



M & M Service Company



Bill Brink's Weekly Crop Report

September 29, 2009

Corn Nitrogen Rate Recommendations

Last week I gave a brief discussion on phosphorus and potassium fertilizer recommendations, so this week I will cover nitrogen (N), which is one of the major corn input costs, even though the price has come down considerably from last year.

Until several years ago, corn N recommendations were based on soil-specific and yield-based criteria and/or crop management variables such as crop rotation and manure application. The typical yield-based approach was to multiply a yield goal value by an amount of N removal per bushel, such as 1.2 lb. N/bu., to obtain a fertilizer N recommendation that could be adjusted for N contributions from other sources, like manure, previous legume crops, and soil organic N mineralization of the soil.

The yield-based approach to N recommendations was questioned for several reasons, primarily because of the high cost of N and the surprisingly poor relationship between recommendations and the economic optimum N rate (EONR) that has been observed over many years of N rate response trials by several universities in the Midwest. Poor performance of yield-based recommendations became apparent when data indicated that N fertilization needs at high yield levels seem to be somewhat less than the yield-based N recommendations. In other words, high yields were not necessarily indicative of high N fertilization needs, and this lack of relationship occurred for both corn-corn and corn-soybean rotations.

Therefore, instead of the yield-based system, the relatively new N rate recommendations are based on an economic analysis where the value from a yield increase by adding more N just matches the cost of that added N, which is the EONR. For a typical corn yield response curve to different N rates, the curve rises slower as N rate increases until it reaches a point with no more yield response to increasing N. The EONR is usually less than the N rate for maximum yields but will be the amount for the maximum economic yield. How much less than the maximum depends on the cost of N and the price of corn, and the more expensive N is, the more yield it takes to pay for the last pound of N, and, therefore, the EONR would be lower.

With that background information then, Midwest university scientists developed a new system of N recommendations called Maximum Return to Nitrogen (MRTN), which is the N rate where the economic net return to N application is greatest. Instead of a specific number, there will be a rate range that will give a net return within \$1.00/acre of the specific MRTN rate.

For example, given a corn-soybean rotation in central Illinois, ammonia price of \$425/ton (26 cents per pound) and corn price of \$3.50/bu., the MRTN (lb. N/acre) is 181, with a range of 164 – 200 lbs. actual N/acre. For corn following corn, the MRTN is 194, with a range of 175 – 212 lbs. actual N/acre. That means that if you apply a rate anywhere within that range, you should get a net return within \$1.00/acre of the specific MRTN rate and 99 percent of the maximum yield. Therefore, applications higher than that range, or to achieve 100 percent maximum yield, will not be cost effective.

Keep in mind the MRTN is a total actual N rate, which means you can credit or subtract from that total the amount of N applied from DAP or manure for the actual ammonia application. For example, 181 lbs. N needed – 36 lbs [from 200 lbs./ac. of 18-46-0 (DAP)] = 145 of actual N needed from ammonia or about 177 lbs./acre of anhydrous ammonia product.

If you have a computer and want this information, go to the following website: <http://extension.agron.iastate.edu/soilfertility/nrate.aspx>. For a shortcut, go to your search engine and type in “Corn Nitrogen Rate Calculator”. The calculator is interactive, which means you can enter your region, crop rotation, N price, and corn price.

If you want help in determining your MRTN rate, go to the website or contact your M&M crop specialist, and he will discuss it with you.

High Yields Being Reported

There has not been much corn or soybean harvested yet in this area, but according to yields that have been reported so far, many are equal to or even higher than last year. They are, of course, the earliest planted fields, and those that did not have to be replanted or patched in. Later planted fields are a big question mark, but some producers have told me they expect high yields in those fields also, if there is not an early frost.

Last week I reported an average yield of 233 bushels/ac. from a corn plot near Jacksonville. I saw results from another plot farther south that averaged 243 bushels/ac. with a yield range of 222 to 266 bushels per acre. Those exceptionally high yields indicate to me the tremendous genetic improvements that have been made in recent years.

Soybean yields I have heard, which aren't very many, are in the 50-55 bushel per acre range. Unlike several recent years, some producers will harvest a good portion of their soybeans before corn harvest.

It will be an interesting and challenging harvest!

Last Crop Report for the Year

This will be my last Weekly Crop Report for the growing season. Like last year, 2009 will be a year we will probably always remember because of the excessive rainfall, cool temperatures, late planting, and late harvest. Hopefully, producers can duplicate high yields like last year.

I have once again enjoyed another summer with M&M Service Company. It is a great organization, and it will help you with the exciting changes coming in the future. The crop specialists and other staff work very hard and always have the best interest of the producer in mind when giving advice and making crop input recommendations. I encourage you to regularly check their website at <http://mmservice.com> for the latest information on grain prices, plot yields, and other items of interest.

The excellent leadership of M&M, which includes Brad Klaus, General Manager; Mark Bauman, Agronomy Services Manager; other department managers; and the Board of Directors is working very hard to move the company forward and better serve producers in Macoupin, Montgomery, and parts of the surrounding counties. I am confident that will be done.

Have a safe harvest this fall, and I hope to see many of you again during the 2010 growing season.