Corn Talk News

RESEARCH UPDATE

CORN TALK NEWS
PENNSYLVANIA MASTER CORN GROWERS ASSOC., INC.

CULTURAL PRACTICE EFFECTS ON STALK BREAKAGE OF CORN

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Stalk breakage or "greensnap" of corn has not been a common problem in Pennsylvania. During both 1994 and 1995, however, an increasing number of reports of greensnap have occurred around the state.

A recent study reported by Richard Ferguson, extension soil specialist with the University of Nebraska, has documented some of the effects of cultural practices on greensnap in corn.

During early July in both 1993 and 1994, winds in excess of 70-90 miles per hour were experienced at the University of Nebraska South Central Research and Education Center, where Ferguson is located. During both years, the windstorms caused stalk breakage in studies on and adjacent to the research station.

Ferguson collected stalk breakage information from a long-term N study on the station and a site-specific N application trial located on a production field near the station.

The data from the long-term N study provided insight into the effects of fertilizer N rate, N application time, and tillage method on the severity of stalk breakage. Breakage increased from about 10 percent with no N to about 40 percent at the 268 pounds/acre N rate. Sidedressing N compared to applying all N at planting reduced stalk breakage from about 50 percent to 15 percent in 1993 and from about 40 percent to 30 percent in 1994. Stalk breakage was also about 7-10 percentage units greater due to conventional tillage compared to no-till, which the researchers attributed to the slower early season growth in no-till.

In general, any factors that accelerated crop growth early in the season also increased the susceptibility of the crop to stalk N breakage.

The site specific study showed that there was a significant relationship between the soil organic matter level and stalk breakage. Areas of the field that had higher organic matter levels also had higher stalk breakage levels.

Often we prefer practices that encourage early season growth with the objective of attaining higher yields. Early season growth, however, is not always a good indication of yield potential as this study illustrates. Our experience in Pennsylvania shows that some fields, planted to hybrids with slow early season growth or those experiencing early season herbicide injury, are often not at a yield disadvantage compared to faster growing fields.

We have also measured this where excessive N rates are used in our studies; the corn grows faster early in the spring and is a darker shade of green but often yields less in the end. Consequently, adjusting some cultural practices to avoid excessive early season growth could be a help if stalk breakage continues to be a problem on specific farms in our area.

Pa. Master Corn Growers Association