CROP NOTES for June 19, 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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    Can’t beat ‘em (the rainy weather), join us at the silage conference.

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CORN

Growth and Development
Emerged corn will develop a new leaf every 84 GDD up to V10, then develop a new leaf every 56 GDD. For a map of current GDD from May 1 to today, go to: http://mesonet.agron.iastate.edu/GIS/apps/coop/gsplot.phtml. Insert your own planting date on this website and “Make Plot”. For your various planting dates, subtract 100 GDD to account for emergence, then divide the remainder by 84 to estimate leaf stage. Long-term average GDD for late June is about 20 per day. This next week (Tuesday-Monday) should average about 17 per day.

June 21, Northeast Iowa Silage Conference, Dubuque
9:30 AM to 3:30 PM at the Midway Best Western Plus, Dubuque (3100 Dodge Street). The conference will feature presentations from both academic and industry experts, plus exhibitors. This one-day conference will focus on the keys to growing, harvesting, storing and feeding high quality silage to beef and dairy cattle. Topics include quality corn silage before, during & after harvest, characteristics of corn varieties for silage, preventing molds and mycotoxins, pricing corn silage, silage in beef or dairy rations, and safety. Online registration and more conference information is available at: http://www.aep.iastate.edu/silage/

SOYBEANS

Time to Switch Varieties
Still some soybeans to be planted… time to switch to an earlier season variety. For delayed planting, if feasible, use narrower rows (i.e. 15 or 20-inch vs. 30-inch) and up the population a bit since late planted soybeans don’t develop as robust and cover the rows as good as earlier planted soybeans.

Growth and Development
At V2 stage, lateral roots are developing rapidly and nodules begin to fix N. A new leaf stage appears about every 5 days through V5 stage; and after that about every 3 days. At V5 stage, lateral roots reach across a 30-inch row. R1 stage is now in some of the earlier planted fields. Be aware of herbicide label restrictions with crop stage. Check these Crop Notes under WEEDS for a list of herbicide options.
ALFALFA
Rapidly Drying Forage Immediately After Cutting Helps Keep Yield, Quality
by Dr. Dan Undersander, Forage Agronomist and Professor Emeritus, University of Wisconsin-Madison, printed in the last issue of the Midwest Forage Association Clippings (https://www.midwestforage.org/newsletter/180618clippings.htm). If you find good use from this type of information, consider joining the Midwest Forage Association, and public-private partnership organization.

From the time forage is cut until it is fed, the goal is to minimize dry matter and forage quality loss. While all forage declines in dry matter and forage quality after cutting, the amount of decline is determined by the management used. One of the often overlooked sources of dry matter and forage quality loss is respiration after mowing. Respiration is the breaking down of starch and sugars to produce energy (heat) and carbon dioxide. The process occurs in growing plants and continues after mowing, even in baleage and silage when heat is produced.

Data suggest that 2-8% of the dry matter may be lost due to respiration. Table 1 shows that, at current hay prices in the Midwest, a 4% dry matter loss results in $8.80 loss per ton of hay. Losses are greatest in the West where forage is often cut with large cutter bars and put into windrows that fit between swather tires. This hay often takes five to seven days to dry for baling, while some farmers of the same region put forage into wide swaths and bale it in two days. Not only does the faster drying time result in less dry matter loss, but getting the hay off the field faster results in less wheel traffic damage to regrowth and higher yields of subsequent cuttings.

Respiration also causes a significant forage quality loss, since lost starch and sugar are 100% digestible. As Table 1 shows, loss of sugar/starch increases the content of remaining components. A 4% starch/sugar loss would increase NDF slightly over 3%. Note that this is a drop of almost 20 points of RFQ. Thus, if one had cut alfalfa at just below 40% NDF and lost 4% sugar/starch, the harvested quality would be above 40% NDF, which is currently selling for about $50/ton less!

What can be done to minimize losses from respiration? The first good practice is to spread forage into a wide swath so that more sunlight is intercepted and stomates (breathing holes in the leaves) stay open to allow rapid drying of the leaves. Hay should be managed to dry to 60% moisture or less as quickly as possible, but at least the day it is cut. When forage moisture falls below 60%, respiration is greatly reduced.

Hay that is put immediately into a windrow dries slowly inside the windrow and has high respiration rates for an extended time. Thus, growers should spread cut hay into a wide swath (and drive over it) rather than to make a windrow that fits between the wheels. Note that if a grower insists on putting forage immediately into a windrow and taking the respiration losses of sugar and starch, then the forage must be cut earlier to be below 40% NDF (150 RFQ) at baling or chopping if that is the goal. Cutting earlier to allow for the respiration losses means at least a 10% yield loss and greater stress on the stand, thereby shortening its stand life.
A second method to reduce respiration losses is to make haylage in a pile or bunker or to make and wrap bales in plastic. Respiration requires oxygen. If packed tightly, the forage respiration will quickly use up the oxygen and respiration will stop. This practice is most effective in reducing respiration losses if combined with forage put into a wide swath at cutting, dried quickly to 60-65% moisture, and then ensiled or wrapped in bales. Forage is often 75-78% moisture when cut, so the key to high yield of high-quality forage is to manage so the first 15% moisture is lost as rapidly as possible. Reducing the unseen losses of respiration will increase yield and forage quality. Additionally, getting hay off the field faster will increase the yield of the next cutting.

### Table 1. Losses Due to Respiration

<table>
<thead>
<tr>
<th>Dry Matter Loss</th>
<th>2%</th>
<th>4%</th>
<th>8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic Dry Matter Loss ($/ton)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hay value $220/ton</td>
<td>$4.40</td>
<td>$8.80</td>
<td>$17.60</td>
</tr>
</tbody>
</table>

#### Forage Quality Loss from 4% sugar/starch loss

<table>
<thead>
<tr>
<th>ADF, %</th>
<th>NDF, %</th>
<th>RFQ</th>
<th>Value, $/ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.0</td>
<td>40.0</td>
<td>153</td>
<td>$220</td>
</tr>
</tbody>
</table>

--Forage quality if lose 4% dry matter of starch/sugars--

<p>| | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>33.0</td>
<td>43.4</td>
<td>134</td>
<td>$166</td>
</tr>
</tbody>
</table>

Prices based on Midwest Hay Market Report-May 29, 2018

### NITROGEN

**Supplemental N for 2018?**

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 last spring on the ICM News discusses issues with above average spring rainfall and risk of N fertilizer loss. [http://crops.extension.iastate.edu/cropnews/2017/05/potential-nitrogen-loss-spring-2017](http://crops.extension.iastate.edu/cropnews/2017/05/potential-nitrogen-loss-spring-2017) The 4th approach in this article discusses concerns with April 1 through June 30 rainfall that exceeds 15 inches and the recommendation for supplemental N fertilizer. The 2018 rainfall map from April 1-June 19 (below) shows the top 1-2 tiers of counties in northeast IA already exceeding 15 inches of rainfall, thus supports the need to sidedress nitrogen. [https://mesonet.agron.iastate.edu/GIS/apps/coop/gspplot.phtml?network=IACLIMATE&var=prec&year=2018&smonth=4&sday=1&emonth=6&eday=19](https://mesonet.agron.iastate.edu/GIS/apps/coop/gspplot.phtml?network=IACLIMATE&var=prec&year=2018&smonth=4&sday=1&emonth=6&eday=19)
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 ¼ 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

True Armyworm

Keep scouting for this pest through June. The following article provide some photos, scouting tips and threshold recommendations. https://crops.extension.iastate.edu/blog/adam-sisson-erin-hodgson/true-armyworm-trapping-update Armyworm tend to avoid of direct sunlight by hiding in the corn whorl or under residue in very young corn fields, and feed at night or in the daytime with overcast skies.

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 that are not protected by Bt ECB traits (identified in the Handy Bt Trait Table: https://lubbock.tamu.edu/files/2018/01/BtTraitTableJan2018.pdf). The following 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 about 1 larva per plant average.

Potato Leafhopper (PLH)

After first crop harvest and with initial alfalfa regrowth of a few inches, it’s time to scout (with a sweep net) for PLH. Scouting and threshold information is provided at: http://crops.extension.iastate.edu/cropnews/2014/06/managing-potato-leafhoppers-alfalfa Warm and dry weather favors their development. The continuous wet weather in northeast Iowa appears to have held these populations down so far.

Japanese Beetles

Japanese Beetles are now in southern Iowa, and should start up in central to northern Iowa soon. In northern Iowa, they usually don’t cause much trouble north of Hwy 18, with most of the trouble in the Hwy 3 to Hwy 20 region, and this is not to crops, but to ornamentals (certain trees, roses, fruit crops, etc.). They skeletonize leaves and can entirely consume flowers and fruits. In recent years, there have only been a few cases south of Hwy 20 where defoliation of soybean fields was sufficient enough to suggest an insecticide application. We can scout for defoliation and react accordingly. A greater threat is silk clipping in corn prior to pollination, which can also be scouted for. Right now the main “June bug” flying around is the “False Japanese Beetle” as mentioned in the following article: https://crops.extension.iastate.edu/blog/erin-hodgson/don%E2%80%99t-mistake-look-alike-chafer These are not a threat. For tips on scouting for defoliation, silk clipping, etc. for the Japanese Beetle, please read this recent article at: https://crops.extension.iastate.edu/cropnews/2018/06/japanese-beetle-adults-emerge-southern-iowa For Japanese Beetle Control in Trees, please refer to the following article: https://hortnews.extension.iastate.edu/2014/05-09/japanesebedtle.html
**DISEASES**

**White Mold**
As soybeans reached R1 stage, it’s time to make a decision about a preventive treatment for White Mold. Fungicide product ratings on effectiveness are included in the following fact sheet: [http://msue.anr.msu.edu/uploads/files/AABI/Soybean_Fungicide_efficacy_table_2018_final_MC.pdf](http://msue.anr.msu.edu/uploads/files/AABI/Soybean_Fungicide_efficacy_table_2018_final_MC.pdf) Those with better ratings on White Mold include Endura, Omega and Propulse (used once at R1-R2 stage) and Aproach used twice at R1 and R3 stage.

**WEEDS**

**POST Herbicide Options with Corn and Soybeans**
Pay attention to growth stage with post-emergence herbicide programs. The very warm May-June may have advanced the crop beyond what you think. The Purdue University provided a summary list of herbicides and crop stage restrictions that I linked below. [https://extension.entm.purdue.edu/newsletters/pestandcrop/article/growth-stage-cutoffs-for-herbicide-applications-in-corn-and-soybean/](https://extension.entm.purdue.edu/newsletters/pestandcrop/article/growth-stage-cutoffs-for-herbicide-applications-in-corn-and-soybean/) , and the University of Nebraska provided a list for soybeans at: [https://cropwatch.unl.edu/2017/consider-application-restrictions-postemergence-herbicides-based-soybean-growth-stage](https://cropwatch.unl.edu/2017/consider-application-restrictions-postemergence-herbicides-based-soybean-growth-stage) Note, not all of the products listed may be approved for a particular geography or soil type - be sure to check the herbicide label for specific details. If a product label lists both height and growth stage restrictions, use the more restrictive of the two.

**Updated Fact Sheet on Dicamba and Look-a-Like Crop Injury**
From the University of Wisconsin, go to: [https://learningstore.uwex.edu/Assets/pdfs/A4161.pdf](https://learningstore.uwex.edu/Assets/pdfs/A4161.pdf)

**EVENTS**

**June 21, Northeast Iowa Silage Conference, Dubuque**
9:30 AM to 3:30 PM at the Midway Best Western Plus, Dubuque (3100 Dodge Street). The conference will feature presentations from both academic and industry experts. This one-day conference will focus on the keys to growing, harvesting, storing and feeding high quality silage to beef and dairy cattle. Topics include quality corn silage before, during & after harvest, characteristics of corn varieties for silage, preventing molds and mycotoxins, pricing corn silage, silage in beef or dairy rations, and safety. Online registration and more conference information is available at: [http://www.aep.iastate.edu/silage/](http://www.aep.iastate.edu/silage/)

**June 23, Breakfast on the Farm at Iowa's Dairy Center, Calmar**
8:30 AM to Noon for the 9th annual Breakfast on the Farm. Provides breakfast and guided tram tours of the nationally-recognized Dairy Center. The kids will enjoy the chance to pet calves, plus families can visit several educational exhibits, milk a cow and see robots milk cows. More details available at: [http://www.iowadairycenter.com/tours-events/breakfast-on-the-farm.php](http://www.iowadairycenter.com/tours-events/breakfast-on-the-farm.php)

**June 27, ISU Northeast Research Farm Field Day, Nashua**
1:00 to 4:15 PM starting at the Borlaug Learning Center, ISU Research Farm, Nashua. Elwynn Taylor, Extension climatologist, will kick-off the program providing his insights on crop weather for the 2018 growing season. Mahdi Al-Kaisi, Extension soil/tillage specialist, follows with updates on various strip-till and no-till studies at the research farm. We will then convene outside for the farm wagon tours to include John Sawyer, Extension soil fertility specialist, to share his
expertise on corn nitrogen fertilizer management (rate, timing, split-apply, N sensors, etc.), and finish with Brian Lang, Extension agronomist, to discuss and demonstrate crop scouting for insect pests. The field day is free and open to the public. 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. CCA credits will be available (1 SW, 1 NM, 1 PM, 1 CM).

June 28, Seventh Annual Iowa Swine Day, Ames
Showcases national industry speakers. Details at: http://www.aep.iastate.edu/iowaswineday/

June 28, ISU Southeast Research Farm Field Day, Crawfordsville
9:00 to noon plus lunch is a special session for Certified Crop Advisors (CCAs). 1:00 to 3:00 is the annual Field Day, which is open to everyone. Details posted at: https://www.extension.iastate.edu/Pages/eccrops/meetserc.html

July 3, Corn and Soybean Weed Management Tour, Rochester, MN
This is probably the best weed management tour you will find in the upper Midwest. They will show-&-tell management options for Waterhemp, new herbicide technologies, layered programs, and more. For details, go to: http://blog-crop-news.extension.umn.edu/2018/06/corn-and-soybean-weed-management-tour.html

July 10, Focus on Nitrogen Workshop Series, Crawfordsville
The workshop will share research-based information on maximizing profitability with nitrogen management while also minimizing nitrate-nitrogen loss. Similar programs will be conducted in August at other ISU Research Farm locations. Details soon to be provided. For this workshop on July 10, please find details at: https://www.extension.iastate.edu/news/crawfordsville-workshop-july-10-focus-nitrogen

July 11, Field Diagnostic Clinic, Field Extension Lab west of Ames
The ISU Field Extension Education Laboratory (FEEL) offers the Summer 2018 Field Diagnostic Clinic from 8:55 AM to 4:00 PM. The clinic focuses on identifying common issues within crop fields. Extension specialists will discuss diagnostic methods and skills, management options and decision making for future crops. This program is meant for new crop advisors as well as individuals interested in a diagnostics refresher. For more information, go to: http://www.aep.iastate.edu/feel/diagnostic.html

July 12, Crop Management Clinic, Field Extension Lab west of Ames
The ISU Field Extension Education Laboratory (FEEL) offers the Summer 2018 Crop Management Clinic from 9 AM to 4 PM. The clinic provides interactive workshops and discussions to give patrons the best tools, resources and means-tested strategies to make the best crop management decisions in their corn or soybean fields. The clinic topics cover four primary areas: crop management, pest management, nutrient management, and soil and water management. Small group sizes encourage discussion and interaction with Extension instructors, and practical exercises in field situations. For more information, go to: http://www.aep.iastate.edu/feel/management
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 cattleman, 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.

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