

## Minnesota SE Region Ag Newsletter

Volume 2, Issue 12

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### **Frost Web Page!**

The University of Minnesota Extension Service has established a “Frost” Web Page with resource information regarding what we are facing or soon might be facing. Look for information on weather, frost damage, making silage with immature crops, harvest and storage issues, feeding concerns and more. Check it out at: <http://www.extension.umn.edu/frostdamage>. Your comments, suggestions and needs would be welcome, and appreciated.

### **Welcome Ryan Miller!**

Ryan Miller has recently started as the Regional Extension Educator in crops at the Albert Lea Regional Center. His interests include commodity crop production and management, integrated pest and weed management, and economic and environmental risk reduction. Ryan has studied many aspects of weed management while earning two degrees at the University of Minnesota. He has also worked for Dow AgroSciences helping to test and develop new chemical and biotech products. Ryan is eager to meet new contacts in order to develop programming materials that address the needs of farmers in the southern region of Minnesota.

Please feel free to contact him at: Ryan Miller, Regional Extension Educator, University of Minnesota Extension Regional Center, 2360 Crossroads Boulevard, Albert Lea, MN 56007-4001  
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### **Weather Issues**

#### **How cold is it?**

I just got off of the telephone with a person who didn't really believe the news stories about frost and lack of heat units this season. Their point – are we overreacting? You be the judge.....

Growing Degree Days @ Rochester Airport, May 1 – Aug 25 = **1648 GDD**. **Precipitation = 22.5 inches** of rain. This compares to **1846 GDD** and **12.8 inches** of rain in **2003**.

The long term average GDD is approximately **1856** from May 1-Aug 25. Thus, we are about **208 GDD** behind average at this point, or about 2 weeks behind. However, Rochester is the hot spot. Much of the state is from **250-425 GDD** behind, and where frost hit hard, this doesn't matter much any more.

## Will the Crop Make it?

The historical growing degree day averages (1981-2003) for August and September are:

August =18 GDD/day; September =10 GDD/day. Table 1. shows the average number of heat units we will need from now until September 30 to reach maturity. This of course assumes that we don't get a frost before our average frost date of September 30.

**Table 1. GDD needed to reach physiological maturity (black layer).**

RM Corn Hybrid	Total GDD to reach black layer*	GDD's to reach black layer (Aug 25-Sept. 30)	Average GDD needed per day (36 days to Sept 30)
105	2530	882	24.5
100	2400	752	21
95	2240	384	19

\* GDD total is from corn emergence to physiological maturity or black layer.

Table 2. shows where the corn crop should be in a normal year and how many heat units it takes to reach each growth stage until maturity. Reaching dent stage by September 30 is achievable, and probably the most we can hope for this year. In an average season, we can expect to accumulate another ~400 GDD from now until September 30. That will put us at dent stage for 100 day corn (based on a May 1 emergence date). This is a critical stage, note Table 3. If we reach the dent stage, we have achieved about 77% of the total yield – light in test weight, but there will be some substance to the kernels.

If we are optimistic and it doesn't freeze until well into October, the picture will get brighter for both beans and corn. The weather always changes and these tables are based on averages.

**Table 2. Growth Stages for the Northern Corn Belt (100 Day Corn)**

GrowthStage	GDD's	Cumulative GDD's	Date	Comments
R1	52	1199	July 20	Silking – Pollination
R2	265	1464	Aug. 1	Blister Stage
R3	176	1641	Aug. 9	Milk (roasting ear)
R4	124	1765	Aug. 15	Dough
<b>R5</b>	<b>265</b>	<b>2030</b>	<b>Aug. 28</b>	<b>Dent</b>
½ Milk	194	2224	Sept. 10	Half Milk Line
R6	176	2400	Sept. 20	Mature – black layer

**Table 3. Percent of total yield produced if all corn leaves killed by frost**

Growth Stage	%Total Yield
Early Dent	68
<b>Dent</b>	<b>77</b>
Late Dent	85
Half Milk Line	92
<b>Mature</b>	<b>100</b>

### **So what about corn silage?**

In most years, we should be gearing up for corn silage harvest by the end of August or early September. Given the season and the fact that we are not even close to the dent stage, chopping corn for silage may not happen until the end of September. Note in Table 2 that it takes **2224 GDD** to reach the ½ milk line (100 day corn). There is a good possibility that we won't reach this before a killing frost thus, putting us into a difficult situation for making high quality silage. Note the articles that follow Table 4.

If you have fields that suffered frost damage and are considering chopping them for silage, pay close attention to the **whole plant moisture content** before rushing out to chop it for silage. The leaves may look dry, but the ear and stalk still hold a lot of moisture. Chopping when it is too wet will result in poor fermentation, seepage, and reduced feed quality. Note the moisture content of corn at each stage of development in Table 4, and the information in the following articles.

**Table 4. Approximate moisture of corn silage at different stages of development.**

<b>Stage beginning to form</b>	<b>% Moisture</b>
Ears beginning to form	85
Kernels beginning to form	83
<b>Early Milk</b>	<b>80</b>
Late Milk	77
Early Dent	75
<b>Kernels well dented</b>	<b>72</b>
Kernels hardened, leaves green	70
Kernels hard, few top leaves green	65

### **Harvesting Immature Corn and Soybeans for Forage After a Killing Frost**

By: Paul Peterson, Jim Linn, and Dale Hicks, University of Minnesota

Where frost injury occurred without complete kill, it is too early to consider forage harvest because additional yield and forage quality accumulation is likely from surviving plant parts. However, where these crops were/are completely killed by frost before reaching optimum grain or even forage harvest maturity, harvesting as forage is a viable option. Read the article at:

<http://www.extension.umn.edu/cropenews/2004/04MNCN23.htm>

### **Negotiating the Value of Immature Corn Silage**

By: Joe Lauer, Corn Agronomist, University of Wisconsin

Read more about this topic in the attached article by Joe Lauer. (will be sent as separate document)

### **Pay attention to Pesticide Labels when Harvesting Crop for Forage!**

Pesticide label restrictions - another important point to remember when harvesting immature corn and soybeans for forage – what does the pesticide label say regarding forage use! Be sure to double check pesticide labels BEFORE you harvest these crops for forage. Following is a link to most of herbicide restrictions, but ALWAYS double check the label – changes do occur and there are a number of herbicides that read DO NOT FEED OR GRAZE. Look on pages 22-28 and on pg 59 or the U of MN's Cultural & Chemical Weed Control of Field Crops bulletin for details.

<http://www.extension.umn.edu/distribution/cropsystems/components/DC3157.pdf>

## **Soybean Aphid**

Soybean aphid numbers are still at low levels in SE Minnesota. Levels detected this week in the Stewartville area were identical to last week's counts, however, still too low to represent a major threat (see table below). Aphids are so low in our trials at Waseca that we have stopped scouting. Bruce Potter has reported finding aphids on Buckthorn in the Lamberton area. We have escaped having to deal with aphids in 2004, and will plan on gearing up for 2005 when the time comes.

We will have some limited data on insecticide and seed treatment performance, and have high enough aphid numbers that we should be able to shoot the 3 aphid per plant threshold in the head. Watch for Aphid plot summaries following harvest.

### **2004 Soybean Aphid Timing Trial, Stewartville, MN. Dan Griffin Farm**

<b>Date</b>	<b>Percent Infested Plants</b>	<b>Number of Aphids per plant</b>
July 14, 2004	1	0.12
July 22, 2004	12	4.0
July 28, 2004	43	12.35
Aug 4, 2004	66	11.7
Aug 11, 2004	82	17.7
Aug 18, 2004	96	39
Aug 25, 2004	89	39

### **2002 Soybean Aphid Timing Trial, Houston, MN. Richard Snow Farm**

<b>Date</b>	<b>Percent Infested Plants</b>	<b>Number of Aphids per 10 Trifoliolates</b>
July 2, 2002	10	1.75
July 12, 2002	25	1.43
July 17, 2002	37.5	9.05
July 26, 2002	87.5	46.7
Aug 2, 2002	100	20.65
Aug 9, 2002	92.5	7.78
Aug 14, 2002	97.5	10.60

## **Soybean Diseases**

In our travels around the countryside, and in conversations with agronomists and farmers, several diseases are rearing their ugly heads in soybean fields. White mold is present in many fields. We have suspect fields with Sudden Death Syndrome east of the Hope area (will confirm next week) and we are seeing Septoria Brown Spot in fields. Jim Kurle, U of MN Plant Pathologist will be in the field with us next week to confirm what we are seeing and perhaps identify a few other diseases that are present. Learn more about soybean diseases at:

White mold - <http://www.soybeans.umn.edu/crop/diseases/whitemold/index.htm>

Sudden Death Syndrome (SDS) - [http://www.soybeans.umn.edu/crop/diseases/sudden\\_death.htm](http://www.soybeans.umn.edu/crop/diseases/sudden_death.htm)

Septoria Brown Spot - [http://www.soybeans.umn.edu/crop/diseases/brown\\_spot.htm](http://www.soybeans.umn.edu/crop/diseases/brown_spot.htm)

**We welcome your comments, thoughts, and additions by e-mailing Lisa at [lbehnken@umn.edu](mailto:lbehnken@umn.edu) or Fritz at [breit004@umn.edu](mailto:breit004@umn.edu)**

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