

in optimum rate.

The examples in **Tables 2 and 3** show that the prediction of optimum rates from soil tests can be substantially improved by considering other factors specific to the site. But with only 23 to 33% of the variability explained, there is considerable room for improvement.

Weather is one of the most important modifiers of the relationship between soil test level and crop response. However it is difficult to determine which weather data are most representative of its influence. And even if the relationship could be deduced from these databases, the predictive value will be dependent on predicting weather.

A larger database on corn responses to nitrogen (N) is currently under review in Ontario. It includes 595 site-years of field trials with at least three rates of N. While this database did not include a soil test, an analysis found four factors—yield, preceding crop, soil texture, and application timing—explained about 28% of variability in optimum rates. A considerable amount of variability, resulting from weather and other factors, remains unexplained.

## Conclusion

Even the best soil test calibration databases explain less than a third of the variability in crop response to added nutri-

ents. This has implications for the agronomic interpretation of soil tests. It implies that there is not a single optimum rate for all producers with similar soil fertility. Rather, the optimum rate depends on the relative magnitude of risks being faced by each particular producer.

Fertilizer rate decisions are risk management decisions. Agronomically, the risk of a nutrient limiting crop yield must be balanced against cost and impact on the balance of nutrient levels in the soil. Environmentally, added risks of impacts on water or air quality must be brought into consideration.

When regulation mandates nutrient rate reductions, yield losses will vary among producers. The risk of yield loss will be only partly predictable. Site-specific assessment of both the agronomic and environmental risks is needed to determine a rate of nutrient application that maximizes its beneficial use. **BC**

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## Acknowledgment

*The Fertilizer Institute of Ontario Foundation provided funding for development of the P and K databases.*

## InfoAg Ohio Valley Regional Conference

August 16-17

“Equipping Today’s Agriculture with Technology” will be the theme of the InfoAg Ohio Valley Conference, planned for August 16-17, 2004, at Clark State Community College in Springfield, Ohio. This is the first in an expected series of regional Information Agriculture Conferences modeled after the popular InfoAg Conference series organized by PPI/PPIC/FAR.

University and industry experts will share real-world experiences and successes with technology to help crop and livestock producers adjust to the demand of changing agriculture. The Ohio Valley event is

jointly presented by PPI/PPIC/FAR, Ohio Agriculture Technology Association, Ohio Geospatial Extension Program, Ohio State University Extension Precision Agriculture, Ohio State University Extension Beef Team, Purdue University Site-Specific Management Center, University of Kentucky Precision Resource Management Team, and Kentucky Precision Ag Network. For more about the InfoAg Conference, visit these websites:

>[www.farmresearch.com/infoag](http://www.farmresearch.com/infoag)< or >[www.ppi-far.org](http://www.ppi-far.org)<. **BC**

