

Stress Continues for Corn Growing Under Refrigerated Conditions

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My contention earlier in the week (Nielsen, 2005) that little crop injury resulted from the low temperatures on the morning of 24 April has been tempered by what appears to be minor injury to exposed corn leaves during the clear-sky early morning hours on 25 April. Even though air temperatures dropped no lower than the mid-30's Monday morning, the sky was clear and the winds calm for at least 3 to 5 hours, setting the scene for minor frost and radiational leaf cooling. The latter event is the commonly attributed cause of the so-called "silver leaf" symptom more frequently observed on older corn (Nielsen, 2004).

The leaf damage that occurred Monday morning to emerged corn was not life threatening to the plants by itself and I am confident that most affected fields could recover satisfactorily with good growing conditions. However, the continuing cool (and often cloudy) weather this week has slowed overall crop development (including leaf expansion from whorls) and has changed previously green plants to a putrid yellow-green color. Coupled with minor injury to exposed leaves earlier in the week, the upshot is that fields that were appealing to the eye nearly a week ago can most politely be described now as "crappy".

Some growers are justifiably concerned about the prognosis for these "crappy" looking fields that also sustained low levels of leaf injury to minor frost or radiational cooling. As is often the case with crops, the prognosis depends on the weather. Most fields would snap out of their doldrums upon a quick return to warm, sunny conditions. Continuation of cool, cloudy weather will further delay crop development as well as recovery from leaf injury.

Slow crop development following emergence also translates to slow establishment of the permanent nodal root system from the crown of the plants, thus lengthening the plants' dependence on the energy reserves of the kernels and increasing the consequences of exposure to other belowground stresses. Development of seedling diseases (Malvick, 2005) or insects feeding on the seed and mesocotyl (Steffey, 2005) prior to the successful development of nodal roots can be devastating to plant survival.

Don't rush to replant these "crappy" looking fields. The current cool weather will delay your ability to confidently assess recovery from leaf damage. Instead of waiting the usual

3 – 5 days to assess fields, it may take a week or longer. Furthermore, growers with corn acres yet to plant the first time around should concentrate on completing that task before replanting suspect fields. Before making a replant decision, consult my worksheet-formatted replant decision guide (Nielsen, 2003).

Related References

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Don’t forget, this and other timely information about corn can be viewed at the Chat ‘n Chew Café on the Web at <http://www.kingcorn.org/cafe>. For other information about corn, take a look at the Corn Growers’ Guidebook on the Web at <http://www.kingcorn.org>.

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