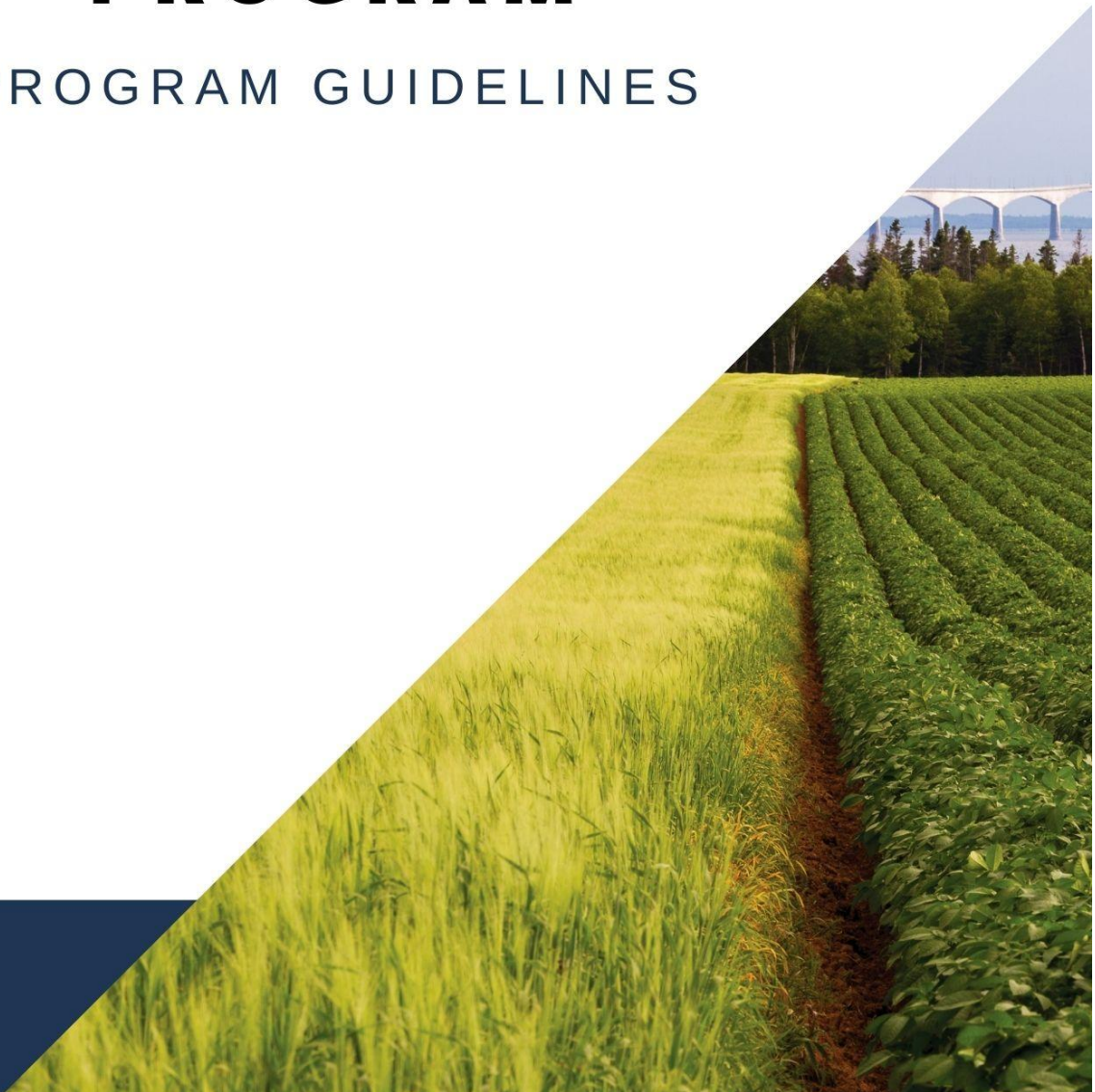




# **PEI AGRICULTURE CLIMATE SOLUTIONS PROGRAM**

PROGRAM GUIDELINES



## **PROGRAM DESCRIPTION:**

The *PEI Agriculture Climate Solutions Program* is designed to encourage and provide assistance to the Prince Edward Island agriculture industry to implement best management practices (BMPs) that mitigate agricultural contributions to climate change. The Program will provide solutions for mitigation by supporting both practices that reduce the amount of greenhouse gases (GHGs) released during or from an agricultural activity or that promote carbon sequestration in soils. The Program provides financial assistance for the adoption of BMPs through per-acre payments that encourage the adoption of beneficial field-based practices; through project-based payments that encourage the adoption of beneficial on-farm projects; and, through trial-based payments that encourage the adoption of beneficial practices through demonstration, validation, and knowledge-transfer.

Funding for this program is provided by [Environment and Climate Change Canada's Low Carbon Economy Fund](#) and the Province of Prince Edward Island. The Low Carbon Economy Fund supports projects and programs that generate clean growth, reduce greenhouse gas emissions and help meet or exceed Canada's Paris Agreement commitments.

**Program outcome:** Reduce or mitigate GHG emissions

### **Who is eligible:**

- Mi'kmaq First Nations and other Indigenous Organizations;
- Agricultural producers or groups of agricultural producers with a valid EFP;
- Agricultural landowners;
- Agricultural industry organizations, clubs, and associations (eligible for BMP 7 & 8)
- Public, private and academic institutions or businesses (eligible for BMP 7 & 8)

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## How to apply:

Application forms can be accessed here: [www.princeedwardisland.ca/agclimatesolutions](http://www.princeedwardisland.ca/agclimatesolutions)

Completed applications may be submitted online, or via mail or email to the Program Officer.

### Email applications:

[agstewardship@gov.pe.ca](mailto:agstewardship@gov.pe.ca)

### Mail applications:

PEI Department of Agriculture and Land  
11 Kent Street, PO Box 2000  
Charlottetown, PE, C1A 7N8  
(902) 368-4880 (telephone)  
(902) 368-4857 (facsimile)

**Application requirements:** Applicants must submit a full application to be considered for funding. The application package consists of the application form, as well as any project details required for each BMP.

### For more information:

Agriculture Program Officer  
agstewardship@gov.pe.ca  
(902) 894-0340  
11 Kent Street, PO Box 2000  
Charlottetown, PE C1A 7N8

## **BMP 1. ESTABLISHMENT OF NURSE CROPS**

The establishment of nurse or companion crops alongside or in-between rows of a commercial row crop can provide an opportunity for longer soil cover with living biomass throughout the growing season. This can increase soil organic carbon and prevent nitrous oxide (N<sub>2</sub>O) production by retaining residual nutrients in the soil in cases where the nurse crop continues growth following harvest of the commercial crop.

While the objective of this BMP is greenhouse gas (GHG) reduction, other benefits of implementing this BMP include soil moisture retention, prevention of nutrient loss and soil erosion, and species diversification in a rotation can improve the soil microbial ecosystem and nutrient cycling.

### **Cost share ratio and funding cap**

Funding for this BMP is \$60/acre up to \$1,000/field.

The funding cap for this BMP is \$3,000/year per applicant.

### **Eligible activities**

- The establishment of a nurse crop in-between rows of an annual commercial crop or annual row crop (potatoes, corn, carrots, turnip, etc.).

### **Eligible expenses**

- Acreage of an established nurse crop within an annual commercial crop or annual row crop by broadcasting or direct inter-seeding of nurse crop seed.

### **Ineligible expenses**

- Forages underseeded in cereal or other non-row crops.

## **Requirements**

- A brief summary that includes details regarding the selected nurse crop species (and why it was selected), the commercial row crop the nurse crop will be planted with or adjacent to; the method of establishment, and how many acres will be planted will be required with the application;
- All property IDs that will be planted to a nurse crop must be included on the application.

## **Notes**

- All field approved projects through this BMP are subject to site visitations which will occur throughout the growing season in order to ensure that a commercial crop was grown and that a nurse crop was well established and maintained for the suitable length of time depending on the commercial row crop;
- Seeding rates should ensure adequate plant establishment, density and cover is achieved;
- Each field is eligible to receive funding for only one BMP under this Program.

## **BMP 2. EXTENDING ROTATIONS WITH SOIL-BUILDING PERENNIAL CROPS**

The inclusion of perennial crops in a rotation allows for greater opportunity for carbon dioxide (CO<sub>2</sub>) to be sequestered from the atmosphere and stored in soil carbon pools.

While the objective of this BMP is GHG reduction by avoiding CO<sub>2</sub> emissions from soils due to soil disruption and by promoting the sequestration of CO<sub>2</sub> from the atmosphere, other benefits of implementing this BMP include building soil organic matter, and improving the structural and fertility functions of the soil.

### **Cost share ratio and funding cap**

Funding for this BMP is \$100/acre up to \$2,000/field.

The funding cap for this BMP is \$5,000/year per applicant.

### **Eligible activities**

- The maintenance of a soil-building perennial crop that remains growing for a second full rotation year in addition to the current rotation (i.e. a perennial soil-building crop established for two consecutive years).

### **Eligible expenses**

- Acreage in existing soil-building perennial rotation crop maintained for an additional year (i.e. maintained for two consecutive years) in a rotation with annual crops.

### **Ineligible expenses**

- Annual crops;
- Long-term pasture, forage or fallowed land.

### **Requirements**

- A brief summary of the rotation plan that includes details regarding the selected soil-building crop species (and why it was planted), the preceding crop rotation for 5 years, the method of establishment, and how many acres are planted will be required with the application;
- Proof of previous crop rotation may be required;
- All property IDs planted to the soil-building rotation crop must be included on the application;
- Two full consecutive years of the soil-building rotation crop must be maintained (the crop must not be terminated in the season prior to the next annual crop in the rotation);
- Fields are eligible only if the soil-building perennial crop had already been established the previous rotation year.

### **Notes**

- The field's rotation must include annual crops within it and must not be a long-term forage field, pasture or fallowed land;
- Payment for acreage of existing soil-building perennial crops will be made after confirmation that an additional, consecutive year of perennial soil building crop has been added to the rotation;
- Payments for this BMP are based on acceptable establishment from the previous year;
- All field approved projects through this BMP are subject to site visitations which may occur at any point throughout the year to ensure that a full-season, soil-building perennial rotation crop was well-established and remained for the entire additional, consecutive year;
- Crop rotation plans may be verified using aerial imagery, or through crop insurance reports.

### **BMP 3. NO-TILL PLANTING OF CROPS**

Reducing the intensity of soil disturbance in agricultural fields can reduce or prevent the loss of soil organic matter. The transition of cropland under cultivation using intensive tillage practices to no-till practices can mitigate climate change through two avenues: by reducing CO<sub>2</sub> emissions from the soil during intensive tillage events, and by promoting sequestration of CO<sub>2</sub> from the atmosphere and storage within soil carbon pools.

#### **Cost share ratio and funding cap**

\$50/acre up to \$1,000/field for no-till planting into green or crimped crops.

The funding cap for this BMP is \$3,000/year per applicant.

#### **Eligible activities**

- The establishment of a commercial crop using no-till planting.

#### **Eligible expenses**

- Acreage in a crop that was established using no-till planting methods into a living or crimped crop.

#### **Ineligible expenses**

- Commercial or annual crops that were planted using minimum-tillage or intensive tillage methods during seed bed preparation and planting.

#### **Requirements**

- A brief summary that includes details regarding the selected crop species that will be grown, the method of establishment (including preceding crop termination), and how many acres will be planted will be required with the application;
- All property IDs that will be no-till planted must be included on the application;
- Fields are only eligible if the crop has been no-till planted into an existing living or crimped crop (harvested crop stubble or chemically desiccated crops are not eligible).

#### **Notes**

- All field approved projects through this BMP are subject to site visitations which may occur in the spring and early growing season to ensure that the crop was planted using no-till practices into a living or crimped crop;
- Crops should be planted using seeding rates and planting cut-off dates recommended by the seed supplier. Seeding rates should be determined to ensure adequate plant density and cover is achieved, and should be determined based on planting date, year-to-year variation in seed size (thousand-kernel weight) and % germination.

#### **BMP 4. WILLOW PLANTATIONS IN FIELD EDGES AND SENSITIVE AREAS**

Willow (*Salix sp.*) trees are very effective in nutrient uptake, and as a result, grow rapidly. Nutrients can accumulate in low-lying areas and field-riparian areas, and therefore, the risk of N<sub>2</sub>O emissions is higher in these areas. Willows that are planted in these areas can intercept these nutrients and prevent N<sub>2</sub>O emissions into the atmosphere.

While the objective of this BMP is the reduction of N<sub>2</sub>O emission from nutrient loss and accumulation in agricultural fields, willow buffers also prevent other environmental impacts by acting as physical barriers to soil erosion and runoff. Furthermore, willows offer economic benefits, as their rapid growth provides the opportunity for frequent biomass harvest.

#### **Cost share ratio and funding cap**

Funding for this BMP is 35% of eligible expenses up to \$5,000 over the life of the Program.

#### **Eligible activities**

- The establishment of willow buffers in agricultural field edges or sensitive areas in agricultural fields.

#### **Eligible expenses**

- Cuttings, and in-kind costs for willow seed-bed preparation and planting;

#### **Ineligible expenses**

- The establishment of willow trees within the regulated 15m buffer zone;
- Expenses for the planting of any other tree or shrub species;
- Biomass harvesting or other maintenance activities in new or established willow buffers.

#### **Requirements**

- A brief summary that includes details regarding the field plan for selected willow sites, the selected willow tree cultivar, site preparation activities, cutting density, planting dates, and site management activities will be required with the application;
- Willow sites must be planned, planted and managed according to the Agriculture and Agri-Food Canada guidelines for willow riparian buffers (AAFC No. 12433E);
- All property IDs that will be planted with willows must be included on the application;
- Willow sites in field-riparian areas must be planted outside the 15m regulated buffer zone (PEI Watercourse and Wetland Protection Regulations).

#### **Notes**

- Selected willow cultivars must be locally adapted, such as “viminalis 5027”, “miyabeana Sx64 and Sx67”, or “sachalinensis SSx61”;
- All approved projects through this BMP are subject to site visitations which may occur at any point throughout the year to ensure that the willow buffer was planted, managed properly and has acceptable establishment.

## BMP 5. LIQUID MANURE STORAGE COVERS

Production of methane (CH<sub>4</sub>), N<sub>2</sub>O and CO<sub>2</sub> occur from livestock manure storages; particularly liquid manure storages.

Ammonia (NH<sub>4</sub>) is also released from manure storages, which may be deposited elsewhere and subsequently released as N<sub>2</sub>O. Various types of manure storage cover systems exist, and can significantly reduce GHG emissions by preventing their release into the atmosphere or by capturing the GHG emissions.

Other benefits of manure storage covers include alleviating storage capacity as a result of reducing precipitation into the storage, as well as reducing odours from the storage. Alleviating storage capacity prevents the need for frequent spreading of manure, therefore, reducing GHG emissions from hauling and spreading. Environmental risks associated with untimely spreading of manure when conditions are not favourable (wet or frozen ground) are also prevented with greater storage capacity.

### Cost share ratio and funding cap

Funding for this BMP is 35% of eligible expenses up to \$30,000 over the life of the Program.

### Eligible activities

- The installation of manure storage cover systems for liquid manure storages, including floating contact covers or non-contact covers (inflatable domes, structures)

### Eligible expenses

- Material costs for floating contact covers (whole sheet or aggregated sections);
- Material costs for sealed inflatable covers (tent-like structures, self-inflated domes or lids);

- Materials for roof structures over the storage;
- Water collection system and pumps associated with floating contact covers;
- Methane utilization infrastructure (*except by open flames*);
- Associated assessment, design, construction and labour costs.

### Ineligible expenses

- Water collection systems and pumps that are not directly associated with the manure storage cover;
- Open flares;
- Gas collection systems that are not directly associated with methane collection from the manure storage;
- Covers or infrastructure for solid manure piles or livestock facilities.

### Requirements

- A brief summary that includes details regarding the existing liquid manure storage system, the selected manure storage cover, proper cover management and maintenance activities, and project details (method of installation, assessments completed, construction activities, etc.);
- Applicants must select covers appropriate and suitable for use in PEI's climate;
- Roof structures must be designed by a Professional Engineer and applicants must provide the sealed engineering plan with the application;
- Applicants constructing a roof structure must have a building permit.

### Notes

- Only liquid manure systems are eligible under this BMP.



## **BMP 6. IMPROVED GRAZING MANAGEMENT PRACTICES**

Managing pastures to control the timing and intensity of grazing animals can mitigate GHG emissions by maintaining healthier, younger grass that is more digestible for ruminant livestock. This increases feed-use efficiency in grazing ruminant livestock, and subsequently, reduces CH<sub>4</sub> emissions from enteric fermentation processes. It also improves the soil and grass's ability to sequester CO<sub>2</sub> emissions from the atmosphere, reduces compaction and overgrazing.

### **Cost share ratio and funding cap**

Funding for this BMP is 35% of eligible expenses up to \$5,000 over the life of the Program.

### **Eligible activities**

- The purchase and use of internal/cross fencing lines and associated fencing materials to implement rotational or strip grazing practices;
- Pasture improvement activities (re-seeding, fertilization, etc.) for applicants implementing a rotational/intensive grazing management plan for the first time.

### **Eligible expenses**

- Fencing materials associated with the approved improved grazing management plan;
- Electric fencers, including solar battery chargers;
- In-kind costs for pasture improvement activities such as re-seeding, fertilizing or aerating.

### **Ineligible expenses**

- Materials for perimeter fencing or fencing that isn't part of the approved grazing management plan;
- Watering systems and pumps;
- Gates.

### **Requirements**

- A brief summary that includes details regarding the pasture plan, improvement activities, and the timing and livestock density will be required with the application;
- All property IDs that will be utilized for rotational grazing must be included on the application.

### **Notes**

- All approved projects through this BMP are subject to site visitations to ensure that the rotational grazing practice is being implemented for which this program provided financial assistance for;
- Community pasture organizations are eligible to apply for this BMP.

## **BMP 7. THE DEVELOPMENT OF SITE-SPECIFIC, “RIGHT RATE” NITROGEN FERTILIZER RECOMMENDATIONS**

The Biological Nitrogen Availability (BNA) test (offered by the PEI Analytical Laboratories) provides an estimate of soil-supplied nitrogen (N) that might be supplied throughout the growing season, under ideal laboratory conditions. The amount of predicted soil N that may become available throughout the season can be greater than, less or equal to meeting crop requirements, if ideal conditions are met. However, the conditions vary throughout the growing season and crop N demand peak at various times. Often, N fertilizers provide all or most of the crop N requirements to account for the uncertainty in the soil’s ability to provide N. Therefore, additional N sources in the soil may not be fully accounted for. This can lead to an excess of N in the soil, which creates a source of N<sub>2</sub>O emissions and nitrate (NO<sub>3</sub>) leaching.

This BMP aims to mitigate N losses (N<sub>2</sub>O emissions and NO<sub>3</sub> leaching) from agricultural soils by applying site-specific N recommendations based on the BNA test, which reflect the ability of the soil to supply N from various sources that are often unaccounted for.

### **Cost share ratio and funding cap**

The cost share ratio is project dependent.

### **Eligible activities**

- The development and implementation of field trials to determine site-specific N recommendations based on the results of the BNA test.

### **Eligible expenses**

- Soil and GHG sample analysis, equipment supplies, vehicle usage, labour costs, and producer participation stipend.

### **Ineligible expenses**

- Field trials that do not seek to incorporate the BNA test for N rate recommendations.

### **Notes**

- The Department of Agriculture and Land will be the lead on conducting this trial – producers that are interested in participating in this trial can submit an application to the program as an expression of interest in participating or can contact the Department directly.
- All applications will be reviewed with the applicant to determine eligibility within the research trial.

## **BMP 8. THE DEMONSTRATION OF FEED ADDITIVES IN RUMINANT LIVESTOCK DIETS**

Methane is produced in ruminant animals during digestion, where methanogenic bacteria in the rumen produce CH<sub>4</sub> gas during enteric fermentation of feed. Feed quality and diet is an important factor in determining the magnitude of CH<sub>4</sub> production. Dietary control by selecting high quality forages and using strategic supplementation of additives to control carbohydrate composition of the diet is considered an immediate and sustainable mitigation approach for CH<sub>4</sub> emissions from ruminant livestock. In Atlantic Canada, preliminary investigations of feed additives on reducing CH<sub>4</sub> emissions from livestock has revealed promising results using in-vitro methods. However, there has been little to no on-farm assessments.

This BMP aims to mitigate CH<sub>4</sub> emissions from ruminant livestock operations by demonstrating the use of feed additives in ruminant diets.

### **Cost share ratio and funding cap**

The cost share ratio is project dependent.

### **Eligible activities**

- The development and implementation of on-farm feed additive trials to determine the most effective feed additive inclusion rates in ruminant diets and the efficacy of the feed additives.

### **Eligible expenses**

- Feed additives, methane collection instruments, gas analysis, labour costs, and producer participation stipend.

### **Ineligible expenses**

- On-farm feed trials that do not utilize feed additives.

### **Notes**

- The Department of Agriculture and Land will be seeking organizations that are interested in conducting trials;
- Interested parties should contact the Department or indicate interest on the application form.