



Youth/Family Support: Last week I shared this link for many hands-on learning activities: <https://4h.unl.edu/virtual-home-learning>. Two more resources that may be helpful for families right now: Helping Children Cope with stress and change: <https://child.unl.edu/helping-children-cope> and Reading for Resilience which helps children cope with storybooks: <https://child.unl.edu/read4resilience>.

Checking grain bins: A local farmer suggested to share a reminder to keep checking on grain with temps warming up and much grain in storage. It's also so important to be safe with grain handling. The following is from Dr. Ken Hellevang with North Dakota State University (full article at: <https://www.ag.ndsu.edu/news/newsreleases/2020/march-23-2020/proper-spring-grain-drying-and-storage-critical>). "The stored grain temperature increases in the spring not only due to an increase in outdoor temperatures but also due to solar heat gain on the bin. Solar energy produces more than twice as much heat gain on the south wall of a bin in spring as it does during the summer.

Hellevang recommends periodically running aeration fans to keep the grain temperature near or below 30 degrees until the grain is dried if it exceeds recommended storage moisture contents, and below 40 degrees as long as possible during spring and early summer if the grain is dry. Night air temperatures are near or below 30 degrees in April and 40 degrees in May. Soybean oil quality may be affected in less than four months if even 12% moisture soybeans are stored at 70 degrees.

Cover the fan when it is not operating to prevent warm air from blowing into the bin and heating the stored grain. Hellevang also recommends ventilating the top of the bin to remove the solar heat gain that warms the grain. Provide air inlets near the eaves and exhausts near the peak or use a roof exhaust fan... Grain temperature should be checked every two weeks during the spring and summer. Grain also should be examined for insect infestations. Check the moisture content of stored grain to determine if it needs to be dried. Remember to verify that the moisture content measured by the meter has been adjusted for grain temperature.

Corn needs to be dried to 13% to 14% moisture for summer storage to prevent spoilage. Soybeans should be dried to 11% to 12%, wheat to 13%. The allowable storage time for 13% moisture soybeans is less than 100 days at 70 degrees. Corn – For natural air-drying, assure that the fan's airflow rate is at least 1 cubic foot per minute per bushel (cfm/bu) and the initial corn moisture does not exceed 21%. Start the fan when the outdoor temperature averages about 40 degrees. Soybeans – Use an airflow rate of at least 1 cfm/bu to natural air-dry up to 15% to 16% moisture soybeans. Start the fan when the outdoor temperature averages about 40 degrees."

Burn down and pre-plant herbicide apps: Anticipating this week's nicer weather, I've also received several questions on [burndown and pre-plant herbicide applications](#) and [weather impacts on control](#). Dr. Amit Jhala wrote two articles in this week's UNL CropWatch at <https://cropwatch.unl.edu>. Sunny days with temperatures above 40F for day and night, and even better when temps are climbing to the upper 50s and above provide better control than if it's cooler than 40F. Glyphosate works faster during sunny conditions when it is 60-75F and remains there a few hours. The articles also list rain-fast period and planting interval restrictions (as would the product labels). If you're looking for a general idea on potential residual activity of herbicides for overlapping residual, check out pages 23-24 of the 2020 Guide for Weed Management.

My colleague Dr. Nathan Mueller shared in his blog: <http://croptechcafe.org/should-you-control-winter-annual-weeds-early/>, "A [2007-2009 UNL study conducted in Lincoln and Clay Center](#) found that in 5 of the 6 site-years (2 site per year for 3 years is 6 site-year) that not controlling winter annual weeds prior to corn and soybean planting resulted in greater than a 5% yield loss and a 10% loss in 4 of the 6 site years."



Happy Easter! This will truly be one to remember and hope you were able to still connect with family and friends in some way. For fruit trees and freeze temp. thresholds, please check out this

resource: <https://www.canr.msu.edu/uploads/files/PictureTableofFruitFreezeDamageThresholds.pdf>. With planting having started for some or anticipated in the next few weeks, wanted to share some things I've been thinking about and some questions I've received.

As much as we have more physical distance in ag, it may be wise to have some plans in place in the event someone [becomes sick with COVID-19 in your crop or livestock operation](#). Things such as disinfecting equipment and a sample [0-2 month plan](#) with contact phone numbers are available in this week's CropWatch at cropwatch.unl.edu. There's also information on the [CARES Act](#) explaining the numbers. A series of Farm/Ranch COVID-19 free economic webinars are upcoming from UNL AgEcon. The first is this Thurs. April 16th at 3 p.m. CST. and features Nathan Kauffman, with the Federal Reserve Bank of Kansas City, presenting on COVID-19 Economic Developments and U.S. Agriculture. Details and recordings will be posted at <https://go.unl.edu/manage2020>.

Planting Considerations: It was nice to see equipment out in fields this past week! With tight economics, it's important to make wise decisions with the factors we can control during planting season; it sets the stage for the rest of the year. One factor to consider is [planting windows instead of planting dates](#). While this week is mid-April, it may not provide the best opportunities for planting. Be sure to check soil temps and plant at proper depth, not mudding in seed, and plant as close to 50F soil temps as possible when there's a warming trend. Avoid planting when there's potential for a cold rain/cold snap within 48 hours for corn and at least 24 hours for soybean. It's also best to get seed in the ground 1.5-2" deep. For corn, this is critical in helping with nodal root establishment. For soybean, this aids in buffered soil moisture and temperature and helps delay emergence to aid against potential frost. Numerous research studies have proven the [yield benefit to early planted soybean](#). Outside of the genetics, it's the top way to improve soybean yields. When we conducted these studies via on-farm research, we also had [planting date X planting rate studies](#). Those studies showed no yield difference when planting 120K vs. 180K in April vs. May beans. All the planting date studies had an insecticide + fungicide seed treatment and I have no data without it. Our soybean planting rate studies did not always have a seed treatment and now 13 years of that data still shows 90-120K planted seeds being the most economical while 120K is what we'd recommend for yield.

In this week's CropWatch, I wrote [an article with Jim Specht on soybean germination](#). The imbibition phase (water uptake) is the critical phase for potential seed chilling. Once the imbibition phase is complete, the soybean going through the osmotic phase

can tolerate 35-40F soil temps as long as soil is not saturated. The reason why we say at least 24 hours for soybean vs. 48 hours for corn (regarding cold snap/cold rain) is because the soybean seed imbibe water much faster than corn. You can prove this to yourself! Put a soybean seed and corn seed in water and watch what happens. When teaching youth ag literacy, I put soybean seeds in water to show them the seed coat, root and first leaves. Granted, we're not planting soybean into water, but it helps one see the difference in how the seeds imbibe water. Studies from journal articles showed the imbibition phase could complete in as little as 8-12 hours. However, it all depends on the beginning soil moisture, soil temperature, quality of the seed (no nicks in the seed coat, free of wrinkles from wet/dry cycles, higher seed moisture of 13-16%). There have also been experiments to suggest that soybean can be planted in 45F soil temps if soil moisture is stable and no cold rains occur during the imbibition period.

I've also received a few questions regarding rye rapidly growing and what to do. I have no research-only observation and talking to others. I'm still a fan of planting green. However, have noticed difficulty with residual herbicides applied to tall rye (above 12") and getting down to the canopy, thus weed escapes. So, a few thoughts. If you're concerned about the rye, you can always terminate a few weeks before planting. Otherwise, consider splitting your residual with half on when you kill rye after planting with other half later or putting on your residual in a second pass after killing rye. Would welcome others' thoughts/experiences of what's working for you!

Dicamba Webinar: The National Ag Law Center is hosting a free webinar titled 'The Deal with Dicamba: An Overview of Dicamba-Related Litigation' on April 15th at 11 a.m. CST. It will discuss various lawsuits filed in response to crop damage allegedly caused by herbicides containing dicamba. Details: <https://bit.ly/3e2LvGX>.



EXTENSION



Freeze Events: With last week's cold spell, it's hard to know exactly how it will impact flowering trees, shrubs, and fruit trees. It really depends on the bud/flowering stage at the time of the freezing temperatures. I've also received a number of questions regarding wheat and how bad it looks due to frost right now. In some cases, the injury may look worse due to leaf burn from fertilizer and/or fertilizer + herbicide applications shortly before the freeze events. We need to be patient and allow time with anticipated warmer temps to watch recovery. Ultimately, wheat in the tillering stage is quite tolerant of frost with minimal yield impact expected down to 12F for 2 hours. Once the wheat begins jointing (growing point moves above ground), temperatures like what we experienced of 24F for 2 hours can moderately to significantly impact yield. While upper leaves may be burned off from frost, there's actually a micro-climate effect within the wheat canopy which is warmer closer to the ground (depending on the wheat stand). If the soil had quite a bit of moisture prior to freeze events, it also helps buffer the soil temperatures, reducing freeze injury. What I look at: is the wheat in tillering or jointing stage? Do you notice any splitting of tillers at the base of the plants? If the wheat is jointing, split the stem to look at the growing point (I use a box cutter for wheat this small). Is the growing point white and healthy or yellow/brown and mushy? Wheat can tolerate much, but I can also appreciate how many of you are trying to make decisions. You can also check out the [freeze to wheat article in CropWatch](#) and more localized to our area, Nathan Mueller's blog: <http://croptechcafe.org/multiple-spring-freeze-events-impact-winter-wheat/>.

Regarding alfalfa, it's another 'wait and see' situation. Please see this week's CropWatch



Check the upper-most cluster of buds to determine any affects. This is where the growing point is located. If this cluster is froze off, look at axillary buds along main stem and new buds from crown for new growth.

at cropwatch.unl.edu for more info. The more growth actually results in potential for increased damage and it also depends on the air temperature and duration of freeze. New seedlings can be pretty resilient due to being close to warm soil, protected by companion crops like oats, or due to natural seedling tolerance. Damage can range from upper stems and leaves wilting and turning brown to a hard freeze causing plants to completely wilt down and fall over. What I watch for are new buds...buds that are within the canopy that weren't exposed to frost, new axillary buds that develop from upper stems that have frozen off, and new crown buds. In 2007, some chose to remove the dead plant material from the plants to stimulate growth. Dr. Bruce Anderson found the plants reacted to the killed tops from frost the same as they would from a normal cutting. Thus, we'd recommend observing how the alfalfa responds and ultimately doing nothing for the time being. Cutting alfalfa for hay with only 6" of growth in most fields wouldn't be practical and can weaken plants. Anticipate first cutting to be delayed as a result of these multiple freeze events.

Planting: While you might not share this sentiment, I was grateful last week was so clearly not the right conditions to plant for this area of the State! It seems extra tempting when there's a couple of really nice days prior to a cold snap. Outside of 'is it ok to plant' or 'should I plant corn or beans', my main planting question is regarding soybean seeding rates. We now have 13 years of on-farm research from this part of the State in 15" (planted not drilled) and 30" rows in silt loam/clay loam soils showing no yield benefit to planting greater than 120,000 seeds/acre. These studies included a seed treatment when soybean was planted in late April/early May. Otherwise, no yield differences were achieved from 120K to 180K regardless if seed treatment was used. We share more in this week's [CropWatch](#). With sudden death syndrome being bad in 2019, I've also received questions on seed treatments such as Ilevo® or Saltro® for it. I will share the research next week. Bottom line: economically I would only consider this if you have a history of SDS. Even so, environmental conditions don't always favor SDS. You could consider using SDS treated seed along areas with a creek or intermittent stream running through the field or lower areas of the field where water ponds and using non-SDS treated seed in the rest of the field. Early planting doesn't automatically favor SDS. Water during flowering and levels of soybean cyst nematode can favor it. Will share the data next week. And, a reminder to check your seed tag regarding [proper PPE to wear when handling any treated seed](#). Here's wishing you a safe planting season!

Crabgrass Preventer: Warm season annual grasses such as crabgrass and foxtail germinate when soil temperature at the 0-2” depth is consistently between 60-70F. Thus, we often say that reasonably, crabgrass preventer can be applied when soil temps at the 0-2” depth are consistently around 55F. Our CropWatch soil temperatures are measured at a 0-4” depth (<https://cropwatch.unl.edu/soiltemperature>). Based on them, it may be time to apply or at least getting close in the York area. If you’d like to determine the soil temp of your site locally, you can use a temperature probe or a meat thermometer (that you won’t use for cooking). Make a mark at 2” from the base and it will give you an idea. Remember to blow off or sweep lawn clippings and fertilizer from the sidewalks back onto lawns!

Moths: Our Extension entomologists are also starting to see black cutworm, variegated cutworm, and true armyworm moths in pheromone traps throughout Nebraska. You can see pictures and the counts (which will be updated) in CropWatch at <https://go.unl.edu/jdd3>.

Planting Green: Been receiving a number of questions throughout the state on this. We wrote a planting green article for CropWatch this week <https://go.unl.edu/ysyi>. We have minimal research but in the article, we explain more regarding herbicide considerations, what the research shows regarding allelopathy, and considerations based on growers’ and our observations and experiences. We haven’t found any wheat stem maggot flies in rye yet in Clay, York, or Seward counties. The flies we’re getting questions on are small brown flies and also seed corn maggot flies. Having an insecticide seed treatment on corn and beans will help against seed corn maggots. More info. from Iowa

State: <https://crops.extension.iastate.edu/cropnews/2020/04/seedcorn-maggots-flying-iowa>

Seed Treatments for SDS: Continuing from last week, the summary is that ILeVO is an effective seed treatment in fields with high sudden death syndrome (SDS) pressure. However, not all areas of the field have the same amount of pressure, making it difficult to justify the cost field-wide. Three Nebraska on-farm research studies were conducted in soybeans in 2017 with a multi-hybrid planter. Soybeans with a farmer’s choice base seed treatment (check) were compared to the base seed treatment plus ILeVO. The goal was to look at site-specific application of ILeVO to reduce input costs while still effectively

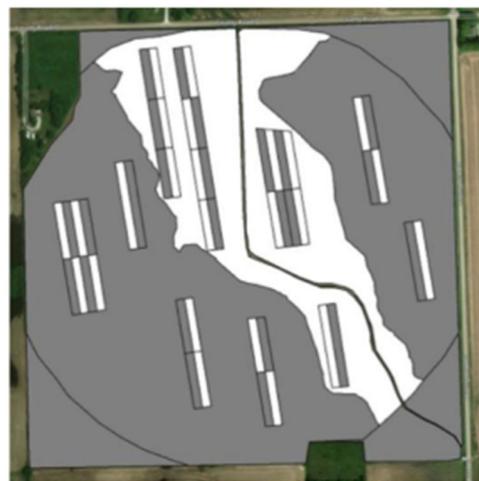


Figure 1. Zone prescription for soybean treated with standard treatment (dark grey) and ILeVO (light grey).

managing sudden death syndrome (SDS) pressure. Management zones were created using historical yield maps to show which zones were conducive to SDS pressure (SDS zone) and which weren't (standard zone). Check strips and ILeVO treated strips were compared in both zones. Two of the locations showed no difference between the base treatment and base treatment + ILeVO in the SDS or the standard zones. At one location, SDS was not present in the field. In the other, the ILeVO treatment had significantly lower disease levels than the standard treatment and overall disease incidence was considered low. At the third site, the standard + ILeVO treatment yielded higher than the standard treated seed in the SDS zone. There was no difference in treatments in the standard zone. The SDS zone was around 50 acres and along a creek that ran through the field (Figure 1). Additional ILeVO studies were conducted in 2015-2016 via on-farm research in Dodge, Clay, and Nemaha Counties where an untreated check, base seed treatment, and base + ILeVO were compared. SDS incidence ratings were taken in addition to soybean cyst nematode samples. In two of the six fields, there was a yield difference between the base + ILeVO and other treatments, even though disease incidence was low. Two sites also had a significant decrease in SDS pressure with the ILeVO treatment, but it didn't correlate in increased yield. These studies found ILeVO to be effective in reducing SDS pressure, but yield response and profitability depends on disease development and how widespread in the field. SDS pressure was found to be higher in frequently ponded soils or areas of the field with creeks or intermittent streams. We have no on-farm research data on Saltro although we have a York Co. study on it this year.