

# IOWA STATE UNIVERSITY

## Extension and Outreach

### **CROP NOTES for May 17 2019**

Iowa State University Extension Information for Northeast Iowa

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## CORN

### Growth and Development

Corn usually takes anywhere from 90 to 120 GDD from planting to initial emergence. It's usually closer to 120 GDD for early spring planting and closer to 90 GDD for late spring planting. Laboratory studies have shown that for most corn hybrids grown in the Midwest, seedling emergence is about 3 weeks with an average soil temperature at 51F, and about 1 week with an average soil temperature at 70F. FYI, Easter day planted corn and soybeans (April 21) at the ISU Northeast Research Farm is just starting to emerge. This is 27 days after planting, and about 150 GDD; a bit over the 21 days and 120 GDD that we are more used to with early planted corn. As a general rule, if no emergence is seen by 120 GDD, scout the field to assess the condition of planted seed. For a map of current GDD from May 1 to today, go to:

<http://mesonet.agron.iastate.edu/GIS/apps/coop/gplot.phtml> This map allows you to substitute your own planting date for a GDD calculation. The average GDD for mid-May in northeast Iowa is about 10 per day, however, this next week (Saturday-Friday) will be averaging about 8 per day.

### When to Switch to an Earlier Hybrid?

It's generally recommend to stay with full season hybrids to May 25. One of the reasons for this is that corn inherently shortens its days to maturity at an average of 6.8 GDD per day planted after May 1. In other words, if 105-day corn planted in Fayette county on May 1 requires 2,520 GDD to reach black layer (an average predicted black layer date of Oct. 17), the same corn planted on May 15 would only require about 2,420 GDD (an average predicted black layer date of Oct. 12), and if planted on May 25 it would only require about 2,350 GDD (an average predicted black layer date of Oct. 18). Beyond May 25, we often recommend switching to a shorter hybrid. If I take the above example of 105-day planted on May 30, it suggests 2,320 GDD to black layer with an average predicted black layer date of Oct. 25! The difficulty with all of this is that I used average conditions for the example. Nobody knows at this time if temperatures this summer and fall will be normal, above normal or below normal. The 30-day forecast for northeast Iowa is for equal chances of normal, above normal or below normal temperature and rainfall

[https://www.climatehubs.ocs.usda.gov/sites/default/files/5.16.19MidwestFocusAgOutlook\\_0.pdf](https://www.climatehubs.ocs.usda.gov/sites/default/files/5.16.19MidwestFocusAgOutlook_0.pdf)

### Scouting Emerging Corn

Some of our earliest planted corn fields are starting to emerge. Initial emergence, or as mentioned above – once about 120 GDD has passed since planting, is a good time to do some scouting. The following article runs right through the grocery list of things to look for with this first scouting (seed depth, plant counts, various potential causes of seedling injury, trouble-shooting uneven stand)... go to:

<https://crops.extension.iastate.edu/cropnews/2019/05/evaluating-corn-stands> I reposted under

“INSECTS” from a previous Crop Notes the section on Three Soil Insect Pests commonly associated with emergence problems.

## SOYBEANS

### Late Planting on Yield and Maturity Group

We are just now approaching the window where we start to lose some yield potential with late planted soybeans, however, with regards to maturity selection, we would not consider a change from full season until mid-June. In recent trials conducted at 7 ISU research farms over 5 years, the same soybean variety planted 40 to 60 days apart reached physiological maturity within 7 to 10 days of each other. Moreover, a 0.5 to 1.0 maturity group spread resulted in a difference of only 3 to 5 days to reach maturity. The following article discusses this in some detail.

<https://crops.extension.iastate.edu/cropnews/2019/05/late-soybean-planting-options>

## INSECTS

### Common Stalk Borer – 3 remaining options for control

For those that lose corn plants in the first few rows along grassy field borders or grass-back terraces, you may have a problem with Common Stalk Borer.



Remaining control options for the season include:

1. Some Bt corn controls or suppresses stalk borer, and some do not. Check the “ Handy Bt Trait Table” for those products: <https://lubbock.tamu.edu/files/2018/11/BtTraitTableNov2018.pdf>
2. Wait for Common stalk borer egg hatch which starts ~575 DD (from Jan. 1 base 41F), and spray grass border with insecticide. Northeast Iowa around Hwy 18 is currently at ~490 DD and a rough extrapolation at this time to reach 575 DD would be about May 23. Northeast Iowa around Hwy 20 is currently at ~530 DD and should reach 575 DD about May 20.
3. The most commonly used and last means for control is to wait for larval migration from the grass border into the first few corn rows, which starts ~1,300-1,400 DD (from Jan. 1 base 41F) and then spray the grass border with insecticide. This is usually around mid-June, but I’ll track DD and post in future Crop Notes.

### Pheromone Trap Moth Flights

**Black Cutworm** - ISU recently posted their findings on significant flights in Iowa and the estimated dates to begin scouting for cut corn plants in fields. So for northeast Iowa, May 21 is a

general date to start paying attention during crop scouting for any evidence of cut corn plants. If any cutting is found, the next step is to determine if the damage is above economic threshold. Scouting tips and photos are included at:

<https://crops.extension.iastate.edu/cropnews/2019/05/scouting-black-cutworm-2019>

**True Armyworm** - Nothing significant at this time. A few more “sporadic” moth flights were reported into Illinois. Cover crops and our winterkill rotated alfalfa stands will provide attractive sites for the moths to lay eggs. No-tillage fields previously in sod or with small grain cover crops that are not burned down with herbicides early enough in spring usually experience greater problems with true armyworm than do conventional tillage fields. With the cool spring delaying the herbicide kill of rye cover crops, we should be a bit more attentive on scouting for this pest in these fields once corn emerges. Future Crop Notes will include scouting tips for armyworm.

### **Alfalfa Weevil**

I was scouting for this insect this week and found none. While I do not expect any trouble with this pest for 2019, northeast Iowa waits for >250 DD base 48 from Jan. 1 to start scouting for this insect. There is also a chance that the cold winter of 2018-19 may have caused somewhat reduced alfalfa weevil populations. Current tracking of degree days (Base 48, starting Jan. 1) has the entire northeast Iowa region above 250 DD. Greater risks of pest presence would be on south-facing slopes and proximity to woodlands. The quickest and easiest way to initially scout for Alfalfa Weevil is to use a sweep net just to survey a field. If there are some alfalfa weevil in the net, then refer to the scouting procedures and threshold information in this article:

<https://crops.extension.iastate.edu/cropnews/2019/05/alfalfa-weevils-active-northern-iowa>

### **ECB Resistance to Some Bt-Corn**

Don't get too excited yet, but keep your eyes open when scouting. Several populations of European Corn Borer (ECB) were confirmed resistant to Cry1F in Nova Scotia last year. The ECB populations were of a “E strain”. Iowa has the “Z strain”, so this resistance does not impact us at this time. E-strain ECB is mostly restricted to east of the Appalachians, while Z-strain ECB are present throughout the eastern 2/3 of the US. However, it is important to note this developing resistance issue. If you happen to hear or see any “unexpected” injury from ECB when using Bt-corn, please contact me. I will pass this on to our ISU Entomologist on campus for bioassay research.

### **A Review of 3 Soil Insect Pests - as we Scout Emergence of Corn and Soybeans**

1) Seedcorn Maggot: Seedcorn maggots are occasional pests of both corn and soybean seeds at germination. Yield reduction occurs because of stand loss, and damage is more likely in cool, wet springs when the seeds are slow to germinate but the insects are still actively feeding. The greatest potential for seedcorn maggot damage exists when sod, weeds or fresh animal manure are incorporated into the soil just before planting. Decaying material attracts the adult flies where the females lay eggs. If manure has been spread on the field in spring, or a cover crop or sod or considerable weed biomass was disked or plowed this spring, consider using an insecticide seed treatment. If using a rootworm insecticide in continuous corn, the seed treatments are not usually necessary for seedcorn maggot control, although an ISU study at Ames in 2000 showed some inconsistencies with Force 3G and Capture 2EC on control of seed corn maggot. See photo of pest and additional information

at: <https://crops.extension.iastate.edu/cropnews/2016/04/look-seedcorn-maggot-corn-and-soybean>

2) **Wireworm:** If you have had recent problems in a field with Wireworms, consider using an insecticide seed treatment. Problems are more likely to occur in corn following sod or CRP, but wireworm problems have been found in some corn-soybean rotations. Since wireworms can take up to 8 years to complete their life cycle, if wireworms were a problem in a field 2, 4 or 6 years ago, there is a good chance they will still be there this year. Insecticide seed treatments offer effective control. If using a rootworm insecticide in continuous corn, the insecticide seed treatment is not necessary for wireworm control. See photos of this pest at: <http://www.ent.iastate.edu/imagegal/coleoptera/click/>

3) **White Grubs:** As with most soil insects, it is difficult to predict when and where true white grubs will be found. Problems can be expected in cornfields following grass sod (pasture, CRP, etc.). But stand loss has also occurred in both continuous and rotated corn. In Iowa, the problem is usually, but not always, found adjacent to areas bordered by cottonwood or willow trees. Sometimes true white grubs are found far from trees and the reason for their occurrence in a field remains a mystery. Since white grubs can take up to 3 years to complete their life cycle, if they were a problem last year, they still could be a problem this year. Manure grubs associated with spring manured fields are much less of a threat, but have caused some stand loss on rare occasions. See the article linked below for more on manure grubs. The Nicotinoid seed treatments are very effective on white grubs. If using a rootworm insecticide, *i.e.* in continuous corn, the insecticide seed treatment is not necessary for white grub control. Additional information on control and ID of this insect is at: <https://crops.extension.iastate.edu/cropnews/2015/06/true-white-grub-identification-and-management>

## **ALFALFA**

### **Growth and Development**

Research on GDD (base 41, March 1) for alfalfa suggests the crop reaches about 35% NDF at 600 GDD, 40% NDF at 750 GDD, and 45% NDF at 970 GDD. I never put too much weight on this because different alfalfa varieties and management factors affect rate of regrowth in spring. You can see this for yourself looking at different alfalfa fields in the area. They are not all growing at the same pace. I think PEAQ provides a better assessment than GDD to estimate alfalfa quality in the field. However, if you are curious about the GDD information, current alfalfa GDD for Manchester is ~530; and for Fayette is ~500; and for Cresco is ~470. A rough extrapolation at this time puts 750 GDD for Manchester at ~May 27; and for Fayette at ~May 29; and for Cresco at ~May 31.

### **PEAQ**

As discussed above, tracking GDD for alfalfa to determine first crop harvest is simple, but it tends to be more variable than using PEAQ (Predictive Equation for Alfalfa Quality). PEAQ provides an estimate of forage quality in the field using plant height and crop stage Use Table 1 in the following publication and a yard

stick: <https://store.extension.iastate.edu/Product/15234> . Do not forget to subtract from your standing crop RFV reading from Table 1 either 15 RFV units for a haylage harvest or 25 RFV units for a hay harvest to account for forage quality loss from harvest loss. ISU Extension staff around the state will be providing some readings from alfalfa fields and posting these on a website at: <https://www.extension.iastate.edu/dairyteam/peaq> . You will be able to track these postings over time, but we strongly encourage that you take PEAQ readings from your own alfalfa fields for best reliability.

### **Research Update: The Cost of a Windrow**

*by Dan Undersander, University of Wisconsin, written for the National Alfalfa & Forage Alliance / Midwest Forage Association, May 15, 2018.*

When harvesting hay or haylage we tend to think in terms of how long it takes to get the hay off the field. However, the first concern for quality hay/haylage should be how long it takes to lose the first 15-20% moisture. Forages have 75-80% moisture when cut; they will continue to respire sugars (break down and give off heat and carbon dioxide) at a high rate until the plant is dried to 60% moisture. If we want to save the energy of the starch and sugars for our cattle, we need to dry off the first 15-20% moisture as quickly as possible.

Most of the respiration takes place in the leaves. We should remember that conditioning is for drying the stems but has little impact on drying the leaves. A wide swath has the biggest effect on rate of leaf drying. Leaves dry faster in a wide swath because more sunlight falling on the field is intercepted for drying. (A windrow intercepts only 25-30% of sunlight falling on the field while a wide swath intercepts 70-100% of sunlight). Light keeps the leaf stomates open longer, so moisture can leave through leaf openings. (Most of the forage in a windrow is in the dark so leaf stomates close to seal leaf between surface wax layers).

Table 1 shows the losses that can occur due to making a windrow rather than a wide swath. Data indicate that starch and sugar loss can range from 2-8% of dry matter. If we assume a median starch/sugar loss of 4% of dry matter due to hay in a windrow compared to a wide swath, then the dry matter economic loss is \$6.40/ton, according to current hay prices in the Midwest for large square bales. However, the respiratory losses of starch and sugar also increase the fiber content of the forage. If the forage was near 40% NDF (prime hay/haylage) when cut, then the 4% starch loss will increase fiber 3.4 units and lower the quality to Grade 1 hay (125-150 RFQ). Grade 1 hay is currently selling for \$38/t on less than Prime hay. The value to dairy Producers is about twice the price differential between hay grades.

Many farmers have switched to making wide swaths when mowing. A wide swath is the single most important factor affecting forage drying rate; it is more important than conditioning. Farmers who continue to put hay into windrows are increasing drying time and risk of rain damage. They are also currently losing about \$44.40/ton due to yield and quality losses from increased respiration. Considering this dollar loss, most farmers could figure out a way to make wider swaths with their existing equipment; they should also look at wide swath mowers when replacing mowing equipment.



**Table 1. Forage Losses Due to Respiration**

Dry matter loss	2%	4%	8%
	Economic Loss		
Hay value \$150/ton	\$3.00	\$6.00	\$12.00
Hay value \$186/ton <sup>1</sup>	\$3.20	\$6.40	\$14.88
Forage quality of Prime (>151 RFQ) hay			
ADF, %	NDF, %	RFQ	Value \$/ton
30.0	40.0	153	\$186 <sup>1</sup>
--Forage quality if lose 4% dry matter starch/sugar--			
33.0	43.4	134	\$148 <sup>1</sup>
Value of quality loss/ton			\$38
Value of dry matter & quality loss			\$44.40

<sup>1</sup>Hay price for large square bales from Midwest Hay Price summary, March 26, 2018.

## FARM MANAGEMENT

### Cash Rental Rates for Iowa 2019 Survey

The updated 2019 survey results was just posted at:

<https://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-10.pdf>

This and other farm management information is available at the Ag Decision Maker homepage

<https://www.extension.iastate.edu/agdm/>

## HEMP PRODUCTION IN IOWA LIKELY 2020

### Iowa's Hemp Law, Rules and Regulations Progressing

Now that legalizing hemp production has passed the legislature and was signed by the governor, IDALS will develop rules, regulations, licensing, etc. for Iowa. Hemp production will not be legal until these aspects are completed. IDALS currently has a Q&A website at:

<https://iowaagriculture.gov/hemp> The proposed regulatory plan and rules to apply for a hemp production license will follow at the IDALS website once developed.

## EVENTS

### June 12-13, Four-State Dairy Nutrition & Management Conference, Dubuque

The conference presents the latest research on issues concerning the dairy industry including feed efficiency, calves and transition cows. For details, go to: <http://fourstatedairy.org/index.html>

## **June 18-19, The 2<sup>nd</sup> International Conference on Precision Dairy Farming, Rochester, MN**

The conference offers many opportunities for learning and networking on dairy digital trends in the industry, robotics and sensors, veterinarian discussions on use of technology for dairy cow health monitoring, and a venture capital perspective from outside the dairy industry. For details, go to: <https://www.precisiondairyfarming.com/2019/>

## **June 20, Annual June Field Day at the ISU Southeast Research Farm, Crawfordsville**

Offered is a morning session for certified crop Advisors, and an afternoon session that is free and open to the public. For details, go to: <https://www.extension.iastate.edu/news/southeast-iowa-research-farm-plans-spring-field-day>

## **June 20, Annual June Field Day at the ISU Northern Research Farm, Kanawha**

9:30 to Noon with lunch served after. ISU Extension specialists will discuss weeds, herbicides, cover crops and current insect issues (i.e. soybean gall midge) in corn and soybeans. For details, go to: <https://www.extension.iastate.edu/news/northern-iowa-research-farm-hold-field-day>

## **June 26, Annual June Field Day at the ISU Northeast Research Farm, Nashua**

1:00 to 4:20 pm, free and open to the public. More details to be provided later, but the tentative agenda includes: Dennis Todey, Director of the Midwest Climate Hub; Angie Rieck-Hinz, ISU Extension Agronomist on industrial hemp production for Iowa; Stephan Gailans, PFI on oat grain production and cover crop seedling into V5 stage corn; Ed Zaworski, field crops plant pathologist from the ISU plant and insect diagnostic clinic.

## **June 27, Iowa Swine Day, Ames**

Speakers to address current issues affecting the industry, including: The status of and response to African Swine Fever; What makes a biosecurity program successful; Improving company culture; Precision pork production; Feeding the high-producing sow. For more information, go to: <http://www.aep.iastate.edu/iowaswineday/index.html>

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