

Background/Objective

Soil erosion is a serious environmental and agricultural production issue throughout Canada. The loss of topsoil by water, wind, or tillage erosion together with the associated loss of soil organic matter threatens the ability of our soils to produce food crops and feed for livestock. In addition, the transport of sediment and dust off the field can negatively impact surface water quality, drainage courses, and human health. Increased adoption of low disturbance seeding systems and other improved land stewardship practices has helped lower soil erosion rates from traditional levels. Nevertheless, the continued erosion susceptibility of some soils even with these improved practices emphasize the need to develop a more comprehensive approach to erosion control.

Erosion susceptibility varies considerably depending on soil, landscape, climate, and management factors. These factors can vary considerably from year to year, and even on the same farm. Crop rotation and choice of crop (high vs. low residue) are key management decisions which can affect erosion susceptibility. Soil degradation (including salinization) is often complex and involves management considerations. Soil salinity can also be a major soil degradation problem. Therefore, a detailed planning approach is sometimes required to properly assess all factors and develop the most effective solutions.

The objective of this beneficial management practice (BMP) is to develop a detailed plan that properly assesses all factors for erosion and/or salinity control and makes appropriate recommendations. By developing a soil erosion and salinity control plan, you can:

- reduce soil erosion and runoff;
- improve nutrient retention on the land for crop growth;
- improve the quality of your soil and water; and
- control the spread of soil salinity.

A soil erosion and/or salinity control plan should be developed by a qualified person and should:

- assess the existing soil erosion and/or salinity on the farm;
- outline the various types of soil erosion on the farm and their causes (including rill erosion, sheet erosion, gully erosion, wind erosion and other soil degradation issues) and/or outline the various types of soil salinity on the farm and their causes;
- provide a map of the locations of the erosion and/or salinity, and their proximity or effect on water bodies or waterways or impact on surrounding land;
- describe soil types and slopes, slope lengths, and their susceptibility to erosion; and/or describe soil types and relationship to soil salinity;
- recommend mitigation options for soil salinity, gully erosion, rill erosion, sheet erosion, wind erosion, and soil degradation, and include long-term solutions and short-term potential problems;
- provide a cost analysis of various remedial and preventative action; and
- describe recommended cropping and grazing methods, including direct seeding or reduced tillage, crop rotations, rotational grazing, strip cropping, re-seeding to more protective or salt-tolerant species, shelterbelts, water-run construction, and rehabilitation.

Relevant sections of the Manitoba Environmental Farm Plan Workbook

Soil and Site Characteristics and Resource Package (Section A)
Soil Management (B10)
Field Crop Management (B13)
Pasture Management (B15)
Water Bodies, Natural Areas and Biodiversity (B16)
Drainage and Irrigation (B17)

Related BMP categories

In addition to this BMP category, you may also want to consider practices funded under the following categories:

- Erosion Control Structures (riparian and non-riparian)
- Land Management for Soils at Risk

Please note that you must complete a separate application form for each BMP category.

Conditions for eligibility

- You must have a Statement of Completion certificate for an individual Environmental Farm Plan or an Equivalent Agri-Environmental Farm Plan in order to be eligible for the program.
- You must receive an approval letter from the the Canada-Manitoba Farm Stewardship Program before proceeding with your project.

Canadian Environmental Assessment Act (CEAA) Requirements

This is a planning activity; therefore an environmental assessment under the CEAA is not required.

Process

1. Submit your application.
2. Program approves application. An approval letter will be issued to you.
3. You may begin work and complete your project.
4. Submit your documentation of project completion (itemized receipts and copy of plan).
5. Payment is made.
6. An audit inspection of final work may occur before or after payment is received.
7. An application for BMP funding for remedial actions can be made, if required.

Practices eligible for funding

Practices	Cost Share	Maximum
Consultative services to complete a soil erosion and/or salinity control plan	50%	\$2,000

Eligible and ineligible costs

Eligible costs	- Planning and decision support tools (computer software, aerial photos) - Electromagnetic (EM) surveys
Ineligible costs	- Computer hardware

Note: A copy of your soil erosion and/or salinity control plan will be required to issue payment.

Technical Project Support

Before you submit your application, it is strongly recommended that you discuss your intended project with a Manitoba Agriculture, Food and Rural Initiatives (MAFRI) or AAFC-PFRA representative. Program technical leads have also been established for each BMP category to assist you with your application. Resource staff can help answer program questions, determine required project components, technical standards, considerations, and ways to estimate project cost.

Technical Lead

Jeff Thiele and Myles Kopytko, Agriculture and Agri-Food Canada (PFRA), Dauphin 204 622-4214 and Brandon 204 578-3642

Reference Materials

The following reference material will provide you with more information on soil erosion and/or salinity control planning:

Agriculture and Agri-Food Canada- Prairie Farm Rehabilitation Administration (AAFC-PFRA)

www.agr.gc.ca/pfra

- Manitoba Soil Resource Conservation Manual

www.agr.gc.ca/pfra/soil/soilc01.htm

- Prairie Soils:

The Case For Conservation

www.agr.gc.ca/pfra/soil/prairiesoils.htm

- Prairie Agricultural Landscapes

www.agr.gc.ca/pfra/pub/pallande.htm

- Beneficial practices which

conserve soil quality

www.agr.gc.ca/pfra/land/practices_e.htm

Agriculture and Agri-Food Canada

www.agr.gc.ca

- The Health of our Soils

sis.agr.gc.ca/cansis/publications/health/intro.html

Manitoba Agriculture, Food and Rural Initiatives

www.gov.mb.ca/agriculture

- Manitoba Soil Resource Information www.gov.mb.ca/agriculture/soilwater/soil/soilrep.html

Alberta Agriculture, Food and Rural Development

- Introduction to wind erosion control

[www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex3524?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3524?opendocument)

- Introduction to water erosion control

[www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex3918?opendocument#soilwater](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3918?opendocument#soilwater)

- CAESA Soil Quality Program Research Factsheets

[www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all)

- Beneficial Management Practices: Environmental Manual for Crop Producers in Alberta

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex9313](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex9313)

- Procedures manual for watershed-based salinity management

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/sag2419?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag2419?opendocument)

- Dryland saline seeps: types and causes

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex167?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex167?opendocument)

- Salt tolerance of plants

[www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex3303?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3303?opendocument)

- Structural controls for dryland saline seeps

[www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex171?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex171?opendocument)

- Saline slough rings

[http://agapps16.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/sag3379?opendocument](http://agapps16.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag3379?opendocument)

- Salt tolerant grasses [www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/sag3299?opendocument](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag3299?opendocument)

The Manitoba-North Dakota Zero Tillage Farmers Association

- Zero Tillage Production Manual www.mandakzerotill.org

- Zero Tillage- Advancing the Art

Saskatchewan Agriculture, Food and Rural Revitalization

- The nature and management of salt-affected land in Saskatchewan

<http://www.agr.gov.sk.ca/docs/environment/SaltAffectedSoils.pdf>

North Dakota State University

- Salinity and Sodicyity in North Dakota Soils

www.ext.nodak.edu/extpubs/plantsci/soilfert/eb57-1.htm

