The Nova Scotia Environmental Farm Plan Program

How compost and composting can help meet the goals of the program

Cory Roberts, P. Ag.
Outline

1) What is the Environmental Farm Plan?

2) What we are looking at during on-farm environmental assessments

3) Ways in which compost and composting can help meet the goals and reduce risk

4) Education
Environmental Farm Plan Programs

- Exist in every province in Canada
- Each province delivers their own unique program
Environmental Farm Plan Programs

• Ontario was first province to develop an EFP program

• Nova Scotia followed shortly after

• Other provinces began developing programs
Environmental Farm Plan Programs

- Most provinces have a workshop and workbook approach
NS Environmental Farm Plan

- NS started with workshop and workbook
- Few came out, fewer completed the workbook
- Changed our approach in 1999 to a one-on-one visit with an EFP coordinator (P. Ag.)
NS Environmental Farm Plan

- **Voluntary, Confidential and No Cost** to the farmer
- Delivered through the NS Federation of Agriculture
- Funded by provincial and federal governments
Goals of the NS Environmental Farm Plan

• Educate farmers about applicable regulations, guidelines, best management practices (BMPs)
• Identify existing and future environmental risks
• Prioritize actions to reduce risks - tailored to the individual farm
• Provides possible solutions to reduce or prevent risk
Program Summary

Number of Original Reports: **1817**

Number of Registered Farms: **2350**

Total Land Area: **109,616 (ha)**

“We were pleased with the detailed work and hope the process will happen on every farm”

Winding River Farms Ltd.
NS Environmental Farm Plan

Stages

- On-Farm Assessment
- Findings Report
- Follow-up Visits
On-Farm Environmental Assessments

What takes place:

- Discuss goals and improvement projects
- Identify environmental concerns
- Inventory farm resources
- Farmer lead tour of the farm
- Identify problem areas
- Discuss possible solutions
Findings Report

• Provides a summary of the on-farm environmental review
• Is presented to the farmer for discussion
• The report contains no surprises
Steel fuel tanks, ranging in size from 2,250 L to 3,375 L, are used for heating the poultry barns (Figure 7). The tanks are in good condition with no signs of defects or leaks. Ensure that tanks are placed on a concrete base, which will act as a barrier between any spillage and the soil. Guard posts are in place to protect the fuel tanks from accidental damage from passing vehicles. When replacing oil tanks that are located outside a building, ensure the fuel lines are brought into the building at or above the height of the tank. This will minimize the potential of a spill occurring if the fuel line is broken by snow, ice or vandalism.

The farm owner mentioned that an underground fuel storage tank was removed by a licensed contractor. It was replaced with an above ground fuel storage tank.

Other important points regarding fuel storage include:

- Visually inspect the fuel tanks and dispensing equipment at least once a month. This can be done during the refilling of the tank or during refueling of machinery.
- Most insurance companies are recommending that fuel tanks be replaced before they reach 15 years of age.
- Leaks from dispensing equipment should be immediately repaired while a leaking tank should be immediately replaced. A holder has been constructed to minimize any fuel drips from the end of the nozzle (Figure 8).
## Findings Report
Assessing the Risk of Surface and Groundwater Contamination

### Appendix A: Potential for ground and surface water contamination

<table>
<thead>
<tr>
<th>Facility or Activity</th>
<th>Potential for Ground Water Contamination¹</th>
<th>Potential for Surface Water Contamination²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household septic systems</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Manure storage</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Fertilizer storage</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Pesticide - storage</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>- mixing</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Fuel storage - farm machinery</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Fuel storage - heating barns</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Fuel storage - irrigation pumps</td>
<td>Slight</td>
<td>Slight</td>
</tr>
<tr>
<td>Wastewater from washing barns</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Wastewater from processing carrots</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Applied pesticides</td>
<td>Low</td>
<td>Slight</td>
</tr>
<tr>
<td>Applied fertilizers</td>
<td>Low</td>
<td>Slight</td>
</tr>
<tr>
<td>Applied manure</td>
<td>Low</td>
<td>Slight</td>
</tr>
<tr>
<td>Soil management</td>
<td>Low</td>
<td>Slight</td>
</tr>
</tbody>
</table>

### Environmental risk ratings:
- **low**: no action required, remedial action possible but not essential.
- **moderate**: remedial action should be taken.
- **high**: remedial action is required.

¹ Based on a) how quickly water will move into and through the soil, b) depth to water table and c) the distance to the nearest well water source.

² Based on a) soil texture and organic matter content, b) topography (steepest or longest slope), c) the distance to the nearest surface water source and d) cropping practices.

³ With soil erosion problems and excessive phosphorous levels, the anticipated environmental risk could be moderate to high.
### Findings Report

#### Environmental Action Plan

<table>
<thead>
<tr>
<th><strong>Issue</strong></th>
<th><strong>Possible Solution</strong></th>
<th><strong>Priority</strong></th>
<th><strong>Possible Resources Available</strong></th>
<th><strong>Notes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Use and Management</strong></td>
<td>Regularly test well water quality to ensure it is within the Canadian Drinking Water Guidelines</td>
<td>Within the Next 6 Months</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Install a system to collect rain water and reduce reliance on dug well</td>
<td>Within the Next 2 Years</td>
<td><em>Homegrown Success Program Contact: 1-866-844-4276</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improve ditches and install tile drainage to improve drainage and reduce flooding</td>
<td>Within the Next 3 Years</td>
<td><em>Homegrown Success Program Contact: 1-866-844-4276</em></td>
<td></td>
</tr>
<tr>
<td><strong>Waste Disposal</strong></td>
<td>Monitor septic system every three to five years and pump when necessary</td>
<td>Within the Next 3 Years</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nutrient Management</strong></td>
<td>Contact a NMP specialist to prepare a NMP</td>
<td>Within the Next Year</td>
<td><em>Homegrown Success Program Contact: 1-866-844-4276</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apply fertilizer and manure on fields as per recommendations in NMP</td>
<td>Within the Next Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If a NMP is not developed, base nutrient inputs on soil test report recommendations</td>
<td>Within the Next Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Manure Management</strong></td>
<td>Add plenty of waste feed and bedding material to the manure in order to maintain a stackable solid manure pile</td>
<td>Continue to Practice</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construct a concrete pad and push wall for manure storage / composting</td>
<td>Within the Next 2 Years</td>
<td><em>Homegrown Success Program Contact: 1-866-844-4276</em></td>
<td></td>
</tr>
</tbody>
</table>
Government Funding for Farmers

Categories of funding:

1. Business Development
2. Traceability
3. Regulatory Compliance
4. Agro-environmental Initiatives
5. Biodiversity Initiatives
6. Environmental Farm Stewardship Program
Follow Up Visit

One-on-one visit with the farmer to:

- identify changes to the farm business
- review the implementation of the action plan
- discuss new environmental concerns, goals and improvement projects

Track trends on a provincial level
Five Areas of Focus

1. Protection of water quality
2. Protection of soil resources
3. Prevention of nuisance
4. Wildlife habitat/biodiversity
5. Energy conservation
Protection of Water Quality
Water Use and Management

Wells
Watercourses, Ditches and Riparian Zones
Irrigation
Watercourse Crossings
Protection of Water Quality
Nutrient Management

• Balance nutrient inputs and crop requirements
• Soil fertility testing
• Plant tissue testing
• Manure / compost analysis
• Equipment calibration
• NMP Specialists
Protection of Water Quality
Manure Storage and Handling

Manure Storage

Land Application

Livestock Yards

Manure Stockpiles
Livestock Production

Livestock watering from Watercourses

Alternative Livestock Watering Systems

Flies, Rodents, Deadstock

Feed Storage
Fuel Storage and Handling

- Fuel storage tanks
- Concrete curbing to hold accidental spills
- Impermeable floor
Fertilizer Storage and Use

- Storage
- Application rates
- Separation Distances
- Spreader Calibration
Pesticide Management
Waste Handling and Disposal
Protection of Soil Resources
Energy and Biodiversity

Biodiversity Landowner's Guide

Farmer-focused information on:

- **Benefits to my farm**
  How can habitat help my farm?

- **Helping Habitat**
  How can I help the species on my land?

- **Species at Risk in Nova Scotia**
  Information on some species at risk found in and around agricultural lands

- **Dealing with Wildlife**
  Methods of coping with species

See the guide at: [farmbiodiversity.ca](http://farmbiodiversity.ca)
How Compost and Composting Can Reduce Environmental Risk

- Protection of Water Quality
- Nutrient Management
- Manure Storage and Handling
- Livestock Production
- Protection of Soil Resources
How Compost and Composting Can Reduce Environmental Risk

Protection of Water Quality

Issues:
1. Run-off from manure storage areas
2. Potential contamination of ground and surface water
How Compost and Composting Can Reduce Environmental Risk

Protection of Water Quality

Possible Solutions:
1. Construct a concrete pad with a push wall
2. Consider covering the pad with a roof
3. Add plenty of bedding and waste feed to manure
4. Balance MC, C:N and turn
How Compost and Composting Can Reduce Environmental Risk

Protection of Water Quality

Resources:
1. Funding for impermeable pads and push walls
2. Funding for aeration / turning equipment
3. Funding for compost monitoring equipment
How Compost and Composting Can Reduce Environmental Risk

Nutrient Management

**Issue:**
- Soluble mineral fertilizer loss into ground and surface water

**Possible Solutions:**
- Compost as a soil amendment to achieve a slower release of nutrients over a longer period of time

**Resources:**
- Three year Nutrient Management Plans (NMP) funding 100%
How Compost and Composting Can Reduce Environmental Risk

Manure Storage and Handling

Issues:
• Expensive to transport nutrients distances from barn

Possible Solutions:
• Compost manure to reduce the moisture content and volume of the material to concentrate nutrients and reduce weight
How Compost and Composting Can Reduce Environmental Risk

Livestock Production

Issues:
• Deadstock disposal

Possible Solutions:
• Deadstock composting
How Compost and Composting Can Reduce Environmental Risk

Protection of Soil Resources

Issue:
• Decreased organic matter on fields where row crops are grown continuously

Possible Solutions:
• Using compost as a soil amendment
How Compost and Composting Can Reduce Environmental Risk

Prevention of Nuisance

**Issues:**
1. Flies
2. Rodents
3. Odours

**Possible Solutions:**
1. Thermophilic composting of manures, waste feeds, and other residues
Education and Outreach

- Factsheet Development
- Workshops

### Minimum Separation Distances for Agricultural Activities

Protecting ground and surface water from contamination due to agricultural activities requires that sufficient distances be maintained between certain high risk activities and water resources. The table below lists the minimum separation distances from wells, watercourses, and ditches.

<table>
<thead>
<tr>
<th>Material</th>
<th>Activity</th>
<th>Minimum Separation Distances m (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Wells</td>
</tr>
<tr>
<td>Fuel</td>
<td>Storage</td>
<td>30 m</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>Storage</td>
<td>30 m</td>
</tr>
<tr>
<td></td>
<td>Spreader loading</td>
<td>60 m</td>
</tr>
<tr>
<td></td>
<td>Spreading</td>
<td>30 m</td>
</tr>
<tr>
<td>Pesticides</td>
<td>Storage</td>
<td>30 m</td>
</tr>
<tr>
<td></td>
<td>Spraying</td>
<td>30 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 m</td>
</tr>
<tr>
<td>Manure</td>
<td>Storage</td>
<td>300 m</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50 m</td>
</tr>
</tbody>
</table>

- Manure should only be spread between April 15 and December 15 on fields with slopes over than 7% next to watercourses between June 15 and August 30.
- Spreading (after to barn walls) 30 m (100 ft) 5 m (15 ft) 5 m (15 ft)
- Spreading (onto walls) 60 m (200 ft) 5 m (15 ft) 5 m (15 ft)
- Deadstock Bonfire (under 10 cm of soil) 30 m (100 ft) 30 m (100 ft) 30 m (100 ft)
On-Farm Composting for Fur Farmers Workshop

- New regulatory reality for fur farms – The Fur Industry Act
- Fur farmers are required to dispose of manure at an approved facility, land apply under a Nutrient Management Plan, or Compost
On-Farm Composting for Fur Farmers Workshop

NS Environmental Farm Plan in partnership with Dalhousie University Extended Learning and the Department of Engineering developed a two day workshop on composting for fur farmers.
On-Farm Composting for Fur Farmers Workshop

In the classroom:

• Students learn compost theory
• Hands-on activities: feedstock selection, measuring compost parameters (moisture, density, maturity)
On-Farm Composting for Fur Farmers Workshop

In the Field:

• Hands on compost trouble shooting exercise
• Balanced recipe development
• Waste feed pile construction
Summary

• The main goal of the NS EFP is to help farmers reduce environmental risk on farms

• Compost and composting can help meet that goal when managed appropriately

• The Environmental Farm Plan Program has been active in educating farmers on composting related topics
Contacts

NS Environmental Farm Plan Office: (902) 893-2293
http://www.nsfa-fane.ca/efp/

Nova Scotia Federation of Agriculture: (902) 893-2293
www.nsfa-fane.ca/

Government Funding Programs 1 (866) 844-4276 or
http://novascotia.ca/agri/programs-and-services/financial-funding/