

Agronomy Weekly Update

August 30th, 2021



Nick Schimek
Pioneer Field
Agronomist



CORTEVA
BRAND VALUES



Field Update- Rain Continues and Storm Damage

Central MN finally received successive rain showers in one week for the first time all season! Precipitation totals over the last 2 weeks have almost equated to the same amount received since planting. Of course, this won't be enough to really change the current crop conditions at this point in the season; however, the moisture is welcomed for filling kernels/pods, rejuvenating alfalfa fields, and replenishing the diminished soil profile. The temperatures are forecasted to cool down as well over the next 7 days, with the lowest weekly GDU accumulation since May. Currently, Central MN has accumulated 2355 GDUs since April 26th, which is ~371 ahead of normal.

Location	GDUs Since April 26th	GDUs From Normal- 4/26	Projected GDUs- 7 Day
Wadena, MN	2172	+434	100
Little Falls, MN	2341	+442	103
Albany, MN	2385	+391	106
Buffalo, MN	2434	+277	116
Glenwood, MN	2458	+399	118
Cambridge, MN	2342	+282	107
Average	2355	+371	108

*Data collected from Pioneer.com GDU Calculator 4/26 - 8/30



Unfortunately, a couple violent systems produced 60+ mph wind and golf ball size hail in pockets throughout the region. Crop recovery from storm damage will be minimal at this point in the season and the fields impacted the most will need to be prioritized for harvest once they have reached maturity. Read below for further detail regarding late-season wind and hail damage. Corn silage harvest started to accelerate to end the week and kernel milkline is approaching to 1/2 - 3/4 milkline. Corn fields left for high moisture and dry grain will need ~200 GDUs to reach black layer with normal development. Soybeans are approaching R6.5-R7 and starting to drop lower leaves. Fields are ~8-10 days away from full maturity and 2-3 weeks from harvest maturity once plants have reached R7 (one mature pod on the stem). As we turn the calendar to September, we'll start seeing a number of fields reach harvest maturity by mid-Sept.

Late-Season Wind and Hail Damage

The recent positive moisture trend has been a relief, but unfortunately the systems that brought the rain have also produced damaging winds and hail. The impact of wind and hail during vegetative stages will typically allow plants time to recover. However, there is not much time for correction once plants near maturity. So, what is the potential impact at this point in the season and what can be expected?

Hail Damage

- Primary damage will be from shredded leaves, bruised stalks/ears, and lodged/broken stalks.
- Defoliation from shredded leaves reduces photosynthesis, which slows/stops the engine of the plant.
- Bruising compromises the structural integrity of the stalk and can restrict translocation of nutrients/water. Direct damage to the ear can increase susceptibility to ear molds and reduce grain quality.
- Yield loss is estimated by % defoliation and loss of ears due to stalk breakage (if any). 50% defoliation at late dent is estimated to reduce yield by 5%, while 90% defoliation is estimated to reduce yield by 13% (National Crop Insurance Services, 2010).

Corn Stage	Percent Leaf Area Destroyed		
	30	60	90
Early Dent	2	13	27
Dent	2	10	20
Late Dent	1	7	13

Corn Loss Adjustment Standards Handbook FCIE-2508 (11-2009) 2010 and Succeeding Crop Years, National Crop Insurance Services.

Wind Damage

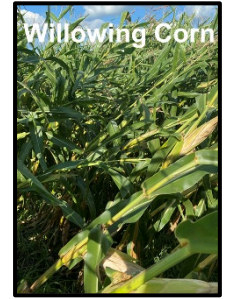
- Much of the wind damage from recent storms caused a "willowing" effect, which is where the plants lean but are not broken or laying flat. However, severe damage may have resulted in broken stalks, green crimp (folded stalk, but not broken), or completely flattened fields.

Nick Schimek's Contact Information

Phone: (507) 525-6297 Email: nicholas.schimek@pioneer.com

Twitter: @Nick_Schimek and @Pioneer

- Plants will not respond by straightening up at this point in the season because vegetative growth has ceased. Therefore, the focus shifts towards stalk integrity and harvestability of wilting, crimped, or flattened fields.
- Yield impact is not as well understood with late season wind damage. However, yield loss can primarily be attributed to premature plant death if the plant shuts down early, as well as mechanical loss during harvest.
 - Premature plant death results in a 12-15% loss and 7% loss at $\frac{1}{2}$ and $\frac{3}{4}$ milkline, respectively.



Top Dieback in Corn

The corn crop is progressing towards black layer and the plant has already started to naturally senesce leaves from the bottom and working upwards. However, some fields are exhibiting top dieback and senescing from the top, as well as the bottom. In years with severe drought and/or heat stress (such as this year), the plants struggle to maintain health during periods of soil moisture deficits and high transpiration before and during the grain fill period. This can cause leaves in the upper canopy to turn a gray-green color, followed by wilting, and eventual death prematurely prior to black layer. Fields exhibiting top dieback due to drought typically affects the whole field or large areas within the field.

Symptoms of top dieback can also result from insect damage such as European corn borer or Southwestern corn borer, as well as plant diseases such as anthracnose. However, infection via anthracnose occurs with wet weather early in the growing season (not common this season) and later expressed as top dieback in the upper canopy as plants near maturity. Top dieback caused by insects will typically affect random plants rather than a large area, while infection via anthracnose can be diagnosed by black lesions on the outer stalk tissue behind the leaf sheaths.

The impact on grain yield will obviously depend on how early in the grain-filling period the death of the upper leaves occurs.

