



A GUIDE TO
Agricultural Best
Management Practices
within Municipal Drinking
Water Supply Areas in Nova Scotia

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1.0 Introduction

This document is a guide to help farmers and land owners* in municipal drinking water supply areas protect the quality and quantity of these water supplies.

This guide provides

- recommended management practices and setback distances that can be incorporated into daily farming activities to help protect municipal drinking water supplies
- information on potential restrictions that may apply to specific municipal drinking water supply areas
- planning tools and resources available to farms

This guide aims to minimize the risk of an impact on municipal drinking water supply areas, while recognizing that no method ensures an absolute zero-risk approach.

Best management practice (BMP): a method or technique found to be the most effective and practical means in preventing or reducing contaminants generated by an activity.

The practices identified in this document are not regulations, but are recommended approaches based on known science that, if followed, should allow farmers help reduce risks to a drinking water supply.

Farmers operating within an area contributing to a municipal drinking water supply are required to contact the local water utility, Nova Scotia Department of Agriculture, and Nova Scotia Department of Environment to identify if any regulations and or by-laws exist within the area of operation.

About 60% of Nova Scotians receive treated drinking water from central supplies operated by municipal water utilities. As of April 2014, Nova Scotia has 85 municipal drinking water systems. Municipal drinking water systems in Nova Scotia may be either surface water or groundwater.

Link to map of municipal drinking water systems:
www.novascotia.ca/nse/water/publicwater.municipal.supply.asp

* Several options are available to municipal governments protecting their drinking water supplies, including the best management practices discussed in this document; property acquisition, land use bylaws, contingency planning, designation pursuant to the Environment Act, and education. See Nova Scotia Department of Environment's Step 4 booklet for more information:
www.novascotia.ca/nse/water/sourcewater.asp

Some types of agricultural practices, if not carefully managed, can impair drinking water quality. Sediment, nutrients (especially nitrogen and phosphorous), bacteria such as *E.coli*, pathogens, and pesticides are all potential pollutants. Farmers need to balance agricultural production with the protection and conservation of water quality in order to ensure sustainable agriculture.

1.1 Environmental Farm Plans and Nutrient Management Plans

Is your farm located in a municipal drinking water supply area?

If yes, we recommend that you establish and follow both an environmental farm plan and a nutrient management plan or equivalent (if applicable):

- Environmental Farm Plan (EFP): promotes environmental stewardship on farms by helping farmers identify potential areas of environmental risk and provide practical solutions to minimize these risks.
- Nutrient Management Plan (NMP): a farm-specific tool that determines the amount, timing, and application of nutrients from manures and fertilizer.

1.1.2 Environmental Farm Plan

The EFP is a federally and provincially supported voluntary program that helps farmers identify and assess environmental risks on their property. Farmers work with Nova Scotia Federation of Agriculture staff to develop a confidential plan for their operation at no cost.

The objective of the EFP Initiative is to help farmers develop a practical plan for operating the farm in an environmentally responsible manner. The EFP acts as an educational guide that enables farm families to incorporate sound environmental practices into their operations. The EFP Initiative is industry-led and industry-driven.

For more information, contact:

Environmental Farm Plan Coordinator

NSFA office: (902) 893-2293

Email: info@nsfa-fane.ca

Website: www.nsfa-fane.ca/efp

1.1.3 Nutrient Management Plan

The NMP is a farm-specific tool that determines the amount, timing, and application of nutrients from manures and fertilizer. Individuals are accredited to be Nutrient Management Planners. Farmers operating in municipal drinking water supply areas are strongly encouraged to develop a nutrient management plan for their farming operations.

Major elements of a Nutrient Management Plan:

- Producer identification and operation description
- At least three cropping years:
 - Three year manure plan (timing and amount of application)
 - Three year fertilizer plan (timing and amount of application)
 - Three year lime and wood ash program template
- Manure and/or commercial fertilizer recommendations based on previous two years history of manure and crops to be grown
- Recommendations to be based on current soil analysis and manure analysis (not older than one year)
- Farm land base: farm maps (aerial and line); field names, sizes, and soil types
- Nutrient balance sheets
- Phosphorous level description and spreadsheet
- Environmental concerns (including information on surface water bodies and wells)
- Manure AUE/ha and alternative manure plan (if needed)

For more information:

www.nsfa-fane.ca/efp/wp-content/uploads/2014/06/Nutrient-Management-Planning_website.pdf

2.0 Regulations and Where To Find Them

Beyond the BMPs described in this guide, there may be additional provincial or municipal restrictions to which a farm must adhere. This section provides examples of the federal, provincial, and municipal regulations that are relevant to agricultural practices in municipal drinking water supply areas.

Additionally, there are relevant guidelines that help support these regulations, such as

Manure Management Guidelines

novascotia.ca/thinkfarm/support/#page=publications

Guidelines for the Land Application and Storage of Municipal Biosolids in Nova Scotia

nsfa-fane.ca/wp-content/uploads/2011/06/BiosolidGuidelines.pdf

The table below is a guide for finding information and regulations regarding setback distances. It is recommended to use the largest setback distance from the applicable regulations and/or guide.

Finding Setback Distances

Are you located in a Protected Water Area ?	If yes , review regulations for restricted and/or prohibited activities and setback distances. <i>See page 5.</i>	Always use largest setback distance.
Are you located in an area with a Municipal Land-Use Bylaw ?	If yes , review restrictions and setback distances. <i>See page 5.</i>	
Are you a licenced fur farm ?	If yes , review the Fur Act/Regulation requirements and setback distances. <i>See page 6.</i>	
Are you located in a municipal drinking water supply area in Nova Scotia?	If yes , review this guide and the setback distances in Appendix A. <i>See page 18.</i>	

2.1 Protected Water Areas (Special Designations)

About one-third of municipal drinking water supply areas have special designations known as Protected Water Areas where regulations apply. Contact the water utility or Nova Scotia Department of Environment to determine whether you are within a Protected Water Area.

Find a map of Protected Water Areas:

www.novascotia.ca/nse/water/docs/Protected.Water.Areas.Map.pdf

Find regulations in effect for existing designated Protected Water Areas:

novascotia.ca/just/regulations/rxaa-l.htm#env

Find a summary of the activities that are regulated:

www.novascotia.ca/nse/water/docs/ProtectedWaterAreasRegulations.pdf

Examples of agricultural activities that may be restricted or prohibited in a Protected Water Areas:

- grazing livestock
- storage of agricultural waste
- spreading manure
- pesticide use
- construction
- refueling
- removal of water

Always refer to the regulations for the most up to date information on restricted activities.

2.2 Municipal Land-use By-laws

About one-half of municipal drinking water supply areas have municipal land-use bylaws specifically designed to protect water quality. For example, some bylaws have setback requirements for new or expanding farms.

Contact the water utility operator responsible to determine whether they are within an area protected by zoning bylaws.

2.3 Other Acts and Regulations

Fisheries Act (federal): requires an approval to alter fish habitat; forbids the fouling of water frequented by fish: “no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish” or where the substance may enter water frequented by fish.

Environment Act (provincial): prohibits the release (knowingly or not) of a substance into the environment that causes or may cause a significant adverse effect. Sediment, nutrients, bacteria, pathogens, and pesticides can become pollutants from agricultural activities if not properly managed.

Fur Industry Act and Regulations (provincial): licensed fur farms must protect water quality; includes building requirements, setback distances, and water quality monitoring: novascotia.ca/agri/laws-and-regulations

Farm Practices Act (provincial): provides a mechanism for the establishment of normal farm practices. It is also designed to protect farmers who are following normal farm practices from civil action due to nuisance or negligence: novascotia.ca/agri/laws-and-regulations

Nova Scotia Department of Environment (provincial): Approvals may be required for activities such as withdrawal of greater than 23,000 litres per day of either surface or groundwater, or altering a wetland. Other activities may require either an approval or notification to the Nova Scotia Department of Environment, such as installation of a culvert or bridge. A complete list of regulations is available online at novascotia.ca/nse/resources/legislation.asp

Environmental Regulations for Nova Scotia Department of Agriculture: http://nsfa-fane.ca/wp-content/uploads/2011/06/env_handbk.pdf

Codes of Practice (national) for the care and handling of farm animals, including animal care requirements and recommended practices: www.nfacc.ca/codes-of-practice

3.0 Recommended Best Management Practices

Farmers operating within areas contributing to municipal drinking water supplies are expected to take every reasonable precaution to prevent or minimize impacts from activities that can impair water quality. One approach to achieve this is through the use of BMPs. The BMPs outlined in this guide have a proven record of success in reducing impacts to water quality from farming activities.

3.1 Water Management

The agriculture industry is highly dependent on a quality source of water for many aspects of production, whether it is for growing crops, livestock or sanitation of equipment or application of pest control products.

The following BMPs should be employed when managing water in municipal drinking water supply areas:

3.1.1 Clean Surface Water

- Divert clean surface water from rainfall or snowmelt away from manure storages or livestock yards to prevent contamination.
- Construct eaves trough on buildings, diversion ditches, or catch basins that drain into a tile drainage line to prevent contamination of clean water.

3.1.2 Additional Water Treatment

Examples of water systems that need additional treatment:

- food processing wash water
- milkhouse wash water
- abattoir wash water
- mink feed cart and feed tub wash water
- cull vegetable runoff
- livestock yard runoff

Additional treatment methods should be properly designed and maintained.

Examples of additional treatment methods:

- Use constructed wetlands to slow water flow and allow for naturally occurring physical, chemical, and biological processes to provide year round waste water management.
- Use vegetated infiltration areas to treat wastewater: solids are deposited on the surface and then broken down; dissolved pollutants infiltrate the soil where they are degraded by microorganisms.
- Use a water treatment septic system, designed by a qualified engineer, with underground settling tanks and earth filtration system to dissolve pollutants.

In any of the above water treatment systems, water recycling is encouraged where possible. This involves collecting the initial waste water and reusing it for an approved alternate use. The recycling of wash water and runoff can lower input costs, reduce the volume of clean water being used, and protect water supply.

Under certain environmental conditions, tile drainage discharge has the potential to contain pollutants such as *E.coli* and nutrients. Consider using vegetated ditches and/or vegetated infiltration areas for tile drainage discharge.

3.2 Livestock Manures and On-Farm Composting

The land application of livestock manure is recognized as an acceptable farming practice; however, manure application must be managed to minimize the impact on municipal drinking water supplies. Use the most recent version of the provincial Manure Management Guidelines along with this document to ensure protection of municipal drinking water supplies.

The following sections list BMPs that should be practiced when managing manure in municipal drinking water supply areas:

3.2.1 Manure Storage

Design manure storage to prevent farm runoff, whether you are using liquid or solid manure storage, roofed or open storage, yard storage and stockpiling.

Ensure that manure storage structures have the capacity to hold the total volume of manure, wastewater, and bedding produced between periods of land application — at least seven months storage.

Plan the location of animal production and manure storage facilities so that they meet the separation distances from water sources.

3.2.2 Field Application

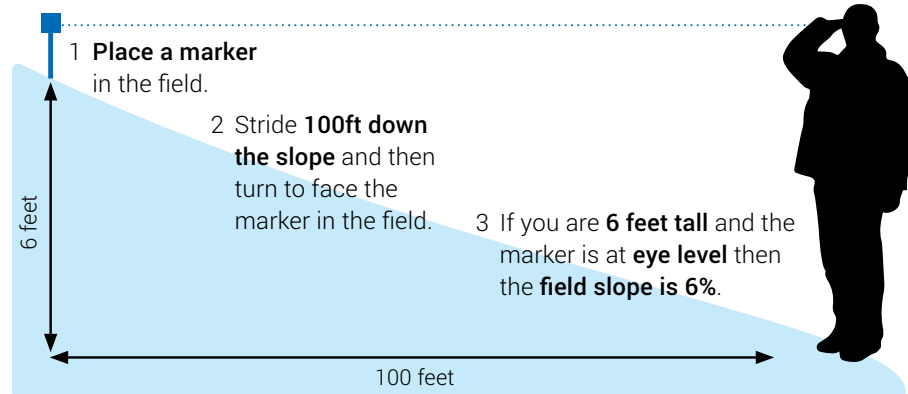
- Manage manure through a nutrient management plan. Benefits: allows for field rotation, avoids nutrient build-up, and maximizes utilization.
- Match manure hauling and spreading equipment to the type and consistency of the manure produced on your farm.
- Time the field application of manure to reduce the potential for environmental contamination and to provide the greatest benefit for soils and crops:
 - Avoid applying manure on wet soils to minimize compaction, farm runoff, and leaching.
 - Apply manure during the growing season to allow for uptake of nutrients and reduce farm runoff potential.
 - Avoid applying manure to frozen, snow covered, or saturated ground.
 - Avoid spreading manure between December 1 and April 1.
- Apply manure only on land with less than a 10% slope (see Figure 2 for how to determine slope).

Adjust the separation distance from a watercourse based on slope:

- 20 metres when slopes are less than 2%
- 50 metres when slopes are between 2–5%
- 100 metres when slopes are between 5–10% and apply mature only between May 15 and September 15

Determining Field Slope

Field slope is the percentage of land elevation over the length of the slope. A rough way to estimate field slope is shown below.



3.2.3 Compost

The Manure Management BMPs listed above apply to on-farm generated compost and off-farm generated compost from an approved facility. Composting off-farm feedstock requires an approval from Nova Scotia Department of Environment.

Additional information can be found in the *On-farm Management Through Composting Guidance* document.

3.2.4 Setback Distances

The recommended setback distances from water features for manure and compost storage and application are outlined in [Appendix A](#).

3.3 Livestock Production

Activities associated with livestock production that may have the potential for water contamination include pasturing of livestock, feed storage, and deadstock management. Allowing livestock access to watercourses may result in the deposit of feces and urine into the watercourse, creating a source of bacteria and nutrients in the municipal drinking water supply. Erosion and sedimentation may result from livestock entering and exiting the watercourse. As well, density of livestock and timeframe while pasturing can impact municipal drinking water supplies.

Best management practices for managing livestock in municipal drinking water supply areas:

- Fence pasture land to prohibit the entry of livestock into adjacent watercourses.
- Construct an approved crossing if you pasture livestock on both sides of the water supply – so the livestock or farm machinery can cross without entering and disturbing the watercourse.
- Maintain an appropriate livestock-to-acreage ratio: Livestock pastured in confined areas below the allowable acreage (as calculated in a NMP or using the Manure Management Guidelines) for more than 15 days will be considered manure storage, not a pasture.
- Implement management practices when supplemental feeding on pastures during non-productive periods. Feeding areas may have to be rotated to prevent exceeding manure application rates and separation distances. Bale grazing is an acceptable alternative provided livestock frequently have access to new bale grazing areas.
- Manage stored feed (like silage, mink feed) to prevent runoff/seepage; contain stored feed to prevent contact with water.
- Locate stored feed structures at least 100 metres away from of any intake source, wellhead, watercourse, or ditch.
- Minimize feed additives such as phosphoric acid and ammonium chloride; prefer products with low nutrient additives that offer similar results.
- Use fresh mixed feed and shortened mixing intervals to reduce the need for preservatives.
- Dispose of feed waste frequently in accordance with a waste management plan (if applicable).

- Remove dead livestock within 100 m of any intake source, wellhead, watercourse, or ditch as soon as possible.
- Dispose of dead livestock at an approved disposal facility or by on-farm composting. Dead livestock (excluding fur carcasses) may be buried under at least 2 feet of soil within 48 hours after death.

3.3.1 Setback Distances

The recommended setback distances from water features for pasturing livestock are outlined in [Appendix A](#).

3.4 Commercial Fertilizers

Commercial fertilizers have the potential to be contaminants in both surface and groundwater supplies. The land application of commercial fertilizers is recognized as an acceptable farming practice; however, fertilizer application, handling and storage must be managed to minimize the impact on municipal drinking water supplies.

The following BMPs should be employed when storing, handling, and applying chemical fertilizers in municipal drinking water supply areas:

3.4.1 Storage, Application, and Handling

Store fertilizer in an area protected from rainfall and run-off.

Apply fertilizer at a rate to meet crop nutrient requirements as defined in an approved NMP or equivalent. Never exceed the application rates recommended on the product label.

3.4.2 Setback Distances

The recommended setback distances from water features associated with chemical fertilizers are outlined in [Appendix A](#).

3.5 Pest Control Products

Pest control products have the potential to contaminate both surface and groundwater supplies. The use of pesticides presents a number of opportunities for risk of exposure to the applicator and the environment. The land application of pesticides is recognized as an acceptable farming practice; however, pesticide application, handling, and storage must be managed to minimize the impact on municipal drinking water supplies.

Under the Pesticide Regulations and the Activities Designation Regulations, Nova Scotia Department of Environment regulates the sale, use, storage, and disposal of pesticides. These regulations also require applicators and vendors of restricted or commercial class pesticides to become certified. If pesticides are being applied from an aircraft, applicators also require an approval from Nova Scotia Department of Environment.

All users of pest control products within a municipal drinking water supply area MUST hold a valid certificate of qualification or be directly supervised by a certified applicator as defined in the Pesticide Regulations of the *Nova Scotia Environment Act* (1995).

The following BMPs should be employed when storing, applying, and handling pest control products in municipal drinking water supply areas:

3.5.1 Storage, Application, and Handling

- Make sure the pesticide is registered for the planned use – read the manufacturer’s label.
- Store pesticides according to the information contained on the manufacturer’s label.
- Use secondary containment (recommended).
- Calibrate the pesticide sprayer regularly; replace nozzles as required.
- Choose low drift technologies for nozzles.
- Prevent backflow potential and water source contamination when filling a sprayer, water must be acquired in a manner that prevents backflow potential or water source contamination.
- Choose a mixing and loading area that is outdoors or in a well-ventilated area.
- A closed mixing system is recommended.

- Watch closely when filling a sprayer to prevent overflow.
- Check wind speed before spraying –Do not spray pesticides when wind speed is over 17.6 km per hour (11 mph) or the speed indicated on the label.
- Establish a simple emergency preparedness and response plan in case of a pesticide spill.
- Use pesticides as part of an integrated pest management program only.

3.5.2 Setback Distances

The recommended setback distances from water features associated with pest control products are outlined in [Appendix A](#).

3.6 Soil Conservation

Soil loss is a problem both for farmers and for the environment. Farmers experience this as loss of organic matter and fertility. Lost soil can cause sedimentation in municipal drinking water supplies. This is a bigger problem when soil particles contain contaminants such as pesticides or nutrients.

Farmers are encouraged to use erosion control methods for annual crops and perennial crops that are subject to erosion, like small fruits and tree fruits.

Farmers are also encouraged to use erosion control methods when tillage operations or harvesting expose bare soil during mid-October through mid-April.

3.6.1 Erosion Control

The following BMPs should be employed to reduce the impact of soil erosion and promote soil conservation in municipal drinking water supply areas:

- Practice crop rotation, reduced tillage, mulching, cover cropping, and cross-slope farming.
- Reduce soil compaction by not tilling or harvesting when soil is wet.
- Avoid exposing large areas of bare soil during the winter period. For fields with bare soil or less than 50% cover, mulch with hay or straw if it is too late to provide adequate field cover with cover crops.

- Construct erosion control structures when erosion cannot be controlled by other means – terraces or grassed waterways.
- Use soil moisture monitoring technology to conserve water and reduce run off risk to prevent soil erosion during irrigation.

3.6.2 Buffer Strips

Buffer strips separate farm activities from sensitive areas. Buffers are strips of land in permanent vegetation that when strategically placed can reduce soil erosion, as well as manage many other potential issues. Buffers include filter strips, grassed waterways, shelterbelts, windbreaks, living snow fences, shallow water areas for wildlife, field borders, alley cropping, and vegetative barriers. Riparian buffers refer to a buffer strip along a stream.

The following BMPs should be employed when implementing buffer strips to reduce the impact of soil erosion and promote soil conservation in municipal drinking water supply areas:

- Construct a 5 metre wide buffer strip between a field boundary and a watercourse.
- If the field is row cropped, leave an additional 5 m wide grass buffer strip.
- Maintain buffer strips.

3.7 Fuel and Petroleum Products

Both fuel and oil are frequently used on farms. As a result of their extensive use, fuel handling and storage must be managed to minimize the impact on municipal drinking water supplies.

The following BMPs should be employed when storing and handling fuel in municipal drinking water supply areas:

3.7.1 Storage and Handling

- Store fuel away from other stored chemicals and combustible materials.
- Ensure that your fuel storage has secondary containment – like a dedicated fuel storage shed with a concrete floor and curb, or a double-walled tank.
- Choose fuel tanks that are approved by Underwriters Laboratories of Canada (ULC) or Canadian Standards Association (CSA).
- Register all underground petroleum storage tanks and any aboveground petroleum storage tank with a capacity of 4000 litres or more with Nova Scotia Department of Environment.
- Protect fuel storage with a barrier.
- Make sure that electric pumps have an automatic shut-off.
- Follow insurance company recommendations on replacement timing for fuel tanks.
- Inspect fuel tanks and dispensing equipment monthly – both by visual observation and by running a hand underneath the tank to check for moisture.
- Establish a simple emergency preparedness and response plan in case of a fuel spill or leak.
- Make every effort to use fuel rather than disposing of it as a waste product. If the fuel is no longer needed, find out if it can be returned to a supplier. Contact a supplier appropriate to the particular material (e.g., fuel oil, gasoline). Fuel that can not be returned must be disposed of at a hazardous waste facility.

3.7.2 Setback Distances

The recommended setback distances from water features associated with fuel handling and storage are outlined in [Appendix A](#).

Appendix A Minimum Setback Distances

Recommended minimum setback distances from water features within the municipal water supply areas for agriculture activities in Nova Scotia. Use the largest setback distance from the applicable regulations and/or guide.

Agriculture Activity	Minimum Setback Distance (Meters)			
	Intake Source ¹	Wellhead	Lake, River, Brook	Ditches
Manure and Compost Application	200	200	20 ²	5
Pasturing Livestock	30	30/15 ³	5	5
Livestock Facilities ⁴ (Non-Contained Storage - Solid manure)	200	200	100	20
Livestock Facilities ³ (Fully Contained Storage - Liquid manure)	200	100	50	20
Chemical Fertilizer Loading	200	200	200	200
Chemical Fertilizer Application	50	50	10	5
Fuel Storage	200	200	200	30
Pesticide Storage and Handling	200	200	30	30
Pesticide Application ⁵	200	30	30	5

1 The source water body in which an intake structure is located. In the case of a river, beyond 200 m upstream, the setback distance for lakes, rivers, and brooks applies.

2 As per Section 3.2.2, 20m if slope is less than 2%; 50m if slope 2-5%; 100m if slope 5-10%.

3 30m to a dug well and 15m to a drilled well.

4 New Livestock facilities

5 Pesticide application should follow the recommended setback distances in this table or the distances supplied on the label, whichever is higher.

Appendix B Glossary

Animal unit equivalent (AUE) – a measurement of livestock based on the equivalent of a mature cow (about 454kg live weight); roughly one cow, one horse, one mule, five sheep, five swine, or six goats

Ditch – an excavated channel for the purpose of draining water not including land formed runs on dykelands or grassed waterways on uplands

Farm runoff – surface water generated from rain or snow melt that flows through farm yards or fields picking up contaminants like manure, silage effluent, or vegetable waste, etc.

Groundwater – all water naturally occurring beneath the surface of the earth. It is water in the ground that is stored in an aquifer from which wells, springs, and groundwater runoff are supplied

Intake – infrastructure located in a surface water body that draws water into the municipal water supply system

Land-use bylaws – municipally developed restrictions on uses of land

Municipal drinking water supply – either a surface water body (e.g., a lake, river or stream) or a groundwater well that supplies a municipal drinking water system

Municipal drinking water supply area – the area of the surface water watershed that contributes all the water that is used to supply the municipal drinking water source; in the case of a groundwater supply, it is the land area that contributes water to the municipal well, also known as the wellfield area

Pesticide – a substance that can be used to control pests such as plants, animals, or virus; refer to the Pesticide Regulations for a more detailed definition: www.novascotia.ca/just/regulations/regs/ENVPEST.HTM

Protected Water Area – an area designated under Section 106 of the Nova Scotia Environment Act; find regulations specific to each Protected Water Area at <https://www.novascotia.ca/just/regulations/rxaa-l.htm#env> – the Environment Act specifies that designation is put into place only after a formal request is received from the municipality or water works operator and sufficient public consultation has occurred

Runoff – the water from rain, snowmelt, or irrigation that flows over the land surface and is not absorbed into the ground, instead flowing into streams or other surface waters or land depressions

Surface water – water located in lakes, ponds, rivers, streams, brooks, springs, and wetlands

Watercourse – the bed and shore of every river, stream, lake, creek, pond, spring, lagoon or other natural body of water, and the water therein, within the jurisdiction of the province, whether it contains water or not, and all ground water

Wellhead – the above ground structure associated with each well

Appendix C Resources

General

Nova Scotia Department of Agriculture - www.novascotia.ca/agri/

Nova Scotia Department of Environment - www.novascotia.ca/nse/

Nova Scotia Department of Environment "Water Portal" - waterforlife.gov.ns.ca/

Environmental Regulations Handbook for Nova Scotia Agriculture, Second Edition, 2004. Nova Scotia Department of Agriculture and Fisheries, Nova Scotia Department of Environment
nsfa-fane.ca/wp-content/uploads/2011/06/env_handbk.pdf

Protected Water Areas designated pursuant to the Environment Act:
Map: www.novascotia.ca/nse/water/docs/Protected.Water.Areas.Map.pdf
Regulations: www.novascotia.ca/just/regulations/rxaa-l.htm#env

Manure

Manure Management Guidelines. Nova Scotia Department of Agriculture, novascotia.ca/thinkfarm/support/#page=publications

Fact Sheets available on Nova Scotia Federation of Agriculture Environmental Farm Plan website www.nsfa-fane.ca/efp/resources/factsheets :

- *Nutrient Management Plans*
- *Manure Calibration*
- *On-Farm Livestock Mortality Management*
- *Manure Management Through Composting*
- *On-farm Composting of Mink Manure*
- *Guidelines for Land Application and Storage of Municipal Biosolids in Nova Scotia*
- *Constructed Wetlands for the Treatment of Agricultural Wastewater in Atlantic Canada*

Livestock

Fact Sheets available on Nova Scotia Federation of Agriculture Environmental Farm Plan website www.nsfa-fane.ca/efp/resources/factsheets :

- *On-Farm Livestock Mortality Management*
- *Silage Seepage*

Water

Fact Sheets available on Nova Scotia Federation of Agriculture Environmental Farm Plan website www.nsfa-fane.ca/efp/resources/factsheets :

- *Livestock Watering Systems for Pastures*
- *Electric Fencing for Pastures*
- *Providing Water with Limited Access Ramps*
- *Solar Powered Pumping Systems for Livestock Watering*
- *Lab Tests for Water Quality*
- *Well Water Quality Concerns*
- *Canadian Drinking Water Quality Guidelines*
- *Disinfection of Water Wells by Chlorination*
- *NSDA Analytical Lab Information (water samples)*

Chemical Fertilizers

Nutrient Management Plans - Environmental Farm Plan Fact Sheet
www.nsfa-fane.ca/efp/resources/factsheets

Fuel

Farm Fuel Storage and Handling - Environmental Farm Plan Fact Sheet
www.nsfa-fane.ca/efp/resources/factsheets

Pest Control Products

Fact Sheets available on Nova Scotia Federation of Agriculture website www.nsfa-fane.ca/efp/resources/factsheets :

- *On-farm Pesticide Use*
- *Tree-Row-Volume: concept, calculations and application*
- *Air-Blast Sprayer Calibration for Orchards and Vineyards*
- *Field Sprayer Calibration*
- *Nozzle Selection for Blueberry Growers*
- *Choosing Drift-Reducing Nozzles*
- *Selecting the Correct Nozzle to Reduce Spray Drift*
- *Pesticide Storage and Handling*
- *How can I get a Pesticide License?*

To learn more about pesticide certificates, approvals, exams and exam study materials, contact **Nova Scotia Department of Environment's Regional Offices:**

Central Region	902-424-7773
Northern Region	902-893-5880
Western Region	902-679-6086
Eastern Region	902-563-2100

Soil Conservation

Fact Sheets available on Nova Scotia Federation of Agriculture website www.nsfa-fane.ca/efp/resources/factsheets :

- *Soil Conservation Practices*
- *BMPs for Riparian Zones in Atlantic Canada*
- *Shelterbelts: A Growing Investment*
- *A Guide to Using Cover Crops in the Maritimes*
- *No-till Alternative for Nova Scotia Producers*
- *Irrigation Water Management for Farmers*
- *Irrigation Systems Types and Typical Applications*
- *Trickle Irrigation: How long do I trickle?*
- *Soil Moisture Monitoring (ATTRA)*

The **Nova Scotia Soil Erosion Tool** can be used to help determine soil erosion levels based on available soil information, rainfall data and inputs of crops, cropping practices and slope length.

www.nsfa-fane.ca/efp/nova-scotia-soil-erosion-tool