September 2nd, 2025 **NW IA Dealer Agronomy Update**

Corn Barreling Towards the Finish Line

Corn has certainly moved along with color and growth stage changes, even with the relatively cool weather we experienced last week. In some cases, this color change is premature due to lack of Nitrogen, diseases or lodging from previous windstorms. Helping growers identify these problem fields that may potentially have standability concerns will be important to help harvest go smoothly.

If Southern Rust has come on strong in your area, keep in mind that losing leaf area and shutting plants down early may affect the plant's ability to fend off stalk rots and lead to cannibalization of stalks. A few hybrids to watch that are rated weaker on Southern Rust are **DKC105-33/35, DKC56-65, DKC107-33, DKC108-17, DKC63-90/91 and DKC64-64/65**.

If these hybrids have not been sprayed with a fungicide, be scouting for stalk quality as we get into mid-September and be ready to harvest early if need be. Even fields that have been sprayed need to be monitored as the late onset of diseases have come in after the residual has worn off of fungicides in many cases.

Ear Fill on Lodged and Greensnapped Corn

Unfortunately, many areas this year have experienced extremely high winds throughout the growing season – particularly with the July storms. The effects of these storms are now becoming clearer as we get into ear fill. It is apparent that some of the lodged corn is struggling to fill ears. **There are a few factors going on 1) Roots have been sheared and physically pulled out of the ground not allowing as much moisture and nutrient uptake late season as normal 2) High winds have shredded leaves reducing the photosynthetic capacity of the plant and opening up the tissue for disease development and 3) Energy from these lodged plants has been spent trying to regrowth roots and straighten plants – thereby taking energy away from the developing ears.**

Many of these plants are shutting down prematurely, especially if they have disease present. Target these fields for early harvest as getting rain on these lodged plants will only make the stalk integrity worse.

Picture on the left shows ear from lodged plant with aborted kernels and smaller ear size.

Greensnapped plant on the right with the top broken off from a severe July wind – ear size and fill have been great affected.

Assessing Corn Yield Potential

Estimating corn yield potential can be helpful with harvest planning. Two main methods can be used to estimate yield potential at separate times during the growing season. Crop uniformity has a large influence on the accuracy of any estimation method. This year, many fields have tremendous variability within the field as well as within the row. Samples should be taken randomly throughout a field to provide the best yield estimate. One sample for every 10 to 15 acres should be enough unless conditions are variable. More samples should be taken in a nonuniform field to improve the accuracy of the estimate.

The corn yield component method and the corn ear weight method are two ways to estimate corn yield potential prior to harvest. Each method can produce yield estimates that are within 20 Bu/A of actual yield. Many factors, especially kernel depth, can affect the accuracy of the kernel count method.

Corn Yield Component Method

This widely used method can be used as early as the milk growth stage (R3). Estimating the yield prior to R3 is risky because stresses can affect kernel development and cause kernel abortion. This method is based on the assumption that grain yield can be estimated using the number of ears per acre, number of kernel rows per ear, number of kernels per row, and kernel weight. The first three components can be measured from field samples, but kernel weight is unknown until physiological maturity (black layer) and must be represented by a calculated factor. The average value for kernel weight (90) is derived using 85,000 kernels per 56-pound bushel (Table 1). **Some agronomists think that a kernel weight of 80 to 85 is a more appropriate factor for current use because kernel size has increased since this formula was first developed many years ago**.

Step 1. At each sample site, measure 1/1000th of an acre (Table 2). Do not sample abnormal ears, nubbins, or aborted kernels, and avoid dropped ears or ears on severely-lodged plants. Count kernels where there are complete rings of kernels around the cob and avoid counting kernels on the extreme ends of the ear.
Step 2. Count the number of kernel rows per ear on every fifth ear and determine the average.
Step 3. On the same fifth ears, count the number kernels per row and determine the average.
Step 4. Determine an estimate of yield potential per acre at each sample site by multiplying the number of ears by the average number of rows and the average number of kernels and dividing by 90 or the factor that best represents growing conditions (Table 1).
Yield (Bu/A) = (ear #) × (average row #) × (average kernel #)/90

Step 5. Repeat this procedure at a representative number of sample sites in the field. Calculate the average yield potential of all the sites to get an estimate of the yield potential of the entire field.

Table 1. Kernel number per bushel based on growing conditions during grain filling.[3]		
Growing conditions	Factor	Range in kernel number/bushel
Excellent	75-80	75,000-80,000
Average	85-90	85,000-90,000
Poor	90-105	95,000-105,000

Example: Harvestable ear count is 30. The average number of kernels per ear from every fifth ear is 511. Growing conditions were average (85). The estimated yield potential for that site would be 30 multiplied by 511 and divided by 85, or a 180 Bu/A estimate of yield potential.
Poor conditions during grain fill can cause lower kernel weights, resulting in an underestimation of yield potential with the yield component method. Conversely, it can overestimate yield potential if kernel weight is higher than normal, during superior growing conditions. Kernel size and weight can vary by corn product and environmental conditions, which can compromise the accuracy of the estimate.

Corn Ear Weight Method

This method should only be used after corn has reached physiological maturity or black layer (R6). This method may be more accurate than the corn yield component method because it is based on actual kernel weight. However, it does account for average shell out percentage.
Step 1. Sample several representative sites in a field. Count the number of harvestable ears in 1/1000th of an acre at each site (Table 2) at several random sites throughout the field. At each site:

a. Weigh every fifth ear and calculate the average ear weight per site.
b. Hand shell kernels from those ears.
c. Determine the average grain moisture with a moisture tester.

Table 2. Measurements to calculate number of plants in 1/1000th acre based on row width.[2]	
Row Width (inches)	Row Length for 1/1000th acre
20	26'2"
22	23'9"
30	17'5"
36	14'6"
38	13'9"

Step 2. Calculate the average yield potential at each site:

a. Multiply the number of ears by the average ear weight.

b. Multiply average grain moisture by the factor 1.411.

c. Add 46.2 to (b).

d. Divide result from (a) by the result from (c).

e. Multiply the result from (d) by 1,000.

Example: The number of harvestable ears is 24. Average ear weight of every fifth ear is 0.5 lb. The average grain moisture is 30%.
The estimated yield potential is [(24 × 0.5)/ (1.411 × 30) + 46.2)] x 1,000 = Bu/A.

Estimating Soybean Yield Potential

Trying to get a good estimate on soybean yields is more difficult and can be very time consuming. Number of pods and seeds/# are a couple variables that are challenging to gauge. The link below has a calculator developed by the University of Kentucky for soybean yield estimation:

https://www.bigyield.us/soybean-yield-calculator/

Silage Harvest

Silage harvest has been going strong in some areas. **The chart below shows how timing of harvest effects yield and quality:**

Maturity stage	Moisture (%)	Dry matter yield (T/A)	Crude protein (%)	NDF[1](%)	Digestibility
Early Dent	73	5.6	9.9	48.0	79.0
1/2 Milkline	66	6.3	9.2	45.1	80.0
3/4 Milkline	63	6.4	8.9	47.3	79.6
Black Layer	60	6.3	8.4	47.3	78.6

[1] NDF = neutral detergent fiber
Source: Wiersma and Carter, University of Wisconsin

Recommended moisture contents for corn silage stored in various types of silos:

Silo type	Recommended moisture content (%)
Upright silo	60-65
Upright "oxygen-limiting" silos	50-60
Horizontal silos	65-70
Bag silos	60-70

What is Crown Rot in Corn and How is it Different Than Stalk Rot?

Last week we covered how to assess standability and various stalk rots in corn. This week lets dig into Crown Rot. Crown Rot is a complex disease affecting corn. It is primarily caused by various species of the fungus Fusarium but other pathogens like *Colletotrichum graminicola* (the fungus causing anthracnose) may also be involved. Current research aims to identify the specific species involved.

	Crown Rot	Stalk Rot
Causes	Primarily caused by various species of Fusarium fungi, but other pathogens like Colletotrichum graminicola (the fungus causing anthracnose) may also be involved. Stress in season is also a contributing factor.	Can be caused by several different pathogens, including: • **Fusarium stalk rot** (Fusarium spp.) • **Anthracnose stalk rot** (Colletotrichum graminicola) • **Physoderma stalk rot** (Physoderma maydis)
Infection Stage	typically occurs early in the growing season, often during seedling stages, when plants are under stress from environmental conditions (e.g., wet soils).	Generally occurs later in the growing season, often during the grain fill stages (R4 to R6).
Symptoms	• As the disease progresses, plants may exhibit grayish-green or frosted coloration and become known as "ghost plants." • Discoloration of the crown and roots, often dark brown or tan, is a key indicator.	• Symptoms include discoloration of the stalk tissue, which can appear whitish-pink to salmon for Fusarium, or shiny black blotches for anthracnose. • Internodes may become soft and discolored, and stalk strength may diminish, leading to lodging
Impact	Disrupts the flow of water and nutrients, leading to premature death and reduced yield potential.	Primarily affects the stalk, leading to lodging and yield loss, especially during harvest.

Ghosted vs Healthy plants. Ghosted plants may also have a grayish or frosted look.
Photo of crown rot UNL Tamra Jackson-Ziems

Managing Crown Rot

Research on how to screen for Crown Rot is still on going so for now, managing crown rot is focusing on managing factors that increase stress in the crop. This includes

- Enhance drainage through tile installation to mitigate wet soils.
- Prepare seedbeds through residue management to warm soils more quickly.
- Conduct soil testing and implement proper fertilizer management to ensure adequate nutrition for corn.
- Apply fungicides at the VT to R1 growth stages to improve overall plant health. This is a big player this year with all of the foliar diseases we have seen.
- Use appropriate below ground traits and insecticide (if needed) to manage CRW feeding that can lead to plant stress

Growing Degree Units

GDU accumulation continues to be running ahead for all the planting dates listed below. The table below shows the GDU accumulation from **April 11th – September 1st, April 23rd – September 1st and May 5th – September 1st** at different locations in Northwest and Central Iowa. These GDUs can be found on the following website – plug in your location and planting dates for GDUs specific to you. MRCC.

Location	4/11/25 to 9/1/25	30 Year Average
Rock Rapids	2492	2382
Bancroft	2387	2280
Le Mars	2592	2477
Fort Dodge	2463	2405
Denison	2590	2473
Ames	2721	2446

Location	4/23/25 to 9/1/25	30 Year Average
Rock Rapids	2394	2318
Bancroft	2302	2220
Le Mars	2488	2403
Fort Dodge	2374	2335
Denison	2492	2400
Ames	2634	2373

Location	5/5/25 to 9/1/25	30 Year Average
Rock Rapids	2292	2215
Bancroft	2214	2142
Le Mars	2387	2311
Fort Dodge	2278	2251
Denison	2387	2315
Ames	2518	2286

Additional Resources:

Track + submit progression of key diseases like Tar Spot and Southern Rust https://corn.ipmpipe.org/

Get alerts for insect migration and emergence with https://www.insectforecast.com/

Track GDUs https://mrcc.purdue.edu/tools/corngdd

Sign up to receive Bayer Crop Science Agronomic Updates

/// FieldView Support:
/// 888-924-7475 /// Knowledge Center /// YouTube /// Twitter

See the disease risk maps that are provided by a 3rd party exclusively for Bayer Crop Science.

Corn Disease Risk Maps
Soybean Disease Risk Maps

Picture of the Week

The sun is setting on another great growing season – with outstanding yield potential to be realized! Have a safe start to harvest.