Crop weather

Rainfall, air and soil temperatures, degree-days, soil moistures, and other current and historical weather data for a little spot about two miles west of Lamberton, MN can be found at the University of Minnesota Southwest Research and Outreach Center (SWROC) website:

http://swroc.cfans.umn.edu/WeatherInformation/index.htm

Frost

In spite of the low temperatures reported on the internet, there was scattered frost in SC, SW and perhaps other areas of Minnesota early Saturday morning 9/13/2015. A few degrees colder and things could have been much, much worse. There appeared to be another light frost in some areas this morning.

The Southwest Research and Outreach Center area avoided frost; perhaps partially because of the recent 3.5 plus inch rainfall and saturated soils. A windshield survey along US 14 from Owatonna and as far west as Lamberton showed spotty damage to corn, soybeans and late sweet corn. I have heard reports of frost as far southwest as Murray County.
Damage varies greatly by geography, crop genetics and particularly elevation and crop stage of development. Neighboring fields can show great differences in injury. Compared to a widespread freeze were everything dies, light frosts like this one show all the subtleties and interactions of physics and plant physiology.

Yield losses will be harder to predict because in most cases the whole plant was not killed.

Some late planted sweet corn took the frost hard while other nearby fields had no or minimal damage.

Soybean damage ranges from the top few leaves to upper half of the plant suffering leaf loss. Don't hold me to this as I have not been in every field. Expect smaller seed as a result heavily frosted fields. Seed quality will be affected.

Most injured corn has had only the top few leaves affected. Most will have slight, if any, yield loss. I did notice whole plants killed at the edges of some fields. Some corn will be lighter in test weight with some of the very worst fields possibly slower to dry down. Look at corn development stage and percent defoliation by frost as determinates of any yield loss.

While crop genetics may appear to be important in the amount of frost injury - make sure that it is not just crop maturity differences that correlate to frost injury. Additionally, corn and soybean stem pathogens, particularly corn stalk rots and may be a factor in the amount of injury. At least that is what I think I might be seeing. I would appreciate your observations on the latter.

As soybeans begin to die (senesce), pod and stem blight fruiting structures are beginning to appear on stems. These structures eventually form tiny black bumps lined up along the stems.

Early symptoms of pod and stem blight
More diffuse lesions as shown could be stem canker or charcoal rot but are more likely anthracnose since as they are scattered on stems. If anthracnose, scattered black structures will appear as the stem tissue senesces. Anthracnose is most visible with wet conditions and delayed harvest.

Symptoms can be confusing. The pathogens in these photos will be determined by the University of Minnesota Plant Disease Clinic. Instructions for submitting samples can be found at (http://pdc.umn.edu). I'll let you know if anything else is found here.

**Corn rootworms and other insects** The frost had minimal impact on insect survival and yes, we still have emergence of corn rootworm adults occurring. This cold snap should move the last soybean aphids to buckthorn.

Happy trails,

Bruce Potter
IPM Specialist SW MN

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