

Saskatchewan Irrigation Development Centre

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Annual Report

April 1, 1996 to March 31, 1997

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This report and other SIDC publications are available at our internet address:

<http://www.agr.ca/pfra/sidcgene.htm>



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Introduction

Manager's Report

On behalf of the Saskatchewan Irrigation Development Centre (SIDC), it is my pleasure to present the annual progress report. This report summarizes the wide range of activity conducted, funded or facilitated by the Centre in 1996. I would like to personally thank everyone who has contributed to this report. I trust you will find it a useful document.

1996 was a challenging year for producers and staff at SIDC. Unusually wet, cool conditions both in the spring and fall delayed seeding and harvest, causing reductions in yield and quality. The importance of the co-operation of mother nature was once again re-emphasized.

SIDC continued its focus on rural growth and resource care issues particularly as they apply to irrigation. Irrigation must be both environmentally and economically sustainable to achieve the benefit it can provide.

SIDC has been successful in its ability to enhance rural development. This has been accomplished by identification of market opportunities and targeted research and demonstration activities. This has encouraged crop diversification, intensification and value added processing. Work by SIDC has supported and encouraged the development of mint, seed potato, dry bean, canola and pea industries in the irrigated areas of Saskatchewan.

Resource care studies conducted by SIDC have emphasized evaluating the impact of irrigation on the environment. Although sometimes difficult to quantify, these issues are critical to sustainable irrigation development.

SIDC was funded in 1996 through federal and provincial A base dollars along with agreement dollars. The Federal/Provincial Partnership Agreement on Water Based Economic Development (PAWBED) has provided additional funding to intensify the rural growth and development aspects of the program. Resource care issues have been intensified through funding from the Canada/Saskatchewan Agriculture Green Plan Irrigation Sustainability component. These agreements will sunset in March 1997 and 1998 respectively. Funding to continue these valuable programs will be key to the future of the Irrigation Industry in Saskatchewan.

Partnerships are viewed as essential to future operations at SIDC. The current memorandum of understanding between Canada and Saskatchewan which directs the operation at SIDC is being reviewed and updated. Industry input as a partner at the management table is desired.

In addition, major accomplishments have been made toward encouraging better and more formal linkages with the irrigation industry in the three prairie provinces. A formal MOU between provinces was drafted and awaits finalization.

Finally, SIDC has been involved in strategy development for the Canada/Saskatchewan Agri-Food Innovation Fund. This industry driven fund will provide a wide array of opportunities in the future.

Year's Highlights

1. Tours are an important part of SIDC activity. The following are some of the more noteworthy:

1)	Alfalfa research and demonstration group	January 22
2)	Prairie Crop Diversification Task Force	January 30
3)	Alfalfa Producers	April 3
4)	Environment Canada Personnel	April 9
5)	Association of Community Planners Tour	June 4
6)	East Indian Agricultural Research Tour	June 12
7)	Sask Water Board of Directors	June 13
8)	Communications Division discussion	June 18
9)	Sask History and Folklore Society	June 27
10)	Federal Auditors Tour	July 8
11)	SIDC Field Day	July 12
12)	Seed Potato Association	July 13
13)	Drip Irrigation Tour	July 15
14)	Grass Seed production group	July 16
15)	PAWBED Agreement Management Committee	July 17
16)	Chinese Scientists Tour	July 17
17)	SIDC Evening Tour	July 17
18)	Horticulture Department, U of S individuals	July 19
19)	Sask Water	July 19
20)	Roste Family Reunion Tour	July 20
21)	Sustainable Development Service Tour	July 30
22)	Manitoba Group Tour (effluent)	July 31
23)	Chinese Delegation Tour	August 1
24)	Canola Field Day at Birsay	August 7
25)	Dry Bean Field Day at Riverhurst	August 8
26)	Vegetable Wholesalers and Farmers Tour	August 13
27)	Dutch potato industry personnel	August 16
28)	Grass Seed Producers Tour	August 16
29)	Sask. Institute of Agrologists Tour	August 20
30)	Swift Current Seniors Group	August 23
31)	CIDA Officials Tour	August 25 & 26
32)	Vegetable and Potato Producers Tour	August 26
33)	Chinese Delegation Tour	August 26
34)	PAWBED Program 2.0 Group Tour	September 10
35)	Tour of potato plots - Lamb Weston	September 17
36)	Dr. Ron Howard, Brooks Horticulture Station	September 18
37)	Sustainable Development Manager's Tour	September 24-26
38)	Federal Deputy Minister Tour	October 16
39)	Horticulture Strategic Committee	October 17
40)	Canadian Aromatic Oils Tour	October 29
41)	Russian Scientists Tour	November 29
42)	Egyptian Delegation Tour	December 9

2. Staff SIDC booth at various trade shows and conferences:
 - Crop Production Show, Saskatoon
 - Prairie Ventures, Saskatoon
 - Sustainability Ag Conference, Saskatoon
 - Medicinal Herbs Conference in Olds, Alberta
 - Ginseng Conference, Outlook
 - Outlook Trade Show
 - Sask Water Pulse Crop Day, Outlook
 - Zimmatic Irrigation Dealer Days, Outlook
 - Beechy Trade Fair

3. Development of purchased land to facilitate irrigated research and demonstration.

4. Proposal Based Research and Demonstration - A major role of SIDC has been to fund irrigated research and demonstration activity. This has been done using funding from the Partnership Agreement on Water Based Economic Development (PAWBED). To date, 49 research applications have been received for funding and 23 approved. In addition, a number of demonstration projects were received (120) and 106 funded. A number of these demonstrations are for the southwest irrigation projects (30).

5. Public Presentations - ICID Congress (Cairo, Egypt); Potato Association of America Annual Meeting (Idaho, USA); CWRA Meetings (Quebec City, Quebec); Water Quality Symposium (Winnipeg, Manitoba); Prairie Medicinal and Aromatic Plant Conference (Brandon, Manitoba); Herb Marketing Conference (Olds, Alberta); IRDC '96 Conference (Lethbridge, Alberta); Western Pulse Research Working Group (Calgary, Alberta); Prairie Potato Council Meeting (Red Deer, Alberta); Soils & Crops Workshop (Saskatoon, Saskatchewan); Vegetable Growers Association (Saskatoon); Seed Potato Growers Trade Show and Convention (Saskatoon); SIPA Annual Meeting (Moose Jaw, Saskatchewan); Chokecherry Workshop (Indian Head, Saskatchewan); John Deere Days (Outlook, Saskatchewan), Prairie Ginseng Workshop (Outlook).

6. Publications -
 - a) Requirements for Improved Interactive Communication Between Researchers, Managers and Extensionists. Proc. 49th Annual Conference of the Canadian Water Resources Association. Quebec City, Quebec. 1996. L. Tollefson and M.N.J. Wahab.
 - b) Role of the Saskatchewan Irrigation Development Centre in Crop Diversification. Proc. 49th Annual Conference of the Canadian Water Resources Association. 1996. L. Tollefson.
 - c) Institutional Questions and Social Challenges. In: Sustainability of Irrigated Agriculture. Ed. Pereira et al. NATO ASI Series. Vol. 312, p. 47-59. 1996. H.M. Hill and L. C. Tollefson.
 - d) Herbs, Spices & Essential Oils: Research and Demonstration. SIDC publication (also published in the Saskatchewan Herb and Spice Association Newsletter). April 1996. L. Tollefson, J. Wahab, H. Clark, B. Irvine and T. Hogg.
 - e) Crop Market Outlook - 1996. SIDC publication. H. Clark.
 - f) Ginseng Update. SIDC publication. July 1996. H. Clark, and J. Kort.
 - g) Irrigated Beans: Seeding Rate and Row Spacing Effects for Contrasting Plant Types. Western Pulse Research Working Group Meetings. Nov. 1996. J. Wahab and A. Kapiniak
 - h) Ethanol Industry Set for Recovery with Opening of New Plants. SIDC publication. Dec. 1996.

H. Clark and M. Stumborg.

- i) Potato Irrigation Scheduling Studies at SIDC. Proc. Prairie Potato Council Meetings. Jan. 1997. J. Wahab, T. Hogg and D. Waterer.
- j) Crop Varieties for Irrigation. Jan. 1997. R.B. Irvine, J. Wahab and P. Ackerman.
- k) Late Nitrogen Application to Improve Grain Protein of Irrigated Sceptre Durum Wheat. Proc. Soils & Crops Workshop. Feb. 1997. T.J. Hogg and S. Brown.
- l) Effects of Seed Piece Spacing and irrigation on Seed Potato Yield. Proc. Soils and Crops Workshop. Feb. 1997. J. Wahab, D. Waterer, and T. Hogg.
- m) Irrigation Sustainability Studies. CSAGPA Review. November 1996. T.J. Hogg.
- n) Are Your Rotations Costing You Money? Proc. Soils and Crops Workshop. Feb. 1997. B. Irvine and G. Larson
- o) Market Potential for Herbs and Spices. Proc. Soils and Crops Workshop. Feb. 1997. H. Clark.
- p) Effluent Irrigation Guidelines and Management Practices. CSAGPA Review. Nov. 1996. T.J. Hogg.
- q) Saskatchewan Herbs and Spice Industry ...What's New. Prairie Medicinal and Aromatic Plant Conference. Mar. 1997. J. Wahab
- r) Sustainable Effluent Irrigation. Water Quality Symposium. Mar. 1997. T.J. Hogg and L.C. Tollefson

8. Committee involvement - SIDC staff are involved with the following working committee: Prairie Regional Recommendation Committee on Grains (Specialty Crops & Cereals Section); Western Expert Committee on Grains (member of production section); Pesticide Review Committee; Elite Stock Farms Effluent Irrigation Research & Demonstration; Maple Creek Irrigators Research & Demonstration; Green Plan Irrigation Sustainability Technical Committee; Swift Current Research Centre Water Use and Soils Review Committee; PAWBED Irrigation Improvement Subcommittee; Green Plan Water Quality Research Committee; Canadian Expert Committee on Soil and Water; Agriculture Canada Ethanol Committee; International Commission on Irrigation and Drainage (ICID); Crops and Water Use Subcommittee; Secretary Canadian Commission on Irrigation and Drainage (CANCID); Manitoba Crop Diversification Centre Technical Advisory Committee; Partners for the Saskatchewan River Basin Technical Committee; Western Canadian Pulse Research Working Group; SIDC Research and Demonstration Advisory Committees; Southwest Demonstration Advisory Committee; SSRID Rehabilitation Technical Committee; Effluent Irrigation Project Liaison Committee; Organizing Committee on Crops & Soils Workshop; PFRA Soil Conservation and Potato Production Committee; Saskatchewan Seed Potato Growers Association; Prairie Potato Council; National Potato Advisory Council; National Potato Research Network; Western Canadian Joint Task Force on Seed Potato Export; PFRA Irrigation Strategy Committee; Research Associate - Dept. of Ag & Bioresource Engineering; Prairie Crop Diversification Task Force; Federal Chair, Horticulture Committee, Agri-Food Innovation Fund; PFRA Sustainable Development Water Task Team; Environmental Research Strategy Task Force; PFRA Sustainable Development Strategy Competitiveness Task Force.

Canada/Saskatchewan Irrigation Development Centre

The Saskatchewan Irrigation Development Centre was established in 1986 as a jointly-funded federal/provincial agency resulting from an MOU between Agriculture and Agri-Food Canada, PFRA, and Saskatchewan Agriculture. Its purpose is to conduct, fund and facilitate irrigated research and demonstration responsive to producer needs. The goal of the Centre is to promote economic security and sustainable rural development primarily through the diversification and intensification of irrigated crop production.

SIDC has provided physical facilities and a management structure for applied research and demonstration along with linkages to other developmental initiatives. Since the formation of SIDC, Canada and Saskatchewan have delivered irrigated research and demonstration information to their clients using core resources along with incremental support from federal/provincial initiatives such as SIBED, PAWBED and Green Plan.

Centre Objectives

- i) Identify higher value cropping opportunities through market research to help target research and demonstration efforts.
- ii) Conduct, fund and facilitate irrigated research and demonstration activity to meet the needs of irrigation producers and industry in the province.
- iii) Develop, refine and test methods of diversifying and intensifying irrigated crop production in co-operation with research agencies.
- iv) Demonstrate sustainable irrigated crop production methods at SIDC.
- v) Promote and extend sustainable irrigated crop production methods to ensure clients are well served.
- vi) Evaluate the environmental sustainability of irrigation through its impact on physical resources.
- vii) Promote a Western Canadian approach to irrigation sustainability by interacting with staff from similar institutions and industry across Western Canada to increase levels of co-operation in marketing, research and demonstration that support diversification and value-added processing, along with transfer of such technology to strengthen the industry.

Staff

Manager	L. Tollefson	Field Crops Agronomist	B. Irvine
Administration	M. Martinson	- Technician	G. Larson
Secretarial	J. Clark	Horticulture	C. Chycoski
Market Analyst	H. Clark	Irrigation Sustainability	T. Hogg
Field Operation	B. Vestre	- Technician	S. Brown
Irrigation	D. David	Specialty Crops Agronomist	J. Wahab
Maintenance	A. MacDonald	- Technician	A. Kapiniak
Irrigated Forage Project	L. Sexton	Information Officer	P. Ackerman

Programs

Specialty/Horticulture Crop Development

A specialty crops development program was initiated at SIDC in 1987. This program involves the evaluation of specialty crop production under irrigated conditions with the intent of developing cropping alternatives suitable to irrigated conditions in Saskatchewan. This involves a wide range of varietal evaluation, irrigation and agronomic adaptation studies. A major effort was made to identify the most promising market opportunities and to concentrate activity in this area. Examples of projects include varietal and agronomic evaluation of dry bean, pea, lentil, fababean, chickpea, caraway, coriander, fenugreek, etc.

More recently, a much greater emphasis has been placed on horticultural production. Particular emphasis has been placed in supporting the potato industry through varietal and agronomic studies. In addition, work on vegetable production, technology, medicinal herbs and spices is underway.

Field Crops (cereals, oilseed and forages)

Field crops are and will always be a major part of any irrigated rotation. In 1996, greater than 90% of the irrigated acreage in Saskatchewan was planted to field crops. While desirable to introduce new and specialty crops, a priority must be placed on improving the profitability of the more conventional field crops. This includes examining new and/or existing genetic material (varietal trials) under irrigated conditions with improved disease and lodging tolerance or novel quality traits that could service a niche market. Suitable varieties must be identified and tested for agronomic performance under irrigated conditions. Evaluation of agronomic factors which can lead to more efficient water use, optimize production and lower input costs must be determined.

Examples of projects include irrigated varietal and agronomic evaluation of: canola, mustard, flax, barley, durum, winter wheat, alfalfa and grass seed, CPS and durum wheat development, semi-dwarf barley development, sclerotinia control in canola, micro and macronutrient evaluation, irrigation scheduling.

Marketing

Marketing of produce is key to sustainable irrigated production. This program was developed to identify and evaluate potential markets for irrigated produce and opportunities for value-added processing with the goal of promoting economic activity and development in the irrigated areas.

Environmental Sustainability

This program attempts to quantify the effect of irrigation on the environment. It was initiated in 1991 with funding from the Environmental Sustainability Initiative and was intensified in 1993 using Canada/Saskatchewan Agriculture Green Plan funding. This program enabled the installation of subsurface drainage and reclamation of a saline area. In addition, evaluation of the effect of agrochemicals under an irrigated environment, water conservation methodology, effluent

irrigation, the effects of irrigation on soil properties have all been initiated.

Technology Transfer

This program ensures that information developed at SIDC is made available to farmers, extension personnel, private industry and the general public. It includes the annual field day, newsletters, extension meetings, internet website, scientific publications, etc.

Centre Funding

The base funding for the Saskatchewan Irrigation Development Centre is provided by PFRA and Saskatchewan Water Corporation. Additional funds were provided by the Canada/Saskatchewan Partnership Agreement on Water Based Economic Development (PAWBED), and the Canada/Saskatchewan Agriculture Green Plan Agreement.

Table 1. Centre Funding					
	PFRA A-Base	Green Plan	PAWBED On-Station	PAWBED Proposal- based	Sask Water
Salaries	370,000		250,400		76,510
Operating	156,925	20,000	190,000		10,064
Capital	124,000		56,000		
Research				375,217	
Demonstration				31,707	
Grants & Contributions		76,700			
TOTAL	650,925	96,700	496,400	406,924	86,574



List of Projects

Canada-Saskatchewan Partnership Agreement on Water-Based Economic Development (PAWBED)

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Canada-Saskatchewan Agriculture Green Plan Agreement Irrigation

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Canada/Saskatchewan Partnership Agreement on Water-Based Economic Development (PAWBED)

Research Projects:

PROJECT NAME AND CO-OPERATOR	TERM	1996 EXPENDITURES	TOTAL \$
Development of Irrigation Guidelines, and Demonstration of Intensive Production Techniques for Fruit Crops in Saskatchewan Principal: R. St. Pierre, U of S	Final year of three	\$22,000.00 COMPLETED	\$71,830.00
Evaluation of Semi-dwarf Durum and Breeding Lines for Irrigated Production in Saskatchewan Principal: J. Clarke, Ag Canada, Swift Current	Final year of three	\$36,000.00	\$96,300.00
Developing Semi-dwarf Cereal Varieties for Irrigation Production in Saskatchewan Principal: B. Rosznagel, U of S	Final year of three	\$43,919.05	\$173,817.00
The Development of Industrial and Canlin Varieties of Flax Specifically for Irrigation and the Development of a Selection Technique for Lodging Principal: G. Rowland, U of S	Final year of three	\$12,449.38	\$30,195.00
Demonstration of New Alfalfa Varieties Resistant to Verticillium Wilt on Irrigation in Southwestern Saskatchewan Principal: P. Jefferson, Ag Canada, Swift Current	Final year of three Extended for 1997	\$20,000.00	\$162,855.00
Development of Non-shattering Dry Bean Germplasm for Irrigated Production in Western Canada Principal: A. Slinkard, U of S	Final year of three	\$25,513.17	\$129,725.00
Development of Specialty Faba Bean Varieties for Irrigated Production in Western Canada Principal: G. Rowland, U of S	Final year of three	\$19,194.63	\$49,050.00
Seed Yields of Grass Species and Varieties under Irrigated Conditions in Saskatchewan Principal: Sask Forage Council	Final year of three	\$25,490.00	\$74,895.00
Management and Evaluation of Species and Cultivars for Irrigated Forage in Seed Production Principal: B. Coulman, Ag Canada, Saskatoon	Final year of three Extended for 1997	\$28,442.00	\$95,322.00
Production of Timothy for the Export of Long Fibre Hay Principal: A. Kielly, Ag Canada, Swift Current	Final year of three	\$10,160.00	\$28,710.00
Evaluation of Spice Crops under Irrigated Conditions in Saskatchewan Principal: F. Sosulski, U of S	Final year of three	\$6,917.28	\$21,450.00
Dormancy Management in Seed and Table Potatoes Principal: K. Tanino, U of S	Final year of two	\$2,278.05 COMPLETED	\$48,400.00
Control of Potato Scab Through Integrated Soil Fertility and Moisture Management Principal: D. Waterer, U of S	Final year of two	\$11,938.30	\$50,400.00
Management of Plastic Mulches to Enhance Vegetable Crop Production Principal: D. Waterer, U of S	Final year of three	\$19,339.01	\$49,700.00
Forage Variety Testing under Irrigated Conditions in Saskatchewan Principal: Saskatchewan Forage Council	Final year of three	\$5,025.90 COMPLETED	\$14,237.00

PROJECT NAME AND CO-OPERATOR	TERM	1996 EXPENDITURES	TOTAL \$
Comparative Salinity Tolerances of Alternate Crops Grown under Irrigation Principal: H. Steppuhn, Ag Canada, Swift Current	Final year of two Extended for 1997	---	\$24,640.00
Grass Seed Industry Development: Control of Silvertop in Irrigated Grass Seed Fields Principal: J. Soroka, Ag Canada, Saskatoon	Final year of two	\$18,150.00	\$48,950.00
Development of Disease Resistant Field Pea Germplasm under Irrigation Principal: A. Slinkard, U of S	Final year of two	\$30,147.50	\$99,000.00
Development of Production Package for Seed Potatoes Principal: D. Waterer, U of S	Final year of two	\$24,252.42	\$63,360.00
Forage Quality of Alternative Salt Tolerant Grasses Principal: D. Kielly, Ag Canada, Swift Current	Final year of two	\$14,000.00	\$44,550.00
Energy Conservation and Application Uniformity for Centre Pivot Linear Move Irrigation Systems When Operated at Varying Pressures Principal: J. Gillies, U of S	First year of three	---	\$76,120.00
A Crop Diversification Opportunity: Potential of Ryegrass as a Seed Crop Under Irrigation in Saskatchewan Principal: B. Coulman, Ag Canada, Saskatoon	First year of three	---	\$33,990.00
Dormancy Management in Seed and Table Potatoes, Phase II Principal: K. Tanino, U of S	First year of two	---	\$75,900.00
TOTAL RESEARCH		\$375,216.69	\$1,563,396.00

Demonstration Projects:

West Central:

PROJECT NAME AND CO-OPERATOR	TERM	1996 EXPENDITURES	TOTAL \$
Saskatoon Berry Water Use (4 sites) Co-operators: G. Schultz, Waldheim; Last Mountain Berry Farm, Southey; Prairieland Orchards, D'Arcy; Topp Berry Farm, White City	First year of two	\$500.00 \$500.00 \$500.00 \$500.00	\$1,000.00 \$1,000.00 \$1,000.00 \$1,000.00
Salt and Flood Tolerant Grass Co-operator: Brightwater Flood Control Project	Final year of two	\$1,685.95 COMPLETED	\$2,110.00
Lower Energy Irrigation Systems Evaluation Co-operator: G. Sommerfeld, Outlook	Final year of two	\$500.00 COMPLETED	\$4,375.00
Irrigated Canola Varieties Co-operator: L. Bagshaw, Birsay	One year only	\$500.00	\$500.00
Whole vs Cut Potato Seed Nitrogen Split Application on Potatoes Within Row Seed Spacing for Seed Potatoes Co-operators: Riverhurst Ag Products, Riverhurst	One year only	\$1,000.00 \$1,350.00 \$1,500.00	\$1,000.00 \$1,350.00 \$1,500.00
Backflood Hay Fertilization Co-operator: H. Schmidt, Dundurn	Extended for 1996	\$462.35 COMPLETED	\$1,375.00
Lower Energy Irrigation Systems Evaluation Co-operator: D. Eliason, J. Eliason, Riopka Brothers, Outlook	First year of two	\$500.00 \$500.00 \$1,483.74	\$1,000.00 \$1,000.00 \$2,500.00

PROJECT NAME AND CO-OPERATOR	TERM	1996 EXPENDITURES	TOTAL \$
Foliar Fertilizer on Dry Beans Co-operator: B. Jones, Riverhurst	One year only	\$1,025.00	\$1,025.00
Foliar Fertilizer on Peas Co-operator: D. O'Brien, Riverhurst	One year only	\$1,025.00	\$1,025.00
Benlate on Sclerotinia Co-operators: D. O'Brien, B. Jones, Riverhurst	One year only	\$938.00 \$938.00	\$938.00 \$938.00
Zero Till on Alfalfa Stubble Co-operator: G. Pederson, Outlook	One year only	\$850.00	\$850.00
Baler Modification to Enhance Hay Storability Co-operator: R. Pederson, Outlook	One year only	\$700.00	\$700.00
Variable Nitrogen Rates on Glenlea Wheat Co-operator: R. Pederson, Outlook	One year only	\$550.00	\$550.00
Protein Enhancement on Durum Co-operator: R. Regehr, Delisle	One year only	\$1,000.00	\$1,000.00
Dandelion Control in Alfalfa Co-operators: G. Sommerfeld, G. Solnicka, Outlook	First year of three	\$500.00 \$500.00	\$1,500.00 \$1,500.00
Ronilan Fungicide for Sclerotinia on Dry Bean Co-operator: N. Thompson, Riverhurst	One year only	\$500.00	\$500.00
Remedial Pruning of Hail Damaged Saskatoon Berries Co-operator: Topp Berry Farms, White City	First year of three	\$1,000.00	\$2,250.00
DEMONSTRATION TOTAL		\$21,008.04	\$33,486.00

Southwest:

PROJECT NAME AND CO-OPERATOR	TERM	1996 EXPENDITURES	TOTAL \$
Micro-trickle Irrigation of New Fruits for Southwest Saskatchewan Co-operator: L. Metke, Cadillac	Final year of three	\$3,985.00 COMPLETED	\$12,455.00
Sprinkler Irrigated Alfalfa Management Co-operator: H. Gold, Maple Creek	Final year of three Extended for 1997	\$760.00	\$3,260.00
Fertilizer Placement - Spoke Injection vs. Deep Banding Co-operator: D. Arendt, Eastend	Final year of three Extended for 1997	\$404.00	\$1,830.00
Fertilizer Placement for Spring Flooded Grasses Co-operator: J. Gilchrist, Maple Creek	Final year of three	\$450.00 COMPLETED	\$1,830.00
Fertilizer Placement for Spring Flooded Grasses (three sites) Co-operator: I. Bowie, Piapot; L. Weiss, Maple Creek; H. Steinley, Rush Lake	Final year of three Extended for 1997	\$450.00 \$450.00 \$417.50	\$1,830.00 \$1,830.00 \$1,830.00
Fertilizer Placement for Established Irrigated Alfalfa Co-operator: L. Grant, Val Marie	Final year of three Extended for 1997	\$664.00	\$2,300.00
AC Blue Jay Alfalfa Co-operator: H & M Gerbrandt, Waldeck	Final year of two	\$732.00 COMPLETED	\$1,400.00
Alfalfa Establishment Co-operator: R. & R. Perrault, Ponteix	PROJECT ABANDONED	\$250.00	\$1,400.00

PROJECT NAME AND CO-OPERATOR	TERM	1996 EXPENDITURES	TOTAL \$
Wetland Forage Co-operator: G. Reimer, Rush Lake	Final year of two	\$414.00 COMPLETED	\$760.00
Alfalfa Varieties and Rates Co-operator: J. Wiebe, Swift Current	Year one of two	\$635.00	\$1,500.00
Premium Protein Co-operator: B. Jorgensen, Pambrun	One year only	\$950.00	\$950.00
Alfalfa Establishment & Varieties Co-operator: D. Halvorson, Abbey	Year one of two	\$137.00	\$1,500.00
SOUTHWEST DEMONSTRATION TOTAL		\$10,698.50	\$34,675.00
TOTAL DEMONSTRATIONS		\$31,706.54	\$68,161.00

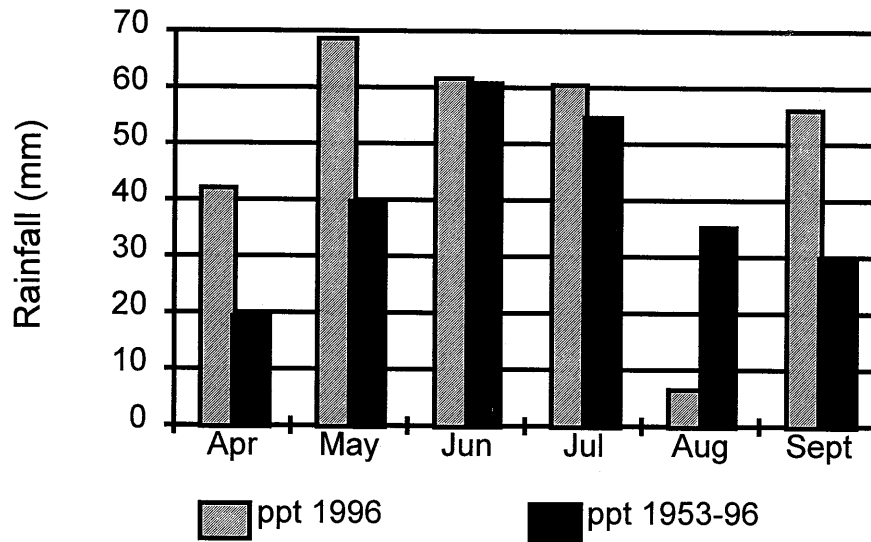
Canada/Saskatchewan Agriculture Green Plan Agreement Irrigation Sustainability Projects:

PROJECT NAME AND CO-OPERATOR	TERM	1996 EXPENDITURES	TOTAL \$
Evaluation of the Effects of Irrigation on Soil Properties Principal: L. Henry, U of S	Completed	\$31,390.00	\$131,390.00
Water Conservation & Water Use Efficiency Principal: J. Gillies, U of S	Completed	nil	\$97,500.00
Monitoring of Irrigation Runoff for Plant Nutrient & Herbicide Runoffs into the South Saskatchewan River Principal: A. Cessna, Ag Canada, Saskatoon	Final year	\$20,000.00	\$65,000.00
Environmental Sustainability of Effluent Irrigation in Saskatchewan: Guidelines and Management Practices Principal: Normac AES Ltd., Swift Current	Final year	\$22,000.00	\$80,000.00
Elite Stock Farm Limited - Hogg Effluent Irrigation Project Monitoring Data Principal: Henry Perspectives	One year	\$12,500.00	\$12,500.00
Emerging Irrigation System Technology for Efficient Energy Use and Water Application Principal: WaterMark Engineering	One year	\$5,810.00	\$5,810.00
Develop an Updated Trickle Irrigation Users Manual Principal: Saskatchewan Water Corporation	One year	\$5,000.00	\$5,000.00
TOTAL PROJECTS		\$96,700.00	\$397,200.00

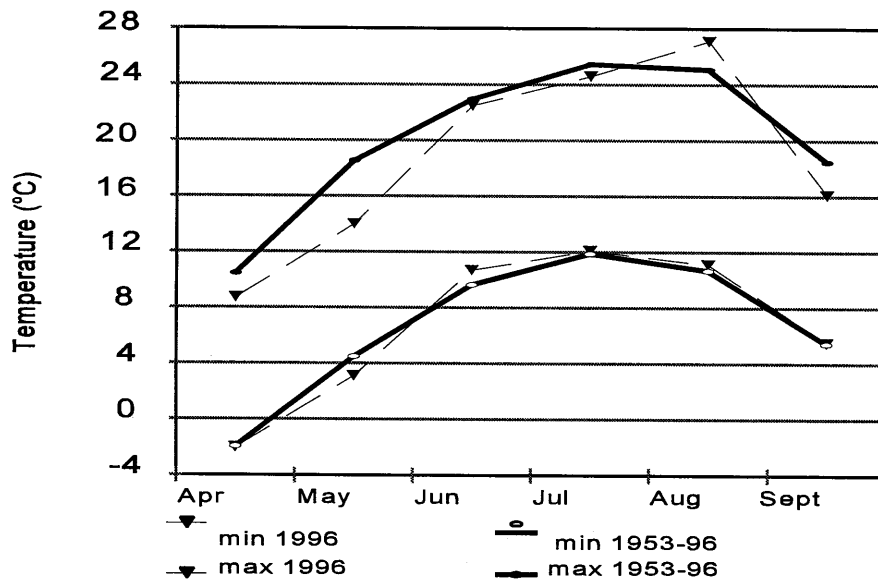
Meteorological and Irrigation Data

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Growing Season Precipitation



Growing Season Temperature



1996 Irrigation Date (mm)

CROP	FIELD	JUNE	JULY	AUGUST	TOTAL
Barley (Falcon)	1		125	50	175
Fababean (Fatima)	1		125	75	200
Grass Seed Demo	2B		75		75
Durum (Sceptre)	2B		100		100
Fibre Flax	3		100		100
Biennial Caraway	3		100		100
Durum (Sceptre)	3		100		100
Barley (Falcon)	4*		50	25	75
Barley (Falcon)	5*		50	25	75
Grass Seed Trials	7	25	75	50	150
Crop Rotation Study	8		125	50	175
Potato Trials	8		125	125	250
Canary Seed (Keet)	8		75	25	100
Lentil Trials	9		100	50	150
Dry Bean Trials	9		100	50	150
Soft Wheat (AC Reed)	9		125	25	150
Fababean Trials	10		125	75	200
Spearmint	10	25	125	50	200
Soft Wheat (AC Reed)	10		125	25	150
Soft Wheat (AC Reed)	11		75	25	100
Potato Trials	12	25	125	125	275
Durum Sceptre	12		100		100
Barley (Falcon)	12		100		100
Demo Site (Cereal-plots)		150	223	54	427
Demo Site (Flax Trials)		150	223	104	477
Demo Site (Canola/Pulse Plots)		150	223	54	427
Demo Site (Canola-Quantum)		150	223	54	427
Demo Site (Durum-Sceptre)		125	223	54	402

*In Fields 4 & 5, 225 mm was applied as fall leaching in September.

NOTE: There was no irrigation application in May.



Cereals

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