Jenny's REESources-April 3, 2016

Hi! My name is Jenny Rees and I began as the Nebraska Extension Educator for Crops/Water in York/Seward counties on April 1. For the past nearly 12 years, I've served the people of Clay and surrounding counties in a similar role. Extension provides me the opportunity to learn something new every day, meet and develop relationships with people, continually be challenged by the things our farmers and those in ag industry face, conduct research with farmers and ag industry to answer the questions you have, and have the opportunity to help people every day. God has greatly blessed me in my career thus far and I'm looking forward to this new chapter in my life and career and in hopefully meeting many of you.

As you may have read in my newspaper introductions, I grew up on a small farm near Hoskins, NE where my parents still farm. My dad raises corn, soybeans, alfalfa, and pasture and has a cow-calf operation. I grew up the oldest of five children and was often working with dad in the fields and (at that time) managed the farrowing barn in our farrow to finish hog operation.

I'm thankful for the hard work ethic my parents and living on the farm instilled in me and have such an appreciation for our farm families. I'm also grateful for the opportunity to work with farmers every day to help you solve the problems you're facing. If you're not familiar with Extension, the goal of Extension is to transfer the research-based information from the University of Nebraska to the people of this state in a way that is understandable to you. Our role is also to take the problems you're facing to our researchers at the University so they're more in tune with the people's needs. It's a beautiful system envisioned and implemented by President Abraham Lincoln and others over 100 years ago.

My expertise in in crops having received my degrees in agronomy and crop protection and a master's degree in plant pathology (plant diseases). I enjoy being in the fields helping to diagnose problems and to help provide opportunities for solutions. I also enjoy working with farmers and ag industry regarding on-farm research. On-farm research is when we take the questions farmers have and conduct field-scale research using your own equipment on your own farm to answer these questions. Because this research is conducted by your farmer-peers, it tends to be what farmers find great interest in when we present at winter meetings. One of my goals is to engage more farmers in the York/Seward county area in on-farm research in the future.

There are a few primary areas I'm interested in working: increasing the number of farms with a third crop in rotation/implementation of livestock in the system; increasing consumer confidence in our food system by sharing the science of terms such as genetically modified organisms, gluten free, etc.; and in water quantity and quality.

One long-term on-farm research project is implementing cover crops and livestock grazing into a corn/soybean/wheat or seed corn/soybean/corn rotation while documenting water use. Cover crops naturally fit in systems where wheat, seed corn, or silage are part of a rotation. What we need more information about is the integration of grazing in these systems in addition to water use information (particularly in non-irrigated situations). I have one location already in Nuckolls County for this study and am seeking an interested cooperator to work with regarding this in York and in Seward Counties. Please give me a call at (402) 440-4739 or email me at jrees2@unl.edu if you're interested in working with me on this! I look forward to serving you in my new role in York/Seward Counties!

Jenny's REESources-April 10, 2016

Wheat Update: Two weeks ago I found leaf rust in the western part of Nuckolls and southern part of Clay Counties. Last week I had several calls regarding yellowing wheat in that part of the State. A combination of things appear to be occurring. Darker green patches or patterns of wheat tend to be places where the wheat was planted deeper and had better seed to soil contact. It also could be that the whole fields were planted at the same depth, but the greener areas are those where there was more compaction in the soil leading to better seed/soil contact. These areas have a more developed root system to uptake moisture right now. Wheat is moisture stressed in general in that part of the State and burning from liquid nitrogen applications could also be observed. I think the warm, windy weather with lack of moisture reduced the spread of rust last week. However, in a few fields, I also found stripe rust in addition to leaf rust. These fields must be more susceptible varieties and I need to check with the growers on the varieties. For now I'd say to continue to scout your wheat for disease. Some fields were jointed (growing point above ground) while many more weren't yet in that area. Generic fungicide products work well this early in the growing season if you end up needing one for your field and you can find a fungicide table with disease ratings at: http://go.unl.edu/5dgr. I was also finding bird cherry oat aphids in low levels in fields (deep in the canopies). The concern here is these aphids can vector barley yellow dwarf virus; we won't know if it's a problem until the flag leaf emerges and turns yellow-purple.

Soil Temperature: One of the main questions I receive this time of year is "what is the soil temperature". If you'd like to view this for yourself, you can do so at our CropWatch website: http://cropwatch.unl.edu/cropwatchsoiltemperature. You have to interpolate where your county is, but that's not hard to do. The first photo is the 7 day average soil temperature at 4" depth. The second photo is the soil temperature from the previous day and the third photo is the difference of this year compared to the past 30 year average. The current seven day soil temp averages for Clay county south range from 52-56F and for York/Seward are from 52-54F. Also, be sure to check out http://cropwatch.unl.edu or subscribe to our newsletter that comes to you via email as it's our one-stop resource for all crop-related information from Nebraska Extension.

Lawn Care: Lawns rapidly greened up this year and the mowing has begun. Just a reminder to never remove more than 1/3 of the new growth on your lawn. Spring and fall are when lawn grasses send their roots deeper and they begin to slough off in the summer time. Also, Nebraska Extension recommends a 3" mowing height year-round, so be sure to raise your mower up to reduce stress that way as well. Now is the time to sharpen your mower blades as doing so prevents shredding of the grass, which also reduces disease onset.

Regarding pre-emergence herbicides for crabgrass, we say to wait till soil temperatures are in the mid-50's. For those who applied early, you may need to apply a second application in early June for full-season control. Make sure to read the label and not exceed the maximum annual use rate for the pre-emergence herbicide. With current soil temperatures, consider getting your pre-emergence on soon as they were already seeing crabgrass emergence in Lincoln. We would also recommend not applying fertilizer with your crabgrass preventer as early nitrogen applications just create lush growth and the need for more mowing. They also can deplete sugar reserves used to help with summer stress and rooting. It's important to remove all grass clippings and pesticide product from sidewalks and driveways back into your lawn as rain and irrigation move all of this into our storm water system if we don't. Regarding fertilizer, for a well-established turf stand, wait to apply fertilizer of 0.75-1.0 lbs/1000 sq. ft. in early-May until mid-June and look for products that contain 25-50% slow release nitrogen on the label.

Jenny's REESources-April 17, 2016

Crop Update: Last week's dry weather led to many planters in the fields. This week's UNL CropWatch at http://cropwatch.unl.edu has several stories regarding planting and potential freeze information in addition to wheat information. One story a team of us wrote was regarding considerations for planting including crop insurance, soil temperature the first 48 hours after planting, frost, and replanting. For crop insurance, the earliest date for planting soybeans is April 25th and we're past the corn dates.

While I don't have research on this, through observation, one can sometimes trace back declines in yield at harvest due to specific planting dates when a cold snap caused drops in soil temperature within 48 hours of 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. After that 48 hour time-frame, reductions in soil temperature below 50F are less likely to affect germination as the water uptake occurs via osmosis and is slower. 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. Staggering planting dates can help with staggered emergence dates, thus reducing your risk if a late spring freeze occurs. Another risk consideration are rain days such as what occurred in 2015 when spring rains prevented farmers from planting some areas of the State in a timely manner and in some cases, at all. Thus the risks of a late spring freeze verses not planting in a timely fashion must be weighed. Probabilities for late spring (28F) freeze in your local Nebraska area can be viewed at: http://cropwatch.unl.edu/2016/spring-freeze-risk.

The reason why plant tissues do not typically freeze around 32F is because solutes are present in the membrane-bounded cytoplasm of plant cells (and also just outside of cell membranes) and they act like a very modest anti-freeze. So, when you examine the last spring freeze risk probabilities, you will want to use the 28F (not 32F) freeze risk probability tables.

As you begin planting, keep in mind crop insurance dates, know your soil temperature and check the forecast for the next 48 hours before you plant, and consider your potential for late spring frost. Here's wishing you a successful planting season!

Jenny's REESources-April 24, 2016

Crop Update: Last week's rains were truly a blessing and greatly needed! Scouting wheat in Clay and Nuckolls County, I found increases in aphid numbers (bird cherry oat aphid and corn leaf aphid) yet none were at economic thresholds. Our UNL Entomologists say we need 20 aphids per stem to justify spraying at this stage. You can view all the thresholds for various wheat stages here: http://go.unl.edu/6for. My concern is the fact that bird cherry oat aphids in particular can transmit barley yellow dwarf virus. This virus, once vectored, moves within the plant but doesn't show itself until the flag leaf appears yellow-purple in color. Because the flag leaf and two leaves below contribute over 80% of a wheat plant's yield, this does cause concern. Also watch for fungal diseases such as powdery mildew, stripe and leaf rust in the lower wheat canopies as all these appeared again last week at low incidence. Dr. Stephen Wegulo also found stripe rust moved from the lower canopy to the upper canopy in wheat in the Mead, Nebraska area last week. My hope is that for non-irrigated wheat, we can hold off on fungicide applications till flag leaf emergence with current wheat economics. It's just very important to be scouting your fields right now for aphids and disease as varieties also vary in their susceptibility and management decisions should be made on a field by field basis.

Soybeans: This week's CropWatch at http://cropwatch.unl.edu has a number of articles dealing with soybean planting considerations. Nebraska research since 2004 including on-farm research has documented planting date to be the primary factor influencing soybean yield. Research conducted in Lincoln in 2015 showed the April 23 planting date to yield the most compared to planting dates after this. Consider planting your soybeans in April to take advantage of the yield benefit with the key in mind of looking at the forecast for 48 hours and aiming for planting when soil temperatures are likely to remain at 50F or above for that time-period. The soybean study last year also found a benefit to mid-group 2 maturity groups only after a late-May planting date. This is something I'd like to see more research on in other parts of the State as we've seen some tremendous yields from farmers planting strong mid-group 2 genetics in late April. I'm unsure if this is due to the genetics alone or if there's some environmental factors also affecting this in south-central Nebraska. If you're interested in an on-farm research study comparing mid-group 2 vs. mid-group 3 varieties with April planting dates, please let me know at jrees2@unl.edu. Our on-farm research group also has a plant population study for narrow row soybeans that we'd like more farmers to consider if you're interested in that.

Lawns, Gardens, Trees: Are you noticing a silver-white appearance to your lawn right now? If you are, most likely it's due to powdery mildew, a fungal disease that affects turf. Susceptible varieties of Kentucky bluegrass in lawns like mine that have a lot of shade and not much air movement allow for this disease to occur. Management includes the use of preventive fungicides if you know you have a variety that's susceptible, reducing shade by keeping trees pruned, and overseeding with a resistant variety. If you're curious when is the best time in our area to plant different vegetables, Gary Zoubek, semi-retired Extension Educator, had put together a great resource and you can find it at: http://go.unl.edu/dd9j

Trees: If needles on the ends of spruce branches have dropped off, the tree could be infected with Sirococcus shoot blight. This fungal disease mainly affects current year's growth on spruce, with damage extending to last year's growth. Symptoms are similar to winter injury or frost damage; however, shoots killed by Sirococcus are scattered rather than uniform. Young nursery plants may be killed by this disease while damage to large trees is confined to lower branches and has little effect on plant health. Infected shoots should be clipped and destroyed to prevent spore dispersal. If needed, preventive fungicides, such as chlorothalonil may be effective on reducing infection on young trees. Two fungicide applications are typically made in May.

Jenny's REESources-May 1, 2016

Corn/Soybean Update: It never ceases to amaze me how quickly planting occurs each year! Corn planted the week of April 10th has emerged and for those fields that received hail from last week's storms, I'm hoping we don't see disease issues later on. Also of note, some have asked me about the CropWatch soil temperatures as they are higher than what some of you have been measuring in your fields before planting. The CropWatch soil temps at http://cropwatch.unl.edu/cropwatchsoiltemperature are averages of 24 hours under bare soil which may be different than the residue conditions in your fields and is an average of the entire day vs. one point in time. This may help explain some of the differences.

Wheat Update: Also surprising to me was how wheat progressed in one week! Wheat in Clay and Nuckolls counties have flag leaves emerged even though wheat is really short. The color is getting better thanks to moisture, root establishment, and nitrogen uptake. I also didn't see an increase in rust incidence this past week and aphid numbers were holding steady. For those asking about fungicides, I'm still hoping we can hold off a little longer with current wheat economics, especially since in those counties rust wasn't increasing due to the colder temps. With warmer temperatures this coming week, please be checking your wheat. If possible, one option that could be more economical in non-irrigated situations would be to consider treating your wheat once during flowering with either Caramba or Prosaro (as these products have been shown by research to both prevent scab at the proper application timing and also kill fungal diseases including rust already present on the leaves). We'll have to see what happens with rust development and with how long it takes for heads to emerge. There's also been consistency with some varieties rated high for rust resistance where I have yet to find rust in them-so that's a good thing!

Alfalfa Update: Many stands of alfalfa are lush green with over a foot of growth at this point. I looked at some alfalfa in Clay County that got dinged by cold temperatures in areas of the field and stopped growing. At this time I'm also finding quite a few aphids and a few alfalfa weevils. A disease common this time of year called spring black stem can be observed in nearly all alfalfa fields right now in the lower canopies. This disease consists of small black lesions on the leaves which eventually cause the leaves to turn yellow and drop. Normally this disappears with later cuttings as humidity and rainfall are typically high during the first cutting and can be managed with cutting the alfalfa. One option to consider according to Dr. Bruce Anderson, our Extension Forage Specialist, is to consider cutting alfalfa before bloom. He shares that weather can cause long delays and alfalfa doesn't bloom very aggressively during spring. Bruce felt there were advantages to cutting alfalfa when it is 15-20" tall before bloom during first cutting including: weather compared to later spring, spread out alfalfa harvest if you consider cutting one field earlier, reduction in insect and disease problems by early harvest, and high feed value. It also potentially allows the second cutting to be ready before the summer heat which can lower forage quality. Disadvantages include lower yield from cutting early which could be made up in later harvest, regrowth may be slower if cut early, and the need to allow for longer recovery after first or second cutting to maintain long-term stands. So, harvesting before bloom may be something you wish to test in one of your fields this year and consider how this works for you, especially if you did have some frost damage or are having insect/disease issues in your alfalfa right now.

FSA Update: Leann Nelson from York County Farm Service Agency (FSA) asked if I would share the following update, "Reporting your planted acres to FSA is a requirement for participation in many of the

USDA/FSA programs. If you would like to shorten the time you spend in our office for certification, contact the FSA office and request a set of your farm maps. We will give you step by step instructions as to what needs to be on the maps. When you have the maps completed, drop them off at our office. We will load the information into our crop reporting program and have everything ready for you to review and sign when you come into the office for your certification appointment. The deadline for certification is July 15th."

Jenny's REESources-May 9, 2016

Wheat Update: We've been seeing stripe rust in wheat for over a month now, but the amount of rust has remained low. Some have chosen to spray wheat at this point; however I'm also concerned about the potential for Fusarium Head Blight (scab) in wheat. Fusarium head blight is caused primarily by *Fusarium graminearum*, the same fungus causing Fusarium stalk, root, and ear rot in corn. The fungus survives the winter in corn and other small grain residue and then releases spores in the spring. However, wheat planted into soybean ground can still be affected by scab because the fungal spores can be wind-blown in addition to being water-splashed to wheat that is in the flowering stage.

According to research, wheat is susceptible from flowering through soft dough development stage. "Typical" fungicides used for control of fungal leaf diseases are off-label thus illegal to apply once the wheat has flowered and they do not have activity on the Fusarium fungus causing scab of wheat. Management for scab includes the use of the preventive fungicides Caramba or Prosaro. Both are labeled for headed and flowering wheat. There's a 30 day pre-harvest restriction for both. Rainfast varies from ¼ hour to 2 hours or when dry depending on environmental conditions. Both fungicides can help prevent scab and control rust on the plant. Research from the US Wheat and Barley Scab Initiative (which is a combined effort of several Universities in the U.S. and Canada) has found that the best prevention using these products occurs when wheat is headed and 30% of the plants are in the beginning flower stage. Application within five days of these criteria still showed positive results. This research also showed that application before or after this time period greatly reduced effectiveness of preventing scab. Understandably, the economics of fungicide application are difficult in wheat, yet, if you are aiming to make one application, this could be your best option for both scab prevention and controlling rust in your plants. The risk map for scab can be found at: http://www.wheatscab.psu.edu/. With wheat at heading to beginning flower and rain/humidity this risk in reality could be higher for us.

Soybean Planting Survey: In this week's CropWatch, we posted a very short survey regarding soybean planting practices. Please share your answers if you plant soybeans at https://www.surveymonkey.com/r/5FG8DXD and we will post the results in next week's edition!

Pine trees: Our warmer than average weather has led to the oddities of foaming pine trees and alcoholic flux oozing from a few tree trunks. These are unique to view, but not harmful to trees. What causes foaming pine trees is during dry weather, the salts and acids in sap that has accumulated on the bark, can combine to create a detergent like substance. When it rains, the now soap-like sap becomes sudsy and foam is seen on the trunk. If a whitish foam seen oozing from a trunk has a fermenting, fruity aroma; this is alcoholic flux. It can occur when microorganisms ferment sap in cracks and other bark wounds during warm weather. Alcoholic flux commonly occurs on stressed trees. While the stress may be due to any number of factors, a common one is the base of the trunk being damaged by lawnmowers or weed-whips. A practice that should be avoided by using a three inch layer of mulch around the base of trees. When mulching trees, make sure to keep the mulch layer from direct contact with the trees. Also make sure to spread the mulch evenly and not create "volcanoes" of mulch.

Youth Crop Scouting Competition: The 3rd annual youth crop scouting competition will be held on August 2nd at the ARDC near Mead, NE. Awards are cash prizes and the top two teams will advance to a Regional Competition near Boone, IA in competition with Nebraska, Iowa State Teams and Purdue Teams during the Farm Progress Show August 30-31st. More information and online registration can be found at http://cropwatch.unl.edu/cropscoutingcompetition.

Landscape Design Workshop May 25: On May 25, Faller Landscape will be presenting a Landscape Design Workshop for youth (adults are also welcome to attend). The focus of the workshop will be a design plan for the "Nebraska" area of the York County Fairgrounds. The workshop will be from 9 a.m.-Noon at the 4-H Building at the York Co. Fairgrounds and will include planting the plants at the "Nebraska" area. There is no charge and please contact the York Co. Extension Office at 402-362-5508 if you're interested in attending! Please also bring your gardening tools/gloves for planting the plants if you come!

Jenny's REESources-May 15, 2016

Corn and Soybean Update: After last week's storms, some have wondered how long their germinated seed and emerged plants could survive under water. There isn't a great deal of research regarding germinated corn hybrid seed. From some corn inbred research, it is not expected that germinated seed can survive in flooded conditions for more than four days. Within 48 hours, soil oxygen becomes depleted and crusted soils from heavy rains can lead to reduced emergence. A two day flooding event after soybean seed germination and imbibition (water uptake) reduced soybean stands from 20-43% in research conducted in the early 2000s.

Corn less than 6 leaf growth stage at temperatures less than 77F can survive around four days. Temperatures higher than 77F may only allow those emerged plants to survive around 24 hours.

As waters recede and for those who received hail on young corn, it will be important to monitor your plant stand. The high rains received early May 2015 in Nuckolls and Thayer counties resulted in a number of early corn diseases including bacterial soft rot and systemic goss' wilt which reduced plant stands. We also saw an onset of anthracnose and a *Xanthomonas* bacterial disease that we couldn't do anything about. Correct diagnosis will also be important.

We would recommend monitoring your plant stand in ten areas of your field, counting plants from two adjacent rows in each area and assessing the distance of gaps between plants. Digging in the areas where gaps occur can help determine if seedlings still have an opportunity to survive. Seedlings that have leafed out underground or are corkscrewed will most likely not develop normally and may never make it out of the ground; it's a judgement call on your part. An article is also provided in CropWatch this week to help with stand assessment for corn replant decisions at: http://go.unl.edu/iic6. One thing to keep in mind with the final decision table from Iowa State is that it all rests on an assumption of optimum planting of 35,000 seeds/acre planted in a window between April 20-May 5. That may or may not be a realistic assumption for your field conditions. Another thing to keep in mind is that while on average, as planting dates move into May, corn yields tend to drop, 2016 may not be an average year and the best planting date for 2016 with the weather conditions we've had may not have been the earliest ones. Regarding gaps, ISU shares gaps from 1.3-2.8 feet result in an additional 2% yield reduction while 4-6 foot caps result in an additional 5% yield reduction.

Wheat: Rain is falling this morning in parts of our area and wheat is in a variety of heading and flowering stages. While the risk management tool at: http://www.wheatscab.psu.edu/ still says "low risk" I've been concerned it had the potential to be higher with our growth stage and weather conditions. Last week I received numerous wheat fungicide questions. Caramba and Prosaro are the two products you can apply legally once your wheat is flowering. Twinline is off-label once flowering begins. Yes, it has metconazole in it (also active ingredient in Caramba) in addition to a strobilurin, but it only legally can be applied to Feekes 10.5 which is full heading and is off-label once flowering occurs. Caramba and Prosaro will help prevent scab in addition to kill the rust already occurring in your plants. Unfortunately, I was also starting to see barley yellow dwarf appearing in Nuckolls County fields. This virus is vectored by a number of aphid species. We'd been seeing aphids and stripe rust for a month at this point but both remained below threshold levels/low incidence. Barley yellow dwarf can be identified by the flag leaf turning a bright yellow-purple color. With 80% of wheat yield coming from the flag leaf and there being nothing you can do about barley yellow dwarf, this also needs to be part of your decision making process if you were planning on applying a fungicide for preventing scab/controlling stripe rust.

Conversations and Coffee: Our next "conversations and coffee" will occur on Friday, May 20th at 8:00 a.m. at the Clay County Extension Office. The Natural Resources Conservation Service will lead this conversation as they share about various government programs available to farmers. Please RSVP to Jenny at jrees2@unl.edu so we can plan for handouts/refreshments.

Landscape Design Workshop May 25: A reminder of our upcoming Landscape Design Workshop on May 25 from 9am-Noon at the 4-H Building in York. Youth and adults are welcome to attend this free workshop presented by Faller Landscape in York. They will teach on elements of landscape design as they share a perennial plant design developed for the "Nebraska area" at the York county fairgrounds. Youth and adults will then be able to create additional designs for annual plants. We will then learn how to take the design and correctly plant it during the workshop. There is no charge and please RSVP to the York Co. Extension Office at (402) 362-5508. Please also bring gardening gloves/tools for planting the plants. Youth and adults from surrounding counties are welcome to attend and Master Gardeners can receive educational credits/volunteer hours.

Jenny's REES-May 23, 2016

Crop Update: Corn is looking good for the most part with few major concerns yet. Some have commented on the yellow-looking corn. This is most likely due to cool, wet soils rather than any nutrient issues. There may be field-specific issues such as saturated soils, compaction, and some herbicides that can cause this yellowing too. Also had a call on cutworms in seed corn but not widespread calls on this yet. Extension Educators have set up light traps for tracking cutworm moths and you can find that information here: http://go.unl.edu/rhhe. Cutworms will cause the most damage the first 7 days after corn emergence so scouting is important. The York County Corn Grower Plot was planted on April 24th with the corn currently at 2 leaf stage. Special thanks to Ron, Ray, and Brad Makovicka for hosting and the work put into this plot each year!

Soybeans are emerging and the concern several have discussed is crusting. Soybeans have an amazing ability to push through crusted soil and we were hoping for rains this past weekend to soften the soil and help them along. I've watched soybeans lose both cotyledons when trying to push up through the soil. Surprisingly these often survive if the growing point is still intact, and a small plumule will begin to develop. The plumule, which is the seedling stem tip and its undeveloped leaves above the cotyledonary node, may remain, but without the cotyledons to serve as a carbon and nitrogen source, development of new seedlings with small leaflets will be slow. These plants may not become competitive with surrounding plants. Therefore, when counting seedlings to determine plant stand after a soil crusting event, count only the seedlings that have at least one cotyledon. You can count seedlings missing cotyledons if they have large unifoliolate leaves that will soon unroll. Information from Purdue University shows that losing both cotyledons can lead to 2-5% yield loss.

Wheat is in the late flowering to beginning milk stage in many Clay/Nuckolls county fields. Stripe rust increased in severity this past week in more susceptible varieties and barley yellow dwarf is also appearing more often in patchy areas of fields.

Irrigation Scheduling Equipment: With crops emerging, it's time to also think about installing your irrigation scheduling equipment. ET gages can be set out now. If you need a new green canvas cover and white wafer, we have extras in some of our local Extension offices or you can contact your local NRD. Don't forget to add water in the ceramic top portion of the gage! Sensors for measuring soil moisture content are easier to install when the corn and soybean crops are smaller to avoid breaking them off when they become larger. Dr. Suat Irmak, Extension Irrigation Specialist, doesn't recommend creating a slurry with the watermarks or capacitance soil moisture sensors based on his research. The reason is the sensor will essentially measure the moisture content of the slurry all summer instead of the actual soil moisture of the surrounding soil. Some have also mentioned to me that they pour a little water into the hole before installing the sensor; we would also not recommend this as it will change the reading of that location compared to the rest of the field. The following are some tips I use for installing watermark sensors. 1-Don't install the sensors when soil is saturated. We've often found a thin layer of clay hardens around the sensor which causes the sensor to read dry when the soil isn't dry. This is an easy fix later on by simply pulling the sensor out, rewetting it and reinstalling back in the same hole. Wait 48 hours before reading the sensor again. 2-Use two soil moisture probe sizes: I use the ag consultant's tube for the actual depth the sensor will be located and a regular soil probe for the depth(s) above it. For example, when installing a watermark sensor at 2 foot depth, I use a regular soil probe to make the first foot depth, and then the ag consultant tube to make the second foot depth. This allows for a snug fit where the sensor will be place and allows for the sensor to push more easily into the soil.

Diseases in Broadleaf Trees: Spring leaf diseases are common this year due to increased rainfall. We will continue to see an increase in ash rust, anthracnose, cedar/apple rust, apple scab and other minor fungal diseases. Heavily infected leaves are likely to yellow and drop early. While these diseases and leaf drop create concern for homeowners, these are minor diseases that do not cause major stress for trees or shrubs. While fungicide sprays can prevent new infections, they will not cure infections, and are often not recommended. Dryer weather goes a long way in reducing new infections. The following is a handy resource that may also be of help to you: http://go.unl.edu/7eio.

Too Late to Divide Perennials? No, there's still time. Wet weather has delayed work in many landscape beds this spring, but even though perennials are getting bigger there's still time to divide those that need it. In general we'd say to divide late blooming perennials in the spring and divide early blooming perennials in the fall/late summer. Some have asked about dividing peonies and lilies right now. You can do that; however they may not bloom for you this growing season. For more information, check out this YouTube video from Backyard Farmer: https://youtu.be/KUPyuDGsTNw.

Landscape Design Workshop May 25: A reminder of our upcoming Landscape Design Workshop on May 25 from 9am-Noon at the 4-H Building in York. Youth and adults are welcome to attend this free workshop presented by Faller Landscape in York. They will teach on elements of landscape design as they share a perennial plant design developed for the "Nebraska area" at the York county fairgrounds. Youth and adults will then be able to create additional designs for annual plants. We will then learn how to take the design and correctly plant it during the workshop. There is no charge and please RSVP to the York Co. Extension Office at (402) 362-5508. Please also bring gardening gloves/tools for planting the plants. Youth and adults from surrounding counties are welcome to attend and Master Gardeners can receive educational credits/volunteer hours.

Jenny's REESources-May 27, 2016

As I'm writing this with the upcoming Memorial Day weekend, I'm thankful for all those who paid the ultimate price for my freedom and my thoughts and prayers go out to those who have lost a loved one in serving our Country.

Soybean considerations: With many areas in central and eastern Nebraska getting more than 5 inches of rain in the past 30 days, soybean planting was behind the 5-yr average earlier this week. According to the USDA NASS Crop Report on May 23, soybean planting was 54% completed compared to the five-year average of 67% and last year's 54%. With the wet 7-day quantitative precipitation forecasts, many producers may be wondering if they need to rethink their agronomic practices such as relative maturity, row spacing and custom planting, and seeding rate as we try and finish planting soybeans in June. The following are considerations when planting soybean in June. Please also see the full article with tables and more information at http://cropwatch.unl.edu.

Seeding Rate: Many sources recommend increasing seeding rates by 10% after early June for drilled and planted beans. We understand this line of thinking to attempt to improve canopy closure by having more plants per acre, but there is some debate around this practice. An Iowa State University study published by DeBruin and Pederson in 2008 did not find a seeding rate (75K, 125K, 175K, 225K) by planting date (late April, early May, late May, and early June) interaction for yield, indicating no need for increased seeding rates at later planting dates. In addition, given that there is a wide range of seeding rates planted across the state, a blanket statement of a 10% increase may not be appropriate. Growers will need to evaluate this recommendation based on their normal seeding rates and planting equipment. Nebraska farmers through the Nebraska On-Farm Research Network have evaluated soybean seeding rates from 2006-2013, many under May planting conditions. A nice summary of the seeding rate studies can be found at the Soybean Population Kiosk. If you are interested in conducting a soybean seeding rate study under late planting conditions this year, contact Laura Thompson or Nathan Mueller.

Maturity Group: At this time we would recommend sticking with normal maturity groups (MG) for your area. Changing to shorter maturity groups is not needed at this time because late planted soybeans will typically require fewer days to reach maturity than earlier planting dates. Research from a 2003-2004 planting date study conducted at Lincoln (average response of 14 varieties — 3.0 to 3.9 MG) showed the mid-June planting date delayed maturity by 7 days compared to the early May planting date in 2003. In 2004, mid-June planting delayed maturity by 22 days even though the planting date was 50 days later. Because soybeans are photoperiod sensitive, flowering and development will be triggered by day length, resulting in similar maturity among planting dates, although earlier plantings will have more nodes and yield potential. Results from a 2013 South Dakota State University variety trial reinforce these findings. Maturity ratings on 55 varieties from 10 companies, ranging from 1.8 to 2.9 MG, were conducted at the Southeast Research Station in Beresford, S.D. In 2013, switching from a 2.8 to a 1.8 MG reduced the time to maturity by only 5 days. Therefore, changing maturity groups will not make a large difference in maturity so keep this in mind if you are considering changing to an earlier maturity group. If planting is delayed past June 15, you may want to go with the earliest maturity group number recommended for your area, such as reducing your MG number by 0.5-1.0. Frost before maturity becomes a concern with late June or July plantings, but don't try using a maturity group much shorter than that or you will sacrifice yield potential.

Additional Crop/Hort information can be found on my blog at http://jenreesources.wordpress.com.

Jenny's REESources-June 6, 2016

Crop Update: What a beautiful week! The primary crops-related question I received this past week was 'how to control marestail in corn and soybeans'. At this point, there's no options guaranteed for 100% control. Our Guide for Weed Management shows options for 80% control of glyphosate-resistant marestail in corn including: Buctril + atrazine, Buctril + dicamba, Hornet, Realm Q, Resolve SG/Solida or Resolve Q, and Status. Please read and follow all label instructions. For soybeans, options are even more limited with FirstRate at 70% for glyphosate-resistant marestail and the remaining options at 60% or less. Page 116 of our 2016 Guide for Weed Management provides options for consideration. Control is less achievable the taller marestail becomes.

Crops are looking good for the most part. Stripe rust and also septoria leaf blotch continue to progress on wheat plants as I've also received calls on yellow-looking wheat. There's nothing to spray in our area at this point. Wheat is filling nicely.

The South Central Ag Lab Weed Science (SCAL) Field Day will be held on June 29th at the SCAL near Clay Center. Registration is at 8:00 A.M. with program from 8:30 A.M. to 1:00 P.M. Three CCA credits are available, there is no charge, and lunch is included. Weed control options in corn, soybeans, and sorghum will be demonstrated. More information including brochure and pre-registration can be found at: http://agronomy.unl.edu/weedresistmgt.

Trees: The wet weather has also resulted in numerous tree questions. For some of our shade trees right now, newer leaves are curled, and sometimes turning yellow with brown/black discoloration on the leaf edges. I've seen this on maples, hackberry, oaks, ash, elm, and pear thus far in addition to grapes. This is most likely an environmental response to the cool weather and rain we've received. Sometimes these leaves will drop off and most often they will be replaced with new ones. There are some fungal diseases beginning to appear on tree leaves due to the wet, humid weather and we normally don't recommend anything for them on shade trees. Again, severely affected leaves may drop and new leaves will often replace the old ones.

I received numerous calls regarding herbicide drift and damage to trees earlier this spring. The affected leaves may have dropped and new leaves should eventually replace the previously-damaged ones on branches that were still alive. This process has been delayed this year due to our cool, wet conditions. Hopefully many of you see this occur within the next two weeks with the warmer weather.

Another common question has been regarding branches in shade trees that have just died while other parts of the tree appear normal. Whenever I see this, I begin looking at the base of the trunk for damage to the trunk itself or any surface roots that are circling the tree. Often damage from weed-eaters, lawn mowers, etc. can eventually explain why portions of a tree have died. Damage to the trunk in which the tree wasn't able to properly heal over can eventually inhibit water and nutrient flow to various portions of the tree. Most often an explanation to what is occurring is what we can't see-the roots. When trees are planted, it's really important to look at the root ball and make sure no roots are circling around the other roots. Roots growing in a circle can eventually girdle or choke the tree. A helpful resource on proper tree planting that shows circling roots in the root ball can be found here: http://www.nfs.unl.edu/documents/communityforestry/toptenmistakes.pdf.

Two other common problems in both trees and landscapes are landscape plastic/fabric and rock used for mulch. I've had several situations through the years where I was called out to look at windbreaks where landscape plastic/fabric was used. The trees are now 10-15' tall and dying. Often, digging under dead needles at the base of the tree, one can find the landscape plastic/fabric never expanded as the

tree continued to grow and it was visibly choking the tree. This often also happens in landscape situations. The original cuts are made in the plastic/fabric for the size of the plant at the time, but these cuts need to be expanded as your landscape plants and trees grow/expand. Regarding rock, it is a heavy material which is often placed on top of landscape plastic/fabric. Especially in sprinkler irrigated landscapes, the soil can be kept too wet-almost soggy. I've seen this situation cause fungal root rots and eventual plant death in landscape settings. I've also seen the rock get lodged into tree/shrub roots and inhibit their growth eventually leading to plant death. To avoid these problems, consider using organic mulches like wood chips and avoid the landscape plastic/fabric. A 4" layer of organic mulch will help as a weed barrier and as it breaks down, it also releases nutrients into your soil. Just make sure to not place the mulch directly against the trunk of trees and shrubs as that can also lead to disease concerns. For additional information on mulching considerations in the landscape, please see this NebGuide: http://extensionpublications.unl.edu/assets/pdf/g1257.pdf.

Thank you! A special thank you to Stephanie Hitz from Faller Landscape and Design for conducting our landscape design workshop and to those who attended and planted the 'Nebraska area' at the York County Fairgrounds! Be sure to check it out during the fair in early August!

Jenny's REESources-June 12, 2016

Crop Update: Warmer weather has allowed for rapid crop growth and diseases to appear. Anthracnose leaf blight can be seen on the lowest leaves of plants on a number of hybrids right now. We saw this last spring as well after a period of wet weather. Anthracnose is characterized early on by oval-shaped lesions with tan centers and red-brown borders. The lesions eventually become irregularly shaped and do not stay limited between the veins (which helps differentiate it from gray leaf spot which is vein-limited). Last week, the unknown bacterial disease that also was a problem last year throughout Clay and other counties in Nebraska was found in Clay and York counties in a couple of fields. Last year it was often mistakenly called 'bacterial leaf streak'. Lesions begin as small vein-limited tan colored lesions and can often be confused with gray leaf spot. However, looking under a hand-lens, the margins on this disease are wavy. The lesions expand in length and are red-brown in color. Very little is known about this disease and Dr. Tamra Jackson-Ziems, our Extension Corn Pathologist is working with several labs to identify the bacterium causing it and is conducting research on it. The following blog post I wrote last July shows how to differentiate many corn diseases including anthracnose, gray leaf spot, and this bacterial disease: https://jenreesources.wordpress.com/2015/07/09/corn-disease-july-2015/. Please send any suspect samples in to the UNL Plant and Pest Diagnostic Lab in Lincoln.

Have you installed your irrigation scheduling equipment yet? It's really helpful in knowing where your fields are at regarding soil moisture. Installing watermark sensors the past week, the top 6" were drying out with the warm weather and crops growing, but there is good moisture below that in many fields. I've also received several questions regarding evapotranspiration (ET) data. This is also known as crop water use which occurs from evaporation from the soil surface or free moisture on leaves and transpiration from the leaves. For those of you with ET gages, consider sharing your information weekly on our ET gage site: https://nawmn.unl.edu/. If you've never posted your information before, you can also register your site and begin adding that information there. It's helpful for area farmers and consultants to have an idea of more localized ET and these gages help us all with that! With Gary Zoubek's retirement, Aaron Nygren, Extension Educator in Colfax County, is leading the effort for reporting ET data. If you have questions or have problems with your password, you can contact him at: anygren2@unl.edu or (402) 352-3821.

Emerald Ash Borer: As you very likely heard, the Emerald Ash Borer was confirmed by Nebraska Department of Ag in Pulaski Park in Omaha last week. Thus, ash tree questions were a hot topic last week. First, the Nebraska Forest Service only recommends treating trees within 15 miles of where the insect has been confirmed. Thus, the current treatment consideration zone extends from Fort Calhoun to Plattsmouth and from Gretna to east of Council Bluffs. The yearly window of time that is recommended for treating an ash tree is closing. If a tree is treated any time after mid-June the chemical will not distribute throughout the tree as much as it would have earlier in the spring so it would be best to wait until next year. There are a number of general use pesticides available to homeowners already on the consumer market for EAB, but they need to be applied when ash trees are not in bloom in the spring in order to avoid impacting bees and other pollinating insects.

NDA has issued a quarantine prohibiting ash nursery stock from leaving the quarantine area. The 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.

Trees are an important part of our landscapes providing shade and value to our homes. It is never

easy for me to tell home owners when their trees will not survive due to various reasons. There are many beautiful ash trees in our area and it's not recommended to cut them down just because the EAB is now in Nebraska. There are also a number of ash trees in decline in our area of the State. There are numerous reasons for this. Looking at trees, some were simply improperly planted and are dying due to root girdling and/or being planted too deep. Some have had injuries to the base of the tree over time or have various disease problems. Many have other types of insects such as carpenterworms and the ash/lilac borer that affects both ash trees and lilac bushes. The ash/lilac borer creates an exit hole that is round in shape. The EAB creates an exit hole that is a perfect 'D' shape. 'D' shaped exit holes along with 'S' shaped tunnels below the bark surface are characteristic of EAB. I would encourage you to check out the following website from the Nebraska Forest Service http://nfs.unl.edu/nebraska-eab which has many great resources including: differentiating different insects of ash trees, how to select trees for treatment, how to select an arborist or tree service, homeowner guidelines for treatment, and misconceptions about treatments.

Any person commercially applying a pesticide for hire should be certified and licensed with a Nebraska Pesticide Applicator license, endorsed in Category 04: Ornamental and Turf Pest Control. A private pesticide applicator license does not qualify for treating ash trees for EAB unless the trees are being propagated by a nursery for resale.

Jenny's REESources-June 20, 2016

The high heat and humidity have been difficult for people, animals, lawns and gardens, and crops this past week. The ET gage here in York dropped 2.1" for reference ET last week. Thus, corn at V8 used 1.07"; V10 used 1.45". Beans at V4-5 used 1.68". Installing watermark moisture sensors all week, the top 7-8" is pretty dry and hard. There's still good soil moisture in the second and third feet in silt loams and silty clay loam soils in our area. Our normal recommendation would be to allow the crops to continue to root down in these soils depending on crop growth stage, soil texture, soil moisture status, well capacity, and root development unhindered by compaction. Irrigation is being used to incorporate fertilizer and herbicides and to apply fertilizer via chemigation. The extended high heat is also cause for concern and how that affects the crop at these earlier crop growth stages. We do know that stress affects plant processes. A literature review by Bita and Gerats (2013) regarding plant tolerance to high temperatures discusses how high heat results in changes in photosynthesis; respiration; transpiration; root development; increases in phytohormones such as ethylene and salicylic acid and reductions in cytokinins, auxins, and gibberellic acid; and the increase in reactive oxygen species (ROS) which cause cell destruction and can lead to signaling for pathogen infection and programmed cell death.

With the extended high heat, we've been concerned about recommending to not irrigate during these vegetative stages in spite of good subsoil moisture present. Research by Rhoads and Bennett (1990) and Shaw (1988) suggest there is no percent yield loss per day due to crop stress occurring from emergence to V12. In reading through many peer reviewed journal articles, most focus on heat and water stress impacts during the reproductive stages of corn and soybeans.

In a discussion with Dr. Suat Irmak, Nebraska Extension Irrigation Specialist, he shared that prolonged periods of heat stress such as air temps equal to or greater than 90F for 7-10 days or more can influence crop growth even in these early vegetative stages if the heat stress is coupled with soil water deficit and/or increased soil temperature. Effects such as shrunken roots, plant deformations, reduced root-soil contact limiting water supply in corn and reduction in nodule size for soybeans can result.

He defined heat stress as "the rise in air temperature beyond a threshold level for a period sufficient to cause permanent damage to plant growth and development. Heat stress is a complex function of intensity, duration, and the rate of increase in air temperature". Soil temperature may increase as a result of air temperature when soil water content is reduced. He shares that even though plant roots can compensate for lack of moisture in dryer soil layers by the increased uptake from wetter soil layers, the compensation can be impacted by heat waves and increased soil temperature potentially causing damage to plant components.

Suat has conducted numerous studies at UNL's South Central Ag Lab near Clay Center. A few of these studies looked at the effect of irrigation on crop canopy temperatures and crop water stress. Dr. Irmak's research shows that "extreme air and soil temperature can alter the water transport rate from the soil into the root and plant system, which can reduce plant transpiration rate where plant transpiration cannot keep pace with high atmospheric evaporative demand (due to high air temperature)." Even with adequate soil moisture, extreme heat stress can reduce plant stomatal conductance, which reduces plant transpiration rate. The combination of extreme heat stress and dry wind across corn and soybean canopies increases the stomatal closure and reduces the transpiration rate. The combination of heat stress with water stress can result in reduced plant water uptake due to root clumping and short suberized roots may develop with dryer topsoil as a response to mitigate drought; however, plant growth and development are impacted and adequate soil moisture is important during extended periods of high heat.

Based on his research, here are a few recommendations Suat provided: continue to monitor your soil moisture status using soil moisture monitoring equipment. You can learn more at our website: http://nawmn.unl.edu. He shares to check if leaves are curly in the early morning hours and soil

moisture is adequate, that the effect is due to heat stress. You can also break a leaf in the early morning hours and again around mid-afternoon like 3 p.m. and check for the presence of plant water. Making a quick run with the pivot applying 0.25-0.40" of water can reduce the heat used to heat up the soil-plant environment and this can be applied every 3-5 days depending on the irrigation well and center pivot capacity during the heat wave. This is effective in the vegetative and reproductive stages according to his research during periods of intense heat. Reduced tillage also helps with soil temperature reductions during heat waves. Suat's research also showed an 8-10F soil temperature reduction in no-till fields compared to conventional till. Here's hoping we receive some relief from the high heat shortly and receive some much needed rain!

Lawns/Gardens/Trees: Deep watering of an inch/week is necessary for new tree and horticultural plantings. Lawns can also benefit from deep watering.

Reminder of the South Central Ag Lab Weed Science field day on June 29th near Clay Center and the Palmer Amaranth resistance field day July 12 near Shickley. Registration and more details can be found at: http://agronomy.unl.edu/weedresistmgt.

Jenny's REESources June 26, 2016

Crop Update: The ET gage I'm reading in York dropped 2.0" this past week. Thus, 10 leaf corn used 1.38" and 12 leaf corn used 1.76" for this area of the State. Soybeans used from 1.20" at V3 to 1.80" at beginning flowering. Dr. Suat Irmak shared more details in a UNL CropWatch article regarding heat stress and irrigation; please check it out at http://cropwatch.unl.edu. Several wheat fields in Clay and Nuckolls counties have good yield potential and here's wishing everyone a safe wheat harvest! Several farmers mentioned binning their wheat this year and a few asked about fumigation of their grain bins. One resource from UNL specific to using aluminum phosphide can be found at: http://go.unl.edu/mtzj. A reminder that a fumigation management plan (included in that website above) needs to be on file for a minimum of three years and that ultimately, we'd recommend leaving fumigation to professionals. Another helpful resource from Purdue can be found at: https://extension.entm.purdue.edu/publications/E-66.pdf. I was also seeing the Dectes soybean beetle in soybean fields in Clay, Nuckolls, Seward, and York counties last week. These beetles lay eggs that hatch into soybean stem borer larvae. Research in Nebraska is on-going and we even have an on-farm research study near York in partnership with DuPont Pioneer looking at potential control options based on growing degree days in Nebraska. There is research for treatment control options from K-State; however, soybean stem borers emerge earlier there and tend to have two peaks of emergence. Research is determining if this may or may not be similar in the southern tier of Nebraska counties. For counties north of that, there may be one peak with emergence spanning a month or longer. Extension Entomologist Bob Wright wrote in a previous UNL CropWatch article that, "People planning on using an insecticide to control Dectes beetles should be aware that adult control is not highly correlated with levels of larval infestation at the end of the season, possibly due to the long period of activity of Dectes beetles. Multiple insecticide applications to control Dectes may not improve grower profits, and may lead to late season outbreaks of other pests such as spider mites or soybean aphids by eliminating natural enemies which help suppress these arthropod pests." More information on soybean stem borers in Nebraska can be found at the following NebGuide: http://go.unl.edu/jjgd.

Custom Rates: Every two years a survey of Nebraska custom operators is conducted to determine the current rates for specific machinery operations. Custom rates reported include charges for the use of necessary equipment, fuel and supplies such as baling wire or twine provided by the custom operator, and labor. Seed, fertilizer and chemical costs are not included. Part I includes spring and summer operations such as planting and small grains harvest. Part II includes information about fall and miscellaneous operations. You can find them both at http://farm.unl.edu.

Youth Crop Scouting Competition: I would love to work with a group of youth interested in participating in this! If you are interested, please let me know at jrees2@unl.edu. Nebraska Extension is pleased to present the second annual Crop Scouting Competition for Nebraska youth. This contest will be held at UNL's Ag Research and Development Center near Mead on August 2. The event will include indoor and outdoor events. Teams of junior high and high school students (those completing 7-12th grades) from across Nebraska are invited to participate. Clubs or other organizations may enter a team composed of three or four participants. An adult team leader must accompany each team of students. Team leaders could be FFA advisors, crop consultants, extension staff, coop employees, etc. Top-scoring teams win prizes: $500 for first, $250 for second, $100 for third place.

Teams will be expected to know the basics of scouting corn and soybean fields. This includes crop

staging; looking for patterns of crop injury; disease, insect and weed seedling identification; etc. More information about the crop scouting competition and instructions on how to register are available online at cropwatch.unl.edu/youth via the "Crop Scouting Competition." The top two teams will be eligible to participate in the regional competition in late August at Iowa.

Teams must be registered by July 18. Registration is $50/team; the fee will be refunded when the team attends the competition. Payment by check is due along with the registration form. This program is sponsored by DuPont Pioneer, the Nebraska Soybean Board, Nebraska Independent Crop Consultant Association and Nebraska Extension.

Resistant Palmer Amaranth Field Day: This field day, hosted by Nebraska Extension, will be held Tuesday, July 12 near Shickley to demonstrate control options in corn. Keynote speaker will be Jason Norsworthy, professor and endowed chair of Weed Science at the University of Arkansas. Norsworth has documented eight herbicide-resistant weeds in Arkansas, including glyphosate-resistant Palmer amaranth. Palmer amaranth resistant to atrazine and HPPD-inhibiting herbicides (Callisto, Laudis, Impact) in south central Nebraska is of particular concern because of the proximity to intense seed corn production, which is heavily reliant on these herbicides for weed control. Greenhouse dose-response studies have confirmed resistance in plants where atrazine and HPPD inhibitors were applied post-emergence. The field day will include field experiments demonstrating how to control resistant Palmer amaranth in field and seed corn production fields in Nebraska. The event, which is co-sponsored by Nebraska Extension and the Nebraska Corn Board, begins with registration, rolls and coffee at 8:30 a.m. following by the program at 9 a.m. Field tours start at 9:25. The free lunch will be at noon. Three CCA credits are available. Registration is required at http://agronomy.unl.edu/weedresistmgt.

Jenny's REESources-July 3, 2016

The rain came down beautifully and was such a blessing! This past week have received several gardening questions about flowers aborting on a number of vegetable crops. Even though most were keeping plants watered at the base of the plants, the cause was most likely due to the number of high heat days. A number of University Extension websites mention that high heat (over 90F) and low humidity reduce pollen viability and cause flowers to abort especially in tomatoes, peppers, beans, and corn. Tomatoes may also have older leaves curling upward towards the mid-vein as a sign of transpiring more water than their roots can uptake. They should naturally unfurl in the evening. Cool season crops such as peas, cabbage and broccoli prefer temperatures in the 70s. Vine crops such as cucumbers, squash, and pumpkins develop male flowers first followed by female flowers. Heat can affect the amount of pollen present and can also affect the presence of necessary pollinators. A few calls have also been about bitter-tasting cucumbers. Cucumber varieties that are not the 'burpless' kind, contain a compound called cucurbitacin that naturally can make cucumbers taste bitter. At low levels of cucurbitacin, bitterness isn't detected, or only on the fruit ends. At high levels, the bitterness makes the cucumbers inedible and pickling them does not remove this bitterness. Bitterness increases in cucumbers with heat and drought stress. Mulch and deeper watering are keys during heat and drought to reduce and/or avoid bitterness. Instead of watering a little every day, seek to apply 1-1.5" in one setting. Also applying a straw, grass, or bark mulch around plants will help maintain moisture and keep the ground cooler. Our cool, wet weather earlier in the spring suddenly turning hot and dry has also resulted in leaf scorch in some vegetable and ornamental plants. Leaf scorch is when the edges of leaves turn brown and die due to lack of moisture in them. Maintaining even watering of plants can help reduce this.

Crop Update: The cooler weather this week was also welcome and ET values were greatly reduced. I only had 1.3" of reference ET this week in York. Thankful for the good to excellent wheat yields I've been hearing ranging from 40-75 bu/ac! Late season stripe rust on susceptible varieties resulted in some yield loss in the end in some situations. Not seeing much for major insect or disease concerns except for the increasing number of small grasshoppers in fields. Dr. Bob Wright also wrote an article in this week's CropWatch at http://cropwatch.unl.edu. He shares that if you're desiring to treat the grassland borders of your field for immature grasshoppers, consider Dimilin as it has a lowered impact on natural enemies that consume spidermites. For crops, Dimilin is also only labeled for soybeans, so keep that in consideration. He also shares, "Perhaps the best products for this type of treatment are esfenvalerate (e.g., Asana) and lambda-cyhalothrin (e.g., Warrior), because they are labeled for non-crop use and for use on several crops (corn, soybeans, sugar beets, dry beans, sunflowers, potatoes). Mustang MAX is labeled for grass forage/fodder/hay crops and also can be used on field corn, seed corn, popcorn, alfalfa, sunflower, sorghum, soybeans and wheat. Numerous other products are specifically labeled for grasshopper control on various crops (http://entomology.unl.edu/fldcrops/pestipm.shtml)." If you're seeing grasshoppers, now is the time to scout for the severity of the problem and consider control as it's much harder to control adults.

Regarding diseases, physoderma brown spot is showing up in some corn hybrids right now. This disease can often be confused with southern rust, and I've received a few samples from consultants to confirm what disease the samples had. Physoderma creates very small, circular, yellow/tan/purple/brown spots along the midrib and throughout leaves. Often the midrib of the leaf and even the corn leaf sheaths will eventually develop a purple/dark brown discoloration. We don't

recommend doing anything for physoderma, but want you to be aware that it is not southern rust. While not every state participates in this, you can get a feel where southern rust is currently located at the following map: http://scr.ipmpipe.org/cgi-bin/sbr/public.cgi.

Upcoming Area Field Days: Reminder of the Palmer Amaranth Resistance Field Day near Shickley July 12 (more information and registration at: http://agronomy.unl.edu/weedresistmgt)**.** Also, please save the date for the Project Sense Field Day to be held in the Upper Big Blue NRD near Beaver Crossing on July 29 and Soybean Management Field Day to be held near Cordova on August 11. I'll share more about these in next week's column.

Jenny's REESources-July 10, 2016

Crop Updates: A good soaking rain was much needed; however the high winds causing greensnap and lodging in corn wasn't. Greensnap (also referred to as brittle snap) is when the plant completely breaks off and is caused when corn plants are rapidly elongating, especially in conditions resulting in sudden temperature changes that favor rapid growth. Storms occurring during the early morning tend to favor greensnap as plants are more turgid and don't bend with the wind as easily. Additional considerations for greensnap include plants in hard, dry ground that are unable to 'give' with strong winds and in some cases, those with such strong root systems that they also are unable to 'give', field practices and moisture conditions, timing and severity of wind events, herbicide interactions-particularly those containing growth regulators, crop growth stage, and hybrid. Greensnap typically occurs during two time-frames: between V5-V8 (5-8 leaf) and from V12-silking. The first time-frame often results in entire plants cut off at ground level or just below. The plants can end up making tillers that won't produce much if any grain. Greensnap occurring from V12-silking often result in plants broken off a few nodes above ground, at the primary ear node or the node above or below it. Seed companies have worked very hard to rate hybrids for potential greensnap. It's sometimes puzzling why in farmers' fields, the same hybrid across the road at same growth stage and row direction was affected more than another. Yet we also know there are microclimate variations which can affect any hybrid in addition to varying field practices from field to field.

In 1993 and 1994, Dr. Roger Elmore and Dr. Richard Ferguson measured corn stalk breakage on over 100 hybrids from corn ranging from V10-V14 in South Central Nebraska. They found grain yield was reduced 1.5 bu/ac for every 1% increase in stalk breakage in 1993 and the breakage ranged from 7-88%. In 1994 at two sites, they found grain yield was reduced 1.5 and 1.8 bu/ac for every 1% increase in stalk breakage. They concluded that percent stalk breakage is directly related to percent yield loss and that surrounding plants cannot compensate for the stalk breakage that occurred. Richard also looked at the affect of nitrogen on potential greensnap finding that nitrogen applied pre-plant resulted in increased breakage compared to at side-dress. He also found that breakage increased with increasing rates of nitrogen applied.

Rain and/or irrigation prior to high winds may have resulted in lodging in addition to or instead of greensnap. A few have asked if these plants will try to reorient upright. Lodging often occurs mid-season when brace roots haven't yet developed and can also be caused by a compromised root system such as from root worm feeding and/or compaction. Plants will try with varying levels of success to reorient the upper portion of the plant vertical. This can cause the stalk to curve which can also be more susceptible to breaking at that point and can also limit water/nutrient transport. Research by Carter and Hudelson (1988) looked at root lodging by saturating the soil with irrigation and pushing plants at the base perpendicular to row direction. This was to simulate lodging due to wind. The researchers did this at timings of V10, V13-V14, V17-R1 compared to a control in 1985 and V11-V12, V15, VT compared to a control in 1986. They found that for three hybrids tested, the upper plant regions did straighten within two days following lodging and that timing of plant development did not appear to be impacted. At harvest, for plants lodged at V17-R1, the angle between the lower stalk between the ear and the ground decreased from 22 to 36° with an ear harvest height 22-27" below the ears on the control plants. From their studies, they determined grain yield reductions to be: 2-6%, 5-15%, and 13-31% for plants lodged at V10-12, V13-15, and V17-R1 respectively due to increased challenges of further plant breakage/increased difficulty in mechanically harvesting grain in plants where lodging occurs between V17-R1.

Project Sense Field Day near Beaver Crossing: 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. The field day for the Upper Big Blue NRD will be held at the Cole Anderson farm near Beaver Crossing at 3730 Denton Road from 11:00 a.m.-1:00 p.m. on July 29th. 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 402-624-8000 or e-mail christina.franklin@unl.edu. We hope to see you there!

Soybean Management Field Days: Soybean Management Field Days are a long-term partnership between the University of Nebraska-Lincoln and the Nebraska Soybean Board. They begin at 9:00 a.m. with registration and conclude at 2:30 p.m. August 9th will be held at the Robert Johnston Farm near Orchard; Aug. 10th at the Shane Greving Farm near Chapman (1374 9th Rd); Aug. 11th at the Eberspacher Family Farms (Darren, Delayne, and Wes) just south and west of Cordova (4754 Saltillo Road); and Aug. 12th at Goff Farms near Schuyler. Topics include soybean irrigation; soil fertility, PPO herbicide and conventional soybean studies; grain marketing and farm management; soybean production management strategies comparison; and sprayer management for successful weed control in soybeans. The event is free and more information including maps to the field days can be found at: http://ardc.unl.edu/soydays.

Jenny's REESources-July 17, 2016

Bagworms: Bagworms are currently active in several tree species and now is the time to be checking yours! Host trees include: juniper, redcedar, spruce, pine, arborvitae, crabapple, sycamore, honeylocust, maple, elm, and many other trees. Larvae are currently feeding on needles and leaves of trees creating small cone-shaped 'bags' up to 2" long that hang from twigs. The larvae pupate within the bags in late summer with male moths emerging in September. The males mate with females who reside in the bags and then lay their eggs in them. Eggs survive the winter in the bags and then hatch in late May to early June. Control includes hand-removing the bags prior to May and destroying them. Insecticides can be applied in mid-June through July (depending on the year and when larvae are active). One trick I tell homeowners to determine when larvae are active is to hand-pick bags in late May/early June and place them in a plastic ziplock bag. Leave the bag outside on the south side of the house. When larvae emerge, it's time to check your trees. Insecticide products include but are not limited to: Permethrin (Eight or Hi-Yield 38 Plus), Bt (Dipel; Thuricide), Spinosad (Ferti-loam Borer, Bagworm, Leafminer, and Tent Caterpillar Spray), and Malathion. Please be sure to read and follow all label instructions. The following blog post has photos, video, and more information to help you identify bagworms on your trees: https://jenreesources.com/2015/06/27/bagworms-in-evergreens/.

Palmer Amaranth: I was thankful to have had the opportunity to attend the palmer amaranth resistance field day this year. Dr. Jason Norsworthy from the University of Arkansas was the keynote speaker and I learned much from his presentations on the biology of palmer and the situation they're facing in the southern U.S. with resistance to it. He began by saying that palmer amaranth is the #1 troublesome weed in the U.S. because of its growth rate and seed production. I came away with the key message of managing seed production. In Arkansas, the primary question asked when ground is for sale or rent is "do you have pigweed?" (which means palmer down there) and ground is turned down depending on weed pressure. There's even a county Extension Agent who teamed with area farmers for a Zero Tolerance for palmer in their area. Anytime they see palmer, they call the farmer whose land it's on and tell them to take care of it. A study done in Nebraska in 57 soybean fields showed a 99% retention rate of seed going into the combine during harvest. Thus, it's important to consider equipment purchases from the south and movement of equipment from palmer infested fields to others. On average, one plant will produce 60,000 seeds at harvest with plants on the edge of the field producing over 1.5 million seeds/plant. Palmer amaranth seed will begin emerging in late April in Nebraska in fields with little or no residue cover; peak emergence occurs around the 4th week of June. Emergence is continuous for 5-6 months. Early in the season, growth rate is 0.75-1"/day. Jason showed photos of palmer treated at 5-8" (which is too late) and 14 days later was 36-40" tall….a growth rate of 2.5"day. He also shared data that 1 plant in 1 foot of row resulted in a 17% yield reduction. Flowering occurs 21 days after emergence with pollen traveling as much as 1000 feet-thus the ability for cross-pollination for herbicide resistance. Jason mentioned even allowing 1% of palmer to survive in field results in tremendous genetic variability for herbicide resistance due to the distance of pollen movement. For seeds emerging in early July, the resulting plant will produce viable seed within four weeks. Thus, Jason said that management of palmer is season-long until early September in Nebraska. 36-44% of seeds emerge at 0-1"; 7% emerge at 2"; 2% emerge at 3" depth.

Studies done on the persistence (ability of the seed to remain in the soil) showed that tilling the soil to bury the palmer seed resulted in 67% reduction in the seed bank within 12 months and 84% reduction in the seed bank after 24 months. A key they are using in the south is tillage followed by a

cover crop. Having shaded ground and no tillage prior to planting reduces palmer germination as soil temperature is a critical factor in early palmer emergence. Because they have resistance to six different herbicide chemistries in the south, management also includes cultivating the crop in-season followed by hand-weeding where the female plants are physically removed from the field. A University of Georgia study showed that if palmer was weeded and then allowed to lie on the ground, the female plants could regenerate roots within 48 hours and still produce viable seed. This study also showed palmer had to be hoed at least 1" below the soil surface in order for it not to regenerate a stem. Quick canopy closure is also important as light also influences palmer germination. 90% of seed germination is reduced by canopy closure.

The biology in itself makes it hard to argue palmer very well could be the most troublesome weed in the U.S. I've seen quite a bit of mis-diagnosis of what truly is palmer and what isn't in our part of the State. Honestly, I'm curious to know what percent of crossing we have between palmer and tall waterhemp. Keys for identification include looking at the petiole (stem attached to the leaf). Touch the base of the petiole to the tip of the leaf and fold in half. If any petiole can be seen beyond the leaf, the plant is palmer. If only the leaf can be seen, it's waterhemp. Palmer and spiny amaranth (we have both but can't differentiate till reproductive stages), have longer petioles than leaves and leaves are often ovate to diamond shaped. A white/gray 'watermark' can sometimes be seen on both palmer and spiny amaranth leaves but it's honestly rare that I've seen that with any consistency in our area fields. Palmer amaranth is dioecious meaning there are separate male and female plants that can't be distinguished until the reproductive stages. The male plants have a soft inflourescence whereas the female plants have bristly flowers.

So for management, keys include: starting clean and staying clean by having no weeds at planting and overlaying with residual herbicide followed by another residual herbicide 2-3 weeks later. Use at least two effective herbicide modes of action for your field situation tank-mixed together and any weeds present need to be sprayed less than 4" tall. Full rates need to be applied. Jason showed data where he applied sublethal dosages with the new dicamba chemistry in soybeans and showed genetic resistance to the full dicamba rate within 3 generations. He said controlling seed production is key and "the economic threshold for palmer is 0 plants". Removal of all non-controlled resistant weeds in the field is key and that most likely will include hand-weeding fields in the future. I'll close with a quote from Jason that I've also mentioned in pesticide training in the past, "If it works, do something different next year"…because doing the same thing with the same seed traits and pesticide chemistries only helps build resistance into all our pest and pathogen populations.

Jenny's REESources-July 25, 2016

Corn Disease Update July 26: Corn diseases, mostly bacterial, have been occurring on leaves of corn plants, but it can be confusing which ones are present for treatment options. Nebraska Extension is hosting a Corn Disease Update, Tuesday evening, July 26th from 6-8 p.m. at the Cornerstone Event Center at the York County Fairgrounds. Come learn how to differentiate between corn diseases appearing now and please bring samples you'd like us to diagnose. There is no charge for the meal thanks to sponsorship from the Nebraska Corn Board. Please do RSVP to (402) 362-5508 or jrees2@unl.edu for a meal count. All farmers, consultants, and ag industry professionals welcome!

Project Sense Field Day July 29: Also a reminder of the Project Sense field day for in-season nitrogen management at the Cole Anderson farm near Beaver Crossing (3730 Denton Road) from 11 a.m.-1 p.m. on Friday, July 29th. Lunch will be provided. Pre-registration is required for meal-planning purposes. To pre-register, call 402-624-8000 or e-mail christina.franklin@unl.edu. Participants can view crop nitrogen sensors and high-clearance nitrogen equipment in action. For more information, visit http://ardc.unl.edu/training.shtml. Certified Crop Adviser credits are available. Project SENSE is a collaborative effort of the University of Nebraska-Lincoln, Nebraska Corn Board, five Natural Resource Districts (Central Platte, Little Blue, Lower Loup, Lower Platte North, and Upper Big Blue) and producers participating in the Nebraska On-Farm Research Network. Hope to see you there!

Crop Water Use: The ET gage here at York dropped 1.9" last week. With our crop coefficients at 1.1 now for both corn and soybeans in reproductive stages, the crop water use was 2.09" last week resulting in an average of 0.30"/day. Next week I'll share more on how high heat affects pollination.

Poor fruit set and flower drop in heat is being seen in the vegetable garden on tomatoes, peppers and zucchini, and is likely weather related. Daytime temperatures above 90 degrees, and/or nighttime temperatures above 70 degrees interfere with pollination. Ideal conditions for pollination are moderate temperatures, 59-68 degrees. Plants receiving excessive fertilization and abundant moisture often produce excessive foliage growth that inhibits flower formation. However, very low fertility levels, substantial damage from insects or diseases, and inadequate moisture can also inhibit flower development. Provide plants with good basic growing requirements, without over or under fertilizing, so that flower clusters are produced. In small gardens, hand pollination can be done to encourage fruit formation. If the lack of fruit set was due to high temperature conditions, plants should begin to set fruits again now that temperatures have cooled.

Blossom end rot (BER) is a common problem of tomatoes, but also affects peppers, eggplant, summer squash, zucchini and watermelon. It appears as a flat, dry, sunken, brown rot on the blossom end of tomato and pepper fruits. On squash and watermelon tissue at the blossom end may first turn yellow, then brown, feeling wilted or shriveled. Blossom end rot is caused by a calcium deficiency in the fruit. In Nebraska, rarely is there a lack of calcium in the soil. Blossom end rot occurs when plants cannot pull calcium up quickly enough for developing tissues. Calcium must be dissolved in water to move within a plant, so dry soils can increase the problem. Drought stress, low daytime humidity, high temperatures, and rapid vine growth favor blossom end rot. Applying calcium to the soil or to the plant is not beneficial. Plants do not take foliar applied calcium in through leaf tissues. Instead, maintain a consistently moist but not saturated soil; use organic mulch near the base of plants; and avoid excess nitrogen fertilization with ammoniacal nitrogen sources. Often the first ripe fruits are affected. Remove them and later ripening fruits will usually be normal.

Digging wasps: Some are noticing high numbers of digging wasps in their lawns, sand traps, and playgrounds this summer. Digging wasps are parasitoid insects, meaning that they will capture and sting another insect (like a cricket or a cicada) and then drag their immobilized body to a small hole in the ground. These insects do not have a colony or hive like other wasps and bees and this results in them being far less aggressive than insects like honey bees or yellowjackets. Some of the more famous representatives of this group are the cicada killer wasp and the sand wasp, both of which can be large and in places where humans often visit. Cicada killers are the largest, usually reaching about 1.5 - 2 inches in length, while the sand wasp is around an inch long.

While these insects are not a sting hazard, they do frighten some people. The males in particular can be territorial and fly towards your face. In years with high numbers they may also do some damage to lawns as they dig their tunnels. Because these are beneficial insects, we don't recommend control. If control is desired there are very specific methods of achieving it. Applications of carbaryl dust (Sevin) or cyflutrhin (Tempo) made directly into the burrow entrances are effective. Broadcast sprays over the area where digging wasps are nesting will be unlikely to reduce their populations. Applications should be made at dusk, when the wasps are the least active. Physical control by swatting with a tennis racket is also effective.

Jenny's REESources-July 31, 2016

Crop Update: This past week was fairly eventful in regards to our crops. We confirmed southern corn leaf rust in Thayer and Clay counties on Tuesday; Fillmore and Butler on Wednesday; and Adams, Nuckolls, Lancaster, Pierce, Polk, and Valley were added later last week. The southern rust thus far has been low incidence with very small, tan, tightly clustered pustules on the upper sides of leaves, usually on leaves just below the ear leaf with a few right at it. Many instances, the pustules were the area the size of a quarter while others had pustules covering the leaves. Regardless, it was hard to find more than a few leaves in individual fields with southern rust on them. Gray leaf spot is starting to move up from lowest leaves of plants now which makes sense counting back 14-21 days to the wind/rain/greensnap event and the conditions that allowed the fungus causing gray leaf spot to infect and eventually sporulate. Unfortunately, I've been in a few fields sprayed at tassel that now have active gray leaf spot and southern rust in them as residual has run out or will soon and the fungicide didn't make it deeper into the canopy. There's also been much misdiagnosis between fungal and bacterial diseases this year. Thank you to all who attended the three Corn Disease Updates for our area of the State and hopefully these meetings were helpful for you! Good news is that some of you in the dry pocket of Clay/Nuckolls counties since May and hopefully also in Thayer and Webster received some much needed rain for the non-irrigated crops.

For the high heat, pollination overall is surprisingly good; there's some tip back but I haven't seen major pollination gaps on ears in many fields. As the corn grew taller, I think it was easy to forget our cold, wet early season and the uneven emergence in some fields. Plant height overall may have seemed similar, but looking at nodes of plants from soil level up and ear height, the emergence issue can be quite evident. It's also evident in the unevenness in ear development in fields. Later emerging plants are just pollinating while others are closer to brown silk-late milk depending on planting date and maturity. I'm also noticing quite a bit of arrested ear development in various fields. Essentially arrested ear development is when the ear grows abnormally compared to a 'normal' ear. These can range from ears completely absent on plants, blunt ears which are very short, malformed ears that are 'pinched' in different locations, excessive silks that get trapped in tight-husked hybrids, excessive husks with 'baby' ears that never develop, zipper ears, bouquet ears, and ears with strange looking husks. A few resources with photos that I like to use include one from Purdue: https://www.agry.purdue.edu/ext/corn/news/articles.07/ArrestedEars-0904.html and a PDF small poster from Ohio State and I have hanging in my office: http://u.osu.edu/mastercorn/files/2014/08/Abnormal_ear_poster_2015_April28-168l0pl.jpg.

So what caused this? Well, it's important to look at the symptoms in your fields to help determine the potential timing of the damage. I think there's a combination of factors involved here and it's a matter of piecing together what factors were true for your situation if you're seeing this in your fields. I would encourage you to check your fields as it's always better to figure these things out now before harvest. Things to ask yourself: are there patterns of hybrids, planting dates, populations, nitrogen/water stress, herbicide chemistries + surfactants and timing, fungicide + surfactants and timing, greensnap or other weather-related events that are consistent across fields showing these symptoms? Also, it's important to determine if the remainder of the plant appears 'normal' to narrow this down to only ear development damage. Plants exhibiting some form of arrested ear development will eventually turn a red/purple color due to sugar accumulation in the plant that would have normally been in the grain. Research from Purdue University found non-ionic surfactants (NIS) applied with or without fungicides from 12 leaf to just prior to VT resulted in arrested ear development; they recommended no

use of NIS in any foliar pesticide application from V10-VT as late post-glyphosate applications have also been shown to cause this malformation. Many of us also seen this from pre-tassel foliar fungicide applications to fields, particularly in 2007 when fungicide use in corn drastically increased after the devastating southern rust outbreak of 2006. With uneven growth stages in fields and some fungicide applications aimed for VT, I hypothesize this may be one contributing factor in some situations this year. Ears in field end-rows may have been further along (especially in non-irrigated portions) than ears further inside the field. With uneven growth stages, I'm speculating, based on current growth stages, that some fungicide applications aimed for VT hit various plants in the field prior to VT. Another potential factor: Dr. Bob Nielsen from Purdue University has written several articles showing patterns of "cold snaps" or large temperature variations in short periods of time occurring during early ear formation (from V6-V10) tend to produce blunt ear syndrome. This spring we did have a cold, wet spell followed by high heat stresses in June and hybrids may have responded differently to those temperature fluctuations. I searched and couldn't find anything research-based on this, and yet I'm also wondering about our greensnap/high wind event that occurred in many pockets of the State during that V10-V14 stage in fields. Purdue, Ohio State, and Illinois all talk about weather-related or other stresses occurring between V12-V18 contributing to arrested ear development, but don't specifically mention greensnap that I could find. In talking to other agronomists and other Extension Educators focusing on crops, we're tending to see a pattern of arrested ear development on fields with greensnap, perhaps with some hybrids more than others. So perhaps there may be more to this if we find more people experiencing this type of 'pattern' in your fields as well. Besides those things, spidermites and some western bean cutworm were also found this week.

I'm starting to see sudden death syndrome (SDS) in soybeans in fields between R3 (beginning pod) to R5 (beginning seed). There's nothing a person can do at this point. Management for the future include resistant varieties, seed treatments in which research is showing promise, and also soil sampling (in SDS affected areas) for soybean cyst nematode which is synergistic with SDS. I've also received questions on the small white moths we're seeing flying right now. According to Dr. Bob Wright, our Extension Entomologist, they're the yellow wooly bear caterpillar and we should start seeing the larvae emerge sometime in August-so be scouting for those in the coming weeks.

Homeowner Questions: There's a number of homeowner questions I've received as well. In general, many have involved spruce trees, so I will share a resource that will hopefully help for the time-being: http://byf.unl.edu/d861f891-f677-42f9-950c-82ae060372b9.pdf.

York County Fair: Hope you make plans to visit the York County Fair this week from August 4-7! More information regarding this week's events can be found at: http://www.yorkcountyfair.com/.

Jenny's REESources-August 6th 2016

Soybean Management Field Days: Just a reminder of this week's Soybean Management Field Days throughout the State! August 9th will be held at the Robert Johnston Farm near Orchard; Aug. 10th at the Shane Greving Farm near Chapman (1374 9th Rd); Aug. 11th at the Eberspacher Family Farms (Darren, Delayne, and Wes) just south and west of Cordova (4754 Saltillo Road); and Aug. 12th at Goff Farms near Schuyler. Soybean Management Field Days are a long-term partnership between the University of Nebraska-Lincoln and the Nebraska Soybean Board. They begin at 9:00 a.m. with registration and conclude at 2:30 p.m. Topics include soybean irrigation; soil fertility, PPO herbicide and conventional soybean studies; grain marketing and farm management; soybean production management strategies comparison; and sprayer management for successful weed control in soybeans. The event is free but please pre-register for meal count to 800-529-8030. More information including maps to the field days can be found at: http://ardc.unl.edu/soydays. Hope to see you August 11th near Cordova!

Fair: I've always loved fair time-especially because it was such a special family time growing up. 4-H taught me much regarding life skills that I still use today! It was wonderful to work with our team of ladies in the Extension Office, Fair Board members and their spouses, 4-H Council, Extension Board members, FFA leaders, and numerous volunteers. A special thank you to all who were involved with the 2016 York County Fair; we really enjoyed working with everyone and meeting so many families! Hope many plan to attend the Seward County Fair this week (Aug. 11-14)!

Crop Update: I didn't get out to look at crops last week and the reports I'm receiving from farmers and crop consultants don't seem to be much different than what I shared last week. There continues to be concern regarding spidermites and western bean cutworm in corn fields. Sudden death syndrome is appearing in more soybean fields in our area with frogeye leaf spot appearing more east of us.

Emerald Ash Borer Meetings: Concern about this invasive insect and its impact on community trees is high. Many homeowners have questions about their trees and potential treatment options available to them. Nebraska Extension in Lancaster County and the Nebraska Forest Service are presenting seminars about Emerald Ash Borer (EAB) to provide homeowners with the information they need to make good decisions about the care of their ash trees. Learn how to identify ash trees, determine which of your trees are best candidates for treatment, and about available treatment methods. Treatment is still not recommended until EAB is confirmed within 15 miles of your location and it still in only the Omaha and Cass county area. One will be held Thursday, August 18th from 7-9 p.m. at the Extension Office in Saunders County (1071 County Road G) near Ithaca. Another will be held Saturday, August 27th from 9-11 a.m. at the Lancaster Extension Office (444 Cherrycreek Road) in Lincoln. Registration is required by calling 402-441-7180 and there is a fee of $15 per person/couple for one set of educational materials. Payment can be made the day of the meeting. If you are a Master Gardener, please let them know that when you call to register.

Water Field Day: Nebraska Extension and the Nebraska Water Balance Alliance will host a field day on the Systems Approach to Cropping and Irrigation Management Tuesday, August 23 at North Platte. It will be held at UNL West Central Research and Extension Center (402 W. State Farm Road) with registration at 8 a.m. and program beginning at 8:30 a.m. Presentation topics will include: efficient crop rotations and tillage systems, reducing input costs and leveraging water resources, grazing cover crops, NRD updates, and grain marketing and irrigation mobile apps. Following lunch, there will be previews of what's available at each of the field sites and an opportunity to visit sites and talk with staff. Field site

topics will include: soil water sensor comparison; sorghum weed control & field pea research; forages/cover crops production plots; sensors for determining nitrogen requirements; field to market; crop rotation and productivity; managing corn rootworm; sustainable management of plant pathogens; pesticide application technology, and ethanol powered irrigation engines. The event is free, but registration is requested by Aug. 19 to plan for food. CCA Soil and Water credits have been applied for. To register, visit http://extension.unl.edu/statewide/westcentral/fieldday/.

Jenny's REESources-August 15, 2016

Crop Update: Much of the corn in a several county area is in the dough to early dent stage. The heat has really pushed this crop along and greatly impacted our non-irrigated crops. Our Hybrid Maize model simulations also show a 10% and greater potential of reduced non-irrigated yields compared to the 30 year average for the Clay Center area south in the State. Irrigated yields appear to be on track for near the long-term 30 year average. Al Dutcher, Nebraska State Climatologist showed Grand Island having 25 days with maximum temperature over 90F in June and July compared to 15 total last year (14 of these 25 occurred in June this year). In Lincoln, 32 June and July days were over 90F in 2016 vs. 23 in 2015 (19 of the 32 occurring in June this year). Low night-time temperatures are also important to reduce respiration occurring in the evening. Al shared that for June and July 2016 in Grand Island, there were 12 occurrences with night-time temperatures above 70F compared to 6 in 2015. For Lincoln, there were 18 occurrences of this compared to 12 last year. Tip-back on corn ears is a concern many are talking about in fields this year, most likely due to heat we experienced during the pollination period. We've seen spidermites become a nuisance in fields; as we approach hard dough in corn, economically treatments may not benefit the crop according to Colorado State economic thresholds. More information about soybean thresholds and products labeled for use in corn and soybeans can be found in the following CropWatch article: http://go.unl.edu/szva.

Most soybeans are in the seed filling stages. I've shared we've been seeing Sudden Death Syndrome (SDS) and some scattered cases of frogeye leaf spot for several weeks now. Additional things to scout for include defoliators such as wooly bear caterpillars and others in which we were seeing the moths flying a few weeks ago. Also be scouting fields for soybean stem borers. Look for wilted trifoliates. Follow the trifoliate to where it attaches to the stem. If there is a hole in the stem, it most likely is the soybean stem borer. Count the number of plants you see in 100 with this symptom and continue to do so as we approach harvest. This can help you harvest those fields with greater infestation earlier to avoid lodging.

Wheat: As you consider varieties for next year, I'd encourage you to check out the yield results from the wheat variety trials at: http://cropwatch.unl.edu/winter-wheat-variety-test-results. Considering the three-year averages is very important to see which varieties show consistency around a range of weather conditions and disease/insect factors. Also a reminder to have your wheat seed cleaned and treated with a fungicide seed treatment. This is important regardless if you use bin-run seed or are purchasing disease-free, certified seed. The fungi causing diseases such as smut survive in the soil and on harvested seed. The fungi infect the germinating seed (if not treated with a fungicide) after planting, and grow systemically within the plant with no sign they are there until head emergence. To reduce dockage/load rejection from smut diseases at the elevator next fall, cleaning your seed and having a fungicide seed treatment prior to planting is the only way to prevent and manage this.

Corn and Soybean Production School: Nebraska Extension is offering a Late Season Crop Diagnostic Clinic Aug. 24 and a Corn and Soybean Production School Aug. 25. Both sessions will be at the Agricultural Research and Development Center, 1071 County Road G, near Mead. Aug. 24 topics include corn and soybean disease analysis; crop scene investigation; end-of-season pivot checkup; field to market – quantifying sustainability in crop production; hail damage in soybeans; and summer forages for silage and hay. Nine Certified Crop Adviser credits are available. Aug. 25 topics include implications of growth and development on corn management; hail injury and corn recovery; cover crops in corn; tradeoffs associated with planting early-maturing corn hybrids; and how not to be a "you don't know

Jack" soybean agronomist. Six and a half Certified Crop Adviser credits are available. During the Aug. 25 corn and soybean production school, participants will compare multiple maturities in the same field, Glewen said. The various growth and development stages will be used to demonstrate the impact that management practices could have on final yield. Registration for both clinics begins at 7:15 a.m. The Aug. 24 training runs from 8 a.m. to 5 p.m., and the Aug. 25 session is from 8 a.m. to 3:15 p.m. Early registration is recommended to reserve a seat and resource materials. For more information or to register, contact Nebraska Extension CMDC Programs, 1071 County Road G, Ithaca, NE 68033, call(800) 529-8030, email cdunbar2@unl.edu or visit http://ardc.unl.edu/training.shtml.

Jenny's REESources-August 21, 2016

Last Irrigation: With many area corn fields in beginning dent and starch fill, I should have written about last irrigation last week. You may be wondering how to schedule the last irrigation. For those of you with watermark sensors or soil moisture sensors, the goal is to use them to determine when the soil profile reaches 60% depletion (for silty-clay soils in our area aim for an average of 160 kpa of all your watermark sensors). At beginning dent corn you need 5 inches of water to finish the crop to maturity (the NebGuide also says approximately 24 days depending on the year). Corn at ¼ starch or milk line needs 3.75" (about 19 days) and ½ milk is 2.25" (about 13 days). Soybeans at the beginning of seed enlargement (R5) need 6.5 inches and at full seed enlargement (R6) need 3.5". The UNL NebGuide "Predicting the Last Irrigation of the Season" provides good information on how determine your last irrigation in addition to showing charts on how much water the crop still needs at various growth stages.

One way to look at this is by the number of days left and use a step down approach…so essentially for approximately 24 days left at beginning dent, increase your average trigger for irrigation over 3-4 weeks. At beginning dent, if you were allowing your sensors to average 90kpa previously, then aim for an average of 110kpa the first week, 130kpa on the second week, and 150kpa on the third week. If these triggers are met during the week, you would put on about 1 inch of water. By going to these numbers, you dry out your soil profile to allow for recharge this fall, winter, and next spring. In many years but perhaps not this one, it might give you a higher probability for rain in the next couple of weeks.

Abnormal Ear Development: I was grateful to Dr. Roger Elmore, Extension Cropping Systems Specialist and Dr. Justin McMehan, new Cropping System Specialist, for joining me in some Clay County fields this past week. A deeper discussion with photos can be viewed in this week's CropWatch at http://cropwatch.unl.edu. Essentially, this is a genetic X environment interaction. We believe the July 7th wind event was a major contributor in causing the primary ear of certain racehorse hybrids to be aborted as the wind was a common factor throughout the State. Most of these fields had minimal greensnap and we hypothesize that the extreme wind may have damaged the meristematic tissue where the primary ear was developing causing abortion of it and thus the various types of ear formation present in those fields. Companies test hybrids under numerous environments and this year was quite abnormal. As Roger mentioned, this is only the second time in his life where he'd seen this type of widespread ear development and we all hope we never see it again. We began with the cool spring followed by high heat in June where the hybrids had fast elongation under irrigation. July 4th time-frame turned cool followed by the July 7th wind event and high heat again during pollination. We hope the CropWatch article helps explain what is being observed in some fields and we hope it increases awareness for you to check fields now instead of waiting till the combine goes through them. In general (not related to the abnormal ear development), there is quite a bit of tip back from the heat during pollination and there is some firing of leaves likely due to nitrogen loss from rain events in the spring.

Emergency Haying (till August 31st) and Grazing (till September 30th) of Conservation Reserve Program (CRP) acres has been approved for Adams, Webster, Kearney, and Franklin counties.

Termination of Land Leases for the upcoming crop year should be conducted by August 31, 2016. It is recommended that the farmland lease be terminated by Registered Mail™. This means that the person

receiving the letter signs for it, providing evidence that the termination notice was received. For more information, check out this week's CropWatch at http://cropwatch.unl.edu.

Lawns: Summer turf diseases are rampant right now due to warm temperatures and moisture from irrigation. Humid air and warm days followed by nighttime temperatures that cool to the dew point result in surface moisture that favors infection. Preventive fungicide applications are most effective for disease control, but at this point many lawns have active infections. So prevention is too late. Home lawns can often tolerate a low level of damage without justifying the need for fungicide applications. Lawns will recover on their own from leaf spot diseases like dollar spot and brown patch once weather conditions dry out and cool. "Curative" applications may stop a disease outbreak from spreading further, but the damage will have been done. Additionally, higher rates are required for curative applications and these rates are not available for homeowner purchase. Often environmental conditions suitable for disease infection may subside following the initial outbreak, meaning that a curative application may be completely unnecessary.

Now is also the best time for lawn renovation. For those who have called asking how to get rid of unwanted other types of grass and weeds in your lawn (other than nutsedge), August is often the type to apply glyphosate to kill those areas and then reseed those areas with desirable grass seed (after the waiting period according to the pesticide label restrictions). This YouTube video explains step by step considerations: https://www.youtube.com/watch?v=4M1Khr1ENWY. This YouTube video also does a good job explaining how to bring back a drought-stressed lawn that many of us may have experienced this past year: https://www.youtube.com/watch?v=CmHBUFK2AcY&feature=youtu.be. I also really like the publication "Improving Turf in the Fall" as it goes step by step into how a homeowner can do this. You can find it at: http://turf.unl.edu/NebGuides/ImprovingTurfinFallPrograms2010A.pdf or we'd be happy to provide it for you at the Extension Office. You can find all our lawn NebGuides at: http://turf.unl.edu/turf-fact-sheets-nebguides.

Jenny's REESources-August 28, 2016

Bacterial Disease of Corn: USDA released a statement a few days ago which stated, "Some states have observed disease symptoms in corn that are caused by the bacterium *Xanthomonas vasicola* pv. *vasculorum* (Xvv). This plant disease presents no health risks to people or animals, and there is no evidence of adverse impact on corn yield or quality from this plant disease.

USDA does not consider this plant disease to be of quarantine significance for domestic or international trade, and intends to address it like any other bacterial disease of corn. Corn for consumption poses a negligible risk of establishment of the disease in plants, and unprocessed corn to be fed whole to animals poses a low risk of establishment of the disease in plants. Processed corn products will not transmit the disease to plants. Growers, working with their state departments of agriculture and Extension, have safeguards, best management practices, and other tools to reduce risk of establishment of the disease in plants." Please also see the article in this week's CropWatch at http://cropwatch.unl.edu for additional details and photos.

Pivot Pressure Regulator Testing at Husker Harvest Days: Nebraska Extension is offering free testing of center pivot irrigation pressure regulators at the IANR building all three days of Husker Harvest Days September 13-15 in Grand Island. Irrigators are encouraged to bring two regulators per pivot span for testing. They can be dropped off at the IANR building in the morning and picked up, along with a report, later in the day. Regulators typically work correctly for many years, but should be inspected regularly for damage or malfunction. Regulators have a flexible membrane that may rupture over time and lead to water spraying out the sides of the regulator. Spring tension also wears down over time. If the spring becomes weak, it decreases the pressure of the water going through the regulator and increases the flow rate. Irrigators may see the irrigation system pressure decrease and the gallons per minute increase on a flow meter. These issues may indicate failed regulators. For more information on pressure regulators see this NebGuide: http://go.unl.edu/nmcm.

Fertilizing Lawns: Fall is still the most important time to fertilize cool-season turfgrass. Fall fertilization helps promote recovery, builds roots, and increases sugar reserves going into winter. Here are the current recommendations for fertilizer applications.

Newly seeded areas: Starter fertilizer with higher levels of P2O5 should be applied at or slightly after seeding. A second application of starter fertilizer should then be applied 4 weeks after emergence or mid-October (whichever occurs first). Newly seeded golf or sports turf can also benefit from frequent applications of soluble nitrogen (urea or ammonium sulfate) every 10 to 14 days to accelerate establishment.

Newer turf areas (<10 years old>: New stands of turf require more fertilizer than older turf areas. Additionally, turf areas that are thin or were damaged by a pest will also benefit from additional fall N to accelerate recovery prior to winter. For these sites apply a balanced (50% soluble and 50% slow-release) nitrogen fertilizer in late-August to early-September. Then make a follow-up application of a quick release fertilizer in mid-October. Again, aim to apply 0.5 to 1.0 lbs N per 1000 ft2 or buy a fertilizer with your spreader setting on the bag.

Established turf (10+ years old): One application of a balanced released nitrogen source in mid-September. Look for a fertilizer product with 30 to 50% of the total nitrogen as quick release/soluble nitrogen. This will provide even release during the fall. Aim to apply 0.5 to 1.0 lbs N per 1000 ft2. If unable to calibrate your spreader, then buy a fertilizer with spreader settings for your particular fertilizer spreader on the bag.

Tomato Ripening: I've received several calls about tomatoes this year. Optimum temperatures for ripening of mature green tomatoes is 68-77 degrees F. The further temperatures vary from optimum, whether hot or cold, the slower the ripening process will be. Tomatoes do not produce lycopene and carotene, the pigments responsible for ripe tomato color, when temperatures are above 85 degrees F. So extended periods of extreme heat cause tomatoes to stop ripening. Tomatoes during this time may appear yellowish-green to yellowish-orange.

Yellow shoulders is a related problem and seen as areas at the top of tomatoes that never ripen properly. These areas stay green or yellow as the fruit ripens, having a firm texture and poor flavor when the tomato is eaten. Heat, environmental stress and variety susceptibility are all factors in the development of yellow shoulders. As mentioned above, high temperatures within the tomato prevent the development of lycopene and carotene needed for proper ripening. Areas of the tomato exposed to direct sunlight, like the top shoulders, get hottest and are most prone to the disorder. Keep plants well-watered during hot periods and maintain adequate fertility when plants are fully loaded with fruits. Once temperatures cool, the ripening process should get back on track. Alternately, gardeners can harvest tomatoes at the pink stage and allow ripening to finish indoors. Development of yellow shoulders can sometimes be avoided if fruits are brought indoors to complete ripening away from high heat and other stresses.

Jenny's REESources-September 11, 2016

As I write this we are remembering 15 years since 9/11/2001. Prayers and thoughts today for all those who lost loved ones as a result of the terror attacks and those who lost loved ones serving our Country since.

Corn Residue Cooperator Field Days: Field days are being held throughout Nebraska for farmers to understand the impacts of grazing and baling corn residue on subsequent crop yields; effect of grazing and baling corn residue on soil components; and sharing survey results regarding what crop consultants and grain farmers think about grazing corn residue. This research had been conducted on cooperating farmers' fields and was funded by a Sustainable Ag Research Education (SARE) grant. These free field days will be held at six locations across Nebraska and I'll list the closest ones here. On September 27th at Noon near Ainsworth (Contact Denny Bauer 402-387-2213) and the Northeast Community College in Norfolk beginning at 5:30 p.m. with supper (Contact Denny Bauer 402-387-2213); Sept. 28th at USMARC Building 1 Auditorium near Clay Center beginning at 1:30 p.m. with refreshments and adjournment at 3:45 p.m. (please RSVP to jrees2@unl.edu or 402-362-5508); Buffalo County Extension Office in Kearney with 5:30 p.m. dinner (contact Brent Plugge 308-236-1235). Hope to see many of you at the Clay Center field day!

Pivot Pressure Regulator Testing at Husker Harvest Days: A reminder with Husker Harvest Days this week that Nebraska Extension is offering free testing of center pivot irrigation pressure regulators at the IANR building all three days of Husker Harvest Days September 13-15 in Grand Island. Irrigators are encouraged to bring two regulators per pivot span for testing. They can be dropped off at the IANR building in the morning and picked up, along with a report, later in the day. For more information on pressure regulators see this NebGuide: http://go.unl.edu/nmcm.

Irrigation Question: Another question I receive a few times each month is 'what should I charge my neighbor for my pivot/gravity system watering a portion of their non-irrigated land'. There is actually a spreadsheet and an app to help answer this depending on what you're more comfortable in using. The IRRIGCOST spreadsheet is a downloadable excel file in which you can input information to determine the cost to irrigate on a dollar per acre-inch basis. You can also use it to determine which fuel system would cost the least if you're considering a change. The spreadsheet can be found by scrolling to the center of this page: http://cropwatch.unl.edu/economics/realestate and clicking on IRRIGCOST. You can also download an app that will do the same thing at: http://ianr.unl.edu/agriculture-irrigation-costs-app.

Wheat: Last week's edition of CropWatch at http://cropwatch.unl.edu/2016/unl-cropwatch-sept-2-2016 had a focus on wheat information to consider. Wheat is a great crop in rotation and I've received more questions about growing it. Also, Dr. Cody Creech, Dryland Cropping Systems Specialist, is conducting a wheat production survey for the State of Nebraska to identify practices that aid in successful wheat production and to identify research needs based on farmer input. If you are interested in sharing your experiences by completing a 10 minute survey, please provide me your mailing address at: jrees2@unl.edu or call 402-362-5508.

Raising Nebraska: The Raising Nebraska building in Grand Island at the State Fairgrounds has several special upcoming programs. September 16: Celebrate National Play-doh Day at Raising Nebraska! Register your class or daycare youth to participate in National Play-Doh Day at Raising Nebraska by

making their own play-doh to take home! Special day and fee of $0.50 per kid! Register by September 15th to attend. http://www.signupgenius.com/go/20f0e4aaaa62ea7fe3-national.

October 8: Nebraska Mystery Foods Event: This is event is open to any youth aged 10 and older that has an interest or enjoys creativity, food science or culinary arts. The event will begin at 12:30 and should conclude by 5:00 pm. Youth will make a main dish in teams by using food items provided and one mystery ingredient. For more information visit http://raisingnebraska.net or contact Beth Janning at ejanning2@unl.edu. Teams must register by Sept 28.

October 21: Pork: How it's Raising and How it's Braised – This is a day for adults and youth (must be 2 years old) to come enjoy. Adults will have pork food demonstrations focused on easy meals by Nebraska Pork Producer Jane Stone while youth will have their own program about pigs. Program is from 10 am to noon. Attendees must register by October 21st to attend: http://www.signupgenius.com/go/20f0e4aaaa62ea7fe3-celebrate1

October 24th thru October 27th – Pumpkin Galore – Register a class or group to attend a Pumpkin Day! Learn about the Pumpkin Life Cycle, inspect pumpkin vines up close, and paint your own pumpkin. Special Day and Program of $1.00 per student. Registration Deadline of October 17, 2016: http://www.signupgenius.com/go/20f0e4aaaa62ea7fe3-celebrate

Science Saturday's are free and open to the public for anyone to attend. No registration needed. Time is 10:00 am to noon. October 8th – Drone Discover: Complete the National 4-H Science Experiment with us! If you have done it before or it is the first time, plan on attending! November 12th – Insects! December 10th – Nebraska Pulses Feed the World.

Trees: The cooler weather has caused aphid populations to increase in deciduous trees. Aphids are insects with piercing/sucking mouthparts and secrete honeydew which is a sugary substance. Some fungi feed on this honeydew and thus the black, sooty appearance that is also observed on tree leaves or on items where the honeydew has been deposited. We don't typically recommend anything for aphid control, especially this late in the season.

Lawns: After a summer of decent rainfall, weeds have grown quite well. Late summer into fall is the best time of year to control some weeds with herbicides. It is fine to hoe or hand-pull any weed at any time to reduce seed production and allow turfgrass to fill in areas to better compete next year. Common weeds for which herbicide control works best when applied from mid-September to mid-October include dandelions, ground ivy, white clover, violets, bindweed, thistles, and other broadleaf perennial weeds. Combination products containing more than one active ingredient, such as Trimec and Surge, are products homeowners can apply to lawns for perennial broadleaf weeds. Wait until mid-September to make the first application. If needed, make a second application in October.

Yellow nutsedge is growing well. This grass-like plant, also known as water or nut grass, is a sedge, not a grass. Herbicides that kill grasses typically do not kill nutsedge. The blades are waxy and triangular rather than flat like grass blades. The plant is yellow-green and grows faster than bluegrass. Nutsedge is a warm season perennial that grows rapidly in July and August, especially in wet soils. It is hard to control because the waxy leaves repel herbicides, and its roots terminate in a nut-like tuber, the size of a popcorn kernel, from which new plants grow, even if the main plant is killed. Control begins with making sure the area is not over-irrigated. For homeowners, hand-pulling or spraying nutsedge with the herbicide Sedgehammer will kill the main plant now but new plants will still grow from the tubers; so be prepared to hand-pull or spray the area in June of next year.

Jenny's REESources-September 18, 2016

Crop Update: Last week's storm resulted in some spotty hail damage in the area. Four seeds on the ground in one square foot can equate to one bushel yield loss.

With harvest approaching, let's all slow down on roads and make sure in the rush of harvest to be safe…shut equipment down when plugged before getting out on it, watch for people when moving equipment, and give slow-moving equipment room when we're on the highways and gravel roads. Here's wishing everyone a safe harvest!

Harvesting Soybeans at 13% Moisture: This is never a popular topic, yet it is important to think about regardless if it's more of an art than a science. What difference does harvesting and selling soybeans at 8% or 9% moisture mean to your bottom line? 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. For a field that's yielding 75 bushels/acre at 13% moisture, harvesting it at 9% results in selling 3.3 fewer bushels/acre. With soybeans priced at $10/bushel, that's a loss of $33 per acre. Even though stems may be green and leaves may be on plants, the soybeans may be drier than you realize. Soybeans are fully mature when 95% of the pods on the plant are at their full tan color. So aim to harvest around 14-15% moisture and adjust combine settings throughout the day as needed.

Soil Moisture Equipment: Reminder to remove your soil moisture monitoring equipment from your fields prior to harvest. Watermark sensors can be removed by clamping a vice grip below the cap, twisting and pulling straight up. There are also additional devices available for jacking them out of the ground if needed. Soak your sensors in water to remove soil from them and dislodge any soil particles gently with your fingers instead of using brushes or anything that can harm the mesh. Allow to dry and store them for the winter. ET gages should have the water removed from them (including pulling out the stopper to remove the water from the cap) and store indoors for the winter.

Sampling for Soybean Cyst Nematode: As harvest quickly approaches and has already occurred in southern portions of the State, be on the lookout for lower-yielding soybean areas of your fields. These areas may be an indication of soybean cyst nematode (SCN), Nebraska's top yield-reducing disease of soybean. Sampling for SCN isn't difficult, especially if you're already obtaining soil samples for fertilizer recommendations. Sample the lower yielding areas of fields after harvest taking a 0-8" soil sample. If you were already sampling this area for a fertilizer sample, simply divide the soil sample providing a portion to the soil testing lab for nutrients and the other part of the sample into a sampling bag to test for SCN. Soil sample bags can be obtained from your local Extension Office. Crop consultants or farmers desiring 10 or more bags should contact the Plant and Pest Diagnostic Lab in Lincoln directly at (402) 472-2559. Testing for SCN via these sample bags is free courtesy of the Nebraska Soybean Board and your checkoff dollars. The only cost to you is mailing the sample into the lab (address provided on the bag). Sampling for SCN can actually occur anytime and even when a different crop is growing, but we recommend after soybean harvest as the low-yielding areas of your fields are fresh in your mind. Also, if you observed sudden death syndrome (SDS) in your field this past year, be sure to sample the areas where that occurred for SCN. Often, but not always, the two diseases can be found in combination with each other, and when this occurs, they have a synergistic affect in reducing yield.

How do you manage for SCN if lab results confirm your field is positive? It will be important in the future to use an SCN resistant variety, to continue with crop rotation, and to not plant the same SCN

resistant variety with same SCN resistance genes every time you plant soybeans in that field. SCN is a soil-borne disease which means that anything that moves soil can move the nematode causing the disease. It also means that once it's present, it most likely will always be present.

Atrazine and EPA: Every year during pesticide training I talk about how we as an ag community can reduce the potential of atrazine movement into surface water in hopes of maintaining this important product for weed control in corn and sorghum production. What we do as a community does matter! Atrazine binds to soil particles making it less likely to move towards groundwater. However, soil movement off-field can move atrazine. Practices which help reduce atrazine escaping to surface water include: No-till farming, terraces, tile outlets with a grass buffer below around the outlet end or no-tilling around the inlet side, diversions, crop rotation, buffer strips, the use of atrazine setbacks according to label, drift management, timing of use, not applying to wet soils, not applying when heavy rains are expected and good management with irrigation water applications to decrease runoff. All of these practices can add up considerably. Atrazine products can vary on setback requirements so always read and follow the label.

The Nebraska Corn Growers Association and Nebraska Grain Sorghum Producers Association are urging farmers to submit comments to the U.S. Environmental Protection Agency (EPA), on their proposed reduction of acceptable application levels for atrazine. Over 7000 scientific studies have proven atrazine's safety. A reduction in the rate of atrazine applied reduces the synergistic affect with other herbicide chemistries and can eliminate residual effects at the proposed rates. The following is information shared by these Associations.

For more than 50 years, atrazine has been a mainstay of corn and sorghum farmers for its proven control of a broad range of weeds. If the recommendations included within the assessment stand, it would effectively render this important tool useless on farms and significantly increase farmers' input costs. The EPA based their ecological risk assessment for atrazine on studies their own Science Advisory Panel deemed flawed just 4 years ago. Through the use of these highly questionable studies, the EPA arrived at an aquatic level of concern for Atrazine of 3.4 parts per billion, a two-thirds reduction from the current level of 10. Scientific evidence points to a safe aquatic life level of concern at 25 parts per billion or greater. If the proposed level of concern becomes the standard, effective use of the herbicide would be unachievable. EPA is accepting public comments on the assessment through October 4, 2016. Farmers can take action on this issue and submit a comment to the EPA by visiting the website: FightEPA.org.

Jenny's REESources-September 25, 2016

Corn Residue Cooperator Field Days: A reminder of field days being held throughout Nebraska for farmers to understand the impacts of grazing and baling corn residue on subsequent crop yields; effect of grazing and baling corn residue on soil components; and sharing survey results regarding what crop consultants and grain farmers think about grazing corn residue. This research had been conducted on cooperating farmers' fields and was funded by a Sustainable Ag Research Education (SARE) grant. These free field days will be held at six locations across Nebraska and I'll list the closest ones here. On September 27th at Noon near Ainsworth (Contact Denny Bauer 402-387-2213) and the Northeast Community College in Norfolk beginning at 5:30 p.m. with supper (Contact Denny Bauer 402-387-2213); Sept. 28th at USMARC Building 1 Auditorium near Clay Center beginning at 1:30 p.m. with refreshments and adjournment at 3:45 p.m. (please RSVP to jrees2@unl.edu or 402-362-5508); Buffalo County Extension Office in Kearney with 5:30 p.m. dinner (contact Brent Plugge 308-236-1235). Hope to see many of you at the Clay Center field day this week!

Late Season Corn Stalk Nitrate Tests: This is a tool to assess your nitrogen management program. Dr. Charles Shapiro, Nebraska Extension Soil Fertility Specialist shares they can help determine how much applied nitrogen remained post-harvest and, when used along with your knowledge of field and cultural practices, can help you fine-tune your soil management strategy and possibly adjust your application rates next year, The test, developed by researchers at Iowa State University, is best used in corn fields where moisture was not a limiting factor. This year may be particularly interesting since heavy rains earlier in the year, particularly in eastern Nebraska, may have contributed to increased nitrogen leaching and/or denitrification below plant-available levels. Given the wet conditions, nitrogen applications planned to be applied through irrigation, may not have been made.

Take corn stalk samples as early as when the milk line is one-fourth of the way down the kernel and up to three weeks after black layer formation in 80% of the kernels. Take an 8-inch segment of cornstalk from 6 inches to 14 inches above the ground. Stalk samples should be kept cool and wrapped in paper rather than plastic to avoid mold and sent to a soil testing laboratory.

Charlie shares the best use of this test is to compare different treatments, such as a strip trial where extra nitrogen was applied sidedress. The information from the stalk nitrate test is best interpreted with yield data and used as part of your overall nitrogen management assessment.

For more information on how to take the test in your fields, and how to interpret the results and consider the findings when planning next year's nitrogen management, please check out this week's CropWatch at http://cropwatch.unl.edu to view Charlie's article and the resources listed. We also have NebGuides available in the Extension Office.

Thistles and Other Weeds in Pastures: I've been receiving questions on thistle and other perennial broadleaf weed control in pastures. October through early November is a great time to target control of these weeds as the herbicide is moved down to the root system as the plants are naturally storing carbohydrate reserves there. If you walk into pastures now, you most likely will see thistle rosettes that are small and flat on the ground. Dr. Bruce Anderson, Extension Forage Specialist shares they are particularly susceptible to herbicides in this form. I really like some of the newer herbicides, not only for thistle control in the fall but also for broadleaf/forb control in the spring. Bruce also suggests that herbicides like ForeFront, Milestone, and Chaparral work well for thistle control. Two other very effective herbicides are Tordon 22K and Grazon. Be careful with all these herbicides, but especially Tordon and Grazon, since they also can kill woody plants, including trees you might want to keep.

Another word of caution is when using these herbicides listed above, knowing grazing restrictions listed on the label and having that in mind is very important if animals are pastured and then turned onto cornstalks that will be planted into soybeans or alfalfa next year. Bruce shares another option is 2,4-D, which works well while it's warm; however, you will get better thistle control by using a little less 2,4-D and adding a small amount of Banvel or dicamba to the mix. Other herbicides like Redeem, Cimarron, and Curtail also can control thistles in pastures. No matter which weed killer you use, be sure to read and follow label instructions and spray on time to assure cleaner pastures next spring. While it was difficult this year with the drought in portions of the state, overgrazing pastures does tend to lead to more weeds. Avoiding overgrazing allows grass stands to thicken and compete with weeds and thistle seedlings.

Lawn Care: Two turfgrass diseases are commonly seen in September, powdery mildew and rust, both foliar (leaf) diseases. Unlike most other foliar diseases, powdery mildew does not require free moisture on the leaf blade. It appears as if turf blades have been dusted with flour and causes a thinning of the stand. Best control efforts include applying a fungicide in advance of the infection and increasing the air circulation in the landscape. Rust commonly occurs on under-fertilized turf as is common in late summer. In many cases, control can be achieved through proper nutrient application.

Jenny's REESources-October 2, 2016

Yield Monitors: Harvest is rapidly progressing! Dr. Joe Luck wrote an article in this week's CropWatch regarding making sure your yield monitor is collecting accurate information. Here are a few pointers he shares: "The first item on the yearly checklist should be verifying that firmware is up to date on the in-cab monitor and your GPS system. This may require a check with your dealership or a visit to the company website. System software needs to be checked every year to make sure you're running a current version. Perhaps the most critical need is to calibrate the yield monitor as it affects yield estimates across all of your fields. While some operators use calibrations stored in the display from previous years (always double check to see how well previous calibrations are performing), most will need to perform new calibrations. For each calibration, try to conduct separate loads that span the variability (high to low) that you may expect to see when harvesting fields. Generally you can change combine speed or header cut width to vary crop flow through the machine to create this variation while calibrating. (See this week's http://cropwatch.unl.edu for a diagram explaining calibration).

In general only 3,000 lb to 6,000 lb of grain are needed for each of these calibration loads. Harvesting a full semi-load of grain per calibration load point won't necessarily improve calibration accuracy. Some yield monitors may only allow a two-point calibration, so it's best to try and calibrate for a point of high flow, then one for a lower flow rate through the machine.

Remember that separate calibrations are needed for different crops (e.g., corn or soybeans) and accuracy will generally improve when calibrating for significant moisture variability for a crop (e.g., high and low moisture corn). If you've adopted a more recently commercialized optical yield monitor system (such as available from CLAAS, Trimble, and Raven, for example), test weight measurements become even more crucial when you change between different hybrids and crops. In the end, remember that most well calibrated yield monitors should be able to estimate yields within 1% to 3% on a full-field basis. When looking at the sub-field scale, you're likely to see errors exceeding 3%."

Farm Finance and Ag Law Clinics: Openings are available for one-on-one, confidential farm finance and ag law consultations being conducted across the state each month. Clinic sites and dates include: Grand Island on Oct. 6; Norfolk Oct. 12; North Platte Oct. 13; Lexington Oct. 20; Fairbury Oct. 25; and Norfolk Oct. 31. An experienced ag law attorney and ag financial counselor will be available to address farm and ranch issues related to financial planning, estate and transition planning, farm loan programs, debtor/creditor law, water rights, and other relevant matters. They offer an opportunity to seek an experienced outside opinion on issues affecting your farm or ranch. To sign up for a clinic or to get more information, call Michelle at the Nebraska Farm Hotline at 1-800-464-0258. The Nebraska Department of Agriculture and Legal Aid of Nebraska sponsor these clinics.

Stalk and Ear Rots: Since late August/early September, anthracnose top die-back of corn caused by *Colletotrichum graminicola* has been observed in many fields. Symptoms include upper portions of plants turning brown while the lower-mid portion of the plants remain green. We're also seeing stalk rot setting in corn plants. To determine percent stalk rot for planning harvest and avoiding too much downed corn, I use a pinch test. Take your thumb and first finger and pinch 20 plants in a row at the first or second internode above the soil line (use the same internode on all plants). Determine a percent of the number that easily crush out of 20 plants with ears and repeat this in several areas of the field.

The past few weeks I've calls regarding ear rots in corn. Damage to corn ears from insects such as western bean cutworm and also hail can allow for secondary pests like the tiny black beetles some have

asked about. It also can allow for colonization of a number of *Fusarium* fungi or *Gibberella zeae* which is causing the white/pink cottony growth some are seeing. The presence of these fungi may result in mycotoxins such as fumonisin, vomitoxin (DON), and/or zearalenone but does not always mean a mycotoxin is present.

Another common ear rot being seen in fields right now is Diplodia (Stenocarpella) in which the fungal growth begins at the base of the ear with cottony white/gray fungal growth that spreads rapidly across the ear. This fungus can also produce small, black reproductive structures on kernels that are raised and can feel rough to touch. Often diplodia is more common in humid and/or wet falls with hybrids that have tight husks and when ears are upright longer. This particular disease causes the kernels to be lightweight and there aren't mycotoxins associated with the fungus causing this disease. It can be a problem in the bin reducing grain quality. Corn harvested from fields with widespread ear rot diseases shouldn't be stored long term as fungi can continue to grow in storage and reduce grain quality. Cooling grain below 50F as quickly as possible (store at 30F) and drying grain quickly to less than 15% moisture (below 13% for storage through the following summer) minimizes fungal growth.

Natural needle drop will begin soon: Evergreens retain one to three year old needles. Natural needle drop typically begins in September with interior needles suddenly and uniformly turning yellow from the top of the tree to the bottom. These yellow needles are easily knocked off of the tree by hand, wind or rainfall. Natural needle drop is just that: natural and not of any concern. As a rule, pines hold their needles for two to three or more years and spruce trees hold needles five to seven years. Natural needle drop is most noticeable on white pines.

Perennial broadleaf weed control is most effective with spot treatments of herbicides applied during fall. It is best to wait until after the first light frost to begin making applications. When night temps begin to fall into the 30s, plants initiate carbohydrate movement into the root system. This increases the movement of herbicide into roots to increase weed kill. Combination herbicides are generally more successful than individual active ingredients in controlling perennial broadleaf weeds.

Jenny's REESources-October 10,2016

Herbicides and grazing and cover crop grazing: With harvest progressing, cattle may be turned into stalks soon if not already. It's important to read herbicide labels to understand if there are 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 marestail and other germinating weeds. These restrictions can also be found in the UNL Guide for Weed, Insect, and Disease Management on pages 182-185. 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 168-181 of the Weed Guide.

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 many chemical reps use 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.

Landlord/Tenant Cash Lease Workshops and Flexible Lease Workshops: We are hosting these workshops in York on November 14 at the 4-H Building at the Fairgrounds beginning at 9:30 a.m. The Flexible lease workshop will follow at 1:30 p.m. You are welcome to attend one or both of these workshops. Additional locations can be found at: http://cropwatch.unl.edu/2016/ag-land-lease-workshops-set-fall.

These workshops are designed to help landlords and tenants develop a lease that is right for both parties while maintaining positive farm leasing relations. Cash lease questions were one of my top questions through the years and these workshops can be helpful in answering questions you may have. I do encourage both the landlord and tenant attend if at all possible; it's also helpful for spouses to attend.

Cash lease workshop topics include: Latest information about land values and cash rental rates for the area and state; Lease communication; Lease termination; Review of common lease provisions with emphasis on common provision questions; Legal issues related to land ownership — basic ownership structurers and what they mean; A quick look at how entity ownership affects legal and financial risk management; Ownership transition; State/federal resources for beginning farmers and ranchers; Other topics, like irrigation systems, hay rent, pasture rental agreements, and grain bin rental will be covered as time allows.

The goal of the Flexible Lease Workshops is to provide information on: what a flex lease is; how to set up a flex lease, and common flex lease provisions. The workshop is designed to let landlords and tenants be as simple or complex as they want to be when setting up flexible leases.

The free workshops are sponsored by the North Central Risk Management Education Center. Registration is requested to ensure enough handouts are prepared. Register by contacting York County Extension at 402-362-5508 or emailing jrees2@unl.edu.

Fall invaders are pests that move indoors seeking overwintering locations. Most are just a nuisance. Every fall, homeowners should systematically walk around their homes and look for any potential openings bugs can slip through. All cracks should be caulked and sealed. Check the seal around windows and replace any broken screens. Make sure door gaskets are firmly in place and that all other openings are sealed. Also check plumbing fixtures like water spigots for potential entryways into homes.

Dr. Fred Baxendale, UNL Extension Entomologist shares, "The first type of invaders come in on the ground: crickets, cockroaches, centipedes, millipedes, ground beetles, spiders and ants. These pests are attracted to the leaf litter and debris found around the foundation of houses, as well as the shade offered by surrounding landscape vegetation. From the foundation, these ground invaders will then wiggle their way into homes through any crack or crevice they can find. Homeowners anticipating a ground pest problem can apply a perimeter spray (a barrier that kills bugs). A number of insecticide products are available at garden centers and superstores, but make sure they are labeled for outside use. Spray up the house walls for 3 to 4 feet and out from the house for 3 to 5 feet.

The second type of fall invaders enter homes in the air: house flies, cluster flies, yellow jackets, fruit flies, boxelder bugs, miller moths and mosquitoes. Unlike ground invaders, these airborne pests are generally not affected by foundation sprays. Because of this it is even more important to seal and caulk all cracks and openings. Many of these pests are attracted to outdoor lights, such as porch lights, and enter homes when nearby doors are open. Turning off outdoor lights helps keep pests out of homes.

Fruit flies, however, can still get into homes because they are small enough to fit through window screens. Fruit flies may also enter homes as eggs already laid in fresh produce, or they are attracted to fruits and vegetables sitting inside. Keeping all produce in secure containers inside refrigerators and dumping compost buckets daily will help prevent homes from becoming attractive destinations.

If bugs do get inside a home, the first step should be to set out sticky traps. Not only will this remove many of these unwanted guests, but it will help monitor which pests are inside. If any unidentifiable spiders are captured in sticky traps, take them to a local extension office for positive identification to ensure they are not the poisonous brown recluse. For more serious problems, indoor-use aerosol sprays are available. If the infestation is severe, it is always best to hire a professional pest control operator. Sticky traps, along with the old-fashioned strategies of sucking bugs up in a vacuum cleaner or picking them up in a tissue, can usually get the job done without chemical sprays. When using sprays, always be sure to follow label directions. Chemicals are only effective and safe, for humans and pets, when used according to their directions."

Jenny's REESources-October 16, 2016

Harvest is rapidly progressing with some pleased with yields and others not so much. The past week, I've answered a number of calls and looked at samples of ear rot in addition to a few corn plant carcasses. It's really hard to determine causes for lower yields from samples provided this time of year. This year was another challenging one regarding the environmental conditions and various biological factors that also affected our crops. The following are some factors for consideration on a field by field basis. The full article with photos and weather graphs can be viewed at http://cropwatch.unl.edu.

As we review planting and early season conditions, variability in precipitation with excess moisture in some locations led to variable planting dates with some replanting. It also led to variable emergence and plant growth within fields. Damping off and other seedling diseases were a problem in some fields and in some hybrids, resulting in stand losses.

Excess moisture may have resulted in denitrification and/or leaching of nitrogen in some fields where nitrogen was applied pre-plant. If rescue treatments or the majority of nitrogen could not be applied in-season, nitrogen stress may have occurred. Excess moisture also affected some post-herbicide applications which may have resulted in weed pressure in some fields, potentially impacting yield.

As June rolled around, growers may recall plants appearing yellow from lack of root development from April/May rainfall. We also had high heat and high winds in June which made the soil hard and increased plant stress from lack of root development. Some corn plants were in a critical growth stage (V5-V8) during this time. Irrigation was recommended to help reduce plant stress.

Rapid plant growth continued to occur. A cold snap over the July 4 weekend followed by a July 7 windstorm with hail affected pockets throughout the state. Plants most affected by greensnap were between V10 and V14 growth stage at this time. By the end of July there was a period of high nighttime temperatures which may have affected kernel setting. By late summer, portions of the state were in drought due to limited rainfall from early June through August. Solar radiation was good for both corn and soybean yields; however, the high relative humidity resulted in reduced evapotranspiration (ET). The high humidity did appear to help plants in drought-stricken areas hang on longer. Ear formation concerns were also observed on racehorse hybrids and determined to be the loss of the primary ear node although exact reasons for this are still being determined. Insects such as western bean cutworms and grasshoppers were an issue throughout the state. Spider mite flare-ups occurred during milk to early dent growth stages with some farmers questioning additional pesticide applications given current economics.

Bacterial leaf streak was observed in plants as early as V7 and appeared in a more wide-spread area after the July 7th wind storm. Gray leaf spot was often confused with bacterial leaf streak, eventually with both occurring on the same plants as the season progressed. Southern rust showed up with some growers surprised at the rapid increase late season that may have impacted yield and standability.

September resulted in corn appearing to rapidly lose health and we didn't see the long period of drying husks on green stalks as is often observed. Weather data shows a period with very low solar radiation during this time, which may have impacted corn plants physiologically. Several stalk rot diseases can cause early plant death and potentially impact yield if they infect and develop early. These diseases are caused by fungi that survive in the soil and infect and develop in plants that may have been grown under crop stress, such as nutrient deficiency, moisture imbalance (too wet or too dry), wounding, and loss of leaf area, such as caused by leaf diseases, among others. Hybrid selection may help to reduce the incidence of stalk rot diseases. Anthracnose stalk rot (and top dieback), as well as Fusarium stalk rot have been observed, and others, such as charcoal rot, which is more common in dry

growing conditions, also could be possible.

Ear rot diseases have been observed somewhat in the past few weeks. Dr. Tamra Jackson-Ziems and I wrote another article regarding this in this week's CropWatch at http://cropwatch.unl.edu with photos and detailed information on what to look for. Everything I've seen thus far has been Fusarium/Gibberella, Diplodia, or Penicillium. Some have complained about ear shanks being fragile with ears dropping easily and what some are calling 'cob rot'. Most of what I'm seeing is limited to where insect damage, ear formation, or tight husks occurred. It's important to scout high risk fields and to know whether they're a problem to help make informed decisions about storage and feeding.

Not affecting yield, but something I'm also hearing reports about is "black dust" on combines and augers during harvest. This is most likely due to secondary fungi feeding on dead/decaying plant tissue and these fungi release copious amounts of spores. More information on this can also be seen in this week's CropWatch at http://cropwatch.unl.edu.

In summary, a number of factors across this production season may be affecting yields. If you are experiencing lower than expected yields, consider the factors listed in this article to help determine what might have affected your crop on a field-by-field basis.

Jenny's REESources-October 23, 2016

The season of winter meetings is quickly approaching! This column will focus on a few upcoming programs in addition to lawn and insect questions. I would also encourage you to check out this week's CropWatch at http://cropwatch.unl.edu for crop-related articles. One which may be of particular interest is regarding the performance of the Cry1F Bt corn against western bean cutworm in Nebraska.

Landlord/Tenant Cash and Flexible Lease Workshop will be held on November 14th at the 4-H Building at the York County Fairgrounds in York. The cash lease workshop will run from 9:30 a.m.-Noon (registration from 9-9:30 a.m.). The flexible lease workshop will run from 1:30-4:00 p.m. (registration from 1-1:30 p.m.). There is no charge thanks to sponsorship by the North Central Risk Management Education Center. Lunch will be on your own. We encourage landlords, tenants, and spouses to attend. Attendees may attend one or both of the workshops. Please RSVP to the York County Extension Office at 402-362-5508 or jrees2@unl.edu.

The goal of these workshops is to develop leases that are right for both parties while maintaining positive relationships. Topics for the cash lease workshop include: Latest information about land values and cash rental rates for the area and state; Lease communication; Lease termination; Review of common lease provisions with emphasis on common provision questions; Legal issues related to land ownership; Ownership transition; State/federal resources for beginning farmers and ranchers; Other topics as time allows. Topics for the flexible lease workshop include: What a flex lease is, how to set up a flex lease and common flex lease provisions. The workshop is designed to allow both parties to set up leases as simple or complex as they desire.

Crop Insurance Workshop: Ag professionals, including growers and ranchers, who wish to enhance their knowledge of risk management and their ability to design an appropriate risk management plan are encouraged to register for a Nov. 9 crop insurance workshop. It will be hosted by Nebraska Extension at the Heartland Events Center, 700 E. Stolley Park Rd., Grand Island.

This year's workshop will focus on farm survival, outlook and risk management strategies. Topics discussed during the workshop include where to consider cutting costs, whole-farm crop insurance, current crop insurance policy issues, and a market outlook provided by Jeff Stolle of the Nebraska Cattlemen and Cory Walters of the Department of Agricultural Economics at the University of Nebraska–Lincoln.

In addition, the workshop will feature a panel on decision making in the current financial condition of agriculture. The panel will include: Roy Smith, retired producer and grain marketer, will discuss how to survive economic downturns; Tina Barrett, director of Nebraska Farm Business Inc., will provide an up to date Nebraska producer financial picture and survival strategies; Jerry Catlett, senior vice president of Bruning State Bank, will talk about how to handle unfortunate financial news; Matt Habrock, assistant director of the Nebraska Department of Agriculture, will discuss the Nebraska Farm Financial Health Survey. More information and registration can be found at http://cropinsure.unl.edu or by contacting Cory Walters at 402-472-0366 or cwalters7@unl.edu.

Grain Marketing Workshops: Grain marketing workshops are offered to help grain producers minimize losses during this time of low prices. The nearest Grain Marketing Workshop location will be held in Bladen on December 6th from 9:30 a.m.-3 p.m. at the Webster County Fairgrounds on the west side of

Crescent Street. You can register or view other locations at: go.unl.edu/marketingworkshops or by calling Robert Tigner at 308-345-3390. Nebraska Extension Educators will present location- and commodity-specific marketing information. Topics include developing a written marketing plan, and understanding basis and carrying charges. The workshops feature the Marketing in a New Era simulator and the Grain Marketing Plan smartphone application. Complimentary lunch is provided. Workshops, which are funded by the Nebraska Corn Board, are limited to 40 participants each.

October Turf Tips: If you haven't applied your second fall fertilizer application yet, now is a good time to do it as a winterizer fertilizer. Fall fertilizer is important for protecting your lawn against winterkill, strengthening the root system of the plants, and allowing for better green-up in the spring. October is also a great time for weed control. Applying herbicide to perennial weeds such as dandelions, creeping Charlie and others allows for increased herbicide uptake and plant death in the fall because the herbicide is translocated to the roots along with nutrients the plant was intending to store. Be sure to read and follow all label directions. Ultimately the best weed control is a thick, dense lawn that is the result of proper fertilizing, irrigation, and pest control. Right now is actually the start of next year's lawn care season!

Small, black biting insects in landscapes right now are minute pirate bugs. This insect is about 1/8-inch long, oval to triangular in shape, flattened and black with whitish markings on the back. Normally, they are predators and feed on insect eggs and small insects. They feed by impaling their prey with their short blunt beak and sucking the juices. Minute pirate bugs are found throughout the summer in fields, woodlands, gardens and landscapes. In the late summer, they begin biting humans. They do not feed on blood or inject a venom or saliva.

People differ in their response from no reaction to bites that swell like a mosquito bite or turn red. Because the bite is noticeable and the pirate bug doesn't fly quickly, the victim is usually able to successfully smash the offending insect. Control of minute pirate bugs is not practical. Repellents are generally not effective, although some people have found applying baby oil or suntan oil liberally to the skin may prevent some bites by coating the pirate bugs with oil.

Oak itch mites: Reports of itch mite bites are being received from workers performing landscape clean up tasks beneath oak trees. Female itch mites are present in oak leaf margin galls in fall and could fall on people working beneath trees. Signs of itch mite attack on humans are red welts on the neck, face, arms and upper torso. Normally bites are not found on the legs, which distinguishes these bites from those of chiggers. Oak trees with margined leaf fold galls indicate the likelihood of itch mite activity. It's advised not to set under oak trees with these galls. When working under trees, especially if raking leaves, wear long sleeves, long pants and a hat. Use an insect repellent containing DEET or picaridin. Avoid direct handling of leaves and lawn clippings. Remove clothing each day and launder them, since mites can remain in the fabric for several days. Take a warm shower soon after coming indoors, since the mites need about four hours on your body to produce a bite.

Jenny's REESources-October 30, 2016

Soil Temperatures: With November 1st approaching, some have asked about current soil temperatures for fall fertilizing of fields. Currently seven day temperature averages are in the high 50s°F. You can check the latest soil temperatures for the area at: http://cropwatch.unl.edu/cropwatchsoiltemperature.

York County Corn Grower Plot Results available: The York County Corn Grower plot was harvested October 14. A special thanks to Ray, Ron, and Brad Makovicka for hosting the plot again this year and all their time and efforts with it! Special thanks also to the seed companies represented in it! Yields were good and you can obtain the results by stopping in the York County Extension Office and it will also be posted on the York County Corn Grower's Site this week at: http://www.yorkcountycorngrowers.com/. Thank you again to all who participated this year!

November Farm Finance Clinics: Openings are available for one-on-one, confidential farm finance and ag law consultations being conducted across the state each month. An experienced ag law attorney and ag financial counselor will be available to address farm and ranch issues related to financial planning, estate and transition planning, farm loan programs, debtor/creditor law, water rights, and other relevant matters. They offer an opportunity to seek an experienced outside opinion on issues affecting your farm or ranch. To sign up for a clinic or to get more information, call Michelle at the Nebraska Farm Hotline at 1-800-464-0258. The Nebraska Department of Agriculture and Legal Aid of Nebraska sponsor these clinics. Closest clinic sites and dates are: November 3 in Grand Island; Nov. 3 in Fairbury; Nov. 17 in Lexington.

November 14 Ag and Flex Lease Workshops: There's still time to sign up for the ag lease workshop (9:30 a.m.-Noon) and flex lease workshop (1:30-4:00 p.m.) to be held at the 4-H Building at the York county fairgrounds on November 14. Registration is available half an hour prior to the start of each workshop. There's no charge and lunch will be on your own. We encourage both landlords, tenants, and spouses to attend if possible. Please RSVP to 402-362-5508 or jrees2@unl.edu so we have enough handouts and refreshments available. The flyer can be viewed at: https://jenreesources.com/.

December 1 Solar Power Workshop: Nebraska Extension is hosting a workshop on Solar Photovoltaic (PV) Systems use in Agriculture with John Hay, Extension Educator in Energy presenting. The focus of the workshop will be economics and feasibility of solar PV systems for farms and rural businesses. John will mainly discuss grid tied solar PV, economics, basic design considerations and feasibility. 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. The workshop is open to the public. It will be held December 1st at the 4-H Building on the York County Fairgrounds; please RSVP to 402-362-5508 or jrees2@unl.edu. You can view the flyer at: https://jenreesources.com/.

Spruce Trees: I've had a number of questions regarding spruce trees and why they're looking brown or off-colored this fall. Trees with bright yellow-green discoloration may be either one or a combination of things. One may be spidermites, which from examination of many trees was an issue this fall. Spidermites have piercing/sucking mouthparts that allow them to suck the sap out of needles. This leaves the needles with tiny yellow spots and a yellowish cast to them. Over time and with heavy enough infestations, the needles can turn reddish-brown. Spidermites can be washed off trees with rain and/or heavy jets of water. Pesticides can also be used but aren't normally recommended any longer this season. You can determine if you have spidermites by shaking your tree branch on a white sheet of

paper. The mites are about the size of a pin head, but you can see them crawling on the paper if they're present. The following resource is handy for many insect pests of evergreen trees: http://nfs.unl.edu/documents/foresthealth/insectevergreen.pdf.

A yellow-green cast can also be due to a root problem with the tree or it could also be environmental. We've had a very strange year weather-wise and it could be that spruce trees are reacting to it now. I've talked with other horticultural experts-we've all seen the same thing for a few years that can't always be explained by insects or disease or even nutrient deficiency. Iowa State also discusses this problem where they also believe when no insects or diseases are present, that it most likely is an issue related to the roots and/or environmental stress: http://www.ipm.iastate.edu/ipm/hortnews/2007/4-4/yellowspruce.html.

Natural needle thinning of spruce is also occurring right now and in some years, heavier amounts of needles fall than others. I also noticed on my spruce rhizosphaera needle cast which is caused by a fungus. Needles in this case turn a reddish/purple color before turning brown and small black dots, which are the fungal resting structures, line the twigs themselves. This can be prevented with fungicides sprayed in May when new growth is between ½-2" in length. The following resource is handy for many diseases of evergreen trees: http://nfs.unl.edu/documents/foresthealth/diseasesevergreen.pdf.

Keep leaves from getting in steams: Kelly Feehan, Extension Educator in Platte county shares, "When lakes and streams have excess algae, or look like green pea soup, a major cause of this is the nutrient phosphorous. Sources of phosphorous in water include sediments from soil erosion or construction sites, fertilizers, manure and even tree leaves. A number of studies report that phosphorous in urban water runoff is highest in the fall at the time of leaf drop. Tree leaves moved to streets can leach phosphorus which can then move into storm drains and eventually lakes, rivers and streams. During rainfall, leaves are carried directly to surface water via storm drains where they release phosphorous as they decompose. One way to help reduce phosphorous in surface waters is to recycle tree leaves. Mow leaves into the turf or rake leaves from lawns and paved areas and recycle them. Keeping paved areas free of leaves, grass clipping, and fertilizer helps keep our lakes, rivers and streams clean."

Jenny's REESources-November 6, 2016

Grazing Corn Residue: With harvest completed or rapidly nearing completion, some may be interested in residue management. Grazing can remove corn kernels lost during the harvest process reducing volunteer corn for the following year and reduces residue while benefiting cattle as livestock feed. However, many stalks in Nebraska are left ungrazed for various reasons. One reason I've heard is the potential impact of increased compaction and reduced yield of the next crop. Nebraska Extension has long-term research addressing this concern…in fact, 16 years of research conducted at the Ag Research and Development Center near Mead. There's various components to this study and you can view the full report at: http://go.unl.edu/8mp6.

In this study, cattle were allowed to graze corn residue in the spring (February to mid-April) or the fall (November through January) and these treatments were compared to an area not grazed. Corn and soybeans were planted the spring after grazing the residue for 16 years to determine the effect of grazing on the subsequent crop yield. In the fall grazing treatments, the corn and soybeans were planted no-till. For corn or soybeans planted into the spring grazing treatments, three tillage treatments were also implemented for nine years: no-till, ridge-till, and spring conventional till, after which all treatments were converted to no-till. This result of the tillage by spring grazing treatments for either corn or soybean yield over nine years showed no interaction and suggested the same effect on yield regardless of tillage treatment used after spring grazing. Spring grazing across all tillage treatments did increase soybean yields statistically (58.5 bu/ac for spring grazed vs. 57.0 bu/ac for ungrazed) and had no effect on corn yields. The results were similar looking at 16 years of grazing vs. not grazing under no-till for both corn and soybeans in the spring; there was no yield effect found for corn and the soybeans showed a slight yield increase with grazing. Looking at a 10 year period of no-till management for both spring and fall grazed corn residue and subsequent corn and soybean crops, fall grazing statistically improved soybean yields over both spring grazing and no grazing (65.5 bu/ac vs. 63.5 bu/ac and 62.1 bu/ac respectively). No grazing effects were observed on corn yields in either season. All statistics were at the 95% confidence level meaning the researchers were 95% confident any yield differences were due to the treatments themselves vs. random chance.

Regarding compaction, in the fall, the field was typically frozen and the researchers felt any mud and compaction associated with grazing cattle was minimized; highest subsequent soybean yields were achieved with fall grazing. The spring treatment was designed to look more at potential compaction and muddy conditions after spring thaw till right before planting-thus the implementation of different tillage treatments as well. They used a stocking rate consistent with UNL grazing recommendations resulting in removal of half the husks and leaves produced (8 lbs of leaf and husk per bushel of corn grain produced). Results of this study indicate that even with muddy conditions in the spring, grazing increased subsequent soybean yields compared to not grazing regardless of tillage system used and that corn yields were not different between grazing vs. not grazing and regardless of tillage system used in the spring. This study was conducted in Eastern Nebraska in a rainfed environment with yields ranging from 186-253 bu/ac with a 16 year median yield of 203 bu/ac.

Grazing Frosted Sorghums: With at least one night of frost in this area of the state, there's been regrowth on some sorghums due to warmer temperatures. I've received a few questions regarding any

danger of the regrowth. Dr. Bruce Anderson and Dr. Darren Redfearn our Extension Forage Specialists share that the hydrocyanic acid (or prussic acid) in this new growth can be highly toxic to grazing cattle.

Prussic acid toxicity is considered to be more problematic during the summer months, but any new fall growth following a frost that kills only the plant tops can be toxic. Risk of prussic acid poisoning can be mitigated several ways. Prussic acid poisoning is dose-dependent -- both the amount and concentration of prussic acid in the diet as well as how rapidly it's consumed will influence the likelihood of toxicity. Important questions to ask include: 'How long has it been since the freeze/frost?' and 'Can they consume enough of the new regrowth so rapidly that it will cause an issue?'

When in doubt, wait at least seven days after a killing frost before grazing to allow adequate time for the chemicals to be eliminated from the plants. Another key is to not turn cattle out hungry into forages that may be high in either prussic acid or nitrates.

They share if the new growth of a previously frosted plant is short and consists of only 1 or 2 new tillers, the likelihood of prussic acid poisoning is minimal. However, if there are 5 or more new tillers with growth of 4 to 5 inches, then the possibility of prussic acid poisoning increases markedly. The reason is that with the increased amount of new growth, grazing cattle could consume enough new growth to receive a lethal dose of prussic acid. In that case, it may be wise to wait for another hard freeze and wait at least seven days before grazing to reduce risk of prussic acid poisoning.

Mulching Tender Plants: November may be the month to protect tender plants with winter mulch but wait until plants are fully dormant and air temperatures are dropping into the lower 20s each night before applying winter cover. Tender plants such as hybrid tea roses, strawberries and Chrysanthemums benefit from winter protection. Winter injury occurs from plants or soil freezing and thawing over winter and from winter drying, as well as from cold temperatures. It is important not to put mulch or covers like rose cones in place too early or winter injury may increase from delayed dormancy, smothering, or promotion of crown rots. Wait until after a number of killing frosts to ensure plants are fully dormant. This is typically in late November or early December. Once plants are fully dormant, cover the plants or their bases with a 10 to 12 inch layer of straw, wood chips or coarse leaves.

Jenny's REESOURCES-November 13, 2016

Market Journal RoadShow: The 2016 Market Journal Roadshow will focus on ag outlook and management decisions for Nebraska farmers and ranchers at four locations across the state from Nov. 28 to Dec. 2. The roadshow is in collaboration with the University of Nebraska-Lincoln's Department of Agricultural Economics' Cornhusker Outlook Series. There is no cost to attend.

Closest meeting locations are: **Kearney**, Nov. 28, 1 to 4 p.m., Holiday Inn, 110 Second Ave.; **Norfolk**, Dec. 1, 1 to 4 p.m., Lifelong Learning Center, 701 E. Benjamin Ave.; and **Lincoln**, Dec. 2, 9 a.m. to noon, Nebraska Innovation Campus Conference Center, 2021 Transformation Drive.

The roadshow is structured for a concise, fast-paced discussion of crop, livestock, policy, financial, weather and climate outlook with attention to production, management and marketing decisions for 2017. Pre-registration for the roadshow is requested. For more information and to register, go to marketjournal.unl.edu/roadshow.

York County Corn Grower Banquet Tickets: The York County Corn Grower annual banquet will be held on December 1st at 6:30 p.m. at the Chances R beer garden. Tickets are $10 and can be purchased from any of the board members: Boyd Stuhr Jr., Rick Gruber, Ron Makovicka, Gale Gruber, Bryan Mason, Tom Ritzdorf, Dennis Scamehorn, Kim Shepherd, Dan Stork, Clark Pickrel, Dale Moore, Kurt Naber, Dave Dickerson, or from the York County Extension Office. At the banquet, four board members will be elected for a 3-year term and one of the current board members is not seeking re-election. If you're interested in serving on the board, please contact Boyd Stuhr, Jr., York County Corn Grower President.

Cover Crop Forage Sampling: Dr. Mary Drewnoski, Extension Beef Systems Specialist and her student are conducting a study to increase the accuracy of small grain forage and brassica feed analysis. Quality of these forages as feed resources and effects of management will be surveyed in order to create a better prediction of total digestible nutrition (TDN) available that can be used by commercial labs, and to create a robust prediction equation for commercial labs that use near infrared (NIR) technology. To do this, at least 100 samples of each small cereal grass forage and brassica are needed. If you're willing to assist in this project by allowing me to collect some samples from those of you with cover crops yet this fall, please contact me at 402-362-5508 or jrees2@unl.edu.

Unmanned Aircraft System Trainings: Those interested in incorporating unmanned aircraft systems into their business operations and agricultural enterprises are encouraged to attend one of five introductory training sessions offered across the state by Nebraska Extension. The sessions will be from 8:30 a.m. to 4 p.m. at the following nearest locations: **Norfolk:** Nov. 29, Lifelong Learning Center, Northeast Community College, 801 E. Benjamin Ave. Register by Monday, Nov. 21; **Mead:** Dec. 14, Agricultural Research and Development Center, 1071 County Road G. Register by Monday, Dec. 5; **Grand Island:** Dec. 16, Hall County Extension Office, 3180 W. Highway 34. Register by Thursday, Dec. 8.

The training will highlight information needed by an unmanned aircraft operator and pilot, including: hobby flight, educational interpretation and best practices for privacy concerns; Federal Part 107 rules for commercial flight and piloting; and an overview of applications. At the conclusion of the program, training attendees will have flight time with a small unmanned aircraft system.

Space is limited to 45 attendees at each session. For more information and to register please go to: http://nuaire.unl.edu or contact Bonita Delhay at 402-472-9390 or bdelhay2@unl.edu. Continuing education credits (CEUs) have been applied for.

November and winter irrigation for lawns: Watering in November, if needed, can help prevent winter desiccation (extreme dryness). At this time of year, and on warm winter days, one-fourth inch of water a week is enough to avoid desiccation. Water early in the day so water soaks into soil.

Fall watering of trees and shrubs: Our warm fall has been fairly dry. I've received a number of calls regarding tree stress, particularly in spruces and firs. In past columns, I've talked about spidermites and needle cast in addition to environmental conditions being potential causes of this browning of needles. Often these trees have also been in landscape settings where irrigation systems would provide water and typically that water would be shallow irrigations of several times a week. Soil moisture conditions around some of these stressed trees tend to be extra dry with the irrigation systems now winterized. We would recommend you monitor soil moisture of evergreens and newly planted trees. In the absence of rain, watering may be needed to ensure the soil remains moist up until it freezes to help avoid winter drying. Adequate fall moisture is the most important factor to reducing the risk of winter injury from desiccation. Moisten the top 6 – 8 inches of soil around the tree. Water early in the day so water soaks into soil before nightfall to avoid water freezing around stems. Year round, use a 2 – 4" layer of mulch around the tree, but not up against the trunk, to conserve soil moisture.

Jenny's REESources 11-20-16

Thanksgiving: Thanksgiving is one of my favorite holidays as we have much for which to be thankful every day! May you enjoy a blessed day with family and friends! Nebraska Extension food experts have compiled a great deal of information to answer your turkey, stuffing, leftover, and numerous other questions including resources in Spanish at the following link: http://bit.ly/1Hrxd0a! A couple of key items: When thawing a turkey in the refrigerator at 40F or below, allow 24 hours for every 4-5 pounds of turkey. It should be placed in a tray or pan to catch juices and kept in the original wrapper. A thawed turkey can remain in the refrigerator safely for 1-2 days and if necessary, can be refrozen. Turkey meat will be safely cooked when the internal temperature reaches 165° F; however, the meat may still be slightly pink. Some people prefer cooking turkey to a higher temperature (whole turkey to 180°F in the innermost part of the thigh; turkey breasts to 170° F in the thickest part) for meat that is more well done. Have a question on Thanksgiving? A toll-free USDA Meat and Poultry Hotline will be staffed with food safety specialists on Thanksgiving Day from 7 a.m. to 1 p.m. CST at 1-888-674-6854 or email mphotline.fsis@usda.gov.

Solar Power Workshop: I've shared this in the past but wanted to remind you of a solar energy in agriculture workshop that will be held on December 1 from 1-3 p.m. at the 4-H Building in York. The seminar is free, open to the public, and will focus on photovoltaic (PV) solar systems for farms, ranches, and rural businesses. John Hay, Extension Educator in Bioenergy will discuss grid tied solar PV, economics, basic design considerations and feasibility. Participants will learn how to use basic online tools to model your own locations and learn about economic considerations such as payback, grants, tax credits, and depreciation. Please call the 402-362-5508 or email jrees2@unl.edu to register.

Field to Market Program: Field Assessment to Improve Efficiency: I've hosted these workshops the past few years in Clay Center and am offering it in York at the Extension Office on December 6th from 3-6 p.m. this year. Anyone who attended in the past is welcome to attend again. This workshop is for farmers interested in field sustainability and continuous improvement. Using the Field to Market Fieldprint calculator, attendees will enter their management and production information which will be used to compare fields with national, state, and local averages for the metrics of yield, erosion, irrigation efficiency, energy use, and greenhouse gas emissions. Data and production information is all kept confidential. There's increased interest in providing metrics on the sustainability of food production with some buyers asking their producers to provide these metrics. This workshop will give you the opportunity to learn how to use this tool and assess how your metrics compare to other farmers in this part of the State. There is no charge for this workshop thanks to sponsorship by the Nebraska Corn Board and Nebraska Extension. Participants will be provided a worksheet to fill out prior to attending the workshop. Please call 402-362-5508 or email jrees2@unl.edu to register or for more information.

Ag Leases: We had a good turnout for the Ag lease and flexible lease workshops in York last week. I felt the information was presented quite rapidly and wanted to share the key points. Ultimately, communication is key between landlords and tenants to understand expectations and develop and maintain relationships built on trust. Trust is key and is built on honesty. Written leases are important and much can be written into the lease. I've had landlords say they wished they could require knowing the yields of the field or even they wished the plum thickets weren't sprayed along the fence row so they could make jam like they used to. Those things are examples of items that can be written into the lease and it's also important to communicate these wishes to the tenants.

With low commodity prices and high cost of production, tenants desire lower cash rents and landlords have also correctly stated that their taxes haven't decreased. A key point is there is a lag

between market values and taxation values. For the landlord, "What are your goals for the land?" This is actually the first conversation you should have with the tenant. "Do you want to keep the tenant you've had all these years or do you want the highest rent? What are the additional things that tenant does for you?" I've asked several tenants the following in conversations thus far, "Are you willing to walk away from the land if the price is too high to cover cash costs?" It's very important for tenants to know your cost of production for 1 bushel of corn or soybeans. UNL has sample budgets that can be modified as a starting point at: http://cropwatch.unl.edu/budgets (the 2017 budgets will be released in December). It's also important for tenants to sell your skills to the landowner about what you bring to the farm.

In the written lease, it's important the landlord is protected by setting fertility minimums and that the tenant is protected if making a multiple year investment such as lime. Hunting rights and grazing rights typically belong to the tenant unless there is a provision written in the lease. Sample written leases may be obtained at http://aglease101.org.

In general, the UNL survey showed the following State-wide averages: dryland cropland values decreased 2%, gravity irrigated cropland values decreased 6%, and pivot irrigated cropland values decreased 5%. UNL surveys landlords, real estate agents, and farm managers. USDA surveys farmers and landowners and produces a survey on a county by county basis. Because this column goes to several counties in number of regions, I won't share the specific cash rent numbers from the survey here but will place them at http://jenreesources.com.

Another option is crop share which is actually the fairest as both the landlord and tenant accept risk. Determining cash rent based on the value or productivity of the land makes a lot of sense to me as does options for flexible cash leases and I will cover more about these options next week.

Youth Beekeeping Opportunity: Nebraska Beekeeping Association Youth Program annually awards grants to students interested in beekeeping. Students must be ages 12-17 and the grant provides students with equipment, bees, and mentors to assist them. Applications are due December 1 and can be found at: http://www.nebraskabeekeepers.org/wp-content/uploads/2015/09/nba_youth_grant_v2015.pdf . For more information please visit: http://www.nebraskabeekeepers.org/youth-program/.

Jenny's REESources-November 27, 2016

York County Corn Grower Banquet: Reminder of the York County Corn Grower Banquet beginning at 6:30 p.m. at the Chances R Beer Garden in York on December 1. Tickets are available for $10 and can be obtained from any Corn Grower Director and at the Extension Office. Hope to see you there!

Ag Lease Information continued: Last week I shared some communication and cash rent information. Crop share is still perhaps the fairest lease arrangement and would recommend that where it works for both the landlord and tenant. Another option is a flexible lease which is more elastic than cash rent. These types of leases can be designed in a number of a ways and can be as simple or complex as desired.

There's three primary ways flex leases are designed: 1) by unit changes that look at rent/bushel, rent/unit price, bushel bonus, and price bonus; 2) by net changes that look at percent yield, percent price, or percent income; or 3) gross change which looks at overall yield or overall income. When it comes to gross change, an estimated 27-28% of gross is used for corn and 30% of gross for soybeans or other commodities.

One of the most important criteria for flex leases is establishing floors and ceilings for protection of both the landlord and the tenant. Floors are important for landlords to ensure there's a minimum rent being paid while ceilings are important for tenants to ensure there's a maximum rent being paid. Recommendations for the first year of flex leases include: don't flex all your acres the first year-try it on one piece of ground first, and keep the flex amount narrow and the same amount for both the floor and ceiling. For example, for a base rent of $275 on irrigated ground, a ceiling may be $295 and floor of $255 (so the flex is $20/ac either way) with the final rent being somewhere between $255-295/ac based on how the flexible lease was designed.

Determining the base rent perhaps is the hardest part. One place to start is the UNL and USDA surveys for some ideas on numbers to explore. Another option is to have the land appraised and decide on an acceptable rate of return on your investment. This week I do promise to have the recent numbers for consideration provided by the UNL Ag Economics Department up on my blog at http://jenreesources.com.

When it comes to adjusting the lease, you're ultimately comparing expected performance of the land and prices against actual performance: if performance is better than expected, more rent is paid with the opposite being true if performance is less than expected.

I won't go into each individual type of way for flex leases as each individual farm situation will vary in what is fair and makes sense to you. Some may wish to set a base cash rent and provide a 'bonus rent' if bushels and/or prices are higher than expected. Some may wish to flex on income with others flexing on rent/bushel. None of these in themselves are right or wrong-it's what works for your situation.

Another type of consideration would be to set a rent based on the productivity of the land-how many bushels that ground produces. Essentially take the most recent 5 year Olympic average yield for the field (this involves throwing out the high and low yields and averaging the remaining three). Multiply by an agreed upon price such as fall harvest price or whatever both parties agree to. It's also important to agree from what source the price will be obtained. That gives you gross income per acre. Then multiply by 27-28% for corn and 30% for soybeans to account for cost of production. This is another way to arrive at base rent based on what the land can produce. Note that in high yielding, high price years, this formula can provide too high of rent and to use $3 or lower prices, it also may not reflect current rental rates. However, it's another way to look at how to arrive at numbers for base rent and can be adjusted

accordingly.

More information on flexible leases can be found at: http://go.unl.edu/x8ea. More information on various types of leases including cash lease calculators and considering bonus rents can be found at: http://agecon.unl.edu/realestate.

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NRD Nitrogen Management Meetings: Both the Upper Big Blue and Little Blue NRDs have set their nitrogen management operator trainings. Zone 1 of the Upper Big Blue NRD has reached nitrates over 7ppm and will be in Phase II management in the future. Cooperators in this zone will be required to complete initial nitrogen management training. Cooperators currently in Phase II or III management zones may need recertification as nitrogen certification is required every four years. Training dates are listed on the UBBNRD website at: https://www.upperbigblue.org/ and you can call them at (402) 362-6601 with questions.

LBNRD: Operator Training, for Irrigators and Dryland Farmers, is a required component of the LBNRD Groundwater Management Plan. Deadline for getting certified is April 1, 2018. All operators and those who make day to day land management decisions are required to attend one of the training events. This rule was adopted and added to the Little Blue Groundwater Management Plan on April 1, 2014. The objective of this rule is to update producers on current conditions within the Little Blue NRD and provide information from experts on proven practices or new technology on improving efficiency on the management of the water and soil. With that mind the LBNRD is conducting numerous training events this fall and winter to meet this requirement. The sessions are designed for producers to pick the sessions that have the most interest to them or the most convenient. The meeting schedule is listed on the LBNRD website at: http://www.littlebluenrd.org/ or by calling (402) 364-2145.

Jenny's REESources-November 27, 2016

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JenREESources-December 5, 2016

Agriculture at the Crossroads December 14th: Brandy VanDeWalle shared the following about an upcoming Farmers and Ranchers College program with Dr. David Kohl. The agricultural economic reset is in the mid inning, analogous to a baseball game. What forces will change the current economics? How will interest rate and land value changes influence profitability and your balance sheet? Dr. David Kohl, Professor Emeritus with the Dept. of AAEC, VA TECH will present his challenges & opportunities tool kit to give you some tools to help your business position for success so be sure to attend this information packed, high energy session, sponsored by the Farmers & Ranchers College.

This year's program will focus on how to be a better borrower in these economic times. Dr. Kohl will discuss burn rates on working capital and burn rate on collateral. A special segment will examine what adjustments producers are making to navigate the economic white waters and position the business to evaluate opportunities.

This educational program will be held December 14, 2016 starting at 1:00 p.m. at the Bruning Opera House with registration starting at 12:30 p.m. Due to the generous support of area businesses and organizations, this program is free, but arrive early to save yourself a seat!

To speed up the registration process, online registration is available at fillmore.unl.edu; this will enable you to put your initials by your name, rather than filling in your full name and contact information.

Soybean Machinery Day Expo December 15: The 2016 Nebraska Soybean Day and Machinery Expo on Dec. 15 will assist soybean producers in planning for next year's growing season. The expo, from 8:30 a.m. to 2:15 p.m., will be in the pavilion at the Saunders County Fairgrounds, 635 W. First St. in Wahoo. Presenters include University of Nebraska researchers and specialists, Nebraska Soybean Checkoff representatives, soybean growers and private industry representatives.

If you missed hearing him speak at the palmer amaranth resistance field day, Dr. Jason Norsworthy, a weed scientist at the University of Arkansas, will discuss the current status of herbicide resistance in the United States with specific detail given to the extent of the problem in Nebraska cropping systems. Norsworthy will outline reasons for the development of herbicide resistance and provide strategies for growers to maximize weed control and protect against further resistance. Roger Hoy, director of the Nebraska Tractor Test Laboratory, will discuss large equipment, tires and compaction. Loren Geisler, Nebraska Extension plant pathologist, will provide the latest on management of soybean sudden death syndrome. Cory Walters, assistant professor and grain and oilseed economist at the University of Nebraska-Lincoln, will discuss marketing for soybean and corn crops.

The expo also will include an update on the Nebraska Soybean Checkoff and association information. Producers will be able to visit with representatives from seed, herbicide, fertilizer and equipment companies and view new farm equipment during a 30-minute break at 9:45 a.m. A complimentary lunch will be served at noon. The Saunders County Soybean Growers Organization requests that each participant donate one or more cans of nonperishable food to the food pantry. Registration is available the day of the expo at the door. There is no registration fee. For more information about the program or exhibitor information, visit http://ardc.unl.edu/nebraskasoyexpo, call 800-529-8030 or e-mail kglewen1@unl.edu. The program is sponsored by Nebraska Extension, the Nebraska Soybean Checkoff, Saunders County Soybean Growers Organization and private industry.

Cover Crop Briefs: Thanks to a team effort, cover crop briefs were written by UNL researchers and shared at an in-service we had for Extension, NRCS, and US-MARC employees. These 'briefs' are two-

page summaries that provide a short, easy-to-understand description of the research conducted and the application for producers. Check them out this week at UNL's CropWatch http://cropwatch.unl.edu!

Farm Bill Program Payments: Over the past month, I've received a few phone calls asking about potential farm bill program payments going forward. Dr. Brad Lubben recently wrote an article about this. As we had anticipated when we worked through farm bill decision simulations, ARC-CO looked really good early on for many farmers and PLC later in the farm bill cycle on other fields. As I worked with farmers on decisions, I encouraged splitting risk wherever possible by putting some fields into ARC-CO and some into PLC. Hopefully some did that to hopefully receive some price support in the years ahead. You can read the entire article which explains both programs and shows potential projected payments for each at: http://go.unl.edu/pnw9.

Farmers and Wildlife Survey: The 8th grade robotics team at Heartland Community Schools asked if I'd share a survey with farmers. This year their challenge is called 'animal allies' and they wish to develop their challenge around how farmers interact with wildlife. This survey was designed to find a main repeating problem that farmers have with wildlife. You can fill out the survey at: https://goo.gl/forms/6O5yVT9xGf2hbZKG2 . The 8th grade robotics team thanks you!

Winter Successful Farming Series will focus on timely topics in workshops featuring experts from the University of Nebraska Institute of Agriculture and Natural Resources. The Friday morning workshops offer a relaxed setting to hear from the speakers and discuss that week's topic with producers and landowners, as well as UNL and industry experts. Workshops will be held every other Friday (except December 30) from December 16 through March 3. Each workshop starts at 9 a.m. and ends at 11:30 a.m. and is held at the Lancaster Extension Education Center, 444 Cherry Creek Rd, Lincoln. The cost is $5 for each workshop or $15 for the entire series. Cash or check is accepted at the door. For more information, call 402-441-7180 or email Tyler Williams at tyler.williams@unl.edu. To preregister go to go.unl.edu/farmerseriesregistration.

Jenny's REESources-December 11, 2016

Residue Removal Impacts on Yield: Corn residue can be looked at from many perspectives…from being a source of feed for cattle grazing, roughage when co-fed with distiller's grains, 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. Being a system's person, I like to look at how everything works together including crops, livestock, and biofuels. This article will focus on residue removal via baling and yield impacts sharing data from numerous research studies.

First, 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.

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, 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 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 continuing Sustainable Ag Research and Education (SARE) study conducted at four Nebraska locations is looking at grazing vs. baling to determine impacts on yield and soil properties. Preliminary results show similar increase in yields with grazing and baling compared to the check.

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. 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. 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 incorporating manure on fields where residue has been removed. Studies are ongoing regarding these management practices. Next week I'll discuss the research regarding the nutrient value of corn residue.

Keep Live Christmas Trees Watered: If your Christmas tree stand runs out of water, how long does it take for the trunk to seal so it will no longer take up water? If the water drops below the base of the cut trunk, a seal of dried sap will form over the stump in four to six hours. This seal will prevent the tree from absorbing water, even if the tree stand is refilled; leading to tree drying and an increased fire risk. For safety, start with a fresh Christmas tree and don't let the basin run out of water. Use at least a one gallon capacity tree stand and check the stand daily for adding water. A fresh tree whose trunk has not sealed will take up water quickly. If a seal does form, the tree can be taken out of the stand and a fresh cut made; or one-half inch deep holes drilled into the trunk one-half inch apart; which might allow the tree to begin absorbing water again. This is not very feasible; so be diligent and don't let tree stands dry out.

Jenny's REESources, December 17, 2016

Nutrient Value of Stover: One of the most asked questions I've received about harvesting crop residue is what is the nutrient content of the stover. Our Extension nutrient management specialists share that this 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 P_2O_5, 34 lbs of K_2O, 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. 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 from last week was shown 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.

Last week I shared 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.

Farm and Ranch Business Succession and Estate Planning: This is such an important topic and I always learn another piece from these trainings! We're hosting this on January 9th at the York Country Club from 9:30 a.m.-2:30 p.m. (Registration begins at 9:00 a.m.). Please RSVP by calling the Rural Response Hotline at 1-800-464-0258. The workshop is about farm and ranch business succession and family estate planning. It will include a discussion of beginning farmer programs that can aid in succession planning and is useful for established farm and ranch owners, for their successors, and for beginners. Topics include: stages of succession planning, contribution & compensation, balancing the interests of on-farm and off-farm heirs; the importance of communication, setting goals, assessing feasibility, and balancing intergenerational expectations and needs; beginning farmer loan and tax credit programs; the use of trusts, wills, life estate deeds and business entities (such as the limited liability company) in family

estate and business succession planning; legal tools for balancing the interests of successors and off-farm heirs; asset protection; taxation (federal transfer taxes, Nebraska inheritance tax, basis adjustment), and essential estate documents. Presenters include: Joe Hawbaker, Agricultural Law attorney, with Hawbaker Law Office, Omaha and Dave Goeller, Deputy Director, Northeast Center for Risk Management Education, UNL.

There is no charge for this workshop and it is made possible by the Nebraska Network for Beginning Farmers & Ranchers, the Farm and Ranch Project of Legal Aid of Nebraska, the Risk Management Agency of the USDA, National Institute of Food and Agriculture, the Nebraska Department of Agriculture's Farm Mediation, Nebraska Extension York Co, and Meal Sponsors: Cornerstone Bank, Henderson State Bank, Midwest Bank, and York State Bank. Please be sure to thank our sponsors and hope to see you there!

Precision Ag Data Management Workshops: These are hands-on workshop experiences to demonstrate methods for extracting more information from your precision ag data. This year, I'm hosting this in York at the 4-H Building on January 12-13 from 9 a.m.-4:30 p.m. each day (registration at 8:30 a.m.). The workshop contains presentations and hands-on exercises for producers, consultants, government personnel, retailers, and other ag professionals and you may choose to attend either or both days. Six hours of CCA CEUs have been applied for. We're also limited to 20 attendees per session so please register early! Online pre-registration is required and can be done by going to the following site: http://agronomy.unl.edu/precisionag. Reduced rates are available for those desiring a second person from an operation to attend as well.

Day One topics include: Creating field-based profitability with yield data and partial budgets, Soil sampling and development of grid and zone based maps, On-Farm Research 1: Setting up variable rate field trials, On-Farm Research 2: Analyzing yield versus as-applied data. Day Two topics include: Aerial imagery, available datasets and utilization, Profitability with multiple operations (as-applied data plus yield maps), Management Zones 1: Development using Ag Leader SMS Software, Management Zones 2: USDA Management Zone Analyst exercise.

CropWatch Survey: We share much information through our UNL CropWatch website (http://cropwatch.unl.edu) and are always desiring to improve based on your feedback. Your feedback also helps us as we justify the work that we put into CropWatch. Please consider completing this short survey for us at the following link (http://surveymonkey.com/r/UNL_CropWatch) and we thank you in advance for your input!

Jenny's REESources-December 23, 2016

Merry Christmas!!! Wishing you and your family a very blessed Christmas!

Pesticide Training Options: This is the big year for pesticide recertification and we have numerous pesticide trainings scheduled. If your pesticide license is due for renewal, you should have received a bar-coded letter from the Nebraska Department of Ag this past month. A focus this year will be on herbicide and other pest/pathogen resistance and worker protection standard.

For commercial/non-commercial applicators receiving payment for applying pesticides, recertification can be done through the Crop Production Clinics and you can register for them at http://agronomy.unl.edu/cpc. Other categories of initial and recertification training can be found at: http://pested.unl.edu/2017%20Training%20Schedule%20Booklet.pdf.

For private pesticide applicators applying pesticides on your own farms, there are several options for certification and recertification. The least expensive option is by attending a face to face training at a number of locations available throughout the area. These are advertised in winter program brochures which will be mailed out the week between Christmas and New Year's. You may also attend a Crop Production Clinic and I will share more about these later in this column. Other options include obtaining a self-study booklet from the local Extension Office or doing the training online at: https://marketplace.unl.edu/pested/private-pesticide-certification.

Crop Production Clinics: This year's Nebraska Crop Production Clinics feature agronomic, pest management, and farm management information to help growers make smart research-based decisions to improve their bottom line. Clinics will be held at nine sites across the state with the closest in this area being January 6th at the Holthus Convention Center in York; January 10th at the Country Club in Beatrice; January 11th at the Fairgrounds in Hastings; and January 12th at the former ARDC near Mead. New this year is a two-day conference option in Kearney January 19-20 with more in-depth information the second day. Topics include: What's New in Plant Pathology, Weed Science, and Entomology; Weed Resistance and Management; Improving Pesticide Efficacy and Managing Spray Drift; Fungicide Application Timing and Disease Control; Farm Programs: Expected Payments and Safety Net Support Through 2018; Trends in Nebraska Cropland Markets and Rental Considerations; What Does it Take to Produce 80 bu/ac Soybean Routinely?; Soil Water Sensors for Irrigation Management; Discovering Answers! The Nebraska On-Farm Research Network; Cover Crop Truths: Ignoring Fiction and "Rural" Legends; Pesticide Laws and Regulations; Climate Information and Decision-Making.

Registration forms and programs for each site are available at http://agronomy.unl.edu/cpc. Registration for each site closes at 3 p.m. the day prior to the clinic. Check-in for each site is from 8 to 8:30 a.m., with sessions from 8:45 to 4 p.m. The cost for on-line pre-registration is $65 and includes a noon meal, refreshments, the 2017 Guide for Weed Management in Nebraska, and the 2017 Crop Production Clinic Proceedings. Registration at the door is $80. Six CCA credits are available.

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York-Hamilton County Cattlemen's Banquet: Gerald Peterson, Cattlemen's Secretary, asked me to pass along that the 69th Annual York-Hamilton County Cattlemen's Banquet has been scheduled for Monday, January 23, 2017 at the Holthus Convention Center in York. The Banquet will feature Damian Mason, a nationally known speaker comedian and noted as "America's Funniest Agricultural Humorist".

The evening starts at 6:30 p.m. with a cash bar, a Prime Rib meal at 7:00 with entertainment and recognition of honored guests to follow. Cattlemen's Banquet tickets are $25 per person, or sponsorships are available for $150. Cattlemen's Banquet tickets can be purchased from any of the York-Hamilton County Cattlemen's Directors or at the Extension Offices in Hamilton and York Counties.

Jenny's REESources-December 30, 2016

Happy New Year! Wishing you a safe and prosperous 2017!

Grain Storage: It may be wise to take a moment to check your grain quality in bins if you haven't already done so. We had a really warm fall and we had some damaged corn going into bins.

I've received a few samples in the office recently of corn that came from plants with ear formation issues. During harvest, I worked with farmers, elevators, and grain inspection services to get a handle on the pathogens with which we were dealing. At the time, we were seeing some fusarium/gibberella fungi particularly where insect feeding occurred and at the time samples submitted, were not finding mycotoxin levels of concern. Mostly what I was finding on kernels people were calling 'cob rot' was actually the fungus causing diplodia ear rot. This fungus can also cause loose shanks that we were seeing and can create more fines from damaged kernels. The good news is that this fungus is not associated with a mycotoxin in Nebraska so we don't have to worry about that for feeding the grain to livestock. The bad news is that the fungus has a tendency to proliferate in the grain bin, causing increased damage under improper grain storage conditions. It also creates what we call 'mummy kernels' impacting your test weight. We'd recommend having grain containing diplodia to be stored at 13% moisture and 30F since we're in longer-term storage right now. A resource with good photos: https://www.extension.purdue.edu/extmedia/BP/BP-75-W.pdf

I think what's happened in some instances where grain in spoiling at the top is that the fines from damaged kernels were restricting the front to move through the bin. The result is a top layer of corn above 15% moisture that is warm and spoiling due to the combination of diplodia and bacteria that I'm also finding in samples now. Resources for grain bin management can be found at: http://cropwatch.unl.edu/grainstorage2. Please do take the time to check your grain in storage!

Holiday Plant Care: The following information is from Elizabeth Killinger, Extension Educator in Hall County. Wondering what to do with your holiday plants? You can keep them year-round with little trouble with a little help and know-how.

"The most popular holiday plant is the poinsettia. After the holidays, a poinsettia makes a very nice house plant, but you have to be tricky to get them to color up again next year. Place the plants near a bright window, but not directly in the sunlight. Ideal temperatures would be between 60 and 68 degrees Fahrenheit. If the temperatures are kept above 75 degrees, the plants can decline quickly. Avoid overwatering, applying too much water can kill the roots of the plant. Wait until the surface of the potting media begins to dry slightly before watering. Apply water until it begins to run out the bottom of the pot, wait 30 minutes, and then dump out the water that remains in the bottom of the foil sleeve or drip tray. Don't worry if the plant drops all of the bracts and looks like the Charlie Brown Christmas tree after the holidays. Continue to water as needed until new growth forms. Next year, near the middle of September, the poinsettia should be placed in complete darkness from 5 pm to 8 am daily. Put it under a cardboard box or in a dark closet to provide the "short day," which encourages blooming. Lights from any lamps will prevent the bracts from changing color and for normal flowering. Continue this "short day" treatment until the plant bracts show color in late November.

Christmas cactus are another holiday plant that requires a little tricking. It is similar to the poinsettia in that it needs short days and cool temperatures in order to encourage blooming. Treat these like any other houseplant, water when needed and place in bright light. From mid-September to mid-October, bring the plants inside and cover them at night so they only receive 9 hours of light each day. Be sure to reduce watering and avoid fertilizing during the flower bud development.

The last holiday plant that can be kept year-round is the amaryllis. Once the blooms fade, cut off the flower stalk. This will allow the plant to put energy in to the big bulb instead of into seed development. Continue to grow the bulb as a houseplant or grow outside when the weather allows. When frost is predicted, bring the bulbs inside and store in a cool room. Withhold water until the foliage dies. The bulbs require a 2-3 month rest before growth and flowering can begin again. Flower buds should appear several weeks after moving plants into warm temperatures and watering is restarted. Bulbs that had four or more healthy leaves throughout the summer should be large enough to flower."

Upcoming Workshops: A reminder of upcoming January workshops that will be upon us quickly!

Jan. 6: Crop Production Clinic, Holthus Convention Center, York, http://agronomy.unl.edu/cpc
Jan. 9: Estate Planning Workshop, 9:30-2:30, York Country Club, York, RSVP 1-800-464-0258
Jan. 11: Crop Production Clinic, Fairgrounds, Hastings, http://agronomy.unl.edu/cpc
Jan. 11-12: York Ag Expo, Holthus Convention Center, York
Jan. 12-13: Precision Ag Data Management Workshops, 4-H Bldg, York,
http://agronomy.unl.edu/precisionag