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## Field Update – Planting is Underway, Growing Degree Units

Planting is finally underway after a decent planting window last week allowed for seed to go in the ground in pockets of central MN. A majority of acres ready were coarse textured soils, while heavier silts/clays still needed more time. A couple rounds of precipitation will halt progress this week. However, favorable conditions are projected in the extended forecast, which will allow soils to dry and hopefully get back in the field shortly!

Location	GDUs Since May 1st	GDUs From Normal- 5/1	Projected GDUs- 7 Day
Albany, MN	46	-18	99
Wadena, MN	37	-13	77
Little Falls, MN	51	-13	100
Buffalo, MN	50	-19	113
Belgrade, MN	49	-20	98
Cambridge, MN	56	-14	111
<b>Average</b>	<b>48</b>	<b>-16</b>	<b>99</b>

\*Data collected from Pioneer.com GDU Calculator

Growing degree units (GDUs) are tracked throughout the growing season every year and are used to estimate growth progress through maximum and minimum daily air temperatures. How are we currently tracking for GDU accumulation? Overall, we are trending slightly behind long-term “normal” and similar to 2021. A majority of the GDUs have been accumulated since May 1<sup>st</sup>, which means we are still in a great spot to get the crop planted in a timely manner without missing out on many GDUs. Continue to monitor soil fitness between rain showers to prevent “mudding in” the crop to get your seedlings off to the best start possible.

## Combating Soil Crusting

A majority of acres are still waiting to be planted, but the intermittent rains followed by high air temperatures in the forecast can make ideal conditions for soil crusting to occur. Soil crusting creates challenges to emerging seedlings by making the 1-2 top inches of soil nearly impenetrable. What conditions make fields prone to crusting and how can it be managed?

- A combination of management practices and soil type can result in a higher likelihood to form a crust. These include: tillage, low OM%, low residue, and small aggregates in silt/clay soils.
- Heavy rain followed by high temperatures and sun can cause rapid drying. Wet soil particles can compact together and becomes sealed once the soil dries.
- Best management is through the use of a rotary hoe to fracture the soil and allow plants to emerge. Monitoring tillage depth is critical to avoid injury to emerging seedlings.
- Soybeans are often more susceptible to injury due to the proximity of the hypocotyl to the soil surface. Corn seedlings are less susceptible to damage via rotary hoe, but can “leaf out” underground if plants are unable to emerge.



*Soybean seedlings struggling to emerge through crusted soils. Photo: Mike Stanton, Michigan State University.*

## Alfalfa Weevils- Early Spring Threat

Alfalfa growth has taken off over the last week with the recent sun and heat! Since plants are starting to have more growth, it is a good time to start monitoring fields for insects. Alfalfa weevils have been reported in fields south of I-94. Current levels are low, but should continued to be monitored due to early onset. Identification, thresholds, and management suggestions are detailed below:

### Identification

- Alfalfa weevils overwinter as adults and lay eggs in the spring, which later develop into larvae.

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- Larvae are yellow to olive green in color during early stages and solid green with a white stripe and black head in later larval stages.
- The larval stage is the only stage that causes economic damage due to feeding on foliage, which leaves a skeletonized appearance.

### Threshold

- Most damage typically occurs towards late first cutting or second cutting. However, insect development is GDU driven so damage may be present earlier.
- The threshold is based on several factors including: insecticide cost, hay price, and alfalfa height. Higher probability of ROI from insecticide applications is expected with early larvae feeding and high alfalfa prices.
- Best method to determine infestation levels includes: 1) collect 30-50 stems throughout the field. 2) Shake stems into a 5 gallon bucket. 3) Count the number of larvae present.

Plant Growth Stage (Height)	Treatment Cost	Crop Value (\$/ton)						Management Decision
		\$50	\$75	\$100	\$125	\$150	\$175	
		Number of Alfalfa Weevil Larvae per Stem						
50% bud or greater								Cut early
Early bud (>20 Inches)	\$7/acre	4.0	2.7	2.0	1.6	1.3	1.2	Cut early, or use a short PHI/PGI product
	\$8/acre	4.6	3.1	2.3	1.8	1.5	1.3	
	\$9/acre	5.2	3.5	2.6	2.1	1.7	1.5	
	\$10/acre	5.8	3.8	2.9	2.3	1.9	1.6	
	\$11/acre	6.3	4.2	3.2	2.5	2.1	1.8	
Late vegetative (16 to 20 Inches)	\$7/acre	3.8	2.4	1.8	1.4	1.1	0.9	Use a short to mid-PHI/PGI product
	\$8/acre	4.4	2.8	2.1	1.6	1.3	1.1	
	\$9/acre	4.9	3.2	2.4	1.8	1.5	1.2	
	\$10/acre	5.5	3.6	2.6	2.1	1.7	1.4	
	\$11/acre	6.1	4.0	2.9	2.3	1.9	1.6	
Midvegetative (10 to 15 Inches)	\$7/acre	3.6	2.2	1.5	1.1	0.9	0.7	Use a long-residual product
	\$8/acre	4.1	2.6	1.8	1.4	1.1	0.8	
	\$9/acre	4.7	3.0	2.1	1.6	1.2	1.0	
	\$10/acre	5.3	3.4	2.4	1.8	1.4	1.2	
	\$11/acre	5.9	3.7	2.7	2.1	1.6	1.3	
	\$12/acre	6.4	4.1	3.0	2.3	1.8	1.5	



(Left) Economic threshold for 3<sup>rd</sup> and 4<sup>th</sup> instar alfalfa weevil larvae. (Above) Alfalfa weevil larvae. Photo: Patrick Beauzay.

### Management

- Insecticide Applications- Pyrethroid and organophosphate products can be effective. However, pyrethroids can kill beneficial insects so consider options that offer selective control. Factor in time to first cutting and pre-harvest interval if using an insecticide.
- Cutting Management- Early or timely mowing and collection can kill larvae due to lack of cover. Damage can still occur under windows so do not delay baling if possible.