Yellow Patches In Wheat?

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As wheat begins to move into stem elongation phase, you may be finding some yellow leaves on wheat plants and maybe some stunting. Some possible causes for general yellowing are excess water stress, nitrogen loss, or maybe a soil-borne virus. Some growers have asked about aphid damage, also.

Wet soils reduce the amount of oxygen in the soil which reduces nutrient uptake which results in decreased growth rate and yellowing in the lower leaves. Nitrogen loss can occur from excess water through leaching or denitrification. Nitrogen stressed leaves are generally yellow towards the leaf tips radiating down along the leaf mid-rib. Soil-borne viruses cause the lower leaves to have a general green-yellow mottling (mosaic) appearance and from a distance appear as yellow patches in a field. The two common soil-borne viruses are wheat soil-borne mosaic and wheat spindle streak mosaic. As far as aphid damage, in particular greenbug may cause yellowing at the feeding sights and the aphids will be present. Aphid vectored barley yellow dwarf virus can occur in fall or early spring with symptoms ranging from yellow, red or purple discoloration of leaf tips. This season symptoms observed on lower leaves point to wheat soil-borne viruses. According to Kentucky pathologist Don Hershman, soil-borne viruses have been prevalent this season.

Given time and dry weather wheat will recover from water stress as soon as oxygen levels are restored in the soil. Nitrogen loss can be determined by a tissue test just before or at jointing (Feekes 6) accompanied by a soil nitrate test of the top 12 to 24 inches of the soil profile. Wheat soil-borne viruses are transmitted (vectored) by a fungus (Polymyxa graminis) which is found in the soil. Varietal resistance or tolerance and soil drainage are two management practices that can help reduce potential impact of soil-borne viruses. Typically, soil-borne viruses will be in patches much like nitrogen loss or water stress because the fungus prefers wet soil. Given time and warm weather the wheat can recover. Fungicides will not provide control of viruses. Yield loss is dependent on severity of the disease in the field and how much of the field is affected. In mild cases yield loss may be undetectable. Fall infections are more of a concern. Viruses can be confirmed through laboratory test using enzyme-linked immunosorbent assays (ELISA).

Soil-borne virus in a Southeast MO field, March 2011

For more information on diseases in wheat or wheat management contact your local extension office and ask for IPM 1022 “Management of Soft Red Winter Wheat” or find it at the following link: http://extension.missouri.edu/publications/DisplayPub.aspx?P=IPM1022 . Δ

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