

Early Season Hail Damage And Corn Diseases

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Although rain has been scarce in many areas of Western Kentucky, some areas that have received rain have reportedly suffered hail injury. Some concern has been expressed about the impact of that hail damage on diseases. In general, I don't expect much increase in disease from hail damage at this stage of the growing season, but there are a few things to consider.

Bacterial diseases are favored by wounding. Thus, hail damage could increase damage from Stewart's wilt, a common bacterial disease of corn. The mild winter favored overwintering of the corn flea beetle. This is important, because this is where the Stewart's wilt bacterium overwinters. The flea beetle also is the vector of this bacterium, so more beetles means more risk. However, Stewart's wilt is generally found at very low levels in Kentucky field corn, because of breeding for resistance. So while I would be watchful for it, I don't expect major problems to develop, in spite of hail damage.

Goss's wilt is another systemic bacterial disease of corn which could possibly be enhanced from hail damage. While the disease has spread to the Corn Belt in recent years, it has not yet been detected in Kentucky. If it actually is present at low levels in the state, hail damage could cause an increase in disease activity, but I think this is a low risk presently. Neither Goss's wilt nor Stewart's wilt are controlled by fungicides.

As far as fungal diseases, the principle dis-

eases targeted by fungicides – gray leaf spot, northern leaf blight, and rusts – are not substantially favored by wounding. Infection by rust fungi would be lessened by wounding, since those fungi only infect healthy, live tissues. The gray leaf spot fungus penetrates the plant through microscopic stomates, so wounding probably does not favor that process, because it tears up intact leaf tissue. To my knowledge, infection by northern leaf blight is not significantly increased by wounding, either. Hail kills leaf tissue, and that necrotic tissue may serve as a food base for spore production by northern leaf blight, resulting in increased sporulation. However, that effect probably would be modest.

Supplementary labels of certain strobilurin fungicides may recommend their use to enhance crop tolerance to the effects of hail damage. However, the only critical studies of this phenomenon (from the University of Illinois) have shown no enhanced tolerance to simulated hail damage from a fungicide application applied at VT.

Summary

While I don't expect widespread problems, corn fields damaged by hail in the past few weeks should be monitored for the possibility of increased disease. At this stage, I know of no evidence that would support the application of fungicides on hail-damaged fields, unless those fields are already under a substantial risk of disease (for example, a susceptible hybrid under no-till, continuous corn). Δ

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