

Northern Ohio Field Notes

March 16, 2023 John Schoenhals, Pioneer Field Agronomist

This week's Agronomy Update includes:

- Colors of Wheat in the Early Spring
- Time to Evaluate Wheat Stands
- Planning to Maximize Wheat Yield

Colors of Wheat in the Early Spring

It is common for many wheat fields in an area to take on a purple color, sometimes noticeable almost overnight.

Warmer, sunny days followed by cold nights (in the low/mid 20s) often trigger this. Wheat may appear more purple in wetter parts of the field. A closer look will show purple color concentrated at leaf tips. At this time of the year, "purple" wheat is most likely a result of sugar accumulation due to cool/saturated soils. This is a normal occurrence (as it is in corn in the early spring) and has not been shown to have any impacts on yield. As the weather and soils warm,

normal growth will continue (*note: true phosphorus deficiency also shows as purple leaves that do not get better over time, combined with stunted growth. This is not common*).

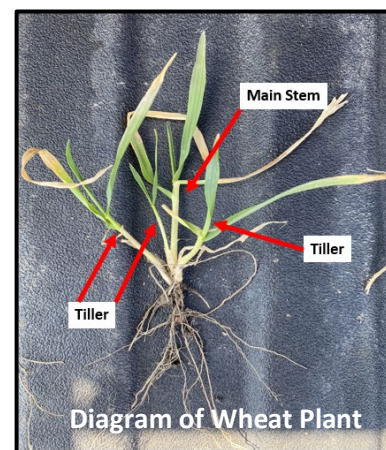


Wheat fields may also show brown (or "burned") leaf tips when cold temperatures are experienced. This is often more noticeable in early planted wheat fields with lots of vegetative growth. These fields often appear slower to "greenup" than later planted/smaller wheat, merely due to the amount of brown leaves that are visible.

Time to Evaluate Wheat Stands

The condition of wheat across the area is overall good, although wheat is generally smaller in size than in many years due to a dry fall/slow early growth.

Each wheat plant includes a main stem (which emerged first) and several tillers, which are additional stems that develop after emergence from nodes on the base of the main stem. Wheat tillers are established in the fall, and tiller development continues in early spring. Well-developed fall tillers are more productive than tillers that largely develop in the spring.



BOTTOM LINE:

- Optimal stands are **24-35 plants/ft²** with each plant including 2-4 tillers
 - 70-100 total tillers/ft² is desirable in the spring (not all tillers will produce a head)
 - 60-80 heads of grain/ft² is considered optimum to maximize yield
- Acceptable stands can be as low as **15-18 plants/ft²**, as long as **tiller development is expected to compensate** (early "greenup" nitrogen application is important to promote tiller development)
- Fields with an average of <15 plants/ft² are not worth salvaging
- Determine wheat stands by measuring the length of 1 row to equal 1 ft² (based on row width, see chart), and counting plants

How to Count Plants/Tillers per Square Foot	
Row Width (in.)	Length of Row (in.) to Equal 1 ft ²
6	24
7.5	19.2
10	14.4
15	9.6
20	7.2

Maximum Yield Practices

Nitrogen

- Applying N at greenup promotes early growth and tillering. **This is essential if there are less than 70 developed tillers/ft² in early spring.** However, high nitrogen rates on well-developed wheat at this time can promote too much early growth leading to a higher risk of lodging and disease.
- Nitrogen applied before the wheat needs it is susceptible to leaching and denitrification losses.
 - The bulk of wheat nitrogen needs should be applied just prior to jointing (Feekes 6: the growth stage at which the first node is visible above the soil), when plants begin to use nitrogen rapidly. Wheat needs aprx. 1.1-1.3 lbs N per bushel of grain (nitrogen rates should be based on previous management to avoid excessive lodging)

Early Spring Stems + Tillers per ft ²	"Greenup" N application
Under 50 (reduced yield likely)	40-50 lbs/A
50-80	30-40 lbs/A
Over 80	0-30 lbs/A

Sulfur

- To maximize wheat yields, **consider adding 15-20 lbs of sulfur** to your fertility program (as AMS or ATS), especially on soils with low organic matter and/or high sand content. Sulfur is an important nutrient to the plant, and can help improve nitrogen use efficiency

Managing Plant Height/Lodging Potential

- Palisade EC is a wheat plant growth regulator that prevents the production of gibberellic acid to slow down stem elongation (reduced plant height/reduced lodging)
 - Application timing: Feekes stage 6 (jointing). Later applications can reduce yield
 - Wheat that is under stress should not be treated with Palisade EC
 - Palisade can allow an aprx. 20 additional lbs. of Nitrogen to be applied if pushing yields

Weeds Control

- Control of weeds in early spring is important to prevent competition for moisture, nutrients, and sunlight
 - Be aware of wheat growth stage cutoffs specific to herbicides used
 - If planning to double crop / intercrop soybeans after wheat, pay attention to rotation intervals
 - Quelex (0.75oz/A) is an excellent product for control of annual weeds such as maretail, chickweed, purple deadnettle, etc, and allows double crop soybeans to be planted

Fungicide

- Fungicide applications in wheat can occur at 3 times (the highlighted timings provide most consistent returns). A two-pass fungicide program (flag leaf followed by head scab timings) can add bushels in a high management system.
 - Early foliar (aprx. When first node is visible above soil surface)
 - Flag Leaf** – overall plant health improvement, and protecting the flag leaf (which is responsible for a large amount of yield)
 - Approach Prima and others
 - Fusarium Head Scab** – application timing as wheat begins to flower to protect from Fusarium head scab/vomitoxin. This application also provides some late-season foliar disease protection
 - ONLY Prosaro, Caramba, Miravis Ace (products with a strobilurin component can actually make head scab/vomitoxin worse)

Spring Management of Wheat (nitrogen and fungicide timing)

