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## News Releases

**American Society of Agronomy**677 South Segoe Road • Madison WI 53711-1086 • 608-273-8080 • Fax 608-273-2021  
[www.agronomy.org](http://www.agronomy.org)  
[Twitter](#) | [Facebook](#) | [RSS News Release Feed](#)**NEWS RELEASE**Contact: Sara Uttech, American Society of Agronomy, 608-268-4948, [suttech@agronomy.org](mailto:suttech@agronomy.org)**Corn Color Can Tell Farmers How Much Fertilizer to Apply***There is potential to maximize corn yield with the smallest possible amount of fertilizer.*

**MADISON, WI, June 22, 2009** – Nitrogen fertilizer is a key ingredient for growing a good corn crop. It is not unusual for a well-fertilized crop to yield more than twice as much as an unfertilized crop. But how much nitrogen should corn producers apply to their crop? Researchers at the University of Missouri help answer this question in a study of how much light is reflected from corn plants reported in the May–June issue of *Agronomy Journal*.

One complicating factor is the wide range in how much nitrogen is needed. Researchers have known for a long time that the amount needed can vary widely from one field to another. Recent research has shown that the situation is even more complex: the amount needed often varies widely within a single field.

Attempts to develop tools to diagnose the correct amount of nitrogen fertilizer have had limited success. Expected yield is widely used as a basis for nitrogen fertilizer rates, but it has been shown to have such low accuracy that many midwestern universities have abandoned this approach.

The University of Missouri researchers measured how much nitrogen fertilizer was needed to optimize corn yield in eight farmer fields and related the amount needed in each field to the color of the corn in that field. "Color" was measured using a reflectance meter, an instrument that measures how much sunlight is hitting the corn plant in eight different wavelengths and how much is bouncing back off the plant. They found that the more light bounced off the plant, the more nitrogen fertilizer was needed. Similar results have been obtained previously with a hand-held meter that clamps onto corn leaves.

"Our results support the possibility of making decisions in an automated and convenient way," explains Peter Scharf, co-author of the study. "A reflectance meter can be mounted on a fertilizer applicator, diagnose how much is needed on the go, and direct the applicator where to put more and where to put less."

This type of approach has the potential to maximize corn yield with the smallest possible amount of fertilizer.

"We're trying to use technology to improve profitability while at the same time reducing off-site effects of nitrogen fertilizer on the environment," Scharf says.

The full article is available for no charge for 30 days following the date of this summary. View the abstract at <http://agron.scijournals.org/cgi/content/abstract/101/3/615>.

A peer-reviewed international journal of agriculture and natural resource sciences, *Agronomy Journal* is published six times a year by the American Society of Agronomy, with articles relating to original research in soil science, crop science, agroclimatology and agronomic modeling, production agriculture, and software. For more information visit: <http://agron.scijournals.org>.

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