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## **Biases in Nutrient Management Planning**

Doug Parker, Chad Lawley, Erik Lichtenberg

### Abstract Text:

Nutrient management planning has been advocated as a means of improving the efficiency of agricultural nutrient applications and consequently reducing environmental problems caused by nutrients. These gains may not be realized in plans that overstate fertilizer requirements, as some claim is likely in plans prepared by consultants working for fertilizer dealers. We use data from a survey of Maryland farmers to investigate characteristics of farmers adopting nutrient management planning voluntarily and to explore systematic differences in fertilizer application rate recommendations made by different types of plan preparers. Nutrient management planning was adopted more frequently by larger operations raising grain or cattle but not by those on more environmentally sensitive land. Independent crop consultants and, to some extent, fertilizer dealers were more likely to recommend increases in fertilizer application rates than extension personnel, consistent with fears about bias. Farmers preparing their own plans were more likely to recommend decreases in fertilizer application rates, suggesting the presence of significant hidden information.

### Impact Statement:

This research will be useful for policy makers and extension educators interested in designing and implementing nutrient management programs in their states. Systematic differences in fertilizer rate recommendations imply a need for better training and monitoring of nutrient management professionals. The data here represents voluntary nutrient management planning in Maryland. Maryland has since moved to a mandatory system. Additional research is needed to discover whether these systematic differences in recommendations persist under a mandatory system. If mandatory systems do not incorporate monitoring of plan preparation, we see no reason that these systematic differences should change.