Large Window Of Opportunity For In-Season Nitrogen

Applications To Corn Helps Reduce Cost, Increase Yield

SPRINGFIELD, MO.

The amount of nitrogen fertilizer needed to optimize corn yields differs significantly from field to field, and from one part of a field to another part, according to Jay Chism, agronomy specialist with University of Missouri Extension.

"The rush of spring planting, limited fertilizer supply and heavy rainfall may have reduced nitrogen below desired crop levels," said Chism. "That is why farmers need to use color as an indicator of nitrogen and possibly even apply in-season applications of fertilizer to corn."

In-season nitrogen application is a common practice for wheat, rice and cotton producers, but not so in corn production. However, as nitrogen prices increase, color-based nitrogen side-dressing for corn may become more common as a way to reduce costs but maintain a high yield.

In Missouri, the total use of nitrogen has remained constant, while crop yields have increased substantially. Farmers now apply about 1 pound of nitrogen per bushel of corn produced, down from the peak of 1.3 pounds per bushel in the 1970's.

"Fertility recommendations based on normal yield goals will produce desired production, even on years where conditions are excellent for corn growth," said Chism.

Conditions that are good for corn growth are also good for microbial activity that releases nitrogen from the soil. Soils tend to supply more nitrogen when weather conditions are conducive for plant growth.

However, excessive rainfall can leach necessary nitrogen from a corn crop.

Although last season's corn harvest was better that normal, Peter Scharf, state agronomy specialist with University of Missouri Extension, says many corn fields did not reach yield potential due to a lack of nitrogen from leaching rains.

"Crop color is a reliable indicator of how much nitrogen is needed in a corn crop. Using crop color as an indicator of nitrogen means that farmers may have to apply in-season applications of fertilizer if corn is lighter in color than it should be," said Scharf.

University of Missouri Extension research shows there is a large window of opportunity when it comes to timing in-season nitrogen applications.

According to Scharf, if fertilizer applications are made by the time corn is three feet tall, on average, there will be no yield difference.

"Maximizing yield is an important component of success. Continuing to watch crop color to determine if more nitrogen fertilizer is necessary may help increase the yield potential of corn crops in southwest Missouri," said Chism. Δ