Some wheat fields had rough winter

Planting dates and surface drainage have heavily affected area wheat fields this year.

The best fields were planted in late September to early October, and have adequate drainage. Fields that were planted in late October and/or have poor drainage have suffered from wet conditions most of the winter.

Late-planted wheat fields had little opportunity for growth before cold and wet conditions moved into the area last November.

Fall tiller production was limited because of early cold weather soon after planting. In addition, some wheat stands have been damaged this winter from lack of snow cover, standing water, saturated soils, ice sheets, and days of very cold temperatures.

In these situations, farmers have asked whether they should apply nitrogen earlier to increase the number of spring tillers. Keep in mind, it is fall tillers that provide most of the yield in a wheat field. Wheat spikes or heads from spring tillers generally are much smaller than fall tillers.

In northern climates, the vegetative period of growth is much shorter than in other wheat regions of the country. Thus, plants have a much shorter time to recover from winter damage.

Farmers generally have limited success in improving yields of poor stands, and stands with reduced growth, by applying nitrogen earlier.

A farmer may get a few more spring heads, but not enough to significantly change the yield situation. The earlier application will also significantly increase the risk of nitrogen loss.

Farmers may also change their nitrogen rate program for wheat fields that have winter damage or limited growth. Since nitrogen rates are based on expected yield, a farmer may reduce the nitrogen rate from the original plan if stands are thin or experienced winter damage.

Fields that have large areas of thin or damaged plants will yield less, and nitrogen rates should be reduced accordingly.

Wheat does not need large amounts of nitrogen until jointing, when the stems start to elongate and switch from vegetative to reproductive growth. This generally occurs the latter part of April. Soil organic matter and/or nitrogen applied at planting generally provide sufficient nitrogen for early spring growth.

Ohio State University research has shown no yield advantage for nitrogen applied before jointing. The longer the time between nitrogen application and jointing, the greater the risk for nitrogen loss.

The nitrogen source will also affect the potential for loss. Urea-ammonium nitrate (28 percent) has the greatest potential for loss, ammonium sulfate the least, and urea would be somewhere between the two other sources.

Ohio State University research has also shown that yield losses may occur from nitrogen applied prior to greenup, regardless of the nitrogen source. The level of loss depends on the year (losses would be smaller if the ground is not frozen or snow/ice covered).

This research did not observe a yield increase from applications made prior to green-up any year compared to green-up at jointing.

Keep in mind that green-up is a descriptive term and not a definable growth stage. My definition of green-up is when the new growth of spring has covered the dead tissue from winter, giving the field a solid green color — thus, growing plants.

There is a legitimate concern that wet weather may prevent application of nitrogen at jointing. Ohio State University research has shown a yield decrease may occur when nitrogen application is delayed until boot stage, the time just before the wheat head emerges from the stem.

A practical compromise is to top-dress nitrogen any time fields are suitable for application from after green-up to jointing. There is still a potential for loss even for applications at green-up. To lessen this risk, farmers may use a nitrogen source that has a lower potential for loss such as urea or ammonium sulfate.

ESN (polymer-coated urea) would be another option, but it needs to be blended with urea or ammonium sulfate to ensure enough nitrogen will be available for the crop between jointing and heading. The source of nitrogen becomes less important as the application date approaches jointing.

The percentage of urea and/or ammonium sulfate would need to be increased with ESN for application times closer to jointing.

Farmers may use a urea inhibitor with urea if conditions are favorable for volatilization losses, such as warming temperatures over 70 degrees, drying winds and no rain in the forecast for 48 hours.

A farmer may split the nitrogen application to reduce the risk of nitrogen loss and to improve nitrogen efficiency. However, Ohio State University research has not shown a yield increase from this practice compared to a single application after green-up.

If the nitrogen is commercially applied, the farmer would have to pay for two applications rather than one.

In a split system, the first application would be applied no sooner than green-up. A smaller rate would be applied with the first application since little is needed by the crop at that time, and the larger rate applied closer to jointing.

In summary, some wheat fields look rough coming out of the winter. Applying nitrogen earlier may slightly increase the number of spring heads, but probably not enough to significantly increase yields.

Optimal weather would be the best remedy for weak wheat stands.

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