointments with their bankers. The following is an article from Tina Barret, executive director of Nebraska Farm Business, Inc. and a program manager in the Department of Agricultural Economics. She does a nice job of sharing what to consider during this time.

"Shortly before Christmas, I was watching a Christmas movie with my family about a farm family who was in jeopardy of losing the operation if they didn't come up with the required payments by January 2. You can guess, as well as I did, that it was a Christmas miracle and the necessary funds were found on Christmas Eve. While the story was predictable, it made me wish the struggles of the real farm economy could be fixed in less than two hours, with no family arguments and the only unknown being how it would be solved, not if.

The reality is that some operations are going to be faced with the real issue of foreclosure this year. Others will need to look hard at restructuring debt, switching lenders, making major changes to their operation and/or living, and maybe even selling off excess assets. So how can you make your operation be the best it can be through a stressful renewal season? Here are a few things to consider before you go into your renewal appointment:

Be prepared. Come into your renewal appointment with a plan. Have detailed estimate of your costs for the coming year, a cash flow that makes sense and is grounded in reality (no \$7 corn sales), and include reasonable spending for family living. If your cash flow shows significant changes from previous years, come with an explanation. For example: "My family living is down 20% from last year. We have a monthly budget and a commitment from our family to stick to it. We will send monthly accountability reports to show we are serious." If you just reduced family living to make the cash flow work without a plan on how to make that change actually work, it's not believable.

Be honest. Being honest with yourself is just as important as being honest with your lender. Take a hard look at your operation and figure out WHY your operation is having a tough time at renewal. It isn't just because commodity prices are down. If that were the case, every operation would be experiencing this stress and they are not. So what's different about your operation? What costs have changed in the past five to six years? Where can you make different choices about your costs?

Be accountable. This is YOUR farm operation. YOU get to make the choices about how the money is spent. Many times I hear, "We just don't have a choice on how much we spend." The reality is you make choices every day. You can choose a different seed variety or a different seed vendor (or any other input). You can choose to operate older equipment instead of having the latest and greatest technology. You can choose between buying a \$60,000 family vehicle or a \$30,000 one. You may have to make unpleasant choices, but they are still your choices to make. The choice of whether or not a bank continues to finance you may not ultimately be yours, but the choices that led to that decision were yours. Being ready for your appointment may only be half the battle, but it will show you have a commitment to turning your operation around.

If your bank does deny continued funding, there are other options to consider. Your current bank is not the only one who can finance your operation. You can go back to the "drawing board," get even more organized and prepared, and try another bank or two. If you are unable to obtain credit elsewhere, you may qualify for a loan from the USDA Farm Service Agency (FSA). The funding for these loans can change from year to year and is set by the government so there may be first come-first served access to these loans. More information about these loans can be found at:

https://www.fsa.usda.gov/Internet/FSA_File/fsa_br_01_web_booklet.pdf.

Consider liquidating some assets. It may seem like you can't operate without ALL of your equipment, but it may be a good time to rent some of those larger assets such as a combine or have your harvest done by a custom harvester. If you sell some equipment so you can retire debt, you may be able to put yourself into a position where you can service the remaining debt while continuing to farm. You also may need to liquidate some land to keep going. Don't forget to hold back some proceeds for income taxes.

Bankruptcy may be a word that comes back into normal conversation. Our office is preparing to dust off old books and take classes to prepare for potential questions from farmers hoping to avoid or best navigate through the potential reality of bankruptcy. While avoiding bankruptcy will be ideal, the laws exist for a reason and may be a good tool for you to use so your operation can continue. Unfortunately, bankruptcy is complicated and the services of a good attorney and accountant will be necessary to complete the process.

Regardless of the outcome, going through a stressful renewal is tough on everyone. I don't know a single lender who got into the business with the goal of putting farmers out of business and I don't know a single farmer who wanted their business to end with a liquidation. Using your management team is going to be important. It may seem silly to be paying professional fees when you are trying to cut costs, but many of these issues are very complex and require detailed expertise. It is also stressful for your family. Consider professional counseling to protect those relationships, your marriage, and your mental health. Talking about financial struggles is never fun, but keeping it to yourself could cause even bigger consequences."

Nebraska Extension has developed a team of educators trained to help producers improve their financial literacy. For more information, contact your local extension educator. A nearby financial literacy workshop is being held in Clay Center on January 19th and you can call (402) 759-3712 or check out: <http://extension.unl.edu/statewide/fillmore/Programs/FinHealthWorkshopFlyerCC17.pdf> for more information. The State of Nebraska also has the Farm/Ranch Hotline ready to provide immediate help. Call 1-800-464-0258 to find financial, legal and counseling services and referrals. For more information on farm financial management, see farm management information in <http://cropwatch.unl.edu>, published by Nebraska Extension, and on the Department of Agricultural Economics website. You can find sample budgets to help with figuring out your current cost of production at: <http://cropwatch.unl.edu/budgets>.

Jenny's REESources-January 22, 2017

Tree Care After the Ice: Last week's ice led to hazardous travel conditions, tree limb breakage, and most likely some beautiful pictures for display at county fairs this year! Nicole Stoner, Extension horticulturalist shares some thoughts regarding ice effects on trees. "Many tree branches broke after the weight of the ice from the last storm proved to be too much. The best management practice for helping a tree that has broken branches due to snow and ice would be to go out and trim those branches to make them a clean cut rather than a jagged cut. Leaving a break rather than having a clean cut will prevent the tree from naturally healing the wound and this opening will lead to decay in the tree. This is much more damaging to the tree so it is best to prune the tree between the break and the bark collar or hire a professional to do this for you. If your tree split down the middle or lost a great number of branches, it may be time to think about replacing this tree. It would be best to call a certified arborist in this case to assess the damage and give recommendations on the next steps for your tree."

Following the ice storm, the Nebraska Forest Service (NFS) would like to remind Nebraskans to exercise caution when surveying neighborhood damage or assessing impacts to their trees. Homeowners should never attempt to clean up or remove storm-damaged trees near power lines. Always contact local power companies to report the location of the damage. "Accumulations between one-quarter and one-half inch can cause small branches to break; anything greater can cause limbs, power lines and poles to all come down," said Amy Seiler, NFS community forestry specialist. When inspecting a tree for damage, Seiler said it is tempting for homeowners to take on the entire job themselves often overlooking hazards that are not always obvious to the untrained eye.

After initial storm damage is cleared, homeowners should look for lateral cracks in branches and vertical cracks in the trunk says Seiler. If cracks are found, a certified arborist should be contacted. The NFS recommends certified arborists because of their expertise in the management of damaged trees especially large and potentially hazardous trees. Certified arborists also help shield homeowners from scams that are likely to follow any severe weather event. "Certified arborists and other reputable companies will have personal and property damage insurance and coverage for worker's compensation," said Seiler. "They almost never solicit work door-to-door. But if they do, do not be afraid to request proof of the company's certification and insurance." It's also important to never use climbing spikes when pruning trees as they can damage the cambium (living tissue beneath the bark) of the trees.

Land Application Training of Manure: Upcoming workshops will help livestock and poultry producers learn how to turn manure nutrients into better crop yields while protecting the environment. Nebraska Department of Environmental Quality (NDEQ) Land Application Training allows these producers to receive or renew their permit certification and this is good for five years.

The morning portion of the workshops will consist of a two-hour program including updates on changing regulations and other manure management topics, such as protecting herd health with biosecurity. Any farm staff responsible for implementing the farm's nutrient plan are encouraged to attend. Closest locations will be held: Beatrice: Jan. 26, 9 a.m., Extension office; Lexington: Jan. 31, 9 a.m., Extension office; York: Feb. 2, 9 a.m., Extension Office; and Columbus: Feb. 3, 9 a.m., Pinnacle Bank, 210 East 23rd St. For additional information on these workshops and other resources for managing manure nutrients, visit <http://manure.unl.edu> or contact Leslie Johnson at 402-584-3818 or ljohnson13@unl.edu.

Master Gardener Trainings: Do you enjoy plants, have a green thumb, enjoy gardening and learning with others? You may be interested in becoming a Master Gardener through Nebraska Extension! Those desiring to be Master Gardeners (called Master Gardener interns) learn about a wide range of horticulture topics including soils, fertilizers, botany, plant selection, plant diseases, insects and weed control. Forty hours of classroom instruction gives them a good foundation in general horticulture, plus basic insect and disease control.

There are a few opportunities for Master Gardener training. One way is to attend face-to-face training with Sarah Browning, Extension Educator in Lincoln (402) 441-7180 or Elizabeth Killinger in Grand Island (308) 385-5088. Another way is to take a 2-year training program by attending Tuesday evening webinars at either the York (402) 362-5508 or Clay County Extension Offices (402) 762-3644 or at Keim Hall on UNL's East Campus (402) 472-8973 every Tuesday night from February 7th to March 21st from 6-9 p.m. Forty hours of classroom instruction along with 40 hours of volunteer work is required to become a Master Gardener.

After training, Master Gardener interns give back 40 hours of volunteer service in their community through a variety of activities including assisting Extension staff providing clientele with information by answering phone and walk-in questions, teaching youth or adult programs, and working in demonstration landscapes. The Extension Master Gardener program's goal is to provide Nebraskans with the knowledge they need to create and maintain beautiful, healthy, sustainable landscapes, while conserving water, and protecting themselves and the natural environment from exposure to improperly applied or excessive amounts of pesticides and fertilizers.

Jenny's REESources-January 29, 2017

Nebraska Ag Technologies Association Conference: The annual Nebraska Agricultural Technologies Association (NeATA) conference will be held Feb. 1-2 at the Nebraska Innovation Campus Conference Center, 2021 Transformation Dr., Lincoln. The Nebraska Agricultural Technologies Association is a membership network that provides a venue for members to share agricultural research experiences and knowledge related to current and emerging technologies in agriculture. Membership is not required to attend the conference.

The conference begins at 10 a.m. on Feb. 1 and ends at 4 p.m. on Feb. 2. The first day of the conference will be a full-day symposium on aerial imagery in agriculture. Six speakers, from both private industry and governmental agencies, will discuss satellite, plane and UAV platforms for capturing imagery, before participating in a panel discussion. Tours of the Food Processing Center and Greenhouse Innovation Center will be offered at the end of the day.

Day two speakers include Nebraska Extension Associate Dean Dave Varner and Jeremy Wilson, Technology Specialist for Crop IMS. Attendees will also be able to choose from 16 break-out offerings, covering topics including soil management, water management, data management, and machinery and hardware. The closing keynote speaker will be Agrifood innovation expert and data strategy consultant Lisa Prassack. Prassack will discuss assembling the precision agriculture puzzle for farm profit. For more information about the conference or to register, visit <http://neata.org> or contact Nebraska Extension Educator Nathan Mueller at 402-727-2775 or nathan.mueller@unl.edu.

Solar Energy Workshop in Seward: A solar energy workshop will focus on applications of solar photovoltaic (PV) systems for farms, ranches, residences, and rural businesses in Seward on Friday, February 17 from 1-3:30 p.m. at Jones National Bank and Trust Basement Auditorium in Seward. The seminar is open to the public at no charge. Grid tied solar PV, economics, basic design considerations and feasibility will be the main topics of discussion. Participants will learn how to use basic online tools to model their own locations and learn about economic considerations such as payback, grants, tax credits, and depreciation. Please pre-register at the Seward County Extension Office if you're interested in attending by calling (402) 643-2981.

Nebraska Cover Crops Conference: Interested in adding cover crops to your corn-soybean rotation, but don't know where to start? Or maybe you're already using cover crops and would like to talk with others about some challenges you faced? From farmer experiences to agribusiness opportunities and research updates, speakers at the 2017 Nebraska Cover Crops Conference will be addressing a variety of topics pertinent to cover crop growers at every level.

The Nebraska Extension conference will be held at the Eastern Nebraska Research and Extension Center near Mead Tuesday, Feb. 14, starting with refreshments at 8:30 a.m., followed by a program at 9 a.m., and ending at 3:15 p.m. (The ENREC is located at the University of Nebraska Agricultural Research and Development Center, 1071 County Road G, Ithaca.)

The conference is sponsored by Nebraska Extension and the Nebraska Soybean Board in partnership with the Lower Platte North Natural Resources District and USDA Sustainable Agriculture Research and Education (SARE). More information and registration can be found at: <http://ardc.unl.edu/nebraska-cover-crop-conference> or by calling (402) 624-8030. Please pre-register by February 10 to ensure adequate materials and meals.

Topics and Speakers include: Termination of Cover Crops: What if the Plan Doesn't Work? Developing a Plan for Grain Crop Herbicide Management — Rodrigo Werle, Extension cropping systems specialist;

Planting Green Management — Dan Gillespie, no-till specialist, USDA NRCS; Cover Crop Influence on Corn and Soybean Nutrient Management — Ray Ward, president, Ward Lab and Paul Jasa, Extension engineer; How Cover Crops are Managed on Our Farms, and Cover Crops and Early Maturing Corn and Soybean Hybrids and Varieties — Roger Elmore, Extension Cropping systems specialist, and Nathan Mueller, extension educator. Two panel discussions will also be held. A farmer panel sharing cover crop experiences will include: Ben and Paul Steffen of Humboldt; Tom Fick, K Double T Certified Crop Adviser of Albion; and Mick Minchow, farm operator of Waverly.

A second panel will feature individuals from Nebraska agribusinesses that have expanded their products or services to include cover crops.

Among the speakers will be Jody Saathoff, a farmer and farm representative for CHS Agri Service Center in Minden, who has been working with cover crops since 2004. The first year he started with a monoculture cover crop planted after winter wheat. After attending a No-till on the Plains tour to Gabe Brown's North Dakota farm, he tried a multi-species mix that provided improved performance, despite water restrictions in his area. Since then he has worked with farmers to grow, tweak, and refine cover crop plantings, often in parallel with no-till, in standard rotations. In a four-year grower study conducted in central Nebraska, Saathoff said growers found benefits for several years when planting cover crops in just one of three years.

Ryan Krenk, a farmer and agronomist with Roth Aerial, said they have been seeding cover crops for the last five years, including aerial seeding into soybean just before the leaves start to turn yellow. The cover crop helps avoid a flush of weeds immediately post-harvest that can rob the soil of valuable moisture.

Brothers Todd and Russell Kavan, owners of Saunders County Seed Services in Wahoo, initially sold cover crop seed and then found that growers didn't have the proper equipment or the time to get cover crops seeded when they wanted to.

Learn more from these and other innovative growers and agribusiness representatives at the Nebraska Cover Crops Conference.

Jenny's REESources-February 5, 2017

Strengthening Nebraska's Agricultural Economy: According to the Nebraska Department of Agriculture, one in four jobs is related to agriculture in Nebraska. This signifies the importance of agriculture to Nebraska's overall economy. Current market conditions are a challenge for many agricultural producers. In response to the economic downturn, Nebraska Extension has developed an initiative focused on strengthening Nebraska's agricultural economy.

A new series of educational materials will be released and featured on the Nebraska Extension CropWatch (<http://cropwatch.unl.edu/strengthening-nebraskas-agricultural-economy>) and Beef (<http://beef.unl.edu>) websites. Nebraska Extension specialists and educators from across multiple disciplines share research-based information to help producers reduce input costs, increase efficiencies, and improve profitability of farm and livestock operations. In planning for the coming season, consider how you can incorporate the strategies that best match your cropping systems, livestock operations, and management styles into your operation.

Find related information on Twitter at #StrongNebAg. Nebraska Extension Educators Brent Plugge, Erin Laborie, and Aaron Berger are leading the livestock effort and Allan Vyhnalek and Jenny Rees are leading the crops effort with Gary Zoubek, Extension consultant.

Hamilton County Ag Day: The 2017 Hamilton County Ag Day will be held Tuesday Feb. 14 at the Ag Auditorium on the Hamilton County Fairgrounds. Doors open at 9 a.m., with morning presentations on drones and nitrogen sensing, and two late morning presentations related to agricultural economics. Aurora Cooperative is sponsoring the noon lunch. Updates will be provided by the FSA, NRCS, and USDA Rural Development. Afternoon presentations will focus on 2017 changes in worker protection standards and variable rate irrigation. The late afternoon presentations focus on forage aspects for livestock, such as cover crops and UNL research results on increasing pasture production.

During the day there will also be opportunities to visit with a wide variety of agricultural related vendors. For a detailed program, visit <http://extension.unl.edu/statewide/hamilton/hamilton-county-ag-day> or contact the Hamilton County Extension office at 402-694-6174.

Solar Energy Workshop in Seward: A solar energy workshop will focus on applications of solar photovoltaic (PV) systems for farms, ranches, residences, and rural businesses in Seward on Friday, February 17 from 1-3:30 p.m. at Jones National Bank and Trust Basement Auditorium in Seward. The seminar is open to the public at no charge. Grid tied solar PV, economics, basic design considerations and feasibility will be the main topics of discussion. Participants will learn how to use basic online tools to model their own locations and learn about economic considerations such as payback, grants, tax credits, and depreciation. Please pre-register at the Seward County Extension Office if you're interested in attending by calling (402) 643-2981.

Farmers & Ranchers College Present Managing for Difficult Times: The next Farmers and Ranchers College Program will be held Feb. 22 beginning at 9:30 a.m. at the Fillmore County Fairgrounds in Geneva, NE. During this program, Nebraska Extension faculty will present topics to help improve profitability in crop and livestock operations. Land leasing updates and strategies will be presented in addition to a review of basic financial recordkeeping. This program will equip farmers with strategies for reducing stress and keeping our families healthy during difficult times. Finally, tips on preparing for farm loan renewal time will be given.

A local update on the progress of the Fortigen fertilizer plant will be given. Nebraska Agribility and Easter Seals resources will be shared as well. As always, all programs are free due to the generous

support of Farmers and Ranchers College Sponsors. Registration is due February 16th for a meal count and can be done online through fillmore.unl.edu or by calling the office at (402) 759-3712.

The *Farmers and Ranchers College* Committee consists of Fred Bruning of Bruning, Bryan Dohrman of Grafton, Sarah Miller of Carleton, Jennifer Engle of Fairmont, Ryne Norton of York, Jim Donovan of Geneva, Bryce Kassik of Geneva, Eric Kamler of Geneva, and Brandy VanDeWalle of Ohiowa.

Reminder Master Gardener's Programs Begin this Week: The Master Gardener training program begins this week with distance-education lawn and garden programs. These programs will be available to view at the York (402-362-5508) and Clay (402-762-3644) County Extension Offices on Tuesdays from 6-9 p.m. Anyone interested in becoming a master gardener, seeking master gardener educational credits, or in gardening without becoming a master gardener are welcome to attend. Sessions cost \$5 per session or \$20 for the series to cover educational materials. Please contact the Extension office if you plan to attend. Please also contact us if you're interested in becoming a master gardener as additional materials need to be ordered and there is a separate fee. This week's topic on February 7th will be on "Plant Diagnostics: What is wrong with this plant?" Diagnosing plant problems can be difficult. There can be many different causes for a symptom. Learn what questions to ask to narrow down possible causes and about diagnostics tools to use. There will be a review of 2016 plant issues; and participants will practice diagnosing plant problems through role playing. - Presented by Kelly Feehan, Platte County Extension Educator.

Additional topics include: Feb. 14-Turf Basics; Feb. 21-Small Fruit Production; Feb. 28-Soil Basics; Mar. 7-Landscape Design; Mar. 21-Insect Physiology, Pesticides, and Pollinators.

Jenny's REESources-February 12, 2017

Hearing Impaired Private Applicator Pesticide Training: Any private pesticide applicators who are hearing impaired will have an opportunity for special sign language accommodations during the February 17, 2017 private applicator pesticide training at the Dewitt Community Center in Dewitt, NE from 9:00 A.M. to 12:00 P.M. If you are interested in attending for this purpose, please contact the Saline County Extension Office at (402) 821-2151.

Reminder Master Gardener's Programs Tuesday Evenings: The Master Gardener training program continues this week with distance-education lawn and garden programs. These programs will be available to view at the York (402-362-5508) and Clay (402-762-3644) County Extension Offices on Tuesdays from 6-9 p.m. Anyone interested in becoming a master gardener, seeking master gardener educational credits, or in gardening without becoming a master gardener are welcome to attend. Sessions cost \$5 per session or \$20 for the series to cover educational materials. Please contact the Extension office if you plan to attend. Please also contact us if you're interested in becoming a master gardener as additional materials need to be ordered and there is a separate fee. This week's topic on February 14th will be on "Turf Basics". Additional topics include: Feb. 21-Small Fruit Production; Feb. 28-Soil Basics; Mar. 7-Landscape Design; Mar. 21-Insect Physiology, Pesticides, and Pollinators.

Emerald Ash Borer Programs to be Held in March: The Nebraska Department of Agriculture (NDA) confirmed that emerald ash borer (EAB) was discovered during a site inspection in Omaha's Pulaski Park on June 6, 2016. A quarantine also regulates the movement of hardwood firewood and mulch, ash timber products and green waste material out of Douglas, Sarpy, Cass, Washington and Dodge counties to assist in the prevention of human-assisted spread of the pest into un-infested areas.

Last summer, numerous questions were received at the Extension Office after the discovery of emerald ash borer in Nebraska. To aid homeowners with their questions and correct identification, emerald ash borer programs will be held in York at the 4-H Building (March 16), Seward at the Civic Center (March 23), and Clay Center at the Fairgrounds (March 30). A light supper will be served from 5:30-6pm at all locations with the program running from 6-7pm. There is no charge for these programs, but please RSVP to the local Extension Office to ensure for enough food and materials. RSVP to (402) 362-5508 in York Co; (402) 643-2981 in Seward Co; and (402) 762-3644 in Clay Co.

Solar Energy Workshop in Seward: A solar energy workshop will focus on applications of solar photovoltaic (PV) systems for farms, ranches, residences, and rural businesses in Seward on Friday, February 17 from 1-3:30 p.m. at Jones National Bank and Trust Basement Auditorium in Seward. The seminar is open to the public at no charge. Grid tied solar PV, economics, basic design considerations and feasibility will be the main topics of discussion. Participants will learn how to use basic online tools to model their own locations and learn about economic considerations such as payback, grants, tax credits, and depreciation. Please pre-register at the Seward County Extension Office if you're interested in attending by calling (402) 643-2981.

2017 York County Corn Growers Plot: Reminder to any seed dealers to consider adding your hybrid entries into the 2017 York County Corn Grower's Plot. Contest rules and information in addition to last year's yield results can be found on the York County Corn Grower Website at: <http://www.yorkcountycorngrowers.com/>.

On-Farm Research Update Meetings: One of my favorite activities is working with farmers in their own fields conducting on-farm research to answer the questions they have in a scientific manner. Likewise,

some of my favorite winter meetings are the on-farm research updates that are upcoming in late February. The reason? Our farmer-cooperators who conducted research with Extension to answer their questions in their own fields will present their research results! I enjoy the interaction, discussion, questions farmers ask each other as the highest level of learning occurs in these programs. I think sometimes people walk away disappointed after these meetings when they realize there's no silver bullets for increasing yields. Often there's a few things to consider trying or additional ideas are spurred from these meetings. However, I'd also suggest there's value to know what didn't work to increase yields on your peer's fields. Attending these programs is a great way to learn what your peers are doing and what did and didn't work for them in their situations.

This past year, over 70 studies were completed in the following topic areas: cover crops, variable rate seeding, planting populations, multi-hybrid planting, starter fertilizer, fungicide applications, alternate crop rotations, seed treatments (including treatment for Sudden Death Syndrome), and side-dress nitrogen management technologies including commercially available models and Project SENSE which uses crop canopy sensors for in-season, variable-rate nitrogen management.

So please consider attending! Locations and times include: Feb. 20 — near Mead, at the Eastern Nebraska Research and Extension Center located at the Agricultural Research and Development Center; Feb. 21 — Norfolk at the Lifelong Learning Center, Northeast Community College; Feb. 23 — North Platte at the West Central Research and Extension Center; Feb. 24 — Alliance at the Knight Museum Sandhills Center, 908 Yellowstone Ave.; and Feb. 27 — Grand Island at the Hall County Extension Office, College Park Campus.

At Mead, Norfolk, and Grand Island registration is at 8:30 a.m. and the program is from 9 a.m. to 4:30 p.m. CDT. At North Platte registration is at 11:30 a.m. and the program is from 12 p.m. to 4:30 p.m. At Alliance registration begins at 8:30 a.m. MDT with the program from 9 a.m. to 2 p.m. MDT. Lunch will be served at all locations.

The event is free; preregistration is requested for meal planning purposes. Call (402) 624-8030 or e-mail onfarm@unl.edu to register for any of the five sites. To learn more about the Nebraska On-Farm Research Network and how to participate, visit <http://cropwatch.unl.edu/farmresearch>. Certified Crop Advisor Credits have been applied for. The on-farm research effort is sponsored by Nebraska Extension in partnership with the Nebraska Corn Growers Association, the Nebraska Corn Board, the Nebraska Soybean Board, and the Nebraska Dry Bean Commission.

Jenny's REESources-February 20, 2017

Soybean Cyst Nematode (SCN): Many I talked with after harvest were happy with their soybean yields this year, but if your yields seem to have plateaued or weren't as good as expected, perhaps, soybean cyst nematode could be a factor to check. Farmers can experience up to 20-30% yield losses with no symptoms on the plants. Your yield maps may also provide a clue of places to test where yields were lower than expected. I also recommend to test any areas where sudden death syndrome (SDS) occurred as this disease is synergistic with SCN in reducing yields. We've found areas that had SDS only, SCN only, or the combination of both.

How do you test? Soil samples can be taken at any time, even after the field was planted to corn. Simply use the same 0-8" sample you're using for your soil fertility and send part of it to the lab of your choice for fertility analysis and part of it to the Pest and Plant Diagnostic Lab for SCN analysis. Sample bags can be obtained through your local Extension Office. For more information about SCN, please check out the following site: <http://cropwatch.unl.edu/plantdisease/soybean/soybean-cyst-nematode>. Although SCN often goes undetected, it is here and reducing profitability for Nebraska soybean producers.

We encourage sample submission because it's difficult to manage something you don't know you have. Last year, Seward County had the most SCN samples submitted with 63 and it was the county that tested the most positive for SCN of the samples submitted (32). York County was honorable mention with 16 samples testing positive for SCN. York County was the winner in the highest percentage of samples testing positive with 89% of samples. Seward and Antelope Counties are two counties that have now submitted over 100 samples testing positive for moderate (greater than 500 eggs per 100 cc's of soil) or high levels of SCN. This just shows the importance of testing all our fields to know if SCN is present, robbing yield, and what the egg count is so we can work on managing this disease in the future.

Sampling is made possible through support and partnership with the Nebraska Soybean Board. John Wilson, Extension Educator in Burt County and Loren Giesler, Extension Soybean Pathologist share the following regarding this partnership. "Thirty years ago last fall, a microscopic pest was identified in a Richardson County soybean field near Falls City. The next spring, a comprehensive sampling program identified the same pest in six counties bordering the Missouri River as well as Pawnee County. Levels of this pest in the soil indicated it had been here much longer, but had gone undetected.

Thirty years later, this pest, the soybean cyst nematode (SCN) is causing more yield losses for soybean growers in Nebraska and across the U.S. than all other soybean diseases combined! Last year SCN cost Nebraska farmers an estimated \$40 million in lost yields; nationally, that loss is estimated at \$1.5 billion.

Without a concentrated effort to sample fields for SCN, it was identified in 27 counties over the next 19 years. Then in 2005, the Nebraska Soybean Board started an extremely successful program that continues today. It provides Nebraska soybean farmers with free soil analysis for SCN by the UNL Department of Plant Pathology. It started slowly, but over the years it grew and has now processed 8,230 samples, almost a third of which have been positive for SCN.

This program had an immediate impact. The first year of the program SCN was identified in seven new counties and in the first seven years, the number of counties where SCN had been identified doubled the number found in the previous 19 years. We are pleased to have the Nebraska Soybean Board as our partner in this soil sampling effort. They recognized what a serious problem SCN was to soybean growers and, without their support, we would not have reached this many Nebraska farmers. Support from the Nebraska Soybean Board covers the cost of analyzing the soil samples, normally \$20 per sample."

Potential Winter Injury Alfalfa and Wheat: The warm, beautiful weather has been enjoyable yet there's also concern for our alfalfa and wheat. It's too early to know if there's any injury; we just need to check

it close this spring. As Dr. Bruce Anderson, Extension Forage Specialist shares, “The recent long spell of daytime temperatures in the 50s, 60s, and even some 70s probably awakened at least some alfalfa plants from winter dormancy. When alfalfa plants break winter dormancy they use nutrients stored in their roots and crown and start to grow as if spring has arrived. A return to average winter temperatures forces these plants back into dormancy. Another streak of warm weather could break dormancy again, using more nutrient reserves. If this is followed by more cold weather, eventually the alfalfa plants will exhaust their reserves and be unable to start spring growth when spring truly does return.

Another potential problem in other areas has been snow followed by melting followed by freezing. Prolonged or repeated formation of ice at or on the soil surface can prevent the exchange of gases between the air and the soil. As alfalfa roots respire during winter they produce some gases that can become toxic to alfalfa plants if too concentrated. The roots also need some oxygen to respire and remain healthy. So ice can cause plants to essentially suffocate.” Ultimately, we’ll need to be ready to check alfalfa and wheat this coming spring to determine any potential winter injury.

Women in Ag Conference returns this week on February 23-24 at the Kearney Holiday Inn. If you haven’t registered yet, you can find more information at <http://wia.unl.edu>. This year’s conference features many agricultural economics topics for helping deal with lower commodity prices on farms and ranches.

Winter watering of trees and shrubs will be beneficial this year if warm winter temperatures and a lack of precipitation continue. The priority for watering is young plants first - those planted in the last year and especially those planted this past fall, and then evergreens, especially those growing in exposed locations and near the south sides of buildings. When watering, the soil should not be frozen and air temperatures need to be above 45 degrees. Irrigation should take place early enough in the day for moisture to soak into the soil to avoid ice forming over or around plants overnight. Water just enough to moisten the soil six to eight inches deep. One or two irrigations during winter should suffice. If conditions remain warm and dry through winter and into spring, it will be critical to begin irrigation as soon as soils thaw this spring.

Pruning tips. With late February through March being the ideal time to prune shade trees, look at corrective pruning on younger trees, those planted in the last 3 to 10 years, to help avoid long term structural issues. Hire a certified arborist to prune larger trees. Corrective pruning includes removal of: a double leader, branches that are crisscrossing and rubbing against another branch or one that will eventually rub if left to grow larger, closely parallel branches that may eventually grow into one another, branches with very narrow forks that can lead to included bark and weakened branch attachment.

Jenny's REESources-February 24, 2017

Chemigation Trainings-including Fertigation: There's sometimes confusion regarding the terms 'fertigation' and 'chemigation'. Those interested in applying fertilizers (fertigation) or any pesticide product through their irrigation systems need a chemigation permit to do so legally. Your pesticide license does not qualify for this. Certifications are good for four years. Applicators have an option to complete an online course and take the exam at a testing location or simply attend a training, and pass the written exam.

The training is for both initial and recertification and there is no charge. Especially for new applicators, it is recommended to contact the host Extension Office to receive chemigation materials and review them prior to coming to the class. If you need certification for the 2017 crop year, pre-register with the extension educator hosting the session you plan to attend and request the materials.

Nearby locations include: Central City – Feb. 28, 1:00 PM, Conference Room, Merrick County Fairgrounds; York – Mar. 1, 1:00 PM, 4-H Building, York County Fairgrounds; Columbus-Mar. 1, 1:00 PM, Pinnacle Bank; Bruning-Mar. 6, 1:00 PM, Bruning Opera House; Wilber-Mar. 8, 1:00 PM, First Lutheran Church Fellowship Hall; Hastings-Mar. 16, 1:30 PM, Adams Co. Fairgrounds; ARDC near Mead-Mar. 23, 9:00 AM. To view all the chemigation sites State-wide, please go to the following website: <http://go.unl.edu/f9re>.

Beef Profit Tip Workshops: During the winter of 2017 Nebraska Extension will host Beef Profitability Workshops to help beef producers evaluate their operations to make them more profitable through the latest research information. The combination of low commodity prices and high input costs has left cattle producers struggling to reach breakeven levels.

Potential example topics include: Harvesting Crop Residues- Does It Affect future crop yields; Balancing the ranch or farm for Protein; Mineral Nutrition; Composting Livestock Mortality Carcasses; Windrow Grazing; Forage Testing and What the Numbers Mean; EPDs and Bull Selection; Economics in the Beef Industry and Beef Outlook; Fencing and Watering Options on Crop Residue; Managing Risk on the Average Sized Cow-Calf Operation; Evaluating and Valuing Cull Beef Cows and their Carcasses; Cow Depreciation – (2nd largest cost); Hay and Land Grazing Rental Rates; Global Market Landscape; Livestock Outlook; Grass Production; and Cover Crop Production.

Closest dates/locations include: Osceola-Feb. 28, 10:00 AM, Polk Co. Fairgrounds, RSVP to (402) 367-7410; Wilber- Mar. 7, 1:00 PM, Lutheran Church Fellowship Hall, RSVP to (402) 821-2151; Nelson-March 15, 1:30 PM, Activity Center, RSVP to (402) 225-2381; Hebron-March 16, 1:30 PM, Stastny Center, RSVP to (402) 768-7212. Please do RSVP for workshop materials and refreshments planning. Please also ask about workshop fees as they vary due to local sponsorship.

Triumph of Ag Expo Tickets: Free admission tickets to the Triumph of Ag Expo occurring March 8-9 at the CenturyLink Center in Omaha are available at your local Extension offices if you're interested in obtaining them.

Soil Health Demonstration Farms: USDA has established a soil health initiative in Nebraska. The Natural Resources Conservation Service is leading a statewide effort to enhance the adoption of soil health management systems through the Soil Health Demonstration Farms Initiative. The 2017 initiative sign-up will continue to establish demonstration farms across the state to showcase soil health practices and related cropping system comparisons. Landowners interested in applying for funding to establish a soil health demonstration farm should submit their application to NRCS by March 17.

NRCS' Environmental Quality Incentives Program will be used to fund this initiative. Producers

selected will receive this EQIP funding for five years. For more information please see:
<http://www.nebraskafarmer.com/usda/usda-initiatives-funds-statewide-demonstration-farms> and
<https://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/ne/soils/health/?cid=stelprdb1251592>.

Sand Pit Lake Workshops: Nebraska Extension, the Nebraska Department of Environmental Quality, and Game and Parks again have partnered to offer a series of pond and lake management introductory workshops. These workshops are free and open to everyone who makes decisions for and about lakes and ponds or anyone who wants to learn more about protecting them. If you've ever had an algae bloom, fish kill, murky water, or just want to know what's going on in the lake, this workshop is for you. All 2017 workshops are focused on sandpit lakes.

There is no cost to attend these workshops, but reservations are required. The workshops will be held from 6-8pm as follows: March 2, 2017 in Grand Island (Nebraska Extension in Hall County at College Park, 3180 W. Highway 34); March 7, 2017 in Weeping Water (Cass County Extension Office, 8400 144th St #100); March 16, 2017 in Columbus (Pinnacle Bank, Village Centre, 210 E. 23rd Street).

Workshop topics include: Sandpit lake functions, characteristics, and challenges; Managing waters for fisheries; Lake management planning; Resolving common maintenance problems (Algae, leaks, undesirable fish, fish kills, clarity, erosion, nuisance animals); Toxic algae management and sampling; and Invasive species.

To register go to one of the following registration pages: Grand Island: <http://go.unl.edu/grandislandlake>; Weeping Water: <http://go.unl.edu/weepingwaterlake>; Columbus: <http://go.unl.edu/columbuslake>.

Jenny's REESources-March 6, 2017

Chemigation: I spoke more to this last week. Just wanted to share that resources including an online spreadsheet for calculations can be found at <http://water.unl.edu/cropswater/chemigation>.

Chemigation certification is good for 4 years. If you're unsure if yours needs to be renewed, you can check your information at: http://deq-iis.ne.gov/zs/chemigation/main_search_chemigation.php.

Remaining certification/recertification trainings include: Wilber-Mar. 8, 1:00 PM, First Lutheran Church Fellowship Hall; Hastings-Mar. 16, 1:30 PM, Adams Co. Fairgrounds; York-Mar. 22, 1:00 PM, 4-H Bldg at Fairgrounds; and ARDC near Mead-Mar. 23, 9:00 AM. To view all the chemigation sites State-wide, please go to the following website: <http://go.unl.edu/f9re>.

Crop Science Investigation: Are you a youth ages 8-18 interested in science, plants, or agriculture? Crop Science Investigation (CSI) may be of interest to you! We will meet Monday, March 13 at 5:30 p.m. at the York County Extension Office. Each meeting, youth will become detectives to solve a real farmer or home-owner problem while having fun and learning. Youth do not have to be 4-H members and youth outside of York County are also welcome. Please RSVP if you plan to attend by calling 402-362-5008. Questions can be directed to Jenny at jrees2@unl.edu.

Ag Recognition Banquet in Seward: Recognizing Excellence in Agriculture, the 49th Annual Kiwanis and Seward County Chamber and Development Partnership (SCCDP) Agricultural Recognition Banquet will be held Monday, March 20, 2017 at the Seward County Ag Pavilion at the fairgrounds in Seward, NE. The banquet is held during this time in honor of National Ag Week, March 19-25, 2017.

The event kicks off with a social hour of wine and cheese beginning at 5:30 p.m. followed by a Prime Rib Dinner beginning at 6:30 and Awards Presentation beginning at 7:00. Jon Vanderford with 10/11's 'Pure Nebraska' will be the evening's emcee.

Receiving recognition for the 2017 Kiwanis Outstanding Farm Family are the Larry and Doug Tonniges families. The Tonniges Brothers started farming in 1982 and have strived to be good stewards of the land. Their operations involve growing corn, soybeans, seed corn, and cattle.

Doug Brand will be recognized as the 2017 SCCDP Agribusiness Award Winner. Brand is the Vice President of Jones National Bank and Trust where he started in 1975. He is described as "a leader of the Seward County community" as he seeks to outreach all areas of the County through his work with the bank, support of 4-H and FFA, and in welcoming new businesses.

Tickets cost \$25.00 and can be obtained by contacting Shelly Hansen at 402-643-3636. Please direct any questions to Shelly.

York County Farm Service Agency Open House: Mark your calendar for the Ag Week Open House, March 20-23, 2017 at the York Service Center, 419 W 6th St, York NE. This Open House is a small way of recognizing and thanking the area farmers for their contribution to our county, our state, our nation, and the entire world.

Cookies, tea and coffee will be served 9:00 a.m. – 4:00 p.m. each day. Several door prizes will be awarded. This is a joint event with York County Farm Service Agency, York County Natural Resource Conservation Service, Nebraska Extension, and Upper Big Blue Natural Resource District.

This event is open to the public. Persons with disabilities who require accommodations to attend or participate in this open house should contact Leann Nelson at 402-362-5700 extension 2 or Federal Relay Service at 1-800-877-8339.

Tractor Safety Classes: Nebraska Extension Tractor Safety & Hazardous Occupations Courses will take place at nine Nebraska locations this year. Teens 14 or 15 years of age who will work on a farm should plan to attend. Federal law prohibits youth under 16 years of age from working on a farm for anyone other than parents or legal guardians. Certification received through this course grants an exemption to the law allowing 14- and 15-year-olds to drive a tractor and to do field work with specific mechanized equipment.

The most common cause of agricultural-related death in Nebraska is overturned tractors and all-terrain vehicles (ATVs). Extensive training on Tractor and ATV safety occurs during in-class lessons with hands-on activities. Instilling an attitude of 'safety first' and respect for agricultural equipment are primary goals of the course.

The course consists of two days of instruction plus homework assignments. The first day of classroom instruction includes hands-on demonstrations, concluding with a written test. Students are required to pass the test before taking the driving test on day two. To receive certification, students must demonstrate competence in hitching and unhitching equipment and driving a tractor and trailer through a standardized course.

All on-site classes begin at 8:00 A.M. and end times will vary, depending on the number of participants. Dates, locations, and Site Coordinator phone numbers are as follows: May 30 & 31 - Kearney Fairgrounds (308) 236-1235; June 1 & 2 – Auburn Fairgrounds (402) 245-4324; June 6 & 7 – Valentine Fairgrounds (402) 376-1850; June 13 & 14 – North Platte West Central Research and Extension Center (308) 532-2683; June 15 & 16 – Gering Legacy Museum (308) 632-1480; June 19 & 20 – Wayne Fairgrounds (402) 584-2234; June 22 – Gordon Fairgrounds (308) 327-2312; June 23 – McCook Fairgrounds (308) 345-3390; July 10 & 11 – Grand Island College Park (308) 385-5088.

Participants must submit registration forms to the location they will attend at least one week before the course. The registration form is available online: <http://kearney.unl.edu>. Cost of the course is \$60, which includes educational materials, instruction, supplies, and lunches. For more information, contact the Extension Office of the location where student will attend.

Jenny's REESources-March 12, 2017

Emerald Ash Borer Meeting York March 16, Seward March 23, Clay Center March 30: Last summer, numerous questions were received at the Extension Office after the discovery of emerald ash borer in Nebraska. To aid homeowners, city workers, and tree care services with their questions, correct identification, and determination of which trees to treat, emerald ash borer programs will be held in York at the 4-H Building (March 16), Seward at the Civic Center (March 23), and Clay Center at the Fairgrounds (March 30). A light supper will be served from 5:30-6pm at all locations with the program running from 6-7pm. There is no charge for these programs, but please RSVP to the local Extension Office to ensure for enough food and materials. RSVP to (402) 362-5508 in York Co; (402) 643-2981 in Seward Co; and (402) 762-3644 in Clay Co.

Winter Programs: Winter programs are nearing the end and the past few months have flown by. It's been a good winter of meetings seeing many familiar faces and meeting many new people! I'm truly blessed to have the opportunity to serve you and to have built many wonderful relationships over the years.

The take-homes from pesticide trainings were: reminder to keep ourselves, our families, and everyone working in our ag operations safe by wearing proper personal protective equipment, reading labels, and slowing down; the opportunity to be proactive with controlling palmer amaranth; and understanding modes of action and taking a system's approach to the chemicals we use in our ag operations.

I also shared about on-farm research in many programs this winter. On-Farm Research (<http://cropwatch.unl.edu/farmresearch>) is the ability to answer your questions as to if a particular product or practice will work on your operation using your equipment and collaborating with Extension where we design the study to scientifically answer your questions. My goal is to work with more farmers this year via on-farm research to answer the questions you have on your farms. Some projects that we currently have protocols/interest in include: Project Sense for in-season variable rate N management; UAV/drone imagery project; Side-dress nitrogen recommendation tools (Maize N, Climate FieldView, Encirca, etc); Variable rate nitrogen by variable rate seeding study; Variable rate seeding by zones; AnnGro (applied with UAN during fertigation); and United Soybean Board funded studies (soy populations, soy row spacing 15 vs 30" rows, Priaxor fungicide in furrow, starter vs. no-starter). If any of these are of interest to you, please let me know. We're also willing to work with you on topics beyond these examples.

One study I would like to work with would be April planting of soybeans of a high yielding 2.4 variety vs. a 2.9 or later high-yielding variety. My reasoning is that for years, I've been asked by University researchers why the farmers in Clay and Nuckolls are planting mid-group 2 varieties for being in southern Nebraska and I just said I can't argue with the yields with powerful genetics we're seeing planted in April. I'm interested to see if there is a yield difference of early/late maturities planted in April, so please let me know if you're interested in a study like this!

Dormant Seeding of Turf: Lawns that were impacted by grubs, disease, or thinned by other problems last season may be in need of reseeding if renovation wasn't completed last fall. Fall truly is the best time for renovation, but if you're like me and didn't get to it, dormant seeding is another option right now. Dormant seeding allows for seeds to begin growing earlier when the correct soil temperature and moisture conditions occur and allows for a quicker start to allow mowing and eventual application of

crabgrass preventer. This isn't always the case with spring seeding of grasses depending on when they're seeded.

First, prepare the seedbed via power raking or hand-raking the soil. The seed can either be broadcast or drilled into the prepared area. If broadcast, you can then rake the soil again to ensure good seed to soil contact. For additional information, please check out the following resource:

<http://turf.unl.edu/NebGuides/Establishingturffromseed2012l.pdf>.

Also even though lawns are greening up, it's too early to apply fertilizer. Wait until mid-April to mid-May to apply fertilizer to bluegrass and fescue lawns. Lawn calendars can be obtained from the Extension Office or from this site online: <http://turf.unl.edu/turf-fact-sheets-nebguides>.

Water for Food Conference: Registration is open for the 2017 Water for Food Global Conference organized by the Robert B. Daugherty Water for Food Global Institute at the University of Nebraska. The conference, held April 10-12 at Nebraska Innovation Campus in Lincoln, Nebraska will examine the work being done to ensure water for food security from local to global scales. Conference details, including how to register, are available at <http://waterforfood.nebraska.edu/2017wfc>.

The three-day event will bring together experts from around the world to explore "Water for Food Security: From Local Lessons to Global Impacts," a theme inspired by the notion that global breakthroughs come from local action. In addition to the rich variety of plenary sessions, concurrent sessions and technical seminars and workshops, there will be special events to facilitate networking among participants, including two receptions featuring international fare and live entertainment; student poster competition; photography competition and exhibit and a Nebraska bar-be-que banquet in the 100-year-old Creekside Barn at Roca Berry Farm.

Generous support for the 2017 conference is provided by the Robert. B. Daugherty Foundation, the University of Nebraska, Monsanto Co., Senninger Irrigation Inc., the Nebraska Corn Board and LI-COR Biosciences.

Jenny's REESources-March 20, 2017

Happy Ag Day (March 21) and National Ag Week this week! Reminder that the York County Farm Service Agency is hosting an Open House March 20-22 at the York Service Center, 419 W 6th St, York NE. This Open House is a small way of recognizing and thanking the area farmers for their contribution to our county, our state, our nation, and the entire world. Cookies, tea and coffee will be served 9:00 a.m. – 4:00 p.m. each day.

The Agricultural Council of America began celebrating Ag Day in 1973 with the desire to recognize and celebrate the contribution of agriculture in our everyday lives. This program encourages every American to understand how food and fiber products are produced; value the essential role of agriculture in maintaining a strong economy; and appreciate the role agriculture plays in providing safe, abundant, and affordable products. More information can be found at <http://www.agday.org>.

Today, each American farmer feeds more than 168 people which is a large increase from 25 people in the 1960s. Today's farmers also produce 262 percent more food with 2 percent fewer inputs (labor, seeds, feed, fertilizer, etc.), compared with 1950. Farm and ranch families comprise just two percent of the U.S. population. According to the American Farm Bureau Federation, America's rural landscape is comprised of around 2 million farms with 99 percent of U.S. farms being operated by families – individuals, family partnerships or family corporations. Farmers on average receive only \$0.13 of every dollar spent on food at home and away from home.

Regarding Nebraska, the Nebraska Department of Ag reports in its "2016 Ag Facts" card that cash receipts contributed almost \$23 billion to Nebraska's economy in 2015 and 6.1 percent of the U.S. total. Nebraska's ten leading commodities (in order of value) for 2015 cash receipts are cattle and calves, corn, soybeans, hogs, chicken eggs, dairy products, wheat, hay, dry beans and potatoes. Every dollar in agricultural exports generates \$1.22 in economic activities such as transportation, financing, warehousing and production. Nebraska's \$6.4 billion in agricultural exports in 2015 translates into \$7.8 billion in additional economic activity. Nebraska's top five agricultural exports in 2015 were soybeans, feeds and fodders, beef and veal, corn and soybean meal. Nebraska had 48,700 farms and ranches during 2015; the average operation consisted of 928 acres. In 2015, Nebraska had 25 operating ethanol plants with a total production capacity of over 2 billion gallons. Nebraska ranked 2nd among states in ethanol production and utilized 31% of the state's 2015 corn crop. Livestock or poultry operations were found on 49% of Nebraska farms. 1 in 4 jobs in Nebraska is related to agriculture. From east to west, Nebraska experiences a 4,584 foot elevation difference and the average annual precipitation decreases by one inch every 25 miles. Between 2007-2012, Nebraska experienced a 5% increase in the number of farms and 10% increase in the number of new farmers.

So agriculture is of huge importance to our economy! It was interesting to see the change in some of these numbers compared to last year, a sign of the economic times we currently face in the agricultural industry. Information is being shared each week at <http://cropwatch.unl.edu/strengthening-nebraskas-agricultural-economy> to help. Please be sure to thank a farmer and those who work in the agricultural industry this week! Without them, we wouldn't be able to enjoy the safe, affordable, healthy food supply and choice we have as consumers!

Also, Happy Spring! Not always does the first day of spring come with so many signs of spring such as my daffodils beginning to bloom. Reminder of Emerald Ash Borer Workshops in Seward (March 23, 402-643-2981) and Clay Center (March 30, 402-762-3644) from 5:30-7pm. Light meal provided. No charge. Please RSVP at the local Extension Office.

I've received some questions and observations about the large buds on shade trees like maples. Yesterday I noticed forsythia starting to bloom and my lilacs leafing out. Early budding of shade trees and shrubs is common with above average winter and spring temperatures. Swelling of buds, or actual opening of buds, increases the risk of low temperature injury to the tree and buds. This creates concern and raises questions. Most temperate zone plants survive this well. If the buds are flower buds, the only loss for shade trees and shrubs is the loss of blooming for that year. If leaf buds are injured, this will result in delayed growth. However, otherwise healthy plants will develop secondary buds and do fine. This can be a stress for plants. Along with warm temperatures, if conditions remain dry, drought may be an added stress. We cannot do much about temperatures and swelling buds, but we can water plants in the absence of rain. Most plants are not actively growing and so a lot of water is not needed; just enough to moisten dry soil 6 to 8 inches deep.

Wheat: I've received some questions about stripe rust in wheat and fungicide application. So far I haven't seen any rust in wheat this spring, so it would be wise to save money and use good integrated pest management practices by not using half rates of fungicides with your herbicide applications right now. It will be important to scout fields and especially watch those that had greater vegetative growth last fall in addition to varieties that are more susceptible as we move forward in the growing season.

Jenny's REESources-March 26, 2017

Household Hazardous Waste Collections Clay, York and Seward Counties: Free Household Hazardous Waste collections are upcoming for Clay, York, and Seward Counties. The Clay County collection will be held Friday, March 31 from 4-6 p.m. at the Clay County Fairgrounds. The Seward County collection will be held Saturday, April 22 from 8-11 a.m. at the City of Seward Wastewater Plant parking lot (1040 S. Columbia). The York County collection will be held Saturday, April 22 from 1-4 p.m. at the York County Landfill (1214 Road 15, York).

For the Clay County Site, accepted items include: all paint, cleaning products, lawn and garden chemicals, pesticides, herbicides, used oil, antifreeze, batteries, florescent bulbs, and mercury items (such as thermometers and thermostats) in household quantities only. Not accepted include: tires, electronic equipment, appliances, PCBs, picric acid, science lab materials, radioactive materials, biological hazards, pharmaceuticals, items containing asbestos, wood preservatives, explosives, or commercial quantities. This collection is being sponsored by the Trailblazer RC&D and Clay County Supervisors. Questions can be directed to (402) 746-3560 or (402) 762-3652.

The York and Seward locations are accepting acids, banned pesticide materials, cyanide, yard chemicals/pesticides, flammables, gas and oil (small quantities), antifreeze, lead acid batteries, mercury, florescent bulbs, all paint, stains, varnish. They are also accepting appliances and electronics via a Department of Environmental Quality (DEQ) grant. York and Seward locations are requesting no dried out paint cans as they are safe for trash, no tires, and no sharps. There are York and Seward County flyers stating no farm chemicals will be accepted; however, **they actually will be at a maximum of nine 2.5 gallon containers per person**. This collection is being sponsored by Four Corners Health Department funded through a grant from DEQ. For questions, please call 877-337-3573.

Soil Temperatures: Just a note that the soil temperature information at UNL's CropWatch has been updated and is now more specific via location. So for those of us who didn't see 'Clay Center' on the list as before, it is listed under 'Harvard aka Clay Center'. Just mentioning this as I didn't pay attention to the new towns and was just looking for the ones that we previously used! You can find the soil temperature charts at: <http://cropwatch.unl.edu/cropwatchsoiltemperature>.

Emerald Ash Borer Meetings in Clay and Fillmore Counties: We had nice emerald ash borer meetings in York and Seward with great questions and interaction! A reminder that this Thursday, March 30th is the Clay County meeting in Clay Center at the fairgrounds with light supper beginning at 5:30 p.m. and program from 6-7 p.m. There's no charge but please RSVP to the Clay County Extension Office at (402) 762-3644 if you plan to attend.

There will also be an emerald ash borer meeting in Geneva on April 11 at 6 p.m. at the Fillmore County Extension Office that will include a meal and information about caring for trees after the ice storm. There is a \$5 fee and please RSVP to the Fillmore Co. Extension Office at (402) 759-3712 if you plan to attend.

Vegetable Gardening: This past week I had a handful of people ask about planting potatoes or waiting till Good Friday. I plan on waiting but in talking with Gary Zoubek about this, he said he planted some potatoes and peas. His suggestion was to consider planting some now and later. The ones you plant now can be ready when your peas are and the others can be grown full season. Gary put together an excellent vegetable guide for this area of the State which can be found at: <http://go.unl.edu/dd9j>.

CropWatch: Every week, we do our best to provide you with research-based information and timely crop updates in Nebraska Extension's CropWatch newsletter at <http://cropwatch.unl.edu>. Be sure to check it out and consider subscribing if you don't receive it already! This week has articles on selecting Bt traits, status of herbicide resistance weeds, farm leasing of machinery, and much more!

Pipeline Publication: "Assessing Petroleum Pipelines – Facts and Safety," was written by Steven S. Sibray, geoscientist at the Panhandle Research and Extension Center at Scottsbluff, and Douglas R. Hallum, hydrogeologist at the West Central Research and Extension Center in North Platte. The publication does not take sides or answer every question about pipelines, according to the authors. Rather it gathers factual information to facilitate discussion. The publication can be accessed at: <http://go.unl.edu/73ex>.

Severe Weather Awareness Week: This week is Severe Weather Awareness Week where we all are encouraged to think about safety for severe weather events. Wednesday, March 29th is the Statewide tornado drill where you can practice your plan for sheltering in place. If you don't have a plan, now's the time to make one.

The statewide tornado drill will take place on Wednesday, March 29 between 10:00 and 11:00 a.m. local time. Wherever you are and whatever you're doing, if the situation allows, participate in the drill. If you can't participate at the designated time, plan for another date or time. Talk with those in your home and workplace. Use the drill as an opportunity to get everyone on the same page. Do you have new people in your office? Have you moved to a new office recently? Consider what you would do if you were hosting a program or had customers on site. Don't assume everyone will know where to go or what to do. Be proactive! Note: If there's a chance for severe weather on Wednesday, the tornado drill may be postponed.

Other things you can do include: Attend a storm spotter training by visiting your local National Weather Service website for details; Follow National Weather Service and your local news stations for weather updates (Twitter #NEwx); Participate in the state-wide tornado drill on March 29 and encourage others to do so; Get a weather alert all hazard radio; Download a radar app on your mobile device; and check out the Extension Disaster Education Network (EDEN) website for additional information and ideas at: <http://extension.unl.edu/disaster-recovery-resources/>.

Jenny's REESources-April 3, 2017

Soybean Seeding Rate Research: At pesticide trainings this winter, I was sharing some of our on-farm research including our 10 year soybean seeding rate study. In summary, a reduction in seeding rate of 150,000 seeds/acre to 120,000 seeds/acre would result in a \$10.69/acre savings without affecting yield (Assuming a \$60/unit seed cost at 140,000 seeds/unit).

In 2006, a group of farmers gathered together in York, NE for a discussion about on-farm research projects for the coming year. They were looking at ways to reduce input costs without affecting yield. One question asked was "What is the effect of seeding rates on soybean yields?" Several farmers chose to try a project with four different seeding rates (90K, 120K, 150K, and 180K seeds/acre) in 30" row spacings.

Ten years later, the research continues with the same results: reducing soybean seeding rates from 180,000 or 150,000 seeds/acre down to 120,000 seeds/acre doesn't statistically reduce yields in 30" rows in silty clay loam and silt loam soils in south-central and southeastern Nebraska. Results of 16 studies showed for seeding rates of 180K, 150K, and 120K seeds per acre, average yields were 66.9, 66.5, and 66.2 bu/ac respectively.

The dataset for this study includes:

- The latest soybean varieties as the data has been conducted from 2006-2016.
- Erect and bushy type varieties in growth architecture.
- Higher and lower yielding situations.
- Fourteen irrigated fields and two non-irrigated.
- Hail events occurring from V2 to R2 in some of these fields.
- Seed treated in some fields and others without (determined by farmer by planting date).
- In some years, pod and seed count data was also collected showing similar number of seeds/acre and ultimately yield per acre.
- Observations of increased plant branching at lower seeding rates and difficulty in telling the seeding rate treatments apart as the season progressed.

The early studies within this dataset all had seed germ of at least 90% listed on the seed bag and in all but two situations, the farmers were able to achieve 90% or greater of their planted stand. The two exceptions were seeded at 180,000 seeds/acre where they achieved 88%.

Surveys conducted via [CropWatch](#) and at pesticide trainings have shown on average, most Nebraska farmers plant around 150,000 seeds/acre. Our recommendation based on our research is to consider reducing your seeding rate to 120,000 seeds per acre and aiming for a final plant stand of 100,000 plants per acre. Economically, if you were using 150,000 planting rate and switched to 120,000 seeds per acre, you would save \$10.69/acre (Assuming a \$60/bag seed cost at 140,000 seeds).

The same question regarding the effect of reduced populations on soybean yields exists today for farmers switching to narrow row planted soybeans. In 2016, two on-farm research studies were conducted in 15" row planted soybeans in Richardson and Washington Counties. Both of these fields contained silt loam and/or silty clay loam soils.

Seeding rates of 90K, 120K, 150K, and 180K seeds/acre were planted in the Washington County field with non-significant yield differences of 76, 77, 77, and 76 bu/ac respectively with the 90K rate resulting in the highest marginal net return. The farmer was able to achieve 91% or greater of original planted stand.

Seeding rates of 116K, 130K, 160K, and 185K were planted in the Richardson County field. There was no statistical yield differences between 185K, 160K, and 130K seeding rates in this study with yields of 68, 68, and 67 bu/ac respectively. The 116K seeded rate resulted in a yield of 66 bu/ac. Heavy crusting affected final plant populations in the field resulting in final stands of 126,333; 113,667; 99,417; and 87,667 for seeding rates of 185K, 160K, 130K, and 116K respectively. The 116K seeding rate resulted in the highest marginal net return for this study.

Looking for ways to reduce soybean inputs this year but still hesitant to reduce your seeding rates? Consider trying this yourself for your location! Simply compare your current seeding rate vs. 120,000 seeds/acre and see what happens for your field conditions. Protocols can be found at our [Nebraska On-Farm Research Network website](#). You can also download the [Nebraska On-farm Research app](#) available in Apple and Android to help you set up your plot design to obtain scientific results. Or feel free to contact me or anyone involved in our Nebraska On-Farm Research Network for additional questions or help setting up your research project. You can see yield charts representing this information in this week's <http://cropwatch.unl.edu>.

Chancellor Ronnie Green Installation Ceremony: All are invited for the Installation of Ronnie D. Green, Ph.D. as Twentieth Chancellor of the University of Nebraska–Lincoln! The ceremony will be held Thursday, April 6, 2017 at 11:00 a.m. at the Lied Center for Performing Arts. All are also invited to the reception following the ceremony at the Sheldon Art Gallery. RSVP can be made at the following link: go.unl.edu/ceremony. From what I can tell, there should also be a livestream at <http://www.unl.edu>.

Cattlemen Hosting Fire Relief Fundraiser: The South Central Cattlemen, Thayer County Livestock Feeders, Exeter Feeders and Breeders, and York-Hamilton County Cattlemen are hosting a Fund Raising activity for the producers affected by range fires in Kansas the past weeks.

The evening activity is scheduled for Friday, April 7, 2017, doors opening at 7:30 p.m. and entertainment starting at 8:30 p.m. at the Fillmore County Fairgrounds in Geneva. Activities for the evening will include entertainment by Comedian Drew Hastings of Lincoln, music by a live band, and free desserts provided by Kerry's Restaurant of McCool Jct.

Kim Siebert of Henderson, Cattlemen's President for 2017 said donations of feed, hay, fencing supplies or cash are encouraged and will be routed through the Kansas Cattlemen's Association to make sure the donations get to the right producers to help out in the best way possible. If you can't attend the evening's event, please consider giving a much-needed donation to locations that are designated at <http://www.beefusa.org>.

For questions, or more information you can contact Mark Klute of Hampton at 402-725-3488, Kim Siebert of Henderson at 402-723-4376, or Matt Caldwell of Edgar at 402-469-1190.

Jenny's REESources-April 9, 2017

Soybean Planting Dates: As we approach mid-April, I've received questions on soybean planting. Our recommendation remains to plant soybeans the last week in April in the southern two-thirds of Nebraska and the first week in May in the northern third of the state if soil conditions are suitable and the weather forecast is conducive. Our Nebraska on-farm research data always showed a yield increase from planting soybeans early compared to 2-3 weeks later (average of 2.9 bu/ac statistical increase with a 1-10 bu/ac range). April 18 was the earliest planting date in the study with May 24 being the latest. Our research in addition to UNL and other mid-west University research have shown planting date to be the primary factor in increasing soybean yield.

We do recommend using a seed treatment insecticide/fungicide when planting soybeans in April to help protect soybeans in cold, wet soils and also ward off early season bean leaf beetles. If you're unsure how to make early soybean planting work for you, consider penciling out what it would cost to rent/lease equipment to plant soybeans at the same time as corn or hire someone to do this for you. Depending on the operation size, some farmers are choosing to plant their soybeans before corn or are planting some soybeans and corn earlier and later to spread risk.

Chilling Risks: Regardless of corn or soybean planting, immediately after planting occurs, a two-day (48 hour) window is needed where the soil temperature at planting depth does not get much lower than 50F. Imbibitional (fast) water uptake occurs within the first 48 hours of when a seed is planted. When the soil temperature drops much lower than 50F within that time-frame, there is potential for chilling injury which can affect the seed germination. Temperature drops after the first 48 hours can make for slower emergence; however, they shouldn't result in the germinated seed and seedlings to die. So what can you do? Check the soil temperature of the field the day you want to plant (using a cheap meat thermometer or two), and then assess the forecast for the next 48 hours. If there's potential for cold rains and falling temps, consider waiting to plant. If the morning soil temp is currently at or above 50F and is not likely to fall over the next 48 hours, consider planting.

Late spring freeze is also a potential risk. A key point to remember is that spring freeze risk only applies to emerged seedlings exposed to the air (temperatures of 28F). Seedlings exposed to air temperatures such as this can result in damaged tissue and even death if the growing point is affected, potentially resulting in a replant decision. It is the number of hours below freezing (32F) plus the type of exposed tissue that determines the degree of crop freezing injury. For example, just-emerged soybean seedlings in the cotyledon stage are less likely to be injured than seedlings that have unifoliolates or 1st trifoliolates exposed to the air.

Soybean Inoculation: This week's CropWatch also has an article on soybean inoculation. Based on our research, fields that have had soybeans grown in them in the past 3-5 years have a low probability of yield increase from adding inoculant. You can view the full article at: <http://go.unl.edu/q6n5>.

Corn Pollen Drift: Last week I received several questions regarding corn pollen drift, particularly if there's any updated research regarding traits such as enogen. I searched and asked University researchers; ultimately, we're not aware of University pollen drift research on this trait. The concern for neighboring farmers is when their grain is going to elevators with a zero-tolerance for enogen contamination. We would recommend that farmers with enogen contracts talk to and work with neighbors wherever possible and be wise in following the stewardship agreements and contracts.

Regarding pollen drift in general, the following was published by Peter Thomison and Allen Geyer

from Ohio State: “Many studies have been conducted to determine how far (corn) pollen will travel....

Once released from the anthers into the atmosphere, pollen grains can travel as far as ½ mile with a 15 mph wind in a couple of minutes (Nielsen, 2003). However, most of a corn field’s pollen is deposited within a short distance of the field. Past studies have shown that at a distance of 200 feet from a source of pollen, the concentration of pollen averaged only 1% compared with the pollen samples collected about 3 feet from the pollen source (Burris, 2002). The number of outcrosses is reduced in half at a distance of 12 feet from a pollen source, and at a distance of 40 to 50 feet, the number of outcrosses is reduced by 99%. Other research has indicated that cross-pollination between corn fields could be limited to 1% or less on a whole field basis by a separation distance of 660 ft., and limited to 0.5% or less on a whole field basis by a separation distance of 984 ft. However, cross-pollination could not be limited to 0.1% consistently even with isolation distances of 1640 ft.

Several studies have been performed evaluating the impact of pollen drift from GMO fields on neighboring non-GMO fields. A Colorado study (Byrne et al. 2003) tracked the drift of pollen from blue corn and GMO Roundup Ready corn into adjacent conventional corn. Corn with marker traits (blue kernels or Roundup herbicide tolerance) was planted adjacent to corn without those traits. Cross pollination was greatest at the closest sampling site—up to 46% outcrossing about 3 ft. from the edge of the test plots containing blue corn. Cross pollination dropped off rapidly with only 0.23% cross pollinated kernels near the blue corn plot at 150 ft. Only 0.75% of the corn showed cross-pollination with the Roundup Ready plot at 150 ft. The farthest distance any cross pollination was detected was 600 ft. These results suggest that 150 ft. may be a reasonable buffer between GMO and non-GMO corn to prevent significant cross pollination due to pollen drifting from one field to another.”

Household Hazardous Waste Collection: Reminder of Household Hazardous Waste Collection April 22 from 8-11 a.m. at the City of Seward Wastewater Plant Parking Lot and from 1-4 p.m. at the York County Landfill in York. You can view the flyers at: <http://jenreesources.com>.

Jenny's REESources-April 17, 2017

Household Hazardous Waste Collection: Reminder of Household Hazardous Waste Collection April 22 from 8-11 a.m. at the City of Seward Wastewater Plant Parking Lot and from 1-4 p.m. at the York County Landfill in York. You can view the flyers at: <http://jenreesources.com>.

Crop Update: We've had several interesting articles in UNL's CropWatch at <http://cropwatch.unl.edu> the past few weeks. This week, we have an article looking at considerations and economics for those still considering putting soybean on soybean ground instead of corn ground. Considerations for terminating a rye cover crop and when starter fertilizer is needed for corn are also discussed. Soil temperatures at 4" depth have fluxed with the freeze last week following by warmer weather. We were also blessed with warm rains that didn't greatly drop the soil temperatures over the weekend. The soil temperatures found on our CropWatch site are at a 4" depth and are the average for a 24 hour period. The high, low, and midnight temperatures are also listed at: <http://cropwatch.unl.edu/cropwatchsoiltemperature>.

Lawn Care: With it now being mid-April, the first application of fertilizer (0.75 to 1 pound per 1000 sq. feet) can be applied if your lawn needs it until May 1. Lawn calendars here: <http://turf.unl.edu/turf-fact-sheets-nebguides>. Application of crabgrass preventer is recommended when soil temperatures at the 1" depth are sustained at 55F or greater for five days. You can check this with a meat thermometer in the ground at the 1" depth or checking the website above (even though it shows 4" depth). Some have asked me at what temperatures crabgrass actually germinate. Research has shown daily average soil temperatures can range from 57-64F at the 1" depth but a greater amount of crabgrass germinates when soil temperatures reach 73F or above at the 1" depth. This is the reason why applying crabgrass preventer too early can also be costly with a second flush of crabgrass germinating later.

If you're finding white grubs in your yard or garden now, there's no need for control as these full-grown larvae are difficult to kill. They will soon pupate and emerge as beetles in late May through June to lay eggs which hatch in August. It is this new generation that can damage lawns if populations are high enough. Finding grubs now does not mean there will be damage this summer. Since white grubs can be a serious lawn pest, base control decisions on past history and monitoring this year. If a lawn had grub damage last year, an application of a preventive insecticide, like imidacloprid, could be applied to lawns by mid-July. If a lawn had no damage last year, no insecticide is needed. Monitor the lawn in August. If five to eight grubs can be found per square foot at that time, an insecticide application may be needed.

Emerald Ash Borer: I continue to receive calls about ash trees. First, Emerald Ash Borer (EAB) has not been confirmed in our area of the State. You can view a map of where it's been found at: <http://nfs.unl.edu/nebraska-eab>. It's recommended to wait to treat until EAB is confirmed within 15 miles of your location (I explain more below). If you are told you need to treat your trees now, that is incorrect information. Key points and recommendations can be found at: <http://nfs.unl.edu/documents/EAB/EABKeyPointsandRecommendations.pdf>.

Second, other borers such as the ash/lilac borer commonly affect ash and lilac trees in Nebraska each year. Carpenterworms also cause shade tree damage which may be the sawdust you're seeing in trees right now. Nebraska Forest Service materials share that the trunk of ash and lilac trees in addition to large branches can be sprayed with permethrin in mid-May to kill emerging beetles (<http://nfs.unl.edu/documents/foresthealth/insectbroadleaf.pdf>). Look at the holes in your trees. All

the above-mentioned borers create exit holes that are round. EAB creates an exit hole in the shape of a "D". More Info: <http://nfs.unl.edu/ash%20decline%20borers%20with%20EAB%20full%20sheet.pdf>.

Again, it's recommended to not treat until EAB has been confirmed within 15 miles of your location. The reason for this is two-fold: it's a slow moving disease and because of the amount of tree damage from trunk injections. Our mindset is one of quick death as we've witnessed with pine wilt of Scotch and Austrian pines within a year, but this is not the case with EAB. Emerald Ash Borer may be in trees for three to four years before symptoms of top-die back appear in the tree. It then takes an additional several years, depending on condition of the tree, age, etc. before death does occur. Treatments are still effective in trees infested with EAB with no more than 1/3 of the tree in decline.

Regarding treatments, I've been receiving calls from people wanting to put on a soil drench. We still would recommend this is not necessary until EAB is within 15 miles of here. The soil drench is an option at that time, but the diameter of the tree needs to be less than 15" (47" circumference max) according to research for this method to be effective. When considering a soil drench treatment, the active ingredient in that product is taken up by the roots and translocated throughout the tree. The same will happen for landscape plants at the base of the ash tree. Thus, it's recommended to remove any landscape plants from below the base of ash trees and move them to other areas of the landscape to reduce the effects on pollinators.

So if you own an ash tree, what should you do right now? We would recommend being patient and reading for yourself about it. Go to nfs.unl.edu/nebraska-eab for information. A good publication is "How to Select Trees for Treatment" to help tree owners decide if their tree is a good candidate to treat. Even if a homeowner wishes to save an ash tree, not every tree should be saved. Ash trees younger than 10 years are best replaced. Trees must be treated for their entire life span and healthy trees can typically withstand about 10 injection treatments (thus the reason to not begin trunk injections too early).

Jenny's REESources-April 24, 2017

Thank you to everyone who helped with and brought items to the Household Hazardous Waste Disposals in the various counties in our area this year! It's a blessing to have these opportunities to dispose of these items properly!

Planting Update: Planters have been rolling with both corn and some soybeans being planted. The York County Corn Grower Plot was also planted on Saturday morning and special thanks to Ron and Brad Makovicka for this! I've already shared many planting tips from UNL so here's wishing you a safe remainder of the planting season!

Wheat Update: I looked at several wheat fields in Nuckolls and Clay Counties last week. While stripe rust has now been confirmed in the Nebraska Panhandle, I haven't seen it in our area yet and it also has not been confirmed in the Kansas Counties just bordering our southern tier of counties. Wheat is taking off and appears to have jointed a few weeks ago. There's quite a range in wheat greenness and growth among fields and within fields with endrows being greener and taller in some cases than the rest of the field. Planting depth differences can be one reason for this. Digging up plants in these situations, the seed was deeper-anywhere from 1-2" compared to the other plants in the field where the seed has ranged anywhere from on the soil surface to 1/2". A combination of things such as loose soil seed bed coupled with not enough weight on the drill can allow for shallower planting than intended. This may not allow for that seed to be down in even moisture and temperature conditions or allow for better root development going into winter to help with winterkill. The endrows may have been more compacted allowing for a firmer seedbed and the seed to be planted at the intended depth. Low pH and various viral diseases can also cause variation in wheat growth and greenness. Most of what I've seen thus far this year has been planting depth related, though.

Field Scout Training: Entry-level crop scouts, summer interns, farmers and anyone interested in understanding crop scouting and plant growth are encouraged to consider attending the Field Scout Training on May 10th. It will be held at the University of Nebraska-Lincoln's Eastern Nebraska Research and Extension Center, formerly the Agricultural Research and Development Center near Mead. Registration begins at 8 a.m. with training from 8:25 a.m. to 5 p.m. Topics include: how corn and soybean plants grow and develop; soybean and corn insect management; using plant morphology and a seedling identification key to identify weeds; crop diseases; and a nutrient deficiency quiz. CCA credits are available. For more information or to register, contact Nebraska Extension at (800) 529-8030, e-mail Keith Glewen at kglewen1@unl.edu, or online at <http://ardc.unl.edu/crop.shtml>.

Lawn mowing has begun. If you stick to a once a week mowing schedule, this may not be often enough during rapid spring growth. Healthy turfgrass has an extensive root system. Removing more than one-third of the grass blade while mowing stresses and decreases the root system; setting the lawn up for heat stress and other issues during summer. Mowing may be needed every four or five days during spring. When mowing begins in spring, set the mower height then stick with it through summer and fall. "Set it and forget it" is the best advice for mowing height. A height of 3 to 3.5", and not removing more than one-third of the grass blade during any one mowing, is an important practice for Kentucky bluegrass and tall fescue. Frequent mowing and a tall height helps turfgrass better tolerate heat and drought stress, compete well with weeds, and to be less susceptible to disease and insect issues.

Ornamental Pears and Bark Shatter: If the bark of ornamental pear trees begins to fall off, this is a sign

of cold temperature injury. Unfortunately, there is nothing that can be done at this point; and the trunk area should not be treated or covered with anything such as wound paint or tree wrap. This type of injury is common with ornamental pears, and current loss of bark is likely due to cold temperature injury that occurred in November, 2014. We had a warm fall; then temperatures dropped suddenly to 5 degrees. Ornamental pears go dormant later than other trees. If not fully dormant, cold temperatures can damage the tissue just beneath the bark. This damage eventually leads to bark falling off one- to four or five years after the initial damage. Provide adequate moisture and mulch the tree; then wait and see what happens. When it dies, do not replace it with an ornamental pear.

Evergreen Trees: If needles on the end of pine trees turned brown last year, it could be due to either pine tip moth or a disease called Sphaeropsis tip blight. Take the dead clump of needles at the tip of the tree branches and see if there's any holes/hollowing where the needles join the branch. If not, most likely the problem is tip blight disease. If they are hollow, you may or may not see a caterpillar inside and this would be due to pine tip moth. Knowing the difference is important for correct prevention. Now is the time to spray trees for tip blight and more information can be found here:

<http://nfs.unl.edu/documents/foresthealth/diseasesevergreen.pdf>. Spraying for tip moth doesn't occur until mid-May and more information regarding that can be found here:

<http://nfs.unl.edu/documents/foresthealth/insectevergreen.pdf>.

Rose Pruning: Pruning of roses is best done in mid- to late April, just after new growth begins. Most pruning is done to remove winter killed portions of rose canes which are typically black and show no signs of new growth. Pruning of hybrid tea roses can also be used to manipulate the size, timing and number of flowers a plant produces. Prune hybrid tea roses to a height of 12-24 inches. Completely remove dead, diseased, weak or broken branches by cutting them back to the crown. Also remove branches that cross over and rub one another. On shrub roses, remove up to one third of the oldest, woodiest stems each year, cutting them back near the plant's crown. This encourages growth of new, vigorous stems from the plant crown and eliminates development of many old, woody branches with poor flower production. It also increases air circulation through the plant, reducing the potential for disease problems.

Jenny's REESources-April 30, 2017

Cold and Freeze Effects on Crops: This past week, we released a CropWatch article on the potential effects of chilling injury on germinating seeds. The first 24 to 48 hours are critical periods for soybean and corn respectively in how quickly they imbibe (take in) water. When seeds take in cold water (when soil temperatures drop much below 50F within that critical time period), cell membranes within the seeds can rupture, leak, or burst causing damage to the germinating seed. The result can be anything from poor germination, poor vigor, reduced plant stands, and death of the seed/seedling. The last week of April has contained these cold snaps since 2013. While I don't have research to prove this, I've observed how yield differences are potentially due to days planting occurred just prior to a cold snap. It will be important to watch germination in fields this year and keep track of emergence and plant stands based on planting dates.

Freezing temperatures may have also affected alfalfa, wheat, and emerged corn in the area. For all crops, it's wise to wait several days to see how the plants proceed in growth. The cold temperatures may also delay growth so we may need to wait closer to a week after the frost.

For corn, evaluate your plant stands and slit open some corn plant stems. The growing point is below the soil till 6 leaf stage. However, it will be important to look at the growing point to ensure freeze damage didn't occur down to the growing point. The growing point should be firm and white/cream-colored and not rotted and brown. Leaf tissue exposed to cold temperatures may have turned brown. Sometimes wind can cause this dead/dying tissue to buggy-whip around the whorl. Normally this dead tissue will eventually break off and there's nothing you need to do for it.

For wheat, critical temperatures are 24F for two hours during jointing and 28F for two hours during boot. It will be important to monitor stems for any splitting and bending from ruptured cells as these symptoms of frost damage can impact yield. It will also be important to monitor the developing head. You can split the stems of wheat to find the growing point and developing head. Frost damage to wheat heads will often show white awns and/or white heads/florets that became sterile due to the frost. Sometimes the head will have difficulty emerging from the boot depending on how close that head was to boot stage during a freeze event. Odor of decaying tissue can also be a symptom of frost damage to wheat.

Also to note, I found low incidence of stripe rust in wheat in Nuckolls County last week. Like last year, I'm noticing it is very variety dependent so it's important to scout your fields when temperatures warm up again. Powdery mildew at moderate to severe levels can also be observed in lower wheat canopies.

Regarding alfalfa, it again will take time to assess damage. The growing point is located inside a dense cluster of unfolded leaves at the top of the main stem. Leaves around the growing point may be brown or wilted/dying while the growing point may or may not be affected. You will know if new growth begins from the top of the main stem when warm weather returns. If you don't see new growth at the top of the plant, it may begin from the base of the plants. Depending on how much growth you had, you may or may not be interested in taking an early harvest to stimulate regrowth. Early harvest before plants were ready can stimulate new growth and can add stress to the plants. It's recommended to wait and see how plants recover at this time.

Frost to Rhubarb and Asparagus: While it may be a little late for some right now, it is important to note frost effects on rhubarb and asparagus as well. Rhubarb stalks that have wilted/limp/frosted leaves are not safe to eat after a frost. The reason is the rhubarb leaves contain a toxic compound that can move into the stalks when a freeze occurs. If you have rhubarb stalks with leaves that are

wilted/limp/affected by frost, it's recommended to cut and discard those stalks. Rhubarb stalks that had normal leaves would be safe to eat. Asparagus, on the other hand, is safe to eat after a frost, even if the tops become wilted and bent over. They may have an off-flavor, however.

Chemical Application to Lawns: A reminder of the importance to sweep or use a leaf blower to move chemical granules (whether fertilizer or pesticide) back into the lawn and not leave them on sidewalks, driveways, or other hard surfaces. Rain moves particles lying on concrete into storm sewers or other non-target areas. Pesticide granules lying on the sidewalk are a danger to pets, children, and wildlife, so please, take the time and clean up after chemical applications to your lawns!

Study Course for Drone (UAV) Pilot Exam: If you are interested in earning your Part 107 Remote Pilot certificate so that you can fly unmanned aircraft (drones) for commercial purposes, a new Nebraska Extension home study course will be of interest to you. This home study course focuses on the knowledge you will need to successfully pass the computer-based Federal Aviation Administration (FAA) exam to earn your Remote Pilot certificate. The home study course allows you to learn at your own pace while interacting with professional unmanned aircraft pilots and fellow course participants. Experienced unmanned aircraft pilots affiliated with Nebraska Extension will be available to help with questions and provide coaching support as you progress through the home study course.

The first group of participants will start the course the first week in May. The course is expected to last approximately two months. If you're interested in being in this class, it will be important to register as soon as possible. Registration and more information are available on the NU-AIRE web site at <http://nuaire.unl.edu>.

Jenny's REESources-May 8, 2017

Crop Updates: Last week's rains provided some much-needed soil moisture followed by a beautiful weekend to be outdoors! Articles in this week's CropWatch at <http://cropwatch.unl.edu> warn of getting into wet fields too early which can result in sidewall compaction and also share on assessing plant stands for emergence and any need to replant.

I also have a blog post at <http://jenreesources.com> regarding crop updates from scouting fields last week with photos. Many have called regarding alfalfa and most I have looked at are a result of low temperatures and freeze effects.

Nebraska Corn and Soybean Pocket Field Guides: Thanks to support from the Nebraska Corn and Soybean Boards, a pocket field guide was compiled for both corn and soybean information by lead authors Dr. Jim Specht and Dr. Tom Hoegemeyer. These guides were mailed to all members of Nebraska Corn and Soybean Grower Associations last week. Some have been asking where they can receive more copies or how they can obtain one if they didn't receive one. Additional copies were printed and should have been ordered by your local Extension Office or someone associated with it. So please contact your local Extension Office if you're interested in receiving a copy and they will let you know when it's available to pick up!

Roundup for Lawns: There's been a few questions about the new lawn product being advertised with a familiar name yet says grass is not killed. But the new Roundup for Lawns is NOT the traditional Roundup herbicide as the two products have completely different active ingredients.

Roundup Weed and Grass Killer is a brand name of an herbicide that contains glyphosate. This active ingredient nonselectively kills most plants, including both broadleaves and grasses. Homeowners may use this product to kill anything growing in cracks, between patio pavers, even entire lawns prior to renovation, for example. Farmers also use glyphosate in their fields to kill plants as a burn-down prior to planting or after harvest or to selectively kill unwanted plants when they have glyphosate tolerant corn, soybean, or alfalfa. For homeowners, while there may be exceptions, expect that all plants sprayed with Roundup Weed and Grass Killer will die.

Roundup for Lawns, is the brand name of a new herbicide that does not contain glyphosate; rather it contains the active ingredients MCPA, quinclorac, dicamba and sulfentrazone. Each is a selective herbicide that controls various weeds without harming Kentucky bluegrass, perennial ryegrass or tall fescue lawns. Research trials do, however, show that some of the active ingredients in Roundup for Lawns (MCPA and dicamba) could cause short-lived injury to buffalograss lawns. Other manufacturers have mixtures that contain similar ingredients as Roundup for Lawns and target the same weeds. Labels describe the ingredients.

Store shelves contain a number of Roundup products for home use, thus it's important to read the label and active ingredients to understand which product is being selected for what purpose. There's also a range of price points that reflect what the product does. For instance, least expensive Roundup products often are traditional glyphosate which is non-selective and will kill most plants. More expensive products may have additional active ingredients added to them to target additional pests such as poison ivy or provide a residual control which could affect new grass seedings.

Milkweed for Pollinators: I also received several questions last week regarding milkweed for pollinators such as butterflies. While I'm unsure what press releases people were seeing, I haven't been able to confirm anyone is providing free seed in Nebraska. There have been Facebook posts and advertising

from a cereal company about free wildflower seed, but those aren't advised as some of the plants within the seed packet are considered noxious and/or invasive in different states. You can contact your local nursery for recommendations of different plants or seed sources that work well locally. Nebraska sources of wildflower seed mixes include: Stock Seed Farms in Murdock, NE; Green Cover Seeds in Bladen, NE; and Arrow Seeds in Broken Bow, NE. This list may not be exhaustive and is not an endorsement in the event I've missed someone else in the State. I just have personally worked with and utilized seed from these sources in the past and know they carry wildflower/pollinator mixes suited for Nebraska. The Nebraska Statewide Arboretum also does a bloom box program each spring and fall and you can learn more about that here: <http://plantnebraska.org/plants/bloom-box.html>.

Some also specifically asked about Butterfly Milkweed. I really enjoy this plant in my gardens and it's also the 2017 Perennial Plant of the Year! The following is information from Nicole Stoner, horticulture educator in Gage County. "Butterfly milkweed was chosen for the 2017 Perennial Plant of the year to 'celebrate an excellent plant known for its ability to support insects and birds and serve as the primary caterpillar food for a beloved North American native butterfly'. That butterfly would be the Monarch butterfly. Monarchs have been decreasing in their population over the past few years due to many different factors, but lack of food is one. Milkweed is the primary source of food for Monarch butterflies and that plant is now reduced in our environment due to the way that we garden and the fact that people regard milkweeds as weeds. Planting pollinator plants will help with the populations.

Butterfly milkweed is a native plant with small, bright orange colored flowers that are held in bunches throughout the plant. This is not the common milkweed that most people find to be a weed, which is another great pollinator plant. This is a unique and interesting plant that will attract many pollinators to your garden. The plants grow 2-3 feet tall and wide. Butterfly milkweed plants are a great addition to any landscape, but especially in a prairie, native grass area, or naturalized planting."

Jenny's REESources-May 15, 2017

Crop Update: Wheat is in the flag leaf to boot stage with heads beginning to emerge. Beginning to see stripe rust of wheat on flag leaves at low incidence in southern Clay, northern Nuckolls and eastern Webster counties. Stripe rust appears to have skipped the mid-canopy in fields. Please be scouting your fields to determine any need to spray. A list of fungicides with ratings to different wheat diseases can be found here: <http://cropwatch.unl.edu/2017-CW-News/2017-images/wheat-diseases/NCERA-184-wheat-fungicides-2017.pdf>. In the past I've also hoped we could time fungicide application for stripe rust with any potential application for prevention of scab (*Fusarium* head blight). That may still be a possibility for some fields this year but will be very field dependent based on variety and environmental factors. Applications for scab prevention (which also control leaf diseases) involve different fungicide products because they are applied during flowering in which other products are then off-label. Please be monitoring your fields for stripe rust for any fungicide application decisions.

Corn and soybean germination and emergence for the most part is looking good. There have been a few situations of potential fertilizer burn from both fall and spring applied anhydrous with shallower applications due to our dry winter/spring. This week's CropWatch at <http://cropwatch.unl.edu> has a number of stories regarding scouting for early-season insects and help for determining any potential replant situations.

This week's CropWatch edition also has an important article for everyone who has Conservation Reserve Program (CRP) acreage. Palmer amaranth was found in Iowa CRP as a result of seed mixes from several suppliers. We fortunately do not have confirmed cases of this occurring in Nebraska. However, we're still urging that it's important to scout CRP fields for the presence of palmer amaranth as seed can be dispersed via the wind, animals, and human activities. A guide for controlling palmer amaranth in CRP can be found here: <https://store.extension.iastate.edu/Product/Herbicide-options-for-Palmer-amaranth-in-CRP>.

Alfalfa: I've seen some alfalfa where first cutting has been taken and most alfalfa has recovered well from any frost damage. The following is from Dr. Bruce Anderson in regards to first hay cutting timing based on your field conditions. "Being aggressive on the first cutting is critical if high forage quality is needed. Alfalfa's forage quality changes faster during the first spring growth than at any other time of the year. Plants are maturing and temperatures are increasing; both cause quality to decline. So don't delay if quality is needed. Alfalfa used to feed beef cows may be a little different story, especially if you are trying to build hay reserves. Normally we get our highest total yield by waiting until alfalfa is near full bloom. Not only is yield highest, this also uses what soil moisture is available for the most efficient alfalfa growth. In dryland fields in some areas you may need quite a bit more rain for good summer and fall harvests if deep subsoils remain dry. But with a good first cut you at least will have some hay of good enough quality to feed your beef cows next winter. Timing of hay harvest is important whether your needs are for high quality or for high yield. With alfalfa becoming ready to cut soon this spring, don't miss your best time."

Webster County Livestock Extension Educator Position: We are grateful that the livestock educator position that was open due to Dewey Lienemann's retirement has now been released for accepting applications. The Beef Educator position for Kearney, Franklin, Adams, Webster, Clay, Nuckolls, Fillmore, and Thayer is released and posted at <https://employment.unl.edu/>. A direct link an to the position announcement can be found at <https://employment.unl.edu/postings/54218>. The position

closes on June 10. Interviewing of candidates is anticipated for the later part of June with the potential start date as soon as possible.

Lawn and Garden Updates: Mulching plants is a beneficial plant care and water conservation practice. However, using the wrong type of mulch or an incorrect mulching practice can lead to plant problems. To benefit plants, place a two to four inch layer of organic mulch, like shredded wood, on top of bare, moist soil; and keep the mulch away from plant stems. Poor mulching practices include using too deep of a mulch layer and piling mulch against plant stems. Mulch up against plant stems can lead to fungal problems that may result in plant death or trunk decay in trees. A deep mulch layer, one that is deeper than four inches, can lead to weakened roots and stressed plants that may die, grow slower, or be more susceptible to disease and insects. Organic mulch is best as these decay over time to improve soil. Think twice about using rock or gravel mulch as these can retain heat and cause damage to plant stems and roots, and do not use recycled crumb rubber to mulch plants.

While it's best to leave grass clippings on the lawn when mowing to replace nutrients removed, grass clippings can also be used as a source of mulch for vegetable or flower gardens. Grass clippings can help conserve moisture and maintain cooler temperatures. However, if herbicides have been used in your lawn, it's important to read and follow those herbicide guidelines regarding using grass clippings for mulch. Often at least several mowings are necessary according to label guidelines before clippings can be used as garden mulch. Use only a two to three inch layer of grass and keep the clippings six inches away from plant stems. If mulch is too deep, it can repel water and limit soil oxygen. Grass clippings can also help improve the organic matter of your garden over time as they decay.

May is planting time for most annual flower and vegetable transplants. To avoid transplant shock and stressing young plants, take time to harden off transplants. Plants moved directly from a warm, moist greenhouse to windy and cooler outdoor conditions experience transplant shock and are stressed. This can negatively affect plant growth, flowering, and vegetable production. Harden off transplants by placing them outdoors, in a location protected from wind and full sun, for at least a few days before transplanting into the garden. Another way to harden transplants is to plant them in the garden, but then place a cardboard tent or wooden shingle around them for a few days to protect them from full exposure to wind and sun. Planting young transplants on an overcast, calm day or during the evening will also help reduce transplant shock.

Jenny's REESources-May 19, 2017

Crop Update: This week's rains have been more beneficial to some and detrimental to others with flooding/ponding in some fields. For corn seeds that have germinated in flooded fields, seeds will survive for four days in general although genetic differences do exist regarding response to flooding. Longer periods of flooding can result in lower yields due to reduced plant stands, reduced nitrogen, and potentially crusted soils following flooding. Emerged corn seedlings right now that are underwater (6" of water on the surface) will survive for four days when the air temperature is less than 77F. When temperatures are above this, survival greatly decreases to as little as 24 hours. Plants that are partially underwater have a greater chance of survival longer than those completely underwater. Plants buried by sediment and/or residue that washed as a result of flooding may not survive.

Regarding soybeans, this is more difficult to know as minimal research is available. Information from K-State suggests that during germination, flooding occurring for 48 hours can reduce germination 30-70% which results in twice the yield reduction compared to seeds in saturated soils for 24 hours. For emerged plants (they specifically cite V2-V4 which is further along than we currently are), yield reductions of 0-50% were observed depending on soil texture, variety, and the weather after flooding occurred. Yield reductions were attributed mostly to reduced branching with fewer pods per plant and disease issues.

Wheat: Wheat progressed rapidly last week from boot-flag leaf stage to headed and pollinating in many Clay/Nuckolls county fields. Along with this wheat growth progress has been disease progress. Stripe rust has rapidly developed in fields and I'm also seeing leaf rust. Wheat that is at beginning flower to 50% flower only has a few options for fungicides right now. Those are: Caramba, Prosaro, Folicur, and Proline. These are the only fungicides labeled for wheat in flowering; all other products are off-label. These specific products can help prevent scab in addition to killing the fungal diseases (like rust) on the leaves right now. Once your wheat is 50% flowering these products are also off-label and the weather isn't looking helpful right now in applying these fungicides. I'm also seeing some barley yellow dwarf and some loose smut in fields. There's nothing you can do for either disease right now. You can see a wheat update with photos on my blog at <http://jenreources.com>.

Horticulture Updates: There are some social media posts going around regarding neonicotinoid insecticides in bedding plants. Neonicotinoid insecticides can be applied to seeds as a seed treatment, to the soil as a drench, trunk injections, or foliar sprays. They are then taken up by the plant and translocated throughout the plant including the flowers which can then affect pollinators. The University of Minnesota has released an article about this at: <http://www.extension.umn.edu/garden/plant-nursery-health/toxicity-to-pollinators/>. The following is some information from that resource: "There are few systemic insecticides, while there are many systemic herbicides and fungicides. Systemic, neonicotinoid insecticides are the most widely used insecticides in the world, due to their low mammalian toxicity and the ability of the insecticide to move systemically from soil into the entire plant, including pollen and nectar. Flowers that open after being sprayed with contact insecticides do not contain insecticide residue, while toxicity to pests lasts for 1-3 weeks. However, flowers that open after systemic insecticides are sprayed can contain the insecticide residue for many months in both the leaves and pollen and nectar.

There are six neonicotinoid active ingredients, imidacloprid, dinotefuran, thiamethoxam, and clothianidin, of which acetamiprid and thiacloprid are the least toxic to bees. There is another systemic insecticide, fipronil, that is used around structures that is also toxic to bees. You will find these active

ingredients listed on the insecticide label in small print. The neonicotinyl class of insecticides is highly toxic to bees and kills bees at around 180 ppb in flower nectar or pollen. However, sublethal doses of neonicotinyl insecticide starting around 10 ppb, causes bees to lose navigation and foraging skills. The longevity and amount of the neonicotinoid in the pollen and nectar will depend on application method, concentration applied, and binding capacity of the soil.

The use of neonicotinyl insecticides as trunk injections and soil drenches for ash trees is important to slow the spread of the exotic, invasive Emerald Ash Borer and other invasive pests. As bees do not collect ash pollen in quantities, the risk to bee pollinators is low. In contrast, the use of neonicotinyl insecticides on flowering garden plants, shrubs and trees, including linden and basswood trees can kill bees and beneficial insects that utilize the flowers for pollen and nectar. It is wise to avoid using systemic neonicotinyl insecticides on flowering plants that bees visit regularly. Instead use spot treatments of contact insecticides.” This is also the reason why we’re advising people to remove landscape plants away from the base of ash trees they wish to save in the future as soil drenches will allow the product to also systemically enter those landscape plants. While a low risk to pollinators of ash trees, the risk to pollinators feeding on landscape plants below those trees is fairly high. I’ve also mentioned this before, but we aren’t advising treatment for ash trees in this part of the State yet. A list of different contact insecticide products can also be found on the above-mentioned article.

Garden centers can choose what insecticide products they use to control insects. Some gardeners have been asking if there’s an easy way to know whether plants they wish to purchase have been treated with neonicotinoids. The best way is still to ask nursery professionals or look for special labels in plants that have been treated with neonicotinoids. Gardeners should also understand the toxicity level of insecticides they use in their landscapes and minimize pesticide use as much as possible through adoption of integrated pest management strategies to protect pollinators in their landscapes. Integrated pest management is essentially using a variety of methods to control pests; these include plant resistance, cultural and mechanical practices, letting beneficial insects/pathogens increase, and use of chemicals.

Jenny's REESources-May 25, 2017

As we reflect on Memorial Day, I'm grateful for those who paid the ultimate sacrifice for our freedom and for their families left behind. Freedom is not free and we are so blessed in the U.S.A.!

Crop Updates: Lots of questions this week regarding corn and soybeans looking sickly. Yellow banding can be seen on corn plants from the cold temperatures at various times of the plant's growth. Some have been packed with mud from rains or have wind-whipped leaves. I'm also seeing some evidence of seedling diseases caused most likely by *Pythium* sp. in portions of fields with excess moisture.

Soybeans are also struggling in different situations. I've been asked to look at fields where soybeans appeared to be dying and/or had discoloration of the cotyledons and hypocotyls. Most of what I'm seeing thus far with the discoloration of cotyledons and hypocotyls have been in fields where a pre-emergent herbicide program containing a PPO inhibitor was used. These are helpful products in reducing weeds. We've just seen this in the past as well after rain events that the chemical can be rain-splashed onto the cotyledons and/or the plant is unable to outgrow the effects of the chemical quickly enough in comparison to the damage observed. Hopefully most of these fields will still be ok with plant stands if enough plants can grow out of it; we'd say to leave plant stands of at least 75,000 plants per acre because of the way soybeans compensate for reduced populations without a significant yield effect. There may also be situations of damping off diseases occurring in soybeans. The keys are to look at where the damage is occurring. Discoloration of the roots/below-ground stem would most likely be due to seedling diseases whereas, PPO injury will occur on the cotyledon and hypocotyl-so essentially above the soil. There could be instances where the stress of herbicide damage is also complimentary to *Rhizoctonia* root rot, but I haven't sent any samples in to confirm this. The following article is from a few years ago, but summarizes the situations in which damage could more likely be anticipated: <http://go.unl.edu/2jbf>.

Wheat is in various stages of pollination to beginning filling. Stripe rust and leaf rust continue to spread on leaves but wheat is past the point of fungicide application if it is over 50% pollinated.

Extension Positions: Both the Webster and Clay County Extension Educator positions have received approval to be filled as they are deemed critical positions. Extension Educator - Beef Systems Webster County (<https://employment.unl.edu/postings/54252>). Review of applications will be 06/10/2017. Extension Educator - Cropping Systems Clay County (<https://employment.unl.edu/postings/54283>). Review of applications will be 06/20/2017.

Installation of ET gages and Soil Moisture Sensors: Now is the time to get your ET gage set up if you haven't already done so. Make sure to use distilled water in the main container and be sure to also fill the ceramic top before putting in the stopper. For best results, be sure there are no air bubbles in the stopper tube. It's also wise to change the ET gage cover and white membrane at least every few years. These can be obtained from your local NRD and sometimes your local Extension Office. You can view all our resources, online ET gage site, and demonstration videos for installation at: <http://water.unl.edu/category/nawmn>.

Regarding installing watermark sensors, some best practices we've learned include the following. First, prime the sensors by allowing them to soak for at least 24 hours. They should read 10kpa or less when you read them with a hand-held meter. If they don't, you can allow them to soak longer to see if they eventually read less. A general rule of thumb we use is to replace any sensors that read greater than this during priming. We also would like them to dry out to 199kpa (so a full wet/dry cycle) before

installing. For installation, they should be installed after soaking in water. I use an ag consultant's tube to install the actual foot where the sensor is placed and the regular soil probe for the feet above that. For example, I use the ag consultant tube for 1 foot sensor. For 2 foot sensor, I use regular soil probe tube on the first foot and the ag consultant tube for the second foot. Never make a slurry for watermark sensors or pour water down the hole. Instead, I wet the pvc pipe from the bucket water and then quickly push the sensor into the hole (don't use WD40). Make sure the bottom of the sensor is at the bottom of the hole. Any air gaps will make the sensors read incorrectly. Another best practice is to never install the sensors in saturated soil. When this occurs, we've found a thin layer of clay forms on the sensor which then dries around the sensor and results in dry readings. This is also easily corrected by removing the sensor later, quickly rewetting, and reinstalling in the same hole. It's just nice to have it installed correctly the first time. I also look for even spacing of plants-avoid doubles and skips in the field to ensure the sensors are only reading from one plant on either side of it. While it requires more walking in some situations, we recommend to avoid the first and last pivot towers as they tend to vary in water application. We also recommend to install in the most consistent soil type for the field or install more sets of sensors for varying soil types. Following these practices will help ensure your readings are more accurate. Many problems with sensor readings can be traced back to sensor installation.

Horticulture Updates: Lawn Care: A second application of fertilizer to cool season lawns (if needed) can be applied up through June 1 (according to our UNL Lawn Calendars) at a rate of 0.75-1lb/1000 sq. ft. White grubs adult beetle (masked chafers and May/June beetles) are emerging. If a lawn had white grub damage last season and an insecticide application is planned for this season, wait until June or early July to apply preventive insecticides. Wait until August to apply curative products.

Bark Splitting/Sloughing: Bark sloughing continues on ornamental pears, maples, lindens and crabapples. It is due to sudden cold temperature injury to the trunk cambium, most likely during November 2014. If trees are killed by a disease, such as fire blight; this too may lead to bark sloughing off. There is nothing to do for these trees but provide ideal growing conditions and enjoy them as long as they survive.

Jenny's REESources-June 5, 2017

Field Pea Field Day: Field Pea Field Days with Nebraska Extension are scheduled for June 16 at Bladen, June 19 at North Platte, and June 20 at Grant, and they will be conducted in conjunction with Nebraska Winter Wheat Field Days. Directions to the research plots and detailed agenda for each location can be found at <http://cropwatch.unl.edu/2017/field-pea-field-days>.

Participants will be able to view different field pea varieties and learn more about rotational benefits and agronomic practices to profitably grow field peas in their cropping systems. The June 16 field day will include a tour of Gaviolon's field pea grain processing facility at Hastings, NE and indoor sessions featuring topics such as wheatlegge production prior to corn silage, cover crops after wheat, planting and harvesting field peas, herbicide carryover in field pea production, wheat and field pea production in Kansas, and practices to increase wheat grain protein. Field Pea Field Days are sponsored by the SARE (Sustainable Agriculture and Research Education) and are free. Lunch and refreshments will be served at each location. To PRE-REGISTER by June 14 by calling Perkins County Extension Office at 308-352-4340 or send email to Strahinja Stepanovic at sstepanovic2@unl.edu.

Weed Management/Cover Crops Field Day: During pesticide trainings last winter, I shared research on palmer amaranth and other weeds. Some asked if there were any field days to view and compare herbicide program activity on weed control.

One of the better opportunities to do this is on June 28 at the South Central Agricultural Laboratory near Clay Center. There is no charge for the field day with registration beginning at 8 a.m. and field day from 8:30 a.m.-12:15 p.m. Lunch will be served which will then be followed by a cover crop field day from 1-3 p.m. The weed management field day will include on-site demonstrations of herbicides for weed control in corn, popcorn, and soybean as well as a view of ongoing cover crop research. An early morning demonstration will focus on weed control in soybeans followed by a demonstration of projects for weed control in corn, popcorn and sorghum. Onsite demonstration of cover crop research will highlight the afternoon session.

Soybean demonstrations will include an unbiased comparison of herbicide programs of different companies for weed control in Roundup Ready, Liberty Link, and Xtend soybeans. Weed control and crop safety in Roundup Ready 2Xtend Soybean, Balance Bean, Bolt Soybean, and Conventional Soybean will also be discussed.

Corn demonstrations include an unbiased comparison of several herbicide programs by different companies for weed control in glyphosate- plus glufosinate-resistant corn. Effect of row spacing and herbicide on weed control in popcorn, DiFlexx DUO for weed control in corn, INZEN sorghum, and injury symptoms of dicamba or 2,4-D on a number of crops will also be discussed.

Afternoon demonstrations of cover crop research will include cover crops in corn and soybean systems including planting dates, plant populations, and maturities. Participants will walk cover crop experiments planted in corn and/or soybean. Cover crop pluses and minuses: Bio-mass, nitrogen for the following crop, nitrates, erosion, water use, and crop yields will also be discussed.

Certified Crop Advisor (CCA) continuing education units will be available. There is no cost to attend the field day, but participants are asked to register at <http://agronomy.unl.edu/fieldday>. The South Central Agricultural Laboratory is 4.5 miles west of the intersection of Highways 14 and 6, or 12.4 miles east of Hastings on Highway 6. GPS coordinates of the field day site are 40.57539, -98.13776.

Lawn Care: A common question this spring has been to identify a weed primarily occurring in lawns called chickweed. In Nebraska lawns this is typically a winter annual in which it germinates in the fall,

goes dormant over the winter and grows and produces seeds in the spring. It most commonly occurs in lawns with lower mowing height that are moist, compacted, or shady. Raising the mowing height to 3" and monitoring watering can help with management. While spring broadleaf lawn care products can keep it in check, the best time to apply a herbicide for control would be in early September. Fall is also the best time to control perennial broadleaf weeds such as dandelion and henbit. It's important to read and follow all label directions. I know you hear us mention this a lot, and it's important. Labels will tell you information such as temperatures to apply products containing 2,4-D as I'm seeing damage right now from improper use. They will also tell you if there's concern with translocation to other shrubs, trees, or plants. One product some have asked about is Trimec, which is a good product to use in the fall for the above-mentioned weeds. However, one does need to be cautious about applying it around desirable plants and making sure to not apply it around roots or to surface roots of desirable trees or shrubs. A product that should never be used in lawns is Tordon which is a chemical for range, pasture, and industrial sites such as along powerlines, railroad tracks, etc. The label will always have important information so please be sure to read and follow all label instructions to avoid unwanted damage to plants! The following is a resource with lawn weed photos and management options: <http://go.unl.edu/xw56>.

Yellow nutsedge control: Yellow nutsedge is a grass-like weed that has a thicker, waxier leaf and often a lighter yellow color compared to the rest of your lawn. Sedges have three-sided stems so they are different than true grasses. The plant produces shallow roots before putting on tubers. The timing of tuber formation varies each year but often occurs around June 21. Prior to tuber formation, you can hand-pull it to help control it. It tends to take diligence with hand-pulling but that does seem to be an effective way of controlling it. Once tubers form, hand pulling only tends to increase the nutsedge problem, so it is recommended to stop upon tuber formation. A product that homeowners can use in their lawns is called Sedgehammer, which translocates to the roots and may take 1-3 weeks before you see it working. This product should also be applied prior to tuber formation for best control and it may take several years to achieve full control. While this is a few years old, the following YouTube video from BackYard Farmer shares more about nutsedge and its control: https://youtu.be/SVgbXLP_oKE.

Jenny's REESources-June 11, 2017

Crop Update: Corn is beginning to establish better roots moving out of the transition phase from relying on the seed to developing a greater root system. It's nice to see plants greening up to help cover a lot of concerns farmers had with nitrogen application.

Concerns for me right now are the amount of palmer amaranth and waterhemp I'm seeing in fields and how quickly it's been growing. Please be diligent with post-herbicide applications to avoid these weeds getting larger than 4" which makes them more difficult to control. Herbicide activation may be a problem for those unable to water in herbicides if we don't receive some rain soon. The other concern we've been watching in corn has been potential wheat stem maggots in corn planted into wheat/rye cover crops. I've never seen this before and it seems to be more of a concern this year when the wheat/rye was terminated after planting (even though we've had good results with this in the past). Please check out my blog post at <http://jenreesources.com> for pictures on what to look for.

This year is also strangely feeling a lot like the beginning of last year to me...really wet May moving into a high heat period in early June with rapid growth as guys are beginning to irrigate. Some are irrigating to activate herbicide or move nitrogen into the soil. Others have been concerned about the heat or dry soil on top. As I've been installing moisture sensors the past several weeks, there is good moisture below the top 5" of the soil profile in the area I serve with silty clay-loam or clay-loam soils. The heat and wind are starting to harden the top 1-3" which may be challenging to replanted corn and soybeans. We would say there is moisture to allow the crops to establish their roots. Will also reference the following article for consideration from Dr. Suat Irmak that he wrote last year after we experienced a high heat period for over a week: <http://go.unl.edu/d4tf>.

Reminder of Field Pea Field Days upcoming at five Nebraska locations the next few weeks. More information including registration can be found here: <http://go.unl.edu/3mzo>. Also a reminder of the South Central Ag Lab weed and cover crop field day June 28 near Clay Center. More information about that field day can be found here: <http://go.unl.edu/ok2v>.

Lawn and Garden Update: Last week I received a number of questions regarding apples and crabapple trees with spots on leaves and leaves turning yellow and dropping from the trees. In those cases, fungal diseases such as apple scab and cedar apple rust were the culprits as the wet May with recent humidity has really brought on fungal diseases. Photos of both diseases with potential management considerations can be found here: <http://go.unl.edu/7eio>. The current higher temperatures should help reduce fungal diseases depending on the humidity we have so fungicides may not be necessary.

Turf Field Day: The next University of Nebraska Turfgrass Research Field day will be at the new research facility on UNL East Campus. Come see the latest in turfgrass research, learn about new cultivars and practices and see the new research center on Wednesday, July 12, 2017.

If you enjoy Backyard Farmer, you may be interested in being a part of the live audience for a taping of the popular lawn and garden television show on Saturday, June 17 at the "Backyard Farmer" Garden on UNL's East Campus. The taping will begin at 10 a.m. with seating opening at 9:30 a.m. Register at netnebraska.org/BYF65 to attend this free event!

Eastern Nebraska Research and Extension Center Open House: The inaugural open house at the University of Nebraska [Eastern Nebraska Research and Extension Center](http://www.unl.edu/extension) near Mead — formerly the Agricultural Research and Development Center — is planned for 10 a.m. to 3 p.m. Thursday, June 29.

ENREC encompasses 53 counties and includes the University of Nebraska Southeast Extension District, Northeast Extension District, and the newly developed Metro Extension District, as well as the South Central Ag Lab, Haskell Ag Lab, Barta Brothers Ranch and Kimmel Education and Research Center. This model of collaboration specifically addresses the needs of eastern Nebraska with research initiatives and extension programs and leverages the strengths of existing programs and connections.

Morning presentations will include: Driving Nebraska's Economic Vitality via Mike Boehm, Harlan Vice Chancellor of the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln; The Ag Climate: Temperatures, Trends, and Outlooks — Nebraska Extension Agricultural Climatologist Al Dutcher; and a Swine Research Facility Virtual Tour.

Afternoon tours are from 1 to 3 p.m. at three locations. Tour stops include: In-the-Field Crops Classroom, See a Live Hail Machine Demo with Keith Glewen, extension educator, and Justin McMechan, crop protection and cropping systems specialist; Carbon Farming: Reducing Greenhouse Gases with Crops with Andy Suyker, research associate professor; Drones on the Farm with Wayne Woldt, professor and extension environmental engineer; Nebraska: The Beef State: Empowering our No. 1 Ag Industry with Matt Spangler, Nebraska Extension beef genetics specialist; Plant Phenotyping: A Bird's Eye View with Yufeng Ge, assistant professor of biological systems engineering, and Frank Bai, postdoctoral fellow in biological systems engineering.

For more information, see the [event flyer and map to the facility](#) or contact enrec@unl.edu or 402-624-8037. RSVPs for the open house are requested by 5 p.m. June 23 to assist with plans for lunch and tour transportation. Please RSVP at <http://enrec.unl.edu>.

Jenny's REESources-June 18, 2017

Hail Damage to Crops: Hail and wind damage occurred throughout the area I serve last week. Overall, I've been encouraged by the regrowth observed on corn and soybean plants affected by the June 14th storm. We were blessed with warmer weather and sunshine that allowed for regrowth to occur in many situations other than some fields around the Dewese area. You can look for regrowth on leaves within the whorl of corn plants and on the axillary buds of soybeans. Even what appeared to be soybean 'sticks' may show regrowth by now. The concerns I have for plants affected by these storms is all the stem bruising on both corn and soybeans and the potential for bacterial diseases to affect corn.

For those of you affected by June 16th storms, we recommend to wait a week to assess damage and any decisions. I realize we're also at a critical stage for replant decisions as we continue later in the season. Ultimately, decisions need to be made on a field by field basis. Resources: CropWatch Hail Damage Resources: <http://cropwatch.unl.edu/2017/crop-hail-damage-resources> in addition to numerous resources published from storms this time of year in 2014: <http://cropwatch.unl.edu/2014-storm-recovery-information>.

Questions I've been receiving include the benefit of fungicide application, herbicide application, and replant considerations. Regarding fungicide application, there's no good research to Dr. Tamra Jackson-Ziems or my knowledge to support this. Previous CropWatch article from Tamra: <http://cropwatch.unl.edu/fungicide-use-corn-after-hail-or-wind-damage>. Fungicides only control fungal diseases. Bacterial diseases are favored after hail events and we have already seen bacterial leaf streak in the area prior to the storm. From past-years' experience of prior wind/rain events, we can expect to see more of it in about a week. Fungicides won't help that disease nor Goss's wilt which is another we often see come in after hail events.

However, if you're considering this, I'd like to have several farmers prove it to yourselves with on-farm research this year so we do have data for the future. It's this simple. All you do is 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. Plot protocol is available on my blog at <http://jenreesources.com>. Please let me know if you're interested in this!

Timing of fungicide app: ISU did a 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 increase in 12 of the 20 fields. <http://crops.extension.iastate.edu/cropnews/2015/06/hail-and-fungicide-use-corn>

Herbicide application: I spoke with Dr. Amit Jhala, Extension Weed Specialist for his thoughts regarding this. He said ultimately herbicides shouldn't be applied to stressed weeds in order to achieve greatest efficacy. The concern for many including me right now is how well the weeds survived the hail and how quickly they are regrowing compared to the damaged corn and soybeans. This again is a field by field assessment regarding how well your corn and soybean regrowth is occurring and how rapidly your weeds are. I watched one palmer plant in one field after June 14 storm: 1 day post hail and 2 days post hail put on two sets of leaves in that time period. I also took pictures of soybeans reduced to sticks while waterhemp in that field was virtually untouched. I think many are trying to wait 5-7 days post-hail to apply herbicides but there were some fields I was suggesting to apply over the weekend with the recovery already occurring and less damage.

Corn replant: The biggest concerns with corn would be stands, eventual stalk rot/downed corn due to stalk bruising, and bacterial diseases. I've essentially watched stands reduced over the course of the

growing season after early-season hail storms mostly due to bacterial diseases like Goss' wilt. It will be important to have your crop insurance adjuster look at the field again prior to harvest. Splitting the stems of damaged plants across the field can help you assess any damage to growing points; they should be white/yellow and firm not brown and soft. Tattered leaves that are wrapped around the whorl should eventually turn brown and break off with the wind. They can sometimes impede new growth from the whorl as well though.

Soybean replant: Soybeans can compensate so greatly for reduced stands. From hail at this stage in the past, we've said to leave stands of non-irrigated at 60,000 plants per acre and irrigated at 75,000 plants per acre. Some soybeans reduced to sticks are shooting axillary buds. My biggest concern on soybeans is the stem bruising which isn't accounted for in hail adjustments. If you want to prove replanting or not to yourself, consider slicing in soybeans next to the old row in strips across your field. Be sure to inoculate the soybeans and be sure to take prior stand counts. Soybean protocol also at <http://jenreesources.com>.

There's nothing like doing these studies and seeing the results on your own ground or from your peers' farms. In 2006, I worked with a grower in the Lawrence, NE area on a non-irrigated soybean plant population study where he tested seeding rates of 100K, 130K, and 160K seeds/acre. He received hail at the cotyledon stage and because he was non-irrigated, chose to leave the stand. His actual stand counts were 74.4K, 89.4K, and 97.9K plants/acre respectively for the previous mentioned seeding rates which resulted in yields of 38.6, 40.6, 42.7 bu/ac respectively. Another soybean replant study occurred near Columbus, NE where the grower had an average plant stand of 75,000 plants per acre on June 11th. He chose to replant five strips across the field at a diagonal to the existing rows. The replanted soybeans ended up yielding 1 bu/ac less than the original plant stand. I realize it's hard to want to do these extra steps for on-farm research, but this is why it's important; it's the way to answer these questions for yourself! Please contact me if you're interested in any on-farm research studies.

Jenny's REESources-June 25, 2017

Crop Updates: What a beautiful weekend! Corn and soybeans are really taking off now and wheat is being harvested or nearing harvest.

Bacterial leaf streak has been found in Adams, Clay, Thayer and Nuckolls counties thus far which is not atypical. Just a reminder that this is a bacterial disease and a fungicide won't stop or prevent it from spreading or developing. Thus it's really important to be able to tell the difference between it and gray leaf spot. The lesion margins are wavy with bacterial leaf streak and blunt with gray leaf spot. Both can have yellow-halos when backlit with the sun. I typically see bacterial leaf streak look worse on the backsides of leaves. When in doubt, please get your samples to your local Extension office or the UNL Plant and Pest Diagnostic Lab. For more information, please check out the following CropWatch article: <http://go.unl.edu/ouv6>.

Weedy fields is all too common again this year. Palmer amaranth and waterhemp have been my primary questions the past few weeks...how to control them. Many of you took us seriously last year and spent the money for herbicides (pre- and post- with residual). Unfortunately we still have palmer going strong. Dicamba is going to be a good tool in our toolbox for us and it's been reassuring for me to watch applications and talk to several growers and Coops who are spraying it correctly. However, it also isn't a silver bullet. There's a reason why we say 4" height with palmer. I'm seeing palmer in soybean and corn fields sprayed with dicamba products kinking right away. Some are dying, but last week I also saw new buds developing on kinked plants that were originally 12" tall. We're running out of herbicide options in the growing season so at this point, PPO inhibitors (burners), cultivating, and roguing are the main options. Two weeks ago I saw a 7" female palmer plant with burs already producing seed. This is one weed we will continue to need diligence with in controlling it. Check out this week's UNL CropWatch regarding pre-harvest restrictions on soybean herbicides and a Q/A on palmer control: <http://cropwatch.unl.edu>.

If you're interested in research results regarding weed control including palmer, consider attending the UNL South Central Ag Lab Field Day this coming Wednesday, June 28! Dr. Amit Jhala and his team will show plot results of various combinations of herbicide programs for corn, soybean, and sorghum. Registration is at 8 a.m. and the weed field day runs till Noon. Lunch will be served and then at 1 p.m., Dr. Roger Elmore and team will be sharing their research on cover crops. There is no charge for either field day, but please pre-register for meal count at: <http://agronomy.unl.edu/fieldday>.

Four Crop Management Diagnostic Clinics are upcoming the next two months at UNL's Eastern Nebraska Research and Extension Center near Mead (formerly ARDC). July 18 will be a soil health clinic in partnership with NRCS from 8 a.m.-4 p.m. (registration at 7:30 a.m.). Topics include: measuring bulk density, porosity and infiltration, cover crops, what is soil biology and what you can do to change it. 6.5 CCA credits have been applied for in soil and water management.

A Precision Agriculture Clinic will be held August 2nd with topics including: FAA certification process and unmanned aircraft systems (UAS) operations; basics of sensor based functions and economic optimal nitrogen rate; selection and applications of UAS sensors; UAS imagery data processing and much more. Registration begins at 7:30 a.m., followed by the clinic from 8 a.m. to 4 p.m. A total of 5.5 Certified Crop Adviser credits (nutrient management – 4.5 and crop management – 1) have been applied for and are pending approval for this clinic.

A Soybean Production Clinic will be held August 23 including plots with soybean growth and development at a range of vegetative/reproductive growth stages. Both the corn and soybean clinics will

provide opportunities for hands-on interaction and viewing demos up close. All aspects of soybean production and pest management will be covered. Registration begins at 8 a.m. with the clinic from 8:30 a.m.-5 p.m. A total of 8 Certified Crop Adviser credits (pest management – 4, crop management – 2, and nutrient management – 2) have been applied for and are pending approval for this clinic.

The Corn Production Clinic will be held Aug. 24 including plots with corn growth and development at a range of vegetative/reproductive growth stages and opportunities for hands-on interaction and viewing field demos up close. A variety of production and pest management topics will be covered. Registration begins at 7:30 a.m. The clinic is from 8 a.m. to 4:30 p.m. A total of 8 Certified Crop Adviser credits (pest management – 4; crop management – 2; and nutrient management – 2) have been applied for and are pending approval for this clinic.

Registration and information regarding all these clinics can be found at: <http://ardc.unl.edu/cmdc.shtml>.

Lawn and Garden: I've received a number of questions regarding lawns turning yellow/brown in only one larger patch. In those areas, do you also have large trees in your yard? For me and in the calls I've received thus far, the trees are taking up surface moisture from the grass. Homeowners have been surprised how dry it was when I dug in the lawn. Two weeks ago our evapotranspiration (ET) was 2.5" for the week in York. While that may not always be the problem, if it is only one spot and there is a large tree in your lawn, perhaps focus water on that area and see if it recovers.

Tomatoes: I also received a handful of questions from people asking why tomatoes had blooms and didn't set fruit. They were asking if they needed more than one plant for pollination to occur. Tomatoes self-pollinate so they do not need a second plant to produce fruit. The same is true of peppers and beans which you also may be experiencing similar problems. Stress events can interfere with pollination leading to flower drop with no fruit set. Rutgers University shares that 70-85F are ideal temps for tomato growth and pollination. High day (above 85F) and high night-time temperatures (above 70F) can cause tomato plants to drop flowers. Humidity also plays a role as ideal humidity range is between 40-70%. Humidity either too high or low interferes with pollen release. So the key right now is avoiding over-watering focusing on deeper watering and hopefully in a few weeks we'll all be able to see fruit set!

Jenny's REESources-June 30, 2017

Hope everyone has a safe and enjoyable Independence Day! Grateful for our freedom!

Crop Updates: The rain was a blessing for all who received some and much needed! A few fields even have beginnings of tassels showing right now! Soybeans are beginning to flower or in late vegetative stages. This week I also witnessed female palmer plants shooting seed heads at the soil level from plants that had been burned back to the ground. During pesticide trainings, I shared that the research shows palmer can still produce 22,000 seeds at the soil surface, 36,000 seeds from a 1" stem, and 129,000 seeds from a 6" stem. I hadn't seen the reality of seed production from the soil surface till this year and it's surprising how much I'm seeing it in farmers' fields. It also could be observed at the South Central Ag Lab weed science field day this week, regardless of herbicide program used. This weed is incredibly concerning to me. For those of you who were unable to attend the field day, the theme from the plots was clear: both pre- and post-herbicide combinations with residual are necessary for good weed control. And, unfortunately, it also appeared that a few palmer escaped most of the programs. So walking fields to remove them for a zero tolerance on this weed may become something to consider as one plant can produce an average of 500,000 seeds and one plant on a field border can produce up to 1.8 million seeds.

Small grasshoppers are also found in field borders. There are several tables regarding thresholds and insecticide options in the following UNL CropWatch article: <http://go.unl.edu/tmuv>. The best time to control them is when they're small like this. Bob Wright, Extension Entomologist shares more in the following Market Journal video: <https://www.youtube.com/watch?v=kz7pRY33IIU&feature=youtu.be>.

I've also received some dicamba drift concerns onto roundup ready soybeans and so far, they've been primarily from applications that occurred to corn that drifted. Preliminary research from Dr. Steven Knezevic, Extension Weed Scientist looked at damage to V2 and R2 soybeans, both Roundup Ready and Conventional. At R2 (full flower), the untreated control yielded 71, 78, and 70 bu/ac for the Dicamba tolerant, Roundup Ready, and Conventional soybeans respectively. At 1/10 rate of dicamba damage, yields resulted in 71, 19, and 15 bu/ac for the Dicamba tolerant, Roundup Ready, and Conventional soybeans respectively. At 1/100 rate of dicamba damage (equivalent to 1 tsp), yields resulted in 72, 66, 58 bu/ac for the Dicamba tolerant, Roundup Ready, and Conventional soybeans respectively. At 1/1000 rate of dicamba damage (equivalent to 1/5 tsp), yield results were 72, 75, 73 bu/ac for the Dicamba tolerant, Roundup Ready, and Conventional soybeans respectively. As producers who may have purchased dicamba tolerant beans this year are making applications, the following CropWatch article has recommendations to consider in addition to the stewardship requirements: <http://go.unl.edu/xseo>.

Nebraska Grazing Conference: The Ramada Kearney in Kearney, NE will be the site for the 2017 Nebraska Grazing Conference on August 8 and 9. Presenters will address issues of interest to beginning and experienced graziers, land managers, and policy makers. Those concerned with the utilization and conservation of our grazing lands will also find this conference of interest.

The registration fee to attend the full conference is \$80 if completed before August 1 or \$100 if completed after August 1. Full registration includes lunch each day of the conference and supper at an evening banquet, as well as a copy of the proceedings manual. Registration options are available for those unable to attend both days of the conference. Reduced fees are available to full-time high school and college students. To learn more about the conference and to register please go to <http://grassland.unl.edu/current-conference>.

Jenny's REESources-July 9, 2017

Crop Updates: Soybeans are flowering and corn ranges from late vegetative stages through tasseling. The humidity is allowing non-irrigated corn and soybeans to hang on while waiting for much needed rain.

There's been a lot in the news about dicamba drift and unfortunately now the recent ban of this product in Arkansas and Missouri. It's another tool in our toolbox and I've been impressed with how well it took out palmer and waterhemp in corn fields this year. This past week was spent viewing concerns where soybeans are experiencing puckered leaves, cupping, and sometimes the leaf tips have a white appearance.

It's important to investigate what is causing the leaf injury in the soybeans and not automatically blame dicamba. There are other causes such as other herbicide modes of action, viruses, soybean aphids, even environmental that can cause soybean leaves to cup. This publication from Wisconsin goes through some other options to consider: <http://ipcm.wisc.edu/download/pubsPM/dicamba2004.pdf>.

We've utilized dicamba as a product in corn for years and in the past, my experience with its injury to soybeans was via true drift to endrows, swale patterns, or tank contamination. I've never seen anything like this before where entire soybean fields are affected or where the effects go on for miles. From everything I've looked at, it appears to go back to dicamba applications to corn back during high heat in early June and over the June 10-11 weekend. Some have been confused why lower soybean canopies appear fine while upper canopies are showing symptoms of a growth regulator damage. Dicamba injury symptoms on soybeans will show up 7-14 days post application. Most fields with damage showed 4 trifoliates affected at the time I looked at them. Walking back in time, UNL research shows a new node is produced every 3.75 days. Multiply this by 4 trifoliates = around 15 days ago that symptoms began appearing and then add on another 7-14 days for when the dicamba was sprayed to corn before symptoms appeared. This leads us to the time a lot of corn applications were being made to V6-V10 corn in early June when we also experienced high heat. I haven't dug into the weather data enough yet to see if conditions may have allowed for temperature inversions or increased volatility.

So how will this affect yield? I really don't know. In the past, we could compare yield data from affected and non-affected portions of fields, but that isn't an option when whole fields are affected. I've shared this before, preliminary Nebraska data shows more yield loss from dicamba injury to non-dicamba soybeans during the vegetative stages with similar yields to dicamba tolerant beans when damaged during the reproductive stages. [Illinois](#), [Missouri](#), and a [meta-analysis by Penn State](#) all show soybeans recover better upon dicamba injury in the vegetative vs. reproductive stages. Most farmers I've talked with so far are taking a wait and see attitude as there's not much we can do about it. Some are irrigating to reduce stress. Ultimately we will continue to wait and see what happens.

Earwigs: The past few weeks a number of people have asked for identification of an insect that looks fairly intimidating, but is actually harmless to humans. Earwigs live in moist places with high levels of organic material. They feed on living and dead plants and animals. Cracks in basement foundations and lack of proper seal around windows and doors can allow them entry into homes, particularly in basements, laundry rooms, and bathrooms where there is moisture. Caulking all cracks and sealing around windows and doors is one way to prevent their entry into the home. They don't reproduce within the home and are harmless to humans; they can be managed by vacuuming. Traps such as rolled up newspapers or tuna cans with a shallow amount of oil can be used to capture earwigs in garden areas. Soapy water will kill them. There's also a number of insecticides labeled for earwigs if you read

the label and see them listed on it. For more information, please see the following resource: <http://lancaster.unl.edu/pest/resources/358Earwigs.pdf>.

Bagworms in Evergreen Trees: If your evergreen tree has suddenly turned brown or appears to be dying, be sure to check for bagworms feeding. They've been a culprit on several recent homeowner calls. I did the following blog post a few years ago to show you what early bagworm feeding looks like since so many resources only show mature bags. They are very small so you need to look closely right now! The YouTube video within the post shows slight movement which is an indication of bagworm activity: <https://jenresources.com/2015/06/27/bagworms-in-evergreens/>. Products containing bifenthrin or permethrin irritate caterpillar larvae causing them to come out of the bags and be exposed to the pesticide. There are a number of other management options available. Additional information can be found here: <http://nfs.unl.edu/documents/foresthealth/bagworms.pdf>.

Jenny's REESources-July 16, 2017

Ag Agents Meeting: Last week I had the opportunity along with colleagues to attend our National Association of County Agricultural Agents (NACAA) meeting in Salt Lake City, UT. I really enjoy this meeting as Extension truly is like an extended family and it was great to connect with colleagues across the Country. The meeting allowed me to present on behalf of our teams on Bacterial Leaf Streak and Corn Ear Formation concerns in addition to better understand technology needs of educators/agents.

A highlight for me was to see Gary Zoubek with his wife Pam receive the Hall of Fame Award from NACAA! This is the highest honor an Extension agricultural professional can receive from NACAA. Every year one recipient is selected from each of four U.S. regions.

Gary demonstrated excellence while serving as an educator, mentor, and friend to many including myself over his 43-year Nebraska Extension career in Holt, Antelope, and York counties. Over his career, Gary has collaborated in numerous projects, always seeking research-based ways to make farmers profitable yet environmentally and economically sustainable. This is evidenced by his work with the "Ten Easy Ways to Boost Profits \$20/acre" effort and contributions to CropWatch. While in retirement, he has helped with Nebraska Extension's "Strengthening Nebraska's Agricultural Economy" effort. I share more information in this week's CropWatch at <http://cropwatch.unl.edu>.

Gary exemplifies excellence in all he has done throughout his Extension career in service to farmers, the agricultural industry, service to NACAA, and in service to many organizations to which he belongs. Congratulations to Gary Zoubek on this most deserved NACAA Hall of Fame award!

Western Bean Cutworm: While I haven't written about western bean cutworm in my column, we've been sharing about it extensively on Twitter. This week's CropWatch gives more details on scouting and insecticide options at <http://cropwatch.unl.edu>.

Bacterial Leaf Streak: Bacterial leaf streak (BLS) has been confirmed in corn in various parts of our state. Lesions can look similar to other diseases such as gray leaf spot (GLS). The major difference between BLS and GLS is that the lesion margins of bacterial leaf streak are wavy vs. they are blunt in gray leaf spot. It's important to tell the difference as a fungicide will not control bacterial diseases. In this week's CropWatch at <http://cropwatch.unl.edu>, there is an article showing a number of corn diseases and how to identify them. Be sure to check it out and when in doubt, you can always get a sample to your local Extension educator or the plant and pest diagnostic lab.

You may also recall we had a survey last year to identify where Bacterial Leaf Streak was occurring in the State. The survey is once again supported by the Nebraska Corn Board and is now active. I will have survey packets in each of the Extension Offices I serve by Wednesday of this week. Please submit only ONE survey/sample per field. Fields will only be reported at the county level, so we will not disclose names or other information. Please be sure to label the field name/ID section with something that you'll remember when the results are returned. Some of us also have survey packets left over from 2016. These will still be accepted if you'd like to use them up (the form for 2017 is much shorter than the 2016 one, though).

Tamra Jackson-Ziems also has a Youth BLS Survey and competition with cash prizes for FFA Chapters, 4-H Clubs, or other youth groups that submit the most POSITIVE samples from different fields. Groups submitting 3 or more positive samples also get a certificate identifying them as "Certified Crop Disease Detectives!" Youth packets can be obtained from Tamra directly by emailing her at: tjackson3@unl.edu.

FieldWatch/DriftWatch: FieldWatch is the company that manages the DriftWatch and BeeCheck webpage and map. BeeCheck is the new registry just for commercial beekeepers. DriftWatch is still the map displaying the specialty crops, including the bees registered through BeeCheck. In Nebraska, Nebraska Department of Ag (NDA) serves as the manager that maintains the registry and works with both growers and applicators. NDA also pays an annual fee for providing this service to you.

NDA encourages all applicators to frequently check DriftWatch (fieldwatch.com) and become familiar with the types of specialty crops found in your area and where they are located. In addition, NDA encourages more applicators to sign up for the free notices available from FieldWatch (look for the “FieldWatch for applicators” button). Then, you will get email notices when new information is added to your area (including from adjacent states if you live near or have business areas crossing state borders). FieldWatch and individual state data stewards will soon be going through the annual renewal process for all specialty crops and beehives. This helps ensure the information available to you is as current and accurate as possible. FieldWatch and NDA make every attempt to ensure the information on the map is current and up to date; however, they encourage your help! Each specialty crop site on the map has a button for providing feedback to NDA. Is a site mapped correctly or no longer found where it once was? Let NDA know, so they can follow-up with the grower to determine what should be done.

Jenny's REESources-July 24, 2017

Crop Update: This is an update to the email I sent to my list the past week. Southern rust has now been found in nine eastern Nebraska counties: Fillmore, Cass, York, Seward, Thayer, Otoe, Nemaha, Richardson, and Butler. Please continue to check the map at <http://ext.ipipe.org/> for additional identified counties. Conditions are currently favorable for southern rust development as the rust fungus likes warm temperatures, especially in the upper 70s to lower 80s F, even if they occur overnight. Samples submitted thus far have had low incidence and severity of southern rust in the fields and we've recommended waiting a week to watch disease progression prior to fungicide application. Late planted corn tends to be more susceptible to southern rust as we progress in the growing season. We are concerned about the number of acres in the State planted late as this is the earliest we've seen southern rust. The concern is with most fungicide products having a residual of 21-28 days and the potential of a second fungicide application if fungicides were automatically sprayed at tassel. Otherwise, fields have had common rust and some hybrids are showing bacterial leaf streak, but minimal if any gray leaf spot in corn at this time. Additional information from Dr. Tamra Jackson-Ziems can be viewed in the CropWatch article and Market Journal segment at: <http://go.unl.edu/e5qd>.

I also shared information about dicamba to my email list and provided key points to consider summarizing previous columns. Steve White with NTV News also summarized these online at: <http://nebraska.tv/story/farmers-concerned-about-soybean-damage-from-dicamba-drift> and Amit Jhala, Extension Weed Specialist wrote an article in this week's CropWatch at <http://cropwatch.unl.edu>. Ultimately, no one wants drift, volatility, or tank contamination to occur and it's unfortunate when it does happen with any product used on our crops. While we do have preliminary research from soybeans affected at different dicamba concentrations to V2 and R2 soybeans, it's difficult to provide an answer to any potential yield impacts this year. I've been encouraging growers to watch the flowers and pods located on the stems near affected trifoliates. In the meantime, it's important that we all work together to continue to determine ways we can prevent widespread volatility from our corn and soybean dicamba applications next year.

Cattlemen's Steak Fry at Hamilton County Fair: The York-Hamilton County Cattlemen will again be hosting a Steak Fry at the Hamilton County Fair, Saturday, July 29, 2107, reported Gerald Peterson, Cattlemen's Secretary. Kim Siebert, York-Hamilton Cattlemen's President said the group will be serving Sirloin Strip Steak Sandwiches grilled on site inside the Farr Building on the Hamilton County Fairgrounds for \$6.00 for the meal which includes, chips, beans and drink or the steak sandwiches without the side dishes for \$5.00. Siebert said the Steak Fry is a beef promotional activity of the Cattlemen's group, and will be served in the air conditioned Farr Building on the Hamilton County Fairgrounds.

Farm Service Agency Elections: Reminder that August 1 is the final day to nominate a candidate for the Farm Service Agency (FSA) 2017 COC Election, contact your FSA Office for details or visit www.fsa.usda.gov/elections.

Lawn, Tree, and Garden Care: I continue to receive questions regarding bitter cucumbers and the high heat coupled with uneven or not enough watering can lead to this. The cucumbers will not get better if they are made into pickles. It's best to ensure even and plenty of water to the root system during periods of high heat and hopefully the new cucumbers will be better!

Apple and crabapple trees may have leaves that are turning yellow and falling. This has been mostly

due to apple scab, a fungal disease that has been worse on trees a few times this year. Rain and humidity will favor the fungus and it seems like the recent rain a few weeks ago flared the disease again. Leaves will turn yellow and drop from trees and you will often see new leaves appear. While we don't normally recommend fungicides for crabapple trees, there are homeowner fungicides available.

High heat every year tends to bring on brown patch and summer patch in lawns, particularly around sidewalks and driveways. Newer turfgrass varieties have resistance. Brown patch can occur on bluegrass, ryegrass, and is our primary fescue disease. Brown patch has irregular areas that turn brown and as it expands, the center of the affected area begins to regrow and turn green. Summer patch occurs on bluegrass in circular or irregular patches and also eventually has regrowth in the center of affected areas. Mowing at 3" consistently during the summer, watering in the morning making no more than two irrigations per week of 0.5" each (a third application may be needed during periods of high heat like what we've experienced the past few weeks), and keeping the mower blade sharp can all help. Preventive fungicides are also available. Information on fungicide use for Summer Patch of Kentucky Bluegrass can be found here: <http://go.unl.edu/ksot>. Information on fungicide use for Brown Patch can be found here: <http://go.unl.edu/zjmz>.

Also, do check the leaf blades for leaf spots to ensure the damage is due to fungal disease rather than drought stress. Drought stressed turf shouldn't not have fungal disease lesions on the leaves (unless a combination of stresses are occurring) and can leave behind brown streaks that follow the mower path.

Bats: Kelly Feehan, Extension Educator in Platte County shared the following, "Allow bats to fly during the months of June and July. If bats are roosting in a home, business, church or school, wait until August to exclude them. Do not install one-way traps or seal exit and entry points until August. Young bats are still not leaving the roost. If trapped indoors, or adult bats cannot get to them, young bats will move about and accidentally enter living areas; or they will starve and die, creating an odor problem. Exclusion is the only way to keep bats out of a building. Now is the time to locate entry and exit points bats are using. These openings can be as small as a dime; and the area is usually marked and fairly dirty. One way traps are can then be placed over the opening sometime in August. These allow bats to leave the roost but they cannot return. Later in fall, the openings can be sealed. But for now, let bats continue to fly. Do not close openings they are using until August."

Jenny's REESources-July 30, 2017

Crop Updates: Southern rust was found in more area counties this past week including Saline, Hamilton, Clay, and Nuckolls with a suspected sample from Polk. Again, I'd like to thank our industry partners and consultants for submitting samples! Weather conditions have been favorable for its development. All counties where a sample has been confirmed either by the UNL Plant and Pest Diagnostic lab or educators like myself are highlighted on this site: <http://ext.ipipe.org/>. We're unsure why the old Pipe site no longer is being used but we're seeing the wrong maps being shared on Twitter; please go to this website for the latest county confirmations. There is quite a bit of common rust in the upper to mid canopies. Southern rust this year has always appeared as very small and flat, tan to orange colored pustules in tight clusters. Common rust often is brick-red colored but has sometimes also appeared orange and will always be larger sized pustules.

I also started seeing gray leaf spot (gls) with small lesions in lower canopies of plants in more susceptible hybrids this week. Be sure to use a hand lens to ensure that you're not confusing gls with bacterial leaf streak (bls) or common rust. Old common rust lesions can look like gls and using a hand lens will allow you to see if there's old raised pustules within the lesion or not. Gray leaf spot will have blunt margins as the lesion progresses whereas bacterial leaf streak will have wavy margins.

If you've already applied fungicides to your fields, please continue to scout them. I confirmed samples in two different counties this past week which were sprayed with fungicide 7-13 days prior and had live southern rust spores on them. There's a number of reasons why this could be including avoiding certain areas of fields, location in canopy, etc. Those fields are being watched by crop consultants. I'm also seeing spidermites and aphids in fields. Severity varies, but start by looking around the backsides of leaves near the midribs for spidermites. Also seeing spidermites in lower canopies of soybean fields in the southern two tiers of counties. Threshold and treatment information in this week's CropWatch at <http://cropwatch.unl.edu>.

For those considering putting up silage for drought-damaged corn or for other concerns regarding drought, please see this week's CropWatch and all our archived drought information at: <http://cropwatch.unl.edu/crop-management-drought>.

We also have a new disease of corn confirmed in Nebraska called diplodia leaf streak. It's considered a minor disease of corn and I haven't seen any yet. It can look very similar to Goss' wilt and also northern corn leaf blight, so please be sure to check out CropWatch for more information! Also, it seems like I have bad news all the time, but hopefully the good news is that you're aware of things to look for in your fields! Ultimately, check out CropWatch at <http://cropwatch.unl.edu>!

Butterflies? This past week in particular, orange/black butterflies have been flying across roads, in fields, driveways, and homeowners' gardens. They tend to be especially heavy south of HWY 4, but they're pretty much everywhere in the area now. While there most likely are some monarchs as well, if you look closely, the majority are painted lady butterflies. These are the adults of the thistle caterpillars which have been feeding in soybean fields for well over a month now. I will share more on them next week but for the time being, we need to see if they are laying eggs in soybean fields or if they will migrate. Economic threshold for soybean defoliation at reproductive stages is 20% with insects present. Dr. Justin McMechan produced a nice infographic on this in this week's CropWatch.

Solar Eclipse and Nebraska Agritourism Liability: The following is information provided by Dr. Dave Aiken, Extension Ag Law and Policy Specialist. "As thousands of tourists are expected to visit Nebraska to view the August 21 solar eclipse, some rural landowners may be planning to open up their land for

camping and eclipse viewing. If you're one of these landowners, you may want to brush up on potential liability issues. Landowners have legal protection against tourist personal injury liability if they do not charge a fee to campers or eclipse viewers. If they do charge a fee, they must meet 2015 Nebraska agritourism legal requirements in order to reduce their injury liability risk.

Why is agritourism liability important? Property owners may be liable for damages resulting from injuries occurring on their property. A common example would be a slip-and-fall lawsuit against a retail store. This “premises liability” is not limited to business premises; however, it basically extends to all property, including farm and ranch land.

So if someone comes onto my property, or into my home, and is accidentally hurt, I could be liable? That’s right! Not automatically liable but certainly potentially liable.

And if I am a farmer or rancher and someone comes onto my property to camp and watch the eclipse, I could be liable for injuries then as well? Yes, although a 1965 Nebraska statute limits your liability if you don’t charge the campers or eclipse viewers a fee.

But if I do charge a fee, then I could be liable if a camper or eclipse viewer gets hurt? Correct, and that’s a good example of why the 2015 Nebraska agritourism law was adopted.

So how do Nebraska landowners get this limited agritourism liability protection? You must post your property with the specified agritourism liability signs, and include the same language in any agritourism activity contract, like a camping lease. The landowner also must exercise reasonable care to guard against unusual dangers associated with the property; maintain the property, facilities and equipment; train and properly supervise any employees; and comply with any related state or local legal requirements (e.g., capping an abandoned well).

Are there other legal options? Yes. Another common option is a written liability waiver. You can get more information about this study in a recent University of Nebraska news release, Great Plains' ecotourism initiative produces liability study, and can get specific language required for the agritourism liability sign and suggested written liability waiver language in a report on the study, Rural Landowner Liability for Recreational Activities in Nebraska, by Anthony Schutz.

In summary, you should contact your insurance agent regarding whether your current liability insurance will cover any eclipse-related incidents. Your attorney can advise you regarding agritourism liability, agritourism leases, and agritourism liability waivers.”

York County Fair: Reminder that this week is the York County Fair from August 3rd-6th! More information at: <http://www.yorkcountyfair.com/>.

Jenny's REESources-August 5, 2017

What a beautiful week of weather-especially for County Fair! A special thank you to all who helped make the York County Fair a success! Reminder that Seward County Fair is August 10-13!

Painted Lady Butterflies/Thistle Caterpillars: Every year we see thistle caterpillars in soybean fields to a low extent but this year larger numbers have been observed. The thistle caterpillar larvae can feed on 100 species of plants but most commonly feed on thistles, soybean, sunflower, and vegetable garden plants. South of HWY 4 some growers treated for first generation due to the amount of defoliation occurring. The orange/black butterflies that have been flying the past 10-14 days have mostly been painted lady butterflies, the adult of thistle caterpillars. The butterflies prefer nectar from flowers that are 3-6 feet in height such as thistles, asters, cosmos, liatris, clovers, milkweeds, and others. Entomologists said they should typically migrate north, but we have seen egg laying occurring in soybean fields. The key will be to watch for defoliation of soybean leaves-perhaps even alfalfa as I've also seen the butterflies in those fields. Defoliation of 20% during pod/seed set with live caterpillars present is the economic threshold. The webbing they create doesn't damage the soybeans, just the defoliation when it gets to threshold levels. Even though they are called "thistle caterpillars", their damage only sets thistles back; it doesn't kill them. If the name of these sound familiar to you, these caterpillars and butterflies are often also used in classrooms to teach the lifecycle of insects with complete metamorphosis (egg/larva/pupa/adult).

Hands-On Corn and Soybean Disease Class with Microscopes: This idea was inspired by a farmer who wanted to know more about how to diagnose the diseases on his farm with his own microscope. With an increasing number of farmers, consultants, and ag industry professionals obtaining microscopes, I thought it would be great to teach a hands-on class to know how to diagnose corn fungal vs. bacterial diseases via microscopes. The more eyes we have in the field and more we partner together, the better we all are at serving our growers and I appreciate the industry partners I work with each day! So, Sarah Schlund, Extension Educator for Dawson/Buffalo/Hall counties and I will co-teach small group sessions on August 16 and 17. The session August 16th will be held from 5:30-7:00 p.m. at the Fairgrounds in Clay Center. The August 17th session will be held from 10 a.m.-11:30 a.m. at the 4-H Building in York. Sessions are limited to 20 participants due to microscope constraints. Please RSVP to jrees2@unl.edu if you are interested in attending either session. Light refreshments of cookies, tea, coffee will be provided and there's no cost to attend. Participants are welcome to bring their own corn disease samples and microscopes if they'd like. Participants will learn skills to diagnose bacterial from fungal diseases, fungal spore identification of major corn diseases, and how to take photos from the microscope with your smartphone to quickly share with UNL and others.

Project Sense Field Days: Project SENSE (Sensors for Efficient Nitrogen Use and Stewardship of the Environment) focuses on improving the efficiency of nitrogen fertilizer use. Nebraska Extension is working directly with producers in conducting research trials on their own fields. Project SENSE is a collaborative effort between the University of Nebraska-Lincoln, the Nebraska Corn Board, and five Natural Resources Districts (NRDs) in Nebraska, and producers participating in the Nebraska On-Farm Research Network. Growers in attendance will see an applicator outfitted with crop canopy sensors, and how they can improve nitrogen use efficiency. Strategies which direct crop nitrogen status at early growth stages are a promising way to improve nitrogen fertilizer efficiency and improve groundwater nitrate levels. A free noon lunch will be served. Please preregister 2 days in advance for meal planning

purposes. To preregister, call 308-754-5422 or e-mail tingram5@unl.edu. The closest field days will be:

*Wednesday, August 16, Ken Seim Farm, Chapman, NE from 10:00 a.m.–Noon. (Directions: West of Chapman on G Road to 2nd Road (Worms Rd). Go North to K Road, East 1 mile to 3rd Rd. South ½ mile on west side of road.)

*Tuesday, August 22, Blue River Ag, 3730 Denton Rd, Beaver Crossing, NE 11:00 a.m. -1:00 p.m. (Includes unmanned aerial system demo).

Ag Climate Tools and Grain Storage Webinar: Anyone interested in ag climate tools and grain storage information is welcome to join a free webinar on Friday, August 25th at 10:00 am. Speakers: Dr. Beth Hall, Director of the Midwest Regional Climate Center, and Dr. Kenneth Hellevang, Extension Engineer, North Dakota State University. To connect, go

to: <https://purdue.webex.com/purdue/onstage/g.php?MTID=ee7347c5408878ff28535bfe9939da118>

Sustainable Agriculture Tour: You also may be interested in the following sustainable agricultural tour sponsored in large part by Sustainable Agriculture Research Education. The tour will take place on August 15, 2017. A bus will leave UNL East Campus at 7:30 a.m. and tentatively return by 5:30 p.m. The cost is \$25/person and you can RSVP to Gary Lesoing at (402) 274-4755 or email glesoing2@unl.edu. RSVP must be received by August 11. Tour stops include: West Blue Farm (Dave and Deb Welsch) by Milford, NE which is a certified organic corn, soybean, and alfalfa farm; Pekarek Produce (Ryan and Katie Pekarek) near Dwight, NE in which they grow several vegetables for farmers' markets and grocery stores utilizing high tunnels and greenhouses in their production system; Larry Stanislav's organic farm near Abie utilizing rotation of spring wheat, corn, soybeans, and cover crops and utilizes crimping and flaming for weed control; Liz Sarno near Abie showcasing organic, grass finished cattle and boer goat herd; and Mark Roh near Abie who will discuss his crop rotations, pest control methods and on-farm processing.

Lawn and Garden: August is a great month for lawn renovation! The following resource is great for improving lawns in the fall whether complete renovation or overseeding thin areas. I like this resource because it goes step by step how to do either option. You can find it by going here: <http://go.unl.edu/rthq>.

Jenny's REESources-August 13, 2017

Crop Updates: Most corn fields are soft dough to beginning dent and soybeans are in seed fill. Corn at beginning dent still needs an estimated 5" of water to finish and soybeans in seed fill need between 6.5" (beginning) to 3.5" (end) of seed enlargement to finish. Questions this past week centered around the cooler conditions and how that may potentially impact yield. Hopefully with current corn growth stages, this will only help with the filling process. I haven't personally taken time to run Hybrid Maize simulations the past few weeks but hope to this week. We do have an article in this week's CropWatch which shares potential yields based on this year's weather conditions and compared to historic 30 year weather-data under "perfect conditions" based on the planting dates we provided. For Clay Center area, assuming corn was planted by April 24, the Hybrid Maize model is currently simulating irrigated corn to be mostly average with a slight potential of being above average yields. It's simulating mostly below average yields for non-irrigated corn. You can view the full article at: <http://go.unl.edu/43vc>.

I've also received a number of questions regarding soybeans turning red. In most cases, the petioles are red/green and leaves may have red veins on the undersides of leaves. Sometimes these beans are lodged allowing leaf undersides to be exposed. From most discussions, the consultants and farmers don't feel the soybeans are stressed, which may allow for sugar accumulation. Nothing I've seen appears to be cercospora leaf blight which can cause the upper side of soybean leaves to become red in color and leathery. This disease can also cause a purple seed stain of soybean and tends to be more variety dependent. I don't feel this is the problem from what I've currently seen. Ultimately I think this is just more environmental/physiological from the cooler nights we've had and where we're at in soybean development. There's the potential for anthocyanin (red pigment) accumulation, sugar accumulation, and even potential sun burn of some of the leaves. Discussions with Loren Giesler, Jim Specht, and Roger Elmore all tend to be in agreement. Purdue University shared the following article back in

2006: http://www.coolbean.info/pdf/soybean_research/mid_late_season/Purple_Stem_SPS.pdf. We also found the following Q/A CropWatch article from Jim Specht back in September 2008 that I will share below. Perhaps some of these additional characteristics are common in the fields you are seeing red soybean petioles and leaves in.

"This year you may have noticed an unusual soybean leaf color — bronze or dark gold rather than the more typical bright yellow — as soybeans begin to mature. This is not due to a fungus and does not indicate a problem. This bronze coloration is quite evident in certain varieties...that contain the gene for producing significant amounts of anthocyanin pigmentation when the fall days are sunny bright, but not hot, and the nights are cloudless and cool. This pigmentation does not become evident until the leaf's green coloration, which masks the color, begins to fade as the plant's chlorophyll degrades and the plant matures and dries. Varieties producing this kind of pigmentation have: purple (not white) flowers, tawny (not grey) colored pubescence (i.e., "hairs" on the plant stems, leaves, and pods, although the term "hair" is not a scientifically correct term), brown (not tan) colored pods, and black (not other) colored hilum on the seed coat (i.e., the hilum is the point where the seed is attached to the pod). Plants must undergo a gradual maturation for the coloration to be visible before leaf shed. With these varieties, you will see a slight but deep purple coloration in the pods near the top of the canopy, petioles connecting the upper leaflets to the stems, and the leaflets themselves. As the plants dry down and start losing their green pigmentation, the pigmented leaves will take on a bronze color (deep purple when observed up close) before the leaflets and petioles are shed from the plant and the pods dry

down. Consider this coloration to be a beautiful but very transient expression of color in your soybean field, much like the fall color in trees but not as long-lasting.”

Bagworms: Infestations of bagworms are still high on some evergreen trees and surprisingly some of the larvae feeding are fairly small for this time of year. We’re still recommending to treat if you find bagworm larvae on your trees and use a product containing bifenthrin in it. This active ingredient causes an irritation to the larvae so they come out of the bags and are exposed to the chemical if they are still in the feeding stage.

Trees: Many have noticed tree leaves turning yellow or brown the past few weeks and are concerned about trees. You also may be noticing stress coloration (early fall color) developing in some trees. Apple and crabapple trees in particular may have yellow/brown leaves and thin leaf canopies due to fungal diseases such as apple scab and cedar-apple rust. We don’t recommend spraying anything for them right now. Oak, ash, hackberry, maples, sycamore amongst others may be showing yellowing leaves with leaf drop or browning of leaves in clusters as well. This is most likely due to environmental stress from the high heat we had several weeks ago. This may be coupled with drought stress depending on the location and situation. We would recommend providing adequate irrigation now and correctly mulch trees to help reduce stress. Some parts of the State have abnormally dry conditions. A reminder that trees and shrubs need late summer and fall watering to prep them for winter survival. This is a critical time for watering trees and shrubs to prevent winter injury. Moisten the soil around trees and shrubs, and just beyond the dripline, to a depth of 8 to 12”. Avoid overwatering; but continue to water well into fall as long as dry conditions persist.

Another interesting situation has been noted by foresters as “sudden limb drop”. This is when what appeared to be a strongly attached branch falls from a tree for no apparent reason. Hot, dry conditions tend to encourage this occurrence and there’s not good understanding as to why it happens. It could be due to the roots’ inability to keep up with moisture needs of the tree, translocation issues of water throughout the tree, the wood becoming dry and thus weaker causing the limb to fall, or the tree amputates the limb because it can’t properly circulate enough water for the whole tree. During periods of extreme heat, consider not parking under trees and moving potential targets (picnic tables, etc.) from directly under tree canopies (at least until weather cools or moisture resumes).

Jenny's REESources-August 20, 2017

York and Hamilton County Corn Grower Plot Field Days: The York County Corn Growers Variety Plot Tour will be this Thursday, August 24th from 5-7 p.m. at 1416 Road I in York County. Eight seed companies are represented within the plot. There is no formal program and attendees are free to come view the hybrids as it works for them within the two-hour time-frame. Refreshments will also be available.

Steve Melvin, Extension Educator for Hamilton/Merrick counties shares the Hamilton County Corn Growers Plot Tour will be August 31st starting at 11:00 a.m. west of M Road and HWY 34 on the south side, just past the viaduct. The program will feature the demonstration of seven different irrigation scheduling equipment systems which have been recording data this summer. Steve will lead a discussion focusing on understanding the data from the equipment and making good irrigation scheduling decisions with it. The discussion will give you the opportunity to compare low cost simple devices to the latest high tech systems that provide the information on a smart phone or computer. The systems include rain gauge plus an ETgage by ETgage Company, Watermark Monitor by Irrrometer, The Profiler by Servi-Tech, AddVANTAGE Pro by Adcon Telemetry, Virtual Optimizer by Crop Metrics, FieldNET Advisor by Lindsay and Phytech. Five of the systems have telemetry that placed the data on a website where the irrigator can see and analyze the information. The different devices are all installed in close proximity to each other, have been recording data this irrigation season, and can be accessed at the following sites. For more information, contact Steve Melvin at 308-946-3849 or steve.melvin@unl.edu. The event will continue with lunch starting at noon at the Oswald Farm followed by the irrigation scheduling presentations. The farm is located from L Road and Hwy 34 (5 miles west of the Hwy 34 and 14 junction in Aurora), 1 mile south to 12th Rd., then 1/2 mile west on the south side.

Corn Residue Exchange: The Crop Residue Exchange is an interactive, online tool designed to help farmers and cattle producers connect and develop mutually beneficial agreements for using crop residue for grazing. A recent UNL survey funded by USDA Sustainable Agriculture Research and Education showed that 17% of farmers list lack of access to cattle as the major reason cattle aren't used to graze residue on their farmland. This new online exchange serves as a way for corn and other crop producers to market their crop residue to cattle producers.

The Crop Residue Exchange is available online at <http://cropresidueexchange.unl.edu>. After establishing a log-in account, farmers can list cropland available for grazing by drawing out the plot of land available using an interactive map and entering in basic information about the type of residue, fencing situation, water availability, and dates available. They also provide their preferred contact information. Livestock producers can log in and search the database for cropland available for grazing within radius of a given location of interest.

While the primary objective of this exchange is to assist in the development of farmer-cattle producer relationships, it's expected that in the near future the exchange will provide educational material and tools to support these relationships. Items under development include: a lease template to help cattle owners and farmers develop a contract; links to tools and guidelines to help farmers and cattle owners correctly stock crop residue fields, and summary information on crop residue grazing rates. These tools will be available to all registered users of the exchange. Development of the Crop Residue Exchange was made possible with funding support from the Nebraska Extension Innovation Grants Program.

Dicamba Survey: Nebraska Extension educators and specialists have appreciated hearing from growers and agriculture professionals on suspected injury to soybean from dicamba use in soybean and corn as this helps us understand what problems exist and to formulate helpful suggestions in the future. We would like to gather more specific information to help identify what factors may have led to increased soybean injury this year. We are asking for your cooperation by taking an online survey at: <https://www.surveymonkey.com/r/VGXDBT9>. Please feel free to include additional information about your experience with dicamba application or suspected injury this summer via email to dicamba@unl.edu.

Evaluating Irrigation System: Steve Melvin wrote an article for this week's CropWatch on evaluating your irrigation system at the end of the season at: <http://go.unl.edu/2d3g>.

Lawn Care: Kelly Feehan, Extension Educator in Platte County shares the following lawn care tips, "If you want a dense, healthy lawn more resistant to weeds, diseases and insects, the care provided during fall is often more important than spring care. Fertilization, continued mowing at a tall height, and keeping the soil moist well into fall is needed. Core aeration or plugging is another good fall practice.

Older lawns of Kentucky bluegrass and tall fescue, those that are 10 to 15 or more years old, typically need two fertilizer applications each year. The fall application is best made in late August or early September using a fertilizer with slow release forms of nitrogen. On younger lawns, two fertilizer applications are recommended during fall. Make the first one in late August or early September and the second in mid to late October. For the first one, select a fertilizer with slow release nitrogen sources. For the later application, use a fast release nitrogen source so the plants take it up before dormancy.

Continue mowing at a height of three to three and a half inches until that last mowing. A tall height improves root growth and helps shade out weed seedlings that may be germinating during fall. Good moisture from recent rains make turning off automatic irrigation systems a must. However, monitor soil moisture and turn on irrigation systems whenever the soil dries to keep the soil moist well into fall.

Cultivation practices like core aeration and power raking will cause some damage to turfgrass. Hold off on these practices until about the middle of September. Power raking is only recommended when the true thatch layer exceeds three-fourths of an inch. Core aeration can be done annually to relieve soil compaction, increase infiltration of water and fertilizer, and improve root growth and function. It should be done at least once every three years; and more often on lawns growing on clay soils or that have a lot of foot traffic.

If seeding or overseeding is needed, the best window for seeding tall fescue and Kentucky bluegrass lawns is from mid-August into early September. The earlier tall fescue can be seeded, the better. If seeded too late, seedlings may not survive the winter. Prepare a good seed bed, purchase quality seed, and seed soon.

Jenny's REESources-August 27, 2017

Crop Update: With last week's heavy rains in areas, some farmers are finished irrigating for the season. Crops have been slow in the filling process due to the cooler temperatures and cloud cover which can help with producing deeper kernels and help with test weights. Corn at beginning dent still needs 5" of moisture to finish; 3.75" at ¼ milk; 2.25" at ½ milk which is also considered full dent; and 1" at ¾ milk. Soybeans need 3.5" at R6 which is the end of seed enlargement and 1.9" when leaves begin to turn yellow. Our full "Last Irrigation of the Season" publication can be found at: <http://go.unl.edu/qntn>.

Regarding the painted lady caterpillars severely defoliating fields in the southern tier of counties, the threshold is 20% defoliation with live larvae. Treatment will be a decision for you on a field by field basis depending on feeding, soybean stage, pod feeding, etc. The larvae will feed for two to four weeks before pupating again.

Reminder to please take our Dicamba Survey if you experienced damage to soybeans this past year: <https://www.surveymonkey.com/r/VGXDBT9>. The information is helping us as we piece together factors in various areas of the State. The information we've gleaned from the survey and numerous conversations is helping us make recommendations for avoiding situations like this next year and in educational efforts.

Also, another plug for the crop residue exchange. This tool is new this year from Nebraska Extension via the leadership of Jay Parsons, Mary Drewnoski, Daren Redfearn, and assistance from a few educators. During the drought of 2012, I was receiving calls from South Dakota, Colorado, and other parts of Nebraska asking if irrigated corn farmers in the area would be willing to rent out cornstalks for livestock. We realized there wasn't a good tool to connect livestock and crop producers so we talked to USDA about potentially adding a tool like this to their hay hotline site. In the end it was decided to keep this tool separate. The goal is currently to connect livestock producers with crop producers willing to rent out their crop residues for grazing. In the future we hope to also add cover crop grazing as an option. In order for the tool to be successful, we need livestock producers seeking corn or other crop residue and crop producers willing to allow their residue to be grazed to register on the site. You can choose if you want to care for the livestock, take care of fences, water, etc. So we need your help to make this successful and would encourage you to please check it out and consider registering if you're interested at: <http://croppresidueexchange.unl.edu>.

Sorghum Field Days: Sorghum farmers are invited to attend the 2017 Sorghum Field Days to be held at three locations during September. Field performance of commercial hybrids, on-farm field studies, and updates on markets, sorghum agronomics and checkoff activities are planned for the program.

The field stops include plot tours with management information and field studies from the plot cooperator; sorghum seed representatives will be available to share hybrid information. A meal and program follows the field tours. The meal program will include a sorghum agronomy update by Rick Kochenower, National Sales Agronomist for Sorghum Partners and an update of checkoff activities by the Sorghum Board. Ag West Commodities will also provide a market outlook at the Trenton location. Participating seed companies include Arrow Seed, Channel Seed, DeKalb, Dyna-Gro, Fontanelle, Hoegemeyer, NuTech Seed, Pioneer, and Sorghum Partners. Planning and coordination of the event is under the direction of the Nebraska Grain Sorghum Board and Nebraska Grain Sorghum Producers Association. Locations include: **Wednesday September 6, 5:00 PM – Trenton** – Mike Baker Farm, Irrigated and Dryland Plots: (2.6 miles north of Trenton to Rd 717; go west 4.3 miles. *From Palisade: South 6.7 miles, east 2.5 miles.*) **Thursday, September 7, 5:30 PM – Lawrence** – John Dolnicek Farm,

Dryland Plot: *(From Lawrence, 1 mile East on Highway 4; turn North on Road 2700 – go 1 mile to Road “X”; turn East – go ½ mile).* **Friday, September 8, 11:00 AM – Farwell** – John Dvoracek Farm, Dryland Plot: *(Off of Highway 92 at west edge of Farwell, go 2 miles North on Salem, 1 mile West on 15th Avenue, and 1½ Miles North on Tilden. Continue NW on Tilden going into the canyon (winding road will become 17th Avenue). Take 17th to Union, turn right on Union and go ¼ mile.)*

Lawn and Garden: My front yard is extremely shady from a huge linden tree that is in need of pruning. If you also struggle to grow grass in the shade, there aren't too many options, at least in Nebraska. I currently have a more shade tolerant Kentucky bluegrass, but the turf specialists actually say that tall fescue would be a better option. Fescues like sheep's, hard, and creeping red fescue are often recommended in other states but are not the best for Nebraska. Consider other tall fescue varieties, wood mulch in tree areas, or other shade loving ground covers such as periwinkle or ajuga. Proper pruning can also increase light penetration to one's lawn in a shady area.

Now is not the proper time to prune trees and shrubs, though. It is best to wait till winter dormancy. Kelly Feehan shares that, the plant may produce new growth that does not harden off before winter and is winter killed. Pruning may delay winter dormancy, setting a plant up for cold temperature injury. Pruning removes wood with stored food the plant may be needing to recover from a stressful summer; and tree pruning wounds made now will not begin to seal until next spring's growth, increasing the risk of decay developing in the pruning wound. When possible, avoid pruning trees and shrubs from now up until after leaf drop, preferably when winter dormancy occurs.

Natural evergreen needle drop on white pines and spruces may also occur soon. Interior needles that are two to four years old may turn yellow, brown, then drop. This occurs every 3-5 years heavily on some evergreen trees. If you experience heavy needle drop on outer evergreen tree branches, this is most likely due to some type of stress. I've seen a great deal of rhizosphaera needle cast this year, including on my spruce tree. If you're also experiencing red/purple discolored needles with black fungal structures in rows on the twigs, management next spring is the best option. Aim for fungicide treatments next spring when needles are half way elongated and repeat according to label instructions.

Jenny's REESources-August 31, 2017

Crop Updates: It's hard to believe we're at the end of August already! This week brought the beginning of seed corn harvest for some. I've been seeing and made aware of more situations of corn plants dying in fields next to healthy plants. In some situations we've been seeing anthracnose top die-back and stalk rot. In other situations, it's puzzling, but they may be more fusarium related and it's something our diagnostic lab is working on. Thus far I've seen anthracnose, fusarium, and charcoal rot for stalk rots, so it will be important to continue to check fields as they mature to know which fields are more prone to stalk rot this year. We're also seeing some sudden death syndrome appearing in soybeans and mid-group 2's beginning to turn towards maturity. For those who received hail damage to soybean stems, it will be important to harvest earlier to avoid them lodging. Crops are faring well in spite of drought in some areas and injury to soybeans. In general, seeing more 3-bean pods on soybeans this year than 4-bean pods last year.

For those of you who did any on-farm research plots this past year or who tried any of the protocols I sent out for hail damage, please be sure to look through them again so they are harvested correctly. We want to ensure you obtain good data for your efforts!

Also, be sure to check out this week's UNL CropWatch as it is our "Focus on Wheat" edition at <http://cropwatch.unl.edu>. Reminder of Sorghum Field Days September 6-8.

Husker Harvest Days will be held September 12-14 near Grand Island again this year. It's the 40th anniversary of the Show and I think it's neat that Extension has been a part of the program from the beginning! This year's focus for the Big Red Building which houses the Institute of Ag and Natural Resources is "Small Changes, Big Benefits". It's ultimately around our efforts in Strengthening Nebraska's Agricultural Economy. Topics include: Expected Farm Bill Payments; Crop Insurance; Budgets (including family budgets); Land Values; Cost Savings in the areas of Crops, Livestock, Irrigation, and information on Solar Energy for farms/ranches. A number of IANR and Extension faculty will be there to answer your questions on these or other topics. Look forward to seeing you there!

From Recipe to Reality: The University of Nebraska Food Processing Center is offering a one-day seminar October 28, 2017 for all individuals interested in exploring the idea of starting a food manufacturing business. Pre-registration is required and space is limited. Registration deadline is October 15, 2017. Contact Jill Gifford at 402-472-2819 or jgifford1@unl.edu for an information packet.

Unmanned Aerial Pilot Course: Kansas State Polytechnic in Salina, KS is again offering their three day Part 107 course to prepare professionals for the written FAA exam. 14 CFR Part 107 is the new FAA Regulation governing commercial Small Unmanned Aircraft Systems, or sUAS. This new requirement requires Remote Pilot in Command (RPIC) operators to take an FAA written exam if they do not hold a manned pilot certificate. The course dates are September 18-20, 2017 with the FAA exam scheduled the day after the course on Sept. 21. More information can be found at: <https://ksu-uas.com/suas-commercial-pilot-training/> or calling toll free 855-552-0079.

Paul Hay Retirement Reception: Paul Hay will be retiring September 30th after 42 years of service to Nebraska Extension. His open house reception is Monday, October 2, from 3:00 – 6:00 p.m. at the Gage County Extension Office in Beatrice. Paul has requested to have a retirement "roast" during his reception. Anybody who desires to speak or share stories about Paul during his retirement "roast" must donate paper money to speak. Proceeds will go to Gage County 4-H Foundation. The roast will take

place at 5:15 pm. Congratulatory cards can be mailed to the Gage County Extension Office, 1115 W. Scott St., Beatrice, NE 68310.

Forestry Field Day: The Nebraska Forest Service is excited to announce the return of its Forestry Field Day open house held at Horning State Farm Demonstration Forest with activities for all ages. The field day combines the latest innovations in forest management and educational sessions on the following topics: Professionally led tree climbing; Meet local firefighters; Wildfire education and interactive modeling; Tree planting techniques; Growing nuts on the farm and at home; Hardwood tree valuation & marketing; Timber harvesting and portable sawmill demonstrations; Forest management; Controlling invasive weeds; Birding walk. It will be held Saturday, September 30 from 9:00 a.m. to 4:00 p.m. at Horning Demonstration Forest near Plattsmouth, NE. This event is free and open to the public. Horning State Farm Demonstration Forest is located 1.65 miles east of the intersection of US 34/75 and Horning Road. The entrance is on the north side of the highway.

Free Trees for Fall Planting: This effort supported by the Nebraska Environmental Trust and US Forest Service Landscape Scale Restoration Grants, is to help enable the planting of trees during the fall of 2017 in conjunction with ReTree Nebraska Week and other planting events. Anyone is eligible to submit a request for trees. Priority for trees will be given to Nebraska Community Forestry Council Members, ReTree Nebraska ambassadors, Tree City USA tree boards, Nebraska Statewide Arboretum curators, individuals volunteering/supporting community forestry programs and Project Learning Tree facilitators. Schools, non-profit groups and civic organizations are encouraged to apply. Individuals must represent a group or organization. NOTE: All applicants must receive written permission from property owners/managers before planting can begin. Trees may be planted any time between September 1st and November 15, 2017 (October 15 for Panhandle). For more information including the application, please go to: <http://communityenvironment.unl.edu/free-trees-fall-planting>.

Jenny's REESources-September 10, 2017

As I write this, I'm reflecting on the 16th anniversary of September 11, 2001. May we never forget that day. May we remember the lives lost and families left behind. May we remember those who gave their lives with the rescue efforts and in defending our Country since and their families left behind as well.

Harvesting Soybeans: Mid-group two maturity soybeans are rapidly turning. Other reasons soybeans have leaves turning yellow include pockets of sudden death syndrome or other diseases in fields, moisture stressed or compacted areas, or varying soil types. As you continue to monitor your soybeans, be aware that they may be at 13% moisture and ready for harvest in spite of having green stems and, in some cases, leaves remaining on the plants.

Harvesting soybeans at 13% moisture can be more of an art than a science; last year's harvest worked well in achieving moistures around that level. We realize it is impossible to harvest all your soybeans at 13%. The purpose of sharing this information each year is a reminder that we're 'giving' yield away when we harvest soybeans at less than 13% moisture and to make it a goal to get as close to 13% as possible. Delivering soybeans below or above 13% reduces profits which is something we know you're watching very carefully. When greater than 13%, there is a moisture dock on the scale ticket for delivering wet beans, resulting in a lower price per bushel. Less than 13%, instead of a dockage on the ticket, there are fewer "bushels" to sell. This is because the load weight is divided by 60 pounds per bushel (assuming 13% moisture) rather than by the actual pounds per bushel for the moisture content of the beans at the time of delivery.

In a UNL CropWatch article, Randy Pryor and Gary Zoubek had a table showing the following: If you sell soybeans at 8% moisture, you're losing about 5.43% of your 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 does not take into account additional risk for shatter losses during harvest (every 4 beans on the ground can add up to a bushel yield loss). For a field that's yielding 75 bu/ac, harvesting it at 9% results in selling 3.3 fewer bushels per acre based on weight because you are not selling the water that you are entitled to sell if the beans were at 13% moisture. With soybeans priced at \$9.50/bushel, that's a loss of about \$31 per acre. So how do you set your combine to harvest soybeans timely when the stems are still green? Paul Jasa, Extension Engineer shares specifics on this at: <http://go.unl.edu/2boj>. Here's hoping you have a safe soybean harvest obtaining your goals of close to 13% moisture beans!

Wheat: One of my goals in Extension is to see increased diversification of farms by incorporating more crops and/or livestock. Diversification can aid in spreading risk, timing of different operations aiding in labor load, aid in improving our soils, and aid in breaking weed/insect/disease cycles. As we come into wheat planting season the end of September into October, you may wonder, why wheat? Economically I realize it's been hard to justify planting it, yet it truly is a great crop in rotation, especially for non-irrigated fields. Wheat provides an excellent opportunity for cover crop establishment after harvest for grazing or to aid in fulfilling other goals for your farm. I've also observed how no-till fields planted into wheat stubble had less of a palmer amaranth issue due to the solid residue cover throughout the growing season. My colleague Nathan Mueller, Extension Educator in Dodge County, also has a goal of seeing increased wheat acres in eastern Nebraska. Additional benefits he shares from growing wheat include: Additional revenue from utilizing or selling the straw; Added profit from growing more late summer and early fall forage crops; Capitalize on well above average basis, for example wheat often is 10 cents above futures in Fremont; Higher soybean yields in 3-year and 5-year crop rotations; Opportunity to contract with feedlots for manure application in summer when compaction is less of a

concern; Reduced soil erosion and nutrient loss during high risk months of April, May and June; Improved soil health, soil structure, and infiltration; Reduced labor cost through better distribution of workload on the farm; Possible higher cost-share for conservation work in July, August, and September; and Possible higher USDA CSP ranking score for planting wheat.

If you've never planted wheat or it's been a few years, we have a number of resources to help. Articles regarding variety selection, population, and other considerations can be found in the UNL CropWatch Wheat Edition at this weblink: <http://go.unl.edu/q7ew>. Nathan Mueller also compiled the following for eastern Nebraska considerations: <http://croptechcafe.org/winterwheat>.

One thing often overlooked is the importance of good seed to soil contact. Every year, the primary problem I see in wheat fields throughout the growing season stems from not checking seeding depth during planting. Good seed to soil contact is a must as it aids in winter survival, allows for seed in proper moisture and where the plant can obtain nutrients, and aids in better root and plant development. Seed should be planted 1.5-2" so be sure to check the weight on your drill or planter and your seeding depth as you plant, especially when planting no-till into residue. Also of importance is to use a fungicide seed treatment when planting wheat; this is regardless if you are using bin-run seed or certified disease free seed. Smut pathogens can live in the soil for a few decades and those pathogens can also be resting on the seed during harvest of any field. The only way to prevent scab and problems with grain refusal at the elevator after harvest is to fungicide seed treat your seed before planting! Perhaps some of the above-mentioned benefits of planting wheat may aid your farming operation in the coming year.

Weed Control in Lawns: September and early October are key times to control perennial, broadleaf weeds like dandelion and ground ivy. Kelly Feehan, Extension Educator in Platte County also reminds us to be careful using herbicides near trees and shrubs, especially dicamba. Trees with symptoms of dicamba injury are being seen more often. Symptoms include dwarfed, distorted, and/or discolored foliage. On evergreens, like spruce, the symptoms might be droopy tips.

Dicamba is a broadleaf herbicide found in a number of different lawn herbicides. Dicamba labels sometimes state the product should not be applied within the dripline of a tree, meaning beneath the canopy. However, tree and shrub roots extend much farther out than the dripline and a safer approach is to not apply dicamba within a distance equal to two times the tree or shrub height. This would mean no dicamba applications within 40 feet of a 20-foot tall tree, within 60 feet of a 30-foot tall tree, and so on. And this recommendation reduces contact with tree roots in the soil, it does not reduce exposure to drifting if products are applied on a windy day. This is challenging on smaller properties so another option for those situations is to use products that don't contain dicamba. The most common broadleaf herbicides used on lawns include 2, 4-D, MCPP, dicamba, triclopyr, and fluroxypyr. There are many different commercial formulations and mixtures of these compounds with varying brand names. Read the label and know what you are buying. Apply herbicides to actively growing weeds and don't mow within three days before or after the herbicide treatment.

Jenny's REESources-September 17, 2017

It was great to see so many people at Husker Harvest Days last week! Our theme surrounded research-based ways we've found for producers to consider that will hopefully in the long run help Strengthen Nebraska's Agricultural Economy. I also had many great conversations and questions-will address some of the questions this week. Ultimately, many of these questions we tried to address in this week's UNL CropWatch edition at <http://cropwatch.unl.edu>.

Cash rent questions have begun again and one of the booths dealt with that as well. In this week's CropWatch at <http://cropwatch.unl.edu> is an article entitled "cash rent by the numbers" which shows the latest USDA survey cash rents by county.

I've also received some questions regarding expected Farm Bill payments. Those numbers broken out by county and crop can be found at this specific link: <http://go.unl.edu/iegc>. All Farm Bill information can be found on Dr. Brad Lubben's Farm Bill website at <http://farmbill.unl.edu>.

Last week I shared about the yield loss, not to mention shatter loss, when harvesting soybeans below 13% moisture. The next morning, a few colleagues and readers suggested also putting in an example showing how taking the dock between 13-14% moisture actually results in less profit loss than harvesting too dry. So we added that in this week's UNL CropWatch as well as an updated machinery article on adjusting your combine to harvest soybeans that still have green stems and yellow leaves. Let's look at a case in southeast Nebraska where a grower is selling soybeans yielding 75 bu/ac. Based on information from a local elevator, growers are docked for soybeans sold at over 13% moisture at the following rates:

13.1% to 13.5% moisture — 1.5% price dock

13.6% to 14% moisture — 3% price dock

14.1% to 14.5% moisture — 4.5% price dock

14.6% to 15% moisture — 6% price dock

Example 1. If the grower were to sell beans at 13.8% moisture, they would be docked 3% of the selling price of \$8.75/bu, reducing the actual price to \$8.49 per bushel. Total income per acre would be: 75 bu/ac yield x \$8.49/bu = \$636.75 per acre gross

Example 2. If the soybeans were harvested at 9% moisture, there would be 3.3 fewer bushels per acre to sell (4.4% of 75 bu/ac yield due to water loss): 75 bu/ac - 3.3 bu/ac = 71.7 bu/ac yield x \$8.75 = \$627.38 per acre gross.

In this example it would be better to take a dockage for selling beans at 13.8% moisture than sell them at 9%. The difference is a positive gain of \$9.37 per acre. In practice the grower would likely see an even greater benefit from selling beans at 13.8% moisture due to reduced shatter loss from 9% soybeans.

Soybean Desiccants: Several people also asked about soybean desiccants and correct timing of this. I learned this is in our Guide for Weed Management as well. In the Guide, it lists Aim, Sharpen, and Gramoxone as the products for use and all three say to apply at 65% of pods turning brown. The main reason people were asking appeared to be to dry out palmer plants in hopes of easier harvest. Aim and Sharpen list a 3 day pre-harvest interval and at 65% brown pods, I'm unsure how quickly the herbicide products will affect weeds like palmer in comparison to the soybeans rapidly being ready to harvest, but it is an option to consider.

Speaking of palmer, I can't remember if I've written this or not but have shared this with several

farmers. 99% of the seed is viable going through the combine and the combine is a great distributor of the seed throughout the field. If your field has palmer throughout it, there's not a lot you can do to help reduce seed distribution. If most of your palmer is in the end rows, you may wish to consider shredding or disking the endrows so that seed doesn't go through the combine and be dispersed through your field. Last year I also recommended planting bin-run wheat as an inexpensive cover crop to get the ground covered if the endrows were disked.

Wheat vs. Cereal Rye for Palmer Reduction Study: From my observations last year, those who planted wheat or cereal rye (or who planted crops no-till into wheat stubble), appeared to have less palmer than those who had soil exposed to light in April. There was still palmer in those fields, but I have photos showing the differences in the same fields where palmer was worse in areas where soil was exposed vs. covered. We know cereal rye has allelopathic affects, but I'm curious if it's really that much better at helping reduce palmer vs. bin-run wheat. Bin-run wheat is less expensive and doesn't have the allelopathic effects when planting corn the following year. So I'm looking for farmers interested in trying strips of wheat vs. rye and even vs. no cover where I could document any potential differences in palmer. If you're interested in working with me on this, please let me know at jrees2@unl.edu.

Phragmites in Waterways: A number of people have also been asking about phragmites (also known as common reed) control in waterways. The plant is considered a noxious weed in Nebraska. Fall is a good time to control it as it is a perennial weed and the herbicide product would be translocated to the roots. If there is any water in the waterway, pond, creek, etc., only a few products are labeled for application over water. These products include Habitat and aquatic glyphosate products (not regular Roundup). Our Twin Valley Area Management weed control group used Habitat successfully on the Republican and Blue Rivers and their tributaries but it is more costly. Be sure to read and follow all label instructions for the product you choose to use.

Butterflies: I should have mentioned this last week as my yard is daily covered with them, but the butterflies we are seeing again are painted lady butterflies. They can be seen gathering nectar on taller flowering plants and I've also seen them on linden trees in particular. They should be migrating soon.

Jenny's REESources-September 22, 2017

Harvest: It was good seeing soybeans coming out timely last week in spite of challenges being wetter earlier in the week after the rains and then drying out very quickly. Also seeing how winds are creating additional lodging/snapping off of plants affected with soybean stem borer. Perhaps consider harvesting those fields most affected by soybean stem borer earlier as well. I continue to see stalk rot in corn rapidly increasing. Fields in general look pretty good from the edges but walking into them, stalk rot is evident in many. One concern of our UNL Plant and Pest Diagnostic Clinic is the number of samples they're receiving of dead plants or portions of plants. It's very difficult to determine causes of dead plants. Over a month ago, we started to see plants dying in fields next to healthy plants and I wrote how in the past, we've attributed that potentially to a fusarium crown and root rot; however, that all is still being determined. Ultimately, just a reminder to check your fields prior to harvest to determine the amount of stalk rot present to aid in harvest determinations. I use a pinch test where I use my thumb and pointer (index) finger and squeeze the stalk at the internode above the soil line. I do this for 20 plants in different portions of the fields determining the percentage that easily crush. That provides an indication of stalk rot.

Also a reminder to remove soil moisture sensing equipment from fields prior to harvest. Upon removal of watermark sensors, soak them in a bucket of water and use your fingers (don't use brushes) to gently dislodge any soil from the sensors. Allow them to dry and then store for the winter. ET gages should also be removed. Water should be dumped out of the main tube and the ceramic top and they should be stored where they won't freeze to prevent damage to the ceramic top.

This week's UNL CropWatch at <http://cropwatch.unl.edu> shares additional information regarding proper sampling for crown and stalk rot disease samples being submitted to the diagnostic clinic, research from Iowa State on corn and soybean drydown, and questions we've received regarding drydown of higher moisture soybeans in the bin. There's also information provided on estimating bushels of grain in a bin and silage tonnage in a bunker.

Harvest is a special time of year as the hard work and effort of the growing season is gleaned. Wishing all our farm families a safe and bountiful harvest! Be sure to think safety first. Also, for everyone driving, please give slow moving equipment space and slow down on gravel roads, especially when the dust is flying.

Wheat/Cereal Rye Cover for Palmer Reduction Study: Last week in my news column and also on NTV News, I spoke about a potential on-farm research study comparing wheat vs. cereal rye for potential palmer amaranth reduction. If you're interested in this study, please contact me at jrees2@unl.edu for the protocol.

Nitrate Toxicity Project: With the rise of cover crops being used for fall grazing, I'm often asked about potential nitrates affecting livestock. The current recommendations are based on early research in the 1940s and is based on research where dried feeds high in nitrate, or supplemental nitrate was used. Few studies have been done on nitrate toxicity using fresh forages. Many of the cover crops sampled in the spring and fall have had high nitrate concentrations, leading some producers to question utilizing this grazing resource. However, there are a variety of factors that may help mitigate high nitrates in the fresh, high quality, forage cover crops provide. In order to determine the risk and make better recommendations, more data is needed.

Dr. Mary Drewnoski, Extension Beef Nutritionist, desires to obtain more data with the help of her student Mary Lenz. This study will require the cooperation of producers grazing annual forages to make the results practical and accurate. Methemoglobin in the blood, and nitrate levels in the forage will be measured in cattle grazing annual forages/cover crops. To measure methemoglobin, a subset of cattle

will be gathered and blood samples will be taken. This will occur mid-afternoon, 4-7 days after turnout. This is a simple procedure, and the University can easily provide a portable corral and chute. To measure nitrates, a quality sample will be collected from the field, froze, and analyzed at the university lab. The data collection will be minimally invasive and should be a simple process. If you are interested in this or have any questions, feel free to contact Mary Lenz at mlenz7@huskers.unl.edu, or 307-761-3353.

Lawn and Garden: This past week I received a few questions about white grubs. I'm also seeing them in my lawn and garden areas. At this time of year, entomologists don't recommend insecticidal control as the grubs are nearing the end of their feeding cycle and larger grubs are more difficult to control. You may also notice something digging in your yard which could be skunks or raccoons foraging for grubs. Entomologists recommend timely irrigation to encourage new root growth and recovery.

Our soil profile has become fairly dry prior to the rains we've received over the weekend. It's important for us to ensure trees, shrubs, and lawns in particular remain watered (but not overly so) into October to help prevent winter desiccation and winter kill. So how do you tell if you need to water? Some people have installed moisture sensors into their lawns, but most don't have anything like this around trees or shrubs. One method, according to John Fech, Extension Educator, is to use a long-bladed screwdriver by inserting it into the soil at various locations around the tree or shrub. If the metal rod enters the soil with only a moderate push, it's a hint that moisture is adequate. If it is resistant or hard to press into the soil, it's probably too dry.

Visually, once the probe is removed, taking a look at the screwdriver blade can be helpful. If mud is sticking to it, no water is required; if dust is covering it, watering is probably in order. Water can be applied via running a sprinkler system, laying a soaker hose at the soil surface, using a drip system and using a portable sprinkler attached to the outdoor hose spigot. All of these devices have advantages and disadvantages. The key overall is to supply moisture to the roots in a slow and deliberate manner. When it comes to where the water should be applied, John shares, "the big difference between watering woody plants such as trees and shrubs versus herbaceous plants like vegetables, groundcovers, annuals and perennials is that tree and shrub roots usually expand extensively beyond the periphery or "drip line" of the foliage, whereas most herbaceous plants develop roots directly below the crown and shoots. As watering of dry soils should be done over the entire root system of all plants, watering woody specimens should be targeted at the area twice to three times as wide as the spread of the leaves. No matter which device you choose to accomplish this goal, the idea to keep in mind is: moist; not soggy or dry."

Jenny's REESources-October 1, 2017

Crop Updates: There's not much new I have to share in the way of corn and soybean updates this week with the recent rains. Regarding sorghum, the sugarcane aphid was detected in a sorghum field near Pawnee City, which is the first reported siting in Nebraska sorghum. The aphid levels are currently low in this field. Sugarcane aphids have to migrate north each year from southern areas where plants in the sorghum family remain green over the winter. Sugarcane aphids can be identified from other aphids we commonly see by their light yellow to gray bodies with black cornicles (also known as tail-pipes). Corn leaf aphids, common in Nebraska, also have dark tail pipes but their bodies are green in color. Look for aphids on the undersides of lower leaves first, and then higher in the canopy as populations increase. The presence of a black sooty mold may also be present as the secondary fungus grows on the sugar 'honeydew' secretions from the aphids. If you feel you may have sugarcane aphids in your field, please contact your local Extension educator.

Heuermann Lecture Focus on Impact of Nebraska Immigrants: The next Heuermann Lecture will be held October 3, 2017 at 3:30 p.m. at the Nebraska Innovation Campus Conference Center, 2021 Transformation Drive. Lectures are also streamed live at <http://heuermannlectures.unl.edu/>.

Lourdes Gouveia, professor emerita of sociology and co-founder of the Office of Latino/Latin American Studies at the University of Nebraska at Omaha, will give the first Heuermann Lecture of the season. Gouveia will examine the role that immigrants have played, and continue to play, in the social, economic and cultural development of Nebraska and its diverse communities.

Gouveia has authored and co-authored a number of articles aimed at documenting the profound sociodemographic changes and processes of immigrant incorporation occurring in new destination states such as Nebraska. As OLLAS director, she was charged with the task of producing a number of policy-relevant reports, which have been offered as key evidence by Nebraska state senators opposing the passage of bills seeking to restrict immigrant rights. Her current work focuses on the growing exodus of middle-class, highly educated Venezuelans.

The theme for the seventh year of Heuermann Lectures is "Think Globally, Act Locally." The 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.

Colleagues,

4S Goat Expo: Goat producers in Nebraska and the surrounding region are encouraged to attend the 4S Goat Expo that is scheduled for Oct. 7 - 8 at the Lincoln County Fairgrounds, 5015 W Rodeo Road, North Platte Nebraska.

The Expo will feature: Disease prevention in goat herds; Managing parasite pedigrees to maximize deworming impacts; Marketing goats in Nebraska (important dates); Famacha for goats; Benefits of purchasing quality genetics; Youth goat judging contest (awards will be given to top youth in junior and senior divisions); Goat producer panel; and Fitting your goat for show and sale. Goat check-in is 3 – 9 p.m. Oct. 6 and before 8 a.m. on Oct. 7. The expo seminar will start at 10 a.m. The Oct. 8 show will start at 8 a.m. with a sale-goat only show followed by a show-goat only show. The sale will start at 1 p.m. For more information, visit <http://www.4sgoatexpo.com/> or <http://go.unl.edu/0bot>.

Produce Grower's Produce Safety Alliance Compliance: Those produce growers who must comply with FDA's Food Safety Modernization Act (FSMA) Produce Rule guidelines, are required to have one supervisor or responsible party from their farm who has successfully completed food safety training equivalent to the national Produce Safety Alliance curriculum.

Earliest compliance dates for large growers is January 26, 2018. Compliance dates, for all covered produce except sprouts, by business size is:

- Very small businesses - January 26, 2020. Businesses with greater than \$25K but less than \$250K average annual produce sales over the last three years.
- Small businesses - January 26, 2019. Businesses with greater than \$250K but less than \$500K average annual produce sales over the last three years.
- All other businesses - January 26, 2018. Businesses with greater than \$500K average annual produce sales over the last three years.

Nebraska Extension and the Nebraska Department of Agriculture will be offering the first food safety class for growers that meets these requirements on November 3, 2017 in the Raising Nebraska Building, Grand Island, NE. After successfully completing the program, growers will receive an official course participation certificate. The program registration cost is very low, due to sponsorship by the Nebraska Department of Agriculture. For more information on how to register for this program, please go to the following page: <https://events.unl.edu/acreage/2017/11/03/123489/>.

Jenny's REESources-October 8, 2017

Crop Updates: It was wonderful to see the sun this weekend! And, the rain has helped with pastures, wheat that's been planted, lawns, and trees. Rains have also allowed for alfalfa to increase growth and with that, I'm anticipating questions regarding if it should be cut or grazed. Dr. Bruce Anderson, Extension Forage Specialist, shares the following: "Alfalfa's growing season is pretty much over by mid-October. This year many fields received some late season rain that's contributing to a late-season substantial, high quality alfalfa crop for many growers. Alfalfa that has had at least six weeks of regrowth by mid-October will have developed adequate winter-hardiness for all but the most severe winters. It also has begun to go dormant naturally because of shorter days and cooler temperatures so harvest is not likely to jeopardize stand persistence. Not only that, October hay often is exceptionally high quality. With high prices paid for dairy and horse quality hay, another cutting is tempting. An October hay harvest is doable, but can be difficult because alfalfa dries and cures very slowly in October. If you do cut hay in October: be alert to weather reports, use a conditioner to speed dry-down, spread windrows wide for extra exposure to sunlight, and consider using a preservative to protect hay that's baled at higher than normal moisture levels. When possible, it's better to harvest alfalfa as haylage in October. It requires less drying and, since drying is slower, haylage can be made at a more uniform moisture content than in summer. October alfalfa also tends to preserve well as haylage. Grazing is another option, but continue to be cautious about bloat and avoid grazing on wet soils as that can damage the stand."

Harvested, and even unfortunately in some unharvested soybean fields, we're seeing a "cover crop" of soybeans that have germinated. Most likely we'll receive a freeze to kill them before they get much growth to them.

I'm also observing minor sprouting of corn kernels-mostly on ears that were damaged by insects such as western bean cutworm or grasshoppers, in situations of upright ears, and perhaps in situations where corn was around 20% moisture or so before we received all this rain. Some of you remember kernels sprouting in 2013 in Clay County with a widespread hail storm. This event of kernel germination prior to harvest is called "vivipary". The sprouting is due to a hormone imbalance particularly between gibberellic and abscisic (ABA) acid. According to a study by [White, et. al \(2000\)](#), Gibberellin production with the lack of ABA allowed for kernel germination while less Gibberellin and more ABA deterred kernel germination. At full maturity, very little ABA is left in the kernel (in both corn and soybeans) which allows them to germinate in correct conditions after harvest. But this can also allow for sprouting in the ear after black layer when corn is still drying down, particularly in tight-husked, upright ears with conditions of high humidity or rain after black layer. Sprouting under those conditions typically occurs at the base of the ear first, but I'm also seeing it in the tops of ears where insect damage and/or Fusarium/Gibberella ear rot is present. Overall, what I'm seeing thus far is minimal, but sharing so you're also checking for this in your fields. Some harvest and storage considerations can be found here: <https://jenreesources.com/2013/09/05/sprouting-corn-kernels-on-hail-damaged-ears/>.

The rain and winds have also allowed for stems affected by soybean stem borer to lodge or snap off. Some have asked about the yield loss due to soybean stem borer. Actually, the borer itself doesn't create yield loss unless the soybean plant is so greatly lodged or on the ground that it can't be harvested. Even though the borer has tunneled within the center of the stem, soybeans are different than corn. Corn vascular bundles carrying water and nutrients are in the center of the stem. For soybeans, those vascular bundles are towards the edges of the stem. So the borer doesn't affect water or nutrient transport and isn't noted to cause yield loss outside of lodging.

Thinking Outside the Box: I've been blessed in various conversations with farmers and colleagues regarding 'thinking outside the box' in these tougher economic times. I shared some of these thoughts and ideas at the Clay County Farm Bureau meeting. While many of these ideas may not work for your particular farming operation, perhaps just one would be a fit or worth considering, so I will share some ideas in the next few columns.

One is simply this, is maximum yield the right goal for your operation every year? In considering this, it's really important to know your bottom line. How much is it costing you per acre to raise a bushel of corn or soybeans; do you know? And if you don't, there's resources to help you. We have budgets listed every year at: <https://cropwatch.unl.edu/budgets> and the 2018 budgets will be released shortly. These are a good starting point to help you work through your cost of production. If you need help, please talk with someone at your lending agency, agronomist, Extension office, or other trusted source.

So not aiming for maximum yield kind of goes against the grain of what we're taught to think...that maximum yield means most bushels which means most money. However, what is it costing you to achieve maximum yield for your farm? I know a farmer who is content with a specific irrigated yield every year. Upon asking him about this, he simply said, "This is the most economic and realistic yield for my farm. I know I can make money at this yield while keeping my cost of production at X." In talking with another farmer, this year he's considering reducing his corn population under the pivot using a proven flex hybrid that has yielded well for him in his non-irrigated fields. This change could cut his cost of production around \$0.80. Granted, there's things to consider such as crop insurance and APH for every situation, but it's another example of how knowing your cost of production and thinking outside the box can help during tougher economic times. And, if you're not sure how a change will affect your operation but are interested in testing it to know for sure, Extension can help you answer your questions via on-farm research.

Lawns: Your last application of fertilizer to lawns of the season should be applied by Halloween. The fall applications are actually the most important ones as they build strong roots and aid in preventing winter-kill.

Jenny's REESources-October 15, 2017

It was good seeing combines going again and hopefully this coming week will greatly help with harvest!

Dicamba Update: Dicamba volatility was a problem this past year in Nebraska and I shared much about that throughout June and July. Regarding POTENTIAL considerations for next year, the following is what Extension Weed Specialists and I have discussed. First, much of the volatility started with corn applications. According to Monsanto's research, they found that adding ammonium sulfate (AMS) to the soybean dicamba formulation increased volatility 10X; thus, the new soybean dicamba formulations didn't allow the use of AMS with them. However, dicamba products used on corn can be used in conjunction with AMS and we speculate that aided in increased volatility this past year. Our Weed Specialists are meeting with industry partners to discuss this for consideration of label changes for 2018. Second, we may see that dicamba can only be applied before a certain date of the year and even between certain times of the day (for example mid-morning to mid-afternoon). Hopefully, if a date is mandated, it will be at a time that we can still use this tool in our crops. Third, while this won't work for non-irrigated fields, irrigating after rain-fast or label-specified time may be encouraged to help reduce volatility. Fourth, we may see changes regarding weather conditions for applying dicamba products. Fifth, we may see the use of smoke bombs or other tools used more to help with anticipating temperature inversion situations. Beyond sharing in pesticide training, I plan to have dicamba and palmer amaranth update meetings this winter and will share more once I get them scheduled.

What we know thus far is what was released in the following statement from the Environmental Protection Agency (EPA). When we see the word 'drift', what we mostly saw this past year was actually 'volatility'. "EPA has reached an agreement with Monsanto, BASF and DuPont on measures to further minimize the potential for drift to damage neighboring crops from the use of dicamba formulations used to control weeds in genetically modified cotton and soybeans. Manufacturers have voluntarily agreed to label changes that impose additional requirements for "over the top" use of these products next year including: Classifying products as "restricted use," permitting only certified applicators with special training, and those under their supervision, to apply them; dicamba-specific training for all certified applicators to reinforce proper use; Requiring farmers to maintain specific records regarding the use of these products to improve compliance with label restrictions; Limiting applications to when maximum wind speeds are below 10 mph (from 15 mph) to reduce potential spray drift; Reducing the times during the day when applications can occur; Including tank clean-out language to prevent cross contamination; and Enhancing susceptible crop language and record keeping with sensitive crop registries to increase awareness of risk to especially sensitive crops nearby.

Manufacturers have agreed to a process to get the revised labels into the hands of farmers in time for the 2018 use season. EPA will monitor the success of these changes to help inform our decision whether to allow the continued "over the top" use of dicamba beyond the 2018 growing season. When EPA registered these products, it set the registrations to expire in two years to allow EPA to change the registration, if necessary. For more information: <https://www.epa.gov/ingredients-used-pesticide-products/registration-dicamba-use-genetically-engineered-crops>."

If you're interested in learning more about proper spraying techniques for dicamba and 2,4-D products, on November 15, there will be a sprayer clinic at the College of Technical Ag in Curtis. The clinic begins at 12:30 p.m. with the first part of the clinic held in the Nebraska Ag Industry Education Center, where spraying the new dicamba formulation and new Enlist Duo and Enlist One will be discussed. At 1:30 p.m. participants will move to the Livestock Teaching Center, where a variety of

sprayers will be displayed and technicians will be available to discuss the features of each sprayer. For more information on the sprayer clinic, contact Robert Klein, Nebraska Extension western Nebraska crops specialist, at 308-696-6705, rklein2@unl.edu, or Brad Ramsdale, associate professor of agronomy at the Nebraska College of Technical Agriculture in Curtis at 308-367-5225, bramsdale2@unl.edu. CCA credits are available for participating in the clinic.

Workshop: So You've Inherited a Farm, Now What? and Cash Rent Information: Anyone that owns farmland may want to participate in this seminar to be provided information and education about that ownership. It will be held on November 13 from 1:30-3:30 p.m. at the 4-H Building in York. Participants can use this 2 ½ hour workshop to learn about: Am I keeping the farm, or selling it? How do I manage a farm? If leasing, what are key lease provisions? What legal considerations do I have with this decision? And, how do we manage family communications and expectations when other family is involved? This workshop will also share updated cash rent numbers and considerations.

Pre-registration is requested by November 12. Advance registration is requested to ensure enough handouts for the program. This program is offered free and open to the public with funding provided by the North Central Extension Risk Management Education Center and USDA National Institute of Food and Agriculture under award number 2015-49200-24226. Please RSVP by calling (402) 362-5508 or emailing Jenny at jrees2@unl.edu.

Workshop: Estate Planning: Persons of all ages are invited to attend a "Farm and Ranch Estate Planning Discussion" hosted by UNL Extension. This workshop will held on November 13th from 6:30-8:30 p.m. at the 4-H Building in York. Cost to attend is free, but please register by November 12th to (402) 362-5508 or jrees2@unl.edu to ensure that there are enough handouts.

The presentation will focus on the decisions and situations which should be addressed when thinking about how your farm or ranch estate will be passed. Topics will include: the need for planning, proper family communications, who makes the decisions, concept of fair versus equal, preparing to meet with an attorney, and much more. The presentation is designed to give some basic information to those that haven't yet started to think about their succession or transition plan for their assets.

Allan Vyhnalek, UNL Extension Educator for Farm Succession will be the presenter. He was just assigned to the Ag Economics Department to work on farm and ranch succession and transition.

Jenny's REESources-October 22, 2017

Crop and Grazing Updates: Grateful for a nice week for harvesting and for the good yields being reported! It's also good to see cattle being turned into cornstalks. A reminder to read herbicide labels to understand if there's any grazing restrictions from corn and soybean herbicides applied in-season. It's also important to look for any grazing restrictions on fall-applied herbicides to control marehail and other germinating weeds. These restrictions can also be found in the 2017 UNL Guide for Weed, Insect, and Disease Management on pages 186-189. The forage, feed, and grazing restriction only applies to the crop for which the herbicide was applied. When it comes to grazing cover crops planted into these residues, one must use the replant/rotation restriction guidelines found on the herbicide label and also on pages 172-185 of the Weed Guide. I will also post these on my blog at <http://jenresources.com>.

If the label doesn't specify any restrictions, then it should be ok. If 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. Some labels will say that residue should not be grazed or baled and fed to livestock. Sometimes studies were actually conducted to know there is a safety concern. In other cases, the chemical company may not choose to conduct all the studies the Environmental Protection Agency (EPA) required for labeling due to high costs. If that's the case, the EPA requires the strongest restrictive language be placed on the label. Regardless, if it says there's a grazing restriction on the label, the label needs to be followed as it is a legal document and the law.

As you plan for next year's herbicide program, if you're thinking about fall cover crops, the following NebGuide may be of benefit to you as it goes through the grazing restrictions of various herbicides: <http://extensionpublications.unl.edu/assets/pdf/g2276.pdf>.

Dr. Mary Drewnoski has a student, Mary Lenz, looking at cover crops and nitrate toxicity. This study will require the cooperation of producers grazing annual forages to make the results practical and accurate. Methemoglobin in the blood, and nitrate levels in the forage will be measured in cattle grazing annual forages/cover crops. To measure methemoglobin, a subset of cattle will be gathered and blood samples will be taken. This will occur mid-afternoon, 4-7 days after turnout. This is a simple procedure, and the University can easily provide a portable corral and chute. To measure nitrates, a quality sample will be collected from the field, froze, and analyzed at the university lab. The data collection will be minimally invasive and should be a simple process. If you are interested in this or have any questions, please contact Mary Lenz at mlenz7@huskers.unl.edu, or 307-761-3353. If you haven't experienced a freeze yet this fall, you soon will. And remember, a freeze can cause hazards for using some forages.

With a hard freeze predicted this coming weekend, Dr. Bruce Anderson shares the following information: "Sorghum-related plants, like cane, sudangrass, shattercane, and milo can be highly toxic for a few days after frost. Freezing breaks plant cell membranes. This breakage allows the chemicals that form prussic acid, which is also called cyanide, to mix together and release this poisonous compound rapidly. Livestock eating recently frozen sorghums can get a sudden, high dose of prussic acid and potentially die. Fortunately, prussic acid soon turns into a gas and disappears into the air. So wait 3 to 5 days after a freeze before grazing sorghums; the chance of poisoning then becomes much lower. Freezing also slows down metabolism in all plants. This stress sometimes permits nitrates to accumulate in plants that are still growing, especially grasses like oats, millet, and sudangrass. This build-up usually isn't hazardous to grazing animals, but green chop or hay cut right after a freeze can be more dangerous.

Alfalfa reacts two ways to a hard freeze, down close to twenty degrees, cold enough to cause plants to wilt. Nitrate levels can increase, but rarely to hazardous levels. Freezing also makes alfalfa more likely to cause bloat for a few days after the frost. Then, several days later, after plants begin to wilt or grow again, alfalfa becomes less likely to cause bloat. So waiting to graze alfalfa until well after a hard freeze is a good, safer management practice. Frost causes important changes in forages so manage them carefully for safe feed.”

On-Farm Research Brainstorming/Discussion Session: You hear and read about various production practices and products that work for other farmers. You may have questions regarding a specific practice or product working on your farm. On-farm research is a way to answer this for yourself! In the past, our area on-farm research cooperators met before the growing season to brainstorm ideas and discuss potential research topics together. We are resurrecting this brainstorming/discussion session with it to be held on Monday, November 27th from 1:00-4:00 p.m. at the Fairgrounds (4-H Building) in Aurora. Farmers who have conducted on-farm research in the past or are considering/interested in on-farm research in the future are encouraged to attend. If you’re interested in attending, please RSVP to Steve Melvin at steve.melvin@unl.edu or Jenny Rees at jrees2@unl.edu.

Growing Nebraska Summit: A Nov. 8 summit hosted by the University of Nebraska-Lincoln's Institute of Agriculture and Natural Resources will focus on leveraging partnerships, programming and research to spur growth in Nebraska. The summit will be from 8 a.m. to 4 p.m. at the Cornhusker Hotel, 333 S. 13th St., Lincoln. All are welcome. Through a series of fast-paced presentations and interactive sessions, the summit will focus on creating a better quality of life, educating tomorrow's leaders, igniting a passion and feeding a growing world. The summit is free, and lunch is included. Space is limited. To learn more and register, please go to: <https://ianr.unl.edu/ianr-fall-conference>.

2017 Crop Insurance Workshop: "Making Risk Management Decisions in a Difficult Farm Economy" is the theme of the 2017 Crop Insurance Workshop to be held Nov. 1 at Grand Island. It will be held at the Heartland Event Center, 700 E. Stolley Park Road. These workshops are for crop insurance agents, agricultural lenders, marketing consultants, agricultural educators, and other risk management service providers who want to help their clients make more profitable risk management decisions. Farmers and ranchers will be able to apply the information to improve their risk management decisions. For more information or to register, go to <https://cropinsure.unl.edu/>.

Jenny's REESources-October 29, 2017

Crop Updates: Last week's weather was a challenge for our farm families. Grateful for a beautiful day on Wednesday for harvest! Thursday perhaps resulted in the worst of the damage we're now seeing. It's just heartbreaking to see the fields and hear the reports of downed corn and dropped ears in so many fields throughout the State. What I've seen thus far has ranged from 20-70 bu/ac on the ground and I'm hearing more than that from others. Perhaps hardest is the fact we had tremendous harvest potential in the fields and that was a positive side of the lower commodity prices. I'm not saying anything new to those of you who farm-my heart goes out to you. On the positive side, some of you have finished harvest and can be grateful for that! Finding things for which to be grateful can greatly help when things are this tough. Here's hoping everyone can finish this harvest season safely and get the remainder of the crop picked up as best as possible.

When it comes to downed stalks with ears still intact, Marion Calmer, farmer and president of Calmer Agronomic Research Center, Lynn Center, Illinois, provided some tips for a meeting we had prior to harvest a few years ago. I won't list them here as it I don't have enough room and because the presentation included in our CropWatch article has photos that aid in explanation. You can view his tips here: <https://go.unl.edu/5nzw>.

A method to estimate pre-harvest loss of ears on the ground is to count the number of ears dropped in 1/100 of an acre. For a row spacing of 30", measure off 29' for a 6 row header, 21' 9" for an 8 row header, and 14' 6" for a 12 row header. Then count the number of ears dropped in that header width and length measured. In general, literature from different Universities say that a full-size ear equates to around ¾ lb. and would be around 1 bu/ac yield loss. Larger ears with deeper kernels such as this year may be closer to 1.5 bu/ac yield loss.

So what do you do about the corn ears on the ground? A number of options have been tried in the past with varying degrees of success. The following is information provided by Extension Educators after a 2012 windstorm. "Some growers are using a V-rake to window the stalks and then coming back in with a windrow pick-up (bean) head on their combine to pick up stalks and ears from the ground. Harvest needs to be slow, as little as 1.5 mph, and the stalks and clumps of dirt will be hard on the combine and may cause it to plug. One grower had good luck tying down the rake's wheels to keep them from riding up and floating over the corn stalks. Not surprisingly, this harvest process can be hard on rake teeth."

"Other growers are using a flail chopper to finely cut the standing stalks and leaf material, then using a hay rake to gather the cut material and corn on the ground into windrows. Then they are using a combine with a windrow pick-up bean head set to run close to the ground."

"After the flail chop, other growers are baling up the plant material and corn and processing it for feed. It's recommended that the nutrient content of the feed be tested due to the above average level of corn it contains."

"Some growers also have looked into rock pickers. Others are going the human route and paying FFA or other youth groups to manually harvest affected fields."

Another option to consider is grazing; however careful grazing is necessary to avoid cattle losses with that much corn on the ground. Aaron Berger, Extension Educator, shared the following information for consideration, "Prior to grazing cornstalks with cattle, an estimate should be made of the amount of corn that is present in the field. Any amount beyond 8-10 bushels per acre will require a well-planned grazing strategy to ensure that too much grain is not consumed by grazing cattle.

If it is determined that there is excessive corn on the ground, the following are strategies to

implement to help minimize the risk of digestive upsets (acidosis), lameness and abortions for cattle grazing the cornstalks.

Limit access to corn by cross fencing the field and using a method called “strip grazing” where cattle are only given access to the determined amount of corn that they should eat for a given day. This method is the most reliable method for controlling corn intake. If downed corn is on an irrigated center pivot, one option for strip grazing is to attach the electric fence to the center pivot and move the pivot to move the fence.

Consider the class of livestock that is going to be grazed. Cattle that haven’t grazed cornstalks before, such as weaned calves or yearlings, will often take time before they actively seek out corn. This can give the cattle time to adjust and acclimate to the corn. Weaned calves or yearlings can also make best use of the corn and convert it into a saleable product as they are growing and adding pounds that can be marketed.

Non-pregnant cows that would benefit from gaining weight are another class of livestock that can be a good choice for grazing downed corn. Cull cow prices often seasonally increase from the late fall into the spring which complements the use of this resource.

Cows that have previous experience with grazing cornstalks will seek downed corn immediately. Cows should be adjusted to corn prior to giving them access to the field. Start cows on 2-3 pounds of corn a day and work them up to 10-12 pounds per day over a 7-10 day period. Adjusting cows to corn will help to reduce the risk of digestive upsets.

Have cattle full prior to turning out for grazing and provide good quality hay so cattle don’t over consume corn immediately. Feeding palatable hay or other feed daily can also help to reduce the amount of corn that cattle will be eating.

The use of a Monensin supplement fed daily can help to stabilize feed intake and reduce the risk of founder and bloat which are caused by overeating.

Managing cattle that are grazing cornfields with excessive downed corn can be a challenge for producers. However, with planning and strategy, cattle can clean up and make good use of this situation, benefiting both the farmer and the cattle producer.”

Fertilizing Corn Fields: Natural Resources Districts in our area have a November 1st wait period before fall anhydrous ammonia can be applied. It’s also recommended to wait till soil temperatures at the 4” depth remain consistently at 50F or below. This allows the ammonia to not convert to nitrate which increases the leaching potential. You can view soil temperature information here:

<https://cropwatch.unl.edu/cropwatchsoiltemperature> and read about a long-term study on nitrogen inhibitors conducted by University of Minnesota here: <https://go.unl.edu/8j0n>.

Jenny's REESources-November 4, 2017

Downed Corn and Grazing: As harvest has been wrapping up, I've received calls about grazing corn fields. A few asked about using sodium bicarbonate. Dr. Mary Drewnoski, Beef Systems Specialist, shared there's not data to indicate it would be beneficial. The research data when sodium bicarbonate was used in dairy diets showed inconsistent results with a 50% roughage diet. With the beef cows eating an almost all grain diet, she and other beef specialists don't recommend this. They all feel the best thing to do is limit access and/or move calves through first to pick up most of the grain after adapting them. She explains how this can be done in this KRVN interview:

<http://krvnam.streamon.fm/listen-pl-2741?smc=79> and in this article: <https://go.unl.edu/8j4n>. The article also contains a table which shows a quick guide to how much area to limit cattle depending on the amount of corn on the ground.

The reason why she suggests to move calves through first is that they haven't learned to seek out the corn ears or grain as this is a learned behavior; thus they tend to slowly adapt to increasing grain consumption over time. She suggests, "Although there is some risk of acidosis, feeding them corn and working them up to 5 lbs/calf of grain before turnout should help. Calves eating only corn grain and residue will not have enough protein in the diet to make full use of the energy available. Feeding 2 lbs of distillers can increase gain substantially and increase returns. Using the calves to glean the majority of grain and moving them from field to field before the cows may be a great way to reduce risk and make money at the same time."

When it comes to her suggestion of strip grazing she shares, "Those with a pivot fence can readily use this system. Allowing the pairs access to 10 lbs of corn and feeding 2 lbs of DM from distillers grains should allow the cows to maintain bodyweight and the calves to gain 1.0 to 1.5 lbs/day. If cows are weaned, limiting cows to no more than 10 lbs/day of grain will allow them to increase their body condition score (BCS) by 0.5 to 1 over the winter. Before turnout, producers should start feeding grain and work cows up to at least 7 lbs/head of grain over a week to 10 days. If you are going to need to move to a new field over the winter (based on stocking rate and the amount of residue in the field), there will likely be an issue when all the grain has been grazed and the cows are eating only residue. When they are moved to a new field, they will have full access to grain again but their rumen will no longer be adapted. Thus, there are two options:

1. Once cows are acclimated to full grain, they could be split into groups on multiple fields that they will graze for the rest of the winter.
2. All cows could be quickly moved through all fields, allowing them to harvest most of the grain. Once most of the grain has been gleaned from all the fields, the cows can be moved back through the fields to make use of the rest of the residue.

Regardless of the class of animals grazed or the method used, providing monensin can be beneficial. If no supplemental feed is provided, using a free-choice mineral with monensin in it can help."

I've also received several questions regarding other options such as raking and baling to pick up downed corn. I don't personally have experience to know how effective these methods are or how to best achieve this, but Bob Klein, Extension Cropping Systems Specialist in North Platte does from a 2012 wind storm. He provided me a PowerPoint with photos but I need to talk with him and add notes. My goal would be to share this on CropWatch as soon as we can yet this week. In the meantime, if you have specific questions about this, you can reach Bob at 308-696-6705 or robert.klein@unl.edu.

Potential Reasons for Weakened Ear Shanks: I've also received questions regarding the causes of weakened ear shanks and wrote an article for CropWatch on that this week. You can see the full article here in which I reflect on the entire growing season: <https://go.unl.edu/x6ho>. Like many things that happen in our fields each year, this was most likely due to a combination of factors and could vary from field to field. One hypothesis of events leading to this "perfect storm" for ear loss is:

- high heat and/or drought stress during pollination led to weakened ear shanks *coupled with*
- cool August temperatures and a long grain-fill period that resulted in larger, heavier ears *coupled with*
- late-season, excessive October rains that allowed for greater stalk and ear rot *coupled with*
- rapid kernel moisture dry down *followed by*
- a week of high sustained winds.

Literature suggests that high heat and/or drought stress during pollination followed by good weather conditions for grain fill, stalk and ear rots, rapid kernel moisture dry down creating a brittle shank attachment, and hybrid genetics in which the shank diameter can differ can all attribute to weakened ear shanks. If we think back to 2017, we had the potential for many of these factors in addition to potentially others that came into play. The week of high sustained winds in October was perhaps the final straw. Al Dutcher provides more information regarding what those wind gusts looked like for various parts of the State in this week's CropWatch as well at <http://cropwatch.unl.edu>.

York County Corn Grower Banquet November 16: Hopefully most will be finished with harvest and can come celebrate at the York County Corn Grower Banquet to be held November 16 at Chances 'R' in York! A social time begins at 6:30 p.m. followed by the meal and program at 7:00 p.m. Kim Eberly of Aurora will provide a presentation on her LEAD 35 trip to China, Laos, and Thailand. Brandon Hunnicutt, National Corn Board Member from Giltner, NE, will provide a National and State Update. Tickets are \$10 and can be purchased from any York County Corn Grower director or at the York County Extension Office. We hope to see you there!

Also, a special thanks to Ron and Brad Makovicka for all their efforts with the York County Corn Grower Plot this past year! We also appreciate all the companies who participated! Results of the plot can be found at <https://go.unl.edu/5mdf>.

Reminder: Nov. 13: So You Inherited a Farm, Now What? and Cash Lease Information, 1:30 p.m., 4-H Bldg York, RSVP (402) 362-5508 or jrees2@unl.edu; **Nov. 13:** Estate Planning Meeting, 6:30 p.m., 4-H Bldg York, RSVP (402) 362-5508 or jrees2@unl.edu

Jenny's REESources-November 12, 2017

Thank you to our veterans and your families for your service and sacrifices!

Crop Update: On this week's CropWatch at <http://cropwatch.unl.edu>, there's a photo gallery from Bob Klein, Extension Cropping Systems Specialist, showing using a Vermeer rake and combine pick-up attachments to pick up downed corn. They were able to obtain 75-80% of the corn this way in 2012 after a windstorm. He did mention it can be hard on the combine running that much material through it and very dusty, but a fairly effective way of doing this.

Dr. Tamra Jackson-Ziems also has a project with the Nebraska Corn Board. Every year we get questions about corn nematodes and their potential on limiting yields. University of Nebraska-Lincoln Plant Pathology Professor Tom Powers' lab is providing free nematode analyses for soil samples submitted from corn fields now through spring. The objective of this project is to learn more about the root-lesion nematode species present in Nebraska fields. Unlike some nematodes, root-lesion nematodes are extremely common (in more than 93% of Nebraska fields). If you're already planning to sample your soils for nutrient content, this would be a good time to take samples for corn nematodes. You can do this by collecting at least 2 cups of soil from down to about 8 inches deep in the plant root zone (from within the row). For more information on nematodes of corn and how to collect samples view this video, [Corn Disease: Nematodes](#). Please package the samples in plastic bags and ship them with a completed [Sample Submission form](#) to the [UNL Plant & Pest Diagnostic Clinic \(P&PDC\)](#) (448 Plant Science Hall, Lincoln, NE 68583-0722). Be sure to clearly identify that the sample is for the Corn Nematode Survey. For sandy fields, some nematode species can travel deep in the soil and out of reach of traditional soil probes. Sandy fields can best be sampled in the spring after planting by about the V5 corn leaf stage to capture all nematodes.

And, because soybean cyst nematodes affecting soybeans can be sampled at any time and after any crop, you may wish to take even more soil from those areas and submit to the same lab for free soybean cyst nematode analysis via the Nebraska Soybean Board!

With harvest nearing the end, I've received several questions regarding fall herbicide applications for marestail and henbit in particular. We know from UNL research that at least 60% of marestail in Nebraska germinates in the fall. There were some pretty telling pictures on Twitter last spring showing the differences in fields where fall applications were applied in a field vs. where the pivot was located in the field at the time of application. Questions I've received have been about the efficacy of herbicides with cooler conditions. Dr. Amit Jhala, Extension Weed Scientist, wrote an article in CropWatch this week sharing that 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. Tank-mixing a residual herbicide with a burndown product will improve marestail control because the residual activity will control marestail emerging after herbicide application.

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.

Some have also asked about frost and effect on weed control. Amit shares that 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 usually 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. This is followed by a darkened or blackened appearance within a day or so, and then necrosis after a few days. 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, bright sunshine is needed for plants to recover.

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On-Farm Research Brainstorming/Discussion Session: As you plan for next year, you may have questions regarding a specific practice or product working on your farm. On-farm research is a way to answer this for yourself! I've already had some growers calling about plans for next year which is great! We are planning an on-farm research brainstorming/discussion session with it to be held on Monday, November 27th from 1:00-4:00 p.m. at the Fairgrounds (4-H Building) in Aurora. This is purely an opportunity for growers to talk about their ideas with each other; no research results will be shared at this meeting. We encourage farmers who have conducted on-farm research in the past or are considering/interested in on-farm research in the future to attend. If you're interested in attending, please RSVP to Steve Melvin at steve.melvin@unl.edu or Jenny Rees at jrees2@unl.edu.

Jenny's REESources-November 19, 2017

Nutrient Value of Corn Stover: With an option of downed corn ears being baled up with corn residue, I've received questions on residue removal. These questions include the nutrient value of the residue (stover), yield effects to the successive crop, and any research on planting cover crops after baling. I will address these three topics in the next three week's columns.

Corn residue can be looked at from many perspectives...from being a source of feed or bedding for livestock, protection of the soil surface for wind/water erosion and evaporative losses, cellulosic biofuel production, made into pelleted feeds for livestock, food for microbes resulting in nutrient source for future crops, and considered a challenge in achieving uniform emergence and plant stands particularly in no-till continuous corn situations.

How does one estimate the total residue produced by a corn crop? Grain yield is related to residue production. For every 40 bu/ac of corn produced (56 lbs at 15.5% moisture), 1 ton of residue (at 10% moisture) is produced. For example, a 240 bu/ac field will produce approximately 6 tons of residue while a 120 bu/ac field will produce approximately 3 tons of residue.

This week I'll share research regarding the nutrient value of the corn stover. Our Extension nutrient management specialists share that nutrient value can depend on the season, management practice, time of harvest, location, and what part of the plant is being removed. For example, more nutrients are concentrated in leaves and husks than in the stalks. Per ton of dry harvested corn or sorghum residue, average nutrient concentrations include 17 lbs of Nitrogen, 4 lbs of P₂O₅, 34 lbs of K₂O, and 3 lbs of Sulfur. Taking these nutrient values in pounds per ton and multiplying by current fertilizer prices in dollars per pound give the value of nutrients in the residue based on dollars per ton of residue removed. Of note, this formula takes into account the full fertilizer value of the nutrients removed. However, if the soil has adequate capacity to supply some nutrients (such as potassium in Nebraska), the value of removed nutrients may be less (from 0-50% of fertilizer value).

Another consideration includes the fact that positively charged ions removed with residue harvest such as calcium, magnesium, and potassium removes their contribution to neutralizing soil acidity implying lime will eventually be needed. Harvesting 1 ton of corn residue removes the equivalent cations contained in 35 lbs of lime. So for example, if lime is worth \$40/ton, \$0.70 should be added to the value of crop residue.

Additional values to the residue come from potential soil loss due to wind and/or water erosion, any potential yield loss (which I will share next week to be minimal and primarily observed in water-limiting environments), any increased irrigation due to evaporative losses, and the cost of raking/baling/transporting residue.

Research has shown a minimum of 2.4 tons/acre of residue is necessary to maintain soil organic carbon in no-till systems. With increased tillage, greater residue amounts are necessary because tillage increases decomposition rates of residues and soil organic matter.

Regarding soil losses due to water erosion, additional studies in Gage, Sherman, and Chase counties in Nebraska looked at tillage, soil type, and terrace effects on the amount of residue that could be removed to maintain less than 5 tons/acre/year water erosion for silt loam and silty clay loam soils. The research found that no residue could be removed if the land is tilled by disking unless the field is terraced, had 2% slope (but not 5% or greater), and yielded greater than 150 bu/ac. Fields that were no-tilled and terraced even up to 10% slope could have residue removed and still maintain less than 5 tons/acre/year water erosion. Regarding wind erosion in another study, ground covers of 30 and 60% were estimated to be sufficient to reduce wind erosion by 70 and 90% respectively compared to bare

soil.

Totaling up the various factors for consideration can provide an estimate of the cost of crop residue harvest in dollars per ton. These factors again include: nutrients removed, lime equivalent value, yield loss, soil loss from wind and water erosion, any increased irrigation, and raking/baling/transportation.

Maintaining Cattle with Limited Perennial Pasture Meeting: Kansas and Nebraska Extension are hosting a 3-meeting series to address some possible options to help maintain cattle inventory with limited perennial pastures. Topics at these meeting will include confined cow feeding and management, usage of corn residue, cover crops and annual forages systems. The first meeting will be held on December 12, 2017 at the Helvering Center (111 S. 8th St, Marysville, KS) with a start time of 6:30 p.m.; please RSVP to Anastasia Johnson at anastasia@ksu.edu or 785-562-3531. The second meeting will be held December 13, 2017 at the Blue Hill Community Center (555 W. Gage St. Blue Hill, NE) with a start time of 6:30 pm.; please RSVP to Brad Schick, brad.schick@unl.edu or 402-746-3417. The final meeting of the series will be December 14, 2017 at the Gateway Civic Center (1 Morgan Dr. Oberlin, KS) with a start time of 6:30 p.m.; please RSVP to Alyssa Rippe, alyssar@ksu.edu or 785-475-8121. Dinner will be provided and there is no cost to attend. Speakers include Dr. Mary Drewnoski and Dr. Karla Jenkins, UNL Beef Specialists and Dr. Jaymelynn Farney, KSU Beef Systems Specialist.

Nebraska Soybean Day and Machinery Expo December 14: Dicamba issues and recommendations for achieving more precise herbicide applications are among the timely pest management and production topics slated for this year's Nebraska Soybean Day and Machinery Expo. The event, which includes equipment and exhibitor displays, will be from 8:30 a.m. to 2:15 December 14 in the pavilion at the Saunders County Fairgrounds in Wahoo. Dr. Jason Norsworthy from University of Arkansas is the featured speaker and will focus on dicamba. Additional speakers include Chris Proctor, Weed Science Educator and Michael Swanson, Wells Fargo Chief Ag Economist. The expo also will include an update on the Nebraska Soybean Checkoff and association information. While the event and noon lunch are free, the Saunders County Soybean Growers Organization asks that each attendee donate one or more cans of nonperishable food to the food pantry. Registration is available at the door. For more information call (800) 529-8030 or e-mail kglewen1@unl.edu. This program is sponsored by Nebraska Extension, the Nebraska Soybean Board, Saunders County Soybean Growers Organization and private industry.

Jenny's REESources-November 26, 2017

Corn Residue Removal Impacts on Yield: This article will focus on residue removal via baling and yield impacts sharing data from numerous research studies. A reminder that grain yield is related to residue production; with every 40 bu/ac of corn produced (56 lbs at 15.5% moisture), 1 ton of residue (at 10% moisture) is produced.

Like anything, residue removal has both positive and negative effects. Positive effects include reducing disease pressure from residue-borne pathogens, increased soil temperature leading to increased microbial activity and reduced nitrogen immobilization, increased germination and uniform plant emergence due to warmer soil temperatures. Negative effects of residue removal include increasing the potential for wind erosion (0, 27%, and 37% in first, second, and third year of a Nebraska study on sandy loam soil), water loss to evaporation (2.5-5"/year in North Platte study), soil loss through heavy rain events in the spring on sloping fields, increasing the raindrop impact reducing soil water infiltration rates leading to more water runoff, increasing the potential for weed pressure, and nutrient removal from the field.

Usually greater than 30% residue is left after baling with many striving to leave at least 50% residue in place. Research has shown a minimum of 2.4 tons/acre of residue is necessary to maintain soil organic carbon in no-till systems. A study conducted in eastern Colorado found that in a no-till, continuous corn system with 66% residue removal and adequate nitrogen applied for crop needs, soil organic carbon decreased over the 7 years of the study compared to its increase in the check where no residue was removed. Residue removal did result in yield increases in the study (mostly within the first 3-4 years) with the researchers recommending residue removal every other year to every third year in this type of system to negate losses in soil carbon while potentially increasing yields.

A three year Nebraska study with non-irrigated site at Lincoln and irrigated site at South Central Ag Lab near Clay Center (both no-till continuous corn on silt loam soils) suggests that potentially greater than 30-50% residue could be removed depending on the soil type when a cover crop is used as an amelioration practice in the system. The amount of residue removed and cover crop termination date did not affect corn yield when all three years were combined. There were individual year and location effects on corn yield suggesting these effects may be year and/or site-specific.

A non-irrigated study in no-till continuous corn receiving treatments of 0 or 50% residue removal with 54, 107, and 160 lb/ac nitrogen application to the successive crop was conducted for 10 years at the Ag Research Development Center near Mead, NE. Results found corn yield reduction of 1.9 bu/ac when residue was removed over the 10 year period vs. when residue was retained. It was speculated the yield reduction was due to evaporative losses of water in the non-irrigated environment. Yields were significantly less with only 54 lb/ac of nitrogen applied to the corn crop and there were no significant yield differences with 107 or 160 lb/ac nitrogen applications.

An irrigated study in both no-till and conventional till continuous corn with 0, 40%, and 80% residue removal was also conducted for 10 years at the ARDC near Mead, NE with 180 lb/ac of nitrogen applied to all treatments. Soil samples were also collected at 1 foot increments to a total of five feet to measure any changes in soil carbon. Results showed grain yields were greater in the disk till compared to no-till study regardless of percent residue removed. A 40% residue removal resulted in a 5.8 bu/ac average yield increase in disk-till and 15 bu/ac yield increase in no-till. However, soil organic carbon over the 10 years of study in the top foot of soil decreased significantly for all treatments except for the no-till, no residue removal. It remained similar for all treatments in all depths below the top foot.

Authors in another study analyzed 239 site-years across 36 research studies mostly in the U.S. Corn

Belt finding on average a 3% yield increase with residue removal vs. no residue removed. They also found a 20% yield increase across these studies in tillage vs. no-till systems where no residue was removed. There was no tillage effect on grain yield with moderate and high residue removal. Thus the suggestion that incorporating some residue removal into a cropping system could aid application of reduced tillage systems across more acres in environments where water deficits are not limiting to crop productivity.

A soil erosion study was conducted in a field near York, NE from 2006-2009 where portions of the field contained 8% slopes. Treatments included strips with 0 and 53% residue removal following grain harvest. Within these treatments were subplots where cobs were retained and removed. Simulated rainfall of 1.7" in 30 minutes was then applied to these plots under a known soil moisture content and then applied again the following day under saturated moisture conditions. Runoff from the simulated irrigation occurred within 196 seconds where residue was removed compared to 240 seconds where it was not. Sediment loss was 30% greater when residue was removed and cob removal had no effect on runoff or sediment loss.

To summarize, these and other studies show that where moisture is not limited, residue removal can result in no yield reduction to yield increases for the subsequent crop. Most often it was speculated or correlated to warmer soil temperatures allowing for more uniform seed germination, emergence and plant stands. Residue removal doesn't come without cost, though, as continuous removal beyond three years has shown negative impacts on soil carbon. Sediment loss has also been shown to occur on sloping soils or sandy soils via wind erosion. Considerations should include residue removal on fields with minimal slope. Also consider reducing impacts on the soil by planting cover crops, reducing tillage practices, and adding manure on fields where residue has been removed. Research results on these types of amelioration practices will be shared next week.

Grain Marketing Workshop York Dec. 12: Topic: strategies for using futures and options to protect farmers from adverse market movements. Will feature the 'Marketing in a New Era' simulator and 'Grain Marketing Plan' smartphone app. Dec. 12 in York at 4-H Building from 9:30 a.m.-3p.m. No charge and lunch included. RSVP (402) 362-5508. Will also be held Dec. 11 at Extension Office in Beatrice.

Farmers/Ranchers College Dec. 7: "Positioning for Success in the Economic Reset" w/ Dr. David Kohl, Professor Emeritus, Dept. of AAEC, VA TECH at the Opera House in Bruning, NE from 1-4:00 pm. RSVP (402) 759-3712.

Ag Liens, Loans, and Leases Dec. 13: This workshop will be held in Davenport December 13 at the Community Center from 10 a.m.-2:30 p.m. There is no charge and lunch will be provided. RSVP at 800-464-0258.

Jenny's REESources-December 3, 2017

Amelioration Strategies after Corn Residue Removal: The last two weeks I've shared research results regarding corn stover removal and impacts on nutrient, soil erosion, soil organic carbon, and the succeeding crop yields. Most of the studies, including the ones I write about here, are continuous corn and stover removal each year to determine the potential worst case scenarios and recommendations for producers. Some have asked how amelioration practices such as cover crops and adding manure affect nutrient and soil properties when corn stover is removed. More research has been published in the past year with research ongoing. A key factor when looking at these research results is to know what was the soil type in the study; silt loam soils and irrigated situations appear to be more resilient than sandy ones and non-irrigated environments.

One study from 2013-2016 looked at soil property changes and corn yield with 5 different corn residue removal rates (0, 25, 50, 75, and 100%) and the addition of three cover crop treatments (no cover; early cereal rye termination of 2-3 weeks prior to corn planting; late cereal rye termination mostly occurring within 10 days after corn was planted). This was studied in a non-irrigated (Rogers Memorial Farm near Lincoln, NE) and an irrigated environment (South Central Ag Lab near Clay Center) both in no-till continuous corn systems. Both locations had silt loam soils. Residue was removed in mid to late October each year at each location and cereal rye cover crop treatments were drilled shortly thereafter. The cover crops were not irrigated for establishment or additional growth.

For soil properties, wet aggregate stability (to determine potential for water erosion), concentrations of particulate organic matter, soil organic carbon and total soil N after three years of management were measured.

There was a reduction in size of wet aggregate stability in the non-irrigated site over three years with complete residue removal suggesting the potential for increased water erosion. Irrigated soils may be more resilient in their response to wet aggregate stability to residue removal suggesting that more residue could be removed from irrigated sites compared to non-irrigated sites in the short term. Early termination appeared to have no effect on offsetting the corn residue removal effects on water erosion potential. Later termination of the cover crop resulted in increase of wet aggregate stability at both locations. On average, later cover crop termination resulted in 0.7 tons/acre biomass compared to 0.2 tons/acre under early termination. Increased cover crop biomass occurred where residue was removed compared to where it was not. The authors suggest that a cover crop biomass yield above 0.4 tons/acre may offset the water erosion potential effects of crop residue removal.

Soil organic carbon and total nitrogen concentrations weren't significantly affected by either residue removal or timing of cover crop termination in either site after three years. This suggests that in the short term, even high rates of residue removal do not reduce these concentrations. Addition of cover crops after residue removal at both sites increased soil organic carbon concentrations. A 13.5% increase in particulate organic carbon was observed with later termination over early termination and the control treatments at the irrigated site at the 1 foot depth. There were no effects at the 2 foot depth.

Residue removal and cover crop termination date did not affect corn yield when all three years were combined. There were individual year and location effects on corn yield suggesting these effects may be year and/or site-specific. It was noted that corn was shorter in the non-irrigated field at 0% residue removal vs. 50% and 100% residue removal early in the season; however, the heights were consistent by tasseling. This is similar to the irrigated field in which corn was taller early in the season at the 100% residue removal compared to 0% and 50% with similar heights for all residue removal treatments by tasseling. Residue removal and cover crop termination date also didn't affect the amount of residue the

corn plants produced each year. The overall conclusion of the study suggested that higher than the suggested 30-50% of residue removed may be possible in some soils (such as silt loam) when cover crops are used to help ameliorate the effects of removal.

Another Nebraska study near Bellwood looked at effects of aerial interseeded cereal rye vs. no cover into a standing corn crop in late August/early September from 2013-2015. Corn was harvested as high moisture corn followed by residue removal treatments of 71% corn residue removal or no removal on a sandy loam soil. This study was conducted on strip-till, irrigated, continuous corn. They found that the treatments did not affect fertility properties or subsequent corn yield. However, increased wind erosion was noted by harvesting 71% of the residue on sandy loam soils compared to no residue harvest or addition of the rye cover crop. The addition of the rye cover crop did not significantly impact soil properties on a sandy loam soil within three years but it tended to reduce soil erosion. It was also noted that biomass production by aerially interseeding the rye into standing corn vs. the authors' other studies of drilling the rye after harvest didn't appear to increase cover crop biomass in spite of being seeded two months earlier. This could be due to variability of establishment and biomass production of the aerially interseeded rye each year, which may have also been a limitation on impacting soil properties in a more positive way.

A five year study at UNL's South Central Ag Lab near Clay Center looked at corn residue removal and interactions of irrigation rate (full or limited to 60%), fertilizer management (112 lbs N/ac vs. 180 lbs N/ac) and amelioration practices of winter cover crop, manure, or no amelioration practice on continuous irrigated corn yield. Cereal rye was drilled in late October after harvest at a rate of 100 lbs/acre and was terminated two weeks prior to planting corn. For the manure treatment, sheep or cattle manure was applied following corn and stover harvest in the fall every two years based on phosphorus removal. Statistical yield increases occurred with stover removal and the 180 lbs N/ac nitrogen rate suggesting these yield increases could be expected in irrigated, no-till, continuous corn systems where residue was removed on silt-loam soils. There were no statistical yield differences based on irrigation amounts nor type of amelioration practice. Addition of cover crop or manure as amelioration practices did increase two types of nitrogen efficiency measured in the study while maintaining soil organic carbon and yield and reducing soil erosion.

My conclusion: these Nebraska studies suggest that the addition of a cover crop or manure after corn stover removal does not negatively impact the subsequent corn yield where water is not limiting and aids in reducing erosion on all soil types. Higher amounts of cover crop biomass (over 0.4 tons/acre) may be necessary to positively affect soil properties in the top foot in the short-term of 3-5 years. Studies are ongoing to determine additional and consistent impacts over time. An economic component of amelioration practices would also be beneficial.

Grain Marketing Workshop: Marketing grain may not be your favorite thing or your strength. Upcoming grain marketing workshops in Beatrice at the Gage County Extension Office (Dec. 11) and the 4-H Building in York (Dec. 12) are designed to help you understand futures and options to protect farmers from adverse market movements. Participants will use a computer simulator (computers are provided) to practice what you learn based on previous, actual market years. Participants will then leave the workshop having programmed a marketing plan into their smartphone using the Grain Marketing Plan smartphone app. Please RSVP to jrees2@unl.edu or 402-362-5508 if you plan to attend in York or 402-873-3166 if you plan to attend in Beatrice. There is no charge for the workshop, lunch is provided, and it will run from 9:30 a.m.-3:00 p.m.

Jenny's REESources December 11, 2017

Dicamba Training: At pesticide training last week (for Extension to train pesticide applicators), I learned some information that may be helpful to you as you make your plans for 2018 and pesticide purchases.

In October 2017, the Environmental Protection Agency required that soybean and cotton dicamba products (currently XtendiMax™, FeXapan™, and Engenia™) be classified as Restricted Use Pesticides (RUPs). This change requires anyone purchasing and using these products to be a licensed certified applicator whether for private, commercial, or non-commercial application. There was also a requirement by EPA for additional training on dicamba use.

We learned that this training is an additional training not currently covered in your pesticide training or by your current pesticide licenses. The new training includes requirements stated by the EPA in addition to Nebraska specific requirements stated by the Nebraska Department of Ag (NDA). It sounds as if training will be provided by each of the three companies in addition to Nebraska Extension. Extension's training will have an option of being online. Anyone providing this training has to use an NDA approved training (as they haven't all been approved yet). I'm hoping to also add this onto my pesticide training sessions scheduled for 2018 and will share more on that at a future time. Each dicamba training session will take 45 minutes to an hour.

All training sessions (including online) must have a way for attendee names to be added to an NDA website showing who attended the approved trainings. Attendees may receive certificates at training sessions, but NDA is asking that retailers don't honor them. They are asking retailers to please check the NDA website before allowing soybean dicamba products to be purchased and leave their facilities. The website is considered proof of training and certificates are not.

What if you have extra soybean dicamba products you purchased in 2017 and plan to use them in 2018? Legally you must follow the label on the products you purchased in 2017 and would be exempt from this training if you didn't purchase any soybean dicamba products since the EPA ruling.

Worker Protection Standard: During pesticide trainings the past two years, I shared changes that were coming as a result of the Worker Protection Standard (WPS) administered by EPA. Some of these changes went into effect in 2017 so a large number of you learned about them as it's our big certification year. We weren't sure what would happen regarding the proposed 2018 changes to WPS with the current administration. So far, the changes will go into effect other than how pesticide applicators are trained as Extension is still allowed to provide pesticide training.

WPS applies anytime the label says to follow the Worker Protection Standard. Usually I see this under the "Agricultural Use Requirements" portion of the label. WPS applies to employers (person who is owner or responsible for management or condition of a farm, forest operation, or nursery), commercial pesticide handler employer (one who commercially employs individuals to work with pesticides) and their handlers (anyone employed/self-employed receiving wages/money for mixing/loading/transferring/applying pesticides, etc.).

One change I mentioned went into effect in January 2017 was the following: if a respirator is required as personal protective equipment (PPE) on the label, the person must have a medical evaluation and fit test before using the product. We learned at our pesticide training what's required to perform a fit test and the fact that very few in Nebraska perform these so that you can be in compliance. They were training us in the event we chose to do this as a service-and we're still deciding. The label will say what type of respirator is allowed for the product. During the fit test the person wears the respirator and does a series of exercises after a substance (like sugar) is sprayed to determine how well

the respirator has sealed and if it is a good fit for that person. Men with beards or facial hair beyond a mustache can't pass a fit test as there won't be a good seal. Powered Air Purifying Respirators (PAPRs) don't require fit tests as they are loose fitting. Those may be an option if they are allowed on the pesticide label you're looking at.

I mention this now as you're looking at pesticide products for next year. Some products require respirators and others don't-and that may be the difference for some of you in what products you choose. You may also choose to have a commercial applicator spray products requiring respirators instead. You may also choose to have yourself and your employees fit tested. I did ask if there was a list of pesticides that required respirators so it would be easier to look this up. It sounds as if no one is aware of a list like this. If you are aware of this type of list, please share with me so I can share it.

You can find updated WPS posters available for printing and ordering, guides on how to comply with WPS and a separate guide on respirators at the Pesticide Education Resource Center:

<http://www.pesticideresources.org/>.

Great Plains Grower Conference: The Great Plains Growers Conference will be held on January 11-13, 2018 at the Fulkerson Conference Center on the Missouri Western State University Campus in St. Joseph, Missouri. The conference and trade show is a collaborative effort by University of Missouri Extension, Lincoln University Cooperative Extension and Research, Iowa State University Extension, Kansas State University Research and Extension, and Nebraska Extension. Last year the conference drew over 500 producers and exhibitors from 22 states.

On Thursday January 11th, the conference kicks off with five daylong workshops, including "Cover Crops and Soil Health"; "Food Safety Modernization Act (FSMA) Grower Training"; "Hops Potential", "Reducing Food Losses" and "Honeybee Management". Concurrent sessions on Friday and Saturday January 12th and 13th provide a total of over 50 presentations on a wealth of subjects. In addition to presentations on conventional and organic vegetable production, there will be tracks on tree & small fruit production, beginning & advance organic production, season extension, greenhouse and hydroponics, cut flowers and farm to school program.

A full program, registration information and conference details will soon be available at the conference website: www.greatplainsgrowersconference.org. For more information, contact Sarah Browning, Nebraska Extension at sarah.browning@unl.edu or phone (402) 441-6747.

Jenny's REESources-December 17, 2017

Cows and Downed Corn: In speaking with a couple area veterinarians and also our Extension Beef Specialists, they brought up a good point in the downed corn discussion. Their concern was the cattle may be acclimated to grazing the first field of downed corn, but if left on that field for awhile once the corn is cleaned up, they would need to be re-acclimated to the next field of downed corn. I mention this as we're getting reports of some cattle losses in various parts of the State where producers didn't have problems with the first field but are experiencing problems on the second one. For more information on acclimating cattle to graze downed corn, please see the following article: <https://go.unl.edu/8j4n>. This weblink also contains an excel spreadsheet that can be downloaded to help you determine how many acres to give the number of cattle you have available to graze depending on how many bushels of corn are on the ground.

York Ag Expo: The York Ag Expo will be held January 10-11 at the Holthus Convention Center in York. There is an excellent Prime Rib Dinner being held on Wednesday, January 10th at Stone Creek Event Center, McCool Junction. Entertainment for the evening is Lyndy Phillips. Tickets are \$30 and may be obtained by contacting the Chamber Office at 402-362-5531. A list of sponsors and exhibitors can be viewed at: <http://yorkchamber.org/yorkagexpo/> and exhibitor entries are still being welcomed.

This year, Nebraska Extension is offering educational sessions as a part of the Expo. The following topics will be presented and will allow you an opportunity to get certified/recertified for chemigation and/or pesticide training in addition to learning about interesting topics. No alcohol is allowed in educational sessions. We hope to see a good turnout for these sessions!

- January 10th from 9 a.m.-Noon: Chemigation Training (pesticide and fertilizer application through irrigation equipment). Presented by Steve Melvin.
- January 10th from 1 p.m.-4 p.m.: Cover Crops/Annual Forages for Grazing including Farmer Panel. Presented by Mary Drewnoski, Jenny Rees, Tyler Burkey on his annual forage system, and several area crop/livestock producers on the producer panel.
- January 11th from 9 a.m.-Noon: Private Applicator Pesticide Training (Fee \$40). This **does not** include dicamba training. Presented by Jenny Rees.
- January 11th from 1 p.m.-4 p.m.: Precision Ag including mapping for profitability and unmanned aerial systems for decision making. Presenters being confirmed.

Crop Production Clinics: For those of you familiar with our Crop Production Clinics, they have changed again this year and locations are limited. Commercial and non-commercial applicators can still re-certify in the ag plant category and private pesticide applicators can also recertify at the clinics. There no longer are clinics being provided in York and Hastings as in the past. Locations are North Platte on January 11th, Norfolk on January 15 and 16 (same program both days), and Lincoln on January 18 and you can register for any of these at <https://agronomy.unl.edu/cpc>. Last year they tried a new program called the Nebraska Crop Management Conference in Kearney and are holding that again this year January 24-25. The same topics from the typical crop production clinic are also offered there in addition to chemigation and dicamba training, several keynote speakers, and a variety of other crop-related topics not available at the other clinics. More information and registration for that clinic can be found at: <https://agronomy.unl.edu/NCMC>.

Farm Custom Rates: Every two years, the UNL Ag Economics Department updates the Farm Custom Rates, one of Extension's most-used publications. Our new specialist, Glennis McClure is seeking input from Nebraska custom operators who would like to participate. To do so, you're invited to submit your contact information now to receive the survey when it is released in January.

Part one of the survey asks about spring and summer operations such as tillage, planting and haying. The second part surveys operators providing machine hire services typically done in the fall, including grain harvest, hauling, cutting ensilage, hauling livestock and other miscellaneous operations. Results for the 2018 survey will be published mid-2018.

Custom operators who would like to be a part of the survey when it is sent out in early 2018 can visit <http://farm.unl.edu/customrates> or send their contact information to Glennis McClure at gmcclure3@unl.edu or via mail to the Department of Agricultural Economics, P.O. Box 830922, Lincoln, NE 68583-0922. The deadline is February 15.

Christmas Trees: Kelly Feehan, Extension Educator in Platte County shares the following, "When using a real Christmas tree, insects overwintering on the tree might become active in the warm indoors. If insects are noticed on a Christmas tree, control of these harmless and temporary invaders should be limited only to non-chemical means. Aerosol insect sprays are flammable and should NOT, under any circumstances, be sprayed on a Christmas tree. Insects found on the tree can be ignored until the tree is removed. Any that might leave the tree and be found on ceilings, walls, or windows are best vacuumed or discarded in a tissue. The majority of insects that might find their way indoors on a Christmas tree will not harm people, pets or wood; and most will not survive indoors for very long, making them a temporary nuisance. So again, never spray a Christmas tree with a flammable aerosol insect spray if any insects are noticed on a live Christmas tree.

If you have a real Christmas tree, water it daily to keep it fresh and safe. A Christmas tree can take up to a gallon or more of water daily depending on its size and condition. Providing plenty of water will keep the tree fresh and maintain aroma for four to five weeks. And just use water with no additives. Research has found that plain water is best. Commercial preservative mixes, aspirin, sugar, and other common home remedies do not provide any benefits in keeping Christmas trees fresh. If the tree stand does dry out, this will shorten the length of time a tree remains fresh. Once the water is gone, water-absorbing cells become plugged with resin and the tree's ability to continue to take up water is greatly reduced. The only way to fix the problem is to make a fresh cut to the base of the trunk; not easy to do with a decorated tree so make it a habit to check the tree stand daily."

Jenny's REESources-December 22, 2017

Here's wishing everyone a blessed Christmas with family and friends!

Pesticide Recertification Information: I received a number of calls this week regarding pesticide recertification dates. The week between Christmas and New Year's, a letter explaining pesticide recertification and our winter program brochure will be mailed in all the counties I serve and will list all the upcoming recertification dates and other upcoming programs. You can also view all the dates located throughout the State at: <https://edmedia.wufoo.com/reports/2018-psep-private-training-dates/>. I will not be having dicamba training as a part of pesticide recertification as it will be available online and will share more details in the coming month as we receive them.

Beef Cattle Report: The 2018 Nebraska Beef Cattle Report is now available. The report provides a summary of the latest beef cattle research conducted at the University of Nebraska–Lincoln. The report can be accessed at <https://beef.unl.edu/2018-nebraska-beef-cattle-report>

BeefWatch Newsletter: Some of you may be interested in UNL's BeefWatch newsletter which shares a number of upcoming programs for cattle producers. Most of these are held in west-central Nebraska but sharing in the event they may be of interest to you. You can find all these programs in addition to other articles at: <http://newsroom.unl.edu/announce/beef/7288>.

Farmers Sought to Join in Data-Intensive Farm Research: Researchers and farmers are collaborating on a project using GPS-guided precision ag technology. The goal of Data-Intensive Farm Management (DIFM) is to revolutionize farm management by assisting growers in implementing scientific experiments on their own farms. This will enable growers to increase their profits by making data-driven management decisions.

The public will have an opportunity to learn about the on-farm research results gathered so far at a meeting Wednesday, January 10 at the Hall County Extension office, 3180 W. Hwy. 34, in Grand Island. It will be from 12 to 3 p.m. To RSVP for the complimentary noon lunch, call 402-624-8030.

According to University of Nebraska Precision Ag Engineer Joe Luck and Nebraska Extension Educator Keith Glewen, growers and agronomists are being sought to participate in the project. Growers using variable rate seeding in continuous corn production and those using variable rate nitrogen fertilizer application should consider participating. The initial meeting will provide information on yield results and Veris® data, aerial imagery, and economic information.

Data-intensive farm management field trials are highly computerized, automated, and are conducted on large-scale, on-farm "checkerboard" field plots. Specialized software "instructs" variable rate equipment to work with GPS technologies in order to implement the experiment while growers simply drive through the field.

Participants are compensated for yield losses due to treatments, details of which will be provided at the January 10 session. Growers interested in participating are asked to consider having information available about planting, fertilizer, and harvest systems as well as the variable-rate controller they use. For more information, contact Luck at 402-472-1488 or jluck2@unl.edu, or Glewen at 402-624-8030 or kglewen1@unl.edu. Information is also available online at <https://go.unl.edu/january2018difm>.

Nebraska Sorghum Symposium: The Nebraska Sorghum Symposium offers timely and useful information to help sorghum farmers make confident, informed production and management decisions for their 2018 crop. Sponsored by the Nebraska Grain Sorghum Producers Association (NeGSPA),

Nebraska Grain Sorghum Board, and Nebraska Extension, the symposium will be held at the Nebraska College of Technical Agriculture in Curtis, 404 East 7th St., beginning at 9 a.m. January 18.

Program presentations include: Al Dutcher, associate state climatologist, with a weather outlook; Cody Creech, extension dryland cropping specialist, on sorghum production in western Nebraska; Galen Erickson, extension beef feedlot nutrition specialist, on sorghum's grazing value and how it works in cover crops; Dennis Macfee with Ag West Commodities with a market analysis and look at demand trends for 2018; Scott Staggenborg, vice-president of research and development for Chromatin, on important production and management strategies and new technology in sorghum; Matt Stockton, extension ag economist, on managing risk in uncertain times; and a representative of the National Sorghum Producers with an in-depth look at new developments and policy priorities as they work on behalf of sorghum producers – both at home and abroad.

The program will conclude with the annual membership meeting of NeGSPA and an update report by the Grain Sorghum Board. All sorghum growers and allied industry are invited to attend. Conference registration can be done by emailing sorghum.board@nebraska.gov or by calling the office at 402-471-4276. The Sorghum Symposium is free and includes lunch. Registration begins at 9 a.m. with coffee and rolls and viewing of commercial exhibits. CCA credits have been applied for.