



THE IRRIGATOR

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Irrigation strategy in the pipeline

The Irrigation Crop Diversification Corporation (ICDC) has been very active throughout the winter months working on behalf of all irrigators.

We feel that significant progress is being made on the irrigation agenda with SAFRR.

ICDC Board Report



*By Carl Siemens,
ICDC Chair*

irrigation R&D benefits all irrigators and is moving to include the interests of non-District irrigators in the ICDC agenda.

Deputy Premier and Agriculture, Food and Rural Revitalization Minister Clay Serby met with irrigators, including ICDC's Chair Carl Siemens, in Outlook in March to discuss irrigation strategy for Saskatchewan. The Minister was given a short tour of irrigation businesses in the South Saskatchewan River Irrigation District (SSRID), Outlook. Minister Serby said he was impressed with what he saw and commented: "There's a lot happening here!"

With the transfer of irrigation to SAFRR, we welcome Scott Wright, Director of the Crop Development Branch of Saskatchewan Agriculture, Food and Rural Revitalization (SAFRR), to the ICDC board.

Also welcomed to ICDC's board this year is Francis Kinzie, an irrigator from Pike Lake, to represent non-District irrigators. ICDC has always maintained that

ICDC met with the new Director General of the Prairie Farm Rehabilitation Administration (PFRA), Carl Neggers, to discuss ICDC's role in irrigation R&D and its partnership in The Irrigation Centre, Outlook. The Centre's Field Day is Wed., July 9. Details are in this issue of *The Irrigator*.

The publication *Crop Varieties for Irrigation 2003* was distributed to all irrigators in January and many copies were picked up at the Crop Production Show in Saskatoon. ICDC staff and Irrigation Centre staff worked together at the display to discuss irrigation recommendations with producers.

The Saskatchewan Agrivision Corporation Conference called *Water: The Economic Driver of the Future* attracted more than 200 participants and raised the profile of water in Saskatchewan.

ICDC, the Saskatchewan Irrigation Projects Association (SIPA) and SAFRR were proud to be part of the organizing committee and ICDC was a bronze sponsor for this event. The keynote speech from the conference begins on page 11 of this edition of *The Irrigator*.

The Irrigation Conference in Outlook last December highlighted the need for a coordinated infrastructure plan in the province. The Action Committee on the Rural Economy (ACRE), represented at the conference by Brad Wildeman, chair of ACRE's Value-Added sub-committee, has raised this issue and has provided strong recommendations on irrigation infrastructure (see *The Irrigator*, July 2002).

ICDC's 2003 R&D program, in partnership with the federal and provincial governments, is bringing "value for money" R&D to irrigators in Saskatchewan as

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ICDC Board Report

(Continued from page 1)

you will see from the articles in this edition of *The Irrigator*.

ICDC projects this year are on the following page.

Irrigated forage

- Three forage Centres at SPARC, Swift Current; CSIDC, Outlook; and Larry Friesen's dairy east of Warman.
- timothy demonstrations
- pocket Gopher Control in irrigated alfalfa. (Clint Bjolverud, 796-4672, is available in the Lake Diefenbaker area.)
- ryegrass agronomy

- alfalfa variety testing
- corn agronomy (silage, grazing and grain)
- Haywatch Saskatchewan

Irrigated non-forage crops

- bean seed production
- fusarium control
- crop varieties for irrigation
- irrigated potato varieties
- hog manure management under irrigation
- water use efficiency

Irrigation Communications

- www.irrigationsaskatchewan.com
- Summer Field Days (see Coming Events). ♣

Agrivision Conference, March 20

Water: gold of the 21st century

Water is the gold of the 21st century, according to a water conference presented by Saskatchewan Agrivision Corporation Inc. on March 20 in Saskatoon.

More than 200 people, with diverse backgrounds related to water, attended the conference entitled "Water: The Economic Driver of the Future." Delegates represented water interests such as the environment, irrigation, municipalities, rural pipelines, food processing, groundwater, wildlife, research, regulation, intensive livestock, recreation and administration.

The Irrigation Crop Diversification Corporation (ICDC) and Saskatchewan Agriculture, Food and Rural Revitalization (SAFRR) were conference sponsors and participated in the conference organization.

This issue of *The Irrigator* contains the keynote presentation, "Water: The Economic Driver -- The U.S. Experience" by Bruce M. Smith, a natural resources lawyer with the firm of Moore Smith Buxton and Turcke of Boise, Idaho.

Smith's article highlights the rapidly increasing value

of water in the United States and the importance of careful water allocation. Smith said he was impressed that Saskatchewan has a single reservoir which can hold 60 per cent of the entire water storage of his home state, Idaho. Idaho irrigates four-million acres; Saskatchewan irrigates 200,000 acres.

To read all of the presentations at the conference, see the Conference Proceedings on the Saskatchewan Agrivision Corporation Inc. Web site at www.agrivision.sk.ca.

The conference irrigation panel discussion will be of particular interest to readers of *The Irrigator*. Roger Pederson of Outlook, a director with the Saskatchewan Irrigation Projects Association (SIPA) and an irrigator in the South Saskatchewan River Irrigation District, provided some key recommendations regarding irrigation in Saskatchewan. Jim Webber of Alberta and Gary Sloik of Manitoba outlined irrigation practices in their provinces. ♣



Saskatchewan irrigators were among those who attended the Agrivision water conference, March 20.

Irrigated bean update 2003

By Lana Shaw, PAg, ICDC Agrologist, Outlook

Interest in beans has cooled compared to last year.

Last year, acreage across Canada and some American states was up considerably due to high prices. Folks were pushing their rotations to increase their bean acreage.

Because of a trade dispute with Mexico and a large domestic Mexican crop, shipments of bulk dry beans have been very sluggish this winter, and prices have been correspondingly low.

Acreage is expected to drop across North America, especially where the cost of production per pound is high. Canadian beans can undercut American beans by having a lower cost of production (thanks to the value of the American dollar) and less opportunity cost (thanks to the effect of U.S. agricultural subsidies).

If you as an irrigator can make money on beans even with a not-so-hot price, you're not risking a lot. And if the prices return to normal or a bit above, you'll look pretty smart.

Know your cost of production per pound. ICDC has a budget worked out for irrigated beans. You can insert your own costs of production and calculate your costs and profit per acre.

Bean growers will also have decisions to make about market classes. Some classes may really take off and some may stay low. It just depends on which production drops out. So there's another gamble.

The other reason interest in beans has cooled this year is the problems from 2002. I'm sure a few bean growers have a couple more grey hairs thanks to the 2002 bean crop.

The biggest problem was the ripening and harvesting conditions, or lack of them. The beans sitting out in the field over winter have been written off by crop insurance. The quality was poor on some of the harvested beans. I can't say much about the weather

for 2003, other than it's starting out great (knock on wood).

CDC Pintium had its first year of major commercial release in 2002 and received mixed reviews by irrigators. It will remain the variety of choice for those growing irrigated beans on narrow rows for now. The breeding programs apparently have a lot of good stuff coming along. They are really gearing up for when the

trade barriers to Mexico are dropped in 2008. Also, watch out for new blight-resistant varieties in the next few years.

We'll keep you informed on what's promising for irrigators. See *Crop Varieties for Irrigators* for details.

CDC Pintium bean seed produced on irrigated acres is in a surplus situation so far this year. It looks like dryland producers are

returning to less risky options in this important recovery year. Bean seed will be more in demand if the dryland acreage grows or if there are new Canadian bean varieties in demand by commercial growers across the prairies.

What if Saskatchewan's irrigated pedigreed bean growers were multiplying those new Agricore varieties? Seed growers need more variety options if the industry is to grow.

ICDC will hold a bean field day on Aug. 7. There will also be other bean events over the season and, if you would like to be contacted about these events, please call Lana at 867-5407. Lana also issues periodic updates throughout the year, mainly by e-mail, so let her know if you want to receive them. ♠



Row cropped dry edible beans under irrigation



Lana Shaw

ICDC bean seed projects 2003

By Lana Shaw, PAg, ICDC Agrologist, Outlook

Bean seed growers

ICDC and ICDC agrologists will continue to provide agronomic support to irrigated bean seed growers where it is needed. New issues and problems arise each year and ICDC will be working with the seed growers to address them. The main issues for 2003 are that irrigated bean seed producers need more access to markets and more options for varieties.

Timing of preventative copper bactericide application

Bacterial diseases are an important issue in the dry bean industry and especially important to the seed industry. The focus of the 2003 demonstration is to find out the best timing for a single application of a copper bactericide for seed production. The demonstration will be done on commercial fields to allow the seed producers more freedom and control in applying bactericide. This demonstration should also help commercial growers to determine the best time of application for copper bactericides to safeguard their yield and quality.

The demonstration will look at disease development in areas of the fields treated early (3-4 leaf), mid (bud to early flower) and late (late flower). Your ICDC agrologists will conduct field inspections at important stages in crop management and be available to provide assistance throughout the season. ICDC agrologists will determine severity of foliar infection and pod infection, and also take samples of seed for seed disease analysis. Yields will also be determined. ICDC will provide up to \$300 for each co-operator to cover the costs of seed testing, the copper product and its application.

Blight resistance gene confirmation

Bacterial blight resistance may remove a major obstacle to Canadian pedigreed bean seed production in many areas of Canada. It will also benefit commercial production. ICDC is participating in a cross-Canada research trial evaluating new varieties resistant to common bacterial blight. The resistance gene in these varieties can be transferred to new, promising varieties (through traditional breeding techniques) for this area. So far, the resistance in these navy varieties looks very good, but this test will determine how good it is. The health of the beans will be compared under diseased and clean conditions in all locations. There will be a location

at CSIDC in Outlook and one in Brooks, Alberta, under irrigation. Altogether there are six sites lined up. The project will continue for at least two years. The project is being supported by the Ontario Seed Growers, Manitoba Pulse Growers, Saskatchewan Pulse Growers, and ICDC, among others.

Variety demonstration 2003

One of the obstacles to an expansion in seed and commercial acres is a lack of new, improved, suitable varieties. There are new varieties being grown commercially in 2003, including some that have never been grown large-scale in Saskatchewan before. AC Polaris and AC Redbond are two new varieties to come out of Henning Muendel's breeding program in Lethbridge. Two growers in Riverhurst will be growing AC Redbond, an early small red bean variety. Seed supplies of AC Polaris are still very limited for 2003, but one grower may have the opportunity to grow about 20 acres of this variety. This variety is a Great Northern type with shorter maturity and higher yield than the old US1140. Both are more upright than the traditional types, but are well suited to row-crop production.

The yields and maturity have been determined in irrigated trials in Saskatchewan and Alberta. The color and quality of these new varieties is apparently quite acceptable to the American market and the canners.

There will also be a small acreage of Winchester (U.S. variety) pinto beans to compare with Othello and CDC Pintium at Keg Agro.

ICDC will support producers in determining yield, maturity dates, and quality for their new varieties and compare them with old varieties. I will also take seed samples for display at winter meetings.

This demonstration will mainly serve to introduce new varieties into a sector that has heavily relied on the same one or two varieties since the start of the irrigated bean industry around Lake Diefenbaker. I will be organizing a field day for August 7 and several other smaller chances to get together throughout the season to allow interested producers to have a look at these new varieties. The field day will also feature research plots at CSIDC, disease scouting, and Pedigreed seed fields.

Give me a call at 867-5407 if you have any questions about pedigreed bean seed production and beans in general.

ICDC's 2003 projects

By Amanda Walker, BSA, ICDC Agronomy Assistant, Swift Current

ICDC will continue some perennial forage projects from last year as well as establishing new annual and perennial trials this spring.

Annual forage: Two annual forage plots were established in May 2003 with the co-operation of SeCan, one at Warman and another at SPARC in Swift Current. These plots contain several varieties of forage cereals that will be evaluated for production performance under irrigation, herbage yield and quality. The forage cereals include oats, triticale, wheat and barley.

The wheat varieties being grown and evaluated this year include two HRSW varieties, AC Barrie and AC Superb; a new hard white, Snowbird; a CPS variety, AC Crystal; and two durum wheat varieties, AC Morse and DT712. The oat varieties being grown include AC Murphy, CDC Baler, AC Mustang, AC Morgan, and OT7001. There are also several types of barley including CDC Helgason, CDC Copeland, CDC Battleford, Vivar, Tyto, AC Rosser, Trochu, AC Ranger, and Westford.

Two varieties of spring triticale, AC Ultima and Pronghorn, are also included in the test plots as well as one ryegrass variety, SW Botrus, and Golden German Millet.

Alfalfa and perennial grasses: Two alfalfa/grass plots have been established in conjunction with the Saskatchewan Forage Council (SFC) to provide irrigation yields presented in the Forage Production Guide. One of these plots was established at CSIDC in Outlook in the spring of 2002, and the second was seeded at Warman in May 2003. Varieties of alfalfa in these plots include Beaver, PS2065MF, PS8925MF,

Geneva, Runner, Gala, Hornet, Stockwell, AC Grazeland, 53Q60, AC Nordica, AC Longview, AmeriStand, and 54V54. The perennial grasses seeded in these trials consist of Bravo smooth brome, Paddock meadow brome, AC Knowles hybrid brome, Chief intermediate wheatgrass, Orbit tall wheatgrass, AC Parkland crested wheatgrass, Garrison creeping foxtail, Courtney tall fescue, Kay and Arctic orchardgrass, Aurora and Joliette timothy, Revenue slender wheatgrass, and Authur dahurian wildrye.



Irrigated grass and legume variety plots.

Alfalfa: A field scale alfalfa trial was set up just north of Swift Current in May 2003, with the seeding of six alfalfa varieties consisting of Absolute, Spreader 3, Gala, Geneva, AmeriStand, 54V54, and 53Q60.

Timothy: Three separate projects involving timothy are underway this year. Each one will look at a different aspect of timothy production and how it affects the yield and quality of this crop. See timothy article on page 10.

For more information, phone Amanda Walker at 778-5040 or email awalker@agr.gov.sk.ca. ♦



SeCan annual forage variety plots under irrigation.



ICDC Agronomy Assistant Amanda Walker graduated in May from the University of Saskatchewan with a Bachelor of Science in Agriculture with Great Distinction. Congratulations, Amanda!

What's new in annual ryegrass for 2003?

By Lana Shaw, PAg, Outlook

So is annual ryegrass just a flash in the pan?

Acreage is expected to be down from last year because of better dryland pasture conditions and lower hay prices. Annual ryegrass is not expected to be much of a cash crop for 2003, at least compared with 2002. However, continuing interest in the crop comes from cattle producers. Annual ryegrass is a high quality, flexible forage. It is 60 to 80 per cent digestible (based on in vitro digestible dry matter, not ADF) and has high protein (AAFC Kamloops). Annual ryegrass hay and silage can be higher in quality than barley silage and comparable with alfalfa. It is being tried as a replacement for both. In some areas, it is replacing unprofitable cereal crops in rotation. Cereal crops are becoming less attractive to irrigators as fusarium head blight becomes established on irrigated acres. It provides the necessary nutrition for growing calves and lactating cows. Producers have expanded their herds or kept calves over the winter because of the extra production of high-quality forage.

Some producers are considering a barley-annual ryegrass intercrop for silage. This mixture is commonly used as a break between alfalfa stands in BC. There is good research to back this up as a way to get some extra tonnage and/or quality compared with straight barley or ryegrass. For example, a barley-ryegrass mixture produced 19% more dry forage, 38% more digestible forage, and 43% more crude protein than double-cropped barley in BC under irrigation (AAFC Kamloops) when averaged over the entire season. You get one large cut of predominantly barley, and then get an extra ton or two in fall grazing. Research is suggesting that an extra one to two tons of yield over straight ryegrass is reasonable (AAFC Kamloops). The amount of this bonus grazing yield will depend on how early the intercrop was seeded and whether there is an

open fall. The quality of the silage cut will be similar to barley, so there is not much of a quality boost in that cut. The quality of the ryegrass comes through later in grazing. Unless producers are simply looking for irrigated pasture, the intercrop seems like a good way to go.

Annual ryegrass, particularly the Westerwolds type, has the potential to volunteer and even become a weed. If you are not planning on growing annual ryegrass on the same field again or growing a very competitive crop, it would be wise to cut the ryegrass at anthesis (flowering). Several herbicides are effective on annual ryegrass, but it has a tendency to develop herbicide resistance. Annual ryegrass has become a weed in some areas of Europe. Whether Saskatchewan has a climate that will allow annual ryegrass to become weedy has yet to be seen.

At the 2003 ICDC Annual Ryegrass Demonstration, we want to answer some quality questions and compare some common forages for quality and yield. I think we agronomists are missing something that the farmers have already figured out just from being out there with the cattle. According to the traditional forage tests, the quality of ryegrass is not that great. I plan to send some samples away for different types of analysis. There are methods that are more accurate than ADF and TDN analysis for comparing different forage species. I've seen research numbers for IVDDM for pure Italian and pure Westerwolds annual ryegrasses. I would like to find out what effect the mixture of the two has on quality and digestibility, because most producers are using a mixture. Sampling will have to be done well to ensure the results are meaningful and unbiased. Samples will be taken at each cut and/or during grazing, including the fall grazing period.

Also, I will consult with animal nutrition specialists to determine how annual ryegrass can be best utilized. If

there are any nutritional or physiological problems with grazing or feeding annual ryegrass to cattle or horses, you will be informed.

If you have any questions about annual ryegrass, phone Lana Shaw at (306) 867-5407, Outlook. ♣



Irrigated annual ryegrass bales

**ICDC 2003
Summer Program**

Coming events

*All area codes are
306 unless otherwise
indicated.*

June 27: Saskatchewan Vegetable Growers' Association Annual Field Day, University of Saskatchewan, and at vegetable farms in the Moon Lake Irrigation District, from 9 a.m. to 4 p.m. with supper to follow. Register with Elaine Waldner, phone 934-1458 or fax 975-2009.

July 8: Treasure Valley Market's Irrigated Market Garden and Fruit Crop Evening Field Day, eight miles north of Cadillac. Clarence Peters, Brian Porter and Dr. Bob Bors will tour and discuss commercial and organic food production. Phone Les Bohrsen, 778-5043.

July 9: Annual CSIDC Field Day and Trade Show at Outlook; phone 867-5400. (See page 8-9.)

July 19: Saskatoon Berry Festival, Saskatoon. Call Joanne Benesh, 664-4770.

July 20: Saskatchewan Fruit Growers Association Summer Tour includes Seager Wheeler National Historic Farm; James Wiens' Springside Farms, and Chad and Denise Timm's Heavenly Hills Orchard. Call Joanne Benesh, 664-4770.

July 21: ICDC Dairy Quality Silage and Forage Evening Tour near Warman and Osler in cooperation

with SeCan, the Saskatchewan Forage Council and SAFRR. Phone Korvin Olfert, 778-5041.

July 29: SPARC Irrigated Forage and Grazing Tour at Swift Current in cooperation with SAFRR, SeCan and the Southwest Forage Association. Phone Korvin Olfert, 778-5041.

August 7: ICDC Bean Production, Selection and Pedigree Seed Field Day will offer both research and demonstration in cooperation with CSIDC, SAFRR and the University of Saskatchewan Crop Development Centre. Phone Lana Shaw, 867-5407.

Aug. 7-8 (afternoon of Aug. 7 and morning of Aug. 8): ICDC and Canadian Hay Association Timothy Field Day, Outlook; tours of producer fields and processing plants. Phone Korvin Olfert, ICDC, 778-5041; or Kate Whenham, CHA, 243-2166.

Sept. 11: ICDC Saskatchewan Corn Selection and Silage Field Day at Outlook in cooperation with CSIDC, SAFRR and the Alberta Corn Committee. In cooperation with the corn industry and irrigated corn growers, additional Corn Silage and Grazing Field Days will be scheduled in late summer and fall. Phone Les Bohrsen, 778-5043.



Left: ICDC's exhibit at Swift Current's EnviroForum discussed irrigators leadership in protection and conservation within the agricultural environment. Hosted by Swift Current's Environmental Advisory Board May 21-22, EnviroForum featured the latest in environmental best practices for communities, and challenged residents to be conscientious of their impact on the environment.



ICDC Board, left to right: Gordon Kent; Dale Ewen; Ken Plummer; Don Fox; Darryl McGregor; John Linsley (Missing: John Konst and Carl Siemens)

CSIDC Annual Field Day Program

Morning Tour, July 9

Dry Bean Production

Terry Hogg
CSIDC, Outlook

Henning Muendel

Agriculture and Agri-Food Canada Research Centre
Lethbridge

Native Fruit Production

Richard St. Pierre
College of Agriculture
University of Saskatchewan, Saskatoon

Forage Production

Bruce Coulman
Agriculture and Agri-Food Canada Research Centre
Saskatoon

Field Crop Varieties

Clint Ringdal
CSIDC, Outlook

Potato Production

Jazeem Wahab
CSIDC, Outlook

Medicinal Herb Production

Greg Larson
CSIDC, Outlook

Field Scale Vegetable Production and High Tunnel Demonstration

Oliver Green
Saskatchewan Vegetable Growers Association
Barry Vestre
CSIDC, Outlook

Annual Forage Cereals Trial

Les Bohrson
ICDC, Swift Current

Corn Trial

Terry Hogg
CSIDC, Outlook



Canada
Irrigation
Diversification
Centre

The Canada-Saskatchewan Irrigation Annual Field Day

Wednesday

Canada-Saskatchewan Irrigation

1/4 mile south of Outlook

Field Day Theme: What's New?

Spent a day with other farmers, researchers and
discussing alternative higher value crops

Everyone



9:30
Regional
Coffee
and Trade

10:00
Morning

12:00
Concession

1:30
Concurrent Afternoon

Other attractions

Small plot equipment
Buildings and grounds
Herb garden, orchards, fruit bushes
Xeriscape landscape

**Bring the whole family!!
Make a day of it.**

Canada-Saskatchewan
Irrigation
Diversification

Irrigation Diversification Centre (CSIDC) Field Day and Trade Show

July 9, 2003

at the
Irrigation Diversification Centre
outlook on Highway 15

What can irrigation do for you?

Producers and industry representatives viewing and
evaluating value crops and cropping systems.

Welcome!

8:00 a.m.
Registration,
& Donuts,
Trade Show opens

9:00 a.m.
Tour begins

12:00 noon
& Trade Show

2:00 p.m.
Afternoon Tours begin



CSIDC Annual Field Day Program

Afternoon Tour, July 9

These tours will be conducted concurrently.
You have your choice of the following tours.

Tour 1: Irrigation Systems

Discussion on latest technology in irrigation
systems

Lower energy, increased application efficiency.

Tour 2: Vegetable & Fruit Production

An in-depth look at vegetable and fruit
production.

Tour 3: Herb Research Trials

Visit herb research trials including echinacea,
St. John's wort, feverfew, and milk thistle.

Tour 4: Forage & Forage Processing

Detailed look at the annual forages and
forage processing.

Tour 5: Pulses

Crop Development Centre, University of
Saskatchewan

Pea and dry bean breeding programs;
Chickpea disease management;
Dry bean fertility.

The Canada-Saskatchewan Irrigation Diversification
Centre's mandate is to help maintain a viable
agricultural industry, to support a sound rural
economy, and to preserve a healthy environment.
To achieve these goals, CSIDC conducts, funds,
and facilitates irrigated research and demonstration
to support industry needs.

CSIDC Partners



Irrigated timothy is growing

By Korvin Olfert, PAg, ICDC Agrologist, Swift Current

Timothy trials are underway in the Swift Current district and a summer field day will be held in cooperation with the Canadian Hay Association.

Timothy is the highest value forage grown in Saskatchewan, and, as such, is attracting a lot of producer attention.

Timothy is exported to the Pacific Rim. Countries such as Japan or Korea simply do not have the land resource to grow the fibre that is essential for their dairy cow herd, and they are willing to pay to import it. While protein and energy supplements are available, some long fibre is needed to keep the rumen functioning properly. Timothy is a good source of digestible long fibre for this purpose.

Consistent prices over \$120-150 a ton are very attractive to local growers, especially when yields range from three to five tons per acre. However, not all timothy makes the export quality levels, and some has to be marketed locally.

When marketing into the local market, the price of timothy follows local hay prices, with a few niche markets. Owners of high value horses prefer timothy; also, timothy is well suited to dry dairy cows due to low levels of potassium and calcium.

The Irrigation Crop Diversification Corporation (ICDC) has a few timothy trials underway this summer. Since it is a relatively new crop to the Swift Current region, most trials include some basic agronomy.

Several varieties of timothy have been included in the variety trials. As a grass, timothy requires high rates of

nitrogen, approximately 120 lb. per acre actual. Broadcast nitrogen is not immediately available after spreading, so one trial looks at fertigating early to alleviate some of the early nitrogen stress. Phosphorus requirements for timothy are not well defined either, and the trial at Canada-Saskatchewan Irrigation

Development Centre (CSIDC) is examining different rates. The final trial is determining the optimum cutting stage. Qualities and yields change throughout the growing season.

ICDC has tentative plans to hold summer field tours at Outlook on the afternoon of Aug. 7 and the morning of Aug. 8 in co-operation with the Canadian Hay Association. The event would include tours of producer fields and timothy processing plants.

For more information, phone Korvin Olfert in Swift Current, 778-5041.

ICDC will also hold a winter information meeting for anyone planning to seed timothy next year. Details will be available in the next issue of The Irrigator or phone Korvin Olfert. ♦



Timothy heads.



Cutting irrigated timothy for export.



Korvin Olfert

Water: The Economic Driver of the Future

A speech by Bruce M. Smith of Boise, Idaho.

**If there is one thing I would like to leave you with it is this:
do not think of your water resource as infinite.
It is not.**

I'm sure many of you have often heard Mark Twain's comment, "Whiskey's for drinking, water's for fighting."

Did you ever think about the basis for Twain's social commentary? Where he might have come up with this?

Reflect for a minute on these words:

Said father to son,
If you want to be rich,
Marry a good lookin' woman,
And move to the head of the ditch.
Said father to son,
Take note of your water,
And do not stand still,
If you don't use it,
Someone else will.

Every year, in February, U.S. water lawyers get together in San Diego, California, for a big water meeting sponsored by the American Bar Association. I've just returned from this year's meeting. Over the past four years, the topics on the agenda included four broad categories.

Over 50 per cent of the discussions dealt with water policy: how to manage water resources in a changing environment so as to minimize conflict. These talks focused on the three traditional ways of handling water problems: negotiation, legislation, litigation.

Interestingly, water quality issues took up almost 25 per cent of the time. This is water quality related to things like pollution control, management. These talks dealt with an all too increasing situation of how to remediate already polluted water.

The other 25 per cent was split between two categories, the first is what I call environmental law, matters such as how endangered species are to be addressed. The second was Native American issues: how do you determine or resolve issues related to the needs and legal rights of Native American tribes, particularly under the concept of reserved rights?

Reserved rights are those not quantified in a traditional sense by getting a permit or license to use water. Reserved rights create very significant issues because they represent rights that are based on a completely separate system for allocating water as opposed to the more familiar licensing

process. It's like having two sets of rules for a game that becomes known only when there is a need to resolve a dispute. It is one of the most perplexing and difficult areas of water to deal with.

This year's meeting was particularly informative and revealed that almost every major river system in the western U.S. is today the subject of some kind of litigation. The reasons for the litigation included the environment, changing uses, conservation, the needs of municipal entities, and federal versus state regulation. However, across the board, the reasons represented considerably more complex litigation than we've seen in past years.

The other aspect of this year's meeting that really caught me off guard was that the litigation and disputes are now occurring in the eastern U.S, a place not traditionally known for a lack of water. Hearing this made me wonder if it was too late to buy stock in whiskey companies.

With that, what I'd like to do now is go through these pending and developing issues that are related to water, water use, water management and what we do with our water resources.

Idaho facts:

First, I would like to lay a little common ground.

Idaho and most other states in the western U.S. are like Saskatchewan and the other Canadian prairie provinces: predominately rural, with significant agricultural bases, and an historical dependence on natural resource economies. We have prominent river systems that are important to the state from both an economic and a cultural standpoint. We have relatively large land masses in relation to the population, with some areas quickly developing,



Bruce M. Smith

(Continued next page)

Water *(Continued)*

others not. We have developed, to a certain extent, storage facilities that allow us to manage significant amounts of water. Idaho, for example, has about 12-million acre-feet of storage in a complex series of impoundments that help store water and regulate flows. Most of the water storage is associated with irrigation and hydropower uses. We also have a number of run of the river hydro projects which do not store water but simply generate from natural flows or irrigation storage releases.

We have about four-million acres of irrigated farmland with about 60 per cent sprinklers and 40 per cent surface irrigation. Overall, it's about a \$5-billion industry. Primary crops include beets, alfalfa, barley, wheat and potatoes.

In certain areas like Boise, which is similar to Saskatoon, we have a growing high-tech, computer-related industry focusing on the production of computer chips and software. The chip manufacturing industry has significantly influenced our views on groundwater because of the need for large amounts of high quality water.

We, like you, are going through change, change that necessitates a new look at how we think about our water, how we use it, and how we plan for changes that are yet to come. Some of the changes give rise to potentially far-reaching impacts.

Today I want to talk about some of these issues as they relate to Idaho and other areas of the U.S. The one thing they all have in common is that they affect water.

Water -- resource or asset?

We probably ought to clarify what water is. Is it a resource or is it an asset?

In Idaho, like most western states, a water right is a property right, afforded protections similar to real estate. The water right is characterized by having a defined purpose such as irrigation or power, a place of use, an amount of water that the licensee can use. Importantly, it has a priority date. The priority date is important in times of shortage. It is the way we say who gets water, and who doesn't. It is a tough standard, but it provides certainty and reliability, or is supposed to. However, the right to use water is not absolute. You don't own water, you just have a right to use it.

Truthfully, I don't think anyone would seriously deny water's place as a resource. I think the bigger question is whether it should be considered an asset, a point that is troubling to many people. That is because assets

traditionally can be bought, sold, traded, used, not used, as the owner sees fits. However, even if you do believe water is an asset, you have to also recognize that it is a unique one.

One unique factor about water is that it moves. As water moves, it is subject to more than one use and available to more than one user. This makes water a very special item — whether you take a traditional resource view or recognize it as an asset. I will admit there are many people who have a hard time accepting water as an asset, something to be bartered, sold, or traded, or recognized on a financial statement. The other day I was surprised to see a balance sheet for a geothermal client that listed the value of the water right at \$1.5 million. Personally, I have come to recognize it as both a truly unique resource that is also an asset, an asset with value.

What exactly water is worth, of course, depends on a lot of things: supply and demand in the larger sense. For today, I did some quick checking on what water is bringing these days. In Colorado, shares of water in some systems are \$15-20,000 a unit, less than an acre foot, in the Las Vegas area, \$25,000 an inch. In southern California, some districts are selling conserved water for \$800 per acre foot. Of course, these are probably the extremes. In Idaho, I just paid about \$3,000 per acre for some groundwater rights and \$900 an acre for some Snake River irrigation water. On the other hand, a farmer can rent irrigation water for about \$9 an acre foot in some reservoirs. The point is that water truly does have value. It is being bought and sold. Money is changing hands as is water.

Export:

The export of water either across state, provincial, or international boundaries is, as you might guess, a fairly contentious issue.

Politicians, lawyers, managers, and just plain citizens all get into the fray when it comes to exporting water. I know there have been some situations where the idea of exporting water from Canada to the U.S. or certain southeast Asian countries has created a stir.

In my state one year, a southern Californian politician went public with an idea of shipping water from southern Idaho to California. The papers couldn't quit writing about this "conspiracy." I couldn't get in touch with my clients because they were all at the hardware store buying bullets.

In the general scheme of things, the export of water is one of those developing issues of which you should be aware. However, there remain a huge number of philosophical, political, and legal hurdles to overcome before this is a front burner issue.

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Water *(Continued)*

But, when you think about what water is bringing in some areas, you have to acknowledge the potential. Think of a system whereby water is transferred between river systems, with a portion of the costs covered by the generation of hydroelectric power as it moves. It may not be economically feasible now, but do we run into a situation where it can be done? How would you react to such a proposal?

Likewise, access to potable water has been identified as one of the major factors in sustaining current population growth and distribution throughout the world. When it comes to having enough water to sustain a population, there are few things that won't be considered. In the middle-east, it's fodder for war. Here, I don't believe we're to that point, but I've seen a couple of farmers square off with their "howitzer" shovels.

One example to leave you with: recently the Perrier Water Company wanted to drill a well in Michigan to pump about 575,000 gallons per day to bottle and sell, not a lot of water by our standards. The backlash was so violent that the governor took out full-size billboards with pictures denoting certain water grabbing "entities" like California, New Mexico, and Arizona with a big note saying "BACK OFF SUCKER!!" on the billboard.

Changing uses and population shifts:

Of all the issues that drive current debate and conflicts over water, I believe changing demographics – the shift from rural, agricultural-based economies to more urban, municipal type uses – is creating the most tension right now.

Certainly the most significant shifts in the pricing of water are underlain by this factor. The high costs of water I mentioned earlier in California, Nevada, Colorado, all represent growing urban/municipal demands for water. They are often coupled with problems created by drought conditions in addition to their expanding populations.

The same is true for many of the disputes in the eastern U.S. that are now cropping up -- areas like Atlanta, Georgia; Washington D.C.; and disputes in the Great Lakes region.

Perhaps one of the more ironic situations involves the fight between the states of Virginia and Maryland. Seems in 1632, King Charles I gave Maryland the right to the Potomac River from "shore to shore." That's great except if you are the State of Virginia which starts at the other shore and wonders how it is going to maintain its access to water. Some of the areas in these states have increased in population by over 62 per cent in the last 10 years alone. Large power plants are located in each state along the river

and draw huge quantities of water for cooling. Drought has reduced flows to the point that water quality is jeopardized. Anyway, this unique fight is at the U.S. Supreme Court now.

The shift in population from rural to urban brings with it more than just changing uses of water. It also brings changing attitudes and values, along with some basic lack of understanding about what water is all about. Urban populations tend to look at water much more in an aesthetic sense. They value streams and rivers in a more natural state and often seek out water for things like recreation. There is nothing wrong with this, of course. It's just a breeding ground for dispute when supplies run short.

One significant problem that keeps coming up in the gatherings I attend is the lack of knowledge urban dwellers have in general about water resources. Sometimes, as long as they have water to drink, they tend to think no further than the faucet. How you use, protect, and conserve water is not particularly high on the agenda.

This changing demand for water has an economic aspect to it as well. Modern uses tend to be more valuable than historical uses. However, in most regimes we do not allow economics to be the sole driver of the use of water. We value those historical uses of water and protect those historical uses while also trying to accommodate new uses. Nevertheless, as supplies diminish, these two values often conflict.

The city I live in, Boise, is presently being confronted with a lot of these very issues. Boise is a traditional farming area that has undergone a really dramatic population increase, coupled with development of a high-tech industry that requires large amounts of high quality ground water. Our increasingly urban population makes demands on water that are very different from those of the traditional farming community. The urban interests often do not understand the historical use of water or how important, for instance, irrigation facilities are. I could not tell you how many times I've explained "that that is not a creek in your backyard, it's an irrigation canal."

We are starting to see more discord and disagreement between our municipal provider and the agricultural community as they compete for the same resource. At the same time, recreationists cherish the three reservoirs on our local river for the skiing and sailing opportunities they afford. Water quality in and of itself is a much bigger issue that generates considerable discussion.

Despite this, we have a fairly good process for dealing with many of these issues. We have had our share of fights, but so far, they have been, let's say, controlled fights.

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Water *(Continued)*

Litigation and adjudication:

Increasingly, as water resources become more scarce, we are seeing litigation and, in many instances, adjudications which seek to define the specific rights of water right holders vis a vis each other.

As I mentioned earlier, most major river systems have some kind of litigation ongoing. But, what I'm talking about right now is an adjudication in the sense of establishing the parameters of the right to use water.

In Idaho, for instance, we are involved in the Snake River Basin Adjudication, the largest adjudication ever undertaken. We spent two years starting in 1987 just filing claims. Since then, we've been going basin by basin litigating, legislating, and negotiating over what our individual water rights are. We have our own special courthouse and are now training our third trial judge. We've had probably a dozen major decisions from our Supreme Court. We are hard at work and, if you invite me back in 10 years, I'll probably just give you an update.

While we're talking about adjudications, in my outline, I mentioned reserved rights, so let me say a word about that now. Reserved rights are those that are recognized as having been created when the government set aside special reservations. The most common of these are reservations for Native American tribes, but, also included, are things like wildlife refuges. Reserved rights reflect a totally different scheme for allocating water. Because reserved rights are often undefined, they create a cloud on traditionally issued water rights. Adjudications are one of the methods we use to help define reserved rights in order to help with the management of water.

Deregulation:

Many of you may be aware of the United States' recent history with deregulation of the electric industry. California received most of the attention because of the huge economic impacts associated with its unsuccessful attempt.

However, there is another saga of deregulation that is directly relevant to our discussion today.

We're talking about water, how its use affects us, and how we plan for its development. But, without question, electricity plays a hugely significant role in our lives as well. Indeed, life would not be the same without it. Throughout the western U.S., much of the generation is hydroelectric.

The fuel for hydroelectric power, water, makes hydro different than other sources of electricity.

The deregulation bandwagon took the U.S. by storm in the mid-to-late 1990s. Up to then, the electric industry had been tightly regulated. Producers were monopolies supplying power in exchange for guaranteed rates of return. But, the electric industry wanted out, it wanted the ability to focus market forces on the production of electricity.

Idaho and Montana were both subjected to intense pressure to deregulate. Idaho chose to go slowly, to watch and assess whether such a change would even work. Idaho's view was influenced by the Idaho Water Users Association (IWUA), our association of water users. The IWUA brought attention to the fact that the fuel for hydroelectric generation was the same water that our farms used, and that one person's use of water affected a lot more than just himself. We urged an approach based on caution.

Montana on the other hand embraced deregulation with open arms. A Montana representative came to Idaho to explain to us that Montana was going to "dictate its own future." After the industry was deregulated in 1997, the first thing that Montana Power Company, the major generator, did was divest itself of its generating facilities: the dams and the water rights associated with it. They were sold to Pennsylvania Power and Light and the \$2.5 billion in revenue produced by the sale was invested in the telecommunications industry. Next, the price of electricity shot up and the former Montana Power hydroelectric generation traditionally provided to Montana citizens was sold to out of state customers who had been paying higher prices.

Montana electricity prices doubled, doubled again, and doubled yet again. Refineries, lumber mills, and mines were forced to close because they couldn't afford to buy power. Prices went up five to 20 times. What is also not known is that the out-of-state company that now owned the dams and water rights made a call on the river at a time when the Montana irrigators need water. It was a time of great consternation. I offer this example not because deregulation is itself bad, but this points out how your water resources can be affected by seemingly unrelated actions.

Environmental laws:

In the mid-to-late 1970s, the U.S. passed a considerable body of environmental laws.

They have had a profound effect on the water resources of the U.S.

They have improved the quality of our waters and have helped protect the habitat of endangered species.

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Water *(Continued)*

Two of those laws, the *Clean Water Act* and the *Endangered Species Act*, remain among the most significant environmental laws ever created.

At the same time, I have to say, these laws have spawned some equally significant bodies of litigation. They serve as extremely potent tools in the hands of lawyers, politicians, and citizens.

The *Clean Water Act* (CWA) is unique in that it is based on a federal/state relationship to meet its goal. It provides a strong federal oversight role with a significant delegation of authority to states. As the name suggests, its focus is on water quality with those responsibilities split between the federal and state governments.

Under the CWA, what has become more apparent in the past five or so years is the increasing acceptance of the relationship between water quality and quantity, a point that for years has been ignored. What makes this particularly interesting is that most decisions as to quantity are made by the states, while most quality issues are addressed by the federal government or a state agency separate from the state agency that deals with allocation issues. This multiple agency jurisdiction often leads to considerable tensions as each of them approaches an issue with different authorities, objectives, and responsibilities.

In contrast to the CWA, the Endangered Species Act (ESA) is largely a federal matter. It is implemented by federal agencies with a historically minor role for the states. What is very significant about the ESA is that more and more aquatic species are being afforded its protections. This has in turn led to increasing emphasis on both water quality and quantity as we try to accommodate historical uses of water with changing attitudes about the importance of fish and wildlife.

I see no end to the role these laws will play in the management of water resources. The laws have huge popular support in certain areas and are increasingly being used to effect changes in public policy.

Planning and data:

Finally, let me draw one common theme from all of these topics. If there is one thing I would like to leave you with it is this: do not think of your water resource as infinite. It is not.

It is the mistake that others have made that does not bear repeating. Water is finite and, as sure as we all are gathered here, shortages, caused by natural drought or by man, will occur.

So what do you do about the finite nature of water? In my experience, one way is to plan. Through planning you

can set policies and goals and figure out your own way of achieving them. Planning brings order, certainty, and reliability. It allows for the efficient expenditure of funds and energy. It encourages investment. You will not solve all your problems by planning, but you will make them easier to deal with.

Closely related to planning is the availability of good data. Data about your water resource, how it's used, by you and your sister provinces, data about your future needs. Regarding all of the things I've talked about this morning: urbanization, allocation of water, environmental laws, deregulation of electrical industry, each of these, if you have to deal with them, will be so much easier to address if you have good data. Your planning will be more effective and your goals more achievable.

Let me finish with one more example to bring this point home: in 1922, the seven states in the Colorado River Basin in the western U.S. negotiated a compact to allocate the water of the Colorado River. It was a worthy goal, created by necessity, and a monumental undertaking. Since then, there is probably no other river that has seen more litigation than the Colorado. It is still going on today and it will be going on tomorrow. Just this year the Secretary of the Interior had to cut California off from using water in excess of its allocation. How did this great undertaking go awry?

When the seven states split up the Colorado River, they didn't know how much water was in it. They overestimated. They had bad data. They each took water that didn't exist. They've been paying the price ever since.

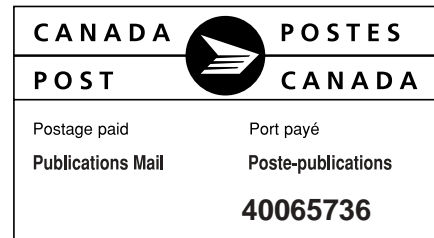
You have an opportunity and a responsibility to address your water resources at a time when your demands and problems are manageable. You are relatively water rich compared to many other places. Your sister province to the west is facing increasing demands for more water. How you choose to respond to these issues is in your hands — do not wait for others to make your decisions for you. With sound planning, your water will be a continuing source of pride and economic benefit to you, your children, and your children's children.

I congratulate you and thank you for being a most gracious host.

I wish you well. 💧

Bruce M. Smith is a natural resources lawyer from Boise, Idaho. This speech was the keynote address to the Saskatchewan Agrivision Corporation water conference held in Saskatoon in March 2003.

ICDC was one of the organizers of the conference.



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