

CROP NOTES for April 9, 2019

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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WEATHER

Soil Temperatures

Nighttime air temperature lows throughout the rest of the week and weekend are still in the 30's. Nighttime lows need to warm up into the 40's before average soil temperatures manage 50F and increasing.

The [NPKnowledge](http://extension.agron.iastate.edu/NPKnowledge/) website provides a general estimate of state-wide average soil temperatures: <http://extension.agron.iastate.edu/NPKnowledge/>

For more detailed soil temperature information go to the [Iowa Environmental Mesonet](http://mesonet.agron.iastate.edu/agclimate/#soil04t) website: <http://mesonet.agron.iastate.edu/agclimate/#soil04t> then click on "Plot Time Series" and select a "Station" (i.e. Nashua), and click on "Make Plot" to get a 3-panel illustration of soil temperature,

air temperature, solar radiation, and soil water content. The 4-inch soil temperatures are graphed in panel 3.

The Iowa Flood Information System website also provides a network of automated weather stations that include soil temperature readings, <http://ifis.iowafloodcenter.org/ifis/en/> Go to the website, then click on “Launch IFIS”, then click on the Satellite figure in the upper right corner of the screen, then click on the boxes for “Groundwater wells” and “Soil moisture gauges”. Now you can click on any of the boxes in the Iowa map and pop up a screen with “Soil Info”, click on that and you get soil temperature readings for the last few days (guide your mouse to the 4-inch soil temperature line). Not all stations are in operation at this time.

ALFALFA

Some Winter Injury in Northeast Iowa

Its routine to rotate-out about 20% of the alfalfa stands every year. Older stands get too thin, but still provide an excellent N credit to a rotated corn crop only needing another 0 to 30 lbs. of N fertilizer for the crop. Sometimes the winter along with other management factors take a toll on alfalfa causing additional winter injury. This winter was no exception. Early scouting has found some issues listed below. In my broad-based scouting of alfalfa fields in northeast Iowa, in general (and I mean general), there was more alfalfa injury in Dubuque county, also with significant injury into Delaware, Clayton and Allamakee counties, with less injury into Fayette, Winneshiek and Howard counties.

Low Spots. With the very wet fall conditions and going into the winter with full soil moisture profiles, plus snow melt in spring, it’s not surprising to find dead plants in some low areas in fields. Some low areas are fine and some are not. It’s a matter of drainage and time. We all know alfalfa does not tolerate wet soils for too long of a time.

Heaving. The very wet fall conditions and going into the winter with full soil moisture profiles also enhanced the chance for frost-heave injury to alfalfa. In general what happens is the entire field heaves with the winter freeze (the same reason for sidewalk pavement heaving, or busting of shallow water pipes), then settles back down. Sometimes the alfalfa completely moves with the soil, and sometimes the alfalfa does not completely settle back down but leaves some of the crown exposed above the soil surface. If this happens too early in winter, the crown tissue will be killed by the cold winter temperatures (dead right plant in photo). If this happens late enough in winter/spring, the exposed crown may still survive for another season (left plant in photo), and as long as cutting height is above the crown. But the plant will winterkill next winter with the raised crown exposed to the winter temperatures.



Too Cold a Temperature Exposure. In some cases the crown/upper taproot could not tolerate too cold of a temperature exposure. Alfalfa tolerance to winter is complicated. It's rarely just one reason to lose a stand. Very wet fall soil conditions contribute to alfalfa not hardening-down as well as usual into the winter. So it's cold-tolerance is a bit less than normal. Additional stresses to this may seem minor but can make a significant difference. Factors like good variety winter survival rating and disease resistance, appropriate soil pH and fertility, age of stand (seedlings more susceptible to heaving while older plants more susceptible to cold injury), soil drainage, intensity of harvest schedule and leaving a good stubble height in fall.

Alfalfa stubble height in fall. While this factor doesn't seem to make a difference much of the time, its showing a strong pattern this spring. Many of the fields with winter-injured are fields without good fall stubble. Both cold injury to plants and heaving damage are more prevalent in fields that were cut short and late into the fall. This is the case for both young and older stands.

What to do? Fields are just starting to green-up now. Once there is a few inches of growth, it will be much easier to assess surviving stands versus localized spots for patch-work seedings, versus fields to keep for 1st crop then rotate, versus fields to just rotate.

Patch-Work for Winter-Injured Alfalfa Stands

This is one of those impossible topics, because it depends on any number of factors... degree of damage, location in field relative to the good areas, intended length of time to keep the stand (through 1st crop, just this season, two seasons?), forage package desired (haylage or hay, quality or quantity). But here's a few points to consider.

1. If inter-seeding spots with Italian ryegrass, consider it a one-season fix and use a ryegrass that does not head-out in year-one. These tend to have wider leaves and retain better quality since they do not head out. The following University of Wisconsin article discusses this further. <https://fyi.extension.wisc.edu/forage/files/2014/01/ItalRye-FOF.pdf>
2. I have heard through the grape-vine a recommendation to inter-seed Teff. This is a good quality warm-season annual grass that would work for two hay harvests, but since it is a warm-season species, soil temperatures should reach 65F before planting (typically not until late May in northeast IA). In order to get good regrowth after cutting, do not cut at less than a 4-inch height. An excellent reference on Teff is at: <http://teffgrass.com/>

3. Otherwise there is the “usual grocery list” of options, which are nicely discussed in this 2009 Michigan State University article:
https://www.canr.msu.edu/news/dealing_with_winter_injury_in_alfalfa_fields

Alfalfa Establishment

Its April. We can seed alfalfa as soon as the soil is fit.

- Seed-to-soil contact (press wheels or cultipacker) and seeding depth (1/4 to 1/2 inch) is crucial to getting a new stand off to a quick start. The 1/4 to 1/2 inch seeding depth is just as important for forage grasses (brome, orchard, fescue, timothy, etc.).
- When using oats as a nurse crop consider the following from the article “Oats as a Cover Crop for Alfalfa” <https://www.midwestforage.org/pdf/182.pdf.pdf> where the research showed “Highest grain yields generally result from oat seeding rates of 2 to 3 bu/ac. Highest forage yield for silage is a seeding rate of 1.5 bu/ac. There is generally no weed control advantage to seeding oats at more than 1 bu/ac.”

OATS

Seeding Rate

For grain and straw production, the general recommendation for seeding rate is to achieve 30 seedling plants/sq.ft. With typical tiller development of 2 tillers/plant plus the main stem, we should get 90 seed heads/sq.ft. at harvest. A ball park seeding rate recommendation to achieve this is 3 bu/ac. We would use half this rate if oats was a nurse crop for an alfalfa seeding to be harvested for silage, and reduce the competition against the developing alfalfa stand. More specifics regarding the general recommendation of 3 bu/ac is to consider actual seeds per pound and % purity and germination on the seed tag. Seeds per pound could vary by as much as 30% from variety to variety and circumstances affecting the growing season. To achieve 30 plants per square foot we would also consider using Pure Live Seed (PLS) in the calculations. $PLS = \% \text{ purity} \times \% \text{ germination}$ from what is listed on the certified seed tag. PLS plus the actual seeds per pound in the purchased seed bags are used to calculate a more specific seeding rate.

Seeding Date

Oats can be seeded anytime in spring as soon as the soil is fit for planting operations. However, alfalfa should not be planted until April (soil temperatures in the 40'sF). Oats planted after mid-April will usually yield less than for oats planted before that time. On average in Iowa, after mid-April the average yield reduction is about 10% yield per week, and after May 1 about 15% per week. The basic trend is that the earlier the small grains are planted, the better the test weight and yield. This is thought to be mostly in response to plants flowering prior to the hot part of summer.

CORN

Recommended Plant Population

On average, maximum grain yields in Iowa occur between 34,500 and 37,000 plants per acre (ppa), although there is significant variation across locations and years. This population range is 2,000-3,000 ppa greater than what was found in plant population research 5 to 10 years ago. However, when does the yield responsiveness to increased seeding rates plateau or stop? If we consider net return, we arrive at this point once increased seeding rates no longer cover the additional seed cost. On average, the best net returns occur with plant populations at harvest are

between 30,000 and 35,000 ppa. Not every seed that is planted develops into a plant. Our recorded losses from seeding to plant survival range from 4 to 7%. So, on average, increasing seeding rates by 5% will insure that the proper plant population is achieved. We recognize that plant survival depends on many factors and may vary from field to field. For organic corn production where no seed treatments are used, the University of Wisconsin recommends increasing seeding rates by 18%.

Abbreviated answers for corn GRAIN production on rate, date, depth and row spacing:

Rate: 34,500 and 37,000 plants per acre. Adjust rate for % germ and other field attrition factors.

Date: based some on calendar, but more so on soil temperature (>50°F and increasing) and field conditions fit to plant... calendar-wise (April 12 through May 2 in northeast Iowa) as we are now in the planting window for maximum yield potential, but the soil is not yet warm enough.

Depth: about 2 inches.

Row space: 30-inch rows still work well, but there is nothing wrong with narrower rows.

Abbreviated answers for corn SILAGE production on rate, date, depth and row spacing:

Date and Depth are the same as for corn grain production.

Rate: Increase by 10% over that recommended for grain will often maximize silage yields, but not necessarily quality and milk production per acre.

Row space: Narrow rows (*i.e.* 15-20-inch or twin rows) generally provide a yield advantage over 30-inch rows for corn silage production, but not necessarily an advantage for quality and milk production per acre.

Planter Maintenance Tips for 2019

ICM News article posted April 9 2019 at:

<https://crops.extension.iastate.edu/cropnews/2019/04/planter-maintenance-tips-2019>

Nitrogen Fertilizer Recommendation

Consider using the Corn N Rate Calculator to provide a practical baseline economic N rate, then begin your discussion of then fine-tuning the N rates for different fields, N placement, fall or spring applied, split application, with or without manure applied (fall or spring, surface or incorporated, type of livestock), etc. Go to: <https://crops.extension.iastate.edu/blog/john-sawyer/corn-nitrogen-rate-calculator-website-2018-update>

Anhydrous Ammonia Application and Timely Corn Planting

The following article "Anhydrous Ammonia Application --Spring 2019" discusses considerations with a tight window for AA application and corn planting.

<https://crops.extension.iastate.edu/cropnews/2019/03/anhydrous-ammonia-application-spring-2019>

PASTURE

Nitrogen Management

Grass-based pastures generally respond very efficiently to the first 40-50 pounds per acre of nitrogen (N). Bluegrass will continue to respond to N applications up to 150-180 lb./acre annually, but at a decreasing rate of response. Tall cool-season grasses (bromegrass, orchardgrass, tall fescue) respond to total season N levels up to 250-300 lb./acre, but at a

decreasing rate of response. The lower end of the N recommendation ranges listed below for grass-based pastures are considered modest and efficient. Timing of N applications listed below are generally most efficient for Early spring > Late summer > Late spring. Thus some may consider not to apply any additional N in Late spring, especially if rainfall is below normal. The other critical factor is efficiency of use of the forage. Can the livestock fully utilize the increase in forage production with N fertilizer applications? Can a portion of excess pasture be fenced-off for a spring hay harvest? Is the pasture fenced for rotational grazing to better utilize the forage, and manage regrowth cycles?

Kentucky Bluegrass

- Early spring (March and April) 60-80 lb./acre
- Late spring (May to early June) 30-40 lb./acre
- Late summer (August to September) 30-40 lb./acre

Tall, Cool-season Grasses

- Early spring (March and April) 80-120 lb./acre
- Late spring (May to early June) additional 40-60 lb./acre
- Late summer (August to September) additional 40-60 lb./acre

Legume-Grass Mixed Pastures

- If less than 1/3 legume, treat as a grass pasture
- If more than 1/3 legume, no nitrogen is recommended

Note for legume-grass mixed pastures, high or frequent applications of N, particularly spring N applications, will make the grass component of pastures more competitive and limit the amount of legumes in the mixture. To encourage a greater legume presence, use modest N rates and limit application to summer or fall.

WEEDS

Instructions

INSECTS

Common Stalk Borer Control in Corn – Option 1: Prescribe burn of grass bordering 2019 corn fields

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.



There are 3 basic options for controlling this pest. Option 1 tends to be the most effective if it can be done safely.

1) Right now, the over-wintering stalk borer eggs are on the dead grass residue bordering corn fields. A controlled burn of the grass will destroy most of the eggs. Take the proper precautions: (a) Don't burn if roadside crews have established native plantings in your road

ditches. (b) Be aware of roadside utilities (gas, electrical, communications) that could be damaged and you would be held liable. (c) Pay attention to ‘no-burn’ orders if windy or droughty conditions exist in the county. (d) Be careful of other trash in ditches (discarded oil or gas cans, broken glass, etc.). For prescribe fire planning and coordination, please read the following article: <http://www.extension.iastate.edu/smallfarms/spring-time-prescribed-fire-time-iowa>

2) 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>

3) Otherwise we can wait for either Common stalk borer egg watch or larval migration windows based on degree days, which I will report on when the time comes.

A Review of 3 Soil Insect Pests Associated with Spring Manure or Sod Rotation to Row Crop

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>

DISEASE

Soybean Fungicide Seed Treatments

Help sort which fungicide seed treatments control which diseases. Go to the efficacy ratings chart posted at the “I Will Take Action” website. This also includes foliar fungicides for soybeans. <https://iwilltakeaction.com/uploads/files/57229-16-ta-fungicideefficacycharts-2018updates-final.pdf>

EVENTS

May 4, Iowa Equine Day, Ames

A day of professional speakers and clinician for youth and adults at the Hansen Agriculture Student Learning Center. For program details go to:

<https://www.extension.iastate.edu/equine/iowa-equine-day-0>

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