

IOWA STATE UNIVERSITY

Extension and Outreach

CROP NOTES for May 15, 2016

Past issues of Crop Notes are posted at:

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

Iowa State University Extension Information for Northeast Iowa

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CLIMATE

4-inch Soil Temperatures and When to Plant Summer Forages

This cool spell has dropped soil temperatures into the low 50's (<http://extension.agron.iastate.edu/NPKnowledge/soiltemphistory.html>). No hurry to plant warm-season forages (*i.e.* Sorghum-sudan, Millet, Teff). It's best not to plant these until soil temperatures will no longer drop below 65F. On average the general occurrence for this is about June 1 give or take a week.

FROST

Corn & Soybeans

A very good explanation of potential frost injury to corn and soybeans is in the following article by Dr. Bob Nielsen, Purdue University "***Early Season Frost & Low Temperature Damage to Corn and Soybean***" at: https://www.agry.purdue.edu/ext/corn/news/articles.02/Frost_Freeze-0520.html The article also links to the following series of photos on frost injury and recovery in corn and soybeans: https://www.agry.purdue.edu/ext/corn/news/articles.01/Frost_Corn_Soy-0418_Gallery.html While Dr. Nielson is most concerned with air temperatures 28 or less, Dr. Jeff Coulter from the University of Minnesota provides the following information on why temperatures in the 30's could also cause some problems.

"Frost injury to corn: What to expect" by Jeff Coulter, University of Minnesota

Frost damage can occur when air temperatures are in the mid-30s on calm nights, as the lack of wind allows the transfer of heat from air near the ground to the air above, resulting in colder temperatures near the soil surface. In general, frost damage tends to be worse in low areas where cold dense air settles, near field edges where vegetation reduces the potential for heat transfer from the soil to the air above, and in fields where high levels of surface residue coverage limit heat transfer from soil. In addition, fields that were recently row-cultivated prior to cold temperatures are more susceptible to frost injury, as tillage dries the surface soil, thereby reducing the amount of heat and moisture that can be transferred between the soil and air.

To determine whether frost-damaged corn will survive, dig up plants and split stems to examine the growing point and the tissue directly above the growing point. Healthy growing points will be firm and white to yellow in color. If the growing point or plant tissue within 0.5 inches above the growing point is damaged, it will be watery and orange to brown in color, and the plant will not likely recover (Carter and Wiersma, 2006). In general, crop recovery tends to be greatest when frost occurs before the third leaf-collar stage or when only a limited amount of leaf area is damaged after the third leaf-collar stage, since recovery is influenced in part by the amount of energy reserves in the seed and leaf area for growth.

Yield loss due to early-season frost damage is influenced by the reduction in plant population and the severity of plant damage. In Minnesota, growers can expect yield losses of 5, 12, and 24% when the final plant population is reduced to 28,000, 22,000, and 16,000 plants per acre, respectively (Coulter, 2009). In addition to reductions in plant population, growers should consider the severity of frost damage on remaining plants. Research from Wisconsin found that

yield was reduced by 8% when all corn plants were cut off at the soil surface at the second leaf-collar stage, but that yield reductions were minimal when only half of the plants were cut off (Lauer, 2007). In addition to yield losses, frost damaged plants may reach maturity a few days later than normal.

Alfalfa

“Frosted Alfalfa” by Dan Undersander, University of Wisconsin

Alfalfa is tolerant of cold temperatures. To make the best management decision we must understand the growth and biology of alfalfa. A few alfalfa growth principles in mind:

- 1) Temperatures in the 25 to 30°F range may cause some leaf deformation for those leaves in early development stages but earlier and later leaves will not be affected.
- 2) Night time temperatures must fall to 24°F or lower for four or more hours to freeze alfalfa topgrowth. This means that temperatures at freezing or just below (28 to 32°F) will not damage the alfalfa. In fact, we can actually have snow with no damage to growing alfalfa.
- 3) The only way to tell if alfalfa is damaged from a cold night is to wait 2 to 4 days to determine if the leaves are wilted or blackened. Unless this damage is present there is no frost injury. Damage will occur mainly to the top of the growth since that is most exposed to the cold temperatures.
 - a. If leaf edges only are blackened or show signs of ‘burn’, damage is minimal with little to no yield loss and nothing should be done.
 - b. If only a few entire leaves are damaged but not the bud, yield loss will be minimal and nothing should be done.
 - c. If the entire stem top (some leaves and bud) is wilted and turns brown, then the growing point (bud) has been killed by frost and that stem will not grow any further except from axillary shoots that develop may develop at leaf junctures on the stem. The plant has not been killed and new growth will occur from developing crown buds. When entire tops are frosted significant yield loss will occur.
 - i. If the growth of frozen stems is too short to justify harvest, do nothing and new shoots will develop from crown and axillary buds. Yield will be reduced and harvest will be delayed while the new shoots develop.
 - ii. If the growth of frozen stems is sufficiently tall to be economic to harvest (14 inches or more), do so. There is no toxin in the frozen topgrowth and it will provide good high quality forage. Mow immediately and harvest as normal. Regrowth will be slow and some total season yield loss will occur. After harvest ensure that soil fertility is adequate for good growth. Letting the next cutting grow to first flower will improve stand condition.

Frost Injury Photos and Comments on Alfalfa from Previous Years

I attached a PDF with the photos and comments from frost events in 2005 and 2012. Both events had a nightly low down to 21°F, which was significantly colder than this morning’s low. Most fields recovered just fine from those two events including the new seedings.

ALFALFA

Making First Cut Decisions Using PEAQ

The PEAQ method (Predictive Equations for Alfalfa Quality) developed by the University of Wisconsin takes climate variations into account to roughly estimate relative feed value (RFV) of standing alfalfa in the field to estimate the best time to harvest the first cutting. ISU Extension is monitoring some alfalfa fields across Iowa using PEAQ, and posting these readings at <http://www.extension.iastate.edu/dairyteam/peaq/> You are welcome to follow the progress of these reports, but I strongly encourage you to use PEAQ in your own fields to best estimate first crop harvest to help target the quality of forage you wish to achieve. The PEAQ website includes a fact sheet that explains the method. A critical step with the PEAQ method is to understand that the reading from the field represents standing crop quality. You need to adjust this reading to account for harvest losses. Harvest losses equal about 15 RFV units for haylage, and about 25 RFV units for hay. Therefore, if you wanted to target 150 RFV alfalfa, it is recommended to harvest haylage when PEAQ measurements predict about 165 RFV for the standing alfalfa in the field; or to harvest hay when PEAQ measurements predict about 175 RFV for the standing alfalfa in the field. A PEAQ reading that I took yesterday from a field near Decorah was 185 RFV.

FORAGE SORGHUM

Weed Control

Over the last week I have received a few questions on forage sorghum. One is planting date, the other is weed control. Planting date was addressed above under “CLIMATE”. For weed control... in general, if we wait for soil temperatures of 65F, which is usually close to June 1, pre-plant tillage removes current weed competition and the warm-season forages like forage sorghum, sorghum-sudan, millet, and teff emerge quickly and are very competitive against potential weed problems, thus chemical weed control is usually not needed or recommended. However, if you have a field with known heavy weed pressure and/or pre-plant tillage is not an option; with forage sorghum there are some herbicide options available. The Penn State University Agronomy Guide Publication includes a weed control table for Grain and Forage Sorghum at: <http://extension.psu.edu/agronomy-guide/pm/tables/table2-3-1> Pay close attention to the “Crops” column to make certain the herbicide is labeled for Forage sorghum and not just Grain sorghum. Also pay close attention to the “Remarks” column to see which herbicides require the seed safener seed treatment (Concep or Screen) to be used at planting.

INSECTS

Alfalfa Weevil

I have not come across any significant alfalfa weevil activity at this time and many fields are within a week from beginning first crop harvest. It looks like alfalfa weevil will once again not be a problem. Although, for those that allow alfalfa to mature into bloom stage, it would be wise to continue scouting for this insect until you are closer to harvest time. Initial scouting can be accomplished with a sweep net to simply ID if there are any larva present. If so, then collect 30 stems at random and determine an average number of weevil larva per stem. Look closely at the top folded leaves on these stems as this is a favorable place to find very small larva. A threshold chart and larva photo is available

at: <http://www.extension.iastate.edu/CropNews/2015/0414Hodgson2.htm> In a nutshell, it takes about 2 larvae per stem average to be at a treatable level.

Black Cutworm

Current predictions for northeast Iowa are to start scouting around May 22. The recent ICM article provides the scouting date map, scouting information and thresholds to reach before considering any treatments: <http://crops.extension.iastate.edu/cropnews/2016/05/black-cutworm-scouting-advisory-2016>

Common Stalk Borer Control in Corn

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.



The main option remaining for this season to control this pest is to spray during larval migration. Spraying at egg hatch is still an option for the Allamakee County area.

1) Spray the grassy areas with an insecticide at **egg hatch**. Egg hatch starts ~575 DD (base 41, starting Jan. 1). Only Allamakee County is still within this DD window: <http://mesonet.agron.iastate.edu/cgi-bin/oa-gdd.py?year1=2016&month1=1&day1=1&year2=2016&month2=5&day2=15&base=41&max=86>.

2) Wait for **larval migration** from the grass to the corn at which to apply insecticide on the grass field border and the first few rows of corn. This begins around 1,300 DD (base 41, Jan.

1). We will track degree days and let you know when we approach this window. It often occurs around mid-June.

Hop Vine Borer – Control at Corn Emergence

There are a few fields, or rather spots within fields, in northeast Iowa that have a known history of Hop Vine Borer problems. This insect tends to stay in the same areas of a field year after year. If you have identified this as a pest in a part of a field in the past, the recommendation is to apply a pyrethroid insecticide at initial corn emergence (spike stage). For a photo of Hop Vine Borer larva, go

to: <http://www.ent.iastate.edu/imagegal/lepidoptera/hvborer/3936.79hopvineb.html> In a field, the above ground plant injury looks like it is wilted (Photo 1) or dead plants since this insect tunnels up from below the soil line into the crown of the corn plant (Photo 2) and damages the main growing point.



Photo 1



Photo 2

GMOs WITHOUT GOBAL APPROVAL

U.S. Grain Elevators Barring Some GMO Corn & Soybean Varieties

Be aware of what you are growing and where it can be delivered. Here's a recent article from AG Professional.Com on this issue: http://www.agprofessional.com/news/us-traders-reject-gmo-crops-lack-global-approval?mkt_tok=eyJpIjoiTm1Kak5qVmpNREppTTJNdYIsInQiOiJqXC9XencwQVk4VGd0YUpxRzg5d2VWSWdjZFNEQTdzUWHubEk4TXJTNUttR2FibWV6dFh5SElzaDIWWk9hamFtSDZRZzhlUFc5V2RVSnFSTTYxajd2cnBnNXh0cUJHZnExRmpkc0JWenhkQ3M9In0%3D

AQUAPONICS

Webinar to Showcase Aquaponics Systems

A series of webinars discussing aquaculture production will be hosted by ISU Extension Fisheries and Aquaculture Specialist D. Allen Pattillo. The 12-part series will be held on Zoom, with the first webinar taking place on May 18 at 2 p.m. The initial webinar in the series is called Aquaponics: How to Do it Yourself. Registration can be completed online at www.ncrac.org/webinar-registration Other topics in the series will include: dietary guidelines, retail and food service, social media marketing, the economic impacts of aquaculture regulations, biosecurity and FSIS catfish inspections. Aquaponics systems can be used either in home or commercial operations. Participants in the webinar series will better understand aquaponics production methods and systems, operational management and products. The realities of economic viability, food safety and environmental sustainability will also be discussed. Aquaponics provides producers an environmentally conscious way to produce and sell more U.S. farm-raised seafood.

PESTICIDE BUREAU

Sensitive Crops Directory - Update

May 12, 2016

Dear Iowa Sensitive Crops Directory Users:

We wanted to send you an update on the Department's negotiations with FieldWatch to create two new online platforms (DriftWatch and BeeCheck) for listing and viewing sensitive crop sites and apiaries. Negotiations continue, but all indications are that an agreement will be reached in the very near future. When things are finalized, FieldWatch has assured us they will work with us to move as much data electronically as possible to the new internet platforms. For those sensitive crops sites that may need a more "manual" approach to moving the data from the old site to the new platforms, FieldWatch will work with IDALS staff and producers to ensure all

site entry information is captured. We will contact you when the system is up and running and able to accept Iowa site information.

For those of you that haven't done so, you may still update and/or re-save your 2015 entries (making them current for 2016) in the Iowa Sensitive Crops Directory as it has existed in years past. That site is located

at: http://www.iowaagriculture.gov/Horticulture_and_FarmersMarkets/sensitiveCropDirectory.asp

A note on signs: We have decided to purchase and make available the Iowa “No Spray” signs again. After a review of the FieldWatch sign choices, we thought our version should still be an option for producers. If you would like to purchase signs from us, please print off the attached form, complete it, and mail it along with a check to the address on the form.

We want to thank everyone for their patience. When the time comes, we will do all that we can to expedite entries into the DriftWatch and BeeCheck platforms.

Paul Ovrom, Iowa Department of Agriculture and Land Stewardship
Wallace Building, Des Moines IA
515-242-6239

EVENTS

May 18, First of a 12-part Webinar Series on Aquaponics

Starts at 2:00 pm held on Zoom. This initial webinar in the series is called Aquaponics: How to Do it Yourself. Registration can be completed online at <http://www.ncrac.org/webinar-registration>

May 20 through Fall, Pasture-Walk Schedule for Southwest WI

<http://www.extension.iastate.edu/dairyteam/sites/www.extension.iastate.edu/files/dairyteam/2016%20Great%20River%20Graziers%20Crawford%20County%20Pasture%20Walk%20Schedule.pdf>

May 26, Estate and Transition Planning 101: The Nuts & Bolts to Get You Started, Community Center, Protivin

Starts at 6:00 PM, Melissa O'Rourke, Attorney and ISU Extension Farm and Business Management Specialist will present information in transition and estate planning. Key topics will include: property ownership, wills, federal estate tax, Iowa inheritance tax, gifting, trusts, healthcare planning, and gifting strategies. For more details, go

to: <http://www.extension.iastate.edu/chickasaw/news/estate-and-transition-planning-101-nuts-bolts-get-you-started>

June 7-9, A.I. Training, Dairy Center, Calmar

Three day, intensive hands-on class for those who wish to artificially inseminate their own cattle or gain experience to work for others. Class offered in partnership with Accelerated Genetics. For more information, go

to: https://nicc.augusoft.net/index.cfm?method=ClassInfo.ClassInformation&int_class_id=50583&int_category_id=0&int_sub_category_id=0&int_catalog_id=0&upid=10513646&ebid=11981069&ebslid=726640&eblid=165

June 9, Grassroots Grazing Program, Belle Plain

6:30 to 9:30 PM at the Belle Plaine High School. This is the first of a 3-part series for beginning graziers. All participants will receive a resource manual. The first session includes discussion on controlling feed costs, goal setting for individual grazing systems, and comparing various grazing programs. The second and third sessions will include pasture walks and additional meetings on dates determined by the participants. For more information, go to: <http://www.iowabeefcenter.org/news/GrassrootsGrazingBP2016.html>

June 15-16, Four-State Dairy Nutrition and Management Conference, Dubuque

This conference presents the latest research on issues concerning the dairy industry including feed efficiency, calves, and transition cows. For more information, go to: <http://www.extension.umn.edu/agriculture/dairy/learning-opportunities/four-state-dairy-conference/index.html>

June 17, Corn Silage Conference Webcast

8:15 AM to 4 PM. Free program for those that preregistered by Monday, June 13. The news release, brochure and registration form are at: <http://www.iowabeefcenter.org/events/huskercornsilageconference2016.html>

June 22-23, Farm Progress Hay & Forage Expo, Boone

Details are available at: <http://hayexpo.com/>

June 23, ISU Southeast Research Farm Spring Field Day

9:00 to Noon for a special program for Certified Crop Advisors.

1:00 PM start for the annual spring field day.

Details for both programs are available at:

<http://www.extension.iastate.edu/Pages/eccrops/meetserc.html>.

June 28, ISU Northeast Research Farm Field Day, Nashua

1:00 to 4:15 PM. The field day will emphasize soil and water quality. Speakers include Kristine Tidgren, Attorney from The Center for Ag Law and Taxation, who will give her insights on the latest legal issues on water quality. Rick Cruse, Professor of Agronomy, will share research information on the aspect of soil quality as it pertains to farming practices. Tom Kaspar, USDA-ARS, will provide the latest up to date information on cover crops for growers. Matt Helmers, Ag Engineer, will address accepted practices that improve soil and water quality and help reduce nutrient losses from farm fields. The program is free and open to the public. CCA's can receive 4 SW credits for a fee.

Iowa State University Extension and Outreach programs are available to all without regard to race, color, age, religion, national origin, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Director of Equal Opportunity and Compliance, 3280 Beardshear Hall, (515) 294-7612. Cooperative Extension Service, Iowa State University of Science and Technology, and the United States Department of Agriculture cooperating.

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