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# **2000 Farm Family of the Year**

**By Tim Nerbas, P.Ag.**

## **SSCA Soil Conservationist**

On February 9<sup>th</sup>, Guy and Lucie Baillargeon were presented the Royal Bank 2000 Farm Family of the Year Award. This husband and wife team, along with their children, has been using minimum till practices for the last 20 years and has been direct seeding for four years.

Their marginal land has been seeded into forages and their low areas have been left in the natural habitat state. They have spread straw and fed livestock on their knolls as a means of increasing soil organic matter.

The Baillargeons are innovative in all aspects of their farm operation. In 1987, they started Baillargeon Chemical Sales and expanded into high clearance custom spraying.

In 1997, the family was awarded the North Battleford and Area Farm Family Award.

Congratulations to Guy and Lucie Baillargeon, proud examples of excellence in farm stewardship.

# **SSCA Award of Merit Presented to St. Onge**

**By Tim Nerbas, P.Ag.**

## **SSCA Soil Conservationist**

The process of strip-mining for coal, begun in the 1930's, has left its mark on the Estevan area: gouged land, massive piles of soil and rock, and destruction of both the vegetative cover and wildlife habitat.

The reclamation experiments of the 70's, sponsored by the Saskatchewan Power Corporation, were not going well. By 1975, mines were working at the 80-foot level and the spoil piles of undesirable material kept growing.

But in 1980, Saskatchewan Power gave a one-year reclamation contract to Ron St. Onge and good things started to happen. Ron latched on to this formidable reclamation task and made it his life's work, treating the land as his own.

And what land it was: an "inhospitable bunch of something that nobody ever described as dirt;" soil so hard it broke machinery; rocks so sharp they punctured many a tire. The equipment Ron had to use was far from state of the art. He had to cut, weld, modify, fix, and create things to keep the wheels of the project turning.

But Ron proved to be tougher than both the land and the uncooperative equipment. He's described as a person of fierce determination and persistence, a conscientious man, intuitive with a stewardship attitude. 20 years later and officially retired, Ron is still on the project. His phenomenal achievements in soil reclamation have set industry standards.

SSCA was honoured to present this year's Award of Merit to Ron St. Onge, a pioneer and leader in land stewardship.

# President's Message

**By Don Kelsey**

## **SSCA President**

In the aftermath of our conference, there were a lot of thoughts running through my mind. How do we maintain the momentum from the success of a sold out conference? How will the membership respond to our survey? How will lack of funding through the existing grant program structure affect our ability as an organization to maintain the extension work that has been so vital to the expansion of soil conservation, and improvement via changes in seeding technology and residue management?

In discussions with SSCA board members, exhibitors seemed pleased with the numbers of visitors at their booths and displays. We were pleased that the Hon. Dwain Lingenfelter, Minister of Agriculture and Elwin Hermanson, Leader of the Opposition, attended this year's conference. The SSCA executive met with Sask. Ag. and Food as a follow up to the funding announcement by Mr. Lingenfelter at our Direct Seeding conference banquet. Areas of mutual interest have been identified and negotiations are continuing to complete a contract. Further work is being done to try and expand that funding with other agencies and industry.

On February 21, a Soil Carbon Sequestration Workshop, co-sponsored by SSCA and Sask. Power, was held in Regina to update the major farm organizations and commodity groups on this issue. Issues such as the process of soil carbon sequestration, Canada's National Greenhouse Gas Strategy and the Iowa Soil Carbon trade with GEMCo were explained and discussed by the different speakers. By inviting as many farm and industry players as possible, the SSCA will continue in its leadership role with greenhouse gas issues and the relationship to soil stewardship. As John Bennett puts it, the methods the federal government chooses to use to address its Kyoto commitments, whether "a carrot or a stick" will have a major impact on how farm families are able to adapt to these changes when the Kyoto Protocol is finally ratified.

The SSCA board also met on February 21 to make decisions to address our member's concerns, and the ability of the association to impact the direction of federal and provincial governments on the issues surrounding the Kyoto protocol. Given that our current contracts will be completed at the end of March and our attempts to access other projects through ADF and CARDS where not fruitful, the board had to make budget decisions based on the provincial government's funding of \$200,000 and our SSCA reserves. We decided to maintain reserves for three years of core association activities: head office, Prairie Steward, direct seeding conference, demo plots and web site. The other decision made that will have a major impact on SSCA visibility is that, due to our financial limitations, our remaining extension staff has been offered 2/3 time employment. This will definitely lead to a reduction of their current activities. Priorities and workplans are currently being developed for the coming year. We are continuing to explore other funding options to help bring our staff back up to full time.

I would like to wish you all the best for the coming season.

# **2000 Direct Seeding Conference a Major Success**

**By Blair McClinton,**

**SSCA Assistant Manager**

1200 farmers from across western Canada and northern U.S., met at the Regina Exhibition Park, February 9 and 10, to attend the Saskatchewan Soil Conservation Association's annual Direct Seeding Conference. The success of this year's conference reflects that even in light of the poor farm economy, farmers recognize the value of attending our conference in helping them gain an edge with their crop production system.

"The purpose of the conference was to bring farmers together to get the latest information on direct seeding and how to implement these practices on our farms," says SSCA president Don Kelsey. "Farmers had the opportunity to have their questions answered by researchers, industry experts and other farmers," says Kelsey.

This year's conference featured keynote speaker was Wolfgang Sturny, an agronomy researcher from Switzerland. Dr. Sturny talked about the problems and issues around direct seeding in Europe.

The conference had seven sessions, which offered a mixture of farmers and researchers to provide both experience and first hand information. This year we also held two concurrent sessions each day providing a greater variety of information. This year's sessions covered topics on crops for the different soil zones, precision farming, direct economics, direct seeding equipment, crop rotations and emerging issues in direct seeding. Speakers talked about how to integrate all this information into a successful direct seeding system.

Once again, the informal evening "Bear Pit" sessions were well attended. There were four concurrent "bearpits": How to Start Direct Seeding, Pulses and Oilseeds, Winter Cereals and Soil Carbon. These sessions provided farmers with the opportunity to have their questions answered by experts in less formal, smaller groups.

The trade show had 80 exhibitors showing the latest in crop production technology and information related to direct seeding. The trade show continues to be a major attraction of the conference.

For the first time, Winter Cereals Canada held their annual business meeting during one of our conference sessions.

Extra copies of the conference proceedings for sale for \$10 through any SSCA staff member. Plans are already under way for the 2001 annual meeting and conference in Saskatoon.



# **A Brief History of International Response to Greenhouse Gas Emissions and Canada's Position**

**By John Bennett,**

**SSCA 1st Vice President**

This is a very brief history of what led to the international response to climate change, the position Canada took at the Kyoto Conference of Parties 3 meeting (COP3), and the progress since COP3 in respect to sinks. (It should be noted that this is largely the opinion of the writer).

Scientific opinion on anthropogenic (human induced) influence on climate change dates back to 1896 when a Swedish chemist predicted that CO<sub>2</sub> emissions from burning coal would lead to global warming. Since 1958, reliable, continuous measurements of atmospheric CO<sub>2</sub> became available from an observatory in Hawaii. In 1972, the United Nations Environmental Program was founded. The 1985, discovery of a hole in the ozone layer over Antarctica drew attention to the anthropogenic influence on the atmosphere.

The International Panel on Climate Change (IPCC) was established and issued this statement in 1988: "Humanity is conducting an unintended, uncontrolled, globally pervasive experiment whose ultimate consequence could be second only to global nuclear war."

These vents led to the Conference of Parties first meeting (COP1) in Rio de Janeiro in 1992. At this first "Earth Summit" meeting on climate change, 154 nations signed the U.N. Framework Convention on Climate Change, voluntarily agreeing to stabilize greenhouse gas emissions at 1990 levels by the year 2000. Here we are now in 2000 and emission levels are nowhere near 1990 levels.

At COP2 in Berlin in 1995, the IPCC concludes "the balance of evidence suggests that there is a discernable human influence on global climate." This was a stern warning to national governments.

COP3 was held in Kyoto in 1997. Here the IPCC scientists pointed out that the voluntary reductions agreed to at COP1 weren't working to address a very real problem and that legally binding reductions seem to be the only recourse.

COP3 had two goals: first to decrease CO<sub>2</sub> and other greenhouse gas (GHG) emissions, and secondly to increase the removal of CO<sub>2</sub>. The removal of CO<sub>2</sub> by storing or sequestering CO<sub>2</sub> in biomass or carbon sinks is covered in Article 3.3. Canada pushed for both forests and agricultural soils to be included as sinks. In negotiations, Canada was asked to pick one sink and forestry was chosen. To date, the definition of what a forest is, continues to be disputed.

Agricultural land at COP3 was listed as a source of CO<sub>2</sub> emissions because tillage emits CO<sub>2</sub>. I believe our negotiators wanted them included in the text of COP3 because they thought it would make it easier to change the status of agricultural soils from a 'source' to a 'sink' at a later date rather than introducing soils as a new issue altogether.

It should be noted here that Canada included soils as a five million metric tonne (MMT) source of CO<sub>2</sub> emissions in our 1990 inventory. Now as a result of Best Management Practices in agriculture that sequesters carbon, we have a net sink. Canada will therefore receive some credit for reducing emissions whether or not agricultural soils are recognized as a 'sink.'

Article 3.4 establishes rules for incorporating new 'sinks' in the COP3 protocol. I am convinced that Canadian negotiators are putting every effort into changing Article 3.3 to recognize agricultural soils as a sink while also using Article 3.4 to have agricultural soils counted as an offset to GHG emissions.

Canada's position on day one of the talks at Kyoto was:

- Stabilization by 2007. (an internal milestone which appears unlikely)
- 3% reduction of GHG by 2010.
- Further 5% GHG reductions by 2015.

Canada's position by the end of COP3 was an agreement to reduce levels to 6% below the 1990 levels by 2008-2012. Other participating countries agreed to the following reductions: The U.S. - 7%. The E.U. -8%, Japan -6%, N.Z. -0%, and Australia an 8% increase.

My understanding is that Canada accepted larger reductions rather than sticking to its opening position because 'sinks' were included. This was probably prudent considering Canada's geography with its huge agriculture and forested areas.

At the COP4 meeting in Buenos Aires in 1998, the text in the section 3.3 was changed from "land use change and forestry" to "land use, land use change and forestry." This is significant because Canada argued that the land use change meant changes (Best Management Practices) to agricultural land. The opponents argued that land use change meant changing agricultural land to forests. There could be an argument for Land Use as agriculture and Land Use Change could be the reforestation of marginal agricultural land. The science behind 'soil sinks' was still in debate so an IPCC special report with 800 international contributors was commissioned to study the subject.

COP5, in Bonn in 1999, saw this special report tabled and discussed. The outcome is that agricultural soils as a 'sink' will be formally discussed at COP6 at The Hague in November, 2000. The definition of what a forest is in terms of a 'sink' is still unclear.

In summary, it has taken six Conferences of the Parties to get where we are now. I am convinced that our government is doing all it can internationally to get soil 'sinks' recognized as part of the GHG solution. This is understandable when you consider that agricultural soils could

conservatively contribute 24 MMT or between 10% - 20% of Canada's emission reduction target identified at COP3.

It is time however, that our governments, both provincial and federal, recognize that the agricultural soil 'sink' potential rests solely in the hands of farmers and involve them in the issues surrounding GHG reductions.

# U.S. Carbon Storage: Land Use Dominates Carbon Dioxide, Climate

BOULDER--A new study has found that land use, far more than atmospheric carbon dioxide levels or the vagaries of climate, influences how much carbon is stored by ecosystems each year across the continental United States. Previous estimates of total U.S. carbon storage may have greatly overstated the actual levels. The results appear in the March 17 issue of the journal *Science*.

Lead author David Schimel is a senior scientist at the National Center for Atmospheric Research (NCAR) and head of the Max Planck Institute for Biogeochemistry in Jena, Germany. NCAR's primary sponsor is the National Science Foundation.

Scientists have been searching for a carbon storage mechanism, or sink, to explain why atmospheric carbon dioxide (CO<sub>2</sub>) levels are lower than expected as emissions rise. The carbon mystery is key to understanding the impact humans are having on the earth's climate.

Atmospheric CO<sub>2</sub> fertilizes plants by stimulating photosynthesis, consequently increasing forest uptake of carbon. A shorter-term and more dramatic influence on carbon storage is climate: wildfires, volcanic eruptions, drought, and El Nino episodes can alter terrestrial carbon storage annually by as much as 100% in a given year. Schimel and his team examined the effects of both CO<sub>2</sub> fertilization and climate events on U.S. carbon storage.

For the period 1980-1993, the three computer models used in the study agree within 25% that a U.S. land carbon sink resulting from CO<sub>2</sub> fertilization and climate effects amounts to 0.1 billion tons per year--about a third of the total amount of stored carbon estimated from inventory data. Uptake of the other 0.2 billion tons, the authors conclude, is due to regrowth on abandoned agricultural land or where forests were harvested before 1980.

Last year a group of Princeton University researchers, focusing on the role of atmospheric CO<sub>2</sub> fertilization, estimated net carbon uptake in the United States at levels of 1-2 billion tons, or 10 to 20 times that found in Schimel's analysis. The Princeton results indicate that carbon absorption on land is greater in the Northern Hemisphere and suggest that the United States plays a huge--and disproportionate--role in global carbon storage.

Schimel's study is part of the Vegetation Ecosystem Modeling and Analysis Project (VEMAP). His team used new, detailed historical information on climate and an ensemble of three computer models to study carbon storage in the 48 states from 1895 to 1993. All three models simulate carbon storage in soil and vegetation within natural ecosystems, and one also simulates carbon in agricultural ecosystems.

"To predict and plan for future climate change, we need to fully understand the amount of carbon being stored both in the U.S. and globally, and what controls that storage," says Schimel. "The next step is to quantify the North American carbon sink." A new and improved observing

strategy--including airborne observations, remote sensing, surface flux measurements, and computer modeling--could resolve the discrepancies between the VEMAP and Princeton estimates of carbon storage, he says.

VEMAP is sponsored by the Electric Power Research Institute, the National Aeronautics and Space Administration, and the U.S. Forest Service. NCAR is managed by the University Corporation for Atmospheric Research, a consortium of more than 60 universities offering Ph.D.s in atmospheric and related sciences.

# Carbon Sequestration: How Important Is It?

## From the NRCS Soil Quality Institute

Carbon sequestration is the removal of carbon (as CO<sub>2</sub>) from the atmosphere through photosynthesis, and the storage of carbon in plants or soil (as organic matter). The amount of carbon (OM) in the soil depends on the balance between inputs of organic matter from plants and outputs from respiration by microbes and other organisms.

How important is soil for storing carbon? On a global scale, the carbon in soil organic matter is about twice that in the atmosphere and 3 times that in vegetation. The oceans contain >10 times the amount in soil, vegetation, and air combined.

Atmospheric CO<sub>2</sub> levels have increased from 280 parts per million (ppm) in 1850 to 365 ppm in 1996. During this period, cultivated U.S. soils have lost from 20-70 percent of their native OM levels. It is believed that soil degradation worldwide has contributed significantly to the increase in atmospheric CO<sub>2</sub>.

Agriculture, forestry, and rangeland management are the only major sectors of the U.S. economy that could sequester more carbon through photosynthesis than they emit through other processes. It is estimated that through implementation of best management strategies, U.S. agricultural lands could sequester between 7 and 10 percent of all U.S. carbon emissions until new soil carbon equilibrium levels are reached.

NRCS has the technical expertise to help make this happen through programs that rehabilitate degraded lands, conserve soil, and restore wetlands. By restoring organic matter levels in our soils, we help offset CO<sub>2</sub> emissions, and we achieve other environmental and economic benefits that NRCS has always worked toward. These benefits include reduced erosion and compaction, greater water and nutrient holding capacity, and better tilth and rooting environment.

Soil organic matter levels can be increased through reduced tillage, more intensive cropping systems, establishment and improvement of perennial vegetation, and erosion control. On cropland, no-till compared to plowing reduces the amount of CO<sub>2</sub> that escapes from the soil by nearly 10 times. In many places, no-till in combination with high-residue crop rotations and cover crops will sequester the most CO<sub>2</sub>. Establishing wetlands and converting cropland to trees and grass will also sequester carbon.

An excellent, easy-to-read source of further information is "The Potential of U.S. Cropland to Sequester Carbon and Mitigate the Greenhouse Effect," by R. Lal, J.M. Kimble, R.F. Follett and C.V. Cole. 1998. Ann Arbor Press, Chelsea, Michigan.

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# Large Seeding Carts: Detrimental to Soil?

By Garry Mayerle, P.Ag.

## SSCA Soil Conservationist

Tight margins are driving prairie grain producers to use larger and larger air and fertilizer carts to supply their seeding tools. Direct seeders see the efficiencies in this trend but some are also concerned about what these heavy loads are doing to their soils.

One of the fortunate side effects of our cold winters is freeze thaw cycles. These cycles seem to eliminate the effects of soil compaction, which our counterparts in warmer climates have to deal with. Although not all experts agree that compaction is totally eliminated by these cycles, there is no evidence that shows otherwise. Vern Hoffman with North Dakota State University adds, that on expansive clay soils even rainfall can eliminate compaction. If you are concerned about tire loads causing soil compaction the best method for evaluation to date is to look for reduced crop establishment, growth, or yield. In other words if you can't see tire tracks in the crop there are probably no detrimental effects. Often, especially under dryer conditions, the crop comes up best or first in the cart tracks.

The soils with the most potential for problems with heavy axle loads are clay soils. The lower the organic matter, the more sensitive these soils will be. Also, the wetter the soils the more potential there will be for problems. Besides compaction, crusting or glazing can also occur which could really effect crop emergence. The good news for direct seeders is that direct seeded soil tends to have less of these problems. For one thing there is a build up of organic matter in direct seeded soil. This organic matter and straw residue helps to increase the weight the soil can hold up without rutting and also reduce crusting problems. The other thing is that direct seeded soils tend to be firmer and the soil in between the seed rows tends to carry more of the weight of the cart than in the actual seed row itself.

To counter these effects on problem soils Saskatchewan producers can reduce the air pressure in the tires on the seeding rigs they use. The effective soil pressure on bias ply tires is equal to tire pressure plus three  $\text{lb/in}^2$  for the stiffness or pressure of the tire. What this means in essence is that tires will squash out to cover enough area to balance ground pressure to the actual air pressure in the tire. With radial tires you only need to add one  $\text{lb/in}^2$  for tire stiffness. One of the detriments of low pressure tires is that the horse power needed to pull that cart will increase.

With this principle in mind decide what pressure you want to run the tires on your seeding rig at. Use the tire manufacturer's load charts to determine minimum inflation pressure at the maximum load that cart axle will be carrying. It is important to note here that these charts are developed based on whether the tire is a traction tire or not, whether the load is continuous or cyclical like an airseeder cart which is never run full for very long, and at what speed the tire will be run. Find a tire to match the kind of load you will be carrying with the tire pressure you want to run at. It is also helpful to note that inflation pressures listed in the air cart operators manual will be based on

the heaviest per volume material you will likely ever carry. Potash fertilizer weighs 66 lb/ft<sup>3</sup> and wheat weighs about 47 lb/ft<sup>3</sup>.

An example is the seeding rig Meier Brothers of Ridgedale set up on their farm to begin direct seeding. They farm a lot of Arborfield soils which are gray wooded heavy clay soils and can be very prone to crusting and baking if traveled on when wet. Garry Meier says they found that they could get the tire pressure of their 4-wheel drive down to 6 - 8 lb/in<sup>2</sup> with 18.4 - 46 triples. They wanted the rest of their seeding rig to follow suit so they matched the 1200 gal anhydrous tank with the appropriate tires to run at this pressure. Their Bourgault 300 bu air cart has optional oversized tires to get down to 16 lb/in<sup>2</sup>. Mark Cresswell, one of Bourgault's engineers, comments that at today prices this option would cost an extra \$2400.

Cresswell also says that most of their air seeders equipped with standard tires will be in the 20 lb/in<sup>2</sup> range. Some models come standard in the 15 lb/in<sup>2</sup> range and most of the rest can be equipped with larger optional tires that will reduce the pressure down to the 15 lb/in<sup>2</sup> range and some as low as 7 to 10 lb/in<sup>2</sup>. Bob Purton with Morris Industries says if their customers desire low pressure tires they are referred to the Trelleborg tire. This European tire manufacture suggests 7 lb/in<sup>2</sup> for no soil compaction on European soils says Purton.

Although there are no research projects to prove this summary on soil compaction, it seems that if you farm loamy or lighter land in Saskatchewan following the major Saskatchewan manufacturers' standard cart setup will virtually eliminate any concerns over soil compaction or soil structure problems. Lawrence Papworth, with Alberta Farm Machinery Research Center, says, they have not seen any problems in their tests under these conditions. If you farm clays or low organic matter clays reducing effective ground pressure on air or fertilizer carts to about 15 lb/in<sup>2</sup> will likely be satisfactory. If you're running two carts, offsetting axles and or keeping one in front of the seeding tool may also help to reduce potential soil structure problems.

# Conservation Learning Centre Activities

The CLC is gearing up for the 2000 crop season. As mentioned in the last article in the PrairieSteward, 55 acres was seeded to canola last fall. The remainder of the field will be seeded to Arrow canola and incorporate a seed treatment demonstration for the control of fungus and insects. Products will include Gaucho, Adjust, Counter, Helix, Vitavax RS, Foundation and Virosoft-BA3, a biological control for bertha armyworms.

Thanks to the efforts of Greg Perrot and other staff at PFRA in Melfort, progress is being made on plans to implement precision farming techniques on one of the CLC fields this spring. Initially, fertilizer rates will be varied in a field of Invigor 2573 canola. Several new technologies and equipment will be incorporated with respect to fungicide applications. Assistance is being provided by Ag Depot.

One new project is to evaluate the effect of copper, as well as managing for protein content, in the HRS wheat variety Barrie. An Asters Yellow disease plot will be established to monitor disease incidence in herbs. In conjunction with Simplot, work with the new Bourgault openers will be initiated. Other field plans include planting 100 acres of AC Elsa HRS wheat, 25 acres of Delta yellow peas and 32 acres of AC Metcalfe barley.

Agriculture and Agri-Food Canada will continue their research trials on disease, landscape and fertilizer rates. The University of Saskatchewan will be collecting data on the alfalfa inoculant plots. New varieties and species will be added to the forage gardens with sponsorship provided by Byrne's Agri-Service and Newfield Seeds.

Plans are still being made to finalize further demonstrations projects for the year. One field day is already planned - a collaborative effort between Ducks Unlimited, Monsanto and the CLC comparing fall and spring seeded canola. Participants will visit the Ducks Unlimited fields near the CLC and then proceed to view the plots at the CLC. The date is Wednesday, July 12, 2000. Watch for details.

With regard to the school program, the CLC is pleased to announce that the Saskatchewan Canola Development Commission (SCDC) is sponsoring the school program this year. Their commitment to educating youth about the issues in agriculture (particularly the biotechnology aspects so hot these days) fits very well with the CLC mandate. The staff at the CLC looks forward to working with the SCDC and thanks them for their support.

There are many exciting projects yet to be decided for the year 2000. Through the continued support of our partners and sponsors, the CLC looks forward to another successful year.

We thank our 1999-2000 partners and sponsors:

**PARTNERS:** Ducks Unlimited Canada, Saskatchewan Soil Conservation Association, Royal Bank of Canada

GOLD SPONSORS: Monsanto, BASF SILVER SPONSORS: Simplot, Cyanamid, Saskatchewan Canola Development Commission CONTRIBUTORS: AgrEvo, Agriculture and Agri-Food Canada, CanAmera Foods, Cargill, Cay Seeds, Dow AgroSciences, Farm Credit Corporation, Gates Fertilizers, Gustafson, K-9 Seeds, Liplha Tech, MicroBio RhizoGen, Moker & Thompson Implements, Naber Seeds, Novartis, PFRA, Philom Bios, Rhone-Poulenc, Saskatchewan Agriculture and Food, Saskatchewan Wheat Pool, SeCan, Silhouette Seeds, Value Added Seeds, Walker Seeds, Westco, Zeneca Agro and neighbours of the CLC.

The CLC very much values project funding from the Canada-Saskatchewan Agri-Food Innovation Agreement (AFIF) and the Canadian Adaptation and Rural Development Saskatchewan (CARDS) program.

# Seeding Equipment; the Next Step in the Move to Direct Seeding

Over the last few years, I've written numerous articles and talked to many farmers at great length on the importance of residue management - the first step in making the move to direct seeding. The simple fact is that, straw and chaff that is not spread widely and evenly over the field will cause seeding equipment problems.

"Once straw and chaff has been managed properly, the next step is to look at seeding equipment issues," says Mark Olson, reduced tillage agronomist with Alberta Reduced Tillage Initiative, Leduc. "Surveys and focus groups conducted by government and industry alike, reveal that one of the main reasons farmers give for not having made the switch to direct seeding or reduced tillage is seeding equipment."

There are primarily two concerns - the cost of seeding equipment and choosing the right seeding equipment for the soil types and environmental conditions on your particular farm.

"Both of these issues are interrelated, since having a costly new piece of seeding equipment that isn't the right one for the farm, is a farmer's worst nightmare," says Olson. "Interestingly, every type of seeding equipment can work - and work well - if the farmer understand the basic concepts around direct seeding and plant growth."

The cost of equipment is a inherent problem to the business of farming no matter whether it is a seeder, tractor, grain truck, or combine. The biggest question is whether this particular piece of equipment will pay for itself. New seeding technology of today is better than that of 20, 10 and even 5 years ago. In fact, Western Canada is the world leader in this area, with our seeding technology being exported to many countries around the world.

"In many of the machinery cost spreadsheets I've seen run over the last few years, the greatest determining factor in the decision to buy, lease or have the work custom done is farm size," adds Olson. "Commonly, these spreadsheets indicate that a minimum of 1200 to 1500 acres is needed to pay off a new airseeder. This cost is dependent on which options are included as well; seeders with Global Positioning System capability for things such as variable rate fertilization and seeding could cost well over \$150,000 depending on the type of opener and width of machine. All these costs add up and must be factored into the decision."

Cost savings in diesel fuel through less tillage passes can often make the annual payments on a new air seeder. Alberta Agriculture's Farm Operations Costs Guide has survey results in which farmers indicate that a single tillage pass costs between \$4.50- \$6.00/acre. This may be slightly different for each farm and will vary with tractor size, cultivator size, years payments and interest rates. However, based on these survey results, eliminating two tillage passes on 1200 acres would be a \$10,800 to \$14,400 savings, and that could cover the payment on the new equipment. Machinery cost calculators can be viewed and used by visiting the Alberta Agriculture's internet site.

"For the smaller farmer, increasing the number of acres farmed may or may not be feasible because of land availability in the area or how financially leveraged the farm is already," says Olson. "Neighbors going together to buy large, more costly pieces of equipment is becoming increasingly common but responsibilities have to be clearly defined before hand. Financial institutions will lend money for such arrangements, however, each partner will still be held accountable for the entire amount of the loan rather than simply the share or percentage of ownership of the machine."

Used equipment and modifying equipment is another solution to the high cost of equipment but it's important to do the homework before purchasing.

"Airseeder technology has improved a lot over the last 10 years," continues Olson. "DK Noble, Versatile 2000, and Edwards HD 812 hoe drills, without a lot of modifications, have been used as direct seed drills by many farmers who are just starting in direct seeding. As for modifying seeding equipment, one of the best kept secrets is taking the John Deere 9350, 9450 or International 7200 hoe drills and adding an Atom jet opener to direct seed."

# Field Horsetail

By **Juanita Polegi, P.Ag.**

## SSCA Soil Conservationist

Field horsetail, the little jointed plant sometimes described as a miniature Christmas tree, is causing concern to some producers. At many meetings this winter, questions have been asked about why this little weed seems to be on the increase and what can be done to control it. The simple answer is that once we hit a stretch of dry years it will decrease and nothing really controls it.

Dr. Doug Derksen, AAFC in Brandon said the presence of the weed is an indication of the type of soil and more importantly, the subsoil. "Field horsetail is a native plant that tends to be found in ditches or fields where the soil is sandier and the subsoil moisture is high, within 2 - 3 feet of the surface. In years of high rainfall and under these soil conditions, it seems that field horsetail flourishes," he said.

Producers are often concerned when later in the growing season, they find an area of the field where there's no crop but lots of field horsetail. It appears that the horsetail has choked out the crop. Dr. Derksen said, "In fact, it just may not have been a good environment for the crop seedlings to become established. The horsetail is adaptable and begins to grow when there's no competition from the crop". Dr. Derksen added that more research on the weed and its competitive ability is required.

Field horsetail is not an easy weed to control. Dr. Derksen explained, "The plants tend to be rather small and spindly without any leaves so there's no leafy tissue to take up the herbicide. And the stems and branches have waxy cuticles that make it difficult for herbicides to penetrate".

There are a couple of herbicides registered for suppression of field horsetail, however, it may not be worth the hassle and the expense. Before heading in to the local retailer for product, evaluate the field. If the horsetail seems most prevalent on the lighter soil or is confined mainly to the low spots in the field, it might be better to turn a blind eye to the horsetail and spend your herbicide dollar on the weeds that have greater yield-robbing potential.

# Too Wet to Seed at Tisdale??

**By Garry Mayerle, P.Ag.**

## **SSCA Soil Conservationist**

Although the northeast corner of the province got virtually all of their seed in the ground last spring, many producers would like to avoid the down time last year's wet spring meted out to them. Wayne and Rollice Gronvold kept pressing on through much of the wet spell that had most of their neighbors anxiously looking for some warm sunshine. Wayne says germination and yield on fields seeded during this wet spell was the same as crops seeded before or after this wet period, even on the Tisdale clay they farm.

Wayne attributes most of their success in these wet conditions to the build up of a good mat of residue. As long as the tractor pulling their Concord air drill will ride up on top of this mat they can keep going. They have been direct seeding for nine years now but Wayne is confident that this residue mat was there after three years of one-pass seeding. Wayne and his Dad, Rollice, do not harrow. They handle residue with a Redekop chopper on a New Holland TR, which also spreads chaff. They pull their 40 foot Concord drill with a 9150 Case IH set up with 20.8 x 38 tires (This is a 280 hp. tractor). The drill has simple 6 inch cut off sweeps on 12 inch spacing. The shanks are set up on three rows. Up until now, Gronvolds have been placing all their fertilizer as a dry blend with the seed underneath these cut off sweeps. Their on row packer tires are implement tires run at 12 lb/in<sup>2</sup>.

They farm north and east of Tisdale on degraded black to gray wooded soils classified as Arborfield heavy clay to Waitville clay loam. On one particular quarter Wayne says there was a large low organic matter area the locals call "white clay." The characteristic of this soil is that there is a very short window in which moisture conditions are ideal to till or disturb this land. If you disturb this land when it is too wet it will ball and hardened up like concrete. If you wait till it is too dry it starts cracking open, and comes up in bigger and bigger lumps. Before they started direct seeding, this area always yielded poorer than the rest of the quarter. This past year they seeded this quarter during this wet spell to AC Metcalfe barley. It came up a little thin in these problem soil areas but the yield averaged 90 bu/ac and this white clay area yielded every bit as good as the rest of the field. Wayne is very happy with the way direct seeding is getting fiber and residue back into these problem soils.

Too wet to seed for the Gronvolds is when they can't pull the drill. Wayne says last year the front duals on the 4 wheel drive continued to run quite clean. The back duals and the front castors on the air drill were picking up some mud but the tire faces was running clean. There was no problem keeping the mud residue and dirt flowing through the drill. The unique setup of the staggered Concord packers on walking beam axles enabled them to continue shedding enough mud to keep seeding. If they would have been set up in gang arrangement Wayne says they would have been a solid roller of mud. In fact the packers had so much mud build up that they shimmed down the back cylinders ¼ to ½ inch to keep the drill seeding at an equal depth front to

rear. They do keep their speed down to 4.5 mph and this gives them good dirt flow over top the seed row.

Wayne says they did see some crusting when things finally dried out but they have so much residue in their soil now that there are enough cracks for the crop to emerge. Crusting has been traditionally a big concern when seeding in wet soils in this area.

Wayne has heard often that their system will be in big trouble in a wet spring. He says that after a rain they are usually the first ones back in the field and they are seeding while the neighbors are just tilling! If they can drive the half ton across the field then seeding will go. It may not look pretty but then their system never does and we don't get paid for pretty. One difficulty is locating the soupy spots in the stubble. Rollice's memory of the location of sloughs during conventional till days comes in very handy!

# To Crop Or Not To Crop

By Bob Linnell, P.Ag.

## SSCA Soil Conservationist

Though not in the realm of Shakespeare, that is the question on the minds of many that attempt to farm in tough times. While others are looking into the possibilities of grassing down some acres, and others are renegotiating their lease arrangements to more fairly reflect the times, and their operating abilities, some are simply deciding if they can afford to plant a crop. This is not a pretty picture, and involves a lot of gut-wrenching decisions, especially when you have to consider a family and a way of life. But what's a decent law abiding steward of the soil to do? Is losing the family farm the real problem or is it the uncertainty over "what can I do" to earn a living for my family, at my age, with my education, training, or whatever.

These are all troubling thoughts that surface from time to time, and maybe they are simply a cyclical thing, or as some would believe, are the fault of Government not caring about the situation existing at a place they cannot see when they look out their windows.

Lets look at some basic facts. We have a large land base, with a small percentage (2%) of the population producing food for "the rest of us." This country has cheap food, when compared to others, and often seems removed from objectively reviewing the situation. The "central" part of the country is pressured on many fronts to keep the country together, assist other nations in relief efforts, keep a defense profile, deal with past experiences and promises, just to name a few.

Some, in the farming community say "raise the commodity prices" and we can earn a decent living. Many farmers have been investigating the production of non-traditional crops that have a demand in other parts of the world, and then get smacked in the face with high freight bill deductions. Fuel costs are rising, input cost of production are rising, and as happened in 1975, when the price of wheat and durum did rise, they saw the price of farm machinery rise 3 times over that year, and never did come back down, when the following year experienced a lowering of wheat prices.

This is a time for some "stubby pencil economics," when you get something to take scratch notes on and "get at it." Do we plant a garbanzo bean crop that has a huge potential to "save the family farm." Or do we do the opposite, let the place grow to weeds, then swath and burn the residue just before the R.M. bylaw enforcement officer assigns somebody else to do it and invoice the land taxes on your title? Either decision can be a shock and can have ramifications on your future. Enter now, the wonderful world of "what if", and see just what you are up against.

<b>Swath &amp; Burn</b>	<b>Kabuli Chickpeas (Garbanzo beans)</b>
Costs per acre	

Fuel to swath 1.00	Fuel to seed 2.00
Matches 0.05	Inoculant 8.00
Swather repairs 1.00	Seed @ 0.50/lb 70.00
	Seed treatment 2.00
	Weed control 42.00
	Combining 14.00
	Trucking 2.00
Total operating 2.05	Total operating 140.00
Revenue 0.00	18Bu @0.25/lb 270.00
Profit -2.05	if no disease or frost 130.00 If disease -- less

From the above tables, you may be better able to assess your own possibilities when it comes to planting a chickpea crop, but please remember that not all crops are completely successful every year. If seeding is delayed, there may be insufficient time to mature the crop, and markets may not exist for less than #1 product. What if a disease like (highly likely) Aschochyta hits? Do you have an alternate use market?

The secret of analyzing any crop production plan, is to figure out the contribution level of that crop, and then decide if it is an option for you on your farm.

Summerfallow, as an option should undergo the same analysis, to realistically determine what the costs are to you and your farm. It is widely calculated that summerfallow costs not only the pass across the field but in lost/gained moisture per pass. If it costs you 6 or 7 dollars per pass and you stand to lose ½ inch of moisture on each pass, can you afford to till? Remember that you have no revenue from the fallow year. Perhaps a treatment of Roundup Transorb makes much more sense to you from an economic point of view, let alone, the timing factor and effectiveness of the job.

Now, why don't we(you) try some other crops that you might plan to grow to compare?

### Crop Analysis

	Costs per Acre for Different Crops
--	------------------------------------

	HRS Wheat	2-row Barley	Durum	Flax	Canola
Fuel to seed	2.00	2.00	2.00	2.00	2.00
Seed	5.25	5.25	6.00	5.00	10.70
Seed Treatment	2.00	2.00	2.00	2.00	3.25
Fertilizer	17.75	17.75	17.75	17.75	21.80
Weed Control	15.00	15.00	15.00	22.00	17.50
Swathing					3.00
Combining	14.00	14.00	14.00	14.00	14.00
Trucking	2.00	2.00	2.00	2.00	2.00
Total Operating	58.00	58.00	58.75	64.75	74.25
Yield Est. Bu/Ac	29	43	29	18	17
Price	3.00	1.50	3.50	4.50	5.50
Revenue/Ac	87.00	64.50	101.50	81.00	93.50
Profit? /Ac.	29.00	6.50	42.75	16.25	19.25

Put your own figures into this type of figuring and see what you get. I have not put any cost of ownership, crop insurance, hail insurance, or labor, other than the cost of custom harvesting into the formulation, so you will get an entirely different set of good or bad news numbers .

So who is right? Maybe none of us are, but it is that chance of profit that motivates us to continue to crop our land every year. I am not saying that we always get a positive income figure, but if we have a variety of crops (good rotation) and watch the cost of our inputs, we stand a chance. Pride sometimes gets in the way of good sound management decisions, but we have seen some very substantial benefits of such practices as direct seeding, and thus we continue to promote it.

The rebuilding of soil carbon in our soils is an indicator that we are doing something right for our soil and hopefully our farms, and that too, has promise of good things to come in the farming game.

A few old "Rules-of-Thumb" and sayings are worth reconsidering from time to time, such as:

- 1.The most expensive weed control is none at all.

2. A dollar spent on timely weed control is worth four spent on fertilizer.
3. What emerges first on your field gets to survive best.
4. Knee marks are one of the most valuable things you have on your soil.
5. Marrying a nurse or a teacher can be a smart move for a farmer.
6. Things that can go wrong on a farm, usually do.
7. Interchangeable parts don't always.
8. Weather is always a factor.
9. Take care of your dirt; they quit making it.
10. All of us are born for a reason, but some don't discover why. Success in life has nothing to do with what you gain in life or accomplish for yourself. It's what you do for others.

# The Passing of the Torch

**Doug McKell, P.Ag.**

## **SSCA Executive Manager**

As spring 2000 unfolds new growth so will the SSCA unfold new programs and a new structure. It is also a good time for me to move on to other challenges. I announce my decision to step down as your executive knowing that I am passing on the torch to others capable of taking this organization through the next steps into future opportunities and furthering the cause of soil conservation.

For me it's time to move on. I have, for the most part, enjoyed my six years with the SSCA as executive manager. The interactions with a very supportive board and professional, hard working and creative staff will provide me with many fond and gratifying memories. I always looked forward to board and staff meetings knowing they would be productive, effective exercises. It amazes me how much can be accomplished when you have committed individuals, passionate about their tasks working together on common goals .

I am also grateful to the sponsoring agencies' representatives who have helped me guide the SSCA over the past six years. Glen Shaw (PFRA), Abdul Jalil and Ken Panchuk (SAF) always were helpful in program planning. John Hastie and Sig Guggenmoos were supportive in their roles whether they wore their TransAlta Utilities hats or, in recent years, their consultant hats. Kelly Gunsch (TransAlta) was also keen to offer support and advice. The Monsanto people - Craig Evans, Randy Christenson, Carmen Read and Aaron Chronik - were also more than supportive and very much played a hands off role in helping the SSCA achieve the success over the past six years.

Of course there have been challenges that have made my tenure not completely satisfying. My tolerance for the chore of seeking funds to keep the SSCA's extension program alive ultimately eroded my enthusiasm for this important task. If I had spent the time managing the organization that was put into creating proposals for funding I wonder where we would be at this time. It's too bad that an organization like the SSCA, with over ten years of extension expertise, has to justify their existence every three years to program committees and bureaucrats who continue to demand something that differs from previous accomplishments.

So in closing I would like to pass on to those who will carry on the torch a few bits of wisdom that I have learned over the past few years. Thank you all for the memories, it's been fun.

I've learned:

That the less time I have to work with, the more things I get done.

That no one is listening until you make a mistake.

That it may be your sole purpose in life to serve as a warning to others.

If you think nobody cares that you're alive, try missing some annual reports.

If you tell the truth, you don't have to remember anything.

Never underestimate the power of stupid people in large groups.

Never miss a good chance to shut up.

Generally speaking, you aren't learning much when your mouth is moving.

Anything worth taking seriously is worth making fun of.

Diplomacy is the art of saying "good doggie" while looking for a bigger stick.

That everyone you meet deserves to be greeted with a smile.

# Removing Forages Without Tillage

By **Juanita Polegi, P.Ag.**

## SSCA Soil Conservationist

There was a time when the only way to take out a field of hay or pasture was to work it down. Again and again and again. But for those not interested in hitching up the cultivator and burning all that fuel, there's a better way. A shot of glyphosate will do to pasture and hay stands what used to take several tillage operations. That translates into less wear and tear on equipment, less fuel used and a drastic reduction in the potential for soil erosion.

About 25 years ago, Monsanto Canada received the registration for applying Roundup Original to remove forages and kill weeds in fields of hay and pasture. Today, Roundup Transorb is registered as well. Rob Neyedley, Technology Manager - Chemistry with Monsanto said Roundup Transorb does a good job of controlling annual grasses, quack grass and perennial broadleaves such as alfalfa when applied at the proper rate and time. "When Roundup Transorb is applied at a rate of 2.0 L/ac 3 to 7 days prior to the last cutting or grazing, we see very good results," he said. Since Roundup Transorb has no effect on the feed quality, pasture may be grazed 3 days after the herbicide has been applied and hay may be cut within 3 - 7 days of the application. The hay is then baled when it reaches the appropriate moisture level.

In 1998, Ernie and Mervin Springer from Leslie used Roundup Transorb on an old stand of alfalfa. Ernie liked the dry-down of the herbicide. "We found that using the Transorb made it easier to get the alfalfa down to a moisture level that was good enough for storage".

John and George Loeppky farm near Foam Lake. They applied Roundup Transorb to an alfalfa hay field in July 1999. John said they were generally pleased with the results. "The Transorb did a good job. We could have been cutting by the 3<sup>rd</sup> day but rain came along and we weren't able to get on the field until about the 5<sup>th</sup> or 6<sup>th</sup> day. Although the hay didn't have a very good colour, the cattle are eating it well". John indicated that the field browned off completely, with only a little alfalfa coming back. He worked the field for the first time near the end of August and liked how well the alfalfa worked up. "The field worked up better than if we had only cultivated it because the roots weren't holding onto any dirt", he said.

Applying Roundup Transorb to old forage stands enables direct seeders to remove the forage without tillage. Producers have 2 options for applying the Transorb. The first is Pre-harvest : applying 2 L /ac just prior to the second cut.

The second is in the fall: applying 1.5 - 2 L/ac in the fall ensuring there is atleast 8 - 10 inches of active growth.

In both cases, 1.0 L/ac may be needed in the spring to clean up the few remaining survivors but may not be necessary with a strongly competitive crop.

At the SSCA Annual Conference held in February, Ken Sapsford suggested that following an alfalfa stand, a competitive cereal crop (such as oats) could be seeded directly into the sod. The oats could then be sprayed with a broadleaf herbicide to control any alfalfa regrowth and any perennial broadleaf weeds. If sclerotinia hasn't been a problem in the alfalfa, another option would be to seed a Roundup Ready variety of canola directly into the sod.

Taking forages out of production is a lot easier now that an application of roundup Transorb can do the work of many tillage passes. The forages are eliminated, perennial weeds killed and the field isn't left vulnerable to the forces of wind and water.

For more information on using Roundup Transorb on forages, contact your local Monsanto Farm Business Manager or call the Monsanto Help line at 1-800-667-4944.

# Seed Quality - How is yours?

By Tim Nerbas, P.Ag.

## SSCA Soil Conservationist

It's not news to anyone that the economic situation is tight this year on many farms. Producers are trying as many cost-cutting techniques as they can, including the use of more bin-run seed than usual. Many seed labs are reporting both variable germination rates and variable seed-borne infections. For those of you wanting to ensure good plant establishment, some simple precautions can make a big difference to your bottom line.

First, send your grain sample away for a germination test. This is a very cost-effective measure. There are a number of accredited seed laboratories from which you can choose. For a list of these laboratories contact your local rural service center.

Second, determine your seeding rates. This can ensure the most important aspect of the production year: getting the crop out of the ground at a proper density.

The first step is to obtain your 1000 kernel weight. You can do so at no cost. Simply count out 1000 seeds and measure their weight in grams. Your seeding rate should take into account seed size because it varies between both varieties and years. We also need to take into account seed mortality. Often this runs between 2% and 3%, but it can be higher under adverse environmental conditions.

Seeding rate can be calculated as follows:

$$\text{Seeding Rate (lbs./ac)} = \frac{\text{Weight of 1000 seeds (in grams)} \times P^*}{\% \text{ germination less expected mortality}}$$

Third, many producers had ascochyta blight in their field peas in 1999. The safest way to establish a healthy field pea crop is to seed ascochyta free seed. But for many producers this is not an option in 2000. Therefore send your field pea sample to an accredited laboratory that can inform you about the level of seed borne infection. As a rule of thumb, up to 10 % ascochyta infected seed will not significantly affect plant establishment or yield, especially if you can promote quick emergence. Unlike lentils and especially chickpeas, field peas have a much lower risk of ascochyta transmission from the seed to the seedling. For lentils up to 5% ascochyta-infected seed will not significantly affect plant establishment or yield as long as soil conditions promote quick emergence and good seedling vigour. For chickpeas no level of ascochyta-infected seed should be used.

Finally, there are a number of seed treatments that are considered to provide young field pea seedlings with some added protection. The following seed treatments are available for the control of seed rot and seedling blight: Captan (30% captan, Norac Consept), Agrox (15% captan

fungicide plus insecticide, Norac Concepts), Apron (methalaxyl for control of pythium and downy mildew, Gustafson), and Thiram (75% thiram for control prevention of seed decay, seedling blight, and damping off, Gustafson). See the "Guide to Crop Protection 2000" for mixing with rhizobium and other restrictions.

So take some time to examine your seed. It may be the most important farming activity you do in 2000.

# Slow Release Fertilizers

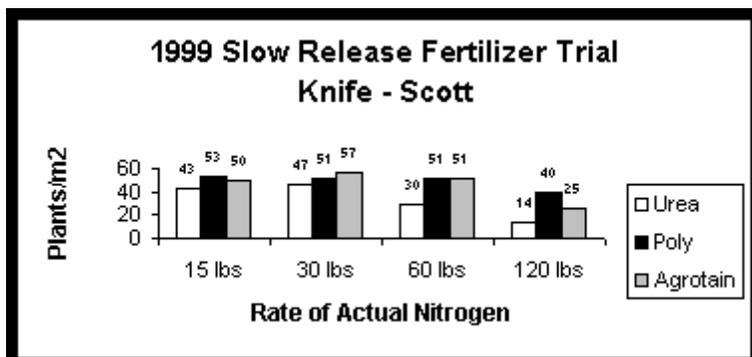
By Eric Oliver, P.Ag.

## SSCA Soil Conservationist

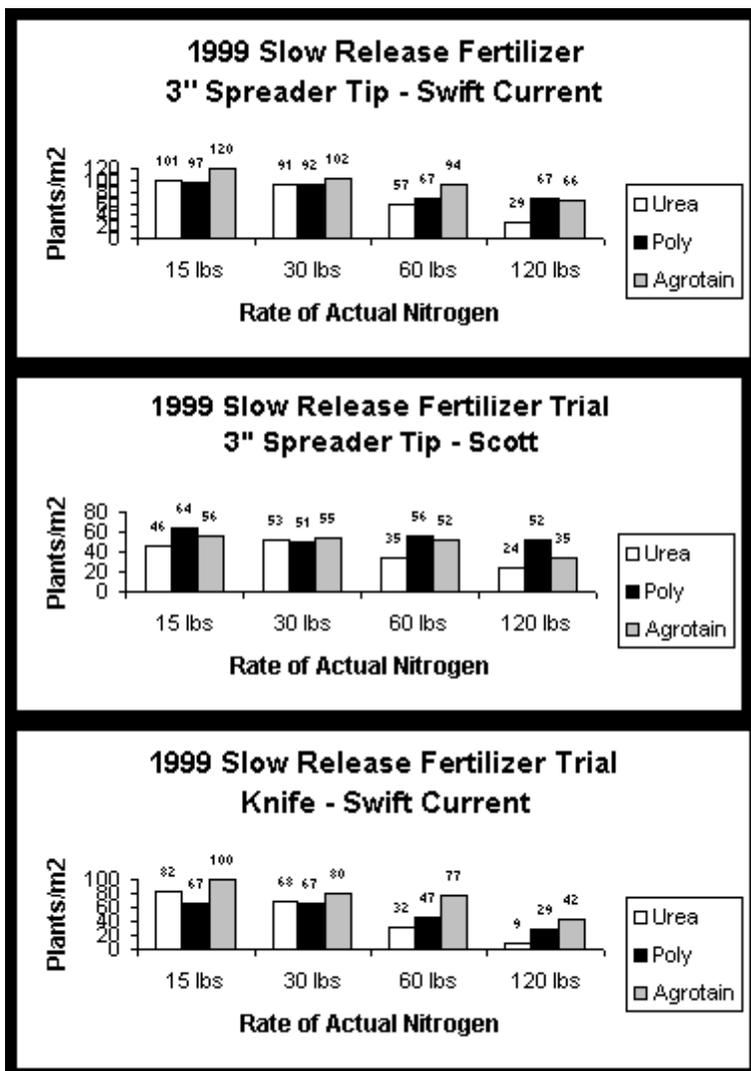
One of the perennial problems farmers have when using a single shoot seeding system and want to seed place their fertilizer as a single pass operation at the time of seeding, is getting enough fertilizer into the ground without damaging the seedlings. If one is using a sweep with a good spreader boot, this isn't an issue, but if you are using a low disturbance opener like a knife or spreader tip, you are limited on how much nitrogen can be seed placed. The amount of nitrogen that can be seed placed will depend on a few factors like soil texture, available soil moisture and row spacing. However, a slow release fertilizer can provide an option for farmers who have narrow single shoot openers.

There are two types of slow release fertilizer, one that is becoming commercially available on a limited basis and the other is still in the testing stage. The commercially available one is called Agrotain and is a urease inhibitor type. This means that the urease inhibitor is sprayed onto the fertilizer at the blending plant and this chemical on the fertilizer, slows the conversion of urea to its plant available form. By slowing the release of urea, there is less likelihood of seedling damage by giving time for the plant to establish roots. The second type of slow release fertilizer has a polymer coat. This polymer coat forms a physical barrier that slowly breaks down to release the nitrogen.

Ken Sapsford and I conducted two replicated trials, one at Swift Current and one at Scott. Ken also conducted some demonstration plots using only the Agrotain type of slow release fertilizer at the Kernan Research Farm near Saskatoon and also at Kindersley. We compared four rates at 15, 30, 60 and 120 pounds of actual nitrogen per acre, using a 3/4-inch knife and a 3-inch spreader tip on 9-inch row spacing. Crop establishment at Scott was rather low due to some factors like seeding depth, but establishments at Swift Current were at desirable levels. We were aiming for an establishment rate of 80 plants/square metre. In all cases, the crop establishment was less with the knife as compared to the 3-inch spreader tip. This is not an unusual phenomenon since there is more in-row competition with the crop in a narrow seed row versus a wider spread.



When comparing urea and the slow release fertilizers used in this study, they all had acceptable crop establishment numbers up to 30 lbs/ac of actual nitrogen (N) in both the knife and spreader tip openers. However, when 60 lbs/ac of actual N was placed with the seed, the urea significantly reduced the crop establishment. The Agrotain and polymer coated nitrogen at this rate did not reduce the crop establishment at all at Scott with either opener. At Swift Current, the crop establishment was the same at 60 lbs/ac of N with Agrotain with either opener, but the establishment was reduced with the polymer-coated nitrogen. At the 120-lbs/ac rate of urea, you essentially had a leisurely walk to each canola plant. However, at Scott, although the Agrotain establishment was significantly reduce, the polymer coated nitrogen still had acceptable establishment numbers when using the 3-inch spreader tip opener. At Swift Current, both the Agrotain and polymer coat had acceptable establishment numbers using the spreader tip. At both sites, the knife had poor establishment.



We certainly enjoyed exceptional precipitation during the 1999 growing season. However, even though there was likely some buffering of the impact of the nitrogen on the seedlings in 1999, I believe that some trends are evident. The results indicate that a producer could likely double the

rate of nitrogen that are suggested in the Guidelines for Safe Rates of Fertilizer Applied with the Seed as put out by Saskatchewan Agriculture and Food when using one of the two slow release fertilizer products. The 3-inch spread looks like a very good compromise, especially with the low disturbance spreader tip that was used. However, advantages are also there for very narrow openers like knives or disc openers. Although this study was conducted on canola, benefits for cereal crops would also apply. There is also a possibility of a higher potential for protein, but there needs to be more study in this area. Agrotain is the only slow release fertilizer commercially available at this time and it is quite expensive. However, there is research presently taking place that will result in lowering the cost of this product. Slow release fertilizers are not going to result in producers rejecting double shoot openers, however, there is a place for this type of fertilizer for producers who will never apply more than about 50 lbs/ac of actual N. It allows them to continue using low disturbance openers, which tend to have much lower draft and often lower capital cost as well. It is one more tool producers will be able to use in making direct seeding work in their situation.

# SSCA Member Survey Results

By Blair McClinton, P.Ag.

## SSCA Assistant Manager

The SSCA sent out a mail survey to its active members in late January asking them to prioritize SSCA's activities in the event of program cuts. There was a good response to this survey with over 28% of the members surveyed responding. We would like to thank everyone who took the time to participate in this survey.

We identified eight activities within the survey and left space for members to add additional activities. The eight activities listed are:

1. Annual direct seeding conference
2. Regina direct seeding field day
3. Seager Wheeler direct seeding field day
4. Local information meetings (25-50 people)
5. Local field tours of farm operation (10-20 people)
6. Local tour of SSCA established plots (25-100 people)
7. Dealer sponsored meetings with SSCA presentations (50-200 people)
8. Kitchen Table Meeting (5-15 people)

A numerical ranking system was setup to analyze the results. The results were scored on a scale of one to ten (Table 1) where the highest ranking received the highest score (i.e. rank 1 = 10 points). No response was scored as zero. Since only eight activities were listed, a score of 3 would typically be the lowest rank unless additional activities were added.

Table 1. Scoring system to analyze survey results.

Ranking (1 highest)	Score
1	10
2	9
3	8
4	7
5	6
6	5

7	4
8	3
9	2
10	1
No Response	0

Table 2. Ranked scores for the different activities listed in order of highest to lowest priority.

Activity	Average Ranked Score
Conference	9.1 <b>(1)</b>
Tours of SSCA-seeded plots	6.7 <b>(2)</b>
Local meetings	6.4 <b>(3)</b>
Dealer meetings	6.2 <b>(4)</b>
Regina field day	6.1 <b>(5)</b>
Local field tours	5.5 <b>(6)</b>
Seager Wheeler field day	5.2 <b>(7)</b>
Kitchen table meetings	4.7 <b>(8)</b>

An average score was determined for each activity (Table 2). The results of this survey clearly show that our members rank the annual conference as our highest priority. The differences between the other activities are not as great reflecting the variability in our member's views. However, it appears from this simple analysis and from evaluating the distribution of the responses, that local information meetings, tours of SSCA-seeded plots and presentations at dealer meetings were ranked medium to high priority. On the other hand, local field tours (half-ton tours) and kitchen table meetings were ranked low.

The results for the two large field days show two schools of thought, either high priority or low priority. When these field days are ranked high, they tended to be given either the 2<sup>nd</sup> or 3<sup>rd</sup> highest ranking (behind the conference). However, when they were ranked low they tended to be ranked 7<sup>th</sup> or 8<sup>th</sup> (lowest ranking). The responses for the Regina field day show that greater proportions of the members rank it high than rank it low while there is a relatively even split in opinion on the Seager Wheeler field day. However, 75% of the respondents rated both field days the same, either both high or both low. In this subset, member's opinions were split down the

middle on whether these are high or low priority events. Of the remaining 25% of responses, 18% rated the Regina day high and Seager Wheeler day low, and 7% rated the Seager Wheeler day high and the Regina day low. This could be interpreted as meaning that they support large field days but only find them valuable if they are held at the 'right' location. If this is the correct interpretation then around 63% value field days and 37% don't value them, indicating a medium priority item.

#### Unsolicited Notable Comments (#times mentioned in brackets)

Several members ranked or commented on other activities. The most common themes given priority are informing members through the newsletter (7), web site (1) and mail (1), and information/lobby on the carbon issue (10). In addition several mentioned the need to develop low-input/cost management systems (4).

Some other items mentioned were: retain all staff, keep all activities, increase memberships, fall seeding, eliminate the conference because its too expensive.

There were also several comments that it was difficult to prioritize our activities either because they were not familiar with all of them or because they felt all activities had value.

#### Conclusions

Based on the good response to the survey, it is fair to say that our membership values our activities and is concerned about the SSCA. With our provincial events, the conference is highly valued while the large field days were valued less. With our regional activities, activities that involve larger groups, like tours of SSCA plots, information meetings and dealer meetings were given a higher priority than smaller activities like kitchen table meetings and half-ton tours. Since several members took the effort to mention the newsletter, we should consider it a priority to keep our members informed through the newsletter and web site. For the same reason, the carbon issue should also be a priority.

The survey results are being incorporated into our future program plans starting in April.

# SSCA Staff Changes

There have been a few staff changes within SSCA in the past few months. Marilyn Martens started with the SSCA in February as Office Manager. Marilyn steps into the position left by Claire Neill. Claire was on staff as the office manager since 1994 and will be missed by all those who worked with her.

Ken Sapsford left the SSCA at the end of February to become a plot manager of agronomic plots with the Plant Sciences Department at the University of Saskatchewan. Ken has been a Soil Conservationist with SSCA since 1994. Prior to 1994, he served as the west central regional director for SSCA. Ken's knowledge and dedication to soil conservation will be greatly missed by the Association. Due to financial constraints, this position will remain vacant for the foreseeable future. The remaining regional staff will be adjusting their regions to accommodate this area.

Due to financial constraints, as of April 1, 2000, SSCA's remaining five regional staff positions will be reduced to 2/3 time. The SSCA board's priorities are to have the staff focus on the conference, the Prairie Steward newsletter, the web site and field demonstrations. The large Direct Seeding Field Days, held prior to Farm Progress Show and at the Seager Wheeler Farm have been discontinued. However, the Seager Wheeler Historic Farm may still continue the "Seeding Trends" field day on their own.

# To Till or Not to Till?

By **Juanita Polegi, P.Ag.**

## SSCA Soil Conservationist

To till or not to till is the question many farmers are posing this winter as they face the coming spring. As margins become tighter, finding the least costly method for getting the crop into the ground and growing is essential. For that reason, pre-seed tillage is getting a second look from some producers. At some of the meetings we've attended this winter, we've heard a few producers say that they're not going to bother with pre-seed burn-off this spring because it's "too expensive". Instead, they'll make a couple of passes with the cultivator prior to seeding and get the volunteers, winter annuals and annuals that way.

When we hear these statements, of course, the alarm bells go off. It may seem that the cost of a couple of tillage passes prior to seeding is less than going to the local dealer and purchasing Roundup. But when you pencil out the two systems and consider the trade-offs, there's a difference.

Darwin Kells, Farm Business Rep. with Monsanto Canada, figured out the cost of two passes with the cultivator in the spring (Table 1) vs. the costs of running a sprayer with 0.5 L/ac Roundup Transorb in the tank (Table 2).

Table 1 Cost of Tillage (cost/acre 2 passes)

Fuel (\$2.50/gallon)	\$2.50
Labour (wages @ \$10/hr)	\$1.00
Wear (shovels, tires, etc.)	\$1.00
Depreciation	\$1.30
Oil, air filters, etc.	\$0.20
Repairs	\$0.50
Total	\$6.50

Based on a Ford 936 tractor and a 40 foot Bourgault cultivator

Table 2 Cost of Spraying Pre-Seed Roundup(cost/acre)

Fuel (\$2.50/gallon)	\$0.15
Labour (wages @ \$10/hr)	\$0.08
Wear (nozzles, tires, etc.)	\$0.20
Depreciation	\$0.40
Oil, air filters, etc.	\$0.10
Repairs	\$0.10
Roundup Transorb (0.5 L/ac)	\$4.90(SRP*)
Total	\$5.93

Based on a JD 4555 tractor and a 100 foot Brandt sprayer

\*Suggested Retail Price

In terms of cash and fixed costs, the difference between the herbicide and the tillage is \$0.57 in favour of the herbicide. But more than the cash costs need to be factored into this equation. With each pass of the cultivator, 1/2 inch of soil moisture is lost. An additional inch of soil moisture is lost for every 10 days winter annuals, early emerging annuals and volunteers are allowed to grow in the spring. As for wild oats, two passes with the cultivator, at best, will achieve only 60% control. And leaving the soil bare leaves it vulnerable to the forces of the wind.

In contrast, an application of Roundup at 0.5 L/ac will maintain the soil moisture and achieve 90% wild oat control. In addition, the fields are readied for seeding more quickly with a one pass application of Roundup than 2 passes with the cultivator. And of course, the sprayer doesn't pull out stones like the cultivator. Standing stubble or stubble worked once last fall will protect the soil against wind erosion.

Pulling out the cultivator early this spring means you don't have to visit the dealer to buy product up front. However, in the long run, an application of Roundup will reduce fuel usage, achieve good weed control, reduce the risk of early spring moisture loss and reduce the risk of erosion. With fuel prices on the rise and much of the province short on soil moisture, hitching up the cultivator may not seem so attractive after all.