Irrigation in Saskatchewan

Saskatchewan’s climate makes it appealing for irrigation development as moisture is the main limitation to agriculture in most areas of the province. Those areas with semi-arid climates are restricted in the types of crops that can be grown and the number of livestock that can be supported per unit of land. These semi-arid areas also have limited water resources and are often characterized by flood and drought cycles. Irrigation has been used as a tool to diversify the rural economy and to stabilize crop production. There were 337,600 irrigated acres in Saskatchewan in 2001. The full economic benefit of irrigation projects are only realized when high value, non-traditional crops such as potatoes, timothy hay and dry beans are grown in conjunction with in-province agricultural processing, intensive livestock production or similar value added activity. Irrigation must be sustainable both socially and economically if irrigated farming is to expand in rural Saskatchewan.
Irrigation Districts and Development Areas in Saskatchewan

- LDDA (Lake Diefenbaker Development Area)
- NDA (Northern Development Area)
- SEDA (Southeast Development Area)
- SWDA (Southwest Development Area)

Irrigated Acreage by Development Area

- SWDA (44%)
- LDDA (30%)
- NDA (14%)
- SEDA (12%)
Map of Private Irrigators in Saskatchewan
In the southwest, irrigation is important for ensuring a reliable and adequate supply of winter feed. As such, much of the irrigated acreage in the southwest is used to produce alfalfa and other forages.

In 1935, the federal government established the PFRA. Its mandate was to secure the rehabilitation of the drought and soil drifting areas in the three prairie provinces. To assist in the rehabilitation of the drought area of southwest Saskatchewan, PFRA developed 26 water storage reservoirs. Irrigated forage production was encouraged to stabilize the soil and to ensure the sustainability of farms and ranches in the area. Irrigated forage and cereals are the mainstay of irrigators in SWDA. Advances in water use efficiency, fertility, and management practices will translate into increased productivity for the region, and the possibility for higher quality and value for crops produced.

### Southwest Development Area

<table>
<thead>
<tr>
<th>ID#</th>
<th>Irrigation Districts</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>(5)</td>
<td>Chesterfield</td>
<td>691</td>
</tr>
<tr>
<td>(6)</td>
<td>Coderre</td>
<td>432</td>
</tr>
<tr>
<td>(7)</td>
<td>Consul - Nashlyn</td>
<td>3 500</td>
</tr>
<tr>
<td>(12)</td>
<td>Herbert</td>
<td>1 671</td>
</tr>
<tr>
<td>(15)</td>
<td>Lodge Creek</td>
<td>970</td>
</tr>
<tr>
<td>(17)</td>
<td>Middle Creek</td>
<td>1 087</td>
</tr>
<tr>
<td>(18)</td>
<td>Miry Creek</td>
<td>1 563</td>
</tr>
<tr>
<td>(20)</td>
<td>North Waldeck</td>
<td>1 640</td>
</tr>
<tr>
<td>(22)</td>
<td>Ponteix</td>
<td>1 870</td>
</tr>
<tr>
<td>(27)</td>
<td>Rush Lake</td>
<td>5 405</td>
</tr>
<tr>
<td>(29)</td>
<td>Vanguard</td>
<td>505</td>
</tr>
<tr>
<td>(30)</td>
<td>Vidora</td>
<td>2 436</td>
</tr>
<tr>
<td></td>
<td>Subtotal: District</td>
<td>21 709</td>
</tr>
<tr>
<td></td>
<td>Private Irrigation</td>
<td>124 204</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>145 913</td>
</tr>
</tbody>
</table>

**Crop Yield**

<table>
<thead>
<tr>
<th>Crop</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good Forage</td>
<td>&gt;3 ton/acre</td>
</tr>
<tr>
<td>Medium</td>
<td>2-3 ton/acre</td>
</tr>
<tr>
<td>Poor</td>
<td>&lt;2 ton/acre</td>
</tr>
<tr>
<td>Hard wheat</td>
<td>55 bushels/acre</td>
</tr>
<tr>
<td>Durum</td>
<td>65 bushels/acre</td>
</tr>
<tr>
<td>Barley</td>
<td>85 bushels/acre</td>
</tr>
<tr>
<td>Canola</td>
<td>45 bushels/acre</td>
</tr>
<tr>
<td>Lentil</td>
<td>1800 pounds/acre</td>
</tr>
</tbody>
</table>

**Irrigated Crop Acres**

Southwest Development Area

- **Forage (83%)**
- **Cereals (13%)**
- **Oilseeds (2%)**
- **Pulses (2%)**
Lake Diefenbaker Development Area (LDDA) has tremendous potential for expansion because of its consistent supply of water, a concentration of soils suitable for irrigation and favorable agroclimatic growing conditions and topography. Also, considerable acres of land suitable for potato production is available within the existing Irrigation Districts around Lake Diefenbaker. The area around the town of Outlook receives 2,400 Corn Heat Units, more than most areas of southern Saskatchewan. Daily evaporative demand is 6mm (on average) and 8mm during the peak use periods of July and August. The frost free period is 114 days for most crops and 106 days for frost-sensitive crops.

Saskatchewan’s rural population has been steadily declining since the 1930’s; however, expansion of irrigation in LDDA has been progressively reversing that trend. Irrigation dealers, farm suppliers, equipment dealers, seed cleaning plants and spinoff processing accompany irrigation development. As a result, populations in small towns have been revived.

<table>
<thead>
<tr>
<th>Irrigated Crop</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed Potato</td>
<td>13 t/ac</td>
</tr>
<tr>
<td>Table Potato</td>
<td>15 t/ac</td>
</tr>
<tr>
<td>Dry Bean</td>
<td>2300 lb/ac</td>
</tr>
<tr>
<td>Cereal Silage</td>
<td>14 t/ac</td>
</tr>
<tr>
<td>Corn Silage</td>
<td>15 t/ac</td>
</tr>
<tr>
<td>Timothy</td>
<td>3 t/ac</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>4.8 t/ac</td>
</tr>
<tr>
<td>Pea</td>
<td>70 bu/ac</td>
</tr>
<tr>
<td>Canola</td>
<td>50 bu/ac</td>
</tr>
<tr>
<td>Durum</td>
<td>75 bu/ac</td>
</tr>
<tr>
<td>Hard Wheat</td>
<td>60 bu/ac</td>
</tr>
<tr>
<td>CPS Wheat</td>
<td>85 bu/ac</td>
</tr>
</tbody>
</table>

Lake Diefenbaker Development Area (LDDA)

<table>
<thead>
<tr>
<th>ID#</th>
<th>Irrigation Districts</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Brownlee</td>
<td>1893</td>
</tr>
<tr>
<td>11</td>
<td>Grainland</td>
<td>1995</td>
</tr>
<tr>
<td>13</td>
<td>Hillcrest</td>
<td>3381</td>
</tr>
<tr>
<td>16</td>
<td>Luck Lake</td>
<td>8602</td>
</tr>
<tr>
<td>8</td>
<td>Macrorie</td>
<td>2325</td>
</tr>
<tr>
<td>24</td>
<td>Riverhurst</td>
<td>8858</td>
</tr>
<tr>
<td>6</td>
<td>River Lake</td>
<td>985</td>
</tr>
<tr>
<td>1</td>
<td>South Saskatchewan River (SSRID)</td>
<td>33764 077</td>
</tr>
<tr>
<td>28</td>
<td>Thunder Creek</td>
<td>1425</td>
</tr>
</tbody>
</table>

Subtotal: Districts 62 244

Private 38 378

Total 100 622

- Cereals (47%)
- Forage (26%)
- Oilseeds (11%)
- Horticultural (4%)
- Herbs/Spices (1%)
- Pulses (11%)
Other Development Areas

The irrigation in the South East Development Area (SEDA) and the Northern Development Area (NDA) consists mainly of private irrigation projects rather than Irrigation Districts. Moon Lake ID, south of Saskatoon, mainly produces high value crops such as turf grass, Saskatoon berries, market gardens, tree nurseries, potatoes and hybrid canola. Northminster is a municipal effluent project north of Lloydminster. The Baildon ID is another municipal effluent project outside of the city of Moose Jaw. Rocky Lake in SEDA is noted for potato production.

<table>
<thead>
<tr>
<th>South East Development Area</th>
<th>Northern Development Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID#</td>
<td>Irrigation Districts</td>
</tr>
<tr>
<td>2</td>
<td>Avonlea</td>
</tr>
<tr>
<td>3</td>
<td>Baildon</td>
</tr>
<tr>
<td>9,10</td>
<td>Disley</td>
</tr>
<tr>
<td>26</td>
<td>Rocky Lake</td>
</tr>
<tr>
<td></td>
<td>Subtotal: District</td>
</tr>
<tr>
<td></td>
<td>Private</td>
</tr>
</tbody>
</table>
Impact of Irrigation

**ECONOMIC IMPACT**

Irrigated land around Lake Diefenbaker presently has an average GDP of $300 per irrigated acre, a six-fold increase over the provincial average. Average Gross Domestic Product (GDP) generated from on-farm crop and livestock activities in Saskatchewan is estimated to be $50 per improved farm acre. Rural economies in Saskatchewan benefit from irrigation through crop intensification and diversification. Jobs are created in small town Saskatchewan with intensified crop production, value-added crop processing and intensive livestock management. In the southwest portion of the province, ranchers have from a reliable supply of winter feed. Projected increases in the GDP of irrigated land in the next five to ten years will be due to expanded livestock activities with some intensification of cropping activities.

Irrigation has a practical and profitable association with intensive livestock operations, including beef finishing and swine operations. The availability of a local feed supply, the potential for utilization of manure and effluent on irrigated crops, and the availability of high quality drinking water for stock are some of the advantages to locating livestock operations near Irrigation Districts.

In addition to on-farm activities, irrigated production has created opportunities for the processing sector, which has led to the development of forage processing, vegetable processing, dry bean cleaning and packaging, mint distillation, and potato sorting and packaging enterprises.

**ENVIRONMENTAL IMPACT**

Irrigated agriculture can be environmentally sustained provided the basic principles of good water management, water conservation, salinity, and erosion control are recognized. The Saskatchewan Watershed Authority, Saskatchewan Environment and SAFRR work with clients and regulatory agencies to ensure that proposed developments minimize impacts on the environment. Three provincial parks lie along the banks of Lake Diefenbaker - Danielson Provincial Park, Douglas Provincial Park, and Saskatchewan Landing Provincial Park. There are also numerous regional parks that benefit from irrigation water works.

Wetlands managed or expanded by irrigation infrastructure provide numerous benefits. Wetlands play a critical role as a filter by capturing sediments and other contaminants and are also an important reservoir of biodiversity. Lake Diefenbaker provides a habitat for several forms of wildlife, including shorebirds, waterfowl, and a variety of game. Lake Diefenbaker is also one of the few locations in North America where the piping plover can be found. The Luck Lake Heritage Marsh is part of the Luck Lake Irrigation Project. A buried pipeline from Lake Diefenbaker to Luck Lake provides the water supply for this critical habitat for shorebirds, waterfowl and other wildlife.
Irrigated Crop Production

Irrigation plays an important role in protecting the sustainability of agriculture in Saskatchewan. Irrigated acreage is relatively high in the semi-arid areas of the province, especially on Dry Brown and Brown soil zones. Crop production is highly unstable and can be relatively unproductive without irrigation in the drier portions of Saskatchewan. The Lake Diefenbaker and South West Development Areas have a relatively large irrigated acreage due to a large crop water deficit, high seasonal variability in precipitation, and several reliable sources of quality water. Increased yield and reduced risk are two of irrigation’s benefits to producers and their communities.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Water Use</th>
<th>Max Daily Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm/year</td>
<td>mm/day</td>
</tr>
<tr>
<td>Alfalfa</td>
<td>680</td>
<td>7.5</td>
</tr>
<tr>
<td>Forage</td>
<td>590</td>
<td>7.0</td>
</tr>
<tr>
<td>Potatoes</td>
<td>520</td>
<td>6.0</td>
</tr>
<tr>
<td>Corn</td>
<td>470</td>
<td>6.0</td>
</tr>
<tr>
<td>Wheat</td>
<td>440</td>
<td>&gt;7.0</td>
</tr>
<tr>
<td>Canola</td>
<td>430</td>
<td>&gt;7.0</td>
</tr>
<tr>
<td>Beans</td>
<td>380</td>
<td>5.5</td>
</tr>
</tbody>
</table>
CSIDC’s mandate is to help maintain a viable agriculture industry, to support a sound rural economy, and to preserve a healthy environment. In order to meet these goals, CSIDC strives to identify higher value cropping opportunities, promote irrigation research and sustainable agronomy, evaluate the environmental sustainability of irrigation, and promote a Western Canadian approach to irrigation research and demonstration.

The Canada-Saskatchewan Irrigation Diversification Centre (CSIDC) originated as the Prairie Farm Rehabilitation Administration (PFRA) farm at Outlook, Saskatchewan. The farm was designed to demonstrate irrigation technology to assist farmers in their transition to irrigated agriculture. In 1986, the Saskatchewan Irrigation Development Centre (SIDC) was established as a jointly funded federal/provincial agency. Its role was to conduct, fund and facilitate irrigated research and demonstration responsive to industry needs. In 1998, an understanding was reached between the PFRA, Sask Water, SIPA, and ICDC in renaming the farm CSIDC. In 2002, Saskatchewan Agriculture, Food and Rural Revitalization replaced Sask Water as the provincial supporter of the centre.

CSIDC offers a wide range of equipment and facilities for applied irrigation research and demonstration. A full complement of plot equipment is available for replicated small plot work on cereal, oilseed, pulse, potato, vegetable and forage crops. The land base includes 180 acres on-site utilizing a range of irrigation methods and types of equipment. Water is supplied to the Centre by a computerized, buried pressurized system. An off-site satellite station provides an additional 130 acres of centre pivot irrigated land available for small plot work and demonstration. Environment Canada operates a fully equipped automated weather station at the Centre. A new potato/vegetable storage and lab facility provides storage facilities for potato and a humidity and temperature-controlled storage for vegetable crops. The lab contains all equipment necessary for assessing the baking, broiling, chipping, and frying qualities of potato. A 95 m² greenhouse facility with an automated watering and fertilizing system is available for year-round operation.
Sources of water for irrigation in Saskatchewan include surface water from streams, rivers, lakes, dugouts, reservoirs and wetlands, and ground water from both glacial and bedrock aquifers. All sources are important components of the hydrological cycle, and are valued for many purposes, including municipal, domestic, irrigation, industrial, waste disposal, wildlife habitat and recreation. The value of water extends beyond the needs and benefits of present users; water should be safeguarded to preserve opportunities for future generations.

The Saskatchewan River system, made up of the North and South Saskatchewan rivers, receives almost 90% of its flow from the Rocky Mountains in Alberta. These rivers are the most stable and best quality water sources in the prairie region. The annual volumes of flow in the North and South Saskatchewan rivers exceed the total of annual runoff in all of the prairie streams combined.

Irrigation in the Lake Diefenbaker Development Area was feasible because of the construction of Gardiner Dam, located on the South Saskatchewan River. Construction was completed in 1967, and the dam remains one of the world’s largest earthfill dams. The Gardiner Dam provides about 10% of Saskatchewan’s power supply through Sask Power’s Coteau Creek Generating Station. In addition to the dam’s use in flood control, Lake Diefenbaker provides recreational facilities, industrial and agricultural water, and drinking water for about 45% of the province’s population.

Reservoirs are an important water source for many parts of the province. Without dams and reservoirs, many towns would not have year-round access to water. These reservoirs are also a precious natural resource in their own right.

Another irrigation water source is municipal effluent. There is considerable undeveloped potential for municipal effluent irrigation in the Prairie provinces. Effluent can be considered a resource for economic development in agricultural areas surrounding towns and cities. Baildon Irrigation District outside of the city of Moose Jaw uses treated municipal effluent to irrigate crop land. With appropriate design, expanded effluent irrigation could reduce or eliminate undesirable discharges to natural waterways.
Irrigation Systems

Irrigation is an artificial method of supplying soil with the additional moisture to increase crop yields. Irrigation systems are classified as sprinkler or surface systems. One of the most important advantages of the sprinkler irrigation system is its capacity to apply water uniformly without runoff and erosion when properly designed. Surface irrigation systems generally result in lower yields and problems with waterlogging and water erosion.

Sprinkler Systems

Sprinkler technology and reliable electronic control systems have rapidly advanced in the last 35 years. Sprinklers distribute the irrigation water by converting water pressure to a high velocity, high volume spray. Today’s sprinkler design options can satisfy most crops’ water requirements and have improved water use efficiency. Rising energy costs for pumping pose an extra input cost for sprinkler irrigators. The main advantage of sprinkler irrigation is even application of precise amounts of water and low risks of water erosion and salinization. The main disadvantages are high operating costs and uneven distribution of water when wind speeds exceed 15 km/hr.

Many types of sprinkler irrigation are available. Pivot and wheel move irrigation systems accounted for 88% of all sprinkler irrigation in 2001. The other types are the linear system, drip irrigation and the traveling gun. A buyer must consider crop root zone depth, soil depth, infiltration rate, permeability of soil, and available water holding capacity to ensure the most efficient and responsible use of a sprinkler irrigation system. Also, keep in mind that the labor requirements and the capital investment available will be very important in determining the final system selection. Drip or trickle irrigation is a low pressure, low volume, and highly water efficient irrigation method. Although expensive, drip irrigation is popular and often replaces other irrigation methods for high value crop production.
Surface Irrigation

Flood irrigation is the original “low-tech’ method of irrigating all crops. The irrigation water flows by gravity down slope, confined by border dykes or narrow furrows. The application of small amounts of water is difficult and the control and distribution of the water generally is not as uniform as with sprinklers. For this reason, deep percolation of water and nutrients can occur.

Flood irrigation efficiency can be improved through redesign, releveling and planing, interval water release, managed reuse of runoff, and early attention to salinity control. The main advantage of surface irrigation systems are relatively low cost. The disadvantages include prohibitive land leveling costs, water erosion damage and high labor requirements.

Back flood irrigation is a non-intensive type of irrigation by which spring runoff water is held on the field for several days by blocking drainage. This method is suitable for most soils used for hay or cereal production. With gravity irrigation, water flowing down slope with gravity is confined to either wide (border dyke) or narrow (furrow and corrugation) channels. These intensive surface irrigation projects are now commonly redeveloped to sprinkler irrigation, or back to non-intensive irrigation where soil productivity is low. Very few new flood irrigation projects have been initiated in the last 25 years.
Irrigation Legislation

The Irrigation Act, 1996

- Provides uniform legislation for all irrigators in the province.
- Deregulates the processes between the irrigator and the district board by providing more options for the irrigator.
- Provides and simplifies administration of irrigation in the province by clarifying the respective roles of Irrigation District Boards, the Minister in charge of the Act, and SAFRR to whom the administration of the Act is assigned.
- Provides for the establishment of the Irrigation Crop Diversification Corporation (ICDC). This enables producers to fund, direct and control the research and demonstration projects required by the irrigation industry. ICDC has the authority to levy all irrigators for irrigation research and demonstration.
- Provides for establishment and administration of the Saskatchewan Irrigation Projects Association (SIPA). This organization is a voluntary association driven by Irrigation Districts to focus on industry issues and promotion of irrigation and related opportunities in Saskatchewan.
- Establishes the requirement of an Irrigation Certificate for all persons who wish to irrigate new lands with greater than 12,300 cubic meters (10 acre feet) of water annually. Prior to issuing a certificate, SAFRR will evaluate the land and determine whether the new irrigation project is suitable for development. The act also allows for cancellation of certificates if the holder is in default of the terms and conditions of the agreement and where SAFRR considers it is not in the public interest for the land to continue to be irrigated. Projects that were in operation prior to January 1, 1997, do not require an irrigation certificate.
- Establishes the requirement for district Irrigation Replacement Funds (IRF). The IRF’s goal is the provide for long-term funding for replacement of irrigation works for each district and to ensure utilization of the original Crown investment in irrigation. The amount of the yearly charge will be based on an amount sufficient to fund replacement and rehabilitation of an Irrigation District’s works.
Irrigation Development Process

A. PURPOSE
This process is intended to be useful for all types of irrigation development including BACKFLOOD, SPRINKLER, EFFLUENT and SMALL SCALE INTENSIVE irrigation projects.

B. INQUIRY AND APPLICATION
Upon receiving an inquiry, Saskatchewan Agriculture, Food, and Rural Revitalization (SAFRR) will discuss the proposed irrigation development with the client and obtain a Request for Technical Assistance.
To qualify for assistance, the area proposed should be a minimum of 2.5 acres with sufficient water for a minimum 12-inch annual application based on 70% availability for intensive projects and an 8-inch annual application based on 50% availability for backflood and non-intensive sprinkler projects. Further technical assistance may not be provided if these conditions are not met.

C. SITE INSPECTION
SAFRR will do a site inspection and meet with the client to discuss the irrigation development process, to ascertain special development concerns, to assess the feasibility of the project, and to determine the availability of water. The water supply will determine the eligibility for any financial and technical assistance.

A) Surface Water
   The Saskatchewan Watershed Authority will determine the amount of water that is available for allocation to the intended irrigation development.
B) Groundwater
   The Saskatchewan Watershed Authority will provide comments on feasibility based on existing information, including soils information, and forward the results to the client. The client will be responsible for undertaking a hydrogeology study, at the client’s expense, to determine whether or not sufficient groundwater is available for the project. The Saskatchewan Watershed Authority can assist the client to develop the terms of reference for the study.
C) Effluent
   Saskatchewan Environment will provide comments respecting the application of treated sewage effluent and requirements for sewage effluent storage works.

If the project appears feasible, a sketch plan outlining the recommended equipment and cost estimate will be provided for the proposed irrigation development. Additional requirements under The Saskatchewan Watershed Authority Act (surface or ground water) or The Environmental Management and Protection Act, 2002 (effluent) would also be provided.

D. AGRO-ECONOMIC CONSULTATION
SAFRR Irrigation Agrologists can provide agro-economic consultations. The consultation process is designed to help clients understand the economic and agronomic impact of irrigation development on their farm.

E. IRRIGATION CERTIFICATE
For all projects utilizing greater than 10 acre-feet of water, a soil-water compatibility investigation is required by The Irrigation Act, 1996 and will be conducted by SAFRR. To ensure environmental and economic sustainability all irrigation proponents, regardless of project size, are recommended to have this project certified. In some cases, the Saskatchewan Watershed Authority or Saskatchewan Environment may request soil and water investigations for approval purposes. An Irrigation Certificate will be issued for each parcel which meets SAFRR’s current soil and water compatibility standards. A copy of the Irrigation Certificate will be provided to the client and the agency responsible for design services. Note: Potential developers should contact SAFRR as soon as they have decided to proceed to this step. The soil and water investigations can take several months to process, depending on the number of applications and the time of the year the application is made.
F. IRRIGATION PLAN
A plan and suggested irrigation equipment list will be prepared for the client and the Saskatchewan Watershed Authority (SWA) based on the results of the Irrigation certification process and further discussion with the client and SWA. The plan is required by SWA for the issuance of the approvals and licence to use surface or ground water.

G. IRRIGATION SYSTEM FINAL ENGINEERING
If a detailed irrigation system design is required, it may be provided by SAFRR or private consultants at the client’s expense. This step would include additional field surveying for equipment installation and refinement of the preliminary engineering design, should that be necessary for an approval to construct, or should it be requested by the client.

H. APPROVAL TO CONSTRUCT WORKS
If an Irrigation Certificate has been issued, water is available for allocation, recognized standards are met, and other clearances are in order, a Saskatchewan Watershed Authority office will issue an Approval to Construct Works to the client. In the case of effluent irrigation, Saskatchewan Environment will be the approving agency. Financial assistance for irrigation development has been available at times. Check with SAFRR for the current situation in financial assistance.

I. CONSTRUCTION
Projects must meet the minimum engineering design specifications. If the project is constructed without meeting these requirements an Approval to Operate may be withheld.

J. APPROVAL TO OPERATE
Upon confirmation that the project is constructed to recognized standards and all approvals are in place, either Saskatchewan Watershed Authority will issue an approval for using surface or ground water or Saskatchewan Environment will issue an approval for using effluent.

Note: There are costs associated with several of the irrigation development services provided by SAFRR. Contact the office for current values.

For more information contact

Saskatchewan Agriculture, Food, and Rural Revitalization
410 Saskatchewan Avenue West
Box 609, Outlook SK S0L 2N0
Phone: (306) 867-5500   Fax (306) 867-9868
Soil and Water Investigation

A person who wishes to irrigate must apply to SAFRR to have the land certified. The Agro Environmental Unit (AEU) of SAFRR’s Irrigation Division is responsible for Irrigation Certification. This unit determines whether or not the land proposed meets the current certification criteria. It must take into account soil properties, water quality, drainage, topography, and depth to water table. This unit uses a Global Positioning System and a salinity meter to map the field’s salinity. A truck-mounted coring machine is used to take soil samples in the field. Soil samples taken in the field are submitted to EnviroTest Labs (Saskatoon) for detailed salinity analysis, which includes determination of Electrical Conductivity (EC), Sodium Adsorption Ratio (SAR), pH, and concentrations of other major ions including sodium and sulphate.

Water quality is primarily based on salt (EC) and sodium (SAR) levels. Land suitability is based on both soil features (e.g. salinity, sodicity, texture, drainage) and landscape features (e.g. topography, on-site impacts, off-site impacts). The computer data collected in the field is downloaded and used to create salinity and elevation maps with the use of a Geographical Information System (GIS). Once all the information is put together, an Agro Environmental Report is issued to the irrigator which rates the soil and water for irrigation suitability.

The land will receive a final rating of suitable or unsuitable for irrigation. Minor limitations that can be overcome with proper management will be explained in the Agro Environmental Report. For example, improvements in surface drainage to prevent the formation of slough areas may be recommended. If SAFRR is satisfied that the certification criteria have been met, an Irrigation Certificate will be issued. SAFRR may impose appropriate terms to the Certificate which must be complied with by the irrigator.

For more information contact:
Agro Environmental Unit (AEU)
Crop Development Branch - Irrigation Division
410 Saskatchewan Avenue West
Outlook, SK
Phone: (306) 867-5528
gweiterman@agr.gov.sk.ca

Above: AEU’s field data collection system.
Below: GPS base station and coring equipment.
Contacts

Saskatchewan Agriculture, Food and Rural Revitalization
Irrigation Divisions of Crop Development Branch and Inspection and Regulatory Branch
410 Saskatchewan Avenue West
Outlook, SK
(306) 867-5500

For more about the irrigation certification process and soil-water standards, contact:
Agro Environmental Unit
Crop Development Branch
Phone: (306) 867-5528
gweiterman@agr.gov.sk.ca

For more about the irrigation development process, contact:
Morley Sinclair
Inspection and Regulatory Management Branch
Phone: (306) 867-5500
msinclair@agr.gov.sk.ca

For more information about irrigation districts and administration, contact:
Bill Vavra
Inspection and Regulatory Management Branch
Phone: (306) 867-5509
bvavra@agr.gov.sk.ca

ICDC - Irrigation Crop Diversification Corporation
John Linsley
Phone: (306) 867-5527
www.irrigationsaskatchewan.com

For more information on crops, research and demonstration, contact:
Les Bohrson, P.Ag.
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