

## **FIELD-SCALE EVALUATION OF INNOVATIVE N MANAGEMENT SYSTEMS FOR CORN**

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Previous research has shown that N fertilizer need for corn can vary widely, both between fields and within fields. Producers, however, almost always apply the same N fertilizer rate to whole fields, and vary N fertilizer rates minimally if at all over whole farms. Matching N fertilizer rates more closely to N needs could produce both economic and environmental benefits. Our objective is to test a range of innovative N management systems for their ability to match N rate recommendations to N needs at a field scale. We conducted experiments at 3 locations in 1999 and 3 locations in 2000. Systems evaluated include current Missouri recommendations, preplant and sidedress soil tests, variable yield goal based on soil electrical conductivity, and sidedress N rates based on corn color measured in either aerial photographs or with a ground-based spectral radiometer. Optimum N fertilizer rate varied widely in some fields and much less in others. Systems will be evaluated based on both economic and environmental performance.

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