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ESTIMATING THE COST OF AGRICULTURAL POLLUTION ABATEMENT: ESTABLISHING BENEFICIAL MANAGEMENT PRACTICES IN THE BRAS D'HENRI WATERSHED

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This poster addresses the issue of non-point source agricultural pollution in the Bras d'Henri sub-watershed. The analysis is undertaken at both the farm and watershed scales in order to address several policy issues associated with supplying improved environmental quality from the application of Beneficial Management Practices (BMPs). One inquiry is the estimation of the distribution of environmental abatement cost among various types of producers.

The modeling procedure used in this study is based on a survey that collected information on the spatial dimensions of the farms including: number of fields, crop mix, and animal numbers. Each farm activity and abatement strategy had an environmental coefficient associated with it and were incorporated into a Mixed Integer Linear Programming (MILP) model. The MILP model's objective was to maximize net farm income subject to environmental constraints.

Decreasing the amount of environmental loading by decreasing the pollutants from agricultural production resulted in the: (1) reduction in agricultural non-point source pollution, (2) changes in cropping patterns and farming practices, (3) reductions in net farm income, (4) average abatement cost and marginal abatement costs to increase at an increasing rate, (5) reductions in the economic impact on producers when the abatement constraint was set at the watershed scale rather than the farm scale, and (6) the cost varies among some types of producers. The last result indicates the necessity of taking into consideration the distributive impact of environmental cost when environmental policies are selected.