Position Paper:
The Environment and Intensive Livestock Operations
Upper Thames River Conservation Authority

July 1998

Overview

It is becoming increasingly clear that the issue of 'intensive livestock farming' is not a simple, single issue at all. Rather, it has become a title for a broad range of environmental, economic, social and health related concerns, each of which is somehow tied to intensive livestock farming but for which there is no single solution.

Some of the issues identified at community meetings, from landowner comments, in reports and newspaper articles include:

Environmental/Health Concerns:

- **surface water quality** deterioration from **spills** and manure runoff
- **groundwater quality** deterioration from **over-application** of manure
- **groundwater quantity** being depleted by large operations
- **odour** nuisance from large barns and manure storages
- **transport** of manure to adjacent fields that are part of **manure sharing agreements** increases risks for spills and odour

Social/Economic Concerns:

- new people coming and **disrupting sense of community** in the township's rural area
- large farms are **profit motivated** and give nothing back to the community
- move to larger farms **limits opportunities for children** or others to start farming
- **loss of local control** of the agricultural economy as large multi-national corporations move in
- only local **jobs will be minimum wage** working for large farm factories

It is unlikely one solution can address all of these concerns.

The current situation appears to be municipal governments and others trying to react to the very vocal complaints of their constituents. Little time has been spent trying to scope the extent of the problem and efforts have moved directly to developing a solution which, in most cases, is some form of nutrient management by-law. Recent examples suggest a nutrient management by-law alone is not satisfactory because, while it does address many environmental concerns, it does not address social or economic concerns.

This context is important as conservation authorities move to develop their own positions regarding intensive livestock farming. Given our environmental mandate it is obvious our comments and recommendations regarding this issue will address environmental concerns. However, in presenting these views it is imperative we place our comments within the broader context of the range of environmental, social and economic concerns expressed by the local community and that we advocate for a variety of solutions which obviously must come from a variety of agencies and interest groups.

Introduction
Surface water pollution in the Thames River basin has long been identified as a major problem that affects both local and downstream (Great Lakes) water users. The water quality problems have included bacteria, nutrient, pesticide and chemical contamination. The Upper Thames River Conservation Authority has had a lengthy involvement in water quality issues, particularly related to the rural and agricultural sector. This involvement has included research studies, implementation, demonstrations, developing new technologies and information systems. This work has been done through partnerships with various agencies, municipalities, farm groups and individuals in the community.

Both historical and more recent studies have identified urban and rural sources. Inputs through problems such as soil erosion, failing septic systems, livestock access to streams, manure runoff, milkhouse washwater discharges, sewage and industrial discharges have all been identified. Over the past few years attention has been directed to impacts resulting from manure application on rural lands. This concern has ranged from overland runoff into nearby watercourses to the impacts of application on tile drainage and groundwater. Most recently, watershed residents have expressed concern that intensive livestock operations will cause groundwater contamination and pollute their source of drinking water. Surrounding the development of these intensive livestock operations is the perceived notion that since they produce more manure and other by-products than smaller farm operations, they have a greater impact on water quality.

The Reality

- Manure is a resource. If treated as a waste product, manure has the potential to contaminate the environment. When used properly, it has nutrient value for crop production. It has been determined that the total amount of nitrogen from livestock manure will meet approximately 70% of the corn nitrogen requirements locally.

- Properly managed operations regardless of size will have little impact on the surrounding environment. Improperly managed operations, regardless of size, can impact on local and downstream water resources. However, there is a greater potential for pollution with respect to larger operations if they are poorly managed.

- Many other things may cause surface and groundwater pollution. Inputs through sewage and industrial discharges, failing septic systems, livestock access to streams, poor manure management, milkhouse washwater discharges and soil erosion have all been identified.

- Manure spills have been the leading cause of fish kills in the province since 1988 compared to all other types of spills. Fourteen percent of all manure spills lead to a fish kill. The leading causes of manure spills are mismanagement of both storages and application methods.

- In Perth County well water surveys show 26% of drilled wells and 72% of dug wells had unacceptable levels of bacteria. Three percent of drilled wells and 22% of dug wells also had high nitrate levels. In addition, 1300 farm wells were tested province-wide and 43% had one or more contaminants in concentrations above provincial objectives.

- All existing infrastructure and controls such as the Environmental Protection Act, the Fisheries Act and even Peer Review Committees are <u>reactive</u>. Priority must be placed on measures that will <u>prevent</u> contamination.

Ongoing Initiatives Across Ontario - 1998

Ontario Farm Environmental Coalition(OFEC) - The Nutrient Management Working Group which was initiated by the OFEC, has been looking at the nutrient management issue. The measures that have been proposed by the Nutrient Management Working Group have been designed to ensure that some type of environmental audit is conducted prior to the establishment of a new or expanding livestock operation.

Livestock Manure Pollution Prevention Project (P3) - Manure is the leading cause of fish kills in the province. The P3 Working Group was established to tackle this issue. The Working Group includes members of farm organizations along with academia and government agencies. The Working Group provides guidance to a secretariat to complete tasks aimed at raising awareness to new solutions available to help farmers improve fish habitat. Funding for the working group is provided by Environment Canada - Ontario Region.

Research - A variety of research efforts have or are currently taking place examining issues including the movement of liquid manure during application through the soil profile to tile drainage and improved spreading techniques which would provide more efficient use of manure as a resource for crop production.

Technical Support - Both the Ministry of Agriculture and Rural Affairs and the University of Guelph have developed computer software to assist farmers with the development of nutrient management plans.

Zoning By-laws - Several municipalities have been developing and incorporating a variety of both interim and permanent by-laws to deal with some of the issues they have been facing with respect to the nutrient and "intensive" livestock issues.

Monitoring - Monitoring of both surface and groundwater resources is being conducted. Within the Upper Thames River watershed the Authority has been involved in benthic invertebrate monitoring of streams at approximately 80 sites. The Authority also recently collects surface water quality samples for the Ministry of Environment as part of the Provincial Water Quality Monitoring Network. Within the County of Oxford a groundwater monitoring program is being implemented by the county.

Where Do We Go From Here?

These efforts have provided a strong base of information and participation. A long term preventative approach is now needed to make measurable in-roads to deal with potential problems. Promoting comprehensive nutrient management planning is an important part of the process and it should:

< maximize the nutritional value of manure,
< promote the development and review of nutrient management plans to all rural landowners,
< evaluate existing nutrient levels on a field scale basis,
< provide monitoring to determine the success of these plans, and
< show the financial and environmental benefits to the operators and community.

1. Land Use Planning

While some of the initial by-law amendments help to identify and audit newly constructed *intensive* livestock operations, this does not address many other problems. For example, many of the existing operations that presently may or may not fall within the definition of an *intensive* operation are not covered by new by-laws even though they may be impacting on surface and ground water quality. Consideration should be given to some type of requirement where <u>all</u> farms require a nutrient management plan.

While the requirement of a Certificate of Compliance and Nutrient Management Plan can help identify problems and outline alternatives for manure handling, there are many other environmental concerns that should be considered. Municipalities may consider requiring that an Environmental Farm Plan be completed in order to protect water quality and identify other possible problem areas that exist such as septics, milkhouse discharges, livestock access, or excessive soil erosion. The goal of these plans would be to highlight concerns and provide information to the landowner.

Since farm operations are not alone in the rural community, all other rural landowners and commercial enterprises may consider developing an environmental plan or carry out an environmental audit. The environmental farm plan process or similar system may be used to assist private residents and commercial enterprises.

2. Evaluation

The nutrient management plans should be reviewed to ensure adequate land base is available, environmentally sensitive lands such as wetlands, streams, wooded areas and ground water are not being impacted and that nutrients are being properly utilized. Independent auditors could at one, two, three or five year intervals recheck Nutrient Management Plans to see if the land base is still adequate based on livestock numbers.

Noncompliance issues should be addressed through the local municipality. Consideration may be given to the establishment of a peer review committee, similar to what has been set up in Perth County, to provide either for a fair review of nutrient management practices's or to deal with any non-compliance issues.

3. Environmental Audit and Monitoring

Monitoring is a key component of determining success in protecting soil, drinking water and surface water resources. A comprehensive approach to monitoring can help to identify priority areas, determine the effectiveness of the ongoing efforts

and provide an alert to any potential problems. The scope of the monitoring program would be directly related to the environmental sensitivity of the area and possibly the scale of the operation. Monitoring components would include:

Surface and Ground Water Quality Testing
< Domestic well sampling,
< Monitoring wells may be installed in locations on the property to enable sampling of areas of rapid groundwater turnover,
< Tile drainage systems sampling during spreading at or near outlets,
< Open watercourse sampling for chemical and bacterial parameters and benthic invertebrates. Streams, municipal drains and wetlands may be sampled.

Regular Soil Sampling
< Preferably mapped using a GPS on a Geographical Information System.
This will allow for the optimum use of manure and help to eliminate the potential for excessive build up of nutrients in the soil.

Manure Sampling
< Baseline sampling would provide a long-term basis for nutrient values.
Sampling could than be taken every other year or so, unless changes within the barn or other management suggests the need for updated analysis.

Record Keeping
< Spreading methods, locations, rates and dates,
< Soil conditions at time of spreading,
< Manure sharing agreements updated annually,
< Amount of manure produced.
This information would relate directly to a monitoring program and is in addition to the recording needed as part of the nutrient management plan, Good record keeping together with ongoing sampling and monitoring will help to optimize management practices.

Identification of Highly Erodible and Other Sensitive Lands and Associated Best Management Practices
< Using the USLE these areas could be mapped.

Contingency Action Plan for Spills
As part of the nutrient management plan, operators would be required to develop a contingency action plan in the event of an accidental spill.

Auditing
The auditing of individual operations and municipal based nutrient management planning programs could be done randomly or on a scheduled basis. The ongoing monitoring and record keeping would be the basis of the review.

The information collected through a nutrient management planning program could also be used as a planning tool when reviewing applications for new and expanding agricultural operations. Issues regarding the spreading of municipal sludge on agricultural lands and the impact of septic systems on water quality would also be recognized through this approach.

4. Manure Sharing

It is generally understood that the total amount of nitrogen from livestock manure will not meet the needs of corn nitrogen requirements locally. In many instances however, the manure nitrogen is over applied on some fields while other fields rely on fertilizer nitrogen. The development of a manure sharing program will help coordinate cash crop farmers and livestock producers with excess manure. It will also help identify manure as a valuable commodity rather than a waste product. Furthermore, this information on sharing can be developed through the use of agricultural websites (ie. OFA Homepage).

5. Economic and Environmental Benefits
Across Ontario, agricultural organizations together with elected officials and the general public continue in their attempt to find solutions to the increasing concern surrounding nutrient management. It is important that any planning process be developed in close partnership with all the stakeholders. We are looking for a positive solution; one that provides environmental protection in addition to economic benefits.