CROP NOTES for July 13, 2018
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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CORN
Growth and Development
For corn not yet to VT stage, they develop a new leaf about every 56 GDD (a new leaf every two days). The long-term average silk date for northeast Iowa is July 25 (50% of corn at R1 stage). This is about 1340 GDD. A May 1 planting date has accumulated about 1370 GDD at this time. For a map of current GDD from May 1 to today, go to: http://mesonet.agron.iastate.edu/GIS/apps/coop/gsplot.phtml

Much of the corn crop was planted later in May. Current GDD for a May 21 planting date is about 1,120 and should silk in about 11 days.

The long-term average GDD per day for the rest of July in northeast Iowa is about 22 per day. This next week (Friday-Thursday) should average about 23 per day. Elwynn Taylor said El Nino should start up in August which should mean more moderate temperatures for the rest of the crop season.

### Corn growth & development reproductive stages.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description of stage</th>
<th>Comments</th>
<th>Time to next stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Silk</td>
<td>Maximum plant height</td>
<td>~ 10 days to R2</td>
</tr>
<tr>
<td>R2</td>
<td>Blister (clear liquid in developing kernel)</td>
<td>Maximum vegetative dry matter. Minimal grain dry matter.</td>
<td>~ 8 days to R3</td>
</tr>
<tr>
<td>R3</td>
<td>Milk (white liquid in developing kernel)</td>
<td>Outside of kernel is yellow. Starch accumulation increasing.</td>
<td>~ 6 days to R4</td>
</tr>
<tr>
<td>R4</td>
<td>Dough</td>
<td>Starch accumulation increasing. Kernel moisture starts decreasing.</td>
<td>~ 7 days to R5 (Dent stage)</td>
</tr>
</tbody>
</table>

If growing conditions are stressful during R2–R3 stages, we would see yield reductions from loss of kernels (kernel abortion via tipping back of the ears). Once corn reaches the R4 stage, kernel number is established and yield reductions caused by stress would be from a decrease in kernel size.

### SOYBEANS

#### Growth and Development

Soybean growth & development reproductive stages. A new leaf appears about every 3 days.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description of stage</th>
<th>Comments</th>
<th>Time to next stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Open flower at any node.</td>
<td>Recommended time for foliar applications to control White Mold.</td>
<td>Just a few days to R2 stage.</td>
</tr>
<tr>
<td>R2</td>
<td>Open flower at 1 of the 2 uppermost nodes of the main stem.</td>
<td>Dicamba (HG4) on Xtend soybeans is labeled up to R2 stage. Glyphosate (HG 9) on RR soybeans is labeled through the R2 stage.</td>
<td>About 10 days to R3 stage.</td>
</tr>
<tr>
<td>R3</td>
<td>A pod at least 3/16-inch long at 1 of the 4 uppermost nodes of the main stem with a fully developed leaf.</td>
<td>Most popular stage for foliar fungicide applications other than for White Mold control where R1 stage is recommended, and in some cases R1 + R3 stage applications for White Mold control.</td>
<td>About 9 days to R4 stage .</td>
</tr>
<tr>
<td>R4</td>
<td>A pod a pod at least 3/4-inch long at 1 of the 4</td>
<td>Beginning of the most crucial period of plant development in</td>
<td>About 9 days to R5 stage.</td>
</tr>
<tr>
<td>uppermost nodes on the main stem with a fully developed leaf.</td>
<td>terms of stress influencing seed yield. Rapid and steady dry weight accumulation by the pods.</td>
<td>terms of stress influencing seed yield. Rapid and steady dry weight accumulation by the pods.</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>R5 Seeds are 1/8-inch long in the pod at one of the four uppermost nodes on the main stem with a fully developed leaf.</td>
<td>By R5.5 stage, plants obtain max. height, leaf area and node number. Rapid and steady seed dry weight accumulation.</td>
<td>About 15 days to R6 stage.</td>
<td></td>
</tr>
</tbody>
</table>

**INSECTS**

**Potato Leafhopper (PLH) – In full force!**
I scouted my initial 3rd crop regrowth (4-inches tall) to find PLH over threshold, so I treated. They have really picked up in activity within the last two weeks. Scouting and threshold information is provided at: [http://crops.extension.iastate.edu/cropnews/2014/06/managing-potato-leafhoppers-alfalfa](http://crops.extension.iastate.edu/cropnews/2014/06/managing-potato-leafhoppers-alfalfa). Continue scouting this pest through August.

**Japanese Beetles and other defoliators**
While Japanese Beetles are ruining my backyard raspberry patch, their defoliation of field crops still appears to be minor. They and other defoliators need to reach about 20% defoliation in early reproductive stage soybeans to warrant treatment. Defoliation charts are available in many resources including this recent article: [https://crops.extension.iastate.edu/cropnews/2018/06/japanese-beetle-adults-emerge-southern-iowa](https://crops.extension.iastate.edu/cropnews/2018/06/japanese-beetle-adults-emerge-southern-iowa). As soybeans reach R4-R5 stages, I could make an argument to lower this threshold to 10% defoliation by comparing it to crop insurance hail charts on defoliation and yield loss. See figure 9 in *Hail on Soybean in Iowa*: [https://store.extension.iastate.edu/product/14792](https://store.extension.iastate.edu/product/14792)

**Silk Clipping by Corn Rootworm and Japanese Beetles**
Some corn is pollinating and some is still two weeks away from pollination. As tassels emerge, scout for silk clipping. Corn needs at least ½-inch of silks emerged to pollinate. If insects are trimming the silks back more than that, treat ASAP to allow for pollination. However, once pollination has occurred it doesn’t matter if insects feed on silks. Greatest risk of silk clipping is to later planted fields and fields where corn rootworm control failed, *i.e.* Western corn rootworm resistance to a Bt-rootworm trait where the beetle population levels can be extremely high (photos below from a Bt-trait resistance issue).
Corn Rootworm Larva – Node injury ratings
Larval feeding generally concludes around late July, which is when ISU evaluates its rootworm product trials using the Node-Injury Scale. This one page document from Monsanto has some nice photos of larva injury and a very good description of ISU’s 0-3 node injury scale. https://www.corn-states.com/News/NewsDocuments/conducting-root-digs-for-corn-rootworm.pdf

Soybean Aphid – Where are they?
The weekly suction trap detection network across the upper Midwest is still detecting very low levels of soybean aphid. Field scouting has found some low level soybean aphid activity in Minnesota and Wisconsin, but we have yet to find any in Iowa. I rechecked my usual historic aphid hot-spots again last week with none found. Speculation suggests the cold April had something to do with this as aphids hatched from eggs on overwintering Buckthorn (their winter host plant) into abnormally cold weather. Wide-spread late plantings of soybeans probably added to the problem as it is their only summer-time host plant as they leave the Buckthorn.

DISEASES
Foliar Fungicide Time?
Foliar applications have begun, but did you scout first. Iowa Soybean Association field trials prove that to just apply without a reason is likely not profitable. They have conducted 537 trials in corn and 505 trials in soybeans over the last 13 years and results showed an average of 3.3 bu./ac. increase in corn and 1.9 bu./ac. increase in soybeans. On average this is an economic loss. Some applications did much better and some did worse. With scouting and good reasoning you can improve your chance of a positive economic response to only apply fungicides on those fields with a better chance of economic return. Consider the following:

- Crop rotation vs. continuous cropping – Greater chance of disease survival to re-infect with continuous cropping.
- No-till vs. tillage – Most diseases overwinter on crop residue remaining on the surface, thus tillage reduces this cause and effect.
- Field history/record keeping – What has been the prevalence of disease in certain fields in recent years.
• Type of disease and variety/hybrid resistance – What are the various disease ratings from the seed company. You may have selected for High resistance of Northern corn leaf blight because that tends to be our greatest threat in northeast Iowa, but the 2018 so far summer climate has been much more favorable for Gray leaf spot.

• Climate – Certain diseases only do well in certain climates. *i.e.* This June and July has been just right for Gray leaf spot (GLS) and too hot for Northern corn leaf blight (NCLB). However, Elwynn Taylor said El Nino should start up in August which should mean more moderate temperatures for the rest of the crop season favoring NCLB and Eyespot over GLS development. Thus the back and forth guesswork of treating or not. But consider the other bullet items as well in your decision making process.

Very good resources on corn and soybean diseases are recently updated ISU Extension publications: [https://store.extension.iastate.edu/product/3975](https://store.extension.iastate.edu/product/3975) and [https://store.extension.iastate.edu/product/2940](https://store.extension.iastate.edu/product/2940) They are $5 each. The free on-line route includes a couple of websites providing photos and a short explanation of each disease (description, scouting and management) at: [https://crops.extension.iastate.edu/corn-diseases-symptoms-scouting-and-management](https://crops.extension.iastate.edu/corn-diseases-symptoms-scouting-and-management) and [https://crops.extension.iastate.edu/soybean-diseases-symptoms-scouting-and-management](https://crops.extension.iastate.edu/soybean-diseases-symptoms-scouting-and-management)

**Septoria Brown Spot in Soybeans – An easy disease to scout**
This disease appears to some degree every year in every field. It starts in the lower canopy. As long as it does not advance up into the mid-canopy or higher in July, it’s not considered a problem. Scout in July to verify if the disease is spreading beyond the lower canopy. If it is, a foliar fungicide usually applied during around the R3 stage can offer effective control. Here’s photos of the early season disease: [http://iasoybeans.mobi/publications/diseases/foliar/septoria_brown_spot.php](http://iasoybeans.mobi/publications/diseases/foliar/septoria_brown_spot.php) It is sometimes confused with Bacterial blight for which foliar fungicides offer no control: [http://www.soybeanresearchinfo.com/diseases/bacterialblight.html](http://www.soybeanresearchinfo.com/diseases/bacterialblight.html) Bacterial blight is more likely evident in fields that have received some hail damage.

**Corn Leaf Diseases**
As fields begin to expose a tassel, it’s a great time to start scouting for leaf disease. It’s basically been too hot for our usual suspects to develop (Common Rust, Northern Corn Leaf Blight, Eyespot). Common Rust rarely causes significant yield loss in field corn in northeast Iowa anyway, but seed production fields are more at risk from this disease. Eyespot is a concern every year and I am starting to find some lesions now, although it’s not considered as great of a threat as Northern Corn Leaf Blight and Gray Leaf Spot. Northern Corn Leaf Blight (NCLB) is routinely our greatest concern in northeast Iowa, but it’s been too hot so far this season. Elwynn Taylor says El Nino will come about starting August which should cool things off a bit and be more favorable for NCLB. Gray Leaf Spot is usually more limited to southern Iowa (higher heat and humidity then northern Iowa), but so far this summer’s weather has been quite favorable. In particular there have been reports along Hwy 9 of this disease. So scout, but also check on the disease resistance levels of your hybrids.

**WEEDS**
**Herbicide Injury**
One item this season that is a bit more prominent than in past seasons, at least for northeast Iowa, is a greater frequency of herbicide injury in soybeans from herbicide group 15 (HG15). These products include Warrant, Zidua, Dual and others. I’m not saying that this injury is yield reducing, but it’s at a little higher level than what I am use to seeing. And it appears to be a bit more severe when included with a HG14 product (Flexstar, Reflex, Cobra, Phoenix and others). The injury symptoms lack the true leaf cupping or strapping from a growth regulator herbicide, and seem to cause more irregularity of the leaf margins (see photos below).

For a recent article discussing soybean injury symptoms from various herbicides, go to: [https://crops.extension.iastate.edu/cropnews/2018/07/crop-injury-associated-growth-regulator-herbicides](https://crops.extension.iastate.edu/cropnews/2018/07/crop-injury-associated-growth-regulator-herbicides)

**SYNGENTA SETTLEMENT**
**File Claims by October 2018**
The home page and claim file form is at: [https://www.cornseedsettlement.com/](https://www.cornseedsettlement.com/) Here is a blog from the Center for Ag Law and Taxation about this subject: [https://www.calt.iastate.edu/blogpost/corn-farmers-may-begin-filing-claims-syngenta-settlement-may-11](https://www.calt.iastate.edu/blogpost/corn-farmers-may-begin-filing-claims-syngenta-settlement-may-11)

**EVENTS**
**July 18, Crop Scouting/Crop Progress Field Day, Howard County Experimental Farm near Saratoga**
10:00 to Noon. The Howard County Experimental Farm located on Hwy 9 between Davis Corners and Saratoga is hosting a Crops Field Day to include discussions lead by Brian Lang, ISU Extension agronomist, on current crop growth and development and crop scouting issues (insect, disease, weeds and fertility). Tentatively to also include a short update on windmill construction in the area. The program is free and open to the public. Light snacks included while supplies last. Two CCA credits available for free (1 CM, 1 PM). The location is 3.5 miles west of Davis Corners and 2 miles east of Saratoga. For more information contact Sue Barnes, 563-547-3001, email: skbarnes@iastate.edu

**July 18, Cover Crop Workshop, Grundy Center**
9:00 AM to 1:30 PM at the Grundy County Fairgrounds, Practical Farmers of Iowa in partnership with Grundy County Extension and Grundy County Soil and Water Conservation District are hosting a free cover crop workshop. For details, go to: [https://www.practicalfarmers.org/news-events/newsroom/news-release-archive/29351/](https://www.practicalfarmers.org/news-events/newsroom/news-release-archive/29351/)
**July 18, Tri-County Ag Marketing Meeting, Grundy Center**
7:30 AM to 9:00 AM at the Grundy County Fairgrounds. Chad Hart, ISU Extension, to present a grain market forecast and tools for developing your crop marketing plan. Free breakfast for participants at 7:30 with program beginning at 8:00. For more information contact Shari Sell-Bakker, 319-824-6979, email: sellbakk@iastate.edu

**July 28, Demonstration Garden Field Day, ISU Northeast Research Farm, Nashua**
4:00 PM start. The event is free and open to the public (rain or shine). The theme for this year is planting the rainbow, with vegetables planted to be donated to nearby food pantries ranging in colors like pink tomatoes, purple snap beans, yellow cauliflower and orange winter squash. Over the past two years, as part of the USDA SNAP-Education program, Iowa Master Gardeners have donated over 20,000 pounds of produce to nearby food pantries. Another part of the demonstration gardens includes an ISU entomologist to discuss planting nectar plants and host plants for bees and other pollinators. For more information, go to: https://www.cals.iastate.edu/news/releases/iowa-state-university-research-farms-host-demonstration-garden-field-days

**July 30, Cattle Handling & BQA Workshop, West Union**
9:30 AM to 1:00 PM with Dr. Tom Noffsinger at the Fayette County Fairgrounds, sponsored by the Fayette County Cattlemen. Proper cattle handling not only is important for the safety of the cattlemen, but is also important for the health, growth, efficiency and safety of the cattle. Noffsinger will share the basics of animal behavior and how to utilize that to improve our animal handling. He’ll also demonstrate how to use a Bud Box to work calves through a chute, and achieving cattle flow. Participants will also complete the BQA training. Register in advance by contacting the Benton County Extension office at 319-472-4739. The Fayette County Cattlemen will be providing lunch.

**July-August, Farmland Leasing Meetings; Many dates & locations across Iowa**
Check the following website calendar for dates, times and locations of the upcoming Farmland Leasing Meetings: https://www.extension.iastate.edu/agdm/info/meetings.html Although most of the meeting locations for northeast Iowa are in August; here’s a short list of those:

- Aug. 7, 1:30 pm to 3:30 pm, Tripoli
- Aug. 8, 1:00 pm to 4:00 pm, Charles City
- Aug. 9, 9:00 am to 11:30 am, Manchester
- Aug. 9, 1:30 pm to 4:00 pm, Elkader
- Aug. 14, 1:00 pm to 4:00 pm, New Hampton
- Aug. 15, 1:00 pm to 3:00 pm, Waukon
- Aug. 16, 9:00 am to 12:00 pm, Fayette
- Aug. 16, 1:30 pm to 3:30 pm, Cresco
- Aug. 21, 1:00 pm to 4:00 pm, Epworth
- Aug. 22, 6:00 pm to 9:00 pm, Cedar Rapids
- Aug. 23, 1:30 pm to 4:30 pm, Allison
- Aug. 23, 7:00 pm to 9:00 pm, Grundy Center
- Aug. 27, 1:00 pm to 4:00 pm, Monticello
Aug. 9, Focus on Nitrogen Field Day, ISU Research Farm, Nashua
10:00 am to 2:00 pm at the ISU Northeast Research Farm. Farmers and those who advise them are invited to attend “Focus on Nitrogen: Managing Nitrogen for Maximum Profit and Minimum Water Quality Impact.” Being one of the country’s most prestigious water quality research facilities, we will kick off the day with a field tour by Ken Pecinovsky, farm superintendent, which will highlight nitrogen management strategies and water quality testing practices being conducted on the farm. Brian Lang and Terry Basol, ISU agronomists, will discuss the nitrogen fertilizer recommendations for corn, split application of nitrogen, and cover crops as it pertains to making crop production decisions. The day will conclude with a manure applicator distribution demonstration and nitrogen management discussion (as it relates to manure) by Kapil Arora, ISU ag engineer, and Terry Basol. Free program, free lunch, free CCA credits. The program is free and open to the public with lunch provided for those that pre-register. Pre-register at 641-435-4864 to secure a spot. Free CCA credits available. Directions: From Nashua at the Jct. of Hwy 218 (Exit 220) and Co. Rd. B60, go west on B60 1.1 miles to Windfall Ave., then south 1 mile to 290th St., then east 0.2 miles to the farm.

Aug. 21-23, Iowa Drainage School, ISU Northeast Research Farm, Nashua
A 3-day program to train stakeholders in sub-surface drainage concepts, planning and laying out drainage systems including surveying a profile, laying out the system, calculating tile line sizes and spacing using actual field data, making connections, and setting up drainage control structures, NRCS program requirements, and fixing common drainage system issues. It is a combination of hands-on training, lecture and discussion, and problem solving using examples. For more details and registration, go to: http://www.aep.iastate.edu/ids/

Aug. 28, Annie’s Project (Women’s Farm Management Program), New Hampton
5:30 PM - 9:00 PM on Aug. 28, Sept. 4, 11, 18, 25, and Oct. 2. Annie’s Project is a six-week program “intended to educate and empower farm women to be better business partners by managing and organizing critical information, improving decision-making skills, and networking with other farm women. The program starts on Aug. 28 in New Hampton at the ISU Extension office. The class meets for six consecutive evenings from 6:00 to 9:00 pm, with a light supper served at 5:30 pm. Registration is $75 for the 18-hour program and includes all materials as well as the light supper. Class size is limited to 25 women. For more information go to: http://www.aep.iastate.edu/womeninag/2018/newhampton.html, and/or contact Val Horner, 641-394-2174, email: vhorner@iastate.edu

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