



Heat Canker and Frost Damage in Small Grains

May 25, 2006

Jochum Wiersma, Small Grains Specialist

This is a near verbatim copy an article with the same title published on June 3rd, 2002. The title of this short article may seem a paradox, but leave it to a Minnesota spring to create both problems within a few days from one another. Over the weekend, night frost may have damaged some fields in northwest Minnesota. Fortunately, for spring wheat and barley the damage is cosmetic and will not require replanting. The reason for this is as simple as it is elegant. The tender growing point, from which all leaves and eventually the spike is produced, is insulated and protected by the soil. Up to the 5-leaf stage, the growing point is located at the crown at ± 1.5 inch below the soil surface. The crown is easy to recognize as a hard knob from which both roots as well as leaves start. This evolutionary adaptation to keep the growing point hidden and protected from the elements is precisely why small grains fit so well in this area. The damage to the emerged leaves is nicely depicted on page 81 of the second edition of the Small Grains Field Guide. The affected leaves appear burned and have died back. New growth should not show any symptoms.

The last couple days also gave dry sunny weather with high winds. This exposed young seedlings to a second abiotic stress. The cool nights in combinations with daytime heat and drying winds has caused heat canker. The tender young tissue at the soil surface basically has been 'cooked' and this appears as a yellow band that is slightly constricted. As the leaf continues to grow, this yellow band (1/8 - 1/4") moves upward and away from the soil surface. If the hot and dry weather last for more than a day, repeated bands should become visible. The damage is nicely depicted on page 81 of the second edition of the Small Grains Field Guide. Because of the high winds, the tips of leaves may break off at the yellow band and give a field a very ragged appearance. As with frost damage, damage from heat canker is temporary and should not affect further growth and development.

The University of Minnesota, including the University of Minnesota Extension Service, is an equal opportunity educator and employer. Copyright 2006 Regents of the University of Minnesota. All rights reserved.