Crop Update Newsletter Prepared By:
Todd Vagts, ISU Extension Crops Specialist
Serving northwest Iowa

IOWA STATE UNIVERSITY
University Extension

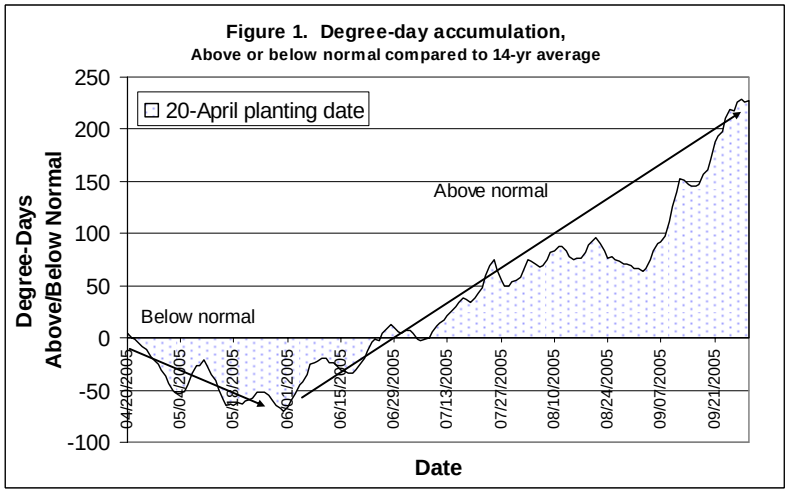
In this issue

Introduction

Fall harvest has been moving ahead rapidly with early yield reports on soybeans being very positive. Recent rain showers have slowed things down a bit, but I expect harvest activities to be in full swing once again by the end of the week. As the beans are harvested and if you have interesting insecticide or fungicide yield comparison data to share, please fill out one of the forms listed below. Taking a look back at the season shows why we saw early maturity in the corn crop, degree-day accumulations have been above normal since June 1. With the feel of fall in the air, frost and freezes and not far off. Follow the recommendations provided by Dr. Stephen Barnhart on grazing forages. The recent rain showers has increased the potential for soil compaction during harvest, just remember that the most damage to soil structure takes place on the first pass, so using managed travel routes is the best way to avoid field-wide compaction problems.

Crop Management

Degree-Day summary Now that most crops have reached maturity, we can look back at the season and review the accumulation of corn growing degree days. When we look back at the beginning of the growing season, accumulation of GDD was much below normal from April 20 to June 1. Then from June 1, degree-day accumulations were on an above normal trend through the end of the season as shown in the Figure 1 below.



Data Collection Harvest time is a period of data collection, particularly collection of corn and soybean yields. Of particular interest to me are comparisons between treated and non-treated areas of fungicide and/or insecticide treatments applied to soybeans to control either (or both) soybean foliar disease or soybean aphids. This information can be very useful in following years when making a decision to treat for a pest. Most importantly, the more data points available to make the decision, the better informed the decision will be. So if you applied a side-by-side treated vs. non-treated comparison on your farm, and would like to share your results, please fill out one or both of the following forms. I will take the data collected around the region and present it in this newsletter, hopefully showing trends that will help us make better informed decisions in following years.

Please find the "Treated vs. Non-Treated" printable PDF form at these URL's:
Soy aphid insecticide treatment form: http://www.extension.iastate.edu/nwcrops/Soybean-Aphid-Insecticide-Treatment-Survey-2005.pdf
Soybean disease fungicide treatment form: http://www.extension.iastate.edu/nwcrops/Soybean-fungicide-Treatment-Survey-2005.pdf

What is a killing frost? The first killing frost for Northern Iowa may come soon. Most row crops at this time have reached physiological maturity, so a killing frost should not have any impact on crop yield potential. But what constitutes a killing frost? For corn, soybean and sudangrass, temperatures at or below 28 degree Fahrenheit for several hours would be a killing frost. Alfalfa is generally more tolerant, being able to withstand temperatures to 25 degrees Fahrenheit without severe foliar damage.

Is frosted alfalfa toxic? (Information provided by Stephen Barnhart, ISU Extension Forage Specialist) Frost injured alfalfa, clovers, and the commonly used perennial cool-season forage grasses Do NOT have the potential to form hydrodynamic acid, are NOT considered toxic and can be safely grazed or harvested for hay or silage following a frost. There is probably a slightly higher bloat risk for grazed alfalfa and white clover the first few days after a frost. Follow normal bloat preventing grazing management when grazing alfalfa and clover.

Managing frosted sorghum sudangrass and sudangrass. (Provided by Stephen Barnhart, ISU Extension Forage Specialist) The potential for prussic acid poisoning and management suggestions are related both to the size of the plant when frosted and the extent of frost damage. Prussic acid, more correctly called hydrocyannic acid (a cyanide based compound) is formed in sudangrass or sorghum sudangrass hybrids which are severely stressed or frost damaged. The hydrocyannic acid develops within a few hours after the frost and usually dissipates within a few days.

The safest management is to remove cattle and sheep from frosted fields for several days. Livestock can be returned to frost injured sudangrass that is 18" or taller and sorghum sudangrass 30" or taller after about 3 or 4 days. If the grass was shorter than these heights when frost injured, withhold cattle and sheep for 10 days to 2 weeks following the frost to avoid problems. Then watch for new shoot regrowth, (tillers or “suckers”) on partially frost killed plants! Direct grazing of these fresh new shoots can be toxic too. Where new shoots appear following frost, avoid grazing until 2 weeks after the "killing" frost that kills the new shoots.

Aflatoxin in corn The potential presence of aflatoxin in corn grain may exist is areas with drought stress, primarily in the far west-central part of IA. Anytime corn experiences extended drought stress conditions and/or insect damage to the ear, there is a risk of Aflatoxin development. Aflatoxins are a group of chemicals (mycotoxins) produced by certain mold fungi, specifically *Aspergillus flavus* and *Aspergillus parasiticus.* These two fungi can be recognized by gray-green or yellow-green molds on corn kernels in the field or in storage. But don’t jump to conclusions to quickly; the presence of mold on grain does not necessarily indicate contamination of the grain with Aflatoxins.

For more information on aflatoxins in corn, refer to ISU Extension publication PM-1800
http://www.extension.iastate.edu/Publications/PM1800.pdf125

Soil and Fertility Management

Minimize the effects of soil compaction The impact on yield from soil compaction has been reported to be as much as 10 to 20 percent in unfavorable years. A major effect of soil compaction is the alteration of the soil's physical (bulk density, soil strength, and porosity) and the hydraulic (infiltration rate and movement of water within the soil profile) properties. Changes in the soil's physical properties alter the ratio of water to air in soil. Plant roots require air as well as water to develop a healthy root system. The main cause of soil compaction is field traffic from machinery. Soil compaction is most likely to occur when soil moisture is at or near field capacity. Under these conditions, aggregates can be "lubricated" by water and readily reposition themselves through the air spaces under heavy traffic.

Most soil compaction occurs from the first pass of the implement; therefore minimize field-wide compaction by using controlled traffic lanes. For example, avoid driving loaded grain carts randomly through the field. Check wheel and tire size and pressure. Larger wheels and tires allow better flotation, and lower tire pressures reduce the load on the soil. Increase the tire's "footprint" with larger wheel diameters. Spend the extra time with your implement and tire dealer to obtain proper tire size and set tire pressure, the extra time this fall may pay off quickly next year through higher yield potential soil conditions.
Source: Soil compaction may be cutting into your yield; ICM Newsletter 7/8/2002. Mark Hanna, ISU Extension Agricultural Engineer, and Mahdi Al-Kaisi, ISU Extension Soil Specialist

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For further information pertaining to this newsletter; please contact me or any of the county extension offices. This newsletter can also be accessed on-line at http://extension.iastate.edu/carroll/crops/newsletter_2004.htm. If you would like this letter to be emailed directly to you, please send an email with the desired email address to vagts@iastate.edu.

This newsletter is available via fax (in selected counties) or e-mail and can always be found on the web at http://www.extension.iastate.edu/nwcrops/newsletter_2005.htm If you would like to receive this newsletter in a format (different than what you currently receive), please let me know by phone (712-792-2364) or email (vagts@iastatte.edu).

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Todd Vagts
Iowa State University Extension
Field Specialist, Crops

1240 D. Heires Avenue Office: 712-792-2364
Carroll, IA 51401 Cell: 712-790-0351
Email: vagts@iastate.edu Fax: 712-792-2366
Web Page: http://extension.iastate.edu/nwcrops/

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