ABSTRACT 10

A Case Study of the Gully Creek Watershed: Understanding Farmer Nutrient Application Decisions and Beneficial Management Practices

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The Government of Canada and the Government of Ontario have become increasingly concerned with water pollution and contamination originating from agriculture sources (Dupont 2010). A large body of research has focused on field level fertilizer application rates as a means for decreasing water pollution from non-point sources in agriculture. The Nutrient Management Act (NMA) of 2002 provides a guiding document to regulate nutrient management in agriculture at the provincial scale. There has been limited analysis as to the effectiveness of the NMA, specifically regarding the adherence to recommended nutrient application rates at the field scale. Field scale application of nutrients are thought to be a major contributor to the current issue of phosphorus pollution in the Great Lakes. The first goal of this study is to perform a review of the NMA, focusing on measures in addressing non-point source agricultural pollution and enforcement. The second goal of this study is to determine why farmers are not applying nutrients at the recommended beneficial management practice rates. This will be achieved by conducting a case study of the Gully Creek watershed, performing an *ex post* nutrient rate analysis. Both the findings of the NMA policy evaluation and the economic model findings will inform recommendations of policy instruments to both the Ontario Ministry of Agriculture and Rural Affairs and the Ministry of the Environment and Climate Change. These recommendations will contribute to improvements in the efficiency and effectiveness of nutrient management, decreasing non-point source pollution from agriculture and increasing water quality in Ontario.