Agricultural Water Management Demonstration Projects

Backgrounder

In spring 2020, the Water Security Agency (WSA) partnered with 10 stakeholders to begin delivering 11 agricultural water management demonstration projects throughout Saskatchewan. These projects will test innovative water management solutions and inform best practices to help farmers and ranchers manage water on their land, and water quality and quantity impacts within a local watershed.

The long-term goals of these projects are to learn more about how to:

- enhance the production and profitability of farmers and ranchers;
- protect farmer and rancher operations, especially during flood and drought years;
- protect water quality;
- safeguard habitat and the environment; and
- protect local infrastructure, such as communities, roads and culverts.

Three types of projects

1. **Drainage approvals and water management options**

   Landowners who are receiving drainage approvals will demonstrate ways to reduce impacts to flooding, water quality and habitat. One of the primary options WSA will examine is the benefits of using drained water as a supply for irrigation related projects. Other options will look at the benefits of flow controls, wetland retention and/or reducing impacts.

   - Anticipated to be completed in 1-3 years.

2. **In-field demonstration site research**

   Research projects will examine if crop residue management, fertility management or cocktail cover crops can be used to reduce downstream flooding or water quality impacts.

   - Research to be completed in 3-5 years.

3. **Threshold analysis**

   This project will determine how much water needs to be retained/stored to manage impacts to downstream flooding, water quality and habitat. The threshold analysis will provide WSA with guidance and information as part of the development of a mitigation policy.

   - Anticipated to be completed in 1-2 years.

Partners and Project Details

Saskatchewan Association of Watersheds (SAW)
SAW will coordinate and provide Qualified Persons (QP) services for demonstration projects. Qualified Persons are consultants who help farmers prepare applications for Agricultural Water Management project approvals.

Saskatchewan Heavy Construction Association (SHCA)
SHCA will evaluate the impact of drainage on Rural Municipality (RM) infrastructure. This will involve examining the projected flows to determine the implications for downstream and upstream RM infrastructure.

Saskatchewan Irrigation Projects Association (SIPA)
SIPA will coordinate engineering services for projects with an irrigation component. Engineering services may include detailed evaluations, and designs and cost projections.

Saskatchewan Wildlife Federation (SWF)
SWF will select demonstration projects that will determine the impact on wildlife such as birds, mammals, reptiles, amphibians, aquatic insects and wetland plant species. SWF will examine changes in the quality or quantity of wetlands and upland habitat and species response to the changing conditions as a result of agricultural water management.

Prairie Agricultural Machinery Institute (PAMI)
PAMI will research the agronomic and economic benefits and impacts of agricultural water management by examining crop yields, soil salinity and field operation efficiency.

Discovery Farm (Glacier Farm Media)
Discovery Farm will implement a multi-year research and demonstration project at the Ag in Motion Discovery Farm site to investigate the effectiveness of crop residue (plant material remaining after harvesting such as stalks, roots), fertility management, and cover crops that will reduce downstream flows and nutrient loading. Discovery Farm will conduct a public demonstration event at Ag in Motion and work to obtain approvals in the next few years.

Saskatchewan Stock Growers Association (SSGA)
SSGA will study the effectiveness of cocktail cover crops to reduce downstream flows and nutrient loading from wetland drainage. Cover crops are commonly used to suppress weeds, manage soil erosion, help build and improve soil fertility and quality, control diseases and pests, and promote biodiversity.

Saskatchewan Soil Conservation Association (SSCA)
SSCA will examine fertilizer management, identifying separate areas of each field that will receive different rates of nutrients. It is expected this will reduce downstream flows and nutrient loading from wetlands drainage and improve crop yields.

Saskatchewan Research Council (SRC)
SRC will evaluate water quality, flooding, and determine peaks and total volumes across a range of weather event sizes.

Saskatchewan Conservation and Development Association (SCDA)
SCDA will look at potential downstream flooding, water quality and habitat loss impacts from various levels of water storage in wetlands or irrigation.