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Wet Conditions Challenge Seeding Equipment at Field Day

By Blair McClinton

SSCA Assistant Manager

Wet, sticky, heavy clay soil and heavy residue is what the companies demonstrating at SSCA’s Soil Conservation Field Day found at the site located four miles north of Indian Head on highway 56. These wet conditions, typical of seeding conditions in eastern Saskatchewan this spring, provided a definite challenge for the equipment being demonstrated on June 20. The 800 farmers who attended seemed to really appreciate seeing the equipment operate under the tough seeding conditions faced by farmers every year. We had comments from both farmers and agricultural researchers that these were the most realistic conditions we have had for our field day.

Once again, there were two separate direct seeding demonstration areas on site. In the main seeding area, the thirteen seeders were on hand to demonstrate their ability to direct seed into standing stubble. In the second seeding area there was a demonstration of the lone entry in the farmer modified contest. The two seeding areas, with a total of 14 different seeders, were the most popular demonstrations as people crowded around equipment jockeying for a better view.

A unique feature of the SSCA field day were the May seeded plots of canola and wheat. Eleven commercially available seeders seeded these plots to provide a comparison of crop establishment for the field day. These plots gave producers the opportunity to not only see the seeders working on that day but also see the results from each seeder a month after a crop was seeded. Dr. Adrian Johnston, Melfort Research Station and Blair McClinton, SSCA, gave a guided tour of the May seeded plots to around 150 interested farmers. Many other farmers viewed these plots at their own leisure. Plot information is available at the main sign for anyone interested in looking at these plots. There will be another tour of these plots during the Indian Head Zero Tillage Field Day on July 25 or 26.

The demonstration site is also the location of two other research trials. It is one of five locations in Saskatchewan of an Ag. Canada/PAMI Direct Seeding Opener Trial. Gord Hultgreen, PAMI and Guy Lafond, Ag. Canada, were on hand to explain the experiment and answer any questions. The Indian Head Agricultural Research Foundation are using this site for a high disturbance vs. low disturbance direct seeding trial. Doug Derksen, Ag. Canada and Judy McKell, SDAF, were on hand to explain the plots.

The residue management demos were also well attended. Farmers were very interested in how the residue management equipment would work in field conditions. Organizers unrolled bales of unthreshed wheat to simulate harvest conditions. Each combine made several passes to
demonstrate uniformity of the spread. Many farmers realize that residue management is the first change they need to consider in their seeding system.

Spraying equipment was also demonstrated at this year's field day. The spraying demonstration featured both high clearance and field sprayers. In addition to the sprayers, Rogers Engineering demonstrated their liquid fertilizer "Pulse Bander". This machine injects liquid fertilizer using high pressure (5000 psi) nozzles instead of using a traditional soil openers.

Overall, the organizers were pleased with how the field day turned out. The organizers would like to thank all of the field day suppliers and participants who have helped to make this field day a success.
Top School of Ag. Paper Wins SSCA Membership

By Ken Sapsford

SSCA Soil Conservationist

Congratulations to Jody Rysavy of Glenside for having the top term paper in the School of Agriculture's SL SC 24 - Soil Conservation and Land Quality class. For his efforts Jody receives a three year membership in the Saskatchewan Soil Conservation Association. The class is taught by Mike Grevers of the Soil Science Department at the U of S. The majority of the papers were written on wind erosion, next water erosion. However the top paper by Jody Rysavy was written on soil salinity.

Jody's paper describes what causes soil salinity, possible cures and what he is doing on his own farm to stop it's spread. "Soil salinity has been and will always be a concern for producers of any field scale crop. If preventative measures are not taken, soil salinity can result in many acres of lost or marginal production. Some areas of the province have already fallen to this "silent white blanket", but with careful management practices, these "patches" can be prevented.

As a management practice Jody states "Barley is probably the most common crop planted in problem areas because it can grow in moderate to severely saline soil. The best way to manage moderate salinity problems is to establish a heavy cover crop, and do as little as possible to disturb the soil surface." With this in mind direct seeding has a positive fit manage saline soils. "Some areas have too much salt to grow any commercially viable crops. In these cases, a ground cover forage or grass is used. Some of these include Altai Wild Ryegrass, Slender Wheat Grass, Salt Meadow Grass and Tall Wheat Grass.

Jody continues to explain his own farm management for salinity. "the largest area of salinity (on his farm) is an artesian discharge, the water recharge may be several miles away. Just finding the general recharge area would be hard enough, let alone trying to convince the owner farming it to plant high water usage crops. The solution to this problem unfortunately now lies with myself, trying to manage the problem that is already there rather than preventing the cause.

If crops that are less tolerant to establishment in saline soils can be planted now, they will not have too much problem germinating at the present time. Later when the salinity has increased they would be harder to establish. By planning ahead I hope to prevent a big mess in the future." Jody hopes to seed the area to forages in the future to prevent the spread of the saline area.

Jody concludes with "There unfortunately no quick cure for salinity, good management skills are needed to work with patches already formed. If the water table can be kept as far away from the surface as possible, the probability of salinity is reduced greatly."
Flexibility Key to Rotations

By Juanita Polegi

SSCA Soil Conservationist

During the course of our winter series of meetings, the benefits of direct seeding and crop rotations were 2 topics that always generated good discussion. Esterhazy area farmer, Art Pask, a panellist at one of the direct seeding meetings spoke on the benefits of direct seeding to his own operation and the crop rotation he employs.

Art's first experience with direct seeding occurred in the fall of 1982 when he seeded winter wheat. He describes his seeding implement as a "Wilrich airseeder with 3/4" worn out little spikes". After seeding, he spread the fertilizer.

Art grew winter wheat until 1986 when he had severe losses due to rust. However, his direct seeding of winter wheat into a variety of stubble with good success proved to him that direct seeding was a viable option.

Meanwhile, although Art wasn't direct seeding his spring crops, he had greatly reduced his tillage operations. He says his last year of "recreational tillage" occurred in 1979. By 1981, he began to band NH₃ in the fall and then seed the following spring.

In 1989, Art purchased a 42' Victory Seed-o-vator air seeder. At the time, it was equipped with 16" sweeps. Over the years, he has reduced the sweep width to 8" on 14" centres, using steel on-row gang packers. Art says this system "leaves a fair bit of black soil around the seed but that helps with emergence - especially in springs such as the ones we've had since 1992. The exposed soil probably encourages extra weed growth but it does help the crop to get a good start".

As for weeds, Art doesn't feel he has any more problems than any of his conventionally seeding neighbours. The wild millet is no longer a problem. Although he still has some wild oats and quack grass, these are very manageable. As for scentless chamomile, he hasn't seen an increase in its presence since his move to direct seeding. Art says if he can catch the scentless chamomile with Roundup before it bolts, it, too, is manageable. A preharvest application of Roundup seems to be doing a good job of controlling the Canada Thistle.

When asked about the benefits of direct seeding, Art is enthusiastic. He says he noticed the soil becoming more mellow after 2 years of direct seeding. After 5 or 6 years, the soil improved even more. Art likes the "tonnes of slime" that come with direct seeding after about 3 years. The slime he refers to is the earthworms. The earthworms feed on the trash assisting in its breakdown to organic matter. As the earthworms work, they release N. Art feels this extra N made available to the crop in July or August enables the crop to give a little extra in yield. Art maintains "It's this 'bank account' of stratified residue and earthworm activity that makes the whole system pay".
Included in Art's crop rotation are canola, semi-dwarf wheat, flax, oats and about 15% of the acreage is seeded to forages. The forage crops consist of alfalfa, crested wheat grass and timothy grass. Art has a couple of reasons for growing timothy instead of Bromegrass. He really dislikes the brome because of its creeping nature. The timothy, in contrast, "stays put". He feeds the timothy hay to his cattle and is able to sell some of it into the horse feed market.

Art really likes oats in the rotation. He finds the mellow soil following an oat crop is ideal for seeding canola. The oats also do well on the eroded knolls and they add much fibre to the soil. Like so many other direct seeders, flax serves as Art's "clean up" crop.

Art feels the fault of his crop rotation is that it is not diversified enough. However, because he has so many stones and rocks to contend with, he can't justify growing peas and lentils and then paying for stone damage to his equipment.

When planning a crop rotation, Art advises "Watch the futures market, be aware of potential pests and plan accordingly. Flexibility is the key to rotational success".
No-Till Canola Production: Profitable or Not?

By Marv Fenrich

SSCA President

There is an on-going question in my mind that has not been answered to date. Over the long term, is zero till canola production on stubble as profitable as on conventional summerfallow? If one were to ask a canola producer in the moist dark brown region of Saskatchewan you would get a mixed reaction that would end up favoring summerfallow production as the clear winner. I would like to challenge this bias and try to present the pros and cons of the two systems.

Conventional Summerfallow

On June 3, a small area received a heavy rain shower just after the canola had emerged. On June 6, a strong NE wind developed and the pulverized soil began to blow. By June 7 the canola will have to be reseeded because of severe wind shear and to stop the soil erosion. To complicate matters, the land will be exposed to wind erosion for an additional two to three weeks. Fortunately this is an isolated incident covering a small but not an uncommon sight over the years. A dry loose seedbed on summerfallow in 1995 will go down as a much bigger problem for sure. Many producers have gone to the spread and till approach and there are many complaints of poor emergence as of June 10 with some areas receiving no rain yet this spring. Poor wild oat control on trifluralin treated soil has also plagued our area for the last three years. There appears to be no clear answer to this one other than cold soil conditions in the spring. This is somewhat ironic since black summerfallow is supposed to warm up early to activate trifluralin. High stinkweed populations are always a threat as this weed prefers a firm moist seedbed similar to canola.

The most disturbing trend that I have witnessed is the call for high rates of nitrogen from soil samples. This spring, I viewed one rest result called for 70 lb. of N for normal growing precipitation. I will admit that this is the worst one that I have seen in some time but 30 to 50 lb. is common. Depletion of soil organic matter and leaching of soil nutrients during the fallow period appear to be taking their toll and will continue to do so in the future.

To conclude the summerfallow picture, I must be mention that the risk from spring water erosion is an on-going degradation factor that will not go away. Canola does like a low residue, warm, moist seedbed and will do very well with the extra subsoil moisture that summerfallow provides on a dry year. Most producers seem willing to risk summerfallow cropping in order to achieve that "magazine cover" canola crop that we in the dark brown soil zone don't often enjoy.

Zero Till Stubble
Straw management, in my opinion, is the most crucial management tool that needs to be performed for good canola emergence. Harvest is the time to perform an even spread of straw and chaff or you will pay dearly next spring. Weed control in zero till may not be as big a problem as previously thought since the concept of surface applied trifluralin and ethalfluralin. This is working very well in my own case in 1995. Perennial weed control can be achieved from a preharvest application of roundup. Winter annuals are controlled in the late fall. It appears that the stinkweed population in the zero till fields are much smaller and generally not a problem.

Fertilizer must be applied by fall banding or side banding during spring seeding with specialized equipment. If you are not totally confident of seed to fertilizer separation at seeding, stick to fall banding with a narrow knife. Seedbed moisture is usually very good but cool soils can pose problems in germination especially with the polish varieties. You may also be more susceptible to spring frosts as the straw covered furrow will freeze first. Overall, if the straw has been managed well you can expect a moist firm seedbed to get the crop off to a good start. However, in a dry year, moisture stress will limit yield. From a soil conservation perspective, over the long term you will not experience the soil degradation problems related to fallow cropping systems.

I have not made a lot of progress outlining the economic comparisons of the two systems but I do hope to continue this discussion in the next issue of the Prairie Steward. I will stick my neck out on the line and share with you my results with the 1995 canola crop. At this point in time our canola crops are off to a great start and we trust that there will be adequate moisture to sustain the crop. Good luck with your ’95 crops and I hope they will be bountiful.
The Right Opener Makes Direct Seeding Even More Appealing

By Garry Mayerle

SSCA Soil Conservationist

In the last few years direct seeders have expended a lot of energy trying to find the right double shoot opener. Lyle Larsen knows something about the frustration of this kind of search, try, redesign, and search again! In the spring of 94 he put a set of Swede openers on his 5000 air drill and after seeding 8000 acres he is still saying only good things about them.

Lyle and his wife Kim farm at Aylsham, 32 kilometers south and east of Nipawin. One of the features that Lyle really likes about the Swede opener is that it puts the seed into a firm moist seed bed. The other paired row openers that he has tried placed the fertilizer first and then tried to rebuild a seed bed. Invariably they dried out to the bottom of the fertilizer channel. Lyle says that when he makes the Swede opener place seed a half an inch into moisture it will still be a half an inch in moisture several days later. This has given him excellent germination.

Another point he emphasized is the low wear rate of these openers. After seeding 8000 acres he says, "these openers aren't wearing to speak of." Lyle will probably change the openers that run in the wheel tracks but the rest of them look like they will seed next year's 4000 acres too! He fully expected to change them after the first year of seeding.

After Lyle first tried the Swede openers he took a wire brush to them to shine them up and they have worked fine for him since. Lyle seeds at four mph and gets good separation of seed and fertilizer. He is especially please with crop response to nitrogen placement. When he was conventionally farming he deep banded anhydrous ammonia in the spring. He noticed crop yellowing as the plant roots went from the seed placed fertilizer to the bands. This deficiency is not noticeable with the Swede opener. He has had no major plugging problem and the bottom of the opener stays clean. In certain conditions dirt will stick to the side of the fertilizer wing but Lyle says it doesn't affect the way the opener seeds.

1992 was the last year that Lyle seeded with a press drill. He says "I got so tired of watching land blowing and trying to find moisture to put seed into that I said there has got to be a better way!" A neighbour with a Flexi-coil airdrill seeded a couple of fields for him that year and they turned out so well he was convinced about the airdrill.

Lyle says he used to seed 2800 acres with 3 four wheel drive tractors. They burned over 250 gal of diesel a day and he was still only covering 140 acres a day with a 30 ft. drill. Now he seeds 4000 acres with two tractors -a 195 hp MFWD tractor pulling a 39 ft. airdrill, and a sprayer tractor. He averages 185 acres seeded a day. Lyle says proudly, "With 3700 acres in the ground I still haven't used up my second 1000 gallon tank of fuel!"
Less stress at seeding time is another major advantage of direct seeding. Lyle says, "with the drill and the sprayer, which operates only part of the time, there is less machinery to service and keep organized in the field."

To add to these benefits Lyle is convinced direct seeding is good for his land. He farms a mixture of soils. Some of it is sandy to peaty land. Lyle says this is the only way to farm peat land. He also has some loam and some with more clay content. He says even after only three years of direct seeding his ground takes less draft to seed into. The hardest pulling field he seeded this year was a piece of conventionally tilled summerfallow he just took on. In comparison the stubble 'worked nice'.

Direct seeding hasn't been all a bed of roses for Lyle. Besides the frustrations of finding the right opener, dandelions have also been a difficult weed problem. Lyle feels he may have the solution with post harvest Roundup. It appears to have sure worked good on the fields he sprayed last fall. He is also considering purchasing a four wheel drive high clearance sprayer. He is hoping to put a lot of Roundup on in the fall and avoid the need for spring burn off. There may be some problems but Lyle wouldn't consider going back to conventional farming.
Openers : The ultimate Secret In Direct Seeding

By Bob Linnell

SSCA Soil Conservationist

This spring has been one of "get to know your Machine" in much of the direct seeding world. To date, there has not been a spring quite like it when it comes to the actual performance of openers on air seeders and air drills. Most operators will persist in using what they bought or were sold, good or bad under these tough seeding conditions. Mother nature did have fun with us this spring. Some parts of the province were too dry while others had a tad too much moisture at the start and it continued to get worse. This was complicated with late, cool conditions and many farmers tried to go with what they thought they knew best.

The high humidity conditions also played havoc with fertilizer applications once they did start to roll. A lot of good farmers attempted to limit their potential losses on such crops like Canola, by making sure they had a least some sulphur in the mix. This proved to be difficult, when combined with a fairly heavy product like phosphorous, pushing the densities of some of these mixes to around 65 pounds to the cubic foot. Some fans did not have the capability to push that large amount of dense product to the openers, while successfully delivering seed and fertilizer to the openers. The openers were under pressure to adequately separate seed and fertilizer for seedling safety and still operate under less than perfect field conditions. This must have driven research and development engineers wacky with the number of calls coming to the factories that make the "wonder" openers.

The "old time" farmers used to say the most valuable factor in producing a crop was the dirt on your hands at the right time. Boy, Did they ever get that right this spring. It should be a heck of a crop this fall for some farmers. I ran across a farmer that spent enough time digging the dirt out of his plugged openers that he "named" each shank. He didn't tell me what the names were, but I guess some of them were not fit to print anyway. Another fellow persisted to the point of putting 2 tractors on his "proven separation" system in order to get the last of his crop in the ground, and he wasn't even in the heavy rainfall or flooded area.

Most of what I have been saying comes back to what the SSCA has been telling farmers that come to the field days and direct seeding schools throughout the year. "There Is No One Best Opener for all soil types and farming conditions". That is not to say that a great deal of work hasn't been done by manufacturers and engineers to design the best that they can. This always means a certain amount of money needs to be expended on R & D in all situations, big or small company notwithstanding. What works under 9 years of "normal" conditions doesn't always work under the 10th when it suddenly turns "abnormal".
What is needed here is reliable testing done by a PAMI group or several field years of practical experience tests to determine the limits of the opener under most conditions. This is not always possible when a new opener comes to market from a small manufacturer or even a bigger "rushed" manufacturer. The questions begs to be asked, from the point of view of the potential purchaser, "How do I as a Farmer, Know what Opener Is best for My Farm Or Area."

The answer lies in what you expect it to do, and how you estimate or observe it will perform on soils and conditions similar to what you expect to subject the thing to. The best way to look at openers without making a purchase is a field day, followed by observing a neighbour, or by getting a manufacturer to demonstrate the unit on your own farm. A rental unit often is the way dealers will encourage you to become familiar with their machine in the hope you will actually choose theirs' and not the competition. These are all good methods to test these openers without actually buying a set for your chosen air seeder or air drill.

Next comes the money bit and you don't want to commit $70 - $80 a shank to buy something you don't want or won't work for you without being able to recapture at least some of your money. This is the quandary some people find themselves in this year. I predict you will see some openers for sale in the want ads after a troublesome year in farming, but the fight will go on to provide "The Perfect Opener". There will always be a new "wonder" opener just coming on to the market. This will be the case until some smart fertilizer manufacturer or supplier figures out how to coat or treat the product to delay release just long enough to avoid seedling damage and provide a product the farming public can afford.

Call me if you think you have figured a "better way", I'm always interested.
Designing Your Own Direct Seeding Equipment

By Eric Oliver

SSCA Soil Conservationist

Why do some farmers insist on modifying existing equipment or build equipment based on their own design when there's perfectly good equipment already on the market? Well, the reasons can be as varied as the farmers who undertake such projects. Very often, economics are the driving force behind some projects. Many farmers are either unwilling to make such a large investment in a commercially made machine or simply do not have the cash flow to justify the purchase. Some farmers are still unsure of the direct seeding technology and do not want to make a large capital investment until they gain more experience in the system. In other cases, there simply is no machine or opener currently available on the market that works to the farmer's satisfaction on his land. These same reasons are also the motivation that fuels farmers ingenuity and has often resulted in a commercially marketed component or machine.

Tom and Owen Cairns, a father and son team from Coronach, are two farmers who have designed and built their own 50 foot air drill to suit their farming conditions. Their unique design allows for flexibility, yet ensures good penetration, even under adverse soil conditions. In addition to these reasons, economics also played a big role. As Tom Cairns noted, "At the time we built our seeder, most new 50 foot air drills cost around $100,000. Ours cost between $25,000 and $30,000." The Cairns built the drill during the winter of 1993 and have used it for three seasons now, seeding about 3800 acres annually.

The air drill consists of six, eight feet four inches wide sections. Unlike other air drills, the sections are not connected directly to each other. Instead, they are each attached to the main frame running horizontally above the sections. The sections are connected so that they can move up and down as well as laterally, each section moving independently of each other. Another innovative design feature is that due to the way the sections are connected to the main frame, the sections are pushed, not pulled through the soil. This provides downwards pressure to ensure adequate penetration.

The Cairns have also used some commercially available components on their air drill. They are very happy with the packing system based on the Concord pneumatic tire system. The secondary manifold system is from Morris and they have added sensors on each run. A monitor in the tractor cab monitors all 60 runs and can show which run is having a problem. They originally designed their own shank with Bourgault 450 pound trips. Due to some opener problems, they changed to a Bourgault C shank and trip system. The row spacing is 10 inches and the shanks are 40 inches apart, providing very good residue clearance. The distance from front to back is less than 11 feet which helps to maintain uniform depth control over uneven ground. The opener they used this year was a four inch Key Ag chrome sweep so they could apply fertilizer with the seed.
Since Tom and Owen farm on some hilly land, skewing is always a problem. To reduce this they added a coulter at each end of the drill and probably more importantly, modified the front castors. They have incorporated an assembly on each castor which operates like a trip mechanism to keep the wheels running straight. When a certain pressure is reached, the castor can rotate. This dramatically reduces skewing on most side hills, yet allows the machine to make sharp turns.

The air tank is a modified Frigstad with 75/65 bushel capacity. The Cairns have changed the mounting hitch and carriage of the tank to the seeder so it is stronger and prevents skewing when the outfit is backing up. The metering wheel for the air tank was moved to just in front of the tank. An oil pump was mounted on the wheel which drives the metering system. The wheel is tied into the main hydraulic system so that as the seeder is lifted, the metering wheel automatically lifts off the ground first. The wheel touches down first when the seeder is lowered into the ground.

Tom and Owen are firm believers in the direct seeding system now that they have several years of experience. They have also noticed a dramatic reduction of weed problems on their direct seeded fields. As Tom noted, "Anyone who direct seeds with lower disturbance can expect 50 to 75 per cent reduction of weed problems in their direct seeded fields in the first few years."

Modifying existing equipment can be a viable option to change from a conventional method of farming to direct seeding. Modifications do not necessarily have to be as elaborate as the Cairns. There are also modifications one can undertake on existing equipment that can allow it to direct seed. Some of these will be profiled in upcoming issues of the Prairie Steward.
Looking For a True Zero Till System for Marginal Lands?

by David Shortt

SSCA Soil Conservationist

Perennial forages is a true zero till system that many farmers have practiced over the years but not realized it. Forages enhance organic matter accumulation, reduce wind and water erosion, enhance wildlife and contribute to soil building processes. After initial seeding land converted to forage production tillage operations are no longer needed allowing roots to develop creating organic matter in the soil.

However in the past after initial seeding forage stands would become unproductive in a few short years. In order to regain productivity fields would be rebroken then reseeded back to forage only to repeat the cycle again in a few short years. During the year of breaking intensive tillage was used to kill out the forage. Unfortunately this left the field open to wind and water erosion and also broke down the organic matter created during the previous years. Forage fields are zero till but they are also a continuous cropping system. All farmers are aware that adequate fertility levels must be maintained in a continuous cropping system. So too do forage stands require proper fertilization to maintain their productivity. When a grass forage stand becomes unproductive it is generally due to a lack of fertility not to the age of the stand. Studies in Alberta have shown that smooth bromegrass hay fields remain productive for over thirty years with adequate fertilization.

With the recent registration of glyphosate to kill out the hay stand, followed by seeding with a low disturbance seeding implement, tillage can be eliminated from forage stands when they need to be rejuvenated. This greatly reduces any chance for serious wind and water erosion to occur on predominately marginal lands.

In the late nineteen seventies there was approximately 25 million acres in native grassland in Saskatchewan, by the early nineteen nineties only 16 million acres remained. The nine million acres that were cultivated could be defined as marginal for the reasons of salinity, topography, stones, sand, or sloughs.

With changing grain prices and higher production costs these nine million acres could be converted to true zero till acres in Saskatchewan if seeded to forages.
The Health of Our Soil: Are We Too Complacent?

By Doug McKell, SSCA Executive Manager

Funny thing about our value system. I wonder how much warring and unrest there would be in the world if we put the same value on the soil as we do on such things as oil, automobiles and the places where we spend our leisure activities. Maybe it's a good thing the soil isn't valued as such. If it were, we would certainly be literally under the gun to defend our world class soil.

But do we take our soil resource too much for granted? Given the droughts of the late eighties, the degraded state of most prairie soils and the growth of soil conservation programs you would think the health of the soil would be a top priority for policy makers and producers. Recent events prove otherwise. Last years excessive spring moisture situation in the North and East areas of Saskatchewan coupled with an open fall prompted many farmers to work down their stubble. Many were trying to open up the soil for the purpose of making it dry out sooner in the spring. Some felt they couldn't seed through the residues left after a heavy crop. Others simply had extra time on their hands and it sure was fun to spend a nice fall day on the tractor out in the field. Unfortunately these activities contribute to soil degradation.

Take a look at recent election campaigns for more proof. In Ontario and Saskatchewan the election issues focused around economics. The deficit, government spending, jobs and other fiscal matters far outweighed all other issues combined. Not much was said about programs to address environmental concerns including the health of our soil.

We struggle every day to bring the messages of soil conservation to producers. Most people are happy to listen and many have changed their farming methods to work towards sustainability. Farming to conserve the soil will mean adopting new techniques born out through new and innovative agronomic research. It also requires in most cases a change in attitude in how we view our soils. However it was suggested to me more than once this spring the only thing that would bring change to some would be another drought similar to 1988/89. What a thing to hope for!

We are not alone in our situation. I recently talked with a fellow from Taiwan who inquired about our Saskatchewan made direct seeding machinery. From what he told me they are suffering very similar soil degradation and erosion problems as have we. They are very concerned and are very interested in learning techniques to address this problem. Given their economic situation and work ethic it will not take long for them to get on top of their situation.

I also met some concerned producers from Nebraska at a Great Plains symposium this spring. They were looking at ways to influence policy makers and design programs that ensure the great plains remain healthy into the next century and beyond.
We are making headway. Farming practices have been altered significantly in the past ten years. In ten more we will see even more remarkable changes. What we must not allow, however, is to become too complacent towards soil conservation. Government, producers and industry alike need to be reminded of the importance of sustainable land management practices. Financial stability and diversification are no doubt important goals for prairie agriculture. Without a healthy soil resource, however, these goals become virtually impossible to achieve. Research programs aimed at soil conservation need to be maintained and strengthened. We cannot expect industry to pick up the tab for "common good" research such as the type that can support soil conservation. We the producers of food and the people who make policy have to do it. Let's make the health of our soil a high priority in all our program plans.
Soil Degradation a Slow Process

by David Shortt

SSCA Soil Conservationist

Soil degradation started over 100 years ago with the breaking of the sod yet its long term effects were not noticed until the 1980s when drought caused large amounts of wind erosion. At that time the general farming public became aware of the true effects of soil degradation. Looking back over the history of Saskatchewan the drought of the eighties was compared to the drought of the thirties but it appeared that the lessons of the thirties had long been forgotten.

Serious erosion is readily apparent in dry years. However degradation is continually occurring under our conventionally tilled fields. Every time a field is tilled more organic matter is broken down. The problem is that the changes from year to year are minor. If you consider that a producer farms his land for an average of thirty years there is not much apparent change to the land from when he starts farming to when he stops. However the cumulative effects of over the past 100 years has been devastating to the soil. Yet because we do not farm the land for that long or live long enough to remember that far in the past we are not fully aware of what conventional farming practices are doing to the soil.

It has been well documented that over half of the original organic matter has been lost and there are an increasing number of soil tests to requiring nitrogen fertilization on summerfallow. This indicates what organic matter is left can no longer cycle out the required nutrients for an average crop. The solution lies in changing our conventional practices and adopting practices like low disturbance seeding and other conservation practices to enhance and build our soils over the long term.
Wildlife and Agriculture - Can they Coexist?

By Patricia Flaten

CLC Manager

Can wildlife and agriculture coexist? Ask a wildlife biologist and the answer would be 'no'. Ask a grain farmer, and the answer would still be 'no'.

Are these statements an over simplification of reality? I think it is, and many biologists and farmers would agree. From the point of view of the farmer, many like to see wildlife on their land. They will go out of their way to provide habitat for a wide range of species. They see wildlife as a sign of healthy land.

I know a farmer, nearing retirement, who is building nesting sites in the middle of flat, uninterrupted cropland to increase the habitat in the area. Now, this is quite a departure from another neighbour who may be hiring the same equipment to fill a pothole or clear a road allowance to increase cropland acres and make field operations easier.

So, why do we see these extremes in practices? We can rationalize these activities based on economics and efficiencies, science and technologies, even government policies and world trade. Yet, we know what the bottom line is, don't we - that is attitude.

Attitudes are shaped by many factors. Culture, family training, peer pressure, religious beliefs, personality, academic training, and world experience affects our attitudes about everything around us.

Change has been said to be the only thing we can count on. I believe that in the next few years we will experience changes in attitudes by both the biologist and the farmer. In fact, it has to happen. Now, the two groups are further separated than is useful. In the future, land use issues will force the two professions closer together.

What will need to happen? Both groups will need to learn the objectives of the other, understand them and cooperate in finding common ground from which to find mutually acceptable solutions.

The Steering Committee of the Conservation Learning Centre created both wildlife and soil conservation as an objective for the Centre two years ago. It is an ongoing process, but because these are written objectives, the concept is becoming more recognizable in the operation of the demonstration farm.

We have learned that 'habitat' can mean many things. Some wildlife may benefit from one practice while others don't and vice versa. By doing several different things, we believe that the diversity will enhance habitat for that many more forms of wildlife. Standing stubble, brush
piles, berry bushes, trees, grass, potholes, and even parked field equipment seem to have provided habitat so far.

These discoveries are just the beginning of understanding dual-purpose land uses and management practices.
Environmental Effects of Direct Seeding

By Patricia Flaten

CLC Manager

There are many reasons why producers have adopted the practice of direct seeding in Saskatchewan. Some say it saves money. Some say it saves time for fishing. Some say it saves soil from wind and water erosion. While others say it saves wildlife.

All of us have a different perspective of what is environmentally friendly. One of the more common questions I get about the Conservation Learning Centre from non-producers is, "So, do you grow your crops organically then?" From that statement, you can readily recognize the opinion that the only way to farm in an environmentally-friendly way is through organic farming.

An interesting presentation was made at a recent Manitoba-North Dakota Zero-till Conference in Brandon. Mr. Dennis Avery, Director of Global Food Issues, Hudson Institute, Indiana, told the crowd of enthusiastic producers that in order to save world wildlife habitat, we will in fact have to increase production on present farmland.

His argument goes as follows. It is pretty well accepted that organically grown crops tend to be lower yielding. If the world population continues to rise, which we have to assume is true, then we need more food. If we need more food, either our production needs to increase through increased yields or through increased acreage. Certainly, if increased acreage is allowed, we will begin to crop the corners of the earth which we have deemed "marginal". This is exactly the land which has often been left for wildlife habitat or wildlife in co-existence with livestock.

This argument in favour of modern crop production systems, those using herbicides and fertilizers, is quite unique. But we still have to ask the question, "What are the effects of agriculture on the land, the wildlife, the air, and the water?" Researchers have considered many of these questions for a long time. At the Conservation Learning Centre, we can only look at these issues on a fairly limited scale, but we have several agencies involved in monitoring 'our own backyard'.

The longest running project is one in which greenhouse gases have been measured by students and scientists from the University of Saskatchewan. By 1996, we will have a better idea of how much nitrous oxide evolves from direct-seeded land vs. conventionally farmed land, fertilized vs. non-fertilized cropland, cropland vs. grassland, and how the landscape affects the process.

Water quality is of concern to all of us, including wildlife. The National Hydrology Research Institute is coordinating the monitoring of several potholes at or near the Conservation Learning Centre. They are measuring any contamination of surface water from all of the inputs used for crop production.
Wildlife, weed populations, and soil quality are other components which will continue to be monitored. We hope that these projects will provide a glimpse of truth as to the potential environmental advantages and disadvantages of the practices we have adopted.
Seager Wheeler Farm

By Ken Sapsford

SSCA Soil Conservationist

Seager Wheeler once said: "The soil is ours to make or mar and we should aim to leave it, when the time comes for us to pass on - in as good or better condition than when it came under our hands."

I believe Seager did this, because as I look at the soil on the Wheeler farm I find 10 to 12 inches of rich topsoil, mellow and easy to seed into.

Seager Wheeler (1868-1961) was probably the most famous farmer in the history of the Canadian Prairies. He was best known as an international prizewinner in wheat competitions and author of numerous publications on progressive farming techniques. Yet he was also known as a part time inventor of farm implements and a developer of new grain and horticultural varieties.

The Seager Wheeler Historic Farm Society was established to promote agriculture and horticulture. The former superintendent's house from the Rosthern Experimental Farm has been moved onto the Wheeler farm to become the interpretive center, gift shop, coffee shop and dining room. The old barn has been restored with a new loft floor, shingles and a paint job in it's original gray color. Future renovations include Seager Wheeler's seed cleaning plant, including some of his own seed cleaning equipment. The area around the Wheeler house is ready for the extensive annual and perennial English flower garden.

The aim of the society is to have a farm site that will give us the opportunity to see what agriculture was like in the first half of the century. This will be complemented with what is happening now, and show future trends on the farm.

On June 3, 1995 the Seager Wheeler Historic Farm Society held the second annual Seeding Trends '95. The day was very successful with numerous activities and demonstrations, including: horse plowing and seeding, gardening seminar, PFRA shelterbelt planting and a direct seeding demo with eight, farmer owned and operated, pieces of direct seeding equipment. There were also slide presentations on Bertha army worms and wheat midge as well as Seager Wheeler's life story.

There is still much work to be done on the farm site. The society plan to have it open to the public in 1996. The Seager Wheeler farm brings together the history of Saskatchewan agriculture, rural life, soil conservation and management, progress and the future of agriculture. If you would like further information on the Seager Wheeler Historic Farm Society call Larry Janzen, chairman, at (306) 232-5588.
New Commodity Association Forms

By Lee Moats, Secretary-Treasurer

Saskatchewan Winter Cereal Growers

Friday the 13th of January was a good day for winter cereals in Saskatchewan. On that day 68 people gathered in the Saskatoon Inn as part of Crop Production Week to talk about the future for these potentially important cereal grains. And the results were tremendous. Thirty-four people joined a new organization called the Saskatchewan Winter Cereal Growers and showed the doubtful that Saskatchewan farmers want winter cereals as part of their rotations.

The event was the first annual meeting of the new commodity association which had been formed by a small steering committee of interested winter cereal growers. The meeting was designed as a launch vehicle for the new group and as a method of gauging the support for the new organization. Judging by the turnout and membership sign-up it’s an easy conclusion that there is strong interest in winter cereals and having producers play an active role in realizing the potential of these crops.

The first annual meeting heard from Dr. Gary Storey and Dr. Brian Fowler on the future of fall rye and winter wheat. Dr. Storey’s message showed that fall rye has tremendous potential and provided recommendations for revitalizing the industry. Dr. Fowler also was very positive for winter wheat and outlined what he thought needed to be done to make winter wheat a viable crop choice. These presentations set the stage for discussion on the role that the Saskatchewan Winter Cereal Growers could play in developing winter cereals and the list of suggestions was a long one.

The predominant message that came from the meeting was that winter cereals needed a voice and that voice needed to come from winter cereal growers. Research, extension, new market development and general advocacy were among the main points brought forward. The many suggestions formed the basis for setting the objectives of the Saskatchewan Winter Cereal Growers which follow:

The purpose of the Saskatchewan Winter Cereal Growers is to promote the development of winter cereals (fall rye, winter wheat and winter triticale) as viable crop choices for Saskatchewan farmers. This purpose will be reached by:

1. Promoting winter cereals through education and by creating awareness of economic and conservation benefits.
2. Acting as a winter cereal advocate by working with public and private agencies and individuals.
3. Encouraging, promoting and conducting research designed to improve production practices and develop new varieties.
4. Developing new market opportunities for winter cereals.
5. Promoting sound agronomic production practices.
6. Communication with the SWCG membership and affiliating and cooperating with other agencies having similar objectives.
Direct Seeding Into Wet Soils

by Garry Mayerle

SSCA Soil Conservationist

Were direct seeders with standing stubble and heavy residue worried on May 1 because of the late wet spring we were having? Two direct seeders featured in this article were confident they could manage this kind of wet spring as well or better than conventional farmers. Garry Meier and Kelvin Grisdale both farming in northeastern Saskatchewan felt they had the flexibility in their systems to handle these conditions.

Kelvin farms black, medium to heavy clay soils with his father and uncle close to Weekes. They seed into standing stubble using a Flexi-coil 5000 air-drill. However, they do band anhydrous in the fall so Kelvin feels that the small amount of soil disturbance this operation creates will help to dry out the soil enough on a wet spring so they can seed. He says if it is dry enough for my neighbors to cultivate then I expect to be seeding. He did have a couple of fields that he didn't band anhydrous into the previous fall and he felt they might be a test for their system. However, he says he still had the flexibility to cultivate those fields to dry them out if he had to.

A number of direct seeders in the northeast feel it is important to do aggressive harrowing in the fall to reduce residue loads and even create a bit of soil disturbance. Many others are getting the benefits of direct seeding even though they are using a "two pass" system. The first pass is a low disturbance fertilizer banding operation frequently placing anhydrous ammonia. If conditions are favorable this pass is done in the fall. Roundup is usually applied just before a single low disturbance seeding pass is made in the spring. This system normally leaves a significant portion of the stubble still standing after seeding. Even though it means the expense of an extra trip over the field these producers feel extra soil disturbance is needed to warm and dry their fields out.

Garry and Glen Meier direct seed on gray wooded clay soils at Ridgedale. Garry is well known in direct seeding circles around Saskatchewan. He says direct seeders probably have more options to accommodate wet seeding conditions than conventional farmers. He and his brother Glen have developed a single pass seeding system they use to seed into soils so wet they have difficulty traveling on them with their two wheel drive spray coupe. In 1994 they gave their system a good test. Their seeding was interrupted by late May rains. They observed that they were able to seed as soon as, or quite often sooner, than their neighbours who tilled their land that spring.

Here is what they have done to make their system work: Gary says, "Seed as shallow as possible to moisture. Just scuff it in." He points out that seeding shallow reduces draft which reduces rutting and compaction from tractor slippage.

Second, reduce footprint pressure from implements and tractor tires. Gary says the biggest problem they had seeding in wet conditions last year was the tire tracks that the dealer's 1000 gal
anhydrous tank left. (The tank trails behind the air seeder.) By moving axles and increasing tire size they have gotten the footprint pressure on the ammonia tank equivalent to the tractor. They pull their forty-eight foot air seeder with a four wheel drive with triples without extra ballast giving a ground pressure of 9 psi. on the tractor.

Third, be very cautious about over packing the soil in the seed trench particularly on heavier soils. Garry says in very wet soils you need just enough pressure to form a trench over the seed. The importance of this trench is to reduce the depth of soil over the seed. If you over pack, especially in clay soils, you will get a smearing action over top the seed row that will bake, causing the seed row to dry out. This can exclude oxygen from the seed row which is essential for germination of all crops and nitrogen fixation by pulse crops. Meiers use a quick change mounted packer system. They adjust packing pressure by changing spring pressures.

Garry thinks that if your implement has fixed packing pressure you might try using openers that leave a narrower trench than the width of your packer wheel. Your packing wheel rides up on the shoulders of the trench and reduces actual packing pressure over top the seed.

Direct seeders do have options to help them deal with high soil moisture conditions. A word of caution if you want to dry out high residue stubble by cultivating it with full cut sweeps. You will probably need to make several passes with harrows to level out the piles of straw. You might be better off to do your best at seeding it in one pass.
CLC Summer Tour Opportunities

By Patricia Flaten

CLC Manager

There has been a lot of activity at the CLC once again this spring. With 40 different agencies involved in various ways, it's easy to have 6 or as many as 10 agencies present at the site in a single day at seeding time!

It is now crop tour season for anyone involved in agriculture - the CLC has a number of opportunities for touring this summer. Small groups can book tours through our office (ph. 1-306-953-2797). We also have a self-guided tour booklet available for those who would prefer to see the projects at their own pace. The third way of seeing the projects first-hand is by attending one of the public tours, which are now set for:

Thursday, July 13th @ 2:00 - 5:00 PM
Tuesday, July 18th @ 2:00 - 5:00 PM
Thursday, July 27th @ 2:00 - 5:00 PM
Tuesday, August 1st @ 10:00 AM (Special Crops, Crop Disease and Insect Focus)

What are some of the research or demonstration projects to see at the CLC this year?

ANNUAL CROPS:

* Crop Nutrition - Nitrogen placement, Variable rate fertilization, Copper, Anhydrous Ammonia applied at seeding time

* Weed Control - surface-applied Avadex (new formulations), surface-applied Edge, cleavers and dandelion control with pre-seeding burnoff mixes, field-scale application of several other herbicides and inoculants

* Annual Crop Alternatives - alternative crops garden, 3 new herbicide resistant canola varieties.

* Field-scale crops - this year include Highlight Peas, Teal Wheat, B1215 Barley, Norlin Flax, and Biggar Wheat.

PERENNIAL FORAGES:

* Species Gardens - grasses and legumes are now on display
* Establishment Methods for both Meadow Bromegrass and Alfalfa

* Grass Seed Production - 5 different species were seeded this spring for seed production

* Dense Nesting Cover - 45 acres of a forage mix have been established for 2 years

* Non-dormant alfalfa - one variety is being tested for use as a short-term alfalfa

TREES:

* Shelterbelts - several designs of one year old field, wildlife and forestbelts

* Woodlot - 3 acres were set aside last year for a newly planted woodlot

* Weed control measures - several methods are being tested and demonstrated

* Species Garden - 24 different tree and shrub species have recently been planted

With this variety of projects on site, we hope that you will want to come and visit the Conservation Learning Centre this summer - either as part of a group, as part of our public tours or as an individual!