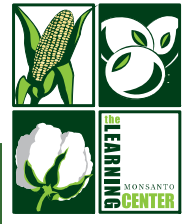


2010 Demonstration Report



THE LEARNING CENTER

at Scott, Mississippi

Effect of Frost and Hail Damage to Early Season Corn

Corn farmers in the Midsouth are occasionally faced with the issue of what to do after an early season frost or hail event. After damage occurs, management strategies will depend on the severity of the damage and the growth stage of the plants. The growing point of the corn plant remains below the soil surface until approximately the V5 growth stage. Generally, if the growing point is below the soil surface the young corn plant can recover from severe frost or hail damage, but damage such as withered or blackened leaves may occur to the aboveground plant parts.

Midsouth farmers rarely face severe frost damage when compared to their Midwest counterparts; however, it is still important to understand the risks and recommendations associated with cold spring temperatures. The colder the temperatures, the higher the potential for severe damage. Frost damage can occur at temperatures greater than 28° F, but air temperatures can become lethal when they fall below 28° F for more than a few hours.

Most of the Midwest data suggests that doing nothing after a frost may be the best option. As part of the Scott Learning Center's continued efforts to address agronomic issues for Southern farmers, a study was conducted to evaluate the impact of early-season frost and hail damage to corn yield potential in the southern cropping system.

Study Guidelines

In 2010, a study was conducted at the Learning Center at Scott, MS to evaluate the effect frost and hail damage may have on corn yield potential. In the trials, two corn products with different relative maturities (117 and 118 RM) were selected. Prior to the V4 growth stage, a simulated frost event was performed by removing all aboveground plant material with a string trimmer. To simulate hail damage, the string trimmer was used to strip foliage from the corn plants at V4 growth stage. Soil fertility, irrigation, and weed control remained constant throughout all plots.

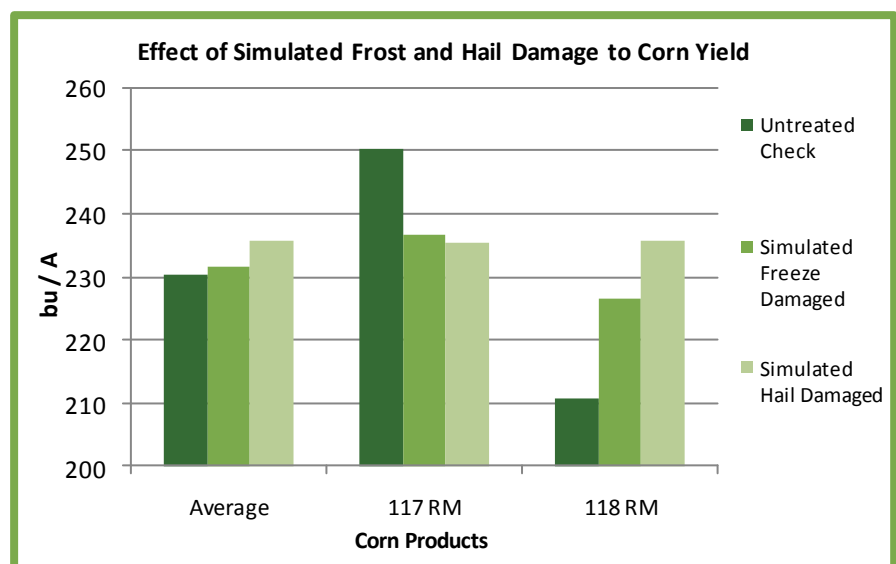


Figure 1. Effect of simulated frost and hail damage to corn yield.

Results

Results from the study showed different relative maturity corn products responded similar to frost and hail damage. When compared to the untreated check, both the simulated frost and hail damage treatments yielded equal to or slightly higher. When the corn products yields were averaged, the corn with simulated hail damage yielded the highest at 235.6 bu/acre. These data show that for the Southern corn grower

patience and thorough scouting is needed prior to making a replant decision. After severe weather damage, it is important for growers to take a stand count of the young plants that show evidence of recovery. To inspect the condition and height of the growing point, split the young stalk or stem vertically. A white or cream-colored growing point, that is still

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firm, means that the plant is recovering. Growing points that are darkening and soft are beginning to die.

Due to the typically longer growing season in Southern regions, growers may want to wait 7 to 10 days after a frost or hail event before evaluating the health of their corn stand. Frost damaged plants that recover may reach maturity a few days later than normal.

The information discussed in this report is from a single site, non-replicated, one-year demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.



Figure 2. Corn with blackened leaves, a symptom of frost damage.

Sources:

Bremer, J. E., C. D. Coffman, and S. D. Livingston. *Assessing hail and freeze damage to field corn and sorghum.* Texas Agricultural Extension Service. B-6014. <http://lubbock.tamu.edu> (verified 11/09/2010).

Elmore, R. and B. Douplik Jr. *Impact of early season frost (before V4) Iowa State University Agronomy Extension.* <http://www.iastate.edu/>(verified 11/09/2010).

Nielsen, R. L. and C. Ellsworth. 2002. *Early season frost and low temperature damage to corn and soybean.* Purdue University. [http://www.agry.purdue.edu.](http://www.agry.purdue.edu/)(verified 11/09/2010).



Figure 3. Frost damaged corn plants.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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