

## Managing Environmental Risk at the Rural-Urban Fringe

Agriculture is a major source of pollution that is generated diffusely over a broad land area, commonly referred to as nonpoint source pollution. Farmers may be most aware of the links between production practices and environmental quality when farming operations are conducted in close proximity to nonfarm populations. Residential development is expanding farther into rural areas, while market conditions are encouraging farmers to intensify production. These conditions set the stage for conflicts at the rural-urban fringe over environmental concerns, particularly for problems relating to animal operations.

Current Federal policies for protecting water quality from agricultural nonpoint sources of pollution rely almost entirely on the voluntary adoption of conservation practices by farm operators, supported by publicly provided education, technical, and financial assistance. In this setting, farmers are most likely to adopt best management practices based on their private benefits rather than society's. Nuisance suits, public complaints, or local ordinances regarding farm practices can alert farmers about their impact on environmental quality and encourage them to adopt conservation practices such as nutrient management.

Farmers can protect themselves from conflicts over environmental quality by adopting "approved" management practices. A nutrient management plan is a management-intensive practice that reduces the risks of water quality impairments from nutrients. Operating with a nutrient management plan could help insulate a farm against citizen complaints over water quality degradation, both by reducing the severity of degradation and by demonstrating due diligence. About 11 percent of corn acres planted in 2000 was covered by a nutrient management plan.

Detailed analysis of corn farms suggests that potential for increased conflict between working farms and suburban and exurban populations increases the use of nutrient management plans. The potential for conflict was measured with a rural-urban interaction variable based on the "population-interaction zones for agriculture" (PIZA) index developed by ERS. The higher the variable's score, the greater the influence that urban-related activities have on agriculture's economic and social environment. The analysis shows a significantly higher probability of using a nutrient management plan in areas with a higher rural-urban interaction score.

The finding suggests that States could accelerate the adoption of nutrient management and other conservation practices at the rural-urban fringe by specifying which practices provide evidence that farmers are operating with due care and adequately protecting water quality. The results also suggest that, in rural areas where interaction with the nonfarming community is less likely, other approaches for encouraging the adoption of water quality-protecting practices may be necessary. *W*

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### This finding is drawn from . . .

*Conservation-Compatible Practices and Programs: Who Participates?* by Dayton Lambert, Patrick Sullivan, Roger Claassen, and Linda Foreman, ERR-14, USDA, Economic Research Service, February 2006, available at: [www.ers.usda.gov/publications/err14/](http://www.ers.usda.gov/publications/err14/)

"Behind the Data: Population Interaction Zones for Agriculture," by Charles Barnard, in *Amber Waves*, Volume 3, Issue 3, USDA, Economic Research Service, June 2005, available at: [www.ers.usda.gov/amberwaves/june05/indicators/behinddata.htm](http://www.ers.usda.gov/amberwaves/june05/indicators/behinddata.htm)

