

Spring N Applications: How Late Is Too Late?

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With the recent rains, many wheat producers have yet to apply spring N. Unfortunately, current weather forecasts predict that N applications may be further delayed. Given the high price of N fertilizer, many farmers are asking how much N should be applied and whether there

is a point at which it is too late to apply N to wheat. Feekes 7 (2 nd node visible) applications produced yields equivalent to and slightly higher than those at the Feekes 3 application. As N application was delayed, the amount of N needed for maximum yield decreased from 120 lb N/acre at Feekes 7, to 80 lb N/acre at Feekes 8, and finally to 40 lb N/acre at Feekes 9 (flag leaf fully emerged).

One additional problem with later than recommended N applications is volatilization. Volatilization occurs when urea is broadcast on the soil sur-

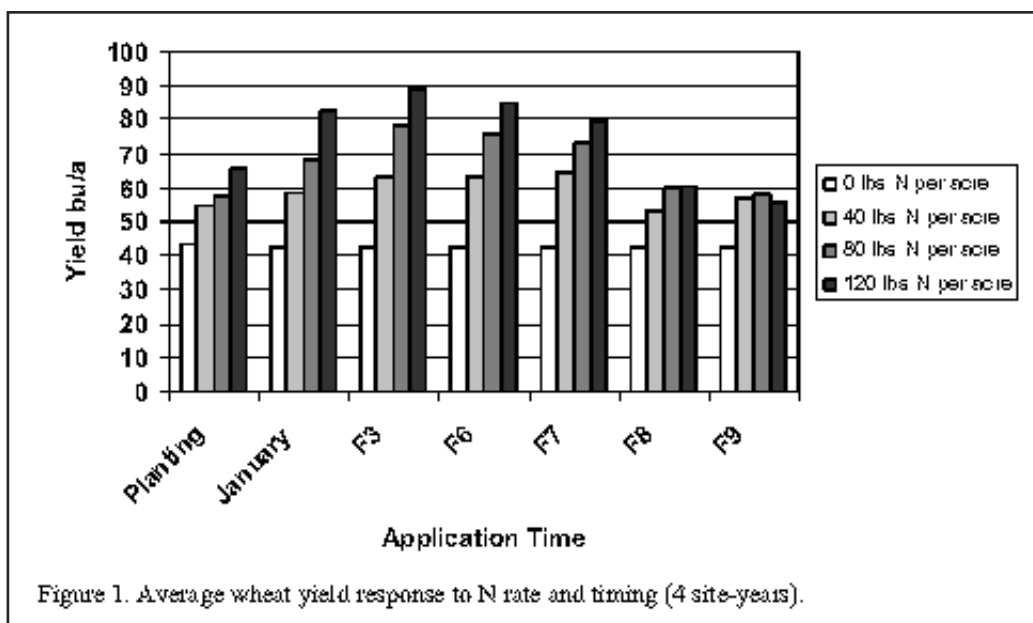


Figure 1. Average wheat yield response to N rate and timing (4 site-years).

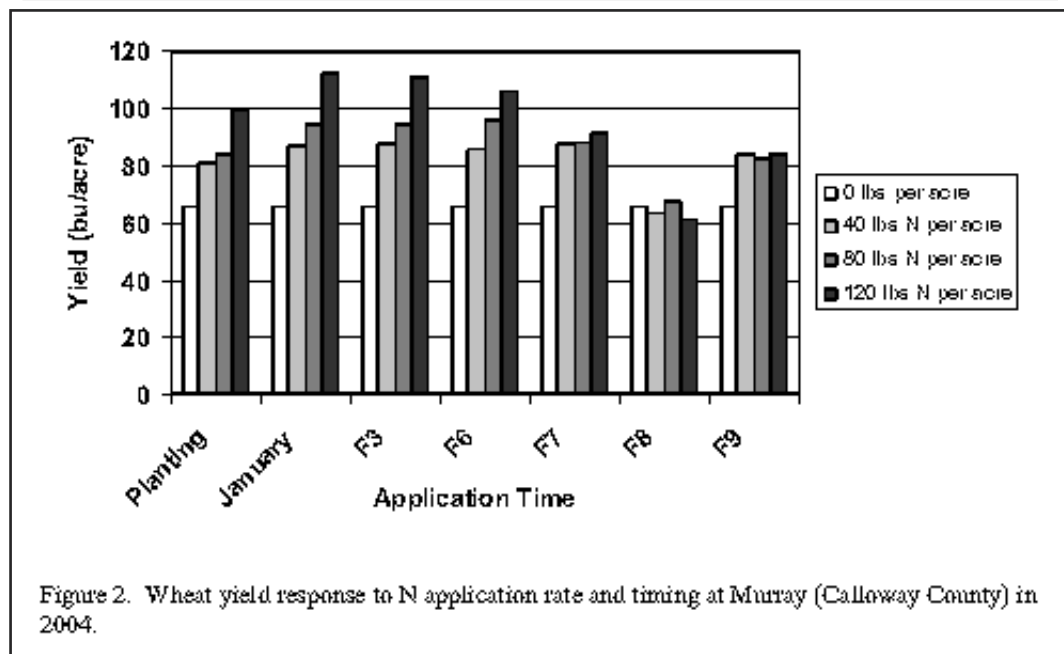


Figure 2. Wheat yield response to N application rate and timing at Murray (Calloway County) in 2004.

face and the potential for loss increases as soil temperature increases. At the Murray location in 2004, nitrogen applied at Feekes 7 and Feekes 9 appeared to be more effective than the Feekes 8 application (Figure 2).

Volatilization losses could explain this observation and may have been a problem with later applications at other locations as well. If conditions are very favorable for volatilization, you may consider using Agrotain to reduce the risk of volatilization loss.

In conclusion, it is definitely not too late to apply at least some N to wheat in Kentucky. The rate selected should depend on the growth stage of the wheat at the time of application. Δ

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is a point at which it is too late to apply N to wheat. In 2004 and 2005, Dr. Lloyd Murdock and I conducted a study which was funded by the Kentucky Small Grain Growers Association to answer these questions. The research sites were near Princeton and Murray in 2004 and near Princeton and Lexington in 2005. All sites were on soils that were less than well drained. Nitrogen fertilizer (urea) was applied at rates of 0, 40, 80, and 120 lbs N/acre at seven different times within the growing season from planting to complete flag leaf emergence. When averaged over the four site years, yield was highest when fertilizer was applied at the Feekes 3 (early green-up) growth stage. Delaying application beyond Feekes 3 reduced yields 3 of the 4 site-years on these soils. At fourth site (Lexington 2005), Feekes 6 (jointing) and

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