

# Promoting Environmentally Sustainable Agricultural Practices

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## Introduction

Promoting ecological integrity in settled landscapes where many disparate land uses coexist is a complex task of influencing many stakeholders. Agriculture is a major determinant of landscape structure and function across the world's temperate regions, including southern Ontario. Governments and farm organizations in many jurisdictions are developing policy initiatives to promote environmentally sustainable practices in agriculture to achieve a variety of public policy goals (Classen *et al.* 2001; Goss *et al.* 2001; Johns, 2001; OECD, 1998; OMAFRA, 2000c).

For more than a decade, the Ontario government has been involved in a series of agricultural environmental initiatives aimed at promoting environmentally sustainable practices in Ontario agriculture. These initiatives have generally been multi-stakeholder partnerships involving the collaboration of governments (federal, provincial, municipal and conservation authorities), farm organizations and other stakeholders. In this paper I outline a number of current agri-environmental initiatives in Ontario:

- Ontario Environmental Farm Plan
- Best Management Practices
- Nutrient Management Planning / Regulation of Intensive Agriculture Operations
- Health Futures for Ontario Agriculture

These initiatives contribute to building ecological sustainability in southern Ontario.

## Environmental Farm Plan

The Environmental Farm Plan (EFP) initiative is a farmer-led effort started in 1991 and coordinated by the Ontario Farm Environmental Coalition (OFEC). OFEC represents more than 30 farm organizations. In January 1992, OFEC released "Our Farm Environmental Agenda" the guiding document for the Environmental Farm Plan and a number of other farmer-led conservation initiatives (OFEC 1992, 1999).

The Environmental Farm Plan initiative provides the tools for individual farmers and farm businesses to follow a voluntary, stepwise self-assessment process to evaluate environmental risks and practices on their farm. Educational materials and workshops provide participants with the means to develop plans for individual farms. The plan includes 23 modules (Table 1) to address a comprehensive set of

issues related to farm management. The participant rates their farm's performance in each of these areas. An action plan is then developed to address areas where performance is poor or fair. This action plan can then be subjected to a peer review process (other local farmers) for evaluation. Implementation would then follow. An incentive payment (currently up to \$1500) has been available to help finance actions identified in the action plan (primarily federal funding).

Over 32% of Ontario's registered farm businesses have participated in the program (Figure 1). Over \$46.4 million has been spent on improvements identified in farm plans (this includes incentives of \$11.1 million). So \$3 of farmers' money has been spent for every \$1 of grant money. An indication of where investments are being made: 26% of total incentive claims have been made for soil management, 16% for water wells management and 10% related to storage of agricultural waste.

Table 1. Environmental Farm Plan: 23 Module Components

Soil and Site Evaluation	Water Wells
Pesticide Storage & Handling	Fertilizer Storage & Handling
Storage of Petroleum Products	Disposal of Farm Wastes
Treatment of Household Wastewater	Storage of Agricultural Waste
Livestock Yards	Silage Storage
Milking Centre Washwater	Noise & Odour
Water Efficiency	Energy Efficiency
Soil Management	Nutrient Management in Growing Crops
Manure Use & Management	Horticultural Production
Field Crop Management	Pest Control
Stream, Ditch, & Floodplain Management	Wetlands & Wildlife Ponds
Woodlands & Wildlife	

The Environmental Farm Plan program has won a number of awards and been copied in other jurisdictions (American Society of Agricultural Engineers' Blue Ribbon Award for educational value of workbook, MOE's Pollution Prevention Leadership Award, State of the Lakes Ecosystem Conference Success Story Award). Such farmer-led environmental initiatives have also developed in other jurisdictions (OECD, 1998).

The EFP was developed by OFEC with support from the federal and provincial governments. The program is currently delivered by the Ontario Soil and Crop Improvement Association. OMAFRA has assisted in EFP development through provision of staff to help with technical program development and in providing staff to assist in training through the EFP workshops.

### **Best Management Practices**

The Best Management Practices (BMP) program is a collaborative program that also developed in the 1990s and brings together stakeholders and government agencies to develop consensus-based guidebooks for implementing "best practices" to

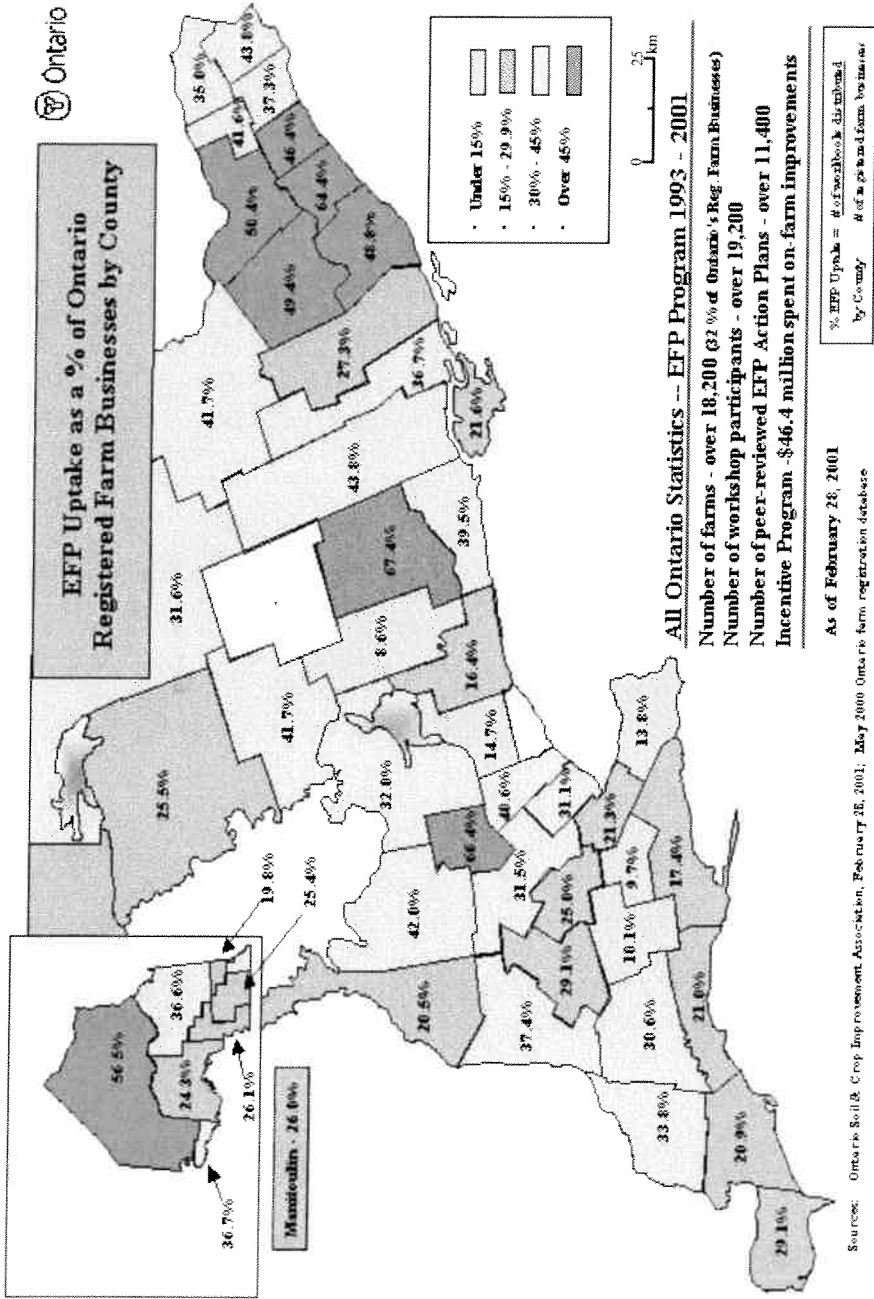


Figure 1. EFP Uptake as a % of Ontario Registered Farm Businesses by County

address specific issues in agricultural practice. The purpose is to “articulate environmentally responsible farm practices” and help farmers and rural landowners implement these practices on their properties. OMAFRA, Agriculture and Agri-food Canada and the Ontario Federation of Agriculture have been the main partners. An extremely large number of technical staff and experts contribute to each document. These people work for many federal and provincial agencies, conservation authorities, private conservation groups and farm organizations.

The BMP program developed in tandem with the early versions of the Environmental Farm Plan. In the early 1990s, it became evident that there was not sufficient information on environmental farming practices to assist in developing the EFP. Nor was the existing information organized to address all aspects of the production system. Governments were also seeking development of sustainable farm practice recommendations for policy purposes. Through a series of federal-provincial accords (1991-1997), almost \$3 million was provided to develop many of the 15 books (Table 2).

Table 2. Best Management Practices books published since 1991.

Field Crop Production	Horticultural Crops
Irrigation Management	Water Management
Nutrient Management	Farm Forestry & Habitat Management
Fish & Wildlife Habitat Management	Integrated Pest Management
Livestock & Poultry Waste Management	Soil Management
No-Till: Making It Work	Water Wells
Pesticide Storage, Handling & Application	Nutrient Management Planning
Riparian (now in draft form)	

The BMP books are available free to Ontario farmers and are sold to other users and the revenues retained for production of further volumes.

### **Nutrient Management Planning**

Nutrient management planning is a tool used in many jurisdictions for managing nutrients applied to farmland including manure, commercial fertilizer and biosolids to ensure efficient use of nutrients for crop growth and minimizing environmental impacts (OMAFRA 2000c, Caldwell and Toombs 1999, Goss et al. 2001, Johns 2001, Ribaud et al. 1999,).

In Ontario, farm groups, local government, planners and other stakeholders developed a “Nutrient Management Strategy”, an approach to managing the use of manure in agriculture to balance the needs of farmers with environmental concern and non-farm rural residents’ concerns (OFEC, 1998). This approach promoted the passage of municipal by-laws using a model nutrient management by-law to require the development of nutrient management plans by new livestock operations. Many municipalities have adopted such nutrient management planning (NMP) by-laws (Caldwell and Toombs, 1999; Figure 2).

Many municipalities and conservation authorities across Ontario also offer finan-

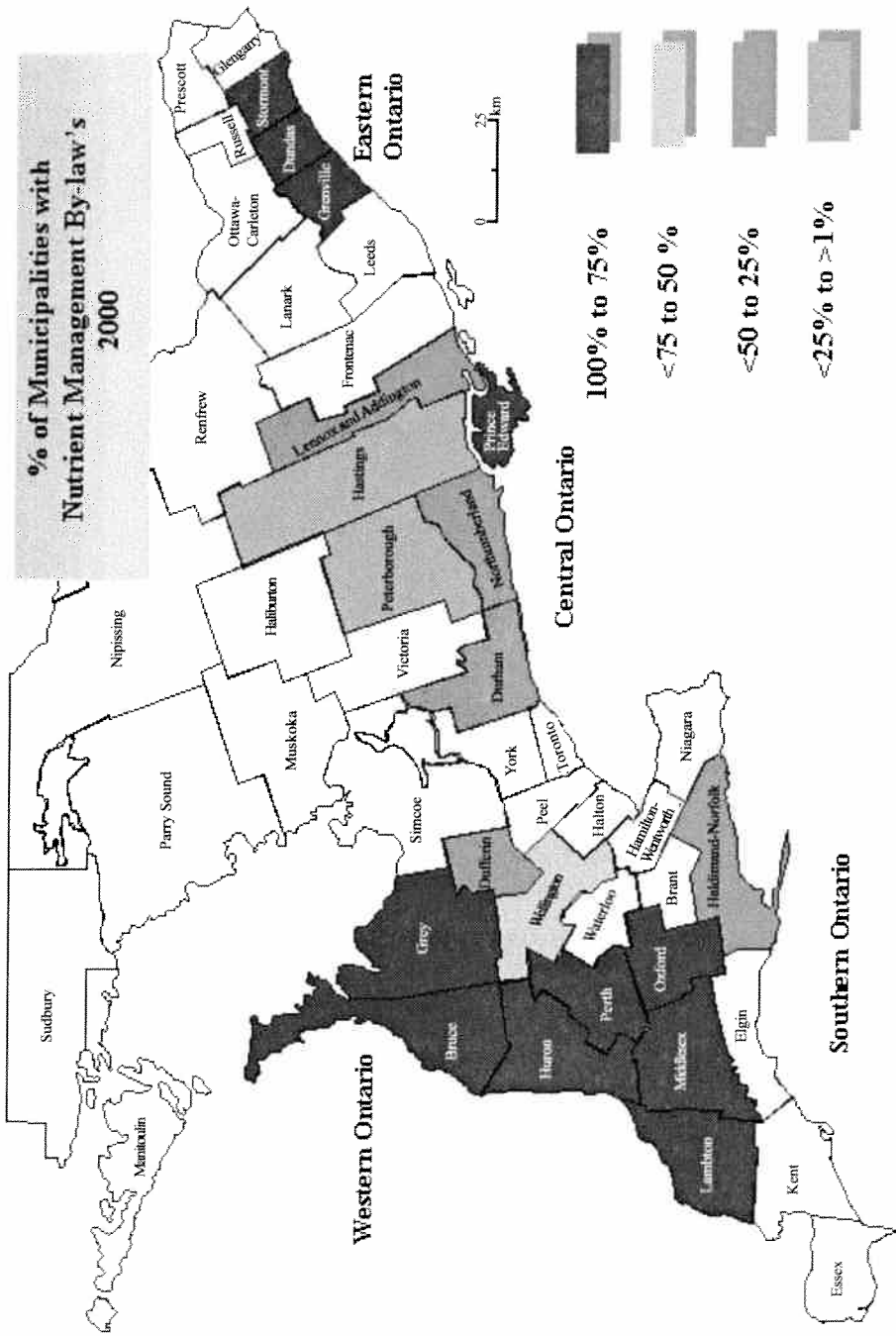


Figure 2. % of Municipalities with Nutrient Management By-law's 2000

cial incentives for farmers to adopt environmental practices and build environmental infrastructure, such as manure storage facilities and fences and other means of excluding livestock from watercourses. Such economic instruments have been shown to be a powerful tool for improving environmental quality in rural areas (Classen *et al.* 2001, Feather *et al.* 1995, Goss *et al.* 2001, Johns, 2001, Ribaudo *et al.* 1999, Weersink *et al.* 1998). The Healthy Futures for Ontario Agriculture program, discussed below, is supporting a number of these types of local initiatives.

## **Regulation of Intensive Agricultural Operations**

As in other economic sectors, livestock operations have been increasing in size to achieve greater economic productivity within an increasingly competitive global agricultural marketplace. At the same time, the non-farm rural population has been growing rapidly while the farm population shrinks. Public concern over larger livestock operations prompted the province to examine options for managing intensive agricultural operations. Public consultation was held in January 2000 (OMAFRA, 1999). Proposals for ‘clear, enforceable province-wide legislation regulating agricultural operations’ were made in July 2000 and further consultation occurred in September 2000 (OMAFRA 2000a, b).

In June 2001, the proposed Nutrient Management Act, Bill 81, was introduced in the Ontario legislature (OMAFRA, 2001). Bill 81 will allow development of “clear new standards will be developed for all land-applied materials containing nutrients relating to agriculture – including livestock manure, commercial fertilizer, municipal biosolids, septage and industrial pulp and paper sludge”. These standards may include:

- Mandatory Nutrient Management Plans
- Certification of commercial land applicators of materials containing nutrients
- Distance requirements for manure and biosolids application near wells and waterways
- Banning the land application of untreated septage over a five-year period
- Establishing and delivering associated education, training and certification programs
- Establishing a database system to record land applications of materials containing nutrients, with an initial focus on biosolids and manure
- Establishing minimum quality and application standards for land applied nutrients.

## **Healthy Futures For Ontario Agriculture**

In December 1999, the 3-year, \$90-million Healthy Futures For Ontario Agriculture program was announced to provide cost-sharing grants to applicants to promote: 1. food safety; 2. market development; and 3. rural water quality (OMAFRA, 1999b).

The rural water quality theme emphasizes adoption of best management practices and technologies in the agri-food sector to safeguard water quality and quantity in rural Ontario. This is accomplished by action by commodity groups, rural food processors and local rural governments to reinforce stakeholder commitment to clean water and integrated approaches water management (OMAFRA 1999b). Many rural water quality programs and projects have received funding from Healthy Futures.

## Conclusions

Promoting sustainable agricultural practices in Ontario contributes to the greater ecological sustainability of southern Ontario's landscapes. The Ontario government has been involved in a number of educational, funding and regulatory approaches to promote sustainable farm practices. These have often been in partnership with the federal government and with farm organizations. The proposed Nutrient Management Act is a new regulatory approach that has been welcomed by both farm and environmental groups in Ontario. Implementation of the new Act is expected to take place over the next several years.

## References

- Caldwell, W., and M. Toombs. 1999. Rural Planning, The Community and Large Livestock Facilities: An Across-Canada Checkup. Presentation at the Canadian Institute of Planners Annual Conference, Montreal.
- Claassen, R., L. Hansen, M. Peters, V. Breneman, M. Weinberg, A. Cattaneo, P. Feather, D. Gadsby, D. Hellerstein, J. Hopkins, P. Johnston, M. Morehart, and M. Smith. 2001. *Agri-Environmental Policy at the Crossroads: Guideposts on a Changing Landscape*. United States Department of Agriculture, Agricultural Economic Report Number 794.
- Feather, P.M. and J. Cooper. 1995. *Voluntary Incentives for Reducing Agricultural Nonpoint Source Water Pollution*. United States Department of Agriculture, Economic Research Service. Agriculture Information Bulletin Number 716.
- Goss, M., K. Rollins, K. McEwan, J. Shaw and H. Lammers-Helps. 2001. *The Management of Manure in Ontario with Respect to Water Quality*. Walkerton Inquiry.
- Johns, C. 2001. *Effective Policy Regimes for the Management of Non-point Source Water Pollution: Ontario and the US in Comparative Perspective*. Walkerton Inquiry.
- Ontario Farm Environmental Coalition. 1992. *Our Farm Environmental Agenda*.
- Ontario Farm Environmental Coalition. 1998. *Nutrient management planning strategy*.
- Ontario Farm Environmental Coalition. 1999. *Our Farm Environmental Agenda: What's Been Accomplished 1992-1999*.
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). 2001. *Bill 81, Proposed Nutrient Management Act*.
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). 2000a. *Proposed Standards for Agricultural Operations in Ontario*.

- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). 2000b. *Task Force on Intensive Agricultural Operations in Rural Ontario Consultations*.
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). 1999a. *Ontario government launches Healthy Futures for Ontario Agriculture*.
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). 1999b. *Discussion Paper on Intensive Agricultural Operations in Rural Ontario*.
- Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA). 2000c. *A Review of Selected Jurisdictions and Their Approach to Regulating Intensive Farm Operations*.
- Organization For Economic Co-Operation And Development (OECD). 1998. *Co-operative Approaches to Sustainable Agriculture*.
- Ribaudo, M., R. Horan, and M. Smith. 1999. *Economics of Water Quality Protection From Nonpoint Sources: Theory and Practice*. Resource Economics Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 782.
- Smit, B., D. Waltner-Toews, D. Rapport, D. E. Wall, G. Wichert, E. Gwyn and J. Wandel. 1998. *Agroecosystem Health: Analysis and Assessment*. University of Guelph.
- Waltner-Toews, D. 1996. Ecosystem Health: a Framework for Implementing Sustainability in Agriculture. *Bioscience*, 46: 686-689
- Weersink, A., J. Livernois, J. Shogren and J. Shortle. 1998. Economic Instruments and Environmental Policy in Agriculture. *Canadian Public Policy* 25, No. 3.