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Why is my Wheat Yellow?

This is a common question this time of year, which can include more than one right answer. Right now, wheat is between Feekes 8 to 10, depending on the variety, on when you are reading this article, and what part of the state you are in. This means the flag leaf has emerged and the head can be felt inside the boot, getting ready to emerge itself. Wheat is developing quickly at this point so it is moving through the stages quickly. It is also the point in which we are likely to see more issues, more deficiencies, and more diseases. So why is the wheat yellow? In this article, we will cover some of major issues that cause wide spread issues but there are a great number of localized specific issues that affect wheat this time of year.

Issue #1 – Nitrogen and Sulfur Deficiency

Nitrogen deficient wheat can cause full plant yellowing but usually lower, older leaves are more effected and can cause tip dieback. Sulfur deficiency causes a yellowing more evenly over the full plant. We are less likely to have sulfur deficiencies in our clay soils but is it possible in fields



Sulfur Deficient Wheat. Photo from Dr. Romulo Lollato

without sulfur applications. We have had nearly a perfect year for nitrogen and sulfur deficiencies to show up. We are setting records for rainfall this spring, so yellow wheat is to be expected for anything not top-dressed and even perhaps some yellowing in spots on field that were top-dressed, depending on rate and timing. There have really only been two time periods where top dressing has been possible, once towards the beginning of March and more

recently at the beginning of April. The April top-dressed wheat greened up quickly but some

lingering symptoms still persist. This might include some nitrogen burnt leaf tips in the lower canopy that won't affect yield.

Issue #2 – Poor Root Growth

In conjunction with nutrient deficiencies, poor root growth is likely and nutrient uptake is being restricted. As they say, wheat doesn't like wet feet, and with the delayed planting in the fall, low spots in fields have stunted yellow wheat even with adequately applied fertilizer.



Issue #3 – Mosaic Viruses

Soilborne mosaic and spindle streak mosaic are two very similar viruses that are carried by a fungus-like organism that can swim around in saturated soils and produce spores to infect wheat plant roots. As it needs water to move, this fungus is more problematic in wet years like this one. Infection is more likely in the fall and in low spots of the field. The best and really only defense to the mosaic viruses is resistant varieties. Infected fields are likely to show the splotchy yellow leaf symptoms in early spring during green-up and fade as daytime temperatures exceed 68 degrees. At this point in spring, visible symptoms are less likely in new leaves even as in yield in affected wheat is reduced.

Soilborne Mosaic. Photo from Dr. Eric Dewolf

Issue #4 – Barley Yellow Dwarf

Unlike the mosaic viruses, barley yellow dwarf starts to show up now when wheat moves into heading and southeast Kansas is where this virus is most common. It is carried by aphids, including the greenbug and bird cherry-oat aphid, and has a host range of nearly all grass species. Symptoms vary but commonly show yellowed leaves, often with the midrib staying green. It often occurs in 1 to 5 foot patches throughout a field but can cover an entire field in severe infections, though usually infection rates are overestimated. Control methods involve resistant varieties and controlling the aphids that carry the virus (including seed treatments). Wheat planted before mid to late October are more likely to be infected from the aphids that are still active. If infected this time of year, losses are usually minimal.

Issue #5 – Everything Else

All the other diseases and insects; there are a lot of reasons that cause wheat to yellow. Most insect damage will be localized and only a full outbreak of greenbugs or armyworms can slow wheat down at this point. The fungal diseases like rust and Septoria are likely this year but cause their own type of leaf infections, rather than a full field yellowing. With the flag leaf emerging, the leaf fungal diseases are about to become the main concern.

If your wheat is giving you trouble for mysterious reasons, please give me a call and I'd happy to come investigate. Also, let me know if you find evidence of any of the rust types. In this part of Kansas, we are often the front line for rust and the initial alarm for the rest of the state.

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