

# **Guide to the Canada - Saskatchewan Farm Stewardship Program (CSFSP)**

**For the period  
April 1, 2009 to March 31, 2010**



**Saskatchewan  
Ministry of  
Agriculture**



**Agriculture and  
Agri-Food Canada**

**Agriculture et  
Agroalimentaire Canada**

## Important Information

Welcome to the Canada - Saskatchewan Farm Stewardship Program (CSFSP). The objective of the program is to provide technical and financial assistance that will help you implement your Environmental Farm Action Plan. This guide includes a program overview and descriptions of eligible beneficial management practices (BMPs). Please read the sections on the **Program Guidelines, Planning Your Project, and CSFSP Application Process** before you apply for any BMPs. If you have questions about the CSFSP, please contact the Provincial Council of Agricultural Development and Diversification Boards (PCAB) Program Representative in your area or the PCAB head office at [www.saskpcab.com](http://www.saskpcab.com) (1-866-298-7222).

**Note: In order to apply to the CSFSP, you must complete an Environmental Farm Plan (EFP) or belong to an Agri-Environmental Group Plan (AEGP). If you have not completed an EFP, please contact the Provincial Council of Agricultural Development and Diversification Boards (PCAB) at 1-866-298-7222 or visit [www.saskpcab.com](http://www.saskpcab.com) for the time and location of the next EFP workshop in your area.**

**Information from your Environmental Farm Plan remains confidential; however, you are required to complete a CSFSP application in order to receive BMP incentives to implement your Environmental Farm Action Plan.**

This guide represents beneficial management practices available through the Canada - Saskatchewan Farm Stewardship Program from April 1, 2009 to March 31, 2010. The Saskatchewan Agri-Environmental Chapter Working Group reserves the right to adjust program policies as required throughout the program delivery year.

# Table of Contents

|  |           |
|--|-----------|
| <b>Introduction</b> .....  | <b>4</b>  |
| <b>CSFSP Program Guidelines</b> .....  | <b>5</b>  |
| <b>Planning Your Project</b> .....   | <b>6</b>  |
| <b>CSFSP Application Process</b> .....   | <b>8</b>  |
| <b>Eligible Beneficial Management Practices</b> .....  | <b>9</b>  |
| <b>Improved Livestock Site Management</b> .....  | <b>10</b> |
| Relocation of Livestock Confinement Facilities (BMP#09-101).....   | 12        |
| Fencing to Protect the Environment (BMP# 09-201) .....   | 15        |
| Fencing to Prevent Damage by Wildlife (BMP# 09-202) .....  | 18        |
| Utilizing Portable Windbreaks And Shelters (BMP# 09-301) .....   | 20        |
| Remote Watering Systems (BMP# 09-302).....   | 22        |
| Farmyard Runoff Control (BMP# 09-401).....   | 25        |
| <b>Improved Manure Management</b> .....  | <b>28</b> |
| Manure Storage Improvements (BMP# 09-501) .....  | 29        |
| Manure Storage Increases (BMP# 09-601) .....   | 32        |
| Manure Application Equipment & Technologies (BMP# 09-701) .....  | 35        |
| Manure Nutrient Planning (BMP# 09-702).....  | 38        |
| <b>Improved Land Management</b> .....  | <b>40</b> |
| Modifying and Re-vegetating Waterways (BMP# 09-801).....   | 42        |
| Planting Vegetation to Protect Riparian (Streambank & Shoreline) Areas (BMP# 09-901).....                      | 45        |
| Improved Stream and Creek Crossings (BMP# 09-902).....   | 47        |
| Protecting Marginal High Risk Soils (BMP# 09-1101) .....   | 49        |
| Shelterbelt Establishment (BMP# 09-1601).....  | 52        |
| <b>Water Well Management</b> .....   | <b>54</b> |
| Decommissioning (Sealing) Abandoned Wells (BMP# 09-1001) .....   | 55        |
| Protecting Existing Wells (BMP# 09-1002).....  | 57        |
| <b>Improved Product Storage and Waste Management</b> .....   | <b>59</b> |
| Agricultural Product’s Safe Storage and Handling (BMP# 09-1201) .....  | 61        |
| Agricultural Waste’s Safe Storage and Handling (BMP# 09-1202).....   | 63        |
| <b>Improved Pest Management</b> .....  | <b>66</b> |
| Pesticide Application Systems (Improved Drift Reduction and In-field Handling Technology) (BMP# 09-1301) ..... | 67        |
| Information Collection and Monitoring (BMP# 09-1302) .....   | 69        |
| Integrated Pest Management for Insect, Non-vertebrate or Vertebrate Pests (BMP# 09-1303).....                  | 71        |

|   |           |
|---|-----------|
| Integrated Pest Management for Invasive Plants (BMP# 09-1304) .....   | 73        |
| Native Plant Re-establishment (BMP# 09-1305) .....                    | 75        |
| Integrated Pest Management Planning (BMP# 09-1306).....               | 77        |
| <b>Improved Irrigation Management.....</b>                            | <b>79</b> |
| Irrigation Equipment Modification (BMP# 09-1401) .....                | 80        |
| Irrigation Management Planning (BMP# 09-1402).....                    | 82        |
| <b>Improved Cropping Systems .....</b>                                | <b>83</b> |
| Low Disturbance Placement of Seed and Fertilizer (BMP# 09-1501) ..... | 84        |
| Chaff Collectors and Chaff Spreaders (BMP# 09-1502).....              | 86        |
| Precision Farming Applications- GPS (BMP# 09-1503) .....              | 88        |

# **Introduction**

The objective of the Canada-Saskatchewan Farm Stewardship Program (CSFSP) is the adoption of Beneficial Management Practices (BMPs) across the agricultural landscape on Saskatchewan farms. The program will provide cost-shared incentives to producers to implement BMPs that address on-farm environmental risks.

Recent technological advancements, increased research efforts and greater producer education have led to the accelerated development and adoption of many BMPs across Canada. At the same time, increasing awareness and concern for environmental issues throughout society has generated increased interest and support for agricultural BMPs.

For the purposes of the CSFSP, a BMP is defined as any agricultural management practice with the following key characteristics:

- Mitigates or minimizes negative impacts and risk to the environment, by maintaining or improving soil, water and air quality and/or biodiversity;
- Insures the long-term health and sustainability of land related resources used for agricultural production; and
- Is practical and does not negatively impact the long-term economic viability of producers and others in the agricultural industry.

The Canada-Saskatchewan Farm Stewardship Program is designed to complement other government policies and incentive programs.

The significance of First Nations Land Management in Saskatchewan is being recognized through inclusion of First Nations, Metis, and Inuit Traditional Land Use Practices (ASKIY PIMAHICHOWIN) within BMP's 302, 901, 902, 1101, 1304, and 1305.

## **CSFSP Program Guidelines**

1. To be eligible to receive funding, you **must** have an Environmental Farm Plan Certificate of Endorsement from the Provincial Council of Agriculture Development and Diversification Boards (PCAB) or the First Nations Agricultural Council of Saskatchewan (FNACS) **or** a Statement of Completion from an Agri-Environmental Group Plan (AEGP).
2. Total funding available to an applicant through CSFSP cannot exceed **\$50,000**.
3. Applicants are encouraged to have contact with their PCAB Program Representative during the application process. It is recommended that applications be signed by a Program Representative prior to submission to PCAB to prevent potential delays. This signature will only verify the completeness of the application and **does not** constitute project approval. Visit the PCAB website ([www.saskpcab.com](http://www.saskpcab.com)) or contact PCAB at 1-866-298-7222 to locate the closest Program Representative.
4. Purchases made or works completed (i.e. seeding forages) will be considered as eligible expenses should an application be submitted and approved at a later date. Contact your PCAB Program Representative for more information. **However, producers who make purchases or complete works prior to receiving approval have no guarantee that their projects will be approved and thus assume the risk of not receiving CSFSP funding.**
5. For most eligible and in-kind machinery costs, refer to the latest edition of the Saskatchewan Ministry of Agriculture's Farm Machinery Custom and Rental Rate Guide. The guide is available on line at <http://www.agriculture.gov.sk.ca> (Navigation Path: Management / Financial Planning / Farm Machinery Custom and Rental Rate Guide) or by contacting The Saskatchewan Agriculture Knowledge Centre at 1-866-457-2377. A link to the Saskatchewan Agriculture Farm Machinery Custom and Rental Rate Guide can also be found on the PCAB website ([www.saskpcab.com](http://www.saskpcab.com)).
6. The CSFSP will follow the Saskatchewan Agriculture Fencing Guide Rates and will be subject to change at anytime based on updates to the Saskatchewan Agriculture Fencing Guide as published on the Ministry's website. For current perimeter fence and cross fence rates please refer to the Saskatchewan Ministry of Agriculture's website <http://www.agriculture.gov.sk.ca> (Navigation Path: Livestock / Cow-Calf / Production / Handling / Fencing Costs).
7. The eligible in-kind labour cost is fixed at **\$15.00** per hour.
8. An applicant is required to disclose all sources of requested and/or approved funding for a proposed project on the program application form.
9. Funding can be pooled by more than one producer for large infrastructure projects such as manure storage or relocation of intensive livestock operations where it can be shown that there is an environmental benefit for producers to build one locally shared facility as opposed to multiple units on individual farms. Eligibility for pooling project funds will be assessed on a case-by-case basis.
10. CSFSP funding for the same equipment, implement, or equipment modification by more than one applicant is not allowed under the CSFSP program.
11. CSFSP projects that will require longer than the current fiscal year (March 31<sup>st</sup>) to complete **may** be approved at the discretion of PCAB within the limits of the CSFSP. They will be assessed on a case-by-case basis. Please indicate the anticipated project completion date on the application.

## Planning Your Project

When planning your Beneficial Management Practice (BMP) project, please consider and answer the following questions:

1. What system are you currently using?
2. What system are you changing to?
3. What is the environmental benefit of making this change?

All BMP projects must provide an environmental benefit that matches the programs objectives.

When planning your BMP project, please consider the following:

- If your application is approved, you will be required to obtain all necessary federal, provincial and municipal licenses, permits and approvals prior to starting your project. PCAB staff can assist you in identifying these requirements. Processing time for permits and licenses can range from several weeks to several months, depending on the nature of the project. As a good rule of thumb, begin seeking licensing and permit approval in the fall if you are planning to construct in the spring. **Seeking appropriate licensing and permitting prior to project approval is encouraged.** However, it is done at the applicant's expense and with the understanding that projects have not yet been approved or that alterations may need to be made to project proposals to be approved.
- You are encouraged to consult with technical specialists when planning your project. Producers who access technical expertise before construction may realize a cost saving above and beyond the program funding. Your PCAB Program Representative can connect you to appropriate technical persons and resources. If you do not know who your Program Representative is contact PCAB via website at [www.saskpcab.com](http://www.saskpcab.com) or via telephone at 1-866-298-7222.
- Prior to submission for approval from PCAB, it is recommended that producers have contact with their PCAB Program Representative to ensure application completeness. If you do not know who your Program Representative is, contact PCAB via website at [www.saskpcab.com](http://www.saskpcab.com) or via telephone at 1-866-298-7222.
- Depending on the nature of your project, you may trigger the *Canadian Environmental Assessment Act* (CEAA). Requirements under this legislation may be met by one of the following ways:
  - Through the incorporation of standard mitigation measures into your project; or
  - Through the incorporation of mitigation measures outlined by PCAB based on a project-specific environmental assessment.

You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. You are encouraged to consult with your PCAB Program Representative early in the planning process to identify how you will meet the requirements under the CEAA, and to ensure that such requirements are met in a timely manner. Given the additional requirements that may be necessary to complete such projects, applicants are encouraged begin the application process 6 to 12 months ahead of the anticipated start date.

If you do not know who your Program Representative is, contact PCAB via website at [www.saskpcab.com](http://www.saskpcab.com) or via telephone at 1-866-298-7222. **You cannot proceed with your project until you have acquired the necessary permits and approvals; agreed to incorporate the necessary mitigation measures into your project; and received approval from the Canada-Saskatchewan Farm Stewardship Program.**

- The intent of the CSFSP is to protect true and significant riparian area habitat. Although riparian areas (streambank and shoreline areas) are broadly defined as any transition zone between uplands and

**water, when pertaining to the CSFSP, BMPs and projects in riparian areas must meet these guidelines:**

- Be adjacent to a creek, stream or river; or
- Surround a permanent lake; or
- Surround a permanent slough or wetland that holds and maintains water in it year round 90 per cent of the time and is greater than 1/2 acre in size; or
- Surround a permanent slough or wetland that fills and spills regularly and is part of the watershed's effective drainage area; however,
- The CSFSP through PCAB and the Saskatchewan Environmental Chapter Working Group reserves the right to impose additional guidelines or restrictions at anytime.

## CSFSP Application Process

Please keep the following steps in mind when participating in the CSFSP:

### a) Application

- There are no application deadlines. After having your application signed by your Program Representative to ensure application completeness, you or your Program Representative may submit your application to the PCAB head office at any time. Applications will be processed within 6 to 8 weeks, after which you will be notified of the status of your application. Where applicable, the application must include a written description of the project including a site plan (sketch), location, type and estimated costs of all work to be performed. The site plan should also include an inventory of any existing facilities. Inadequate project descriptions, where additional information is required to assess your project, may lead to delays in processing your application.
- **Note:** Certain Projects may trigger the *Canadian Environmental Assessment Act* and/or may also trigger other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project. Given the additional requirements that may be necessary to complete such projects, applicants are encouraged to begin the process 6 to 12 months prior to construction.
- **Seeking appropriate licensing and permitting prior to project approval is encouraged.** However, it is done at the applicant's expense and with the understanding that projects have not yet been approved or that alterations may need to be made to project proposals to be approved.

### b) Approval Process

- For eligible projects that do not have additional process requirements you will receive an approval letter allowing you to proceed with your project. Purchases made or works completed (i.e. seeding forages) will be considered as eligible expenses should an application be submitted and approved at a later date. Contact your PCAB Program Representative for more information. **However, producers who make purchases or complete works prior to receiving approval have no guarantee that their projects will be approved and thus assume the risk of not receiving CSFSP funding.**
- If the project triggers the *Canadian Environmental Assessment Act*, and or any other federal or provincial permits or approvals, you may receive a **conditional approval** subject to meeting necessary requirements. **You cannot proceed with your project until you have acquired the necessary permits and approvals; agreed to incorporate the necessary mitigation measures into your project; and you have received approval from the Canada-Saskatchewan Farm Stewardship Program.**

### c) Project Work

- *Begin work and complete your project.*
- *If at any time during your project you require guidance or technical advice, contact your PCAB Program Representative. If you do not know who your Program Representative is, contact PCAB via website at [www.saskpcab.com](http://www.saskpcab.com) or via telephone at 1-866-298-7222. Guidance can be provided to you so that BMPs are implemented correctly and efficiently on-farm.*
- **Submit documentation including the CSFSP claim form, original receipts, in-kind contributions, and appropriate pictures of the site when the project is completed to the PCAB head office for review.** If you require assistance with your claim submission, contact your PCAB Program Representative.

#### **d) Payment**

- PCAB program staff or Saskatchewan Agriculture staff may do a final inspection of the site after completion prior to or after the final payment being issued.
- Payment will be made when all program requirements have been met.
- Project payments can be expected 6 to 8 weeks after the required documentation is submitted.
- An audit inspection of final work may occur after payments have been made.

### **Eligible Beneficial Management Practices**

This guide provides background information, objectives and benefits for each BMP. It also provides a brief description, list of how the BMP is related to the Saskatchewan Environmental Farm Plan Workbook, conditions for eligibility, specific BMP requirements and eligible practices, funding maximums, cost-shares, eligible in-kind costs, and ineligible costs. Please refer to the Table of Contents on Page 2 of this guide for eligible BMPs.

New technologies not yet proven or under current research are not eligible for funding until undergoing a review by the Ministry of Agriculture.

# **Improved Livestock Site Management**

## **1) Background**

The objective of the livestock site management BMPs is to assist producers in reducing the risks to ground and surface water from livestock wastes. Current research shows more nutrients are recycled into the soil with extensive winter feeding compared to confinement feeding followed by mechanical manure spreading. This is accomplished by relocating feeding away from the confined feeding area or yardsite or protecting sensitive areas, providing assistance for planning and implementing management strategies to reduce herd density, improving feeding and bedding strategies, limiting direct access to environmentally sensitive watering sites and improving runoff control methods to mitigate the impact of livestock on the environment.

Each livestock operation functions under different circumstances such as herd size, land base, and accessibility to water, shelter and feed. As a result, producers may choose one or more extensive winterfeeding techniques to assist in improving livestock site management including swath grazing, bale grazing, feeding stockpiled perennial forages or grazing field crop residue. When used in combination with non-intensive watering, fencing, and shelter options, tailored to the specific site, these practices can provide a good alternative to confined feeding. However, livestock confinement is sometimes necessary. In these cases where alternatives are not ideal, relocation of livestock confinement facilities or implementing a farmyard runoff control project may be the necessary actions to mitigate the impact livestock have on the environment.

**Note:** If you are applying for funding for Improved Livestock Site Management, you may also want to review the descriptions for Riparian Area (Streambank and Shoreline) Protection (BMP#'s 09-901 and 09-902)

### **Beneficial management practices that can be used to improve livestock site management include:**

- Relocation of Livestock Confinement Facilities
- Fencing to Protect the Environment
- Fencing to Prevent Damage by Wildlife
- Utilizing Portable Windbreaks and Shelters
- Remote Watering Systems
- Farmyard Runoff Control
- Shelterbelt Establishment (see BMP 09-1601 on page 52)

## **2) Applicable Chapters in the Saskatchewan Environmental Farm Plan Workbook:**

- Chapter 2: Drinking Water Sources
- Chapter 8: Manure Storage
- Chapter 9: Intensive Livestock Operations
- Chapter 10: Livestock Wintering Sites
- Chapter 18: Pasture Management
- Chapter 20: Pest Management
- Chapter 21: Water Bodies
- Chapter 22: Natural Areas, Shelterbelts, Woodlots and Wildlife

### **3) Conditions for Eligibility:**

- You must have an EFP Certificate of Endorsement or an applicable AEGP Certificate of Endorsement.
- The location or design of existing livestock facilities is compromising surface or groundwater resources or otherwise negatively affecting the environment.
- All required licensing and permitting is completed by the producer. Approval under the Agricultural Operations Act may be required.
- Improved livestock site management practices may trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project. Given the additional requirements that may be necessary to complete such projects, applicants are encouraged to begin the application process 6 to 12 months ahead of the anticipated start date.

# **Relocation of Livestock Confinement Facilities (BMP#09-101)**

## **A) BMP DESCRIPTION**

The objective of the relocation of livestock confinement facilities BMP is to assist producers to relocate confinement facilities away from at-risk surface or groundwater sources.

**Surface Water:** Many livestock farms were originally established close to water-bodies and within streambank and shoreline zones (riparian areas) in order to ensure access to water, food and shelter. Riparian areas are the lushly vegetated zones in coulees, and alongside rivers, creeks, lakes, sloughs, potholes, hay meadows and springs. Riparian areas are important for filtering nutrients, ground water recharge, sediment trapping. In Saskatchewan, the increased moisture in these areas produces unique plant communities that differ noticeably from surrounding crop and pasture land. Livestock confinement facilities that are located adjacent to surface water or within riparian areas can pose a risk to surface water quality. Surface water may be vulnerable if uncontrolled runoff flows from these facilities into a nearby water-body.

**Groundwater:** Water held in permeable soil layers such as sand and gravel (referred to as aquifers) provide valuable sources of drinking water. In some areas, there is little or no clay-type soils above these to provide natural protection from surface contamination.

Livestock confinement facilities may pose a risk to groundwater if:

- Operations are located over sand or gravel;
- The aquifer is at or near the surface;
- Contaminated runoff flows directly into a sand or gravel basin; or
- The operation is at a higher elevation than a nearby spring or well.

In some cases, it may be possible to minimize environmental impacts by implementing practices such as farmyard runoff control. However, in other cases, it may be more appropriate to relocate the livestock facility.

### **The benefits of relocating livestock confinement facilities include:**

- Protection of ground and surface water;
- Improved water quality;
- Improved streambank and shoreline ( riparian area) health;
- Increased wildlife habitat;
- Improved herd health, and
- Operational efficiencies in managing, feeding and handling livestock.

## **B) THIS BMP APPLIES TO:**

- Situations where the location or design of existing livestock facilities is compromising surface or groundwater resources;
- Animals confined in pens over winter and stockyards located within 300 meters of a watercourse (to be verified by site inspection); or
- Facilities located above or in close proximity to shallow at-risk groundwater resources where actions are required to ensure these resources will not be contaminated by livestock wastes

### **C) FUNDING LEVEL**

Relocation of livestock confinement facility projects are eligible to be cost-shared at **60 per cent** to a maximum of **\$50,000** through the CSFSP.

Note: Costs associated with expanding production capacity are not eligible. Only the costs required to replace the existing facilities capacity will be considered. If you choose to expand the facilities, then the eligible cost will be proportionally reduced to the amount required to implement the BMP for the existing level of production. Also, applicants are only eligible for replacement costs on comparable structures when they are relocating an Intensive Livestock Operation or feeding operation away from a riparian area (streambank or shoreline) or shallow-at-risk groundwater sources.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Applicants must have completed the self evaluation for approval of plans under The Agricultural Operations Act and have identified if there is a need for an approval.
- The relocation of livestock confinement facilities will likely trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project. Given the additional requirements that may be necessary to complete such projects, applicants are encouraged to begin the application process 6 to 12 months ahead of the anticipated start date.
- Applicants must consult with a PCAB Program Representative when planning a Confined Livestock Facility Relocation project. They can assist in identifying the appropriate technical specialists needed for the relocation project.
- Given the additional requirements that may be necessary to complete this BMP, applicants should begin the process 6 to 12 months prior to the anticipated construction date.
- Due to the complexity of relocating livestock facilities applicants **may** have the ability to carry out this Beneficial Management Practice as a multi-year project: however that request **must** be indicated on the CSFSP application form.
- In some cases, it may be possible to minimize environmental impacts by implementing practices such as farmyard runoff control or extensively wintering livestock. However, in other cases, it may be more appropriate to relocate the livestock facility.
- A site inspection by PCAB and/or the Saskatchewan Ministry of Agriculture staff will be required to ensure the objectives of this BMP will be met. This will include confirming that the changes implemented will assist in mitigation existing and further environmental risk.
- Clean-up of the existing confinement site is mandatory. Based on the PCAB and/or Saskatchewan Ministry of Agriculture site inspection the applicant will be advised of the specific actions required to restore the site.
- See other restrictions and considerations listed above under the general landscape category of Improved Livestock Site Management.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Relocating livestock facilities such as corrals, paddocks and shelters from riparian areas (streambank and shoreline areas) and shallow-at-risk groundwater sources (including the practices of site environmental engineering, facility design, construction of livestock and waste storage or mortality management facilities, and restoration of the abandoned site); and
- Hiring an engineer for investigation and design work; this work will stand alone as a project and can be funded if the project does not proceed for economic, technical or environmental reasons.

### **F) ELIGIBLE COSTS:**

- Consultant fees for engineering, site investigation/testing, geotechnical investigation, survey, relocation design, remediated site plans, on-site construction supervision;
- Cost of abandoned site remediation, such as moving/demolition/decommissioning of old buildings, corrals and reclamation earthworks (i.e. leveling, grading, ditches and berms);
- Contractor or in-kind costs for earthwork and construction activities at new site including, leveling, grading, manure storages or run-off control earthwork or concrete pouring;
- Cost of construction materials including corral supplies, fencing to restrict livestock access, slab fencing, foundations, new buildings, water system changes, power installation, and energy improvements; and
- Cost of re-vegetation of abandoned site (including seed and/or plants/trees and the associated planting activities).

### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

### **H) INELIGIBLE COSTS:**

- Manure removal;
- Development of a new water source; and
- Costs associated with expanded production or facility enhancement (see Section C).

## **Fencing to Protect the Environment (BMP# 09-201)**

### **A) BMP DESCRIPTION**

The objective of the Fencing to Protect the Environment beneficial management practice is to assist producers in reducing the risk and increasing the benefit to soil, water, air and biodiversity by improving pasture, range, and riparian health through livestock management. This can be done with the use of perimeter and cross fencing to manage watering sites and riparian areas (streambanks and shorelines), control invasive plants, increase biodiversity, improve health and productivity of upland areas, reduce soil erosion and improve runoff water quality.

The intention behind funding perimeter fence is that the fence will be constructed around land that has not been previously grazed (summer or winter). Through the installation of new permanent fence, the total grazing forage supply for the operation will increase and will assist the producer to balance forage supply with forage demand, and reduce the risk current practices are having on air, soil, water or biodiversity. New perimeter fence may also be used as a tool to implement integrated invasive plant management plans.

Areas with new perimeter fence may also be suitable for cross-fencing. Ideally, newly fenced areas will be managed together with the existing pasture or wintering systems to create well planned rotational grazing systems. Well managed grazing systems allow for sufficient rest periods for plants to re-grow, remain healthy and produce adequate plant litter to reduce water evaporation, protect the soil surface from erosion and act as a natural filter to improve runoff water quality.

The intention behind funding internal cross-fencing is to allow planned pasture management to improve and/or maintain good tame pasture, native rangeland, or riparian area health. Some applications where cross-fencing may be useful include fencing to allow for improved management for uplands, riparian areas, watering sites and invasive plant species.

#### **The benefits of fencing to protect the environment include:**

- Reduced soil erosion and improved water quality;
- Reduced risk of invasive plant species invasion;
- Reduced density or vigor of existing invasive plant species;
- Improve and/or maintain good health in riparian areas and upland pastures or rangelands;
- Improve and/or maintain good forage production and utilization in riparian areas and upland pasture; and
- Protection of aquatic and dry land species (plants, animals, insects, etc.), all of which are important for biodiversity.

### **B) THIS BMP APPLIES TO:**

- Applicants wishing to improve livestock management through fencing to reduce risk to soil, air, water or biodiversity.

### **C) FUNDING LEVEL**

Fencing to Protect the Environment projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$30,000** through the CSFSP.

## **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- **Perimeter fencing** (see eligible costs below) is eligible provided it is done in conjunction with other site management activities such as forage establishment, rotational grazing, cross-fencing, portable shelters, or portable watering systems. Perimeter fencing is paid on a per mile basis at Saskatchewan Ministry of Agriculture fencing guide rates, as published on the Ministry's website (see page 5 for details). Funding will be restricted to perimeter fences with a maximum length of two miles per enclosure. The maximum rate set for 2009 is \$3,700 per mile for an erected four strand, barbed wire, all-post fence (cost -shared at 50% with approved applicants). Other fence designs will be eligible for funding but only up to the maximum rate of \$3,700 per mile. **CSFSP applications must clearly state the length of the fence, the type of posts, post spacing, and type and number of strands used (example: 2 miles of 4 strand barbed wire, with 4/5" posts, 16 feet apart).**
- **Cross-fencing** (see eligible costs below) is paid on a per mile basis at Saskatchewan Ministry of Agriculture fencing guide rates as published on the Ministry's website (see page 5 for details). The maximum rate set for 2009 is \$2,100 per mile for an erected three strand, high tensile wire, all-post electric fence (cost-shared at 50% with approved applicants). Funding for cross fencing on eligible land will be available up to 1.5 miles per quarter section or 160 acres. Other fence designs will be eligible for funding but only up to the maximum rate of \$2,100 per mile. **CSFSP applications must clearly state the length of the fence, the type of posts, post spacing, and type and number of strands used (example: 2 miles of 3 strand high tensile wire, with 4/5" posts, 40 feet apart).**
- **Modification of existing or constructing new fences as part of an integrated pest management plan to assist with the control of invasive plants** such as sheep fencing will be funded at a rate of 50% of construction costs up to a maximum of \$4900.00/mile. All costs must be justified by a receipt.
- The CSFSP will follow the Saskatchewan Agriculture Fencing Guide Rates for posts, wire, hardware, labor and equipment. Rates will be subject to change at anytime based on updates to the Saskatchewan Agriculture Fencing Guide as published on the Ministry's website (see page 5 for details).
- Fencing around or through lakes, creeks, streams, or rivers will likely trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project.
- All Fencing to Protect the Environment projects will be assessed for completeness by PCAB prior to the release of CSFSP funding.
- See other restrictions and considerations listed above under the general landscape category of Improved Livestock Site Management.

## **E) ACCEPTABLE PROJECT PRACTICES:**

- Fencing livestock access lane upgrades
- Changing location of existing fences or constructing new fence for watering site management;
- Modifying existing or constructing new fences to assist with control of invasive plants;
- Fencing to exclude or limit access to open water and water bodies (dugouts, sloughs, lakes, riparian areas);
- Fencing to discourage livestock lingering at constructed watering sites (wellheads, dugouts, wet wells, water troughs);
- Fencing to manage grazing in order to improve and/or maintain health in riparian areas and/or upland pastures or rangelands;

- Cross-fencing to enable managed grazing systems which allow for periods of rest during the growing season; and
- Cross-fencing to limit livestock access to winter feed resources (stock piled grass, swath, bale and crop residue grazing).

**F) ELIGIBLE COSTS:**

- Perimeter fencing, cross fencing, and fencing to protect sensitive areas. Calculations for fencing rates include the cost of posts, corner posts and braces, wire, staples, tighteners, insulators, ground rods, labour, and machinery.
- Materials for fencing used to protect a wellhead, a remote watering system, or the area immediately around a remote watering system.
- Modifying existing or constructing new fences to assist with control of invasive plants. This type of fence may exceed the \$3700/mile maximum. Eligible costs for these projects will be assessed on a case by case basis;
- Electric fences;
- Texas gates to facilitate transport of feed to wintering areas; and
- Contractor costs for earthwork and construction for texas gates.

**G) ELIGIBLE IN-KIND COSTS:**

- In-kind contributions are accounted for in the per mile calculation;
- Applicant's labour allocated toward instalation and/or construction of Texas gates to facilitate winter feeding (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details) for the installation of Texas gates to facilitate winter feeding.

**H) INELIGIBLE COSTS:**

- Costs of removing old fences in preparation for construction of a new project;
- Fencing to prevent wildlife damage to feed supplies or orchards (see BMP #09-202),fencing as part of a livestock handling facility, fencing lanes to grain handling or storage facilities; and
- Automatic gate openers.

## **Fencing to Prevent Damage by Wildlife (BMP# 09-202)**

### **A) BMP DESCRIPTION**

The objective of the fencing to prevent damage by wildlife BMP is to assist producers in ensuring compatibility between biodiversity and agriculture by protecting feed supplies, orchards, sheep and goat enclosures, and apiaries. While there has been growing consensus that wildlife habitat in Canada's agricultural areas should be conserved, wildlife damage remains an impediment to habitat and natural biodiversity conservation. In other words, landowners suffering economic loss due to wildlife damage may alter or remove wildlife habitats. Without compensation and prevention programming, landowners bear all of the costs of damage and receive little economic benefit from maintaining habitat and associated wildlife.

#### **The benefits of fencing to prevent damage by wildlife include:**

- Practices or infrastructure that provide long-term solutions;
- Avoidance of practices that remove or alter habitats, thus benefiting many species of wildlife;
- Decreased likelihood of economic losses that are caused by problem wildlife species; and
- Provision of funds for damage prevention so that producers are not disadvantaged by wildlife enhancements;

### **B) THIS BMP APPLIES TO:**

- Applicants wishing to fence around feed supplies, orchards, sheep and goat enclosures, and apiaries to prevent wildlife damage.

### **C) FUNDING LEVEL**

Fencing to Prevent Damage by Wildlife projects is eligible to be cost-shared at **50 per cent** to a maximum of **\$10,000** through the CSFSP.

Sheep and Goat Predator Control Fencing is eligible to be cost-shared at **50 per cent** to a maximum of **\$6800/mile**.

Please refer to the "**Requirements for Predator Control Fencing for Sheep and Goats**" document available on the PCAB website for specifics on sheep and goat predator control fencing requirements and recommendations.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Your farm operation is likely to experience economic losses caused by wildlife damage.
- Any funding received from other provincial government damage prevention programs must be indicated on your application and may affect eligible funding through the CSFSP.
- See other restrictions and considerations listed above under the general landscape category of Improved Livestock Site Management.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Installing strategic fencing to prevent wildlife damage to feed supplies, orchards, sheep and goat operations, and apiaries.

#### **F) ELIGIBLE COSTS:**

- Strategic and specialized netting, fencing and guard structures to prevent possible damage by big game wildlife to feed supplies and orchards including costs of custom fencing. (Fences should follow recommended design for wildlife control laid out in the *Saskatchewan Ministry of Environment's How to Build a Deer or Elk Proof Fence*);
- Strategic and specialized fencing to exclude bears from apiaries (bee yards) including costs of custom fencing; and
- Strategic and specialized fencing around sheep and goat enclosures to prevent predation including costs of custom fencing. All sheep or goat fencing constructed to control predation **must** be constructed according to the predator control fencing **requirements**. These requirements are outlined in the **“Requirements for Predator Control Fencing for Sheep and Goats”** document. It is available from the PCAB head office or can be found online at [www.saskpcab.com](http://www.saskpcab.com).

#### **G) ELIGIBLE IN-KIND COSTS:**

- Applicant's labour allocated toward construction (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

#### **H) INELIGIBLE COSTS:**

- Cost of management practices that are considered part of regular farm management such as fence maintenance or repair.

## **Utilizing Portable Windbreaks And Shelters (BMP# 09-301)**

### **A) BMP DESCRIPTION**

The objective of the utilizing portable windbreaks and shelters BMP is to assist producers in wintering cattle extensively, thereby decreasing the concentration of manure in one area and the associated risk to shallow-at-risk ground water and surface water. Each livestock operation functions under different circumstances such as herd size, land base, and accessibility to water, shelter and feed. As a result, producers may choose one or a combination of extensive winter feeding techniques to assist in improved livestock site management including: swath grazing, bale grazing, feeding stock piled perennial forages or grazing field crop residue. When used in combination with non-intensive watering, fencing, and shelter options, tailored to the specific site, these practices can provide a good alternative to confined feeding.

#### **The benefits of utilizing portable windbreaks and shelters include:**

- Reduced concentration of manure, nutrients and pathogens in the environment;
- Improved dispersion and recycling of nutrients;
- Improved feed utilization;
- Reduced energy use to harvest and transport feed;
- Improved riparian area health;
- Enhanced land base utilization; and
- Improved herd health.

### **B) THIS BMP APPLIES TO:**

- The existing wintering site has an impact on surface water or groundwater quality or is causing soil erosion, soil compaction, or nutrient loading.

### **C) FUNDING LEVEL**

Portable windbreaks and shelters projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$15,000** through the CSFSP.

#### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Existing wintering sites, although generally acceptable to continue using, should have wastes cleaned up and reduced.
- Portable windbreaks are not to be used to form a corral.
- Portable windbreaks and shelters can be self-built but **will** be inspected by PCAB/program field staff prior to receiving final CSFSP payment.
- **For technical information, refer to The Saskatchewan Ministry of Agriculture's publication: *Portable Windbreak Fences*.**
- See other restrictions and considerations listed above under the general landscape category of Improved Livestock Site Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Relocation of a significant portion of winter feeding (November 1 – April 30) away from yard sites or sensitive areas;
- Constructing or purchasing portable windbreaks and/or portable shelters for use in extensive wintering systems (for Texas gates see the Fencing to Protect the Environment BMP #09-201).

#### **F) ELIGIBLE COSTS:**

- Manufactured or constructed shelters to a maximum size of 15 feet X 32 feet and must be portable.
- Portable windbreak panels;
- Construction materials for portable shelters and windbreaks. Portable shelters and windbreaks can be self-built but will be inspected prior to receiving payment from the CSFSP. Typical construction costs are approximately \$25/foot;
- Remediation of the old wintering site (including earthwork, seed and seeding).

#### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

#### **H) INELIGIBLE COSTS:**

- Portable feeders/feed bunks;
- Permanent shelters or windbreaks anchored to the ground;
- Portable livestock handling facilities such as corral panels and squeeze units;
- Manure removal.

## **Remote Watering Systems (BMP# 09-302)**

### **A) BMP DESCRIPTION**

The objective of the remote watering systems BMP is to assist producers in implementing remote watering system projects for acceptable winter and summer uses to improve water quality, biodiversity and soil and plant health. Livestock are drawn to water. By strategically locating watering systems the impact livestock have on an area can be managed. Remote permanent and portable livestock watering systems can be used as a tool to protect high risk marginal soils and riparian areas (streambanks and shorelines), for wintering site management, and in conjunction with the relocation of a livestock confinement facility.

#### **The benefits of using remote watering systems include:**

- Reduced concentration of manure, nutrients and pathogens in the environment;
- Improved dispersion and recycling of nutrients;
- Improved feed utilization;
- Reduced energy use to harvest and transport feed;
- Improved riparian area health and water quality;
- Enhanced land base utilization; and
- Improved herd health.

### **B) THIS BMP APPLIES TO:**

- Situations where the existing watering site has an impact on surface water or groundwater quality or is causing soil erosion.

### **C) FUNDING LEVEL**

Remote watering systems projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$15,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Where an extensive wintering site project (remote watering system) is requested as a result of risk to useable groundwater sources, the groundwater must be shown to be at significant risk from surface activities related to livestock confinement.
- Existing wintering sites, although generally acceptable to continue using, should have wastes cleaned up and reduced.
- Where remote permanent water systems are to utilize water from fish bearing water sources, Federal Department of Fisheries and Oceans (DFO) or Saskatchewan Environment permitting may be required.

Remote watering systems utilizing water from a natural water body will likely trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project.

- The intent of pipeline delivery systems under the CSFSP is to protect riparian area (streambank & shoreline) and/or sensitive area health. Delivery system costs associated with short pipeline delivery systems (i.e. a few hundred meters) for the protection of riparian or sensitive areas will be considered under the CSFSP. More extensive water delivery systems (i.e. more than a few hundred meters) intended for water supply and grazing management will be referred to **the Saskatchewan Farm and Ranch Water Infrastructure Program**. It is the applicant's responsibility to apply for and follow through with other programs.
- See other restrictions and considerations listed above under the general landscape category of Improved Livestock Site Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Relocation of a significant portion of winter feeding (November 1 – April 30) away from yardsites or sensitive areas;
- Protection of sensitive areas for summer use; and
- Installing alternative remote water systems.

#### **F) ELIGIBLE COSTS:**

- Alternative watering systems:
  - Pumps including solar, wind, livestock and grid powered, and sling and hydraulic ram pumps.
  - Storage and delivery components including solar panels, windmills, troughs, floats, pipe for short distance (see section D), and pipeline materials.
- Remote portable and permanent watering systems to protect streambanks, shorelines, or high risk marginal soils or for the wintering site (November 1 – April 30) management;
- Submersible pumps if verified to be an integral part of a wintering site feeding operation relocation;
- For wintering site (November 1 – April 30) management projects alternative watering systems can source water from a creek or river, or an existing well, spring, or dugout;
- A small number of portable corral panels (or materials to construct panels) to protect remote watering systems or the immediate area around a remote watering system which must be justified on the site plan; and
- Supplying power from an existing source to the watering system (underground).

**G) ELIGIBLE IN-KIND COSTS:**

- Applicant's labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

**H) INELIGIBLE COSTS:**

- Wintering site systems for groundwater sources projects where there is no backflow prevention (projects eligible if backflow prevention in place);
- Costs of the installation of new overhead power lines;
- Installation of a new power service (i.e. a new transformer);
- Development of new water sources such as drilling wells and digging dugouts;
- Portable generators;
- Submersible pumps in farm yard sites; and
- Stand alone well, dugout or slough water source projects in non-wintering (May 1 – October 31) site management projects where the net good cannot be demonstrated.

## **Farmyard Runoff Control (BMP# 09-401)**

### **A) BMP DESCRIPTION**

The objective of the farmyard runoff control BMP is to provide producers with assistance in addressing the environmental impacts of uncontrolled runoff passing through farmyards and livestock facilities.

Runoff from snow melt or rainfall events may become contaminated with manure and/or other farmyard wastes. It may transport those nutrients and pathogens, sediments or other potentially hazardous compounds to surface and groundwater supplies. Contaminated runoff that enters surface or groundwater may present a risk to both human and animal health. Controls may divert clean runoff away from contaminants and/or retain contaminated runoff on-site to prevent it from entering water sources.

Runoff is influenced by slope, precipitation, soil type, drainage patterns, vegetative cover and potential for flooding. Surface water (water in dugouts, sloughs, rivers or creeks) can be impacted by runoff which occurs during spring snow melt and seasonal rainfall events. Groundwater can be impacted if runoff collects in groundwater recharge areas such as ditches, low spots, sloughs or buffer strips where there is insufficient vegetation to capture and tie up nutrients, allowing nutrients and pathogens to leach into groundwater on susceptible sites.

**The benefits of proper farmyard runoff control include:**

- Improved surface and groundwater quality;
- Reduced erosion in water-run areas; and
- Improved site conditions as a result of improved drainage

### **B) THIS BMP APPLIES TO:**

- **Existing** farmyards or existing structures/locations within a farmyard where surface or groundwater quality is at-risk from uncontrolled runoff.

### **C) FUNDING LEVEL**

Farmyard runoff control projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$10,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Funding will only be provided to construct or improve runoff control for **existing** farmyards or existing structures/locations within a farmyard.
- Your existing facility is less than 300 meters from surface water; or the existing site has a direct impact on surface water; or the existing site has a direct impact on groundwater quality.
- You must have a topographic survey completed and runoff control works designed prior to proceeding. These survey services may be provided by the Agri-Environmental Services Branch of Agriculture and Agri-Food Canada (AESB), Saskatchewan Ministry of Agriculture or a private surveyor.

- Regulatory permitting may be required for farmyard runoff control when involving intensive livestock operations.
- Farmyard runoff control practices will likely trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project. Given the additional requirements that may be necessary to complete such projects, applicants are encouraged to begin the application process 6 to 12 months ahead of the anticipated start date.
- Due to the complexity of farmyard runoff control, applicants **may** have the ability to carry out this Beneficial Management Practice as a multi-year project; however that request **must** be indicated on the CSFSP application form.
- See other restrictions and considerations listed above under the general landscape category of Improved Livestock Site Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Diverting water around farmyards and/or livestock facilities via berms or constructed waterways;
- Diverting contaminated runoff around existing groundwater fed dugouts or wells;
- Downstream runoff protection such as, collection berms, sediment basins, retention/holding ponds or constructed waterways/grass or vegetative filters; and
- Hiring an engineer, surveyor or consultant to design runoff control works; this work will stand alone as a project and can be funded if the project does not proceed for economic, technical or environmental (CEAA) reasons.

#### **F) ELIGIBLE COSTS:**

- Earthwork;
- Construction materials;
- Consultant, engineer, and/or surveyor's fees for surveying, site planning or engineering design work; and
- Cost of seed for re-vegetation of waterways, buffer strips or berms and/or other plants for establishment of vegetative filters.

#### **G) ELIGIBLE IN-KIND COSTS:**

- Applicant's labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

## **H) INELIGIBLE COSTS:**

- Runoff control for new livestock or other agricultural developments;
- Diversions around household lagoons if not part of an overall runoff control project away from livestock areas;
- Diversion of runoff not associated with farmyard and/or livestock facility protection for water quality purposes; and
- Field drainage.

# Improved Manure Management

## 1) Background

The objective of the Improved Manure Management BMPs is to assist producers in minimizing the high risks of nutrient loss to the environment associated with manure storage and use. Runoff losses from uncovered manure collection and storage areas along with un-even application or application during the dormant season can be significant point sources of water contamination for feedlots, dairy, hog, beef and poultry operations. The magnitude of the potential nutrient loss also varies across Canada, depending on a number of factors, with precipitation being one of the most important. Planning and ensuring adequate storage either through storage improvements or increased capacity can reduce nutrient losses.

Regardless if solid manure is incorporated or not, some reductions in environmental risk (i.e.; nutrient losses, GHG emissions, and odour) can be achieved by eliminating large lumps and providing a more uniform application. Composting manure can provide another good option for producers.

**Beneficial management practices that help to improve manure management include:**

- Manure Storage Improvements
- Manure Storage Increases
- Manure Application Equipment and Technologies
- Manure Nutrient Planning

## 2) Applicable Chapters in the Saskatchewan Environmental Farm Plan Workbook:

- Chapter 8: Manure Storage
- Chapter 14: Nutrient Management for Crop Production
- Chapter 15: Manure Use and Management
- Chapter 17: Crop Management

## 3) Conditions for Eligibility:

- You must have an EFP Certificate of Endorsement or an applicable AEGP Certificate of Endorsement.
- Non-livestock producers accepting livestock manure as part of their nutrient management plan and who are storing, treating, and applying the manure to their crop land are eligible for BMP incentives listed under the Improved Manure Management category. These incentives **do not** apply for operations that intend to store, treat or sell manure strictly as a commercial venture.
- Purchases made or works completed will be considered as eligible expenses should an application be submitted and approved at a later date. Contact your PCAB Program Representative for more information. **However, producers who make purchases or complete works prior to receiving approval have no guarantee that their projects will be approved and thus assume the risk of not receiving CSFSP funding.**

# Manure Storage Improvements (BMP# 09-501)

## A) BMP DESCRIPTION

The objective of the improved manure storage BMP is to provide producers with assistance in adopting technologies that will reduce the potential environmental impacts of on-farm manure storage.

Although liquid and solid manure storage have the potential to contaminate surface or ground water sources with nutrients and/or pathogens, this has not always been considered when locating or designing manure storage facilities. Improperly designed manure storage can also affect air quality (odour) for neighbors. Implementing manure storage improvement BMPs can have the added benefit of reducing greenhouse gas emissions.

### **The benefits of improving manure storage include:**

- Increased protection of groundwater and surface water from nutrients and pathogens;
- Reduced odour and reduction of greenhouse gas emissions; and
- Ease of monitoring the manure storage system to determine if problems exist.

## B) THIS BMP APPLIES TO:

- Applicants whose present manure storage site has the potential to impact water and/or air quality.

**Note:** If you are applying for funding for Manure Storage Improvements, you may also want to review the description for Farmyard Runoff Control (BMP# 09-401).

## C) FUNDING LEVEL

Manure storage improvement projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$30,000** through the CSFSP.

## D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:

- If new or improved manure storage is constructed to facilitate expanding production, eligible costs will be adjusted to implement the BMP for the existing production only. See the Manure Storage Increases BMP (# 09-601) for information on increasing storage.
- Construction on a manure storage facility will likely trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project. Given the additional requirements that may be necessary to complete such projects, applicants are encouraged to begin the application process 6 to 12 months ahead of the anticipated start date.
- Due to the complexity of carrying out manure storage improvements applicants **may** have the ability to carry out this Beneficial Management Practice as a multi-year project: however that request **must** be indicated on the CSFSP application form.

- See other restrictions and considerations listed above under the general landscape category of Improved Manure Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Building manure storage facilities on an existing operation to prevent winter spreading (includes satellite storage).
- Improvements to an existing manure storage facility that does not increase capacity (for increased capacity see BMP # 09-601).
- Installing monitoring devices for existing lagoons to prevent risks of water contamination through leaching.
- Installing remediation devices in leaking lagoons (e.g. liners and berms).
- Purchasing and installing manure storage covers to reduce odours and greenhouse gases.
- Composting of manure.
- Constructing containment systems for solid manure storage facilities including construction of an impermeable base and walls.
- Developing and installing anaerobic bio-digester systems for manure.
- Hiring a consultant or engineer to assess and/or monitor existing manure storage infrastructure and/or design improvements to the existing manure storage infrastructure. This work will stand alone as a project and can be funded if the project does not proceed for economic, technical or environmental reasons.

#### **F) ELIGIBLE COSTS:**

- Consultant fees for design, engineering, site investigation/testing, geotechnical investigation, survey, remediated site plans, and/or on-site construction supervision;
- Contractor costs for earthwork and construction activities at the new or existing site including leveling, grading, or concrete pouring;
- Materials and labour;
- Composting – passive aeration systems, compost turner-pads, walls, covers, vessels, containment structures for compost area, specialized conveying equipment for raw or finished products to and from compost area and to storage, mixing/aeration (windrow turner) and watering equipment; monitoring equipment (temperature, moisture, oxygen, sensors etc.);
- Assessment and/or monitoring costs - for example, consultant/engineer's fees (tests to determine structural integrity; installation of monitoring devices such as piezometers to determine if there is leakage to groundwater);
- Reclamation costs associated with existing manure storage infrastructure if constructing new manure storage infrastructure;
- Improved in-barn features to decrease manure volume;

- Efficient manure cleanout systems to reduce water use and decrease manure volumes at or above currently accepted industry standards;
- Improved techniques/components/features to prevent risks of water contamination (leaks, spills);
- Slurry storage covers to reduce odours and Green House Gas emissions; and
- Containment systems for solid manure (includes covers).

#### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

#### **H) INELIGIBLE COSTS:**

- Wet / dry feeder improvements;
- Construction of a concrete floor in a barn to improve drainage;
- Costs associated with expanding production;
- Lighting and installation of windows;
- Stand alone reclamation projects for manure storages;
- Manure piles are not eligible as they are not an improved manure storage practice;;
- Transportation of manure (raw or finished product from or to another location);
- Cost of aerobic digester systems;
- Reclamation costs of de-commissioning a manure storage facility if not constructing new manure storage;
- Operational costs related to composting manure;
- Equipment operation and maintenance;
- Conventional farm equipment; and
- Additives or other feedstock to supplement manure.

## **Manure Storage Increases (BMP# 09-601)**

### **A) BMP DESCRIPTION**

The objective of the increased manure storage BMP is to provide producers with assistance in increasing manure storage facilities to match current production and to meet winter spreading restrictions. The practice of increasing storage capacity within the BMP category is not intended to increase future production capacity, but rather to distribute existing storage capacity on an existing land base to promote more consistent nutrient application.

Adequate manure storage is important because manure is better utilized when applied prior to or during periods of crop growth. In Saskatchewan, 400 days of earthen storage and 240 days of tank storage are preferred to allow for seasonal weather events that might delay or prevent manure application.

Adequate manure storage also allows producers to limit manure application to once or twice a year, which minimizes agitation, removal and application. In addition, storage facilities can be covered to reduce odour, and agitation can be improved to reduce odour during pump out.

#### **The benefits of increasing manure storage include:**

- Increased efficiency of nutrient management;
- Opportunities for composting manure; and
- Increased storage capacity which allows for appropriate timing and reduced number of manure applications, avoiding application in dormant season and during adverse weather.

### **B) THIS BMP APPLIES TO:**

- Applicants with livestock operations or non-livestock producers accepting livestock manure as part of their personal nutrient management plan that have issues relating to manure volumes, nutrient excesses or odour.
- If a new or improved manure treatment system is constructed to facilitate expanding production, then the eligible costs will be pro-rated to the existing level of production.

**Note:** If you are applying for funding for manure storage increases, you may also want to review the description for Manure Nutrient Planning (BMP# 09-702). Completion of a manure nutrient management plan is encouraged.

### **C) FUNDING LEVEL**

Increased manure storage projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$30,000** through the CSFSP.

#### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

Construction on a manure storage facility will likely trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project. Given the additional requirements that may be necessary to complete such projects, applicants are encouraged to begin the application process 6 to 12 months ahead of the anticipated start date.

- Due to the complexity of carrying out manure storage increases, applicants **may** have the ability to carry out this Beneficial Management Practice as a multi-year project: however that request **must** be indicated on the CSFSP application form.
- See other restrictions and considerations listed above under the general landscape category of Improved Manure Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- De-watering and nutrient recovery systems.
- Increasing the capacity of an existing manure storage facility.
- Building manure storage facilities on an existing operation to prevent winter spreading (includes satellite storage).
- Hiring an engineer, consultant or surveyor to do design work for the construction of a manure storage facility; this work will stand alone as a project and can be funded if the project does not proceed for economic, technical or environmental reasons.

#### **F) ELIGIBLE COSTS:**

- Liquid manure separation/de-watering equipment;
- Building manure storage facilities on an existing operation to prevent winter spreading (includes satellite storage);
- Contractor costs for earthwork and construction activities at new or existing site including leveling, grading, or concrete pouring;
- Materials and labour;
- Composting – passive aeration systems, compost turner-pads, walls, covers, vessels, containment structures for compost area, specialized conveying equipment for raw or finished products to and from compost area and to storage, mixing/aeration (windrow turner) and watering equipment; monitoring equipment (temperature, moisture, oxygen, sensors etc.);
- Nutrient recovery equipment (i.e. flocculants, membrane systems, etc.); and
- Engineering/ consulting fees for design, engineering, site investigation/testing, geotechnical investigation, survey, and/or on-site construction supervision.

### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

### **H) IN-ELIGIBLE COSTS:**

- Cost of aerobic digester systems;
- Operational costs related to composting manure;
- Lagoons that are solely for the purpose of containing household waste;
- Equipment operation and maintenance;
- Conventional farm equipment;
- Additives or other feedstock to supplement manure; and
- Transporting raw or finished product from or to another location.

## **Manure Application Equipment & Technologies (BMP# 09-701)**

### **A) BMP DESCRIPTION**

The objective of the manure application equipment and technologies BMP is to assist producers in purchasing specialized equipment or modifying existing equipment for improved manure application.

Applying manure or compost to land at suitable agronomic rates is a sustainable agricultural practice. Manure is a source of plant nutrients and helps to improve soil tilth, structure, aeration and water holding capacity. Manure and/or compost serve as viable substitutes for commercial inorganic fertilizer because of their on-farm availability, nutrient composition and ability to enhance the organic matter content of soil.

Livestock and poultry farms produce manure that, if used properly, can be recycled to enrich the soil. However, if improperly managed, manure can have a negative impact on soil and water quality and can generate odours.

Manure application methods have considerable impact on nutrient retention and loss. The development of manifold distribution systems has allowed liquid manure to be delivered to a toolbar that can apply the manure close to the ground or through direct injection into the soil. If manure is supplied with a drag hose, soil compaction can also be significantly reduced. Low-disturbance openers are suitable for liquid manure application into post-emergent forage and annual crops as well as pasture, zero-tillage or reduced-tillage systems.

Solid manure application generally involves broadcasting with or without incorporation. Due to the rather inconsistent nature of most solid manure, uniformity is often an issue. Incorporation of solid manure helps to reduce odour, conserve ammonium, increase the manure-to-soil contact for decomposition and prepare a suitable seed bed. Solid manure application at a monitored rate on eroded knolls and highly eroded areas of fields is encouraged.

#### **The benefits of using manure application equipment and technologies include:**

- Increased nutrient retention and utilization;
- Reduced odour, ammonia volatilization and nitrous oxide emissions; and
- Reduced risk of runoff of nutrients and pathogens to water.

### **B) THIS BMP APPLIES TO:**

- Individual, private on-farm use; not for custom manure applicator operations.

### **C) FUNDING LEVEL**

Manure application equipment and technologies projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$10,000** through the CSFSP.

#### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Improved manure application equipment and technologies are for individual private on-farm use and not for custom manure applicator operations.
- If you are applying for funding for manure application equipment and technologies practices completion of a nutrient management plan is encouraged.
- This BMP is intended to provide support primarily through equipment modification; however a producer may claim the value of the eligible modification when purchasing an entire equipment unit; **the cost of the eligible component must be visibly itemized and broken out on the invoice or on a separate invoice.**
- See other restrictions and considerations listed above under the general landscape category of Improved Manure Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Purchase of specialized equipment or modification to equipment for improved manure application;
- Manure application equipment or technologies that reduce nutrient losses related to runoff, leaching, volatilization and greenhouse gas emissions from manure application; and
- Manure application equipment or technologies that reduced potential for pollution of surface and groundwater from manure application.

#### **F) ELIGIBLE COSTS:**

- For liquid manure - equipment modification, components of new equipment that are unique and are needed to make improvements (i.e. injector openers, sub-canopy applicators, aeration/infiltration tools, hoses, delivery systems, frame to support openers/applicators, spreader tank agitators);
- For solid manure - specialized modifications to existing equipment that significantly improve consistency (i.e. vertical beaters) when compared to standard equipment. On some types of new manure wagons, the components of new equipment that provide significant improvement in pulverizing lumps and applying manure more uniformly than standard equipment components (e.g. beaters) are eligible; and
- Rate monitoring (i.e. flow meters, weigh devices) and rate control devices (i.e. manual or automatic controllers for variable rate, devices for adjusting flow and rates with tractor speed).
- Modifications to install built-in scales on existing manure application equipment or the components of new equipment or drive-on scale to provide more accurate nutrient management when applying solid manure on whole fields. Funding may be provided for the cost of drive-on scales if this is proven to be a more feasible option. In all cases, approved CSFSP applications for modifications must be intended to help improve manure application on private farm operations and is not intended for custom manure applicator operations; and
- GPS systems for improved tracking for more efficient and accurate application of manure are eligible, but only through the Improved Cropping Systems – GPS (BMP# 09-1503).

**G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward installation of built-in scales or drive-on scales at \$15.00/hour.

**H) INELIGIBLE COSTS:**

- Custom and rental rate guidelines for operation or modifying manure application equipment;
- In-kind labour for modifying equipment; and
- Modifications for custom manure applicator operations.

# **Manure Nutrient Planning (BMP# 09-702)**

## **A) BMP DESCRIPTION**

The objective of the manure nutrient planning BMP is to assist producers in developing a manure nutrient management plan to minimize nutrient movement from point sources and non-point sources. Applying manure or compost to land at suitable agronomic rates is a sustainable agricultural practice. Manure is a source of plant nutrients and helps to improve soil tilth, structure, aeration and water holding capacity. Manure and/or compost serve as viable substitutes for commercial inorganic fertilizer because of their on-farm availability, nutrient composition and ability to enhance the organic matter content of soil.

Livestock and poultry farms produce manure that, if used properly, can be recycled to enrich the soil. However, if improperly managed, manure can have a negative impact on soil and water quality and can generate odours.

### **The benefits of manure nutrient planning include:**

- Increased nutrient retention and utilization;
- Reduced odour, ammonia volatilization and nitrous oxide emissions; and
- Reduced risk of nutrient loading or runoff of nutrients and pathogens to water.

## **B) THIS BMP APPLIES TO:**

- Individual, private on-farm use; not for custom manure applicator operations.

## **C) FUNDING LEVEL**

Nutrient Management Planning projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$4,000** through the CSFSP.

## **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Projects must be for improved manure nutrient planning for individual private use and not for custom manure applicator operations.
- See other restrictions and considerations listed above under the general landscape category of Improved Manure Management.

## **E) ACCEPTABLE PROJECT PRACTICES:**

- Development of a manure nutrient management plan;
- Improved nutrient use efficiency and decision support tools; and
- Reduced nutrient losses related to runoff, leaching, volatilization and greenhouse gas emissions.

**F) ELIGIBLE COSTS:**

- Consultative services to develop manure nutrient management plans, and
- Planning and decision support tools.

**G) ELIGIBLE IN-KIND COSTS:**

There are no eligible in-kind costs for this BMP.

**H) INELIGIBLE COSTS:**

- Regular crop nutrient planning that does not involve manure, and
- Applicants time in developing a manure nutrient management plan.

# **Improved Land Management**

## **1) Background**

The objective of the improved land management BMP is to assist producers to alter practices to improve ecosystem function (air, soil, water and biodiversity). Land use varies greatly across the province. However, general land management practices that are ecological as well as economically tied can apply province wide as management of the land effects productivity, erosion, water quality, water quantity, wildlife diversity and air quality. The goal is to increase function of the soil (nutrient uptake, moisture holding), vegetation (wildlife habitat, water filtration, erosion control, snow trapping) and stream bank and shoreline areas (water filtration, ground water recharge, soil stabilization). Many of the BMPs under improved land management address soil erosion. Soil erosion occurs in all landscapes and soils, but the rate of erosion varies considerably, depending on soil/landscape characteristics and management practices.

### **Beneficial management practices that help to improve land management include:**

- Modifying and Re-vegetating Waterways
- Planting Vegetation to Protect Riparian Areas (Stream banks and Shorelines)
- Improved Stream and Creek Crossings
- Protecting Marginal High Risk Soils
- Shelterbelt Establishment
- Fencing to Protect the Environment (to manage grazing and improve stream bank and shoreline function) (See BMP# 09-201); and
- Remote Watering Systems (to manage livestock within the riparian area) (See BMP# 09-302);

## **2) Applicable Chapters in the Saskatchewan Environmental Farm Plan Workbook:**

- Chapter 2: Drinking Water Sources
- Chapter 8: Manure Storage
- Chapter 9: Intensive Livestock Operations
- Chapter 10: Livestock Wintering Sites
- Chapter 12: Energy Efficiency
- Chapter 13: Soil Management
- Chapter 17: Crop Management
- Chapter 18: Pasture Management
- Chapter 21: Water Bodies
- Chapter 22: Natural Areas, Shelterbelts, Woodlots, and Wildlife

### **3) Conditions for Eligibility:**

- You must have an EFP Certificate of Endorsement or an applicable AEGP Certificate of Endorsement.
- Purchases made or works completed (i.e. seeding forages) will be considered as eligible expenses should an application be submitted and approved at a later date. Contact your PCAB Program Representative for more information. **However, producers who make purchases or complete works prior to receiving approval have no guarantee that their projects will be approved and thus assume the risk of not receiving CSFSP funding.**
- Improved land management practices may trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project.
- 
- The intent of the CSFSP is to protect true and significant riparian area habitat. Although riparian areas (stream bank and shoreline areas) are broadly defined as any transition zone between uplands and water, when pertaining to the CSFSP, BMPs and projects in riparian areas must meet these guidelines:
  - Be adjacent to a creek, stream or river; or
  - Surround a permanent lake; or
  - Surround a permanent slough or wetland that holds and maintains water in it year round 90 per cent of the time and is greater than 1/2 acre in size; or
  - Surround a permanent slough or wetland that fills and spills regularly and is part of the watershed's effective drainage area; however,
  - The CSFSP through PCAB and the Saskatchewan Environmental Chapter Working Group reserves the right to impose additional guidelines or restrictions at anytime.

# **Modifying and Re-vegetating Waterways (BMP# 09-801)**

## **A) BMP DESCRIPTION**

The objective of the modifying and re-vegetating waterways BMP is to assist producers in placing natural and/or man-made erosion control structures to minimize erosion in riparian areas (streambank and shoreline areas) and on soils prone to erosion.

Soil erosion results in the reduction of soil productivity due to loss of organic and nutrient rich topsoil from the landscape. At the same time, eroded material can negatively impact surface water quality through the introduction of nutrients, organic matter, pesticides, pathogens, metals, salts and other hazardous materials. These materials are bound to soil particles which are transported by wind, water or tillage. Where eroded material is transported to a groundwater recharge area, the quality of groundwater may also be affected. Soil erosion occurs in all landscapes and soils, but the rate of erosion varies considerably, depending on soil/landscape characteristics and management practices. In recent years, practices such as reduced tillage have resulted in much lower than historical erosion rates. Nevertheless, erosion remains a serious concern across the agricultural landscape.

### **The benefits of modifying and re-vegetating waterways include:**

- Minimized water erosion in riparian (streambank and shoreline) areas;
- Reduced soil loss and gully formation in highly erodible cropped areas;
- Reduced sediment/nutrient inputs to water-bodies from agricultural lands; and
- Improved riparian (streambank and shoreline) health and/or water quality.

## **B) THIS BMP APPLIES TO:**

- Applicants who wish to place natural and/or man-made erosion control structures to minimize erosion in riparian areas (streambank and shoreline areas) and on soils prone to erosion.

**Note:** If you are applying for the Modifying and Re-vegetating Waterways BMP, you may also wish to review the description for Planting Vegetation to Protect Riparian Areas (BMP# 09-901) and Protecting Marginal High Risk Soils (BMP# 09-1101)

## **C) FUNDING LEVEL**

Modifying and Re-vegetating Waterways projects are eligible to be cost-shared at **75 per cent** to a maximum of **\$20,000** through the CSFSP.

## **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Drainage is not the purpose of the modifying and re-vegetating waterways BMP and is not an acceptable practice within this BMP.
- The project must meet the definition of a riparian area as described under conditions for eligibility.

- Works associated with modifying and re-vegetating water ways may trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project.
- Applicants must ensure all environmental permits and legislative requirements are obtained and/or met (including the Canadian Environmental Assessment Act) prior to receiving final approval for proceeding with the project.
- Due to the complexity of modifying and re-vegetating waterways where there is construction of erosion control structures, applicants **may** have the ability to carry out this Beneficial Management Practice as a multi-year project; however that request **must** be indicated on the CSFSP application form.
- See other restrictions and considerations listed above under the general landscape category of Improved Land Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Hiring an engineer for design work. This work will stand alone as a project and can be funded if the entire project does not proceed for economic, technical or environmental reasons;
- Stabilizing, contouring, and re-vegetating gullies and/or waterways;
- Stabilizing stream banks (i.e. bank-shaping, revetment, gabions, rip-rap, crib walls, re-vegetation, blanketing and combination);
- Installing erosion control matting and silt fencing;
- Constructing drop inlet and in-channel control structures;
- Improving infiltration of concentrated water flow including filter trenches, filter wells, diffusing wells; and
- Constructing retention ponds and erosion control dams.

#### **F) ELIGIBLE COSTS:**

- Contractor costs for earthwork, placement of materials and construction of structures;
- Consultative fees (including surveys and design);
- Construction materials (including, but not limited to, rip-rap, gabion baskets, erosion mats, silt fencing, filter trenches, filter wells, diffusing wells, mechanical wind screens and concrete);
- Cost of re-vegetation including forage and cover crop seed (all seed must have a certificate of analysis to ensure no invasive species are present in the seed mix), seedbed preparation and the seeding operation; and
- Engineering/consulting costs associated with design of erosion control structures.

**G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

**H) INELIGIBLE COSTS:**

- Water storage structures;
- Any practices pertaining to seasonal drainage ditches or filling in washouts, water runs or leveling fields;
- Cost to construct or repair drainage systems; and/or
- Re-shaping gullies or waterways without re-vegetating them.

# **Planting Vegetation to Protect Riparian (Streambank & Shoreline) Areas (BMP# 09-901)**

## **A) BMP DESCRIPTION**

The objective of the planting vegetation to protect riparian (streambank and shoreline) areas BMP is to provide producers with assistance to implement practices that will protect and enhance riparian (streambank and shoreline) areas on their farm or ranch.

Riparian areas are the lands adjacent to streams, rivers, lakes and wetlands, where the vegetation and soils are strongly influenced by the presence of water. They are differentiated by increased soil water and the ability to support more productive and moisture dependent plant communities. They support more increased biodiversity than those plant and animal communities on adjacent uplands.

Agricultural activities have the potential to impact the integrity of riparian ecosystems, the biodiversity therein and the water quality these habitats support. Under good management, riparian areas are productive, reliable producers of forage, can provide shelter for wildlife and breeding areas for fish, and will enhance water quality and quantity. Riparian areas act to buffer the water from the adjacent land practices. Well-planned riparian area beneficial management practices will usually have economic and environmental benefits for producers and the environment.

### **The benefits of planting vegetation to protect riparian areas include:**

- Maintenance or improvement of water quality and supply for livestock watering, irrigation, spraying, human consumption and/or recreation/fishing;
- Maintenance or improvement of forage productivity and utilization in the streambank and lakeshore protection area;
- Improved utilization and productivity on upland pastures;
- Additional benefits to the agroforestry industry, such as the sale of timber or orchards; and
- Protection of aquatic life and other species important for biodiversity.

## **B) THIS BMP APPLIES TO:**

- The project must meet the definition of a riparian area as described under conditions for eligibility.

**Note:** Applicants applying for funding for Planting Vegetation to Protect Riparian Areas may also want to review the BMPs under Improved Livestock Site Management.

## **C) FUNDING LEVEL**

Planting Vegetation to Protect Riparian (streambank and shoreline) Areas projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$20,000** through the CSFSP.

#### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- The project must meet the definition of a riparian area as described under conditions for eligibility.
- See other restrictions and considerations listed above under the general landscape category of Improved Land Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Planting non-invasive tame forages or native plant materials (grasses, legumes and forbes) for stabilizing streambanks and shorelines (see the Saskatchewan Forage Council's factsheet: *Successful Forage Crop Establishment* available at [www.saskforage.ca](http://www.saskforage.ca) under Resources/SK Forage Council or from your PCAB Program Representative for acceptable seeding practices);
- Planting shrubs and trees for stabilizing streambanks and shorelines (see PFRA guidelines: *Planting and Care of Shelterbelts* available at [www.agr.gc.ca](http://www.agr.gc.ca) under For Land Managers/Programs & Services/Prairie Shelterbelt Program/Program Overview or from your PCAB Program Representative for acceptable seeding practices);
- Consultant services to determine riparian health and proper riparian area restoration actions.

#### **F) ELIGIBLE COSTS:**

- Consultative fees - consultant must be qualified to conduct riparian assessments;
- Forage seed (non-invasive species) and seeding operation for re-vegetation and buffer establishment in the transition zone or interface between upland and aquatic ecosystems;
- Shrubs, trees, weed control and mulch associated with buffer establishment (minimum 30 metres). Trees and shrub species should be adaptable, hardy and non-invasive (contact the PFRA Shelterbelt Centre for assistance in proper species selection). Includes planting and establishment costs for trees and shrubs for the year of planting and one year after the planting year, totaling a one-time eligible payout of \$200/mile of planting.

#### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

#### **H) INELIGIBLE COSTS:**

- Applicants' time working with a consultant; and
- The use of invasive grass species such as, but not limited to, crested wheat grass or smooth brome grass.

## **Improved Stream and Creek Crossings (BMP# 09-902)**

### **A) BMP DESCRIPTION**

The objective of the Improved Stream and Creek Crossings BMP is to provide producers with assistance to implement practices that will protect and enhance riparian (streambank and shoreline) areas on their farm or ranch.

Riparian areas are the lands adjacent to streams, rivers, lakes and wetlands, where the vegetation and soils are strongly influenced by the presence of water. They are differentiated by increased soil water and the ability to support more productive and moisture dependent plant communities. They will also support more increased biodiversity than those plant and animal communities on adjacent uplands.

Agricultural activities have the potential to impact the integrity of riparian ecosystems, the biodiversity therein and the water quality these habitats support. Riparian areas act to buffer the water from the adjacent land practices. Under good management, riparian areas are productive, reliable producers of forage, can provide shelter for wildlife and breeding areas for fish, and will enhance water quality and quantity. Well-planned riparian area beneficial management practices will usually have economic and environmental benefits for producers and the environment.

#### **The benefits of improved stream and creek crossings include:**

- Maintenance or improvement of water quality and supply for livestock watering, irrigation, spraying, human consumption and/or recreation/fishing;
- Maintenance or improvement of forage productivity and utilization in the riparian (streambank and shoreline) area;
- Improved utilization and productivity on upland pastures; and
- Protection of aquatic life and other species important for biodiversity.

### **B) THIS BMP APPLIES TO:**

- Applicants that presently have stream or creek crossings for livestock or agricultural equipment (constructed or random crossings) which are not ideal and which pose a risk to fish and wildlife habitat and/or riparian area health.

**Note:** Applicants applying for funding for Improved Stream and Creek Crossings may also want to review the BMPs under Improved Livestock Site Management

### **C) FUNDING LEVEL**

Improved Stream and Creek Crossings projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$20,000** through the CSFSP.

#### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Applicants must have technical assistance from AESB staff, Saskatchewan Ministry of Agriculture staff, Saskatchewan Watershed Authority Staff or appropriate Watershed groups. Contact your PCAB Program Representative to be put in contact with the appropriate technical resource.
- Will likely trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project.
- Due to the complexity of *improving stream and creek crossings*, where there is construction of crossings, applicants may have the ability to carry out this Beneficial Management Practice as a multi-year project; however that request must be indicated on the CSFSP application form.
- **See other restrictions and considerations listed above under the general landscape category of Improved Land Management.**

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Improving stream and creek crossings for livestock or agricultural equipment; and
- Engineering and consultant services relating to improved stream or creek crossings.

#### **F) ELIGIBLE COSTS:**

- Streambank crossings of streams and creeks – costs associated with developing, improving or removing stream/creek crossings to improve fish and wildlife habitat including engineering design, materials, labour and equipment use.

#### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

#### **H) INELIGIBLE COSTS:**

- Crossings of sloughs, potholes or wetlands.

# **Protecting Marginal High Risk Soils (BMP# 09-1101)**

## **A) BMP DESCRIPTION**

The objective of the Protecting Marginal High Risk Soils BMP is to assist producers in implementing practices that minimize erosion, soil salinity, and damage due to problem wildlife species on agricultural land by converting marginal land from annual grain production to permanent cover (forage production).

Profitable, sustainable crop production depends on healthy, productive soil. Soil erosion causes the loss of organic rich topsoil from the landscape which results in a reduction of soil productivity which can drastically reduce yields. At the same time, eroded material can negatively impact surface and groundwater quality. Erosion occurs in all landscapes and soils, but the rate of erosion varies considerably depending on soil/landscape characteristics and management practices.

Soil salinity occurs naturally in semi-arid regions. It occurs where the rate of salt accumulation in the soil profile due to evaporation of groundwater discharge is greater than the rate of salt leaching from infiltration of rain or snow melt. Some agricultural practices, such as fallow, have contributed towards increasing soil salinity. The practice of fallow utilizes soil moisture inefficiently and leads to greater leaching of water to aquifers in recharge areas and subsequent greater groundwater discharge in low lying areas. Salt-tolerant perennial forages reduce or control the spread of salinity by lowering the groundwater table in the discharge area.

Seeding forage buffer strips on marginal high risk soils can provide cover and food for wildlife with less damage to adjacent crops due to the wildlife. These healthy wildlife habitats provide a benefit to biodiversity and improve soil health.

### **The benefits of protecting marginal high risk soils include:**

- Minimized erosion and soil salinity damage;
- Decreased likelihood of yield losses caused by problem wildlife species;
- Improved acceptance of wildlife habitat enhancement;
- Reduced soil loss and gully formation; and
- Reduced sediment/nutrient inputs to streams, lakes and wetlands from agricultural lands.

## **B) THIS BMP APPLIES TO:**

- Applicants who wish to minimize erosion, soil salinity, and wildlife damage on their marginal high risk agricultural land.

**Note:** Applicants applying for Protecting Marginal High Risk Soils projects may also wish to review the description for Modifying and Re-vegetating Waterways (BMP# 09-801).

## **C) FUNDING LEVEL**

Protecting Marginal High Risk Soils projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$5,000** through the CSFSP.

#### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Seed purchases are restricted to certified or common # 1 seed with no noxious weeds. A certificate of analysis can be used to prove seed cleanliness. Producers must submit bills within the same year of seeding as proof of seeding.
- Wherever possible, the use of invasive forage species such as, but not limited to, crested wheat grass and smooth brome grass should be avoided. Use of these species will be considered on a case by case basis taking into account the environmental benefit and the proximity to water bodies and native prairie.
- For acceptable forage establishment practices see the Saskatchewan Forage Council's factsheet: *Successful Forage Crop Establishment* available at [www.saskforage.ca](http://www.saskforage.ca) under Resources/SK Forage Council or from your PCAB Program Representative.
- See other restrictions and considerations listed above under the general landscape category of Improved Land Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Perennial forage establishment for soils at risk including strip-cropping, grassed waterways, highly erosion prone soils or saline soils;
- Planting for on-farm restoration or establishment of native pastures, woodlands, slough and pothole areas, natural areas and wetlands; and
- Planting forage buffer strips to minimize wildlife damage— convert crop land to forage around wetlands/ dugouts where waterfowl cause recurring damage; **Note:** This BMP is unlikely to work for ungulate damage;
- Forage establishment practices must fall into line with industry standards. See the Saskatchewan Forage Council's factsheet: *Successful Forage Crop Establishment* available at [www.saskforage.ca](http://www.saskforage.ca) under Resources/SK Forage Council or from your PCAB Program Representative for acceptable establishment practices.
- Grazing management, soil erosion or soil salinity planning for protection of marginal high risk soils.

#### **F) ELIGIBLE COSTS:**

- Forage crop seed and seeding operation for re-vegetation of marginal high risk soils;
- Seeding forage buffer strips to minimize wildlife damage;
- Forage crop seed and seeding operations for vegetation of crossings near wetlands;
- Maximum eligible seed/seeding costs for tame forage is \$65.00 per acre;
- Seeding native species is encouraged and will be eligible to receive funding greater than \$65.00 per acre;
- Establishment costs including but not limited to rock picking, land-rolling, pre-seed burn-off, and fertilizing with seeding operation;
- Consultative services to develop soil erosion and salinity control plans.

**G) ELIGIBLE IN-KIND COSTS:**

- Applicant's labour allocated toward the project ( at \$15.00/hour) and
- Use of applicant's equipment at rates included with the Saskatchewan Farm Machinery Custom Rate and Rental Guide (see page 5 for details).

**H) INELIGIBLE COSTS:**

- Seed costs or seeding operation costs for planting annual cover crops or nurse/companion crops; and
- Rejuvenation of existing forages, pastures or hayland.

## **Shelterbelt Establishment (BMP# 09-1601)**

### **A) BMP DESCRIPTION**

The objective of the Shelterbelt Establishment BMP is to increase shelterbelt planting and ensure proper establishment of trees and shrubs for livestock facility protection, dugout snow trap, wildlife habitat, and field enhancement.

The percentage of the agricultural landscape covered by woody vegetation varies depending on climate and soils. Vegetative cover, which includes trees and shrubs, acts as a natural protective shield. Establishing trees and shrubs on fields, around dugouts and livestock facilities, as vegetative buffers along riparian areas, and for wildlife habitat helps protect our air, soil and water resources.

#### **The benefits of shelterbelt establishment include:**

- Reduced soil erosion;
- Improved water conservation;
- Increased plant diversity;
- Improved habitat for wildlife; and
- Increased atmospheric carbon sequestration.

### **B) THIS BMP APPLIES TO:**

- Applicants who wish to establish shelterbelts for livestock facility protection, dugout snow trapping, wildlife habitat, and field protection/enhancement.

### **C) FUNDING LEVEL**

Shelterbelt Establishment projects are eligible to be paid at a flat rate of **\$200 per mile** to a **maximum of \$5,000** through the CSFSP.

#### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Applicants are required to submit a site plan. Site plans should include:
  - Site location;
  - Planting purpose and design;
  - Appropriate tree and shrub selections;
  - Length of planting in miles;
  - Estimates on quantities and varieties of tree and shrub material (if purchase required);
  - Site preparation intentions;
  - Planting intentions and process; and
  - Maintenance needs for the first and second year.
- Acceptable shelterbelt establishment guidelines can be obtained from the PFRA Shelterbelt Centre or from your PCAB Program Representative or see the PFRA guidelines: *Planting and Care of Shelterbelts* available at [www.agr.gc.ca](http://www.agr.gc.ca) under For Land Managers/Programs & Services/Prairie Shelterbelt Program/Program Overview.
- See other restrictions and considerations listed above under the general landscape category of Improved Land Management.

#### **E) ACCEPTABLE PROJECT PRACTICES:**

- Establishing shelterbelts for livestock facility protection, dugout snow trapping, wildlife habitat, and field protection/enhancement.

#### **F) ELIGIBLE COSTS:**

- Planting shelterbelts for dugout snow trapping, wind protection near livestock facilities or extensive wintering sites, wildlife habitat, and field protection/enhancement at a flat rate of \$200 per mile to a maximum of \$5,000 dependent upon inspection that indicates proper shelterbelt management such as good weed control and watering at planting; and
- Planting and establishment of eco-buffers at a flat rate of \$200 per mile to a maximum of \$5,000 dependent upon inspection that indicates proper eco-buffer management such as good weed control and watering at planting. Block plantings will be converted to an equivalent linear mile for payment schedule.

#### **G) ELIGIBLE IN-KIND COSTS:**

- There are no eligible in-kind costs with this flat rate payment system.

#### **H) INELIGIBLE COSTS:**

- Cost of shelterbelt establishment around farmyards;
- Cost of shelterbelt maintenance, rejuvenation and renovations;
- Use of applicants equipment or rental equipment;
- Tree species intended for harvesting for economic benefit (e.g. Christmas trees, fruit orchards, woodlots, etc); and
- Purchase and relocation of established trees.

# Water Well Management

## 1) Background

The objective of the water well management BMPs are to provide producers with assistance in protecting ground water supplies through proper management of existing wells and decommissioning/sealing of abandoned wells.

Wells can be a pathway for groundwater contamination. A poorly maintained wellhead area may allow surface water to seep downward along the outside of the casing. Contamination may also occur where a well pit is used or if a wellhead is located in a low area, where it may receive polluted surface runoff water.

Locating wells in barns, corrals and greenhouses near areas where contaminants, such as fuels and pesticides, are routinely used, increases the risk of contamination. Multi-aquifer well completion may allow mixing of water from different aquifers through defective casings. Point-source contamination through a single well may lead to contamination of an aquifer that is used as a water source by many people.

Abandoned water wells that have not been properly sealed are an environmental hazard and a significant safety hazard for people and animals.

### **Beneficial management practices that assist in water well management include:**

- Decommissioning (Sealing) Abandoned Wells
- Protecting Existing Wells

## 2) Applicable Chapters In The Saskatchewan Environmental Farm Plan Workbook:

- Chapter 2: Drinking Water Sources

## 3) Conditions For Eligibility:

- Applicants must have an EFP Certificate of Endorsement or an applicable AEGP Certificate of Endorsement.
- Purchases made or works completed will be considered as eligible expenses should an application be submitted and approved at a later date. Contact your PCAB Program Representative for more information. **However, producers who make purchases or complete works prior to receiving approval have no guarantee that their projects will be approved and thus assume the risk of not receiving CSFSP funding.**
- Water well management practices may trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project.
- You must use an experienced contractor, experienced driller or have technical support for decommissioning abandoned water wells.
- New well construction is not eligible.

# **Decommissioning (Sealing) Abandoned Wells (BMP# 09-1001)**

## **A) BMP DESCRIPTION**

Abandoned wells can be a pathway for groundwater contamination. Point-source contamination through a single well may lead to contamination of an aquifer that is used as a water source by many people. Abandoned water wells that have not been properly decommissioned are an environmental hazard and a significant safety hazard for people and animals.

**The benefits of decommissioning abandoned wells include:**

- Reduced risk of groundwater contamination;
- Prevention of cross contamination between aquifers; and
- Prevention of injury to persons, livestock and wildlife or damage to equipment.

## **B) THIS BMP APPLIES TO:**

- Applicants who have abandoned wells.

## **C) FUNDING LEVEL**

Decommissioning Abandoned Well projects are eligible to be cost-shared at **75 per cent** to a maximum of **\$6,000** through the CSFSP.

## **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- See other restrictions and considerations listed above under the general landscape category of Water Well Management.

## **E) ACCEPTABLE PROJECT PRACTICES:**

- Abandoning a small diameter well (less than 30 cm): decommissioned by experienced well-driller, or experienced contractor;
- Abandoning a large diameter well (over 30 cm): decommissioned by experienced well-driller, or experienced contractor or producer with technical support.

## **F) ELIGIBLE COSTS:**

- Decommissioning, sealing and capping old water wells;
- Contractor costs;
- Consultant fees; and
- Cost of decommissioning/construction materials.

**G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

**H) INELIGIBLE COSTS:**

- New well construction;
- Water analysis;
- New pump houses; and
- Abandoned yard-site clean up.

## **Protecting Existing Wells (BMP# 09-1002)**

### **A) BMP DESCRIPTION**

Point-source contamination through a single well may lead to contamination of an aquifer that is used as a water source by many people. A poorly maintained wellhead area may allow surface water to seep downward along the outside of the casing. Contamination may also occur where a well pit is used or if a wellhead is located in a low area, where it may receive polluted surface runoff water. Locating wells in barns, corrals and greenhouses near areas where contaminants, such as fuels and pesticides are routinely used, increases the risk of contamination.

#### **The benefits of protecting existing wells include:**

- Reduced risk of groundwater contamination;
- Prevention of cross contamination between aquifers; and
- Prevention of injury to persons, livestock and wildlife or damage to equipment.

### **B) THIS BMP APPLIES TO:**

- Applicants who have at-risk existing wells.

### **C) FUNDING LEVEL**

Protecting existing well projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$6,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- See other restrictions and considerations listed above under the general landscape category of Water Well Management.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Well protection for existing wells by:
  - building up the area immediately at the well head;
  - Grassing around the wellhead;
  - Installing casing extensions;
  - Installing a pitless adaptor; and
  - Controlling flow and preventing backflow.

#### **F) ELIGIBLE COSTS:**

- Protecting existing water wells from surface contamination;
- Grassing around wellhead;
- Installing a proper lockable, vented well cap;
- Installing above ground casing extensions;
- Replacing well pit with a casing extension to above ground;
- Installation of pitless adaptors;
- Building up the area immediately at the well head;
- Equipment to prevent back flow; and
- Shock chlorination when done in conjunction with other eligible improvements.

#### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

#### **H) INELIGIBLE COSTS:**

- New well construction;
- Water analysis;
- New pump houses;
- New pump and well equipment;
- Installation of electrical utilities; and
- Upgrading and changing of casing or cribbing below the pitless adaptor (below ground well casings).

# Improved Product Storage and Waste Management

## 1) Background

The objectives of the Improved Product Storage and Waste Management BMPs are to provide producers with assistance in improving the handling, storage, and disposal of farm products and waste materials.

Modern agricultural production systems use and/or manage some potentially hazardous products and waste materials that can affect the environment if not properly stored, handled, transported and disposed of. These products and materials include pesticides, liquid fertilizers, petroleum products and wastes, and livestock mortalities. Hazards associated with some biological wastes, such as livestock carcasses and crop wastes, also have the potential to pollute water sources or reduce air quality if not properly disposed of.

**Beneficial management practices that help to improve product storage and waste management include:**

- Agricultural Product's Safe Storage and Handling
- Agricultural Waste's Safe Storage and Handling

**Note:** Eligible costs for composting of manure are covered under the Improved Manure Storage (BMP# 09-501)

## 2) Applicable Chapters In The Saskatchewan Environmental Farm Plan Workbook:

- Chapter 3: Pesticide Storage and Handling
- Chapter 4: Fertilizer Storage and Handling
- Chapter 5: Storage of Petroleum Products
- Chapter 6: Disposal of Farm Wastes

## 3) Conditions For Eligibility:

- Applicants must have an EFP Certificate of Endorsement or an applicable AEGP Certificate of Endorsement.
- Applicants must obtain all necessary municipal approvals/permits.
- Improved product storage and waste management practices may trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project.
- Purchases made or works completed will be considered as eligible expenses should an application be submitted and approved at a later date. Contact your PCAB Program Representative for more information. **However, producers who make purchases or complete works prior to receiving approval have no guarantee that their projects will be approved and thus assume the risk of not receiving CSFSP funding.**

- **Liquid fertilizer, fuel storage, and pesticide storage units must meet program requirements for sitting containment, and safety (speak to a PCAB Program Representative for details).**
- **Pesticide storage facilities must be single use facilities.** Pesticide storage sheds must be used solely for storing pesticides and be locked to prevent unwanted access. Sheds must be located away from any product intended for human consumption. Shed floors must be constructed to contain unwanted spills from entering the environment and be easily cleaned. Sheds must be properly ventilated and heated if pesticides susceptible to freezing are stored over the winter. Signage must be used and a list of pesticides stored in the event of a fire and the fire department is required to attend. Absorbent material must be on hand to absorb accidental spills. It is desirable to have easy access to washing facilities in case of accidental contact.
- Funding for improved on farm storage will be limited to existing farmyards. Funding will not be provided for storage that is associated with construction of a new farmyard or a commercial chemical applicator or fertilizer dealer.
- Composting systems for livestock mortalities must meet all federal and provincial standards and regulatory requirements.

## **Agricultural Product's Safe Storage and Handling (BMP# 09-1201)**

### **A) BMP DESCRIPTION**

The objective of the Agricultural Product's Safe Storage and Handling BMP is to assist producers whose modern agricultural production systems use and/or manage some potentially hazardous products and waste materials that can affect the environment if not properly stored, handled, transported and disposed of. These products and materials include pesticides, liquid fertilizers, petroleum products and wastes, and livestock mortalities.

**The benefits of safe product storage and waste management include:**

- Decreased risk to soil, water and air quality; and
- Improved on-farm safety.

### **B) THIS BMP APPLIES TO:**

- Applicants who wish store and handle agricultural products safely on existing farmyards.

### **C) FUNDING LEVEL**

Agricultural Product's Safe Storage & Handling BMP projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$10,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Agricultural product's safe storage and handling will likely trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project.
- See restrictions and considerations listed above under the general landscape category of Improved Product and Waste Management.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Hiring an engineer for design work; this work will stand alone as a project and can be funded if the project does not proceed for economic, technical or environmental reasons.
- Improving on-farm storage and handling of agricultural products including liquid fertilizers, silage, petroleum products (including fuel, oil, and waste oil), pesticides, and used anti-freeze.
- Installing on-farm septic systems for handling and treating liquid waste or effluent from agricultural operations (e.g. milkhouse wash water).

## **F) ELIGIBLE COSTS:**

- Improved on-farm single purpose storage and handling of agricultural products such as: liquid fertilizer (with epoxy or equivalent lining as rated for liquid fertilizer), silage storage with proper containment, double walled petroleum storage products and single purpose pesticide storage facilities;
- Purchase of industry approved single purpose pesticide portable lockers/storage cabinets clearly labeled as pesticide storage;
- Cost of secondary containment systems or runoff control works to improve existing storage and handling facilities, including earthwork and materials to construct elevated earthen, asphalt or concrete pads and berms and dikes, to contain any potential spills or leaks;
- Engineering or consulting costs for site assessment and engineering design (this practice code will stand alone if project does not proceed for economic, technical or environmental reasons);
- Cost of removal of underground fuel storage tanks as part of a new petroleum storage project. This includes transportation costs of contaminated material from underground fuel storage sites as performed by a qualified contractor. All provincial regulations and standards for remediation must be adhered to; and
- Cost of on-farm septic systems for handling and treating liquid waste or effluent from agricultural operations (subject to CSFSP requirements).

## **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

## **H) INELIGIBLE COSTS:**

- Cost of dry fertilizer bins or containment or concrete/gravel pads for dry fertilizer bins;
- Portable fuel slip tanks or catch trays for oil or gas;
- Cost of single wall fuel storage tanks;
- Cost of equipment operation and maintenance, conventional farm equipment used in composting process, purchases of additives or other feedstock to supplement raw agricultural waste;
- Cost of transporting agricultural waste or finished compost product;
- Cost of household waste septic systems; storage, handling and disposal of plastic materials, empty containers and conventional garbage; or spreading solid waste on agricultural fields;
- Cost of constructing storage or handling facilities associated with a new farmyard or expansion of an existing farm operation; and
- Pesticide storage facilities that are being used for commercial purposes or to store more than pesticides.

## **Agricultural Waste's Safe Storage and Handling (BMP# 09-1202)**

### **A) BMP DESCRIPTION**

The objective of the Agricultural Waste's Safe Storage and Handling BMP is to assist producers whose modern agricultural production systems use and/or manage some potentially hazardous products and waste materials that can affect the environment if not properly stored, handled, transported and disposed of. These products and materials include pesticides, liquid fertilizers, petroleum products and wastes, and livestock mortalities.

**The benefits of safe product storage and waste management include:**

- Decreased risk to soil, water and air quality; and
- Improved on-farm safety.

### **B) THIS BMP APPLIES TO:**

- Applicants who wish to store and handle agricultural wastes safely on existing farmyards.

**Note:** Eligible costs for composting of manure are covered under the Improved Manure Storage (BMP# 09-501)

### **C) FUNDING LEVEL**

Agricultural Waste's Safe Storage and Handling BMP projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$10,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Agricultural waste's safe storage and handling will likely trigger the *Canadian Environmental Assessment Act* and/or other federal or provincial legislation. You are responsible for obtaining and complying with all necessary permits and approvals and for incorporating all relevant mitigation measures into your project. **Before applying for these projects, contact your PCAB Program Representative (or call 1-866-298-7222).** PCAB staff can assist you in identifying additional process requirements for this type of project.
- Composting systems for livestock mortalities must meet all federal and provincial standards and regulatory requirements.
- See additional restrictions and considerations listed above under the general landscape category of Improved Product and Waste Management.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Hiring an engineer for design work; this work will stand alone as a project and can be funded if the project does not proceed for economic, technical or environmental reasons.
- Improving on-farm storage, handling and disposal of agricultural waste including livestock mortalities, fruit and vegetable cull piles and wood waste.
- Composting of agricultural waste such as fruit and vegetable residues.
- Installing on-farm septic systems for handling and treating liquid waste or effluent from agricultural operations (e.g. milkhouse wash water).

### **F) ELIGIBLE COSTS:**

- Improved on-farm storage, handling, and disposal of agricultural waste such as: livestock mortalities, fruit and vegetable cull piles, and wood waste;
- Specialized equipment or equipment modifications required for storage or handling of agricultural products and waste (e.g. refrigeration systems for livestock mortalities, wood mulchers for orchard pruning, gauges, automatic dispensers, ventilation equipment, mixing, loading and cleanup systems; sumps, fixed or portable absorption materials, closed mixing systems, evaporation pits, incinerators; (subject to CSFSP requirements);
- Infrastructure and equipment costs associated with composting agricultural waste (e.g. fruit, vegetable, wood, straw residues, and dead animals) including pads, walls, vessels and containment structures for compost areas, on-site specialized conveying equipment for raw waste or compost movement, mixing/aeration (e.g. windrow turner) and watering equipment, and monitoring equipment (e.g. temperature, moisture, and oxygen sensors);
- Concrete or asphalt bases for on-farm agricultural waste temporary storage such as fruit/vegetable cull, wood waste, or livestock mortalities;
- Costs of an approved burial pit (prior approval is necessary);
- Composting of agricultural waste and incineration (with appropriate technical advice and approval - contact PCAB before proceeding);
- Engineering design work (this practice code will stand alone if project does not proceed for economic, technical or environmental reasons).

### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour)
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

## **H) INELIGIBLE COSTS:**

- Tarps, bags or ground mat bases for on-farm agricultural waste such as fruit/vegetable cull, wood waste or livestock mortalities;
- Clean-up of abandoned farmsteads and dumpsites;
- Disposal of screenings;
- Disposal of old tires;
- Concrete pads for multi-purpose facilities;
- Heating systems that burn waste, screenings, etc.;
- Incinerators to eliminate household waste;
- Cost of disposal of deceased pets; and
- Manure (not eligible as an agricultural waste in this BMP- see BMPs 09-501 & 09-601).

# Improved Pest Management

## 1) Background

The objectives of the Improved Pest Management BMPs are to minimize the potentially harmful effects of pesticide application through the use of planning, pest monitoring, spray drift reduction technology, and the promotion of biological and cultural pest control methods.

Under certain conditions, pesticides and their breakdown products can enter the environment. By implementing an integrated pest management approach, this risk is reduced. The use of alternative methods of pest control can reduce human exposure to potentially toxic materials, avoid risk of contamination of water, soil, air and biodiversity and reduce the risk of pesticide residues in food. It is important to note that not all negative impacts of pest management are related to pesticides. For example, improper pest management using other methods can lead to unnatural population densities of certain species which can negatively impact biodiversity. An integrated pest management approach involves the judicious use of approved agricultural pesticides in combination with other management options, such as crop rotation, pest resistant varieties, biological control and physical control methods.

### **Beneficial management practices that improve pest management include:**

- Pesticide Application Systems (Drift Reduction Technology)
- Information Collection and Monitoring
- Integrated Pest Management for Insect, Non-Vertebrate or Vertebrate Pests
- Integrated Pest Management for Invasive Plants
- Native Plant Re-establishment
- Integrated Pest Management Planning

## 2) Applicable Chapters in the Saskatchewan Environmental Farm Plan Workbook:

- Chapter 18: Pasture Management
- Chapter 20: Pest Management
- Chapter 22: Natural Areas, Shelterbelts, Woodlots and Wildlife

## 3) Conditions For Eligibility:

- Applicants must have an EFP Certificate of Endorsement or an applicable AEGP Certificate of Endorsement.
- Purchases made or works completed will be considered as eligible expenses should an application be submitted and approved at a later date. Contact your PCAB Program Representative for more information. **However, producers who make purchases or complete works prior to receiving approval have no guarantee that their projects will be approved and thus assume the risk of not receiving CSFSP funding.**

## **Pesticide Application Systems (Improved Drift Reduction and In-field Handling Technology) (BMP# 09-1301)**

### **A) BMP DESCRIPTION**

The objective of the pesticide application systems BMP is to assist producers to use components of application equipment that provide more efficient pesticide application with reduced risk of pesticides entering the environment.

**The benefits of implementing drift reduction and In-field handling technologies include:**

- Reduced human exposure to toxic materials;
- Reduced risk of contaminating the environment;
- Improved long-term sustainability of crop, rangeland and forage production;
- Reduced risk of pesticide residues in food;
- A reduction in the build-up of pest resistance; and
- Reduced risk to non-target organisms such as wildlife and native plants.

### **B) THIS BMP APPLIES TO:**

- Applicants whose current pesticide application systems (spray drift technology) pose a risk to air, soil, water or biodiversity.

### **C) FUNDING LEVEL**

Pesticide Application Systems (drift reduction and in-field handling technology) projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$5,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- This BMP is intended to provide support primarily through equipment modification; however a producer may claim the value of the eligible modification when purchasing an entire equipment unit; the cost of the eligible component must be visibly itemized and broken out on the invoice or on a separate invoice.
- While it is recognized that precision farming applications such as GPS have usefulness as a tracking system to eliminate overlap and misses, this practice is funded exclusively under Precision Farming Applications- GPS (BMP# 09-1503).
- See other restrictions and considerations listed above under the general landscape category of Improved Pest Management.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- The integration of components of application equipment that provide more efficient pesticide application with reduced risk to the environment.

**F) ELIGIBLE COSTS:**

- Equipment modifications such as: pesticide injection systems, jug rinsers, rinse tanks, sprayer shrouds and cones, air induction tips, low drift nozzles and auto boom height controllers.

**G) ELIGIBLE IN-KIND COSTS:**

There are no eligible in-kind costs for this BMP.

**H) INELIGIBLE COSTS:**

- In-kind labour to modify equipment;
- Water treatment systems;
- Cost of chemical pesticides; and
- Custom rates for the use of your own equipment.

## **Information Collection and Monitoring (BMP# 09-1302)**

### **A) BMP DESCRIPTION**

The objective of the information collection and monitoring BMP is to assist producers in collecting information on-farm that will assist them in choosing appropriate and timely integrated management practices to control plant, insect, non-vertebrate, and vertebrate pests.

#### **The benefits of implementing information collection and monitoring include:**

- Reduced human exposure to toxic materials;
- Reduced risk of contaminating the environment;
- Improved long-term sustainability of crop, rangeland and forage production;
- Reduced risk of pesticide residues in food;
- A reduction in long-term costs associated with control;
- A reduction in the build-up of pest resistance; and
- Reduced risk to non-target organisms such as wildlife and native plants.

### **B) THIS BMP APPLIES TO:**

- Applicants wishing to collect information on or conduct monitoring of invasive plants, insects, non-vertebrates or vertebrates for the purpose of integrated pest management.

### **C) FUNDING LEVEL**

Information Collection and Monitoring projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$5,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- While it is recognized that precision farming applications such as GPS have usefulness for information collection, this practice is funded exclusively under Precision Farming Applications- GPS (BMP# 09-1503).
- See other restrictions and considerations listed above under the general landscape category of Improved Pest Management.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Equipment, materials and services such as weather monitoring/reporting/ prediction, trapping devices and sampling equipment for determining pest populations.

**F) ELIGIBLE COSTS:**

- Equipment, materials and services such as weather monitoring/reporting/prediction for integrated pest management; and
- Insect trapping devices and sampling equipment for determining insect pest populations, however specific approval for the type of device or equipment must be obtained from the CSFSP. Contact your PCAB Program Representative for more information.

**G) ELIGIBLE IN-KIND COSTS:**

There are no eligible in-kind costs for this BMP.

**H) INELIGIBLE COSTS:**

- In-kind labour while monitoring pests;
- Weather stations with no network capability;
- Precision farming applications such as GPS (see BMP#09-1503); and
- Pest trapping or sampling devices obtained without prior approval.

# **Integrated Pest Management for Insect, Non-vertebrate or Vertebrate Pests (BMP# 09-1303)**

## **A) BMP DESCRIPTION**

The objective of the integrated pest management for insects, non-vertebrate and vertebrate pests BMP is to assist producers in applying integrated management practices on-farm. Cultural practices can be used to reduce the need for chemical pesticides.

**The benefits of implementing integrated Pest Management for Insect, Non-vertebrate or Vertebrate pests include:**

- Reduced human exposure to toxic materials;
- Reduced risk of contaminating the environment;
- Improved long-term sustainability of crop, rangeland and forage production;
- Reduced risk of pesticide residues in food;
- A reduction in long-term costs associated with control;
- A reduction in the build-up of pest resistance; and
- Reduced risk to non-target organisms such as wildlife and native plants.

## **B) THIS BMP APPLIES TO:**

- Applicants who have developed an integrated pest management plan and wish to apply integrated pest management practices for insects, non-vertebrate or vertebrate pests.

## **C) FUNDING LEVEL**

Integrated Pest Management for Insects, Non-vertebrate or Vertebrate Pests projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$5,000** through the CSFSP.

## **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- To qualify for funding under this BMP, producers must develop a pre-approved plan.
- Information on management strategies for using traps for pocket gopher control is available from PCAB.
- See other restrictions and considerations listed above under the general landscape category of Improved Pest Management.

## **E) ACCEPTABLE PROJECT PRACTICES:**

- Integrated approaches (biological or cultural) to control insects, non-vertebrates, or vertebrate pests

#### **F) ELIGIBLE COSTS:**

- Integrated approaches; biological control agents and cultural control practices such as, but not limited to construction of raptor platforms, purchase of approved pocket gopher traps, and scaring and repellent systems and devices for insect, vertebrate and non-vertebrate pests.
- Installing scaring and repellent systems and devices.
- Cost of scaring and repellent systems and devices - possible systems or devices could include the use of electronic devices, noise, animals and chemicals (repellents only).

#### **G) ELIGIBLE IN-KIND COSTS:**

- Applicant's labour allocated toward the project (at \$15.00 per hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

#### **H) INELIGIBLE COSTS:**

- Toxicants and ammunition;
- Coyote control;
- Guard dog;
- Traps or eradication devices for Richardson's ground squirrels;
- Toxicant application or delivery systems; and
- Cost of management practices that are considered part of regular farm management (i.e. maintenance or repair of mechanical or electronic scaring or repellent systems).

## **Integrated Pest Management for Invasive Plants (BMP# 09-1304)**

### **A) BMP DESCRIPTION**

The objective of the integrated pest management for invasive plants BMP is to assist producers in the control of invasive plants through integrated approaches - cultural, manual, mechanical, and biological can be highly effective. Invasive plants are defined as plant species which expand undesirably from present environments to surrounding environments. Invasive plants are a growing threat to cropland, native rangeland and forages. Invasive plant species can upset the balance of water and nutrient cycling, soil building, and carbon storage.

#### **The benefits of implementing integrated pest management for Invasive Plants include:**

- Reduced human exposure to toxic materials;
- Reduced risk of contaminating the environment;
- Improved long-term sustainability of crop, rangeland and forage production;
- Reduced risk of pesticide residues in food;
- A reduction in long-term costs associated with control;
- A reduction in the build-up of pest resistance; and
- Reduced risk to non-target organisms such as native plants.

### **B) THIS BMP APPLIES TO:**

- Applicants who have developed an Integrated Weed Management Plan and wish to apply integrated weed management practices for invasive plants.

### **C) FUNDING LEVEL**

Integrated Pest Management for Invasive Plants projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$5,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Applicants must have a Weed Management or Invasive Plant Management plan that includes Integrated Pest Management techniques.
- An invasive plant management plan can be developed with the assistance of a qualified consultant or by the Invasive Alien Plant Management Project coordinated by Saskatchewan Agriculture and the Saskatchewan Association of Rural Municipalities, a local Weed Management Area, Watershed Group or RM or the Ministry of Agriculture to ensure appropriate site and species selection. Contact PCAB for more information.
- See other restrictions and considerations listed above under the general landscape category of Improved Pest Management.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Cultural, biological, mechanical, and manual control methods for invasive plant species.
- See BMP # 09-201- Fencing to Protect the Environment for the practice of modifying or building fence to use livestock to control invasive plant species.

### **F) ELIGIBLE COSTS:**

- Integrated approaches (cultural, manual, mechanical, and biological) for control of invasive plant species such as, but not limited to leafy spurge, purple loosestrife, nodding thistle, field bindweed, Russian knapweed and scentless chamomile;
- Harvest equipment for biological control agent collection (ie: Sweep nets, materials for insect sorting tubes, bags);
- Shipping costs for biological control agents;
- Consultant fees for harvesting and releasing biological control agents such as, but not limited to:
  1. For leafy spurge – *Athona* sp. Flea beetles;
  2. For scentless chamomile – *Rhopalomia* gall midge or *Omphalopion* seed head weevil;
  3. For nodding or musk thistle – *Rhinocyllus conicus* seed head weevil; and
- Vine rollers to reduce the amount of chemical used for desiccation of horticulture crops.

### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward hand picking and disposing of Invasive Alien Plants or for harvesting and releasing biological control agents listed above (at \$15.00/hour).

### **H) INELIGIBLE COSTS:**

- Chemical herbicide purchases or chemical application costs;
- Coolers, ice or ice packs; and
- Travel costs to collect biological control agents.

## **Native Plant Re-establishment (BMP# 09-1305)**

### **A) BMP DESCRIPTION**

The objective of the native plant re-establishment BMP is to assist producers in re-establishing native vegetation in localized areas where invasive plants have been controlled or where invasive plants are at a high risk of invading. Native plants are specially adapted to the climate, soil and historic use regimes as they formed on the prairies under these factors. Native vegetation works to hold soil in place, cycle nutrients, and absorb valuable moisture- all things that deter invasive plant invasion.

#### **The benefits of implementing native plant re-establishment include:**

- Reduced human exposure to toxic materials;
- Reduced risk of contaminating the environment;
- Improved long-term sustainability of crop, rangeland and forage production;
- Reduced risk of pesticide residues in food;
- A reduction in long-term costs associated with control;
- A reduction in the build-up of pest resistance; and
- Reduced risk to non-target organisms such as wildlife and native plants.

### **B) THIS BMP APPLIES TO:**

- Applicants wishing to re-establish native plant species in existing native habitats that have been disturbed by invasive plants or other localized disturbance with the goal to minimize the re-establishment of those invasive plants or establishment of new invasive plants.

### **C) FUNDING LEVEL**

Native Plant Re-establishment projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$5,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Re-establishment of native plant species is limited to existing native habitats that have been disturbed by invasive plants or other localized disturbance with the goal to minimize the re-establishment of those invasive plants or establishment of new invasive plants.
- Native forage establishment practices must fall into line with industry standards. See the Saskatchewan Forage Council's factsheet: *Successful Forage Crop Establishment* available at [www.saskforage.ca](http://www.saskforage.ca) under Resources/Sk Forage Council or from your PCAB Program Representative for acceptable establishment practices.
- See other restrictions and considerations listed above under the general landscape category of Improved Pest Management.

**E) ACCEPTABLE PROJECT PRACTICES:**

- Re-vegetation using native species to areas previously disturbed by invasive plant species or other localized disturbances with the goal of stopping invasive plant species establishment.
- Seed purchases are restricted to seed with no noxious weeds or invasive plant seeds. Providing a certificate of analysis may be used to prove seed cleanliness.

**F) ELIGIBLE COSTS:**

- Collection of native seed from the surrounding area if available, or
- Purchase cost of native seed mixes. Seed purchases are restricted to seed with no noxious weeds or invasive plant seeds. Providing a certificate of analysis may be used to prove seed cleanliness;
- Rental of specialized seed collection or seeding equipment required for native species; and
- Cost of seed bed preparation and seeding operation.

**G) ELIGIBLE IN-KIND COSTS:**

- Applicant's labour (at \$15.00 per hour) for harvesting local native seed as an alternate to purchasing native seed and for seeding practices.
- Use of applicant's equipment for seedbed preparation and seeding at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

**H) INELIGIBLE COSTS:**

- Commercial reclamation projects.

# **Integrated Pest Management Planning (BMP# 09-1306)**

## **A) BMP DESCRIPTION**

The objective of the integrated pest management planning BMP is to assist producers in evaluation of current pest management practices and issues, identification of integrated pest management opportunities, development of integrated pest management implementation strategies, and development of an integrated pest management evaluation process.

An integrated approach to pest management is the most effective to achieve the goals of economic production and environmental protection. An integrated approach involves the judicious use of approved agricultural pesticides in combination with other management options, such as crop rotation, pest resistant varieties, biological control, and physical control methods.

### **The benefits of integrated pest management planning include:**

- Reduced human exposure to toxic materials;
- Reduced risk of contaminating the environment;
- Improved long-term sustainability of crop, rangeland and forage production;
- Reduced risk of pesticide residues in food;
- A reduction in long-term costs associated with control;
- A reduction in the build-up of pest resistance; and
- Reduced risk to non-target organisms such as wildlife and native plants.

## **B) THIS BMP APPLIES TO:**

- Applicants needing an integrated pest management plan for invasive plants, insects, non-vertebrates and vertebrates.

## **C) FUNDING LEVEL**

Integrated Pest Management Planning projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$2,000** through the CSFSP.

## **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- Assistance in planning may be available from SARM, a local WMA, Watershed Group or RM or the Ministry of Agriculture for producers free of charge or at a reduced rate.
- See other restrictions and considerations listed above under the general landscape category of Improved Pest Management

**E) ACCEPTABLE PROJECT PRACTICES:**

- Integrated pest management planning (evaluation of current practices and issues, identification of integrated pest management opportunities, development of integrated pest management implementation strategies, and development of an integrated pest management evaluation process).

**F) ELIGIBLE COSTS:**

- Consultative services to develop integrated pest management plans, planning and decision support tools to control invasive plants, insects and vertebrate pests.

**G) ELIGIBLE IN-KIND COSTS:**

There are no eligible in-kind costs for this BMP.

**H) INELIGIBLE COSTS:**

- In-kind labour or time spent on planning; and
- General crop protection management plans such as consultations and planning for the application of chemical pesticide.

# **Improved Irrigation Management**

## **1) Background**

The objectives of the Improved Irrigation Management BMPs are to provide producers with assistance to improve irrigation efficiency and lessen impacts of irrigation on the environment by developing well thought out plans and upgrading irrigation equipment.

Crop irrigation typically accounts for over 80 per cent of total water consumption by agriculture around the world. Advancements in technology have enabled many producers to adopt more water efficient irrigation systems. Backflow prevention for effluent, fertilizer and pesticide application is crucial for preventing potential crop, water and environmental pollution.

**Beneficial management practices that help to improve irrigation management include:**

- Irrigation Equipment Modifications
- Irrigation Management Planning

## **2) Applicable Chapters in the Saskatchewan Environmental Farm Plan Workbook:**

- Chapter 19: Irrigation

## **3) Conditions For Eligibility:**

- Applicants must have an EFP Certificate of Endorsement or an applicable AEGP Certificate of Endorsement.
- **All required licensing and permitting is completed by the producer and the Saskatchewan Watershed Authority and any other relevant agency, such as an Irrigation District, AESB or Rural Municipality.**
- Purchases made or works completed will be considered as eligible expenses should an application be submitted and approved at a later date. Contact your PCAB Program Representative for more information. **However, producers who make purchases or complete works prior to receiving approval have no guarantee that their projects will be approved and thus assume the risk of not receiving CSFSP funding.**

# **Irrigation Equipment Modification (BMP# 09-1401)**

## **A) BMP DESCRIPTION**

The objective of the irrigation equipment modification BMP is to assist producers in modifying irrigation equipment so that efficiencies and environmental benefits to water, soil and air are realized.

Crop irrigation typically accounts for over 80 per cent of total water consumption by agriculture around the world. Advancements in technology have enabled many producers to adopt more water efficient irrigation systems. Backflow prevention for effluent, fertilizer and pesticide application is crucial for preventing potential crop, water and environmental pollution.

### **The benefits of adopting irrigation equipment modifications include:**

- Improved water use efficiency;
- Decreased energy consumption; and
- Water source protection.

## **B) THIS BMP APPLIES TO:**

- Applicants who currently irrigate.

## **C) FUNDING LEVEL**

Irrigation Equipment Modification projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$10,000** through the CSFSP.

## **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- See restrictions and considerations listed above under the general landscape category of Improved Irrigation Management.

## **E) ACCEPTABLE PROJECT PRACTICES:**

- Modifying or improving irrigation equipment to increase water use efficiency: conversion to low pressure, low clearance sprinkler system components, trickle or drip system components, irrigation monitoring equipment and use of fertigation technology;
- Conversion from diesel to electrical powered pumps;
- Installing equipment to prevent backflow of altered irrigation water into water sources; and
- Improving irrigation intake systems.

## **F) ELIGIBLE COSTS:**

- Modifications or improvements to increase water or nutrient use efficiency;
- Cost of materials for low pressure sprinkler systems - including low pressure sprinkler nozzles, pressure regulators, pipe/hose extension/carts to provide low clearance, booms for low application, delivery hose/pipe, filters and emitters for trickle or drip systems - and associated installation costs;
- Costs associated with the purchase of end gun booster pumps and low pressure main pump replacement (when it has been demonstrated that existing high pressure pumps cannot be converted to low pressure);
- Improved irrigation pumps;
- Cost of conversion from combustion to electric powered motors to drive pumps and cost of trenching electrical lines from an existing power supply;
- Equipment to prevent backflow of altered irrigation water into water sources;
- Purchase modification and installation of fertigation equipment;
- Cost of monitoring equipment;
- Cost of new or improved backflow prevention mechanism/equipment;
- Cost to repair or reconstruct existing intake systems at pump sites and erosion control measures at pump sites; and
- Cost of earthwork.

## **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

## **H) INELIGIBLE COSTS:**

- Costs associated with new irrigation systems or new water sources;
- Costs of drip irrigation systems for orchards and u-pick operations unless converting from a sprinkler system;
- Costs associated with irrigation expansion - pumps, pipe infrastructure (i.e. center pivot, wheel move structures, traveling reels, mainline pipe) and water-source development costs;
- Costs of electric motors to replace existing electric motors to drive pumps;
- Cost of combustion engines to replace existing combustion engines to drive pumps;
- Costs associated with repair or maintenance of an existing backflow prevention system; and
- Costs associated with off-farm irrigation works (i.e. irrigation district works).

# **Irrigation Management Planning (BMP# 09-1402)**

## **A) BMP DESCRIPTION**

The objective of the irrigation management planning BMP is to assist producers in developing an environmentally sustainable management plan. A detailed irrigation management plan ensures management practices reduce any risk to air, soil, water and biodiversity.

Crop irrigation typically accounts for over 80 per cent of total water consumption by agriculture around the world. Irrigation Management Planning should be built upon two primary goals- increasing water use efficiency and minimizing adverse environmental impacts. Advancements in technology have enabled many producers to adopt more water efficient irrigation systems.

**The benefits of adopting proper irrigation through irrigation management planning include:**

- Improved water use efficiency;
- Decreased energy consumption; and
- Water source protection.

## **B) THIS BMP APPLIES TO:**

- Applicants who currently irrigate and want to plan irrigation practice improvements.

## **C) FUNDING LEVEL**

Irrigation Management Planning projects are eligible to be cost-shared at **50 per cent** to a maximum of **\$2,000** through the CSFSP.

## **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- See other restrictions and considerations listed above under the general landscape category of Improved Irrigation Management.

## **E) ACCEPTABLE PROJECT PRACTICES:**

- Development of a detailed irrigation management plan (which may include Identification of current issues and impacts of current management, identification of opportunities and impacts, development of strategies, and development of an evaluation process).

## **F) ELIGIBLE COSTS:**

- Consultative services for planning improved water use efficiency and reduced environmental risk of **existing** irrigation systems, planning and decision support tools.

## **G) ELIGIBLE IN-KIND COSTS:**

There are no eligible in-kind costs for this BMP.

## **H) INELIGIBLE COSTS:**

- In-kind labour or time costs.

# Improved Cropping Systems

## 1) Background

The objectives of the improved cropping systems BMP's are to promote farm practices that reduce soil disturbance before and during seeding, and improve application of fertilizers and pesticides. Erosion caused by tillage can result in water and air pollution and reduce soil quality. Nutrients not used by crops can also move from fields to nearby water bodies or are released to the atmosphere. This can be reduced through better nutrient management, direct seeding systems and reduced tillage. Marked incremental net improvements on farm with improved cropping systems should significantly reduce the risk of current cropping systems to water, soil, air and biodiversity.

### **Beneficial management practices that help to improve cropping systems include:**

- Low Disturbance Placement of Seed and Fertilizer
- Utilizing Chaff Collectors and Chaff Spreaders
- Precision Farming Applications- GPS

## 2) Applicable Chapters In The Saskatchewan Environmental Farm Plan Workbook:

- Chapter 13: Soil Management

## 3) Conditions For Eligibility:

- Applicants must have an EFP Certificate of Endorsement or an applicable AEGP Certificate of Endorsement.
- Purchases made or works completed will be considered as eligible expenses should an application be submitted and approved at a later date. Contact your PCAB Program Representative for more information. **However, producers who make purchases or complete works prior to receiving approval have no guarantee that their projects will be approved and thus assume the risk of not receiving CSFSP funding.**

## **Low Disturbance Placement of Seed and Fertilizer (BMP# 09-1501)**

### **A) BMP DESCRIPTION**

The objective of the low disturbance placement of seed and fertilizer BMP is to assist producers in implementing practices to decrease erosion and excessive application of nutrients.

Erosion caused by tillage can result in water and air pollution and reduce soil quality. Nutrients not used by crops can also move from fields to nearby water bodies or are released to the atmosphere. This can be reduced through better nutrient management, direct seeding systems and reduced tillage.

#### **The benefits of utilizing low disturbance placement of seed and fertilizer include:**

- Reduced erosion;
- Reduced greenhouse gas emissions;
- Increased soil carbon sequestration;
- Reduced fuel use;
- Reduced dust in the air;
- Reduced sediment, inorganic compounds and nutrients in water;
- Improved moisture conservation;
- Increased residue on the soil surface; and
- Provision of habitat for biodiversity.

### **B) THIS BMP APPLIES TO:**

- Applicants who wish to utilize the practices listed below.

### **C) FUNDING LEVEL**

Low Disturbance Placement of Seed and Fertilizer projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$5,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- This BMP is intended to provide support primarily through equipment modification; however, a producer may claim the value of the eligible modification when purchasing an entire equipment unit; the cost of the eligible component must be visibly itemized and broken out on the invoice or on a separate invoice.
- See other restrictions and considerations listed above under the general landscape category of Improved Cropping Systems.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Modifying seeding and post-seeding implements for low-disturbance placement of seed and fertilizer; applicants may claim value of eligible components when purchasing equipment (coulters, openers, trash clearance devices, furrow closers, and liquid or row crop fertilizer banders);
- Row spacing of low-disturbance equipment should ensure the retention of at least 67% of groundcover that existed prior to the operation (ie: 3-inch maximum wide opener on a 9-inch centre-to-centre spacing = 33% disturbance); and

- Gang mounted on-row packers as well as shank mounted on-row packers when installed in conjunction with a complete conversion to low disturbance direct seeding. Packers must match the shank spacing and width that have been selected for local soil conditions.

#### **F) ELIGIBLE COSTS:**

- Equipment modification on seeding implements for low disturbance placement of seed and fertilizer;
- Modifications from currently used systems which meet or exceed the 33% rule (see acceptable project practices), such as reduced opener width and/or improved packing and fertilizer delivery;
- Cost of materials and supplies to modify equipment, and
- Installation costs.

#### **G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

#### **H) INELIGIBLE COSTS**

- Discers, altering a seeder's width, radial or new tire purchases;
- Shovels with wing-type openers that protrude beyond 100% of the shank width;
- Diesel exhaust injectors;
- New purchases where no improvements to reduce tillage have been made such as the replacement of worn-out or used components with new ones;
- Cost of main components of seed and fertilizer equipment; including, liquid fertilizer and anhydrous ammonia kits seeding implement frame, distribution/delivery system (tanks, fans, pumps, hoses, manifolds, pipes or tubing) and coil packers or packer wheels installed on hoe or double disc drills;
- Flow or blockage monitors that are not integrated with a variable-rate controller;
- Tine harrows, rotary harrows, drag chains or granular applicators;
- On-row packers as a stand alone project;
- Low-disturbance application or banding of fertilizer before seeding is not eligible for funding; and
- Cost of equipment rental or custom work associated with all low-disturbance seeding or fertilizer application.

## **Chaff Collectors and Chaff Spreaders (BMP# 09-1502)**

### **A) BMP DESCRIPTION**

The objective of the chaff collector and chaff spreader BMP is to assist producers to install chaff collectors or spreaders on combines to improve the nutrient uptake of crops by addressing fine residue management at harvest. Chaff ties up nutrients the following spring if it is not spread or collected. The goal of this BMP is to minimize nitrification losses in the spring. Collecting or spreading chaff also facilitates low disturbance seeding by preventing problems associated with excess fine crop residue, such as poor seed/fertilizer placement and non-uniform germination of crop and weed seedlings. Many combines are not equipped to spread or collect chaff.

#### **Benefits of chaff collectors and chaff spreaders include:**

- Reduced erosion;
- Reduced greenhouse gas emissions;
- Increased soil carbon sequestration;
- Reduced fuel use;
- Reduced sediment, inorganic compounds and nutrients in water;
- Improved moisture conservation; and
- Even distribution of fine residue on the soil surface.

### **B) THIS BMP APPLIES TO:**

- Applicants who currently are not using the practices listed below.

### **C) FUNDING LEVEL**

Chaff Collector and Chaff Spreader projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$10,000** through the CSFSP.

### **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- This BMP is intended to provide support primarily through equipment modification; however a producer may claim the value of the eligible modification when purchasing an entire equipment unit; the cost of the eligible component must be visibly itemized and broken out on the invoice or on a separate invoice.
- See other restrictions and considerations listed above under the general landscape category of Improved Cropping Systems.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Installing chaff spreaders or chaff collectors on new or existing combines.

**F) ELIGIBLE COSTS:**

- Cost of materials and supplies to modify or fabricate combine chaff collector or spreader equipment;
- Chaff spreaders or chaff collectors for combine equipment and associated installation costs including material and labour; and
- Chaff spreader or chaff collector portion of a joint chaff and straw unit on a new combine where the chaff portion of the unit is shown separately on the invoice.

**G) ELIGIBLE IN-KIND COSTS:**

- Applicants' labour allocated toward the projects (at \$15.00/hour); and
- Use of applicant's equipment at rates included within the Saskatchewan Farm Machinery Custom and Rental Rate Guide (see page 5 for details).

**H) INELIGIBLE COSTS**

- Components that do not collect, accumulate or spread chaff; and
- Installation costs for components that do not collect accumulate or spread chaff.

# **Precision Farming Applications- GPS (BMP# 09-1503)**

## **A) BMP DESCRIPTION**

The objective of the precision farming applications-GPS BMP is to assist producers in purchasing precision farming applications that will create an on-farm benefit to the environment. Precision farming applications including global positioning systems (GPS), information collection, and variable rate technology have developed the potential for producers to make more efficient use of farm inputs (i.e. seed, fertilizer, pesticides, and manure) which can reduce pesticide and nutrient residues in soil and water. A number of specific practices have been researched and demonstrated to be effective.

### **Benefits of precision farming applications- GPS include:**

- Reduced greenhouse gas emissions;
- Reduced fuel use;
- Reduced dust in the air;
- Reduced sediment, inorganic compounds and nutrients in water; and
- Provision of habitat for wildlife and biodiversity.

## **B) THIS BMP APPLIES TO:**

- Applicants who wish to utilize the practices listed below. It is suggested that a definite, on-farm improvement to the environment over current practices be easily demonstrated when applying for precision farming projects.

## **C) FUNDING LEVEL**

Precision Farming Applications - GPS projects are eligible to be cost-shared at **30 per cent** to a maximum of **\$15,000** through the CSFSP.

## **D) RESTRICTIONS & CONSIDERATIONS specific to this BMP:**

- This BMP is intended to provide support primarily through equipment modification; however a producer may claim the value of the eligible modification when purchasing an entire equipment unit; the cost of the eligible component must be visibly itemized and broken out on the invoice or on a separate invoice.
- **Manufacturer name, model and serial number should be indicated on all invoices.**
- See other restrictions and considerations listed above under the general landscape category of Improved Cropping Systems.

### **E) ACCEPTABLE PROJECT PRACTICES:**

- Precision farming applications - such as using GPS to collect information, installing GPS guidance systems (i.e. auto-steer and light-bars) yield monitors, mapping software, auto boom shut off controllers and manual and variable rate controllers for variable rate fertilizer and/or pesticide application.

### **F) ELIGIBLE COSTS:**

- Precision farming applications: GPS information collection and/or guidance systems for variable rate fertilizer or pesticide application;
- Precision farming applications: in-cab variable-rate controllers for variable fertilizer or pesticide application and auto boom shut off controllers;
- Precision farming applications: GPS information collection for combines such as yield/ moisture monitors, mapping and flagging.

### **G) ELIGIBLE IN-KIND COSTS:**

There are no eligible in-kind costs for this BMP.

### **H) INELIGIBLE COSTS**

- Dedicated GPS guidance components (GPS autosteer & guidance systems) associated with harvesting (combine & swathing) equipment;
- Purchase of a hand-held GPS unit;
- Auto boom height controllers for sprayers (See BMP# 09-1301: Pesticide Application Systems);
- Radar ground speed measuring devices or flow blockage monitors that are not integrated within variable-rate controllers;
- In-kind labour for installation of equipment; and
- Use of applicant's equipment at custom application rates.