

IOWA STATE UNIVERSITY

Extension and Outreach

CROP NOTES for June 23, 2020

Iowa State University Extension Information for Northeast Iowa

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Past issues of Crop Notes are posted at:

<http://www.extension.iastate.edu/winneshiek/page/crop-notes-brian-lang>

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GROWTH & DEVELOPMENT

Corn

- From V1 to V10, corn develops a new leaf stage about every 84 GDD. After V10 a new leaf develops every 56 GDD.
 - At V7 the number of rows of kernels for the ear is determined. The number of kernels per row begins initiation now and continues until about one week prior to silk emergence.
 - After V7, corn growth moves into its 'rapid-growth-phase'.
 - Rapid-Growth, Twisted Corn & Yellow "Flag Leaves". There are two typical causes for yellow flag leaves (rapid growth phase and herbicide influence) which is briefly discusses in the following article from June 2018 at <https://crops.extension.iastate.edu/blog/mark-licht/twisted-whorls-buggy-whipping-yellow-leaves>
1. Rapid-growth phase, mainly from V7 through about V10-12 has rapid leaf emergence that at times can be so rapid that the developing waxy cuticle on the leaves sticks together a bit and causes some degree of buggy-whipping before it separates and the leaves rapidly emerge. They can emerge faster than initial chlorophyll development showing a yellow color first, then turning green in a few days.



2. Growth regulator herbicides include 2,4-D, dicamba (Banvel, Clarity, Northstar, Status), Stinger and others. Or both growth regulator and acetamide in a premix like Resicore. The 1st photo is a more extreme case of a growth regulator applied past its labeled window for application. It shows extreme buggy-whipping and may not come out of it. Also, initial brace root development is 'fused' in the 2nd photo. Growth regulators also make the plant more susceptible to leaning over with high winds (3rd photo) from which they recover, but can also make plants more brittle and susceptible to breakage during cultivation.



3. Acetamide herbicides (Harness, Surpass, Warrant, Outlook, Dual, Zidua and others) most common injury is an ‘onion-leaf’ development which usually occurs in earlier growth stages, and plants usually grow out of it. The chemistry might also have some influence on plants during the rapid growth phase, but not to the same degree as a growth regulator.



Soybeans

- At V2 to V3 stage N-fixation from the nodules begins. You may notice plants greening up a bit more after V3 stage.

- A new leaf stage appears about every 5 days through the V5 stage. From V6, a new leaf stage appears every 3 to 5 days.
- At V5 stage the lateral roots completely reach across a 30-inch row.
- With a normal planting date and normal weather, R1 stage (1st open flower on the main stem) usually occurs in a full season variety for northern Iowa sometime within the first week of July. Earlier planted and a warm June could move up R1 stage by as much as two weeks.
- R1 stage is the cutoff for application of dicamba in dicamba-tolerant soybeans, and is the initial timing for some preventative White mold treatments.

FERTILITY

Need for Supplemental N for 2020?

The Corn Nitrogen Rate Calculator provides a good starting point for N recommendations, but sometimes circumstances like a wet spring requires additional adjustments. An article posted in 2017 on the ICM News discusses this issue of high spring rainfall and the risk of N fertilizer loss. <http://crops.extension.iastate.edu/cropnews/2017/05/potential-nitrogen-loss-spring-2017> The 4th approach in this article mentions research analysis on rainfall totals from April 1 through June 30 exceeding 15.5 inches suggests the need for supplemental N fertilizer.

The map shown below provides rainfall totals from April 1-June 23, 2020 with some areas in northeast Iowa likely to exceed 15.5 inches of rainfall by the end of June, thus supporting the need to sidedress N.

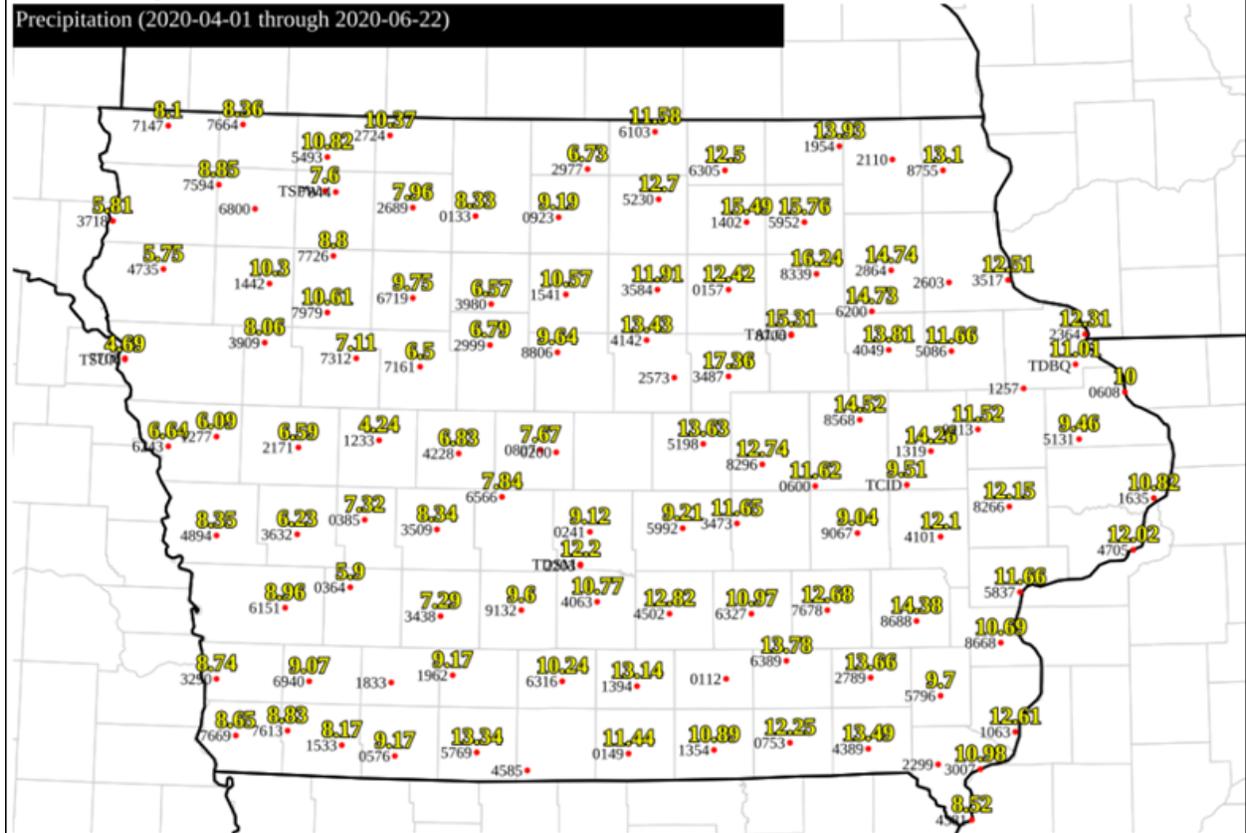
<https://mesonet.agron.iastate.edu/GIS/apps/coop/gplot.phtml?network=IACLIMATE&var=prec&year=2020&smonth=4&sday=1&emonth=6&eday=22>

Available State: Select Parameter: Year: Month: Day:

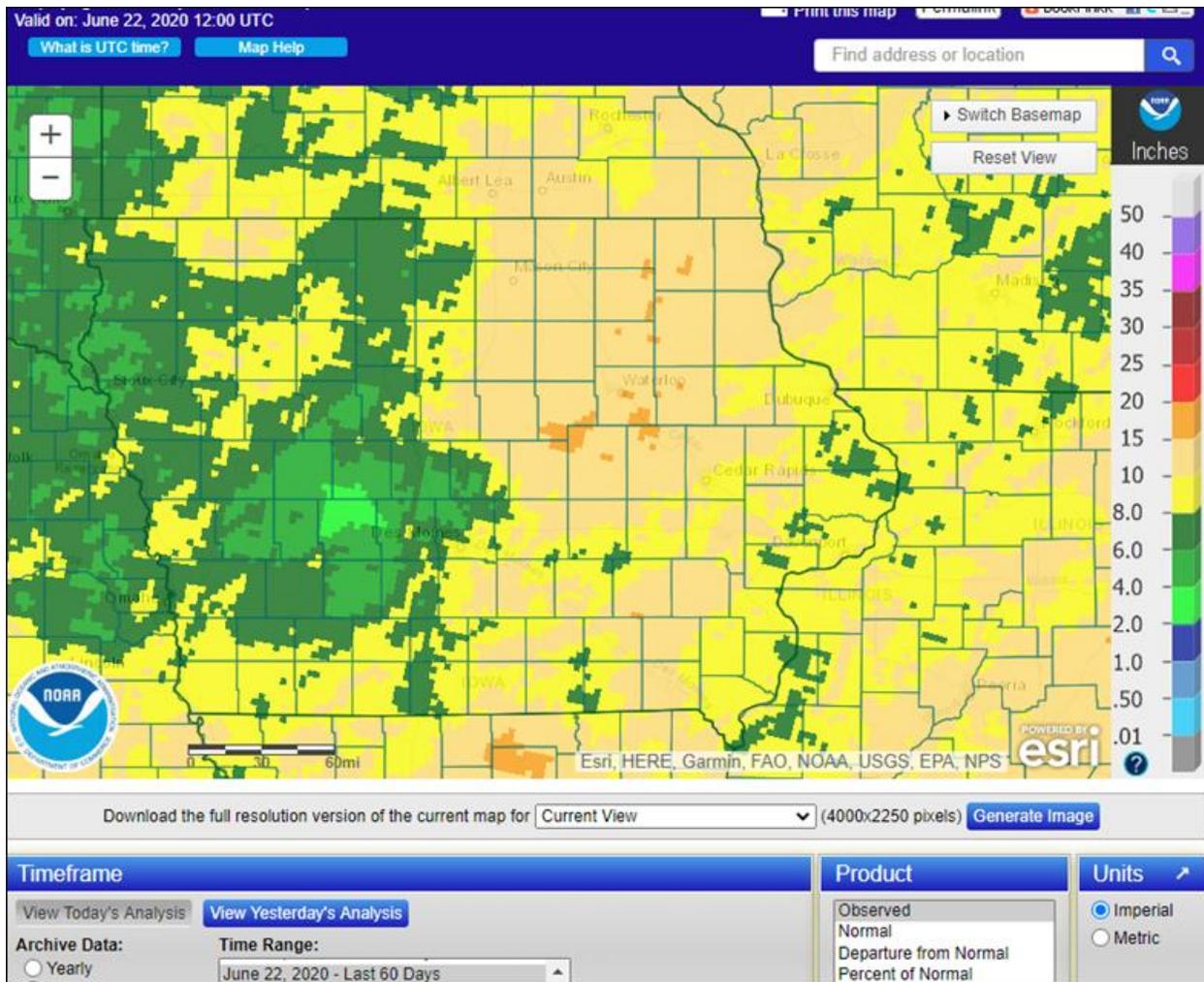
to inclusive date:

*Note: Only a sub-sample of stations are plotted on the map due to space restrictions. The small four digit label is the station identifier used in the data listing below (without the 2 character state identifier included).

Precipitation (2020-04-01 through 2020-06-22)



Another map visual is from the National Weather Service showing rainfall totals for the last 60 days with areas in excess of 15 inches.



Supplemental N on Timing, Source, Rate and Placement, from the University of Minnesota

Timing

Now is a good time to do a sidedress application. Research shows that there is little or no benefit waiting to apply N much past the V8 development stage. In fact, depending on the year, it can reduce yields. Some of our studies have shown that with split applications, delaying sidedress to V12 reduced yields compared to sidedress at V8.

Source

Since the crop is growing and using N quickly now, apply a N source that is readily available for crop use. UAN solutions, urea, and anhydrous ammonia are all readily available for crop uptake after application. Avoid using slow or controlled release fertilizers at this point. There's also no need for nitrification inhibitors. Since crops are using a lot of water, the potential for excess precipitation and the accompanying risk of N loss is shrinking rapidly. If you are applying urea on the surface, use a urease inhibitor to reduce volatilization losses. Because we typically get frequent precipitation at this time of the year, a urease inhibitor protects urea from N volatilization long enough to get sufficient rain (at least 1/4 inch) to move urea into the soil.

Rate

If you have not applied all your N, the Corn N Rate Calculator (<http://cnrc.agron.iastate.edu/>) is an excellent tool to help determine your optimum N rate. Make sure you subtract from the calculated value the N you already applied. If you are trying to apply additional N because the earlier application suffered substantial loss, the usual suggested amount is to apply another 40-50 lb/ac N.

Placement

For sidedress applications many worry that N needs to be applied in some specific way to make sure it is close to the crop roots. The reality is that the corn crop has a massive growing root system, so regardless of placement, the roots will find N. Nitrogen also moves with the flow of soil water as it is being suctioned by crop roots. So as long as there is water, which is typically not a problem this time of year, the N you apply at sidedress will find its way into the crop. If you prefer an injection application, the middle of the inter-row space (15 inches from the row in 30 inch row spacing) works well. At this point in the growing season, corn roots are reaching the middle of the inter-row. Injecting N closer to the row can result in unnecessary root damage. Finally, minimize fertilizer contact with the crop canopy as much as possible, as N can cause leaf burn. If you are using UAN solutions, use a drop hose to dribble on the soil surface rather than spraying on the canopy. With dry products like urea, application once the whorl has formed can create burn as the granules will be funneled in the whorl. Some research has shown that with urea while it will create a localized burn, the damage is aesthetic, as it may not translate into a yield reduction. That said, we suggest limiting as much fertilizer contact with the canopy as possible.

INSECTS

European Corn Borer (ECB)

- All corn is protected up to about 17 to 21-inch extended leaf height by a naturally occurring compound in corn called DIMBOA.
- Once corn grows beyond the 17 to 21-inch extended leaf height, we start scouting fields not protected by Bt ECB traits (identified in the Handy Bt Trait Table: https://agrilife.org/lubbock/files/2020/02/BtTraitTable_FEB_2020.pdf)
- The first ‘taller’ corn in an area will be the most attractive to ECB moths for egg laying.
- The following free publication includes photos of a hatching egg masses, shot-holing, stalk and ear damage, as well as general timelines and threshold calculations: <https://store.extension.iastate.edu/Product/15141> An interactive spreadsheet threshold calculator is also available at: <https://www.ipm.iastate.edu/field-crop-insects> (two-thirds down the page). In a nutshell, threshold is roughly an average of 1 larva per plant.

Potato Leafhopper (PLH)

Its routine to scout for PLH in alfalfa from June through August. Scouting and management tips are available at: <http://www.extension.iastate.edu/CropNews/2009/0615hodgson.htm> The only way to properly scout for PLH is with a 15-inch diameter sweep net. High rainfall events have been known to adversely affect PLH activity.

Slugs

With extended soil wetness, don't be surprised to see some slug damage. FYI, photos of damage in corn from Purdue University <https://extension.entm.purdue.edu/pestcrop/2015/issue10/> and soybeans from Ohio State University <https://agcrops.osu.edu/newsletter/corn-newsletter/2018-14/season-slugs>. They feed dusk to dawn and hide during the day under residue or in cracks in the ground. While there is no rescue treatment, it's rare for them to be a significant problem in Iowa. If you think you have slug damage and really want to verify it, flag your suspected site, then check it out at about 5:00 AM.

Soybean Aphid

As usual, June scouting for soybean aphid has found some, but no where near threshold. Our typical window for scouting in northeast Iowa is July through August. Speed scouting is the preferred method for scouting. It's simple and quick. A free scouting card with instructions is available at:

https://www.ent.iastate.edu/soybeanresearch/files/page/files/2009_speed_scouting_blank_form.pdf

FYI, here's my aphids counts per week for 100 random plants in a local field near Decorah.

Date	Crop stage	% infestation	Avg. aphids/plant of infested plants
June 9	V1	1	1
June 18	V3	6	21
June 23	V4	6	4

5 inches of rain that fell from June 19 through June 22. High rain events have been known to adversely affect aphid populations.

DISEASES

White Mold

Planning ahead for preventive treatments at R1-R2 stage soybeans (R1 = an open flower on any node of the main stem; R2 = an open flower on one of the two uppermost nodes on the main stem). The Crop Management Network lists fungicide efficacy for control of various soybean diseases including White mold (<https://crop-protection-network.s3.amazonaws.com/publications/fungicide-efficacy-for-control-of-soybean-foliar-diseases-filename-2020-03-18-150123.pdf>). Ratings of products for White mold include a very good rating for Endura applied at R1-R2, a good to very good rating for Aproach applied at R1 and again at R3, a good rating for Omega, Lektivar, and Propulse applied at R1-R2. Cobra herbicide also carries a label for White mold suppression with application recommended at or just before R2 (instructions on page 11 on the following label: <http://www.cdms.net/ldat/ld621002.pdf>).

Submitting a Plant Disease Sample to ISU

Due to Covid-19, the plant disease clinic has established a new guideline for plant disease submissions. It is to **call first before submitting a sample**. They want to know if a sample is in the mail so that they can be sure to collect and refrigerate it upon arrival. The sample submission

and instruction sheet on collecting a sample was recently updated and is available at: <https://hortnews.extension.iastate.edu/pidc/plant> Digital pictures are free and easy to submit, but the clinic will not diagnosis or identify a plant disease problem based on a photo. However, photos are often quite helpful to assist in determining what the problem may be. For tips on taking and sending good photos, go to: <https://hortnews.extension.iastate.edu/pidc/digital-photography>

Bacterial Leaf Streak in Corn

Recent reports from eastern Iowa include finding Bacterial leaf streak. Recent high rainfall events associated with Tropical Storm Cristobal and after provided the right environment for infection and disease development. There is no infection without disease inoculum, but bacterial inoculum are known to travel well with the wind as we have seen with past Goss's Wilt infections. Also, some hybrids will be more susceptible. It's a bacteria not a fungus, so we have no treatments for this disease. It's a matter of taking notes to be aware management adjustments for next season *i.e.* resistant hybrid, crop rotation, tillage to bury residue. For more information and ID of Bacterial leaf streak, see the recent article at:

<https://crops.extension.iastate.edu/blog/alison-robertson/bacterial-leaf-streak-prevalent-corn-eastern-iowa>

UPCOMING EVENTS

June 24, 25, 26, Virtual Spring Field Day Webinar Series

In replace of the traditional face-to-face ISU Research Farm Field Day in June, ISU Extension is offering three 30-minute webinars. Each webinar will start at 8:00 AM with a 20-minute presentation followed by 10 minutes for questions. Topics to be featured each day of the webinar series are:

- June 24: Utilizing Tile Drainage to Better Manage Nitrogen and Improve Corn Yields, Mike Castellano, Professor of agronomy (CCA credit of 0.5 SW)
- June 25: Late Season Field Scouting with UAVs, Matt Darr, Professor in agricultural and biosystems engineering (CCA credit of 0.5 CM)
- June 26: Multi-tactic Approaches to Manage Herbicide Resistance, Prashant Jha, Associate professor in weed management (CCA credit of 0.5 PM).

This webinar series is free and open to anyone. It will be offered through ZOOM. There is no charge to attend, however registration is required and can be completed by going to www.aep.iastate.edu/serf After registering, participants will receive an email with instructions and a link for joining the webinar series. Once registered, you will be able to watch any or all the webinars. Participants may join through their web browser, mobile phone or tablet. Participants will need to download a free app prior to joining. Participants should join the webinar 15 minutes in advance to ensure connections and software is working correctly. If you cannot attend the live webinar, a recording of each session will be posted for viewing as soon as they are available on the ISU Extension Crops Team YouTube Channel. For more information, questions or if you need assistance with registration please contact ISU Extension agronomists Rebecca Vittetoe at 319-653-4811, or rka8@iastate.edu ; Virgil Schmitt at 563-263-5701, or vschmitt@iastate.edu ; or Josh Michel at 319-523-2371, or jmichel@iastate.edu

June 27, Dairy Drive-Thru ScAGvenger Hunt, Calmar

1:00 to 4:00 PM. Celebrate National Dairy Month with a Dairy Drive-Thru ScAGvenger Hunt hosted by Iowa's Dairy Center. The event will be held Saturday June 27 from 1:00 to 4:00 PM at 1527 Hwy. 150 S, Calmar. Visitors will get a close-up look at cows by driving their vehicle around the farm, even right through the maternity and freestall barns. Attendees will be given a scavenger hunt card at the beginning to look for agriculture-related clues throughout the experience. At the end, the Winneshiek County Dairy Promoters will be serving Moo Mobile shakes right to your vehicle. This family-friendly event is free to the public. The event will be weather permitting with a rain date scheduled for Saturday July 11. There will be no building access for restrooms during the event. All attendees must stay inside their vehicle at all times. For more information or questions, visit the Northeast Iowa Dairy Foundation's Facebook page <https://www.facebook.com/ISUDairyTeam/> or contact Mariah Busta at info@iowadairycenter.com

July 1, Soil & Water CCA Webinar for 3 SW Credits

8:00 to 11:00 AM, Webinar, \$25 registration required by midnight June 29.

Topics:

- Progress and tools for scaling up adoption of Iowa Nutrient Reduction Strategy
- Tile Drainage: Reducing nitrogen fertilizer, increasing yield and implementing conservation practices

To register, go to www.aep.iastate.edu/serf-cca/ The link, password and instructions for joining the webinar will be emailed to participants after the registration is completed with payment and prior to the start of the session on July 1. Participants may join through their web browser, mobile phone or tablet. Participants will need to download a free app prior to joining. Participants should join the webinar at least 15 minutes in advance to ensure connections and software is working correctly. For more information, questions or if you need assistance with registration please contact ISU Extension agronomists Rebecca Vittetoe at 319-653-4811, or rka8@iastate.edu ; Virgil Schmitt at 563-263-5701, or vschmitt@iastate.edu ; or Josh Michel at 319-523-2371, or jmichel@iastate.edu

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