



THE IRRIGATOR

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Ninth Annual Irrigation Conference Swift Current December 6 and 7

We're back to Swift Current after two years in Outlook with our Annual Conference. It's at the Days Inn on December 6 and 7.

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By Carl Siemens,

ICDC Chair

This conference will provide irrigators with information on:

- a 50-year plan for Water in Saskatchewan;
 - the International Joint Commission hearings on Montana's push for more water (both Saskatchewan's and Alberta's perspectives);
 - the Canada Saskatchewan Water Supply Expansion Program;
 - changes to The Irrigation Act; and
- "much, much more," including a chance to "network" at the cash bar with irrigators from all around the province.

Contact Sandra Bathgate at (306) 796-4420 for registration information.

50-year plan for Water in Saskatchewan

Saskatchewan Agrivision Corporation Inc. received CARDS funding to prepare a plan for water in Saskatchewan to address water development opportunities. Clifton and Associates' Graham Parsons presents the 50-year plan in Regina on November 4, and again at The Annual Irrigation Conference in Swift Current, December 6 and 7.

Irrigators, including ICDC, have been involved in the development of this plan on the steering committee and in workshops that were held last winter.

Since Walkerton and North Battleford, water has been front and centre. Saskatchewan is now implementing a Safe Drinking Water Strategy. The Saskatchewan Watershed Authority (SWA) is undertaking a major Basin Planning exercise in which irrigators are engaged. Water source protection is the main thrust of this initiative. SWA is also preparing a Water Conservation Plan.

While both ICDC and SIPA support safe drinking water, basin planning and water conservation, neither organization wants Saskatchewan to forget that it has a major development opportunity around water. The Action Committee on the Rural Economy (ACRE) recommended "developing a plan for infrastructure around key irrigation sites and adopting a policy that expands the utilization of current irrigation systems."

The Alberta government's "Water for Life" strategy for sustainability has three goals:

- Safe, secure drinking water supply
- Healthy aquatic ecosystems
- Reliable, quality water supplies for a sustainable economy.

The SAC 50-year plan for Water in Saskatchewan will provide input to the third goal for Saskatchewan, while the province's Safe Drinking Water Strategy and basin planning cover the other two.

(Continued on page 2)

Irrigation Alley

The Western Canadian Crop Production Show 2005 will feature "Irrigation Alley," and ICDC, along with SIPA, will be there. The show runs January 10 to 13 at Saskatoon Prairieland Park. Attendance at this show is around 15,000, which will provide excellent profile for irrigated agriculture in Saskatchewan.

ICDC Strategic Plan

Since 1998, ICDC has established itself as the representative for Saskatchewan's irrigators in matters of R&D. ICDC co-chairs the Canada Saskatchewan Irrigation Diversification Centre Executive Management Committee and has established excellent working relationships with Saskatchewan Agriculture, Food and Rural Revitalization, Agriculture and Agri-Food Canada, the University of Saskatchewan, SIAST Moose Jaw campus, agri-business companies and many irrigators around the province.

ICDC collected R&D priorities from all Irrigation Districts and went to work on them.

Since 1998, the world has turned, water has gone under the bridge, and its time to take stock. ICDC will be presenting a new strategic plan to the Annual Conference for input from delegates.

What does ICDC's "value for money R&D" look like to you, the irrigator, in five to 10 years time?

The Canada Saskatchewan Water Supply Expansion Program

Funds are flowing to irrigation for "infill" and for feasibility studies through this program which ends in March 2006. Check out the Web site www.agr.gc.ca/env/index_e.php?section=h2o&page=sk, or learn about it at the Annual Irrigation Conference.

Another Productive Summer for ICDC

After publishing *Crop Varieties for Irrigation 2004* and *Irrigation Economics and Agronomics Saskatchewan 2004*, ICDC went to work on the ICDC Forage Centres in Swift Current at SPARC, in Outlook at CSIDC and in the Saskatoon dairy shed at Osler. Field days were held at each of these sites plus the ICDC/Secan crop variety site at Maple Creek.

Work continued to add 2004 to **ICDC's corn database**: if you want to know the ingredients for top yields and quality, call ICDC's Les Bohrsen.

The turnout for the Corn Industry Trade Show and Field Day on September 14 was good, thanks to ICDC's Glenn Barclay and Grant McLean. Over 80 industry, research, extension and production people checked out the Alberta Corn Committee trials, the silaging demo by Kevin Willms (Osler) and ARCH Equipment (Outlook) and the sweet corn and corn grazing. Thanks to Gerald Follick for hosting us at his grazing field and to CSIDC for help with organizing the event.

Korvin Olfert continues to work alongside our irrigated **timothy for export** industry. These guys had a tough summer; hopefully it was a "one-in-10" and we're good for another nine now. An ICDC timothy industry meeting is planned.

ICDC continues to support the bean industry. Keith and Grant Carlson treated a good turnout for the August 5 **Bean Day** to coffee and donuts at Keg Agro Ltd. Keg contracts, cleans and bags beans north of Broderick. Gildardo Silva, Latin American Sales Manager for Walker Seeds Ltd., was on hand to discuss the state of the bean industry.

Grant McLean, and subsequently Lana Shaw, have been working on an irrigated **strawberry crowns** project at CSIDC. We have a market opportunity for crowns in California and some test marketing is being done this year.

ICDC is working with Alberta Agriculture on a **Web site for irrigation scheduling**. A training seminar was held at CSIDC last spring, and ICDC did validation work all summer on the model. Look for this next summer to tell you what your crop water use will be for the coming five days. We're hoping that other crop data and disease forecasting will become part of this site. Thanks, Alberta Agriculture, for your help on this one.

ICDC's Grant McLean and Glenn Barclay were able to complete an **irrigated crop survey** of six irrigation districts around Lake Diefenbaker this summer. It's been 10 years since we were able to do this, and the results are published in this edition of *The Irrigator*.

Finally, ICDC's sympathy goes out to agrologist Clint Ringdal, who's mom, sister and a family friend were tragically killed in a car accident on July 29, 2004. Clint's younger brother, Lucas, was injured, but is recovering. Clint is on leave at press time helping his dad, Bill, with harvest.

The 50-Year Plan for Water Development

**By Graham Parsons, Organization for
Western Economic Cooperation and
VP, Clifton & Associates.**

*This work was done for The Saskatchewan
AgriVision Corp. Inc., with CARDS funding.*

New institutions are required to plan, develop and promote the water economy in Saskatchewan. These are identified in the Master Plan as *Comprehensive Water Development Corporations (CWDCs)* to operate regionally around major water development opportunities. Each CWDC would create regional plans for their area to maximize the level of value added and employment activities. Each water development region would include an urban processing centre where water, road and rail infrastructure would be developed to attract industry. The early development of CWDCs and preparation of their water development plans for each area would be financed by a new federal-provincial-industry Water Value Chain Planning Agreement to last 10 years.



Irrigating beans at Outlook

Irrigation is the central foundation for water based value added development. The provincial organization *SIPA (Saskatchewan Irrigation Projects Association)* is therefore important for the sustained development of the irrigation economy and its value added processing. Under the Plan, the organization would be strengthened and expanded to undertake a promotional and development role

for the industry and to deliver a core set of irrigation programs. At the local level, irrigation districts would be strengthened to improve their financial viability and capacity to invest.

The *Canada-Saskatchewan Irrigation Diversification Centre* is the foremost centre for irrigation and crop marketing in Canada. Its operations would expand to provide province-wide coverage and extend to value-added processing.

Long term hydrological research and information management requires a long-term focus in Saskatchewan. This can be created through the establishment of a *Water Research Institute* and network at the two Saskatchewan universities.

A *Saskatchewan Water Development Council*, consisting of key industry stakeholders, government and the public would be created to advance and sustain the 50-year plan of water development activities. The Water Council would conduct a Commission of Inquiry to identify new water development opportunities in agriculture, aquaculture and energy, evaluate the potential, and need, for interbasin water transfers and develop a long-term provincial plan.

Since many of the water issues in Saskatchewan are regional in nature, it is recommended that the scope of the *Prairie Provinces Water Board* be expanded and developed.

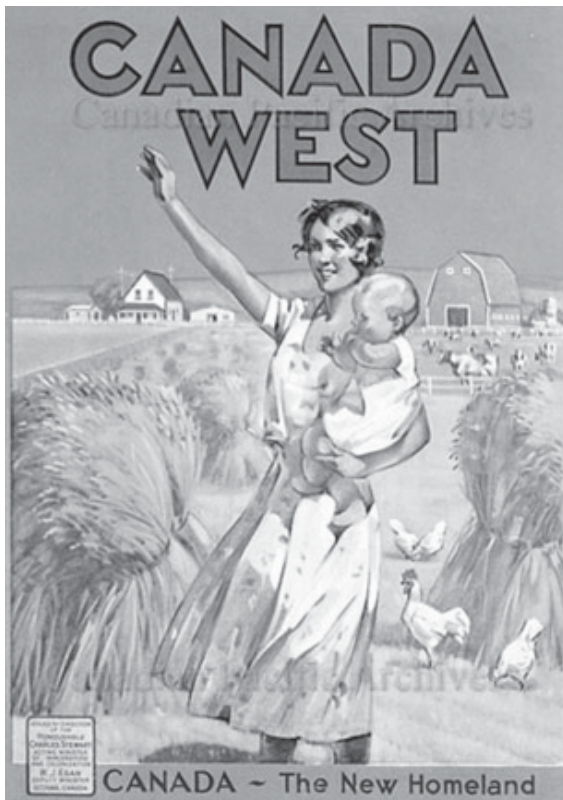
A number of *federal and provincial policy frameworks* were also identified in the Plan as critical to the development of a water economy in Saskatchewan. These included recommendations for change with respect to:

- Creating a market for the purchase and sale of water rights.
- Providing electric power supply and development by CWDCs to irrigation areas.
- Facilitating infrastructure rehabilitation and expansion, particularly with respect to the irrigation development areas, to create competitive infrastructure.
- Establishing tax-free development zones to support development of water-based processing.
- Providing guaranteed development bonds to help finance water developments.

(Continued on page 4)

Fifty-Year Plan (Continued from page 3)

- Establishing a targeted immigration program to attract a new generation of immigrants, and providing financing for water development in rural areas.
- Improving the environmental assessment and decision-making procedures on major water development projects to reduce risk.



Canadian Pacific Archives

Action on the 50-year water development plan would be started with a 10-year commitment by federal and provincial governments through four development agreements:

1. A Federal-Provincial Water Planning Agreement to provide 10-year funding for SIPA; the creation of CWDCs and their water value added plans; the Infrastructure Priority Plan of the Water Development Council, a provincial water Commission of Inquiry to discuss and expand on the water development opportunities and issues throughout the province and a water management initiative for the project and the subsequent programs.

2. A Water Infrastructure Capital Program to immediately rehabilitate deteriorating water works and in particular the completion of the West Side of Lake Diefenbaker and the Riverhurst Irrigation District.

3. An Irrigation Water and Value Added Development Fund to provide for the continuation of the now concluded joint federal provincial cost shared programs for irrigation farmers and Irrigation Districts.

4. A Research, Information and Promotion Program to develop scientific and commercial information for water based industry and management in Saskatchewan.

The 10-year timeframe for the program is introduced to remove much of the uncertainty that has plagued water development initiatives for so many years, and to establish a stable and secure base of funding to get programs underway.

It is anticipated the program would require a government financial commitment of some \$300 million over the first 10-year period to create a \$475 million program cost-shared with the private sector and municipalities. This is considered a reasonable level of funding given the heavy costs that Saskatchewan pays with each drought and the province's high priority to revitalize its rural economy – a small start on drought proofing Saskatchewan. Direct financial losses to farmers from drought amounted to some \$1.1 billion in 2001, compared to the 10-year average, and \$2.5 billion in 2002.

The direct cost to governments responding to these farm income losses has been substantial. In drought years, payments to farmers from government commonly exceed \$1 billion in Saskatchewan, as they did in 2001 and 2002, as well as in 1992 and again from 1987 through to 1989.

Over the long term, government payments represent a short-term solution to farm income, but do little to reduce the impact of the drought. The 50-Year Plan offers a new framework for long-term public and private investment to reduce costs to farmers and government. By making these investments, the province can enter into a dynamic new water-based revitalization, processing and irrigation strategy.

Irrigation Kicks Out \$500/acre, Dryland \$88

By Grant McLean P Ag, Glenn Barclay P Ag,
Grant Pederson P Ag, John Linsley P Ag.

It's been 10 years since Saskatchewan did a survey of irrigated crops around Lake Diefenbaker. Roughly 75,000 irrigated acres were surveyed in six irrigation districts.

The crop mix has intensified over 10 years:

Some myths debunked...

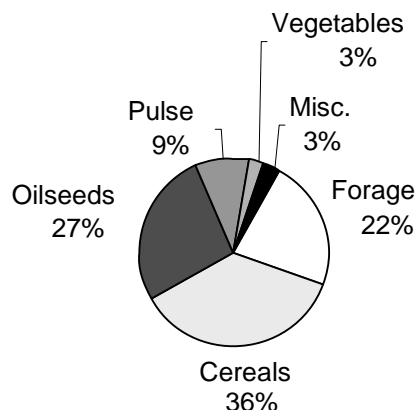
- **Why aren't you growing vegetables under irrigation?** *We are:* Irrigated vegetables have increased from three to seven per cent of irrigated acres around Lake Diefenbaker.
- **Why aren't you growing more high value crops under irrigation?** *We are:* Ten years ago, irrigated pulses were peas and lentils, now it's mostly dry beans (4,000 ac.) Irrigated peas gross about \$230/acre; irrigated beans over \$500/acre.
- **Why don't we have a cattle feeding industry in our irrigated area?** *Don't know,* but irrigated forages have greatly increased over 10 years.
- Canola (15,000 ac.) represents the oilseeds with a smaller acreage of flax than 10 years ago.
- **Why are you growing wheat under irrigation?** Irrigated cereals occupy less than one third of the irrigated acres today, dropping from 36 to 27 per cent over the past 10 years.
- *No,* we don't summerfallow or chemfallow irrigation.

Where's the Alberta advantage?

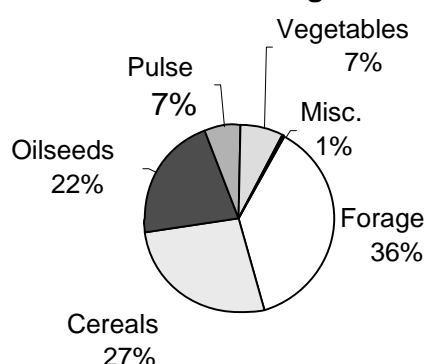
a) The small differences:

- Irrigation in Saskatchewan and Alberta has the same percentage of irrigated vegetables.
- Saskatchewan has a higher percentage of dry beans.
- Alberta has a lower percentage of irrigated oilseed acreage.
- Alberta has the same percentage of irrigated cereals.
- Alberta has a larger percentage of irrigated forage.
- Other Alberta crops include small-acreage, high-value crops such as lawn turf, nursery, grass seed, dill, hemp, hyola, etc.

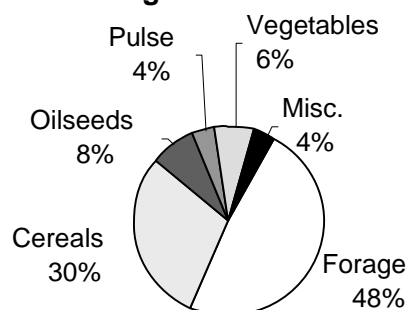
Lake Diefenbaker Irrigation 1994



Lake Diefenbaker Irrigation 2004



Alberta Irrigation Districts 2003



Conclusion: The intensity of irrigated crop rotations in both provinces is similar, except that Saskatchewan grows more irrigated canola whereas Alberta has those acres in forage for cattle feeding.

b) The BIG difference:

The six per cent of Alberta's irrigated acres in vegetables is 85,000 acres supporting potato, sugar beet and other processors.

Alberta has 36,000 acres of irrigated corn silage supporting its cattle feeding industry; Saskatchewan has 1,000 acres.

(Continued on page 6)

Irrigation Scheduling Goes On-line

By Garth Weiterman, PAg and Gail Dyck, PAg,

Soils Agrologists, SAFRR Irrigation Development, Outlook



Although the weather refused to co-operate for the second year in a row, the participants of our June 10 Irrigation Scheduling Workshop were much more accommodating! Keeping warm inside CSIDC facilities at Outlook, attendees brushed up on soil basics, irrigation systems, soil-water movement, crop-water interactions and soil moisture determination techniques. The Agro-

Environmental Unit, with help from ICDC, CSIDC and Alberta Agriculture, Food and Rural Development staff, maintained their “train-the-trainer” focus bringing in industry, consulting, and producer participants.

Everyone had a chance to get their hands dirty (literally!) as we practiced the “low-tech” feel-method of soil moisture determination. Terry Hogg, CSIDC Agronomist, provided an excellent overview of irrigation scheduling equipment, including a field tour of equipment comparisons being done at the Centre. Irrigation scheduling tools have also gone on-line! Warren Helgason, Irrigation Specialist with Alberta Agriculture, Food and Rural Development, presented the IMCIN (Irrigation Management Climate Information Network) Web site.

The content of the IMCIN site (www.imcin.net) is “intended to provide the irrigation industry in Alberta with up-to-date information on Irrigated Crop Water Use and Decision Support Tools to help irrigators make on farm water management decisions.” Through an on-line computer model, irrigators can enter their own cropping information and select local MET (weather) station data to help them make irrigation scheduling decisions. The IMCIN Web site was originally designed for southern Alberta weather data, but Alberta staff were very co-operative in adding Outlook MET station data. Irrigators can now “surf” their way to better irrigation water management!

Irrigation Kicks (Continued from page 5)

Conclusion: The BIG difference between irrigation in Saskatchewan and Alberta is scale of operation or “critical mass.”

Irrigation’s contribution to our economy:

- Dryland agriculture in Saskatchewan grosses some \$88/ac., the lowest of all provinces.
- About four per cent of Alberta’s cultivated land is irrigated, but kicks out 18 per cent of the agri-food GDP for Alberta. Alberta’s expansion potential is limited because it is obligated to pass 50 per cent of natural river flow downstream.
- Saskatchewan’s irrigated area is less than one half of one per cent of its cultivated acreage. Irrigation consumes about three per cent of the

annual inflow into Lake Diefenbaker, and offers tremendous expansion potential.

- Saskatchewan’s irrigated rotation around Lake Diefenbaker kicks out some \$490/ac. gross. That’s \$30 million more than the equivalent dryland acreage.

For more information call ICDC at (306) 867-5527.

Sources:

Moving up the Value Chain: The Best Practice of Leading Farmers. Al Scholz 2003. Irrigation Economics and Agronomics Saskatchewan. ICDC 2004.

Irrigation in the 21st Century. AIPA 2002. Alberta Agriculture, Food and Rural Development Web site.

Irrigation gets higher profile in Saskatchewan

By Karen Morrison, Saskatoon newsroom

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Sandra Bathgate, secretary-treasurer of SIPA, has tirelessly promoted irrigation in Saskatchewan

Irrigation will get a much-needed shot in the arm this winter with the release of a 50-year water strategy for the province and an increased presence at upcoming farm shows.

“Irrigation is starting to hit the radar screen now,” said John Linsley, manager of irrigation development with Saskatchewan Agriculture, Food and Rural Revitalization in Outlook, Sask.

He said water issues have come to the forefront in light of recent drought years, contamination incidents in North Battleford, Sask., and Walkerton, Ont., and climate change.

“Everybody is looking at water in a very different way,” Linsley said.

Saskatchewan Agrivision will release its report

on water use strategies for the next 50 years at a conference in November.

There are 330,000 acres under irrigation in the province, with some estimates suggesting three million acres could be irrigated.

Linsley said the Action Committee on the Rural Economy and Saskatchewan Irrigation Projects Association have played roles in aggressively promoting irrigation development.

The Crop Production Show in Saskatoon in January will include an “irrigation alley” devoted to irrigators’ needs.

As well, the Canada-Saskatchewan Water Supply Expansion Program that was announced in May has also opened doors for irrigators and communities. It will provide \$12.5 million over the next two years to plan and develop agricultural water projects.

The Rural Municipalities of Fertile Valley, Montrose, Harris, Perdue and Vanscoy are exploring the development of irrigation canals to take water overland to communities and farms.

James Harvey, who represents SIPA on the Saskatchewan Watershed Authority committee, said irrigation in Saskatchewan also has a strong ally in federal finance minister Ralph Goodale, who sees the economic benefits of irrigation for the province.

Harvey stressed the need for education and information about the value of irrigation for the province, including value-added enterprises, new and expanded markets and drought-proofed crops.

“You don’t want to be making a false pitch and having it come back to bite you,” he said.

**Be one of 15,000 people to visit Irrigation Alley
at the Crop Production Show
in Saskatoon, January 10 to 13.**

SIPA, ICDC 9th ANNUAL IRRIGATION CONFERENCE

Monday, Dec. 6 and Tuesday, Dec. 7, 2004
DAYS INN, SWIFT CURRENT

For more information and to register for the 9th SIPA ICDC Irrigation Annual Conference, call Sandra Bathgate at (306) 796-4420.

AGENDA

Monday, December 6

3:00 p.m. Display set-up.

5:00 p.m. Registration

6:00 p.m. Banquet

Banquet Speaker: Clay Serby,

Deputy Premier and Minister of Rural Revitalization.

7:30 p.m. 50 Year Master Plan for Water in Saskatchewan
Dr. Graham Parsons (Discussion Forum Moderator: Kevin Hursh)

9:00 p.m. Cash Bar & Networking



Tuesday, December 7

8:00 a.m. Breakfast

9:00 a.m. ICDC Annual Meeting

10:00 a.m. Coffee

10:30 a.m. St. Mary and Milk River systems
International Joint Commission Public Consultation.

Saskatchewan perspective: Wayne Dybvig, Vice President
Saskatchewan Watershed Authority (SWA)

Alberta perspective: Dave Hill, Executive Director
Alberta Irrigation Projects Association (AIPA)

11:30 a.m. Canada Saskatchewan Water Supply Expansion Program

Mark Geremia, PFRA, Project Working Group
Gloria Parisien, SAFRR, Project Working Group

12:00 p.m. Lunch

Luncheon speaker Dave Hill, Executive Director, AIPA
“Water for Life” – Alberta’s strategy for sustainability

1:30 p.m. SIPA Annual Meeting, including:
APF Renewal Chapter programs - Grant Pederson
Westside Irrigation Project update - Doug Ball
Irrigation Act amendments – SAFRR
SIPA business

4:00 p.m. Wrap up and travel home



How Can Saskatchewan Irrigation Support a 10,000 Head Feedlot?

By Korvin Olfert, with significant contributions from Dr. John McKinnon, Animal and Poultry Science, U of S, Bill Kowalenko, SAFRR, and Marsha Cannon, SAFRR.

How much irrigated land would be required for a 10,000 head feedlot? Most of the prairies' beef cattle finishing has located in and relocated to Irrigation Districts in the South Saskatchewan River basin. This river basin has a lot more water to be developed in Saskatchewan.

A 10,000-head feedlot will actually feed 15,000 to 20,000 cattle or more over the course of a calendar year with 75 to 90 per cent occupancy at any one time. I will use a turnover rate of 1.6 per cent/year.

If the feedlot accepts calves for backgrounding, a period of slower growth is required to develop skeletal structure (i.e. muscle and bone) before finishing. A typical growth rate for backgrounding would be 2.0 to 2.2 lb. of gain per day with the calf eating about 2.45 per cent of body weight on a dry matter basis. A typical as-fed backgrounding ration would be about 60 per cent barley silage, 21 per cent barley grain, 15 per cent greenfeed, and 4 per cent supplement.

After backgrounding, the feedlot would increase the growth rate to 3-4 lb. of gain per day for finishing. The finishing animal will eat about 2.2 per cent of body weight on a dry matter basis on an as fed ration consisting of 80 per cent barley grain, 15 per cent barley silage, and 5 per cent supplement. Movement between these two rations must be gradual, and some larger framed exotic breeds may be sufficiently mature at a lower weight to be able to sustain the 3-4 lb. daily gains of finishing.

- All rations are on an as-fed basis.
- Greenfeed was added to reduce the moisture content of the ration.

The grain is usually not grown near the feedlot anyway, but rather trucked from wherever it is cheapest. Therefore, the opportunity for the



irrigator does not lie with producing the grain component of the feed ration but rather the silage (check out ICDC's Irrigation Economics and Agronomics, Saskatchewan 2004). Silage can only be hauled 10 miles at the most (preferably less than five), so it must be produced close to the feedlot.

Silage

How much silage is required if we purchase 550 lb. medium frame calves (to be backgrounded to 850 lb.) and sell them finished at a finished weight of 1,300 lb.? To gain 300 lb. at 2.1 lb. per day will take 143 days. The finishing phase, with a gain of the remaining 450 lb. at a daily gain of 3.5 lb. per day, will take 128 days.

A calf on a backgrounding ration will eat 2.45 per cent of its body weight as dry matter. If we pick the midpoint of the backgrounding period (700 lb. calf), it will eat 17 lb. of dry matter per day. The backgrounding as-fed ration will consist of 60 per cent silage (at a moisture content of 67 per cent), so it will eat 19 lb. of wet silage per day or 1.3 tons over the 143 days.

The midpoint of the finishing period is 1,075 lb., and eating 2.2 per cent of body weight as dry matter, that's 24 lb./day of dry matter. An as-fed finishing ration is only 15 per cent silage, so that's 4.3 lb./day or a total of 0.3 tons of wet silage for the 128 days.

Through both the backgrounding and finishing phases, the animal will eat 1.6 tons of wet silage. A 10,000 head feedlot with a turnover of 1.6, then, would need 26,000 tons of silage (and 32,000 tons of barley grain).

For the example feedlot of 10,000 head requiring

26,000 tons of barley silage, and irrigated barley silage yields of 13 tons/acre, 2,000 acres of irrigation (15 quarter section pivots) will be needed.

If the same feedlot, instead of backgrounding calves, purchased all the animals at 850 lb. and only feed-to-finish, it would require 4,400 tons of barley silage (still 24,000 tons of grain) or 340 acres (3 pivots) to produce the silage. The feedlot that is only finishing cattle should be able to realize a better turnover than 1.6. If the turnover rate is 2.0, that bumps up the silage requirement to 5,500 tons and 30,000 tons of grain or 425 acres (just over 3 pivots) to grow the silage.

Corn will yield more silage than barley, about 16-24 tons per acre, but the yields can be more variable than barley. Corn is relatively expensive to grow, and one would need to choose a variety that will mature in your growing area (check the Corn Heat Unit Maps for Saskatchewan on www.agr.gov.sk.ca/crops/irrigation). The warmest areas of the province are around a line from Estuary to Elbow to Estevan. If the feedlot is going to utilize corn, it will also change the rations that I've assumed above, and therefore change the acreage in two places in the calculation.

Corn provides the most energy intensive silage (TDN in the 70 per cent range) which reduces the amount of grain required, although at a sacrifice of protein (about 8 per cent). Alfalfa has the highest protein (about 17 per cent), yields lower than corn (about 11 tons per acre), and has a lower TDN (lower 60 per cent range). Barley is intermediate in yield (13 tons per acre), protein (12 per cent) and TDN (mid 60 per cent range), but is easy to grow and can be grown on cheaper or more saline land. Alfalfa is not common for beef feedlots. Beef cattle do not require the protein levels that dairy cattle do, so it's often just as economical to purchase a protein supplement when required for beef feedlot diets.

Manure

Is the irrigated acreage enough to effectively utilize the manure from this feedlot? Book values in Saskatchewan (see SAFRR Workbook and Application Form – For the Approval of Plans under the Intensive Livestock Provisions of *The Agriculture Operations Act*) indicate a

manure production for feedlot cattle of 57 lb. of manure per day per animal (manure plus bedding). If the 10,000 head feedlot is kept full all year round, that's 104,000 tons.

Manure application rates should be calculated based on a manure analysis and a soil test recommendation. Each tonne of manure has an average nutrient value of 12.6 lb. total N/ton, 3.8 lb. total P/ton and 12.4 lb. total K/ton. Only about 40 per cent of the applied nitrogen is available to the crop in the year of application (see SAFRR Using Manure as a Fertilizer fact sheet). Rather than trying to meet the nitrogen requirements with solid manure, some producers may wish to apply commercial fertilizer along with the manure in order not to over apply phosphorus. Crop rotation could be used to balance the added nutrients: corn and barley are intensive nitrogen users, and alfalfa uses proportionally more phosphorus.

A manure application once every three years of 25 ton/acre incorporated in 24 hours in the dark brown soil zone under dryland, for barley silage would require approximately 4,200 acres for one year or 12,700 acres in total. Under irrigation, you may be able to increase the application rate slightly due to increased crop nutrient demand and double the dryland yields. Even if the feedlot is doing a lot of backgrounding, it will not have enough acres to utilize the manure for even one year, but will need to gain access to additional acres. A common agreement is to trade manure for straw.

Straw

A 10,000 head feedlot will also need 5,000 tons of straw for bedding.

Water

A feedlot steer drinks about 10 gallons of water per day, so our 10,000 head at 100 per cent occupancy needs 36.5 million gallons per year. An irrigator is allocated 12 inches of water per acre, which works out to about 36.6 million gallons for a quarter section pivot over the growing season. So, a 10,000 head feedlot would use as much drinking water as one quarter section centre pivot.

Choosing a location with access to water is critical, both for a sufficient quantity and quality of water.

For more information, contact ICDC's Korvin Olfert at (306) 778-5040.

ICDC Supports the Certified Crop Advisor Program Through Accredited Irrigation Events



**CERTIFIED
CROP ADVISER**

ICDC is helping Certified Crop Advisors (CCA) serve irrigation clients and their farm businesses better. The American Society of Agronomy's Certified Crop Advisor Program is the largest certification program in retail agriculture, with over 14,000

already certified throughout the U.S.A. and Canada. The program is administered locally by 37 state, regional, or provincial boards. The Prairie CCA Board administers the CCA program for the prairie region which consists of Alberta, Saskatchewan, and Manitoba.

The Certified Crop Advisor (CCA) Program is a voluntary program, providing a base level standard of industry knowledge by testing and raising that standard through continuing education. To become a CCA, one must pass two exams, national and local. The exams cover four major competency areas: nutrient management, soil and water management, integrated pest management and crop management. Once exams are passed, the applicant must submit credentials detailing his/her education and references supporting his/her crop advising experience. Once certified, CCAs must also adhere to a Code of Ethics and obtain 40 Continuing Education Units (CEUs) every two years. The CEUs are based on

one CEU for every hour of training. There must be five CEUs obtained in each competency area in every two-year cycle to maintain accreditation. This means that CCAs must have 40 hours of training every two years to remain Certified. CCAs require at least five hours training in soil and water, in which irrigation fits nicely.

In 2004, ICDC offered a total of 28 CEUs for eight of the irrigation events held. Gary Martens, CCA, Plant Science Department, University of Manitoba, assessed and recommended the credits for each ICDC event. Of the 28 CEUs, eight were for soil and water management, three for integrated pest management and 17 for crop management. The CSIDC Field Day and Trade Show offered four CEUs in crop management, while the Irrigation Scheduling Workshop offered six CEUs in soil and water management. These two events alone provided 10 of the 40 CEU credits needed by CCAs. Not only do the CEUs attract CCAs, they endorse the level of ICDC presenters and quality of the technology transfer. Many of ICDC's program partners and staff are Professional Agrologists, some with a PhD and MSc education, and some are CCAs.

SAFRR's Sherrilyn Phelps is the government representative on the Prairie CCA Board. For more information, contact Sherrilyn at North Battleford (306) 446-7475. If you wish to take the CCA prairie and national exams, contact Jeff Kisiloski (204) 989-9307 or visit the CCA Web site at www.prairiecca.ca.

Our agricultural industry employs CCAs throughout the farm supply network. You may be dealing with them as soon as your next visit at any ag-retailer. That is why we think it is important for ICDC's Irrigation Agrologists to help the Certified Crop Advisors serve their irrigation clients better.

Check out
www.irrigationsaskatchewan.com
– your gateway to irrigation information.

Saskatchewan Irrigators – Water for Food Sufficiency

“Issues, Challenges and Opportunities” demand the day to day attention of irrigation farmers. Why is that? Well, that is because Saskatchewan has water, soil and climatic conditions which allow substantial food production for export. Much of the world’s other farmland does not have this water resource to fulfill food needs locally, let alone for export.

Dr. Henry Vaux, Jr. of the University of California, was plenary speaker in Lethbridge this July at the “Confronting Water Scarcity” Conference. Dr. Vaux compared the current global situation with a projection 25 years into the future. He stated that lack of water for sufficient food production will grip most of southern Asia, much of Africa and will appear in South America. Nations joining the ranks of the water have-nots in the next couple of decades will do so mainly via population growth or the depletion of their groundwater resources. The most efficient way for them to import water is to import food. The rule of thumb is one kg of bread equals 1,000 litres of water.

Five major exporters (U.S.A., France, Canada, Australia and Argentina) are positioned to deliver about 70 per cent of the food trade. In turn, those five countries will commit the water that produced the cereals, pulses, oilseeds, meat and dairy products. Another rule of thumb: producing one glass of milk requires 200 litres of water. Redistributing the global water resource through trade of food is offered as essential water policy.

Dr. Vaux described the strong link between a community’s water resources and its ability to

feed its citizens. An annual water availability per person of greater than 1,500 cubic meters is rated sufficient. Israel today operates on 1,231 cubic meters per person (cmpp), but only 394 cmpp are real water from their resource technology. Their virtual water equivalents totalling 837 cmpp are imported as cereals, other food crops, meat and dairy products. The impact of scarcity and extreme scarcity are observed in regions with less than 1,000 cmpp and 500 cmpp respectively.

Here at home in southwest Saskatchewan, demonstrations of improved water use efficiency come to mind. At Cadillac, Maurice and Linda Metke produce 33 acres of food crops, where earlier, the same water supply sprinkled just seven acres. Trickle irrigation of their orchards, fruits, herbs and vegetable crops has stretched their water

and enhanced both yield and quality of these food crops. At Maple Creek, the late Harold and Marion Gold consistently produced double the local alfalfa yield while receiving half the water diverted to local flood projects on saline



heavy clay soils. The Golds pipelined their reservoir water to eliminate transmission losses, and scheduled five strategic sprinkler irrigations each summer. Both the Metkes and the Golds demonstrated a 400 per cent improvement in water use efficiency. In Saskatchewan, irrigators have improved their water use efficiency by investing in new irrigation technology, by irrigating suitable soils, by greatly increasing crop yields, diversifying crop rotations and by meeting the needs of the livestock industry. Whether you ship alfalfa to a short-grass rancher, send a big bale of timothy to a Japanese dairy, refer seed potatoes to an Idaho spud grower, or ship durum wheat to an Israeli pasta plant, you have effectively provided “bonus” water. Wise water use keeps on growing and purchasing the food you eat.

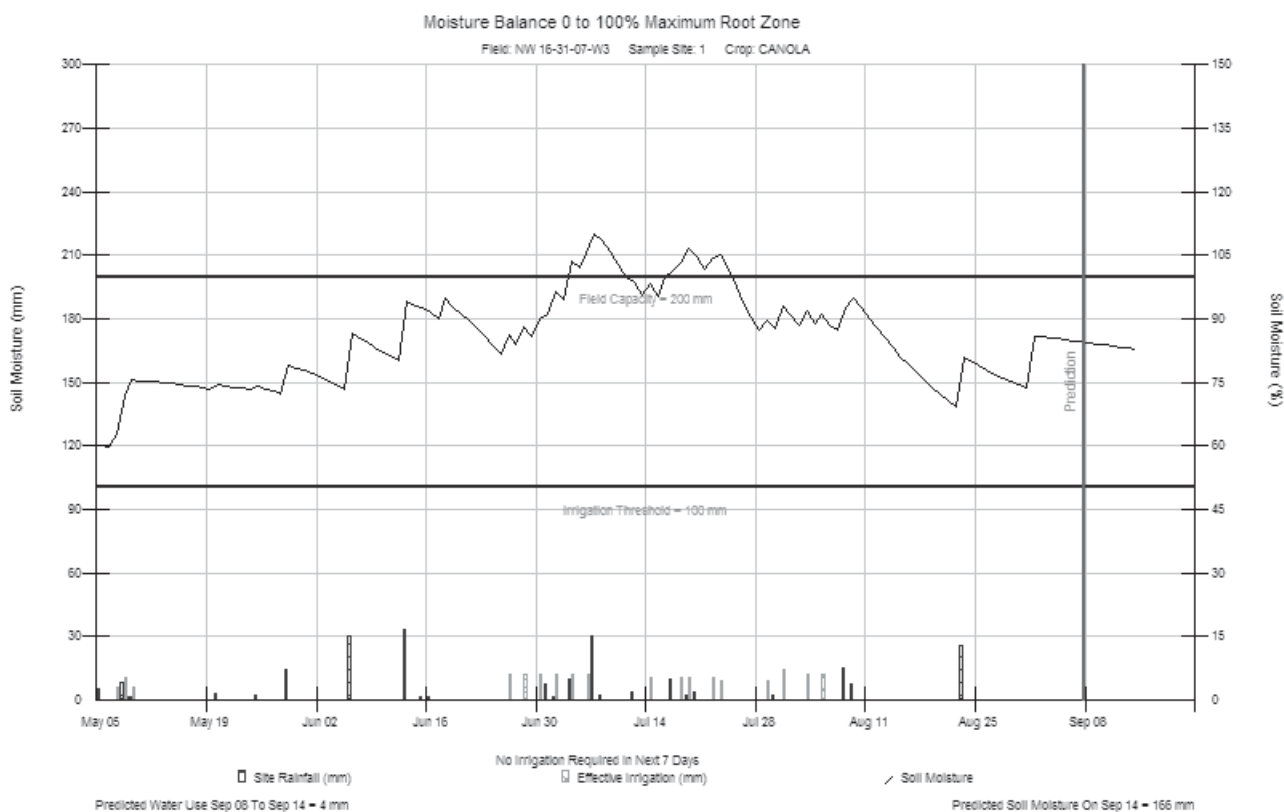
Getting to Know IMCIN

Garth Weiterman, P.Ag.

How would you like to check your irrigation scheduling activities from your office computer, be able to keep track of amounts applied (as well as a host of other info such as field operations) and determine when you should start your systems? This almost sounds too good to be true. Well, with some input from the field and some computer time, you can track what is happening to your crop based on the latest weather data available.

We have been working with Alberta Agriculture for the last two years in an attempt to get Saskatchewan data onto their Irrigation Management Climate Information Network (IMCIN). This year, with the excellent support received from Warren Helgason and Jeff Bronsch, we were able to have the Outlook meteorological data incorporated into their site. ICDC agrologists Grant McLean and Glen Barclay collected field information such as rainfall, irrigation amounts and tensiometer

readings. This information was used both as part of the input required for the Alberta Irrigation Management Model (AIMM), which one runs in conjunction with the IMCIN data, and as a check on the water use coefficients used by the model itself. We still have some evaluation to do, but initial comparisons would suggest the model closely predicts water use, and therefore its recommendation on the next irrigation required is accurate. ICDC agrologists collected information on dry beans, canola, spring wheat, timothy and corn. This season's lack of heat will limit the usefulness of all the data collected, but we still gained a detailed understanding of the system. Interestingly, a similar hands on project was conducted by Alberta Agriculture working with Agricore United's Bean Business Unit out of Bow Island, Alberta. Take the time to check out the IMCIN Web site located at www.agric.gov.ab.ca/app49/imcin/index.jsp. It also allows one to input various crop seeding dates and get a water use prediction based on long term weather data.



Strawberry Crowns

By Lana Shaw, SAFRR

ICDC has been working on an exciting new value-added opportunity for irrigators. Strawberry crowns were grown as a demonstration at CSIDC in 2004, and crowns produced in Outlook were sent by air to California in late September. We are co-operating with Karen Tanino of the U of S and Jody McConnell of Agri-Arm to develop this opportunity.

Saskatchewan-grown strawberry crowns are of higher quality than California-grown crowns because of "Northern Vigor", the same phenomenon that occurs in potato seed. In fact, they sell for 80 per cent more in the main market in California (nine cents vs five cents U.S. per crown). If we can maintain the quality of our crowns, we can probably continue to receive that price. The market is worth \$60 million US annually. California plants 750 million strawberry crowns every year. We can conservatively expect to capture about 10 per cent of this market.

Mother crowns can be purchased for about five cents U.S. each (plus shipping) from California and are planted at 10,000 crowns per acre. Depending on management practices, break-even production is probably seven daughter crowns per mother plant. With eight crowns per mother in the first season of production, the gross value is: $8 \times 10,000 = 80,000$ crowns $\times 0.09$ cents U.S. = \$7,200 U.S. = about \$10,000 Cdn.

In the second production year, daughter crown numbers generally increase to over 15 per mother.

The main limitations to strawberry crown production are labour and shipping. A lot of labour is required for a one to two week window in September.

The current production process includes:

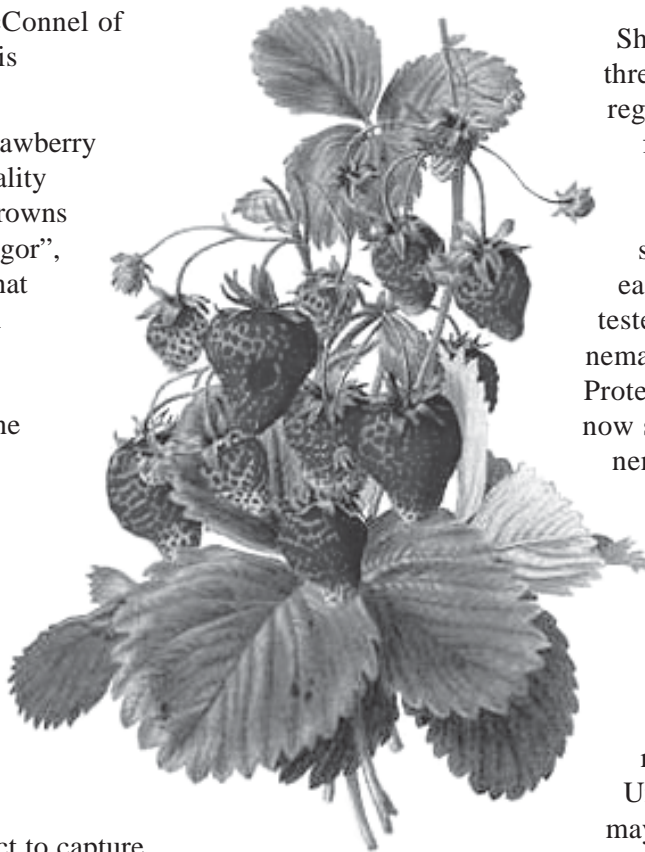
- 1) Planting mother crowns as early as possible in the spring (i.e. April).
- 2) Harvesting daughter crowns in late September
- 3) Shipping immediately after harvest to California.

Shipping requires passing three levels of phytosanitary regulation in the U.S. from federal to state to county level. Nematodes (round worms) are a significant issue, and each shipment must be tested for freedom from nematodes. The Crop Protection Lab in Regina is now set up for testing nematodes in strawberry.

Future issues will include developing our own cultivars—the Camarosa variety has a significant market share in California, but royalties are held by the University of California. It may be worthwhile to produce our own varieties and

save some money. We also currently rely on the California propagators for our source of mother crowns to plant in the spring. As these are our competitors, it would be smart to develop our own nuclear (tissue cultured) stock so we are not as dependent on our competition for early generation crowns.

An additional way to value-add in this market is producing strawberry greenhouse plug plants. These plugs command about 12 - 15 cents U.S. each. They are rooted in the greenhouse for one month and then set outside until the end of September. This schedule fits in a traditional



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Strawberry Crowns (continued from page 15)

down-time for greenhouse producers and may be a real opportunity for these growers. Initial feedback about our plugs from California growers has been positive, as plug plants produce very large fruit. The main challenge will be the increased cost of transportation per plant. Approximately 30,000 plug plants can be shipped in a semi-load compared to one million bare rooted crowns from the field.

Karen Tanino and ICDC are working with the leaders in the California strawberry fruit industry, including the past president of the California strawberry commission and the current president of Nature-ripe (one of the largest distributors of strawberry fruit).

Sponsors of this project include Saskatchewan Agriculture, Food and Rural Revitalization (via Agriculture Development Fund), Agri-Food Innovation Fund and Agri-Arm spoke sites.

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