The Newsletter of the Saskatchewan Soil Conservation Association

Issue 34 -- Winter, 2002

Retro-fit for Success

By Tim Nerbas, PAg

Conservation Agrologist

In 1999, Laurence Pellizzari had to do the same fall work as many of his neighbours. The producer banded N on his sandy loam textured soils northwest of Paynton so that he could make a single pass at seeding time. But Laurence was frustrated by the fact that he had to make two passes to get both his nutrients and his seed into the ground. Another frustration was the harrowing he had to do to get a smooth surface on the fields that were going to be seeded to canola. It seemed that this was the only method that allowed him to control seeding depth for canola to his satisfaction.

But the fall of 2000 you would not have found Laurence banding his fields. You would have found him in his shop working on his 39 foot Flexicoil 5000 airdrill. He was making a few modifications to it before it hit the fields the following spring.

Laurence Pellizzari had some ideas - ideas that he hoped would move him forward in his quest of reducing tillage.

"I wanted to make some changes and try out a one-pass system," states Laurence.

So he went to work on the shanks of his airdrill. On the 7.2-inch row spacing, for every three shanks, Laurence made the two outside shanks for seed and the centre shank for anhydrous. The seed openers are one-inch wide Harvest Technology openers (formally Atom Jet) with carbide tips. The fertilizer openers are all ¾-inch wide steel Dutch knives.

"I had the Dutch knives on the farm from a previous opener trial so I decided to use them as my anhydrous opener," explains Laurence. He was able to purchase an older anhydrous kit for a reasonable price.

He used a ½-inch hose from the metering headers instead of 3/8-inch to help reduce freeze ups. The Dutch knife is all steel so he still had a few openers freeze up. But he did not feel that the seven-inch gap to the N fertilizer was a problem. This larger gap provided complete safety for a one-pass direct seeding system.

So how did his modified unit bode in its first year? Laurence says he is pleased with his first year's results. But his system is still very new and presently he has some decisions to make.

"I feel the 14-inch gap is too great between the seed rows where the fertilizer is placed," states Laurence. "I'd like to reduce this gap to 12 inches to discourage the possibility of weed growth and evaporation. The 14-inch gap does not allow for fast enough canopy closure."

He feels the current 14-inch gap and slower canopy closure caused the greatest problem for wheat. Barley was less adversely affected and there was no problem for canola with the 14-inch gap. Phosphorus and potassium was seed placed with wheat and barley. Phosphorus and sulfate-sulphur was seed placed with canola.

For peas, he changed his seed headers so the pea seed goes down every run and anhydrous is not used.

Laurence says,"It only takes half an hour to make the change for peas."

But the positive side of the airdrill's current spacing is that the stubble from the 2001 crop year appears beneficial for a 7.2-inch airdrill to seed through. He may be able to leave stubble taller, which in turn may provide added benefits to his whole system. He didn't notice any additional weed growth where the anhydrous openers went.

Laurence did make an investment this fall to complement his modified seeding unit. For harvesting, he added a hydraulic-driven chaff spreader to his 860-MF combine. He uses a 30-foot straight cut header, 25-foot swather and maintains a straw spread of about 25 feet.

Though there may be some further modification on his airdrill spacing, Laurence is also considering seeding all his fields east and west. He hopes this will minimize the effect of the 14-inch gap from the sun's rays.

Whatever his final decisions are for next year, you will probably be able to find Laurence working and experimenting in his shop to get his new system just right. This producer may be new to the technique, but you can be sure he's up to the challenge. The benefits are just too important.

A Bad News Good News Story

By John Bennett,

President SSCA

As I called around to chat with the SSCA Directors around the province, there were a lot of good news / bad news reports. This was best summed up by Mike Kirk from Climax who said, "Things are pretty good right here but a 10 speed bike and a bag lunch in any direction will put you in the middle of a crop wreck."

This got me thinking about our farm. The good news was that late summer rains in 2000 and good residue cover gave us good seeding conditions this spring. The bad news was that May was one of the hottest and windiest in recent memory. The good news was that the early seeded crops had good emergence. The bad news was that as seeding progressed, the seeding depth got deeper and deeper in the search for moisture. The good news was that the reduced tillage trend limited the wind erosion and there was a late May rain so I seeded a quarter of Mustard at the proper depth. The bad news was that it got hot and dry, the stools started to burn off by the end of June so I went off on my annual motorcycle trip. The good news was that we got an excellent rain the middle of July. The bad news was that the same storm also brought hail and half my farm was hailed 100%. The good news was that Lotto hail paid off: (adequate coverage and a reasonable adjustment).

This meant that the bills could be paid. The bad news was that a severe flush of wild oats came with the regrowth of wheat. (What to do - spray, bale or ignore it?) We go off on another motorcycle scoot for a week. The good news is that the barley has started to regrow from the roots. Will it beat the frost? Bad news - Diamond Back moths in the country. The neighbors decide to spray. I do nothing. The good news, it rains again and the moths wash off. The bad news, I'll have to swath for the first time in many years.

Do I buy a swather or hire the neighbours? Good news, I find a straight low acre S P swather. Bad news, when I get it home, I have to repair all the repairs done previously. I start to combine and the good news is that the green pea sample isn't bleached and looks good. The bad news is that the yield is about 60% of normal (to lots of people this would be good news.) The good news is that I didn't sell it off the combine. The bad news is that the undamaged canola is ready to shatter but the regrowth is immature. Do I try to salvage the early crop or wait for the second crop? I recall the sage advice of an old neighbor: "If you don't know what to do, nothing is a good option".

Good news, the crops are ready to swath in late September. The bad news is that they are so short that I have to shave the ground. If it rains they'll be glued to the dirt. The good news, I got it combined one hour before it rained. The bad news, I forgot to tarp the truck I left in the field. The longest harvest in my memory - August 8 to mid October. The bad news is that storage and trucking will pose no problem this year. The good news is that we had no yellow mustard

contract and the prices are terrific. So there you have it - an abbreviated version of another 'typical' year. Are any two alike?

Executive Manager's Report

By Blair McClinton, PAg

SSCA Executive Manager

Who will forget 2001? While the terrorist attacks on September 11 drew the world's attention, in much of Saskatchewan, 2001 was one of the driest years on record drawing some comparisons to 1988. If there was one bright spot in this gloomy picture, it was how little wind erosion took place. Direct seeding systems, adopted by producers over the past decade, did their job in keeping the soil in place. In years like this, the years of hard work to promote conservation farming by groups like SSCA, ADD boards, PFRA and Sask. Ag and Food pays off.

SSCA did issue a few press releases this summer encouraging producers to maintain enough crop residue to prevent erosion next year. However, it did seem strange that we had to respond to comments from the federal agriculture minister suggesting that producers should use more summerfallow to manage drought. Especially when you consider the amount of time and money the federal government has spent since the late 1980s convincing producers to reduce summerfallow and adopt conservation tillage systems!

In early July, the international community agreed on how carbon sinks could be counted in the Kyoto Protocol. As part of this agreement, agricultural soil sinks will be counted. Now that sinks are officially in, we can now get down to work to develop policies to create and maintain the largest sink possible. SSCA has been discussing policy requirements for agriculture and climate change at both the federal and provincial levels. Over the next month, prior to the SSCA Annual meeting, the Association will be holding regional meetings to solicit members' views on SSCA's future role with soil sinks.

At SSCA's 2001 Annual meeting, the membership passed a motion opposing the introduction of Roundup-Ready wheat due to concerns with managing volunteer plants. To express our concerns, SSCA joined a coalition of agriculture organizations opposing registration of Roundup-Ready wheat. The members of this coalition signed a joint letter to the federal minister of agriculture stating our position. In addition, SSCA developed a position paper expressing our concerns with this technology (RRposition.htm). The SSCA board also met with Monsanto representatives to discuss our concerns.

Elsewhere in Canada, Environmental Farm Planning (EFP) is a growing trend, especially since the E. coli outbreak at Walkerton. The EFP program is a set of planning tools to help agricultural operations voluntarily reduce their environmental impacts. EFPs were originally developed in Ontario but have been modified for use in six other provinces to date. This program has been very popular with producers in the provinces that have programs. Harold Rudy of the Ontario Soil and Crop Improvement Association, will be speaking on EFPs at the SSCA's Direct Seeding Conference in February, 2002. To develop similar planning tools for Saskatchewan producers,

SSCA had hoped to receive funding through the Agricultural Environmental Sustainability Initiative (AESI). Unfortunately, our proposal was unsuccessful.

The new winter wheat project with Ducks Unlimited has allowed SSCA to refill the west central agrologist position in Saskatoon. Richard Szwydky joined SSCA in mid-September. Having one more person will strengthen our field programs, particularly in the west central region. I hope you all get the chance to meet and work with Rich in the coming months.

The Direct Seeding Conference will be held in Regina, February 13 and 14. This conference is one of the best agricultural conferences in the country. I hope to see you all there.

Seeding Winter Wheat in the Fall 2001

By Juanita Polegi, PAg

Conservation Agrologist

With the soil so dry this fall and no precipitation in sight, the decision whether or not to seed winter wheat was a tough one. Many producers who had never before grown the crop chose not to commit any acres to it this year. Some experienced winter wheat growers cut back their acreage. But there were some producers who took a great leap of faith and put some seed into the ground anyway. By the look of the fields I visited, their gamble appears to be paying off.

About the second week of October, I began visiting the fields of many of the growers involved in the Ducks Unlimited winter wheat program. My travels took me to Drake, Lemberg, Wroxton and several points in between. I was pleased that every field I visited was in atleast the 2 leaf stage and some of them had made it into the 3 leaf. The earlier the fields were seeded, the more advanced they were, especially those that received some rain about the middle of September.

To ensure winter wheat establishes successfully, 3 conditions should be met:

1. Seed into stubble
2. Seed early
3. Seed shallow.

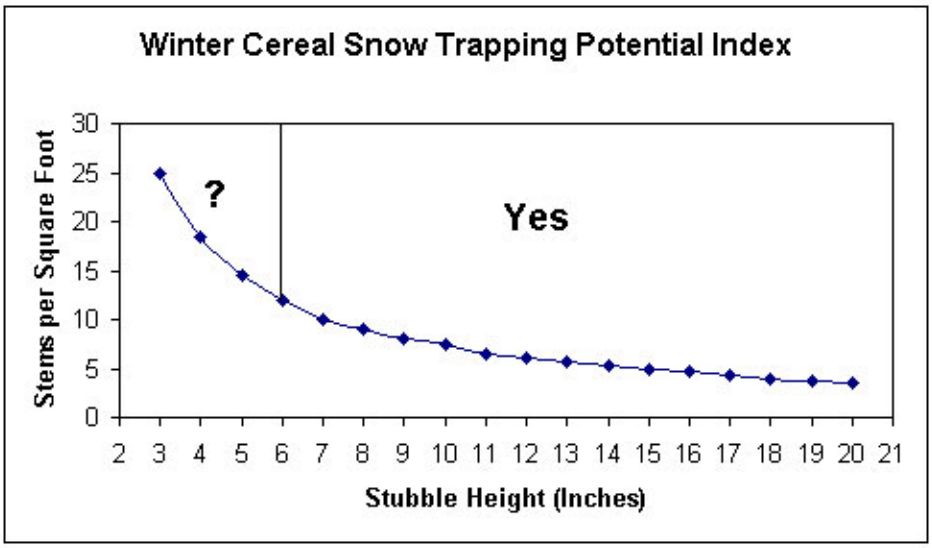
All the fields I visited were seeded into stubble with most of them seeded into Roundup Ready canola stubble. Depending upon rainfall throughout the growing season, some of the fields had more residue and taller stubble than some of the others. The snow trapping potential of a field was discussed in the Summer 2001 Issue of the Prairie Steward (page 6). Figure 1 is a graphic version of that index. Most of the fields I visited exceeded the minimum requirements.

Many of the fields I looked at were seeded in that August 20 - September 10 window although some were seeded as late as September 15. The one field seeded the 1st of September was the most advanced.

Seed shallow, seed shallow, seed shallow should be the mantra of every person operating the seeding unit when seeding winter wheat. At a Field Day this summer, Barry Fowler, a winter wheat grower with more than 20 years experience growing the crop, said that if you can't see a few seeds on the soil surface after you're done seeding, then you've seeded too deep. Figures 2 & 3 show the difference in the coleoptiles of seedlings that were seeded at the ½ inch depth versus those seeded greater than 2 inches. (The coleoptile is the sheath that protects the first leaf as it pushes its way through the soil to the surface during germination). The coleoptiles on the deeper seeded seedlings are very thin and spindly. It's taken a great deal of energy to get that leaf out of the ground. In contrast, the coleoptiles of the seedlings seeded shallow are short and thick. As

Luba Goy from Royal Canadian Air Farce would say when she's imitating Martha Stewart, "And that's a good thing!"

Figure 1.



Roundup-Ready Wheat Position Paper

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At the 2001 Saskatchewan Soil Conservation Association's (SSCA) annual meeting, SSCA's membership passed a resolution opposing the introduction of Roundup-Ready wheat due to concerns over management of volunteer plants in direct seeding systems.

Rationale

Over the past two decades, agricultural producers and agrologists have recognized the potential of low disturbance seeding systems to minimize soil erosion and increase soil organic matter levels. However, these systems did not become economically viable until the late 1980s when Roundup (glyphosate) prices were lowered, and improved seeding equipment and improved management systems were developed. Soil conservation extension and demonstration programs over the past decade have encouraged producers to adopt these practices in large numbers. Over 30% of the seeded area in Saskatchewan was seeded using direct seeding by 2000.

Direct seeding and other conservation tillage systems rely heavily on glyphosate to control weeds prior to seeding and for chemfallow. In addition, glyphosate has become the herbicide of choice for long-term perennial weed control of several problem weeds. The introduction of Roundup-Ready crops has resulted in new management considerations to control volunteer plants. This is particularly important in direct seeding systems where glyphosate replaces tillage for preseeding weed control.

Including a single Roundup-Ready crop like canola in rotations has not caused serious volunteer management problems since canola is very easily controlled by phenoxy herbicides (2,4-D, MCPA). However, growing two or more Roundup-Ready crops in a rotation increases the complexity of volunteer management. The degree of complexity is currently unknown. If Roundup-resistant weed management becomes too complex or the treatments too expensive, it is likely that, to deal with this new problem, farmers will change their cropping system back to traditional tillage systems.

Questions to be addressed

SSCA's concerns about Roundup-Ready wheat revolve around controlling volunteers with the preseeding burnoff. Unlike canola, there is no readily available and inexpensive control option like 2,4-D. To be compatible with conservation tillage systems, a low-cost, non-residual control product is needed to mix with glyphosate and glyphosate/2,4-D. In addition, there are many unanswered questions on the dynamics of volunteer wheat that need to be addressed.

1. How will seed dormancy properties affect volunteer management?
2. Will volunteers need to be controlled for only one year or two, or more years?
3. What will happen to the seeds from in-crop volunteers? Will they contribute more seeds to the seedbank perpetuating the requirement to control these weeds? In other words, will escapes continue to supply a source of resistant plants that need to be controlled?
4. Will selection pressure increase the proportion of glyphosate resistant plants?
5. How will volunteer crop dynamics affect weed control costs?
6. What is the potential for Roundup-Ready wheat to cross-pollinate a related weedy species?

The big question that needs to be answered is will the introduction of Roundup-Ready wheat provide both short and long-term economic benefits to farmers without increasing their risk? Unfortunately, this question cannot be answered until more is known about the behavior of volunteer plants.

Snow Ridging

By Garry Mayerle, PAg

Conservation Agrologist

One of the crop inputs most limiting in Saskatchewan is water. This past growing season certainly showed us how limiting it could be. A father and son direct seeding on their grain farm in northeastern Saskatchewan have done all they can to conserve water during the growing season. They are now trying to perfect a method of trapping more moisture during the winter months. This method might aptly be called snow ridging.

Wayne and Rollice Gronvold have been featured in several of the Prairie Steward issues. They farm north east of Tisdale. It seems that they have the right combination of enough new ideas, machine shop skills, perseverance, and time to continue fine tuning their production system with new innovations. This idea of snow ridging has been in the back of Rollice's mind for 15 years. In fact he built a scale model of the little V plow they are now using out of cardboard and the grandkids have been playing with it for years.

The Gronvolds had observed several different methods of trying to catch more snow by creating snow ridges. One producer they talked to had a set of small straight walled V plows that were made to mount on the back row of shanks on a heavy duty cultivator. The cultivator was pulled through the snow to create snow ridges.

Also, a number of years ago there were several farmers in the area that tried "trapping" snow. They used bulldozer blades which leave a trap about 8¢ wide. They positioned these traps every 100 to 200 feet apart in the field. The idea was only tried 1 year. Rollice blames the lack of success on the fact the traps were too wide and too far apart. He also says that there was too much dirt pushed up with the snow. The Gronvolds feel strongly that dirt in the snow creates a rapid melt. They want to see the snow melt slowly and all the water soak into the soil. They cite an example of observing several places in a field where a pass was made with a bulldozer blade several times in the same track last winter to get to an area where snow traps were ploughed along a farm driveway. They noticed that during this very dry growing season where this single track / snow trap was made, almost no crop grew.

The Gronvold's idea was to have narrower traps which did not root in the dirt at all. These traps more closely resembled ridges and they would cover the whole field not just every couple hundred feet. The idea began to take shape last fall when they noticed an old cultivator in the fence line of one of their neighbour's. Here was the frame and the shanks needed to hang the plows on. Four plows were each built to resemble about a quarter size V snow plow put out years ago by the local welding shop Hesje's Welding. They were about 40² wide at the back and curved to lift and roll the snow out creating less drag than a simple straight walled V shape.

These plows were fastened on the front of the rectangular cultivator frame with heavy duty cushion spring shanks. The back of the center of the frame was equipped to be mounted on a 3 point hitch. The 3 point hitch that the Gronvold's used was pushed with their 9030 bidirectional Ford tractor. This 105 hp tractor is hydrostatically driven and the driver's seat and steering wheel swivel so that the tractor can be comfortably driven in either direction. The plows were centered in front of the wheels on each side of the tractor. This is about 80² apart. Another plow was hung on the frame on either side of the 2 center plows. Behind each of the 2 outside plows is a wheel which is set to run along the ground for height control. Wayne ran the plows about 4² off the ground. He adjusted the angle of the nose of the plows by lengthening or shortening the top connecting arm of the 3 point hitch. This year Wayne plans to put a hydraulic cylinder in this connecting arm so that he can have on the go angle adjustment. In harder snow, he will angle the plows down so there will be more suction to keep them from riding out of the snow. Wayne ran the 3 point hitch in float position so that the whole unit ran on the outside wheels.

Travel speed was selected so that the snow just rolled off the plows to create a ridge of snow. Wayne said this was about 5 mph. If you went faster the snow smeared or was thrown further out creating less of a ridge. The desired outcome was a plowed V shaped trough that was 40² wide at the top next to about 40² of undisturbed snow with plowed ridges on either side. This pattern was created across the entire field. Each pass covered about 26 feet. Wayne said he could cover a quarter section in about 11 hours. He could go through about 2¢ of snow before the bottom of the tractor began pushing snow. Because the wheels were driving in the ploughed troughs the unit did not push that heavy. Wayne said he burnt about 120 liters of fuel per quarter section. Wayne ran at an angle from west-southwest to north-northeast. The Gronvolds feel they will catch most of the prevailing winds at this angle.

By the time Wayne had this rig ready to go last winter, it was the end of January before he was ploughing. Wayne ploughed a number of fields and portions of other fields. However, the way the winter went there was not another heavy snow storm after he had done his ploughing and all but the outside ridges on all his fields remained empty. Wayne did observe several interesting things about ridging. When he was ridging a portion of one field, he noticed that the stubble was full of snow. When he came back later in the winter before any significant thawing, the unridged portion of the field had 3 or 4 inches of snow blown out of the stubble. In the ridged part of the field, the stubble in between the ridges was still full of snow. Another field he ridged had been sprayed out dehy alfalfa direct seeded into wheat in the summer of 2000. At combining he observed that you could notice the difference in the crop between the 40" ridged strips where the extra snow was piled and the strip or trough where the plow had cut and there was less snow. Several ½ m^2 samples of crop were cut and bagged to get side-by-side yield comparisons between these strips. Colleen Kirkham, an Agriculture and Agri Food Canada employee at the Melfort Research Station, agreed to thresh and weigh the samples. She observed that the snow ridged samples appeared quite a bit more plump. See table1 for the difference in grain yield between the two strips. Of course, this data isn't statistically sound but it gives an idea of the difference extra snow made this past season. If another snow storm had filled these troughs again, there should have been extra yield across the entire field.

The Gronvolds are convinced that it is worth ridging the whole farm this year. Dr. Malhi, a researcher from Melfort Reseach Station, plans to help set up a site where a scientific evaluation can be made on the results of ridging snow.

One change Wayne would like to make to his snow ridger is to try replacing the heavy duty cultivator shanks with heavier Noble blade shanks but these shanks are hard to find. Wayne aims to be out pushing snow this winter after there is about 10² of snow. He may try ridging some fields a second time depending on how the winter shapes up.

Table 1 -CWRS wheat yield comparison between ridged snow and unfilled trough.

	Grain Yield gms / ½ m^2	
Sample #	40" snow ridge extra snow	40" snow trough snow pushed into ridge (less snow)
1	61.2	38.4
2	69.1	30.3
3	56.6	28.8
Mean	62.3	32.5

Is Summerfallow the Answer?

Eric Oliver, P Ag

Conservation Agrologist

After one of the most severe droughts on record, the temptation for some producers to bring out the cultivator and return to black summerfallow can be strong. In many areas of the southwest, we became accustomed to good moisture conditions more often than not during the 1990's. The drought in 2001 reminds us how quickly things can change in Saskatchewan. If we don't receive any amount of precipitation by spring, the temptation to pull out the cultivator will be overwhelming for some producers, especially those who may have just gotten into direct seeding or have been contemplating to start direct seeding in 2002. It is an easy temptation to fall back on.

Tillage is something most farmers are familiar with and it is often perceived as a low cost method of weed control, risk management, soil moisture storage, and in some cases, as a method of residue management. However, most producers involved with tillage significantly underestimate the cost of this practice. There are more costs than just the fuel used to summerfallow. With all the associated costs involved with summerfallowing, such as fuel, depreciation on the tractor and cultivator, parts, increased wear and tear and hours on the tractor, and lost opportunity costs with having land lying idle, it amounts to about $5.00/ac per tillage operation. The more the tillage operations, the higher that cost is.

Many conventional farmers have the opinion that chem-fallow is much more expensive than tillage. Although there are higher up-front costs such as herbicide costs, the fact is that one usually doesn't have to make nearly as many herbicide applications as the farmer will with tillage. In addition, a smaller tractor can be used on the sprayer and many more acres can be covered in a day. The overall fuel consumption will be less and the wear and tear on the tractor will be much less than that of one being used for tillage summerfallow.

Another cost rarely included with summerfallowing is its inherent high risk of erosion. Loss of topsoil due to erosion is most severe with tillage. In addition, erosion on summerfallow occurs all year round and is not restricted to the growing season (although this is certainly the time period where most of the erosion occurs). Just driving in the winter, one can readily observe soil-covered ditches downwind from a summerfallow field. Even with limited stubble, as is the case with much of the southwest this year, there is much lower risk of erosion on standing stubble and chem-fallowed fields. Even minimal stubble will trap more snow than summerfallow fields. In addition, chem-fallowed fields don't lose much soil moisture during the summer.

Although tillage will mineralize a percentage of the organic material in the soil to available nitrogen, each tillage operation loses soil moisture and releases carbon dioxide (CO_2). Release of CO_2, a greenhouse gas, will become an increasing concern with respect to Canada's commitments in reducing greenhouse emissions. Now that soil has been approved to be a soil

carbon sink under the latest international agreement, reducing tillage will become more of an economic consideration with farmers.

Without rain at appropriate times during the growing season, any farming system will not produce much of a crop. If there is no snow this winter or early spring rain, there will essentially be no soil moisture recharge. Undoubtedly, the soil moisture levels under deep-rooted stubble crops, such as chickpeas, canola and mustard will be extremely dry. Timely rains will be essential for adequate establishment of crops seeded onto the stubble of all crops under such conditions. As such, direct seeding in the southwest is not without risk. However, if fallow is being considered for risk management, chem-fallow has many advantages over tillage fallow. Granted, protein levels of wheat under good moisture conditions often tend to be lower than wheat seeded on summerfallow or on the stubble of other crops (particularly pulse crops).

Practices like greenfallowing may rectify this problem and still store soil moisture. Greenfallowing is the practice of seeding an annual legume such as field peas, silage peas, Indian Head lentils or more recently, a chickling vetch like AC Greenfix. The crop is either sprayed out, tilled under or foraged for hay or silage before it has a chance to mature. As a direct seeder, I would prefer to see farmers either spray out the greenfallow crop or cut it for forage. This usually takes place no later than flowering to flat pod stage or it is done in early July. Greenfallowing has several desirable effects. It is seeded late, allowing for the majority of weeds to emerge before a burnoff application prior to seeding. The crop is taken off relatively early, allowing summer precipitation to recharge the soil nearly as much as chem-fallow or summerfallow. Being legumes, these greenfallow crops fix nitrogen so the cereal crop the following year will likely have a protein advantage over chem-fallow. However, if it is very dry at the time you would seed the greenfallow crop, you are likely better off chem-fallowing. Under such dry conditions, the establishment and growth of these crops will be poor. Chem-fallowing would, therefore, be a more cost-effective and practical option.

For 2001, protein levels of wheat were good on both summerfallow and chem-fallow. Several farmers have told me that their summerfallow yields were better than their neighbour's direct seeded fields. While this may well be true, one also has to ask how did that direct seeded field, with a diverse crop rotation perform over the last 10 years? I would bet that the direct seeded fields have performed as good or better than the conventionally tilled fields over that time period. Many of these conventional farmers forget about how their fields crusted badly after a rain or how large areas had to be re-seeded due to the shearing off of seedlings by moving soil.

This spring I observed a lot of summerfallow fields with poor crop establishment due to the very dry spring conditions, so it wasn't just crops on stubble that had problems this past season. Will fallow acres in the southwest go up in 2002? If it is a dry winter and spring, the answer is likely yes. However, don't assume that bringing out the cultivator again for black summerfallow will be the answer. Chem-fallow and greenfallow are better options for those wanting a certain amount of fallow for managing risk.

New SSCA Staffer Introduces Himself

By Rich Szwydky, PAg

Conservation Agrologist

As the new west central soil conservation agrologist, I look forward to the opportunities and challenges that soil conservation presents. Barriers such as straw and chaff management, rotations, opener systems, fertilizer placement and weed control are factors that must be managed properly to achieve success with low disturbance direct seeding systems. My objective is to give producers strong peer and professional support as they adopt soil conservation practices that work for each individual farming operation.

My experience in the agriculture industry is extensive. After obtaining my Diploma in Agriculture and Bachelors of Science Degree in Agriculture from the University of Saskatchewan, I was involved in research and development with both the Department of Soil Science and Ciba-Geigy. These positions prepared me for the ag retail sector, where I spent the past eight years. I was actively involved in sales and operations, and provided agronomic consultation services to producers in the Wilkie and Waldheim trading areas. My position with Wendland Ag services also allowed me to conduct independent research trials. Areas of interest included micronutrient and foliar feed fertility, seed treatments and fungicide applications.

For those people familiar with the SSCA district arrangements, I will be covering west central Saskatchewan. This area includes the districts of Kindersley, Outlook, Davidson, Watrous, Rosthern, Saskatoon, and Biggar. My involvement with resources such as the SSCA Direct Seeding Conference, The Prairie Steward newsletter, the SSCA website and summer field demonstrations will hopefully provide producers with valuable information that they can incorporate into each individual farming operation. As the year progresses I look forward to meeting with individual producers at the various trade shows, meetings, and field demonstrations. Have a prosperous winter.

Is Wheat a Special Crop or an Endangered Species?

By Bob Linnell, PAg

SSCA Conservation Agrologist

In the grand scheme of things, the very valid question arises: is wheat a special crop? Considering the current trend, it may very well be a "special crop". The changes in the prairie landscape in recent years have seen the emergence of a good deal of other crop species and varieties come onto the scene, in the interest of a "good rotation". The current idea of a good rotation sees the alternate growing of broad leaf crops and annual grasses (which we call cereals.) Wheat is, after all a cereal, or in the eyes of a botanist somewhere else in the world, an annual grass.

While we are in that frame of mind and topic, wouldn't it be great if there was perennial wheat? All you as a farmer would have to do then is go out and harvest it, with no inputs. Surely, some great mind has thought of the concept, perhaps even tried to achieve it. Most to my mind and knowledge, have failed. Maybe it equates to the oceans as a source of perennial fish, and you as a fisher (person) could just go out of port each day and catch what you want or thought you needed. No one to monitor how much you caught, or even cared, ever entered the scene. (I think we are still learning about fish and fishing the oceans of the world)

Maybe we have achieved success and didn't even know it. Take the crop perennial rye grass, for instance; it already exists. Maybe we haven't recognized it as a valid food source for people, but given the choice of starvation or eating it, I think I know the obvious choice.

Now all we have to do is steer that budding young scientist in the right direction, and he will achieve stardom in the world of genetic manipulation. Or is that known as genetic modification? Heavens, we couldn't possibly allow that to happen in the world in this day and age. Who, in our world, could stand up in front of a crowd and explain the difference between a package of "hybrid" garden seed and a genetically modified garden seed? For that matter, who could take either type of produce and distinguish one from the other? I submit the number would be dang small. The consumer of the oil coming out of a vegetable oil crushing facility is in the very same boat.

The world regularly eats varying amounts of one of the three basic cereals we produce around the globe; whether they prefer wheat, corn or rice, depends on the environment, what they were taught to eat, or more likely, what was available. Usually a price is a major determining factor in the decision making process, and who knows just who is controlling those prices. A lot of the empathetically given food aid in the world doesn't get to where it was intended by the giver, without some complications. Somebody has their hand out for freight, others for handling at the dockside, or still others, for distribution to those who need it. One of the great disappointments in

this process is the intervening person or groups that feel they want that food to pass through their hands, so they can control who gets it, less of course, what they remove for their own gains. The politics of food can be an ugly thing.

Wheat was once declared to be " the easiest food in the world to grow". The key word here is "grow". According to even more recent experts all you had to do was "put a few seeds in the ground, give it a bit of water, and bingo, you will produce a food". Simply put: no problem! Today, there may still be people who can get success with that simple formula, but there are a lot of prairie Canadian farmers who believe otherwise. They now have learned that there are things like diseases that can reduce effective production to zero. You may produce some food, but not likely very much of value.

The producers of today have learned a lot from rotations. They have learned that they must conscientiously be on the alert for carryover of disease on the land and in the residue from previous crops. They have also learned that they must methodically record their crop care applications so as not to introduce unwanted crop deterrents in subsequent years. Very quickly, wheat farmers have had to learn about things such as root rot or Fusarium head blight, and what to do to negate their effect or, at least, control them, in order to produce a successful crop in a cost efficient manner. In short, wheat has become a crop as demanding to grow as one of those "special" new crops.

So, is wheat a "special "crop? The answer has got to be a resounding "yes", from the standpoint that it takes a lot more knowledge, management and a little luck to grow wheat successfully compared to when we grew it in the "good old days".

Commodity prices being where they are, a farmer must also garner a little bit of luck to get even a small margin of profit in today's world. A Saskatchewan farmer today must carry a very sharp pencil to realize a profit, while being an astute marketer and forecaster. That same farmer or farming team must also be willing to institute change in the farming operation, in order to adapt to shifting markets and stand a chance of survival in the future.

Value added production is an option to only a few who are willing to take an even further gamble into an often integrated world, using their fragile farm as a base of resource. A sharp business mind must also be developed to successfully venture into an unknown world and perceived situation where there are people who are just waiting for your new product, and will make you rich if only they can buy it. There are many pitfalls along the way that lure the unsuspecting by illusions of reward at the end of the streets cobbled with gold.

Back home, the knowledgeable wheat farmer, who has gone to a local field day and witnessed a wreck about to happen to the local wheat crop with the onset of an infestation of Fusarium, goes home and sleeps well because he knows that in order to produce a successful crop he has had to apply a crop care product at the right time and in the right amounts to put more of the success odds on his or her side.

Is wheat an easy crop, or for that matter, a simple crop to grow? I submit it takes every bit of knowledge that a farmer can gain to achieve success, along with a little bit of luck thrown in.

Is wheat an endangered species? I rather think not, especially when one thinks of the near critical situation in the world of ever more starvation-prone countries. But, if we keep diversifying into "other" special crops and away from wheat, who knows what may happen not too far into the future.

I know of farmers who grew only wheat and summerfallowed the remainder of their land not so long ago, and now grow only enough wheat to properly fill out their rotation that includes a lot of non-cereals. They have also quit the practice of summerfallow for a number of reasons and even switched over to a direct seeding system. But, that's a whole other story….

In the meantime, there is still a lot of corn to fill the gap, and we haven't even looked close at rice.

Perennial wheat might still be interesting.

New Forage Barley Varieties Choke Out Weeds

It's a potential new herbicide that doesn't come from a can or need to be sprayed. In fact, it's all natural - it's forage barley.

A team of Brandon, Manitoba researchers has discovered that barley is an effective "bioherbicide" that could drastically reduce chemical herbicide use in properly managed crop rotations.

"Basically we are taking advantage of the extraordinary growth and vigour shown by the newest types of forage barley," says Mario Therrien, a barley breeder at Agriculture and Agri-Food Canada's Brandon Research Centre. "Our investigation is showing that most annual broad-leaf weeds, such as wild oats, cannot compete with the latest fast-growing forage barley varieties."

Farmers are partially supporting this research through the Barley Check-off Fund, administered by Western Grains Research Foundation. The Barley Check-off Fund supports barley breeding programs in Western Canada, including the effort at Brandon Research Centre. The research is led by Dr. Doug Derkson, a weed management specialist at the Centre, and is also supported by Manitoba Rural Adaptation Council and Agri-Food Research and Development Initiative.

If the current results hold true over several more years of investigation, and researchers can optimize the management strategies, forage barley could help farmers save thousands of dollars annually on chemicals, says Therrien. "This could be an important approach in sustaining crop production in Western Canada."

"The only condition for using forage barley as a bioherbicide is that it must be harvested as forage, because of the timing required," he says. "This suits a lot of situations. Many producers have mixed operations or have neighbours with cattle that can use the forage."

Weeds mixed in with the barley won't greatly affect feed quality unless the field contains an unusual set of weeds, such as stinkweed or a few of the toxic weeds, he says. "In a weedy field, about 20 percent of the material can be weeds, but it's still good digestible material for the cattle."

The key to using forage barley as a bioherbicide is selecting the right barley variety and timing the harvest. "Basically, you plant a good forage barley, one that grows fast, thick and hard," says Therrien. "Then you harvest it at soft dough, when most of the broad-leaf weeds are at a vulnerable stage."

Variety selection does seem to make a difference. AC Ranger, developed by Therrien, is one of several varieties that are proving to be solid weed killers. Other varieties show less potential, he says. "We have a PhD student investigating the underlying mechanisms behind what makes some varieties so good at choking out weeds."

Forage barley works best as a bioherbicide when the next crop in the rotation is not a cereal, he says. "For example, we have found that if you have weedy field, it's best to plant barley in the first year. In the second year, plant canola, and use proper control methods for the grass weeds. In the third year, a farmer should be able to grow herbicide-free wheat."

Further research is required to optimize the management of the rotation and the growth of the barley itself. "We want to look at the best practices for growing the forage barley as fast possible in a cost-effective manner, to ensure the best weed-killing action for the buck," says Therrien.

Once researchers nail down the traits that make some barley varieties potent weed eradicators, Therrien plans to select for those traits in his breeding program. "In the future, we could see a barley variety registered specifically as bioherbicide."

For farmers, this would mean a new herbicide option that's simple and safe. "All you have to do is grow it," says Therrien.

The Barley Check-off Fund contributes over $600,000 annually to barley breeding programs in Western Canada. Breeding targets include improved agronomy, disease resistance and quality for both feed and malting varieties.

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A Tool for Planning Longer Rotations

Don Surminsky, PAg

Farm Business Agrologist, SAF

Planning rotations beyond one year can quickly become a complex process. The complexity increases rapidly with large numbers of fields and many crop options. There is a piece of software called the *Land Use Planner* which may make such planning easier.

The *Land Use Planner* is used in five basic steps:

1. List your land parcels
2. Select crop budgets. These are pre-loaded in the program
3. Assign colors to your crops and lay out your crop rotation for up to eight years.
4. Check the resulting income statements.
5. Fine tune the budgets and projections.

Steps 1 - 4 are relatively easy. Step 5 is the one where you will want to spend most of your time. It is important to adjust the budget numbers to reflect your costs and your estimates of future prices and yields.

The basic budgets were originally taken from the SAF Crop Planning Guide hence there are budgets based on soil zone and tillage practice. New budgets can be created to reflect unique circumstances.

The program treats forage, either for grazing or for hay, as a crop and endeavours to compare the returns from forage on the same basis as returns from cereal or oilseeds. While it can be used to compare different cropping scenarios, it is especially designed to project the returns when land is converted to forage for hay or grazing. The program allows the grazing benefit from uncultivated, grazable acres to be added to the grazing capacity of cultivated acres so that a true comparison can be made between the economics of cropping vs. grazing for a particular parcel(s).

Livestock enterprises can be added to the overall farm projections but their economics are kept separate from the returns to the land resulting from crops or forage.

The program is a budgeting tool and gives a simple yearly net income projection for each parcel and each year as well as a cumulative total farm net income. It does not project any Balance Sheets or Cash Flow Statements. The idea behind its use is that it allows you to easily project your rotation up to eight years. If the results of a particular scenario or change are promising, then you will want to use other programs to project a detailed cash flow to make sure the plan is possible.

The *Land Use Planner* is available free of charge at any SAF Rural Service Centre.

Nominations Due for SSCA Conservation Award Winners

By Juanita Polegi, PAg

Conservation Agrologist

Tim Nerbas, our CA at Lloydminster, heads up the Committee that accepts nominations for the Conservation Producer award the SSCA presents at its Annual Conference. The deadline for accepting nominations for the 2002 Conference is January 20. If you know someone who you would like to see added to this list of deserving individuals and families, then nominate him or her or them! The nomination form is simple and easy to complete. It might take a neighbour or two to help you remember all the great conservation-type activities in which your nominee was involved. Once that list is completed and you've listed how those activities have impacted the nominee's farm and community, you're ready to begin filling out the nomination form. To obtain a nomination form, contact any SSCA staff member and we'll get as many out to you as you want. Don't let another year go by before your friend or neighbour is nominated for recognition of his or her hard work!

SSCA Award Winners

Conservation Producer Award

The Royal Bank, in co-operation with the Saskatchewan Soil Conservation Association, annually recognizes achievements in the development of innovative approaches to soil conservation. Producers or farm families who have made an outstanding contribution toward promoting production systems that reduce soil degradation yet maintain economic viability are eligible for nomination.

2001 Ed & Marguerite Beauchesne Albertville

2000 Guy & Lucie Baillargeon Edam

1999 James Richards Yorkton

1998 Nestor & Vesper Kowalsky Richard

1997 Kelly Patrick Kelvington

1996 Ken Allport Kyle

1995 Cecil Reisner Limerick

1994 John Bennett Biggar

1993 Bernie Niedzwiedz Wynyard

1992 Noel & Diane Sylvain Cadillac

1991 Ken Getz Birch Hills

1990 Jim Halford Indian Head

1989 Art Resvick Aneroid

Award of Merit

This award is presented to individuals who have made an outstanding contribution toward soil conservation through the development of innovative approaches to soil conservation. This award is presented at the discretion of the SSCA Board. While there are no formal nomination forms, you can contact your Regional Director and suggest names of individuals you think are worthy. The Director will then take the names to the Board for consideration.

2001 Dr. Guy Lafond Indian Head

2000 Ron St.Onge Estevan