Prairie Steward

Farming For Your Future Environment

The Newsletter of the Saskatchewan Soil Conservation Association Inc. Winter Issue No. 55, 2009

21st Annual Conference: Feeding and Fuelling the World in February

The Saskatoon Inn is the site for the SSCA's 21st Annual Conference. Entitled *Feeding and Fuelling the World*, the Conference will be held February 11 & 12, 2009. As in past years, the conference will feature a variety of speakers. In fact, 25 people, including Agriculture & Agri-Food Canada (AAFC) research scientists, university professors and farmers, will share their latest research findings and experiences with farmers. This year's conference will also include a small trade show.

Day 1 is full of speakers and activities. Conference registration begins at 8:00 am with the first presentation to begin at 10:00. Key Note speaker, Dr. Sylvain Charlebois is an assistant professor in marketing at the University of Regina. Dr. Charlebois' current research interests lie in the broad area of food distribution and safety. He has also written several articles on agriculture marketing in Prairie newspapers and through agriculture media.

Other sessions on the first day include *Optimizing Production; Optimizing the value of Fertilizer; and Nutrient Management.* The focus of the Day 1 sessions is to provide incite into management practices that make better use of farm resources and inputs.

During the lunch hour, the authors of scientific posters will be present and available to answer questions about their research findings. During the evening award banquet, the SSCA Award of Merit and the Ducks Unlimited Canada Farm Family Award will be presented.

An evening session, Carbon: Now and Beyond, will follow the banquet. SSCA's Laura Reiter and Edgar Hammermeister will give a presentation on the current state of carbon markets and discuss future developments. Dr. Guy Lafond will close the day with a presentation on the development of conservation tillage systems in Eastern Europe and Asia.

Day 2 starts with the SSCA Annual Meeting at 7:30 AM. Starting at 8:30 AM, Day 2 sessions include *Pest Management; You and Your Environment; and Fuelling the Economy.* The first session will focus on improving weed and pest management strategies.

The second session will focus on emerging environmental issues and management strategies. Presentations will cover on-farm greenhouse gas emission management, on-farm pesticide disposal, land-use changes

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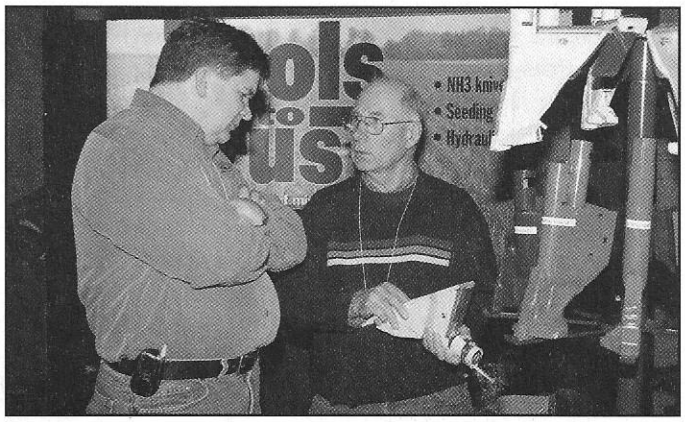

The 2009 SSCA Annual Conference and Trade Show is one of the best opportunities for Saskatchewan producers to learn more about new management practices and technology.

In This Issue

President's Report

Laura Reiter, PAg

Today, I sit and look out the window and see the only patch of black summerfallow in our neighbourhood. The wind is 40 km/h gusting close to 70 right now. You can well imagine what is happening to that piece of ground. With no snow cover, it is rolling away. Thankfully it is only one acre that I'm planning to plant my lawn on come spring. Looks like it could be a dirty winter. It makes we wonder what things would have looked like 25 years ago under the same sort of weather conditions.

The SSCA has helped to change the landscape here in Saskatchewan. Now I know that may sound like bragging to some, but once in a while it is important to look back at what you have accomplished and possibly pat yourself on the back.

Over the years the SSCA's staff has among other things, provided information to the province's producers to help them make the choices that have improved the sustainability of their farms. They have worked on demonstration projects to help show what will work in different areas of this large province. And possibly the staffs most important role has been as a sounding board for producers who have an idea and wanted to know if anyone else may have been trying something similar.

Sadly, since our last Prairie Steward, we have lost our last field staff. Juanita Polegi has worked in the Yorkton area as a regional agronomist, assistant office manager and most recently as project manager for our newest project, the e-journal, *Prairie Soils and Crops*. Juanita has had a hand in our Annual Conference since long before I started working on the board of directors. She has been involved in most everything that this organization has achieved recently. We were sad to see her leave but we know that the Yorkton Chamber of Commerce has picked up a gem for their new manager.

"As for the business of moving forward from here, we continue to work on your behalf on a variety of issues. We continue to represent Saskatchewan farmers on various national and international committee's whose goals are similar to our own. We work with researchers to try and ensure that they are working on issues that we feel are important to farming here in Saskatchewan."

As for the business of moving forward from here, we continue to work on your behalf on a variety of issues. We continue to represent Saskatchewan farmers on various national and international committee's whose goals are similar to our own. We work with researchers to try and ensure that they are working on issues that we feel are important to farming here in Saskatchewan.

As always, we will provide a forum for farmers and researchers to communicate during our annual conference in February. The agenda is being finalized for the 2009 conference. Watch your mailbox for your registration form.

Our latest way for you to receive current research information is our new *Prairie Soils and Crops Journal*. The first issue was released at the Farm Progress Show this past summer. The next issue of the journal is in the works. We are pleased to be working with ACAAFS to be able to further develop this project. If you have a chance to check out the web site, please do. It can be found at www.prairiesoilsandcrops.ca.

We would also like to hear from you. We will be canvassing you the members to find out what you feel our priorities should be. If you happen to receive a phone call or survey in the mail, please take the time to express your opinion.

We are your organization, help us make sure we are on the right track.

Executive Manager's Report: Why Conservation Agriculture?

By Blair McClinton, PAg
SSCA Executive Manager

Over the past year or so, you may have noticed SSCA beginning to use the term "Conservation Agriculture" to refer to soil conserving farming systems. Most recently, it appears in both SSCA's new mission and vision statements. Our purpose is to bring our goals and objectives in line with international discussions to deliver a common message.

The term Conservation Agriculture was first developed by the Food and Agriculture Organization of the United Nations (FAO). It was used to define farming systems that follow these three principles:

1. Continuous minimum mechanical soil disturbance.
2. Permanent organic soil cover.
3. Diversified crop rotations in the case of annual crops or plant associations in case of perennial crops.

These principles are largely what SSCA has been promoting over the past 20 years. So you may ask why don't they call it no-till or direct seeding like we do in Canada and the USA? It was mainly done to create a consistent message. The term no-till is used to describe how a crop is seeded but does not fully describe the farming system. Confusion about the terminology has caused problems with the development of soil conservation programs in developing countries. For example, in the USA Corn Belt, farmers often practice rotational tillage where one crop is no-till seeded (ie. soybeans) and other crops are conventionally seeded (ie. corn). In other words, everyone practicing conservation agriculture uses no-till but not everyone who uses no-till practices conservation agriculture.

The FAO terminology has been widely adopted at a global level. In October, I participated in an international Conservation Agriculture Carbon Offset Consultation that included delegates from all continents. When I first arrived at the event, I met Richard Fowler, a Conservation Agriculture Capacitor (extension agent) from South Africa. His first question to me was this: "does your organization promote "no-till" or does it promote "conservation agriculture" (as defined by FAO)? I told him we promote conservation agriculture but we don't call it by that name.

"By using positive common messages and themes with groups from around the world, we are helping Conservation Agriculture develop into its own brand. This may lead to better public support for conservation agriculture which leads to better farm policy and research initiatives."

It was clear from Mr. Fowler's question that the definition of conservation agriculture is very important and that no-till has negative connotations. When we were developing a name for the Conservation Agriculture Systems Alliance (CASA), Brian Lindley, from No-till on the Plains, made the comment that no-till is a terrible name from a marketing perspective. The first word is "No" which creates a negative initial impression. Conservation Agriculture is a more positive term for what we do.

By using positive common messages and themes with groups from around the world, we are helping Conservation Agriculture develop into its own brand. This may lead to better public support for conservation agriculture which leads to better farm policy and research initiatives. It may also lead to the development of a certification standard that allows farmers to market their products under this brand.

Currently, a few conservation agriculture related certification efforts are in development. For example, AAPRESID, the Argentinean national conservation agriculture farm organization, is working to develop a certification standard for Conservation Agriculture for its members. The Shepherds Grain group in Washington State is another example of how this may evolve.

The Canadian Prairies and Saskatchewan, in particular, is a world leader in the development of conservation agriculture systems and technology. Our equipment manufacturers sell conservation agriculture products around the world. Considering only seven percent of global cropland uses conservation agriculture, could we use this 'uniqueness' as part of a Saskatchewan Farm brand? It's just a thought.

For further reading go to http://www.fao.org/ag/ca/.

Straw!! What's it good for?

By David Larsen, PAg
Agriculture Knowledge Centre
Saskatchewan Agriculture

Straw residue has an economic value for producers. Grain farmers may find straw to be valuable as a source of soil organic matter and nutrients. Straw can also be used for bedding and feed, or for other industrial uses. Producers who are considering removing straw or chaff for use off the field will want to determine the value of that straw and assign a market price that adequately reflects the real value of the straw. This, however, can be challenging.

If the estimated value of the crop residue to the soil is less than the market value of the straw, it may be worthwhile to sell the straw. If the value of the straw to the soil exceeds the market value, purchasing straw from another source may prove to be the most economical option.

There are costs associated with retaining crop residue.*

- The producer foregoes the value of the residues for other purposes, such as bedding, coarse feed, or industrial uses.
- There is a potential for problems caused by poorly chopped and spread residues, or excessively heavy residues. These problems may require extra field operations to manage the residue.

On the other hand, there are benefits to the soil of retaining crop residue.* These are:

- soil organic matter and soil health are built or maintained;
- the risk of soil erosion is reduced;
- the pool of nutrients in the soil is increased; and
- soil moisture infiltration and retention is enhanced.

(*Source: Direct Seeding - Estimating the Value of Crop Residues, Alberta Agriculture Food and Rural Development, 1999, Agdex 519-25.)

Nutrient value of the straw

One method of calculating the economic value of straw is to determine the value of the nutrients contained in the crop residue. The nutrient content of straw and chaff is not high and is quite variable. That said, straw and chaff do contain all of the main nutrients required for crop growth. Nitrogen, phosphate, potassium, sulphur and micronutrients are all found in chaff and straw.

Table 1: Average nutrient contents in straw*

Crop straw	lb N/ton	Lb P2O5/ton	lb K2O/ton	lb S/ton
Wheat	12	3.7	30	2.8
Barley	15	4.1	41	2.8
Oats	14	4.1	43	3.4
Peas	24	4.6	30	5.0

*Straw with 10 per cent moisture.
**Direct Seeding - Estimating the Value of Crop Residues, Alberta Agriculture Food and Rural Development, 1999, Agdex 519-25.

Moisture and fertility conditions during crop growth and the amount of rainfall on the crop residue after harvest will cause variability in the nutrient content of the straw. Typical amounts are represented in Tables 1 and 2. Representative samples of crop residue need to be analyzed by a lab for a more accurate calculation.

Table 2: Average nutrient contents in chaff*

Crop chaff	lb N/ton	Lb P2O5/ton	lb K2O/ton	lb S/ton
Wheat	18	4.6	24	3.6
Barley	20	6.0	36	3.6
Oats	20	4.6	36	4.0
Peas	34	10.6	24	5.0

*Straw with 10 per cent moisture.
**Direct Seeding - Estimating the Value of Crop Residues, Alberta Agriculture Food and Rural Development, 1999, Agdex 519-25.

Calculating the nutrient value of the straw requires an estimation of the following:

- the nutrient content of the straw and/or chaff;
- the quantity of residue removed; and
- the market value of the major nutrients.

When the nutrient content of the residue is calculated, it can be compared to the current market value of commercial fertilizers. This will provide an indication of the value of the nutrients contained in the residue.

Crop residue is required for a healthy soil

Crop residue is very important to maintain and build soil health. Crop residue is a good source of carbon. For eroded and lighter texture sandy soils, the carbon and nutrients in the straw and chaff may be a valuable way to increase soil health and fertility.

A large amount of organic matter in soils will increase nutrient cycling and nutrient availability. Nutrient availability in soils with high soil organic matter will help supply nutrients to the crop throughout the growing season. Retaining sufficient quantities of crop residue is required to maintain and build soil organic matter. If soil organic matter is depleted from past farming practices, retaining higher amounts of the crop residue can help restore organic matter levels and improve soil health.

How does building organic matter affect the nutrient value?

Crop residue contains a high carbon-to-nutrient ratio. This is beneficial for increasing the organic matter content in some soils. It increases the nutrient content of the soil as well, but may not increase the plant available nutrient levels in the soil, especially in the short term. Depending on soil conditions, nutrients released from crop residue are kept in a relative balance with soil nutrients that are immobilized. Immobilized nutrients are nutrients that are temporarily not available in a form that plants can access. Soil microor-

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Pea-Wheat Rotation in Southern Alberta

Information prepared by:
Ross H. McKenzie Ph.D., P.Ag
Agricultural Research Division - Alberta Agriculture and Rural Development
Lethbridge, Alberta T1J 4V6
Phone: 403-381-5842

Rob Dunn P.Ag.
Agricultural Stewardship Division - Alberta Agriculture and Rural Development
Lethbridge, Alberta T1J 4V6
Phone: 403-381-5904

Background

In the Brown and Dark Brown soil zones of southern Alberta, crop production has historically focused on spring wheat. In the past 20 to 30 years, crops such as barley and canola have increased in areas where there is sufficient precipitation. However, summer-fallow and monoculture wheat systems remain a significant cropping practice for many farmers.

In the Brown soil zone:

- the average annual precipitation is approximately 350 mm (14 in) and growing season precipitation is about 150 mm (6 in).

In the Dark Brown soil zone:

- the average annual precipitation is approximately 400 mm (16 in) and growing season precipitation is about 175 mm (7 in)

With relatively low precipitation, retaining soil moisture through summerfallowing has been an important agricultural practice in the semiarid regions of the Prairies. However in the long-term, the practice of using summerfallow can lead to a decline in soil quality as a result of:

- decline of soil organic matter levels
- increased salinization
- increased wind and water erosion
- depleted soil nitrogen and other nutrient reserves

To reduce the negative effects on organic matter loss and erosion, producers have shifted from the use of conventional cultivation for weed control in fallow fields, to the use of herbicides to control weed growth. This practice is referred as chem.-fallow. Producers have also adopted the use of commercial fertilizers to optimize wheat yield and quality, as soil nutrient reserves have declined. However, in the long-term, environmental sustainability of cropping systems that include summerfallow remain in question.

Long-term Crop Rotation Study – Bow Island

In 1992, a Long-Term Dryland Crop Rotation Study in the Brown Soil Zone study began at the Alberta Crop Diversification Centre South's Bow Island substation (approximately 10 km south of the town of Bow Island). This long-term study compares rotations that are more typical for the region with those that include more crop diversity along with the influence of nutrient practices. The study has focused on determining the viability of existing and alternative crops and cropping systems under differing rates of inorganic fertilizers and manure.

The study was designed to determine the effects of different cropping practices on soil quality in the long-term and to determine the economic performance of the various crop rotations that included:

- reduced summerfallow use
- legumes in the rotation
- use of inorganic fertilizers
- use of manure/compost applications

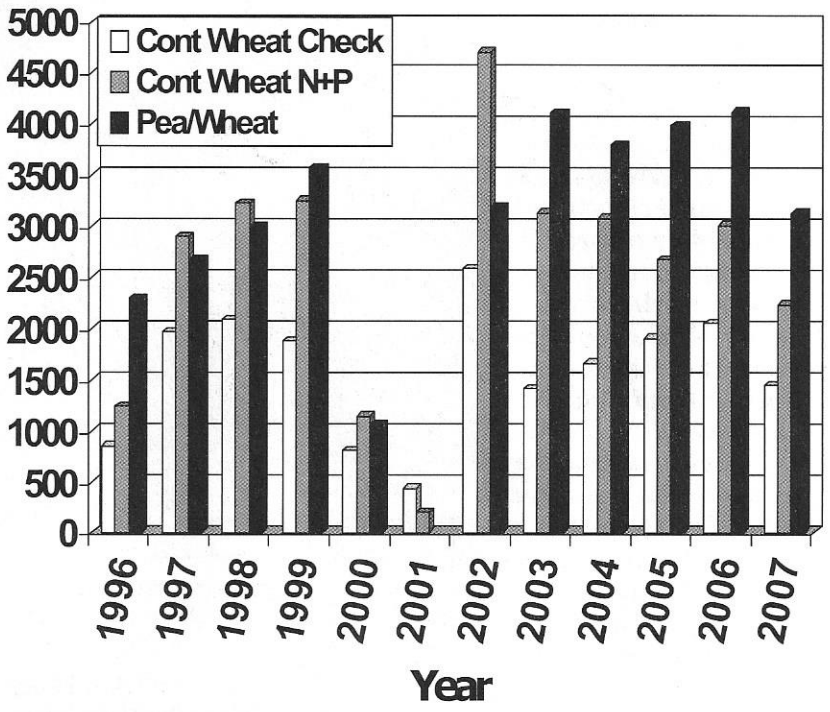

Figure 1. Wheat yield in kg/ha from 1996 to 2007 when grown without fertilizer (Continue wheat check), fertilized with N+P fertilizer (Continuous Wheat N+P) and after pea fertilized with only P fertilizer until 2003, in 2004 received composted manure and no additional fertilizer since 2003 (Pea/Wheat).

One of the initial rotations was a wheat-legume plow-down rotation with the intension to replace fallow with a plow-down legume to reduce the need for nitrogen fertilizer. In 1996 the rotation was modified to have pea as the legume crop, but rather than

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Carbon and Nitrogen Cycles in Wetland Soils

Dr. Angela Bedard-Haughn
Department of Soil Science,
University of Saskatchewan

What are "wetlands" in this context?

In the semi-arid to sub-humid Prairie environment, we can differentiate between permanent or semi-permanent wetlands and ephemeral wetlands. Permanent wetlands are those that hold water throughout the year every year, whereas semi-permanent wetlands dry down in drought years. Ephemeral wetlands are those that fill up during the spring snowmelt period and typically dry down in the late spring or early summer months, although they may re-fill following extreme precipitation events. In agricultural landscapes, ephemeral wetlands (and semi-permanent wetlands, in drought years) are often tilled for crop production. These wetlands are generally small (10 to 1000 m2), but are widespread in the hummocky landscapes of the Prairie Pothole region, which covers approximately 800,000 km2 in central North America (includes the US Great Plains and Canadian Prairies).

What is their ecological significance?

Although individual ephemeral wetlands are relatively small, their ubiquity in the Prairie region and the timing of their fill period means they are important waterfowl habitat, referred to by Ducks Unlimited as "duck factories" because of their importance for breeding habits of ducks (www.ducks.org). The numbers of ducks in North America in any given year can be correlated to the number of filled wetlands in the Prairie Pothole region at the start of the breeding season (Johnson et al., 2005). Ephemeral wetlands are also home to a range of insects, invertebrates, bacteria and algae, providing a foundation for the local food web, and contributing to water purification. In terms of regional hydrology, ephemeral wetlands retain snowmelt and precipitation, reducing the effective drainage area of rivers and contributing to local groundwater recharge (Hayashi et al., 2003).

Wetlands play an important role in a mixed land-use environment.

What makes wetland soils pedologically different from upland soils?

Given the prolonged periods of saturation experienced each spring, wetland soils are characterized by evidence of redoximorphic conditions (gleying, mottles) and/or downward water movement such as significant translocation of clays (eluvial and illuvial horizons). Depending on how deep the water table is, however, there may also be significant evidence of groundwater discharge, in the form of secondary carbonates and minimal horizon development (i.e., rego ring or willow ring soils). It is not unusual to see all of these different soils occurring together within a single ephemeral wetland, reflecting the importance of micro-topography in controlling the redistribution of water (Bedard-Haughn and Pennock, 2002).

Given their low-lying landscape position and prolonged wet period, ephemeral wetland soils are generally very productive during their dry phase. In drought periods, they can be the most productive soils in hummocky landscapes, and as such, their pedologic characteristics reflect greater vegetation growth and additional organic matter inputs compared to the upper-slope positions. In agricultural landscapes, this naturally-occurring gradient from thin, dry soils on the knolls to thick, organic matter-rich profiles in the depressions and ephemeral wetlands has been exacerbated by tillage erosion, transferring topsoil from the knolls to the depressions (Bedard-Haughn et al., 2006a).

How do C and N cycles differ in wetland soils?

The trend of increasing organic matter, moisture and nutrients as you go from upper slope positions down to wetland soils has a significant influence on carbon and nitrogen dynamics. Wetland soils tend to have significantly greater soil carbon storage than the surrounding uplands, particularly when they are not cultivated. In comparing SOC storage in different landform elements at the St. Denis National Wildlife Area, cultivated depressions had double the SOC storage of cultivated divergent

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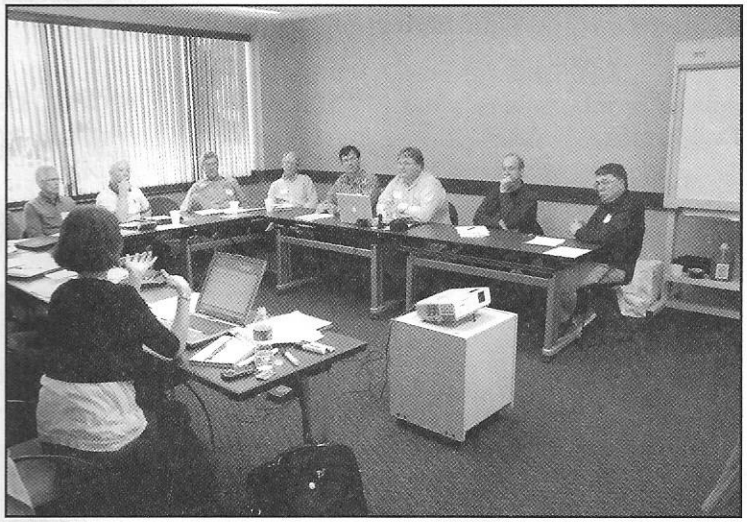
Conservation Agriculture Systems Alliance (CASA) Builds Networks Across North and South America

U.S. and Canadian members of the Conservation Agriculture Systems Alliance (CASA) met in West Lafayette, Ind., on October 31, with conservation agriculture advocates from Brazil, Mexico and the Food and Agriculture Organization of the United Nations (FAO) to strengthen the network for the exchange of conservation agriculture information among individuals, groups and institutions throughout the Americas. "Bringing this group of conservation agriculture leaders together moved CASA forward by creating a common definition of conservation agriculture," says Karen Scanlon, executive director of the Conservation Technology Information Center (CTIC), which launched the CASA group. "We drafted a pledge participating organizations can sign to demonstrate their commitment to participating in an open dialogue about the opportunities and challenges we all face as we promote conservation, and we were also able to exchange practical information on how to make the network, and the organizations represented by the participants, more effective."



CTIC Executive Director Karen Scanlon (left) facilitates a discussion with members of the Conservation Agriculture Systems Alliance (CASA). From Scanlon's left, they include Peter Gamache of Reduced Tillage Linkages, Blair McClinton of the Saskatchewan Soil Conservation Association, Barry Fisher of NRCS in Indiana, Bill Kuenstler of the NRCS Regional Technical Center in Ft. Worth, Texas, Brazilian farmer Ivo Mello of CAAPAS, Brian Lindley of No-till on the Plains, Tim Healy of Agrotain International and Jerry Lemunyon of NRCS in Ft. Worth.

Common Message

The pledge is more than a statement to sign — it's an important step toward establishing a stronger identity for conservation agriculture. "Developing almost a conservation agriculture brand is important so when we're talking to people who are not in the agriculture industry, we can have something people recognize and can say, 'that's important,'" says Blair McClinton, executive manager of the Saskatchewan Soil Conservation Association in Indian Head, Sask.

"This is where you can have real strength," he adds. "Groups from Canada and groups from Alabama share some common principles, and we can deliver some common messages or common research priorities when we talk to policymakers."

In addition to helping political and academic leaders see conservation agriculture as a movement, rather than as a collection of isolated groups of farmers and researchers, a common message can help conservation proponents push toward greater levels of adoption and greater commitments to no-till and other conservation practices.

"We can still have room for other variations [of conservation practices], but it helps keep everybody on the same page," says Brian Lindley, executive director of No-till on the Plains in Wamego, Kan. "A consistent message will help us keep our ideal in mind, and it will help conservation agriculture worldwide."

International Reach

The meeting was the second face-to-face meeting of the young organization, which was established in February 2007. Organizations represented at the Indiana meeting included No Till on the Plains, the Pennsylvania No-Till Alliance, the Saskatchewan Soil Conservation Association, Alberta Reduced Tillage LINKAGES, the Natural Resources Conservation Service, the Pacific Northwest Direct Seed Association, the Ohio No-Till Council, Association pour l'Agriculture Durable of Tunisia and other groups. The CASA network links more than 15 organizations through an email list, a web site and monthly conference calls.

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Feeding & Fuelling the World

SSCA 21st Annual Conference:
February 11 & 12, 2009
Saskatoon Inn, Saskatoon, Saskatchewan

WEDNESDAY, FEB. 11

8:00 a.m. **Registration**

9:45 a.m. **Opening Remarks**

10:00 a.m. **Key Note Address: "Opportunity of the Com mons: Agriculture's New Frontier"** – Dr. Sylvain Charlebois, U of R

SESSION #1 OPTIMIZING PRODUCTION

10:45 a.m. **"Effect of reduced inputs on canola and barley productivity** "– Dr. Dr. Kelly Turkington, AAFC

11:05 a.m. **"Economics of reduced inputs on canola and barley productivity"** - Dr. Elwin Smith, AAFC

11:25 a.m. **"Agronomics of Growing High Yield Wheats"** – Brian Beres, AAFC

11:45 a.m. "Optimizing Production on My Farm" – Doyle Wiebe, Langham

12:05 p.m. Questions

12:15 p.m. Lunch *(Poster Session 12:30 – 1:15) On display for the entire Conference*

SESSION #2 OPTIMIZING THE VALUE OF YOUR FERTILIZER

1:30 p.m. **"On-Farm Field Scale Research"** – Roger Andreiuk, Alberta Reduced Tillage Linkages

1:50 p.m. **"Zoning Fields"** – Tom Staples, Echelon Ag

2:10 p.m. **"In-crop Variable Rate N"** – Chris Holzapfel, IHARF

2:30 p.m. **"Fertilizer Efficiency on My Farm"** – Corwin Tonn, Preeceville

2:50 p.m. Q & A

3:00 p.m. Coffee

SESSION #3 NUTRIENT MANAGEMENT

4:10 p.m. **"Novel Fertilizers"** – Dr. Cindy Grant, AAFC

4:30 p.m. **"Good, Bad & Ugly of Soil Amendments"** – Dr. Rigas Karamanos, Viterra

4:50 p.m. Q & A

5:00 p.m. Trade Show

6:00 p.m. Banquet

SESSION 4 CARBON: NOW & BEYOND

8:00 p.m. ABCs of Carbon: Voluntary & Regulatory Mar kets, Carbon Trading: Systems in AB and Canada – Laura Reiter & Edgar Hammermeister

9:00 p.m. Conservation Agriculture in Eurasia – What Can Prairie Farmers Learn? - Dr. Guy Lafond, AAFC

THURSDAY, FEBRUARY 12

7:30 a.m. SSCA AGM

SESSION #5 PEST MANAGEMENT

8:30 a.m. **"Early vs Late Winter Annual Control"** – Dr. Rick Holm, U of S

8:50 a.m. **"New Herbicides for Western Canada"** - Eric Johnson, AAFC

9:10 a.m. **"Input Strategies to Reduce Reliance on Herbicides"** – Clark Brenzil, SK Ministry of Ag

9:30 a.m. **"Weather Monitoring"** – Guy Ash, CWB

9:50 a.m. Q & A

10:00 a.m. Coffee

SESSION #6 YOU AND YOUR ENVIRONMENT

10:45 a.m. **"Effects of GHG Emissions on the Farm Gate"** – Dr. Henry Janzen, AAFC

11:10 a.m. **"Biobeds for On-Farm Pesticide Disposal"** – Dr. Diane Knight, U of S

11:30 a.m. **"Impacts of Converting Marginal Annual Croplands to Permanent Forage"** – Clint Hilliard, PFRA

11:50 a.m. **"Agricultural P loss in Prairie watersheds: Snow and rain are not the same"** – Dr. Don Flaten, U of M

12:15 a.m. Q & A

12:30 a.m. Lunch

SESSION #7 FUELLING OUR ECONOMY

1:45 p.m. **"Biofuel Trends in North America"** - William Thurmond, Emerging Markets Online

2:30 p.m. **"Fertilizer Value of Biofuel Byproducts?"** – Dr. Jeff Schoenau, U of S

2:50 p.m. **"Impact of Biofuels on the Environment"** – Dr. Martin Reaney, U of S

3:10 p.m. Questions

"Opportunities in Agriculture & in Saskatchewan!" - Dr. Graham F. Parsons, Prairie Centre Policy Institute, Regina, SK

3:20 p.m. **"Closing Speaker: Let Mother Do It!"** -Dr. Dwayne Beck, Dakota Lakes Research Farm

4:00 p.m. Adjourn

Attention CCA's

This conference has been approved for 12.5 CEU's:
NM 2.5; SW 3.0; PM 1.0; CM 2.0; PD 4.0

SSCA Membership	
1 year membership	$100.00
3 year membership	$250.00
Additional Farming Unit membership	$25.00
Supporting (corporate)	$500.00
Student 1 year (must be enrolled full-time at a post-secondary institution)	$25.00

ACCOMMODATIONS

Rooms at the **Saskatoon Inn** have been blocked for the conference at the following Hotels under the Saskatchewan Soil Conservation Association's name. Rooms must be reserved before **January 11, 2009** to receive the conference rate.

Hotel	Rate
Saskatoon Inn (306) 242-1440 800-667-8789	$117.00

FEEDING & FUELLING THE WORLD CONFERENCE REGISTRATION

To Register Call 1-800-213-4287
or (306) 695-4233

Name: _____

Address: _____

City: _____

Prov: _____

Postal Code: _____

Telephone: _____

Fax: _____

RM# _____

Representing: _____

Producer: Yes ☐ No ☐

SSCA Member: Yes ☐ No ☐

SSCA Members

Before February 1, 2009	**(GST Included)**	
Includes: all meals & conference proceedings	$131.25	☐
Additional Farm Unit Members Includes: all meals & no conference proceedings	$120.75	☐
After February 1, 2009 Includes: all meals & conference proceedings	$157.50	☐
Additional Farm Unit Members Includes: all meals & no conference proceedings	$147.00	☐

Non-Members

Before February 1, 2009 Includes: all meals, conference proceedings & 1 year SSCA Membership.	$183.75	☐
After February 1, 2009 Includes: all meals, conference proceedings & 1 year SSCA Membership.	$210.00	☐

Single Day

SSCA Members		
Includes: lunch & conference proceedings.	$105.00	☐
Additional Farm Unit Members Includes: lunch & no conference proceedings.	$94.50	☐
Non-Members Includes: all meals, conference proceedings & 1 year SSCA Membership.	$157.50	☐

Extras		
Extra Banquet Tickets	$37.10	☐
Extra Conference Proceedings	$13.00	☐

Total Amount Enclosed $ _____

Please make cheques payable to:
SSCA
Box 1360, Indian Head, SK, S0G 2K0
Fax: (306) 695-4236 GST#: 137200515 RT0001

Advancing the Art of No-Till in Australia

Robert Ruwoldt
Murtoa, Victoria, Australia

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Biography

The changes continued at a very fast rate with many new herbicides coming onto the market as well as changing machinery and farming methods all at once making it a struggle to keep up. According to Robert, "Every time we changed something in our system we would think that we had the game sown up, but when I look back now I have to laugh at myself and my ignorance (lack of knowledge) at that time of the development of the no-till system that we currently use today."

Robert's farm is now a fourth generation family farm and is situated in the middle of Victoria (Australia) and in the heart of the Wimmera farming region. The farm consists of 7000 acres of strictly cropping and no livestock. Robert is lucky to have some of the best soils in Australia to farm, consisting of mainly heavy black clay soil types with good water holding capacity. Average rainfall is 16 inches a year of mainly winter rainfall with no reliable summer rain to count on. Robert grows wheat, barley, lentils, canola, beans and chickpeas in his diverse and continuous cropping rotation

Crop Rotations and Soil Health

My presentation today is about grain farming at Glenvale Farms in the heart of the Wimmera Victoria Australia. Our growing season is mid April to early November and that being wintertime. Average rainfall is 16 inches a year but in the past 10 years we have been getting around 10 inches, in 2008 we have had 8 inches so far this being only half our average!! Harvest time is early November to early January which is summer time. Summer every year can be very hot up to 45c with prolonged periods like that.

We started to No-Till and full stubble retention back in 1983 after the 1982 drought where some of the farm tried to blow away, the drought really made us think about changing our farming system. The changes that we made along the way have been extensive to get where we are today. There has been no one to follow or copy so we have had to learn the hard way by trial and error (the school of hard knocks). Many people around the local area thought we had lost it completely, they said it would not work, you just had to work the soil before seeding a crop and that they would buy us out when we went broke. Well we didn't go broke and we have expanded from 800 acres to now 6500 acres.

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There has been a huge swing in my area to No-Till in the last 4 years but it has taken all this time for some of the farmers and farm consultant to wake up and smell the coffee. There are still some consultants and farmers that still say it will not work. Even though over 25 years has gone by, I do not understand!! In this time there has been many mistakes made and money lost but all in the name of improving our system, growing and protecting the soil.

Our soil is now totally different to what we had 20 years ago; they are now soft fertile and productive soils. We thought the soil would get better but I could not have imagined the amount of improvement in soil health. At the same time they are protected from the harsh elements that nature can dish up. Soil health was not even considered when we started all this No-Till stuff; it has become very apparent in the last 10 years and is now the main driver behind the whole system.

There has also been many changes in the tools we have at our disposal to help in our advancing grain production, many new chemicals, new machinery, improved knowledge and understanding of the soils and plant health, improved agronomy and let's not forget the internet in the world wide information gathering process that we have at our disposal today.

As the years have gone buy we have improved everything that we can in this crop production process, some times going backwards before we went forward. We have encountered many problems along the way with machinery, crop diseases, chemical issues, weed resistance, droughts and frost. Mother nature is good at beating our arrogance and lack of knowledge in what we have been doing. We have to work with nature and not against it to make this all work.

Along this great journey many things change and we just seem to change what we do to improve what we are currently doing, when is this change going to stop? It keeps costing me money and I miss out on sleep trying to work it all out!!

The advancements in the last seven years have been extraordinary with auto steer on tractors, boom spray and

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terminate the crop at flowering, the crop was grown to maturity and harvested for grain. It was felt that this would be a more realistic agronomic and economic alternative.

An economic evaluation of all the rotations, (Walburger and McKenzie, 2003) showed the Pea-Wheat rotation had the highest net annual income of seven different crop rotations. The rotations in the study were: continuous wheat, fallow-wheat, fallow-wheat-wheat; pea-wheat, fallow-flax-wheat, continuous grass; each with various nitrogen and phosphorus or manure treatments.

Figure 1 compares yield of wheat in a continuous wheat rotation (without fertilizer and with N and P fertilizer) to wheat yield grown on pea stubble without N fertilizer, from 1996 to 2007. The fertilized continuous wheat receives 40 kg N/ha (36 lb N/ac) and 20 kg P2O5/ha (18 lb P2O5/ac). Wheat following pea received only 20 kg P2O5/ha (18 lb P2O5/ac) until 2003; since 2004 this treatment receives 12 T/ha of composted manure once every four years.

From Figure 1, between 1996 and 2000, wheat yield after pea was similar to fertilized continuously cropped wheat. A severe drought in 2001 greatly reduced the continuously cropped wheat yields. Poor pea growth in 2001 resulted in reduced nitrogen fixation and depressed wheat yields. Pursuit residue from Odyssey herbicide application on pea from the previous year coupled, with drought greatly restricted wheat yield in 2001, therefore no yield data was collected. From 2003 to 2007, unfertilized wheat yield after pea has out yielded nitrogen and phosphate fertilized continuous wheat by an average of 36% over the past 5 years.

Advantages of the Pea-Wheat Rotation

Having only pea and wheat crops in a rotation, is not a true crop rotation. Ideally, having three or more crops in a rotation is best from a crop diversity standpoint and is preferred to help manage pest issues, particularly disease. However, this short two-year rotation does offer a number of advantages in the drier regions of southern Alberta including:

1. A pea crop will fix about 80% of its nitrogen requirements. Generally, no additional N fertilizer is required with pea, however, pea seed must be inoculated with the proper rhizobium bacteria (Rhizobia leguminosarum) to ensure optimum N fixation (McKenzie et al. 2001).

"An economic evaluation of all the rotations, (Walburger and McKenzie, 2003) showed the Pea-Wheat rotation had the highest net annual income of seven different crop rotations."

2. Residual nitrogen remains in the surface residue, roots and nodules of pea after harvest. As the pea residue degrades, N is released for subsequent crops. It is estimated that field pea contributes about 1.0 to 1.5 lb/ac of N for every bu/ac of pea grain produced. At the long-term crop rotation site at Bow Island, wheat has been grown successfully without any additional commercial N fertilizer in the pea-wheat rotation (Figure 1).

3. Pea is not very responsive to phosphate fertilizer and could be eliminated when soil test levels are greater than 30 kg P/ha (McKenzie et al 2002).

4. The need for phosphate fertilizer in the crop rotation can be eliminated, if composted manure is applied at a sufficient rate once every four years.

5. Using a pea-wheat rotation can help to control some insect problems such at the wheat stem sawfly and foliar disease problems compared to when wheat is continuously grown.

6. Using the pea-wheat rotation allows for rotation of herbicide groups with different modes of action for weed control, reducing the potential for development of herbicide tolerant weeds.

7. Pea is well adapted to no-till direct seeding. Elimination of tillage leads to conserved soil water which results in increased grain yield and higher water use efficiency. Other benefits of no-till include the lower fluctuations in surface soil temperature, which favors increased nitrogen fixation.

8. Generally, pea is shallower rooted and draws most its moisture from the top 60 cm of soil (McKenzie et al. 2004). When pea is seeded in early spring in southern Alberta, it is often harvested in early August. This leaves an extended period from August to November to store precipitation for crop use the next year. As a result, there is often more stored soil moisture the following year after pea compared to after wheat, for the next crop season.

Concerns of the Pea-Wheat Rotation

A major concern with the two-year pea-wheat rotation is the potential for increased disease pressure. To-date, increased disease has not been an issue in the long-term dryland trials at Bow Island in southern Alberta.

Work conducted at Indian Head, Saskatchewan in the thin-black soil zone showed that in terms of plant establishment, plant numbers after 11 years without the use of seed treatments and by using no-till were similar among a wheat-wheat-pea, a wheat-pea and a continuous pea rotation (Lafond et al 2007), which suggested that root diseases may be less important than anticipated for field pea production on the Canadian prairies. It is important to provide some break between successive pea crops to reduce potential disease pressure. In the drier regions of southern Alberta, a one-year

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shoulders. However, uncultivated depressions had double the SOC storage of cultivated depressions (Bedard-Haughn et al., 2006a). However, the carbon balance of ephemeral wetlands is not just that simple. Although uncultivated wetlands can serve as carbon sinks, they have also been found to serve as significant sources of methane (CH4) emissions due to anaerobic decomposition during the saturated period (Yates et al., Unpublished data) where methane is a greenhouse gas with a 100-year global warming potential of 25 (relative to a global warming potential of 1 for carbon dioxide). Furthermore, while tillage erosion reduces carbon storage in the upper 30 cm of the wetland soil profile, by contributing to the development of cumulic Ap horizons of 50 cm or more, it may serve to sequester SOC at greater depth by burying organic matter and slowing further decomposition.

Total soil nitrogen also tends to be greater in wetlands than in upland positions, although the dominant forms may vary. Along with the increase in SOC, organic N also increases from upslope to wetland positions. In comparing mineral N in cultivated and uncultivated wetlands, Bedard-Haughn et al. (2006b) noted that despite having similar gross mineralization and nitrification rates, cultivated wetlands tended to be dominated by nitrate-N whereas uncultivated wetlands were dominated by ammonium-N, reflecting a difference in the consumptive processes occurring in each wetland type. Yates et al. (Unpublished data) also noted that wetland soils tend to be greater contributors to nitrous oxide emissions than upland positions, where nitrous oxide has a 100-yr global warming potential of 298. However, these emissions were spatially and temporally variable. This reflects the different possible sources of emissions, including denitrification and nitrification-related processes, where denitrification tends to dominate in uncultivated wetlands, but tightly coupled nitrification-denitrification and/or nitrifier denitrification are important in cultivated wetlands (Bedard-Haughn et al., 2006b).

What are some of the challenges we face in managing wetland soils?

> "In agricultural landscapes, this naturally-occurring gradient from thin, dry soils on the knolls to thick, organic matter-rich profiles in the depressions and ephemeral wetlands has been exacerbated by tillage erosion, transferring topsoil from the knolls to the depressions (Bedard-Haughn et al., 2006a)."

In recent years, there has been an increase in climatic variability, including warmer, drier conditions in some parts of the Prairie, and wetter conditions elsewhere, which makes it very difficult to provide generalizations. In those areas of the Prairies associated with increased snowmelt and precipitation (primarily the eastern regions), there have been challenges in recent years with crop production under conditions of excess soil moisture (Bedard-Haughn, 2009). For those regions of the Prairie Pothole region more accustomed to coping with drought, this has resulted in significant reduction in seeded acreage and an increase in crop insurance claims. Where excess moisture has been a regular problem for several years now, there is an increased interest in agricultural drainage. To date, most of the research on the effects of drainage has been concentrated in warm, humid climates where longer growing seasons and higher value crops have made drainage a financially viable option for many years. Research currently underway in southeastern Saskatchewan (Westbrook and Brunet, Unpublished data) will explore these questions for the semi-arid to sub-humid environment.

> "In comparing mineral N in cultivated and uncultivated wetlands, Bedard-Haughn et al. (2006b) noted that despite having similar gross mineralization and nitrification rates, cultivated wetlands tended to be dominated by nitrate-N whereas uncultivated wetlands were dominated by ammonium-N, reflecting a difference in the consumptive processes occurring in each wetland type."

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STRAW!! WHAT'S IT GOOD FOR? ... CONTINUED FROM PAGE 4

ganisms continuously make nutrients available for plant uptake, or mineralize, and also immobilize nutrients from crop residue and soil organic matter.

The nutrient content of the straw can misrepresent the benefit of the crop residue to the soil health. Soil fertility will not increase with the addition of straw as much as it would from the addition of a similar quantity of fertilizer based on the nutrient content of that straw. Nutrients contained in straw aren't readily available for plant uptake. Nutrients in commercial fertilizers are packaged in a form that is immediately available to the plant.

How much residue needs to be retained?

Given the benefits of crop residue on soil quality, removing some straw may not have a negative long-term effect on soil health. Baling after combining leaves a large quantity of above ground crop residues behind. Dr. Guy Lafond, a research scientist with Agriculture and Agri-Food Canada at Indian Head, found that baling behind a conventional combine removes between 26 to 40 per cent of the above-ground residue. The rest of the above-ground residue remains as standing stubble and as straw and chaff too small to be picked up by the baler.

Dr. Lafond found that after 50 years of straw removal through baling, crop residues from a fertilized wheat/wheat/fallow rotation on heavy clay soil in the thin black-soil zone did not result in a loss of soil organic carbon and nitrogen, which are the primary building blocks of soil organic matter. This suggests that despite frequent baling and the inclusion of fallow in the rotation, enough crop residues were retained after straw removal through baling to maintain soil organic matter and overall soil productivity.

Table 3: Value of nutrients in straw using an estimated value of fertilizer nutrients.

Fertilizer Prices/Tonne		Value of Nutrients/lb	
46-0-0	$1,010.00	Nitrogen (N)	$1.00
12-55-0	$1,475.00	Phosphate (P2O5)	$1.00
0-0-62	$680.00	Potassium (K2O)	$0.50
20-0-0 (24)	$570.00	Sulphur (S)	$0.25

Average Nutrient Amounts in Straw (10% moisture content)

Crop straw	lbs N/ton	lbs P2O5/ton	lbs K2O/ton	lbs S/ton	Total $/ton*
Wheat	12	3.7	30	2.8	$31.26
Barley	15	4.1	41	2.8	$40.12
Oats	14	4.1	43	3.4	$40.27
Peas	24	4.6	30	5.0	$44.65

Notes:
ton = 2,000 lb.
Use your own fertilizer values and nutrients levels in your crop residues.

With heavy textured clay soils, baling straw on occasion won't affect the soil organic matter or fertility. Eroded or sandy soils may benefit from crop residue remaining on the land. These benefits may include increased fertility, increased water infiltration and reduced erosion. Determining how much residue soil requires will depend on past management practices and soil texture. These practices include fertility, frequency of removing crop residue, tillage practices and crop rotations.

Summary

The removal of crop residue can remove significant amounts of nutrients. The equivalent fertilizer-nutrient value can be large.

The nutrients removed in the straw or chaff are permanently lost from the soil unless the nutrients are returned to the field in the form of animal manure. However, the equivalent dollar value of the nutrients in the crop residue may not adequately represent the true economic value of the straw because the agronomic value can be significantly greater.

To create a true economic value of crop residue, a decision must be made to determine how much crop residue can be removed before the health of the soil and long-term fertility are compromised.

Continuous cropping with fertility practices based on soil tests in a low-disturbance seeding system will help ensure that the occasional removal of crop residue won't have a negative long-term effect on soil health and fertility.

For more information, phone the Agriculture Knowledge Centre at 1-866-457-2377.

21ST ANNUAL CONFERENCE ... CONTINUED FROM PAGE 1

and the effects of land management on water quality.

The final session focuses on the implications of biofuel development. The featured speaker for this session is William Thurmond, President and founder of Emerging Markets Online, a global energy and biofuels intelligence firm. He is the author of Biodiesel 2020: A Global Market Survey. His work been cited in the Wall Street Journal, the Financial Times, Biodiesel Producer Magazine, the Futurist, Fox News Radio, Reuters TV, NPR and his business has received Forbes Magazine's "Best of The Web" award seven years in a row. Thurmond speaks regularly at industry conferences and events, and is a guest lecturer at the University of Houston's "Energy and Environment" series.

The final session also includes presentations on the nutrient value of biofuel residual products and on the environmental footprint of biofuel production.

The Closing Speaker, Dr. Dwayne Beck is manager of the Dakota Lakes Research Farm near Pierre, South Dakota. Dwayne is an outspoken proponent of no-till farming systems. His diverse crop rotations concepts have helped revolutionize successful no-till farming systems around the world. Dr. Beck challenges status quo thinking and challenges producers to improve their farming systems.

The full conference agenda is found on the SSCA's website www.ssca.ca.

The website also features the SSCA's policy statements, past conference proceedings and Agronomic Fact Sheets.

combines. This has opened up the door to inter row seeding, inter row spraying and band spraying and a level off precision that we could have only dreamt about twenty years ago. The agronomic and residue management advantages of this inter row thing is tremendous and is helping to advance the system once again.

The implementation of Controlled Traffic Farming four years ago has been another big learning curve and a real brain strain to get the whole thing to work. This CTF system just goes hand in hand with No-Till/Zero-Till farming practises, it will and is taking our farm to the next level in crop production. We have now noticed a high amount of compaction happening with our now very soft productive soils. We have improved our soils that much that we have to look at other ways to stop damaging it. We have been driving everywhere over the years and evenly compacting the whole field so we did not notice the compaction as much but when we concentrate the traffic lanes and stop driving every where the transformation is amazing. CTF is a big decision to make and it really challenges your current thinking but if we want to keep advancing the art of crop production then we need to do it.

While we are continually changing what ever we do along this journey we need to monitor every aspect of what we are doing so some benchmarking tools are very important. We can monitor and measure what we are achieving if anything and then make the decisions from the information gathered. One main benchmarking tool is water use efficiency; this system was developed in the mid 80s and really lets us know how we are performing with our yields for a given rainfall during the growing season. Using this system from year to year gives me the knowledge of how much yield to expect from the given rainfall season that we have just had. With our much-improved soils we have blown the WUE numbers out of the water and continually double if not triple the benchmark numbers that we are told to work with.

Where do we go from here? I do not know but I am sure we can continue to improve our farming system. If we stop we are going backwards so lets continue this exciting path that we have taken in advancing the art of No-Till/Zero-Till.

"If we fix our soil health our fertilizer inputs will reduce dramatically as we have seen on our farm over the years, we now use 1/3 of what we used to!!"

Equipment & Technology

Our current farming system is setup on 30ft seeders and combines, 90ft SP boom spray and 30ft shrouded sprayer. All machines have 120-inch wheel centres and we run them on a controlled traffic system every year. Row spacings are 15-inch and 30-inch depending on the crops grown. We have been using GPS (VRT) and auto steer systems for many years now and every crop is inter row seeded into last year's standing crop residue. We are continually modifying machinery to do what we want it to do and to work with our soils and crops we grow.

"We are continually modifying machinery to do what we want it to do and to work with our soils and crops we grow."

We use variable rate technology, autosteer, shielded spraying between crop rows and use very little fertilizer for the amazing yields we achieve (soils are so alive after 20 years of no-till and stubble retention).

With all this technology growing crops today is really quite easy as long as it rains, but there is some very important things we have to do to get it all right!!

The first thing we need to do is stop bashing the shit out of our soil!! This seems to be the hardest thing for people to get there head around, We need to go to wider row spacings to achieve this and if seeding with a tyne we have to reduce our seeding speed. We seed with a disc to reduce the soil inversion and disturbance as much as we can. The disc we use is made in Australia; we have been working very closely with the company to improve the machine to the standard that it is today. (The funny thing everyone said is that this disc thing will not work in our soils just like No-Till would not work 25 years ago). I had much pleasure in disappointing them again!!

The second is to retain all residue standing to retain as much moisture as we can to grow the crop, the improvement in this standing residue bit is greatly improved by seeding with the disc. Standing residue protects the soil from erosion both wind and water. This residue is food for the underground world that we know very little about, without this food we will never get our soil to perform at its best.

If we fix our soil health our fertilizer inputs will reduce dramatically as we have seen on our farm over the years, we now use 1/3 of what we used to!!

The third thing is we need a rotation of crops to grow!! We grow many legumes in our rotation and this reduces the need to buy nitrogen fertilizer. We grow our nitrogen one year and harvest the nitrogen the next year. Barley and canola this year received only 40 kg/ha of urea for the season total. To achieve these results we need the GPS technology to place seed in the right place.

The fourth thing is we have to stop driving over our fields, we have to implement controlled traffic farming.

There are many more aspects to growing a crop but these are some of the most important ones if we are to succeed in our dry climate that we seem to be stuck with at the moment. We have to convert as much water as we can to grain and to do this we need the system to be complete and the soil needs to be as healthy as we can get it. ●

CONSERVATION AGRICULTURE SYSTEMS ALLIANCE (CASA) BUILDS NETWORKS ACROSS NORTH AND SOUTH AMERICA ... CONTINUED FROM PAGE 7

Juan Manuel Osorio Hernandez of the Mexican Conservation Tillage Association joined the conversation by phone and officially requested to link his group with CASA, seeking an opportunity to share information on conservation, trade and technology with NAFTA colleagues. Theodor Friedrich, who leads international conservation agriculture efforts for the FAO, also participated in the meeting, sharing both his enthusiasm for the mission and a world of experience in building conservation agriculture systems. "We also had a wonderful opportunity to gain insight from Ivo Mello, the president of CAAPAS," Scanlon says, referring to the Brazil-based American Confederation of Farmers Organizations for Sustainable Agriculture. "CAAPAS has more than 20 years of history as a network linking conservation tillage groups in South America and Canada, and is a model for us. The chance to learn from Ivo and strengthen our ties with CAAPAS allows us to link conservation agriculture groups from the Arctic Circle to Tierra del Fuego."

The growing web of international connections can strengthen conservation agriculture in North America, notes Lindley. "We've got to keep the door open so we can learn from each other," he says. "South Americans came to the United States, learned no-till, and have really perfected it compared to what we have in the U.S. But they're very open and willing to let us learn from what they've accomplished. The more we open the connections, the more we knock down cultural barriers, the better off as a whole everybody will be."

There's political strength in international ties, too. "If we can work with similar organizations across North America and across the world, it adds tremendous value to us," notes McClinton in Saskatchewan. "At that level, it may help us to resolve some of the roadblocks to policy development we have here in Canada. These things can go full circle. Influence at the international level can help us shape Canadian policy."

Monthly Calls

Most of CASA's interactions occur in their monthly conference calls, in which participants can share information on conservation agriculture technology in their areas, compare notes on programming and operations, collaborate on events and projects, and explore issues that face conservation-oriented farmers worldwide. Emails among members further the discussion, and a web site, http://www.conservationinformation.org/?action=learningcenter_commnetwork, is emerging as a tool for even more information sharing.

The network is a valuable resource for conservation association leaders who often work alone or with small groups of farmer-leaders.

"It's a feedback loop," says Russ Evans, executive director of the Pacific Northwest Direct Seed Association in Moscow, Idaho. "We're just like no-till farmers – we're willing to share the information we have, the mistakes we've made and the things that have worked so others can push the adoption of conservation agriculture at a new level."

The grassroots drive that has driven the conservation agriculture movement is driving the development of CASA, notes Lindley in Kansas.

"No matter where in the world it is, no-tillage has been producer-driven," he notes. "It just points to a stronger community if we all keep networking and communicating and sharing those experiences."

PEA-WHEAT ROTATION IN SOUTHERN ALBERTA ... CONTINUED FROM PAGE 11

break normally seems to be adequate.

Summary

Using diverse crop rotations, which include three or four different crops, is generally most desirable. However, in the drier regions of southern Alberta, the pea-wheat rotation offers a number of significant advantages. In summary, wheat yields after pea are often higher that after wheat as a result of increased soil N availability, higher amounts of stored soil water, and reduced disease potential. The need for nitrogen fertilizer inputs for pea and wheat are greatly reduced and often eliminated. From an economic and agronomic standpoint, the Pea-Wheat rotation can often be very profitable for southern Alberta dryland farmers.

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RAM Mount for Low Cost On-farm GPS

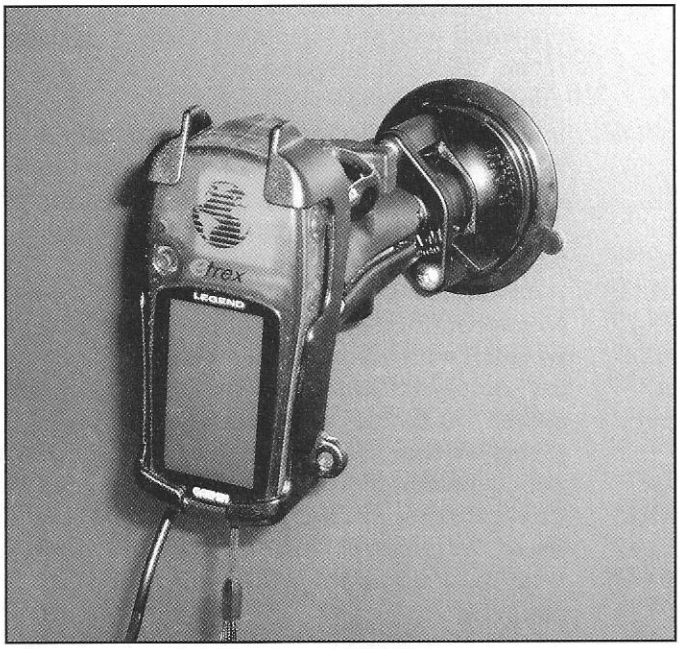
By Garry Noble
SSCA Director-at-Large

No farmer can have too many tools and shopping for new tools must be one of the perks of being a farmer. While on a short trip off the farm in July, I found a gadget in the Source electronics store that is the perfect accessory for another tool on our farm.

RAM Mounts (www.ram-mount.com) are now available from your local Source store for handheld GPS receivers. We have had a handheld Garmin Legend ($129) on the farm for a couple years. The Legend has a feature for measuring acreage which we use most often, but the little GPS has found other applications on the farm. The 12 channel Legend receiver using WAAS has a DGPS position accuracy < 3 meters.

Garmin does make a mount for their handheld, but it pales in comparison to the rugged RAM mount. We also have a handlebar mount ($17.96) by Garmin, which we have clamped on the tractor cab door handle.

The RAM mount has three components: a twist lock suction cup



($12.99), a holder for the handheld GPS ($12.99) and a double socket arm kit ($26.99). The Garmin Legend bounced around during harvest on the steering column of the combine and has made a few road trips in the van. The only occasion when the suction cup failed was on a cold glass windshield.

I finally bought a 12V power cord ($27.96) for the GPS after running out of AA batteries on the farm. The whole system costs about $250 and is very simple to move between vehicles or equipment cabs. I am curious, if and how, other SSCA members use handheld GPS on their farms. Drop me an e-mail at gnoble@ssca.ca

Found a clever tool that saves you time and effort on the farm ? Built a simple device in the shop to make a hard job easier ? There are over 700 SSCA members who read the Prairie Steward would appreciate you sharing your innovative ideas. If your story appears in the next issue, I'll talk to Blair about sending you something with SSCA logo on it, our way of recognizing your contribution to this great Association. Grab that camera, send us a photo and story. What you waiting for ?

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