



YELLOW WHEAT

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Worries about yellow wheat are plentiful. There are several reasons why young wheat plants have a pale green/yellow color. Some of the common reasons for early season yellowing are:

- Temporary nitrogen deficiency
- Temporary herbicide injury
- Early tan spot infection

Other possible causes include Barley Yellow Dwarf virus or temporary micro nutrient deficiencies.

The nitrogen deficiencies can readily be identified as the symptoms are worst on the oldest leaves and start at the tip of the leaves, progressing towards the base as the deficiency gets worse. The causes of the N deficiencies are several, all which have common denominator, namely excess precipitation. Excessive rainfall causes:

- Leaching
- Denitrification
- Inability of the plants to take up available N

Leaching is a potential problem in coarser textured soils. Saturated soils/standing water will cause both denitrification and inability to take up available N. Denitrification is a microbial process and speeds up considerably as soil temperature increase. According to Univ. of Illinois data (Hoeft, 2004), denitrification losses are 1-2% if soil temperatures are less than 55°F, 2-3% when soil temperatures are between 55 and 65°F, and 4 -5% once soil temperatures exceed 65°F. As soils are saturated, the plant's roots also are unable to take up N - even if available. Often the crop recovers quickly if the growing conditions improve and the excess water has drained.

If the N deficiency is severe, a supplemental application of N as either urea (46-0-0) or urea ammonium nitrate solution (28-0-0) can be advantageous. Research by Russ Severson in 2002 showed that 40 lbs of supplemental N at the 4 leaf stage yielded 7 bu/A extra over the untreated check. As excess rain saturated soils

and yellowed the wheat crop that spring, he designed a small, replicated trial in which he looked at the impact of timing of supplemental nitrogen. The wheat followed corn. Prior to the supplemental N, the field had received 80 lb. N per acre as 82-0-0 and 50 lb. 18-46-0 per acre. The supplemental N was applied at either Zadoks growth stage 14 or Zadoks growth stage 60.

The early application of fertilizer N increased yield by 7 bu/A when compared to the wheat that did not receive supplemental N. The later application did not increase grain yield compared to the untreated check. Even at today's N prices that would be an economic return.

The cool and wet conditions have made some of the micro nutrients also less available to the plant. These symptoms are often first noted on the coarser textured soils. Again, George Rehm has chased this problem in the past and found that no single culprit was to blame. As soon as growing conditions improved, the symptomology would disappear.

The cool growing conditions have also made a number of our common small grain herbicides more prone to cause temporary injury. Especially the ACCase class of grass herbicides is more active with cool(er) growing conditions. This temporary yellowing will dissipate in one to two weeks after application with no effect on grain yield.

Early season tan spot infection can also cause the young wheat crop to turn a bright yellow. Especially young seedlings up to the 3 to 4 leaf are very sensitive to a toxin that is produced by the fungus. This yellowing affects the whole seedling. If tan spot is identified as the cause of the yellowing, an early season fungicide treatment is warranted. Half a labeled rate of any of our labeled fungicides – e.g. Tilt, Quilt, Stratego, and Headline - can be used to halt the development of the tan spot and allow the crop to recover.