

Organic Field Day Proceedings

**Semiarid Prairie Agricultural Research Centre
July 24, 2009**

Hosted by:



**Agriculture and
Agri-Food Canada**

**Agriculture et
Agroalimentaire Canada**



**UNIVERSITY OF
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**Saskatchewan
Ministry of
Agriculture**

First Organic Field Day at the Semiarid Prairie Agricultural Research Centre, Agriculture and Agri-Food Canada

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Organic Crop Improvement Association, Chapter 8, south-west SK

Proceedings compiled by the organizers of this event:

Myriam R. Fernandez, Agriculture and Agri-Food Canada
Brenda Frick, University of Saskatchewan
Shannon Chant, Saskatchewan Ministry of Agriculture

Acknowledgments:

Melissa Boire
Wayne Galecki
Ken Deobald and his field crew
Sharon Ramsay
Barb Klaassen
Darcy Schott
Gerry Wilger
Vicki Calkins
Research Station Employees' Association
Saskatchewan Ministry of Agriculture, Swift Current Regional Office staff
All speakers

...and many others who helped to make this organic field day a great success!!!

PROGRAM

9:30 a.m. Registration, organic coffee and water in the Thomson Room.

Field tour at South Farm: starting at 9:35 a.m. Leave for South Farm in AAFC vans and private vehicles.

Mike Schellenberg: Are there advantages to introduced or native grasses, mixtures or monocultures?

Russ Muri: Alfalfa in an organic crop rotation.

Yantai Gan: Re-cropping of cereal crops on the stubble of various subspecies and classes of pulses in semi-arid environments.

Brian McConkey: Effects of low-input cropping systems on water quality, soil organic carbon, nutrients, and crop yield.

Myriam Fernandez: new 2009 organic wheat breeding trials (Fox et al.: Breeding wheat for organic production systems), and plans for new organic agronomic trial starting in 2010 (Fernandez et al.: Impact of agronomic practices on cereal and alternative crops grown under organic management methods in the Semi-arid Brown Soil zone).

Brian McConkey: Watershed study – Effect of low-input wheat production on runoff water quality and quantity.

Chantal Hamel: Creating a ‘zero input’ permanent pasture for southwest Saskatchewan.

12:00 p.m. Organic lunch at the SPARC cafeteria.

Welcome by Campbell Davidson, SPARC Research Manager.

Oral presentations: starting at 1:00 p.m. in the Thompson Room.

1:00 – 1:05 p.m. Myriam Fernandez: welcome, overview of event, evaluation form, and recognition of sponsors.

1:05 – 1:10 p.m. Trevor Lennox: greetings from the SK Ministry of Agriculture.

1:10 – 1:30 p.m. Brenda Frick: What’s new this summer?

1:30 – 1:45 p.m. Myriam Fernandez: Presentation of first organic agriculture research program for AAFC in western Canada at SPARC.

1:45 – 1:50 p.m. Organic producer (Martin Meinert) – advisory committee in support of SPARC organic research.

1: 50 – 2:20 p.m. Bob Zentner: The Scott Alternative Cropping Systems study: Economics of organic vs. conventional production methods.

2:20 – 2:35 p.m. Myriam Fernandez: Impact of organic management on *Fusarium* infection of wheat roots – ACS study at Scott.

2:35 – 3:00 p.m. Chantal Hamel: The root in semiarid Saskatchewan: an ecosystem.

3:00 p.m. Organic health break and poster viewing.

3:35 – 4:00 p.m. Mike Schellenberg: Has the native industry progressed?

4:00 – 4:15 p.m. Martin Meinert: producer organic research.

4:15 – 4:25 p.m. Suggestions for future organic field days???

4:25 – 4:30 p.m. Door prizes!!! (Melissa Boire)

The number of farms producing certified organic crops in south-west SK (crop districts 3AN, 3AS, 3BN, 3BS, 4A and 4B) increased by 56% from 2001 (212 farms) to 2006 (331 farms) (source: Farms producing certified organic products. Statistics Canada, 2007, Agricultural Census).

BREEDING WHEAT FOR ORGANIC PRODUCTION SYSTEMS

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Wheat breeding projects have been underway at the respective institutions of collaborators (S. Fox in collaboration with M. Entz, University of Manitoba; P. Hucl at Crop Development Centre, U of S; D. Spaner at University of Alberta) since the early 2000s to develop organic-production-adapted cereals. These programs have been built through selection on organically managed land. F2 to F6 early generation nurseries are being used to select for agronomic type, resistance to rusts, Fusarium head blight, and smuts, seed health, and end-use quality. The advanced generations (~F8 onwards) will be assessed for yield potential and other characteristics necessary for varietal registration.

The Swift Current location represents the only Brown Soil zone test site and has joined a recently developed network of test sites across the prairies: AB (University of Alberta, Ellerslie), SK (CDC-Kernen Farm, Oxbow) and MB (Carman, Glenlea). These sites are necessary to identify superior candidate cultivars adapted to organic production systems and that are worthy of entering into varietal registration trials. Like other locations, the Swift Current site provides data useful for identification of lines with regional adaptation. Two experiments are being grown at Swift Current: the Bread Wheat Organic “B” (BOB) test and the Bread Wheat Organic “A” (BOA) test.

The BOB test contains 25 entries including 6 checks and is located at six locations with 3 replicates/location. The BOB test is designed to produce a dataset sufficient to enter a candidate into a registration test. The BOA test is an 81 entry experiment located at 3 locations with 1 replicate/location that serves to identify superior lines for entry into a future BOB test.

The checks used in the BOB test were selected based on several criteria thought to be important for organic wheat production. AC Cadillac is the prevalent cultivar used by organic growers in MB. Park is the prevalent cultivar used in AB. Waskada and Unity VB were selected because they have high yield potential, are relatively tall and have high test weight relative to many currently registered varieties and have very good resistance to preharvest sprouting. Waskada offers an improvement in Fusarium head blight resistance and Unity VB offers resistance to wheat midge. CDC Go and BW881 both provide high yield potential, and in work by Hucl (unpublished) BW881 has shown weed competition tolerance. The test entries in this experiment were provided by all collaborators.

The BOA checks included the tall, high protein cultivar Somerset. Kane was included as another high test weight and sprouting resistant cultivar. Red Fife was included as another producer reference; however, Red Fife does not meet modern performance standards expected of cultivars or the CWRS quality standard which is the quality objective of the CRC-UoM breeding program. All entries in this experiment derive from the CRC-UoM breeding program.

IMPACT OF AGRONOMIC PRACTICES ON CEREAL AND ALTERNATIVE CROPS GROWN UNDER ORGANIC MANAGEMENT METHODS IN THE SEMI-ARID BROWN SOIL ZONE

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¹Agriculture and Agri-Food Canada, ²University of Saskatchewan, ³Organic producer, SK.

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Rapidly rising input costs (fuel and fertilizer), changing government programs (crop insurance and

safety net programs), new marketing opportunities, and growing concerns about environmental degradation are causing producers to question the merits of conventional high-input cropping systems. In response, producers have become increasingly interested in extending and diversifying their cereal-based cropping systems, using conservation tillage methods, and in adopting low-input and organic management practices.

Organic agriculture relies on the use of crop rotations, legume green manure and cover crops, the addition of organic soil amendments such as animal manures and compost, rock phosphate, and on mechanical tillage to maintain the health of the soil and environmental resources, recover nutrients from lower soil depths, and to minimize the influences of crop pests. However, organic systems typically produce lower crop yields than conventional cropping systems. Often this is attributed to high weed populations, loss of soil moisture due to the high intensity of tillage use, and low soil fertility status, particularly soil P.

In the last 10 to 15 years, research on the impacts of changing agronomic practices from high-input to organic management on crop production, weed population dynamics, disease control, soil fertility, and economic and environmental performance has been conducted in western Canada. However, most of this work has been completed in the Dark Brown (Scott, SK) and Black (Winnipeg, MB) soil zones. Little information is available to organic growers in the Brown Soil Zone regarding the best agronomic practices to maximize crop production and minimize the environmental impact of their operations. Organic growers in this semi-arid region are still relying heavily on tillage for weed control so there is a need to investigate the effectiveness of reducing tillage intensity on weed control in this area. Furthermore, the benefits of diversified versus simplified rotations need to be investigated to determine their economic and soil benefits under water-limited growing conditions. Thus the results of this study will have direct relevance and application to organic producers in this region by providing timely information and recommendations to help them choose cropping systems and management methods to minimize unit production costs, increase net farm income, reduce business risk, and enhance environmental quality.

The objective of this new field project is to investigate the impacts of tillage reduction and mixed cropping sequences on weed control, soil fertility, and crop production under organic management methods in the Brown soil zone of Saskatchewan. This trial will be conducted starting in 2010 in land located in South Farm at SPARC that has been under green manure (field pea), with no chemical inputs for the past four years.

ADVISORY COMMITTEE IN SUPPORT OF SPARC ORGANIC RESEARCH

Martin Meinert

Organic producer

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I am very pleased to see organic research being done here at Swift Current and I hope that we as people attending this field day can provide them with as much support as possible.

I am an organic farmer amongst other things. I have been involved with organic research with Organic Agriculture Center of Canada and with SPARC. I like to try different things on my farm, some of which have been more successful than others.

We are currently organizing an organic advisory committee to provide assistance, "advice" and ideas to SPARC for their research. I am looking for 1 to 2 additional people to be on this committee. I already have 2 people who combine livestock and crop so I am looking primarily for people who are more crop production orientated. Please contact me if you are interested.

WHAT'S NEW THIS SUMMER?

Brenda Frick¹, Chantal Jacobs², and Jessica Valois³

¹Coordinator, Organic Research and Extension, Plant Sciences Department, University of Saskatchewan; ²Organic Specialist, Saskatchewan Ministry of Agriculture; ³Summer student, University of Saskatchewan.

We report on organic field days we have visited. Highlights include no-till organics, long term research, vegetable projects, rotational effects, tour of CanOat, ancient wheats, drought and grasshoppers and much more. For more details, please visit <http://organic.usask.ca/>.

We also bring you news of a new funding initiative by Saskatchewan Ministry of Agriculture: Agricultural Demonstration of Practices and Technology, or ADOPT. This program offers up to \$10,000 per research project with a total of \$50,000 for a producer group to support demonstration projects that “increase the transfer of knowledge into useable farming practices”. If your producer group is interested in this, please contact Brenda (organic@usask.ca, or 306-966-4975) or Chantal (Chantal.Jacobs@gov.sk.ca or 306-798-0945).

EFFECTS OF LOW-INPUT CROPPING SYSTEMS ON WATER QUALITY, SOIL ORGANIC CARBON, NUTRIENTS, AND CROP YIELD

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At the Semiarid Prairie Agricultural Research Centre in Swift Current, we have implemented a low-input cropping system in field studies involving systems with conventional levels of chemical inputs including seed treatments, herbicides, and chemical fertilizer according to soil test. The objective is to provide wider range of cropping systems in the evaluation. The low-input systems receive no seed treatments, herbicides, fungicides, or fertilizers (or other soil amendments). However, insecticides are applied to all systems in years when grasshoppers are causing significant crop damage (the entire research farm is sprayed aerially). The low-input system was chickling vetch green manure fallow-spring wheat rotation chosen for simplicity of implementation and comparability with chemical systems. This low-input system was implemented in 1994 in the watershed study and 2003 in the tillage-rotation study. The low-input system has provided wheat yields comparable to no-till and tilled wheat-fallow systems although lower in the severe drought year of 2001 because the water conservation was less for green-manure fallow than bare fallow. The chickling vetch (AC Greenfix) has provided excellent N fixation and the low-input system has averaged 20 lb/ac more mineral N in the spring than conventionally tilled fallow. Grain protein has been trended higher with low-input systems than chemical systems which provides another indication of excellent N status of the low-input systems. However, this agronomically favourable N situation is not favourable to water quality as low input system had higher nitrate concentrations in surface runoff. Interestingly, although the level of NAHCO_3 -extractable P is lower in the soil under low-input system, the concentration of P in the surface runoff was increased by adoption of the low-input system. This may be attributable to solubilizing of soil P by the green-manure legume. As high nutrient loadings in surface runoff from cropland in Brown soil zone is the greatest water quality concern, low-input cropping without

chemical fertilizers can aggravate nutrient loading. All herbicides used in the chemical systems are detectable in surface runoff. However, herbicides that are widely used regionally including 2,4-D, MCPA, and dicamba are also detectable in trace amounts in the runoff from the low-input system. The likely source is herbicide carried in from atmosphere and deposited by dry and wet deposition. The soil organic carbon under the low input system within the tillage-rotation experiment is comparable to chemical wheat-fallow system, despite the additional plant carbon added with green manure fallow. The more intensive tillage for the low-input system causes most of this additional carbon to be mineralized.

CREATING A 'ZERO INPUT' PERMANENT PASTURE FOR SOUTHWEST SASKATCHEWAN

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Native plant species are a resource to valorize in Southwest Saskatchewan. Natives are perfectly adapted to our soil and climatic conditions and have evolved as forage for ruminants. They grow on marginal land, and research at SPARC has shown that they can produce very interesting yields when they are seeded on good land. Legumes are special plants in that they can use air as a source of nitrogen. Because nitrogen supply is the main limitation to forage yield, we are testing the value of growing native grasses with a highly performant nitrogen fixing legume: alfalfa, and a native legume proven to tolerate grazing very well: purple prairie clover. While these legumes fix practically all the nitrogen they need to grow, leaving soil nitrogen to their companion grasses, we found that much of the nitrogen in grasses also comes from the air. We also found that some native grasses may valorize more effectively the nitrogen from biological fixation (air). We hypothesized that mycorrhizal symbioses may influence the partitioning of fixed nitrogen among the plants species of a plant mixture and are currently looking into this possibility.

THE SCOTT ALTERNATIVE CROPPING SYSTEMS EXPERIMENT

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Producers in the semi-arid Dark Brown Chernozemic soil zone of the Canadian Prairie are contemplating changes to land use practices, moving away from conventional high input production systems that specialize in one or two annual grain crops to more diversified and extended cropping systems that use reduced-input and organic management practices. This study examined the economic merits of 9 cropping systems, consisting of a factorial combination of 3 input management methods and 3 levels of cropping diversity. It was conducted over the 1996-2007 period on a loam soil at Scott, Saskatchewan. The input treatments were (i) high input (HIGH), which used conventional tillage and full recommended rates of fertilizers and pesticides as required, (ii) reduced input (RED), which used conservation tillage and integrated weed and nutrient management practices, and (iii) organic input (ORG), which used tillage, non-chemical pest control, higher seeding rates, delayed seeding, and legume crops to replenish soil nutrients. The crop diversity treatments included (i) a fallow-based

rotation with low crop diversity (LOW), (ii) a diversified rotation using cereal, oilseed and pulse grains (DAG), and (iii) a diversified rotation using annual grains and perennial forages (DAP). All crop rotations were 6 years in length. At the 2007 input costs and prices, average net returns and 12-yr net present values were higher for organic than for non-organic treatments, with the ORG/LOW system being the most profitable (net returns = \$234 ha⁻¹ yr⁻¹ and net present value = \$1959 ha⁻¹). Net returns averaged about 10% less for ORG/DAG compared to the most profitable system, and about 21% less than for HIGH/DAG and RED/DAG (the best non-organic systems). The LOW crop diversity treatments, with the inclusion of summer fallow or legume green manure partial-fallow once every 3 years, performed best in drought years, while the more intensively cropped DAG treatments performed best in years with higher growing season precipitation. The DAP treatments that included forage were not economically competitive with the other treatments, often producing economic losses. The relative profitability of the organic treatments was highly dependent on the existence of organic price premiums. When price premiums for organic crops were reduced to less than 70% of the 2007 levels, the organic treatments were less profitable than the comparable non-organic treatments. The organic treatments also experienced significantly lower (and often negative) net returns compared to the non-organic treatments during completion of the 3-yr organic certification period. We estimated it required 5 to 7 years after completion of certification for the organic treatments to breakeven with the comparable non-organic treatments. Thereafter the organic treatments produced consistently higher net earnings. Production costs averaged 16% lower with ORG compared to HIGH management treatments, but we found little difference in total costs between the respective HIGH and RED input treatments. The savings in expenditures for inorganic fertilizers and pesticides with organic management more than offset the higher costs for seed, organic certification and inspection fees, and machine overhead. In contrast, the savings in expenditures for labour, fuel, repairs, and machine overhead were largely offset by higher expenditures for seed, fertilizers, and herbicides for RED input compared to HIGH input management. The organic treatments displayed lower income variability than the non-organic treatments, with the ORG/LOW system being preferred by risk averse producers who do not subscribe to all-risk crop insurance, and with the ORG/LOW and ORG/DAG systems preferred by low and medium risk averse producers when having the added protection from the Canada/Saskatchewan all-risk crop insurance program.

IMPACT OF ORGANIC MANAGEMENT ON *FUSARIUM* INFECTION OF WHEAT ROOTS AT SCOTT

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Fusarium head blight pathogens are also known to infect crowns and roots of wheat. In 2001-06, the impact of input level and cropping diversity on root rot was examined at Scott, Saskatchewan. There were three input levels [High input (HIGH) with conventional tillage and recommended herbicide and fertilizer rates; Reduced input (RED) with tillage reduced, herbicide and fertilizer use; and Organic input (ORG) with intensive tillage and no chemicals], and three cropping diversity levels (fallow-based, diversified annual grains and diversified grain/forage). Subcrown internodes were scored for discoloration and fungi in discoloured tissue were identified. Input level had a greater impact on disease severity and fungal frequency than cropping diversity. Common root rot severity was greatest in the ORG and HIGH systems, and under low cropping diversity where the frequency of cereals and

fallow was highest. This was attributed to higher levels of *Cochliobolus sativus*, the most common pathogen. *Fusarium* spp. were most common in the ORG and RED, and in the more diverse sequences. However, individual *Fusarium* species varied with input system. *F. avenaceum* and *F. culmorum* were most associated with RI and/or diversified grain rotations, and least associated with ORG, whereas the weak pathogen/saprophyte *F. equiseti* was strongly associated with ORG systems. We conclude that management systems with diversified cropping sequences and decreased fallow and tillage frequency, and which rely on herbicides for weed control, might increase *F. avenaceum* levels. In contrast, ORG management would help to reduce populations of *F. avenaceum* and *F. culmorum*, two of the most common *Fusarium* pathogens in Saskatchewan.

THE ROOT IN SEMIARID SASKATCHEWAN: AN ECOSYSTEM

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Plants have evolved in mutualistic associations with fungi and today, strictly speaking, most plants do not have roots they have mycorrhizae. Many crop plants live with arbuscular mycorrhizal (AM) fungi that help them take up phosphorus and other nutrients from the soil, in addition to reducing the incidence of root diseases and improving soil physical quality. Another group of fungi associated with plant roots has attracted attention lately: the dark septate endophytic (DSE) fungi. These fungi are particularly abundant in the roots of grasses and other plants of southwest Saskatchewan. They appear to confer drought resistance to some plant species and to improve their nitrogen nutrition. Recent work conducted in the Soil Microbiology Laboratory of SPARC has shown that although the two groups of fungi show some level of antagonism, both play a role in the life of plants in our province. In this presentation, we will review the current knowledge on the functioning of symbiotic roots. We will also present our progress in the development of tools for the manipulation of root symbioses in crop production.

RE-CROPPING OF CEREAL CROPS ON THE STUBBLE OF VARIOUS SUBSPECIES AND CLASSES OF PULSES IN SEMIARID ENVIRONMENTS

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A field study was conducted at the AAFC-Swift Current Research Centre in 2008. A total of 13 different subspecies and classes of pulse crops were evaluated for their N-fixation, water use, and their interactions with soil microbial communities and diversity. Each subspecies and class of the pulse crops also included two to three varieties within to show any variation within a subspecies. In 2009, durum wheat was re-cropped on the various pulse stubbles without use of any fertilization. Seed, total biomass, and yield components will be measured on the durum crop in 2009. The results may provide some insight for organic producers who are interested in including a pulse crop in their rotation system. This study will be repeated for three cycles.

ARE THERE ADVANTAGES TO INTRODUCED OR NATIVE GRASSES, MIXTURES OR MONOCULTURES?

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In 2001, a study was seeded to examine 4 objectives: 1) determine if differences exist between native and introduced species if seeded on the same soil and at the same time; 2) will warm season grasses provide a benefit for production; 3) are monocultures more effective for biomass production compared to mixtures; 4) are introduced grasses more invasive than native grasses and 5) does fertilization improve productivity for both introduced and native grasses. Grasses selected for these comparisons were Russian wildrye and crested wheatgrass (introduced); western wheatgrass and green needle grass (native); and switch grass and little bluestem were the warm season grasses. Fertilization occurred at 100 kg/ha and none. Mixtures were the introduced grasses with the warm season and native grasses with the warm seasons. In the first 4 years mixtures have outperformed the monocultures. In 2005 productivity dropped off in all plots but fertilized continue to out produce unfertilized. In subsequent years mixtures have continued to produce slightly more. Western wheatgrass has been as invasive, if not more so than crested wheatgrass. The warm season grasses failed to contribute to the mixtures biomass after the second year and as of 2007 no longer exist even in monoculture. The changing climate in Swift Current has not changed to the benefit of warm season grasses but rather the cool season grasses have gained an advantage. The reported advantages of introduced over native grasses have not been observed in this study.

In conjunction with this study has been below ground work by PhD student Juan Carlos Perez. He has been studying the microbial communities below the surface. He has found each species appears to have a different microbial community which changes according to depth and throughout the season. These microbial communities appear to provide some drought resistance and access to soil resources.

HAS THE NATIVE SEED INDUSTRY PROGRESSED?

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In 1997 the Native Plant Society of Saskatchewan had an analysis of the native industry done. At that time there was thought to be a potential for growth within the industry for 15% growth for the next 10 years. In the ensuing 10 years this industry has grown and shrunk but overall has failed to realize its potential. Reclamation continues to be its mainstay.

Within the industry there continues to a few big winners with a large number of small producers. Alberta has a larger number of seed producers with Saskatchewan having only eleven.

Where does the problem lie then? Back in 1997 and again 2003 the need for research in plant establishment and market were identified. This need is still present. There has been an effort to provide the research by AAFC, Universities and Alberta Research Council but support has been limited.

Examination of the industry to the south would indicate an industry alive and well, even flourishing. The Great Basin Restoration Initiative would be an example of success. They have developed a pipeline approach with consumers and industry identifying plants of interest, researchers providing the information needed for production given to seed/plant producers who then provide the plants to the

consumer (government, mining companies, or the backyard gardener). The program has jumped started with a \$15,000,000 infusion of money followed by another \$15,000,000 two years ago. There have been efforts on this side of the border but no “pipeline” has been formed. Canadians as a whole have neglected the potential which exists within the native plant materials already adapted to the environments in which we live.

ALFALFA IN AN ORGANIC CROP ROTATION

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Alfalfa in a cropping rotation can improve soil nitrogen. Agriculture producers are starting to give this option some thought. Researchers have noted that alfalfa can put upwards of 270 lbs /ac nitrogen into the soil. Alfalfa offers additional benefits. The deep penetrating roots from alfalfa plants can mine the soil profile and bring up leached nitrogen. This process cycles nutrients that would be lost from annual cropping. The root mass of forages improves the amount of carbon storage (organic matter) at greater depths than annual crops. Forage crops are competitive and in a survey of Canadian farmers, 83% reported fewer weeds after alfalfa vs. grain rotations, with good suppression of wild oat, green foxtail, and Canada thistle. Forages in a rotation are also beneficial in helping break up disease/insect cycles.

On the con side, terminating forage stands can be difficult. The traditional way is plowing the land with breaking disc, spikes, etc. This is time consuming, hard on equipment, and takes many applications which use diesel fuel. These applications can dry out the soil surface. Spraying the forage crop with herbicides, such as a glyphosate, is not an option for organic producers.

A research study at Agriculture Canada Research Centre at Swift Current (SPARC) was set up to investigate options for organic and other agriculture producers to incorporate alfalfa into their cropping rotation and not have the difficulties of terminating the alfalfa stands. A trial was designed to look at alfalfas with different fall dormancy ratings. Four alfalfa varieties were selected with fall dormancy ratings 3, 4, 5, 6. Sweet Clover (Common Yellow) as a check. The assumption is that we will get 2 to 3 years of alfalfa production with a fall dormancy rating 3 to 6 (inclusive) and then these alfalfas will start to weaken and die. This would be beneficial for a crop rotation because it will take less effort to terminate the alfalfa and not deplete the moisture in the soil profile. The trial was seeded in 2008, the design was a randomized complete block, with 4 replicates; continuous wheat and wheat/fallow treatments are also added. We will be monitoring the soil profile for soil nitrogen, soil phosphorus, and soil moisture. Yield from the alfalfa and wheat and alfalfa plant density will be determined. This is the first phase of the trial. The second phase is seeding wheat into these plots when the alfalfa plots have deteriorated to point when they give no more production. Biomass production, grain yield, grain and straw protein, and soil nitrogen, phosphorus and moisture will be observed and compared to the continuous wheat and wheat/fallow treatments.

A research study at SPARC indicates that the annual crop that follows alfalfa in a crop rotation has additional nutrient benefits. As the forage stand is decomposing it is releasing nitrogen. The nitrogen is available throughout the growing season not like the one time application of nitrogen which is used up earlier in the plants life cycle. A research study has demonstrated test average grain protein to be at 15.6 % (27 bu/ac) in a year with average precipitation and 19.4 % (8 bu/ac) in a dry year.

With the cash value for the hay crop and the benefits alfalfa has for sustaining our soils, producers are considering incorporating alfalfa into their cropping practices. Establishing a crop rotation with

forages (alfalfa) can give you reliable hay production, add nitrogen to your soil, cycle some of the leached nutrients, and increase organic matter at deeper depths. Annual crops following the alfalfa will have nutrient benefits for at least three years which can result in high protein grain and straw; and higher yield.

PRODUCER ORGANIC RESEARCH

Martin Meinert

Organic producer

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I am a member of the Organic Crop Improvement Association (OCIA) which is a nonprofit, member-owned, agricultural organization. OCIA is dedicated to providing the highest quality organic certification services and access to global organic markets. I belong to South West Saskatchewan Chapter 8 and am on several of their committees including crop improvement and research.

I am also a board member of OCIA Research and Education. The mission of OCIA Research and Education is to support farmer driven research, on farm and at research institutions, including exploratory and demonstration projects. We facilitate connections among farmers, researchers, consumers and decision makers, and educate organic producers and local and global communities regarding organic farming and foods.

Micro Grants:

Small grants (\$300 to \$1500) in any of the following areas:

Organic Research – crop/livestock/storage/processing/marketing

Organic Education – development of educational material/programs

Other ideas supporting/promoting organic agriculture

More detail at: <http://www.ocia.org/RE/MicroGrant.aspx>

Other OCIA R&E organic support:

Outstanding Farmer of the Year

Annual scholarship – graduate student at any post secondary institution - \$1,000

Victor Chrapko Non GMO scholarship – education/research re environment/health/social impacts of non GMO plants or animals. \$1,000

email: atunink@ocia.org for application for any of above.

**Thank you all for your participation
and have a safe trip home!!!**



First Field Day 1921

***Swift Current Research Station
Dominion Experimental Farm***