

CONSERVATION CROPPING SYSTEMS PROJECT

7th ANNUAL REPORT
2008



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Kelly Cooper Farm Manager

April 15, 2009

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PROJECT DESCRIPTION

The Conservation Cropping Systems Project (CCSP) is located on a 130-acre tract of farm land two miles south of Forman, ND along Highway 32, Figure 1. A 14 member Board of Directors composed of local producers in northeastern South Dakota and southeastern North Dakota advises the CCSP staff. Diverse crops are grown in rotations that range from one to six years under no-till, strip till, shank and disk drill cropping systems. Rotations are demonstrated to look at their effect on water and wind erosion, soil tilth, soil moisture retention, organic matter changes, and profitability. Each crop within a rotation is grown every year and

replicated three times. Other practices are done including variety trails, livestock waste applications, carbon sequestration studies, weed control experiments, and equipment demos to name a few.

The project provides producers data and physical observations that allows them to see advantages and disadvantages of a range of crop rotations in no-till crop production. The effective use of crop rotations to break weed, disease, and insect cycles is demonstrated. The placement of legumes in rotations reduces dependence on fertilizer N. The ability to efficiently cycle plant nutrients in diverse rotations reduces nutrient runoff into surface water and leaching into ground water. This project is a living classroom to demonstrate that agriculture can produce food, fuel and fiber in an environmentally favorable manner, preserving and enhancing soil, wildlife habitat and water quality, while providing producers with good economic returns.

PROJECT PURPOSE

Our goal is to demonstrate profitable farming methods, machinery, and philosophies that promote soil and water conservation.

PROJECT SPONSORS

The Conservation Cropping System Project is funded through the sponsorship of governmental, corporate and private parties. The Wild Rice Soil Conservation District is the principle cooperating agency, supplying office space, facilities and administration of the project. Other cooperating agencies are the Natural Resources Conservation Service (NRCS), North Dakota State University (NDSU), South Dakota State University (SDSU). Sponsorship is either as a cash donation, in-kind or both. There are four levels of sponsorship: Platinum (\$10,000 or greater), gold (\$5,000 - \$9,999), silver (\$2,500 - \$4,999) and bronze (\$500 - \$2,499). We wish to thank our sponsors listed below for their support! Without them this project would not exist.

2008 PROJECT SPONSORS

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Wolf River Seeds

Special Thanks

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Dave Kinzler
Joe Breker
Kent Carpenter
Marshall County SCD
Marty Visto
Neiber Auctioneering
Walt Albus



Figure 1. Overhead view of the Conservation Cropping Systems Project

CROP ROTATIONS AT CCSP

At least fourteen crop rotations ranging from one to six years in length are being studied, (see figure 2). Six crops are present in rotations: HRSW, HRWW, corn, soybean, alfalfa and flax. Switch grass, new in 2007, has been planted in bulk area 1 and is the 7th crop to be grown on the farm. We want to look at switch grass as a possible energy crop that could be planted on existing CRP acres or any land coming out of CRP. The idea being that switch grass would offer wildlife and erosion control benefits with out sacrificing the opportunity to participate in financially lucrative commodity markets. Cover crops have been added in 2008. These can include a whole host of traditional and non-traditional crops that work to pull up and stabilize nutrients, manage salinity, and improve soil health. Three seeding techniques: disk drill, shank drill and strip till, are being studied within the HRSW-HRWW-corn-soybean rotation. Additional crops are added and subtracted as deemed desirable. Key considerations of rotations are their profitability, weed/insect control, moisture use or savings, and something we

could call farm synergy. Rotations do a wonderful job of giving a farmer built-in opportunities to manage weed and insect resistance, spread manure, pick rocks, graze cattle, plant cover crops and so forth.

CCSP Rotation Key	
spring wheat/winter wheat/corn/soybeans - disk drill	A
spring wheat/winter wheat-st/corn/soybeans - shank drill	B
spring wheat/winter wheat-st/corn/soybeans	C
spring wheat-st/corn/soybeans	D
spring wheat/soybeans	E
corn/soybeans-st	F
spring wheat-st/corn/soybeans/corn/soybeans	G
continues corn	HC
spring wheat/winter wheat/flax-st/corn-st/corn/soybeans	I
winter wheat/soybeans/corn-st/corn/flax	J
winter wheat-cc-st/corn/soybeans	KH
spring wheat/winter wheat-st/corn-st/corn/soybeans/soybeans	<u>L</u>
spring wheat/winter wheat/soybeans/corn-st/corn/soybeans	M
spring wheat/winter wheat/alfalfa/alfalfa/corn/soybeans	N
corn/cover crop	O

note-st denotes strip till operation, cc-denotes cover crop

Figure 2. Crop rotations at the Cropping Systems Project at Forman, ND, 2008.

Each plot is 60 feet by 220 feet. Each crop within the rotation sequence is present each year. Each rotation sequence has 3 replications. For example in rotation F, corn is replicated three times as Fc1, Fc2 and Fc3.

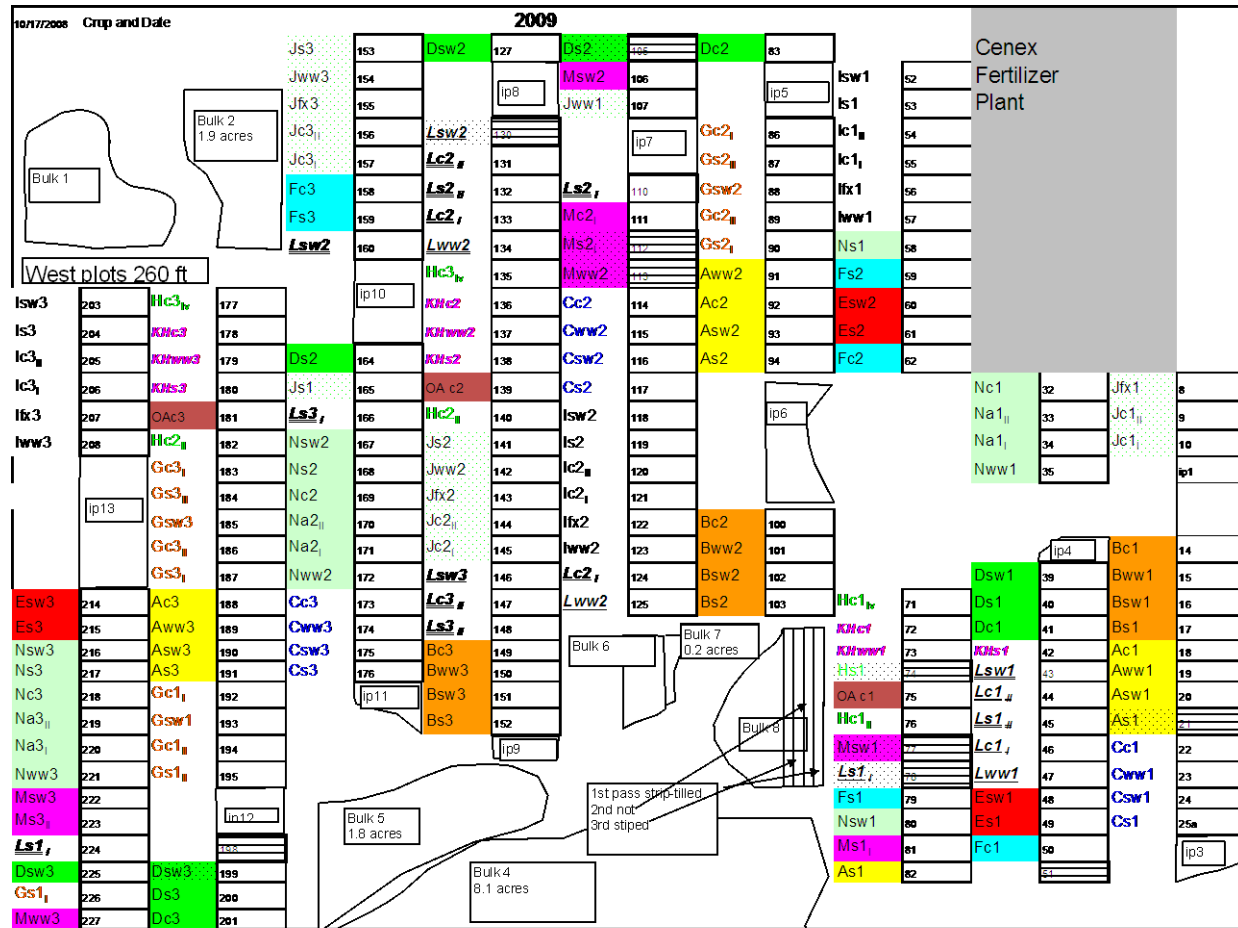


Figure 3. Plot map of rotations and their planned location in 2009.

Local Weather

The 2008 season started out cold. Planting was done timely this year as spring rain was minimal. Heat unit accumulation started slow and continued to be slow until the end of the season. Gdu's ended up at 2338, only 7 shy of the average 2345. It was fortunate that an early frost did not occur as late crops, especially corn needed the late fall to mature. In season rainfall was short. Do to after season rain the year ended up above normal. The farm avoided hail and wind during the growing season but did not escape from some strong late fall winds that broke over corn. Combining was slowed down but little corn was lost.

Calendar year 2008 Weather						
Month	Temperature (f)			Precipitation (in)		
	64 Yr Mean	2008 Mean	2008 deviation	64 Yr Mean	2008 Total	2008 deviation
January	7.6	8.0	0.4	0.50	0.05	-0.45
February	11.9	10.0	-1.9	0.50	0.50	0.00
March	26.0	27.0	1.0	0.80	0.30	-0.50
April	44.0	41.0	-3.0	2.01	0.45	-1.56
May	55.7	54.0	-1.7	2.95	1.79	-1.16
June	65.0	64.0	-1.0	3.60	3.97	0.37
July	70.1	70.0	-0.1	2.88	1.24	-1.64
August	68.2	70.0	1.8	2.75	1.08	-1.67
September	59.5	60.0	0.5	2.07	4.21	2.14
October	46.0	46.0	0.0	1.35	5.84	4.49
November	28.6	32.0	3.4	0.60	0.75	0.15
December	15.3	7.0	-8.3	0.60	1.25	0.65
mean total:	41.5	40.8	-0.7	20.61	21.43	0.82
note: Temps are from Oakes ndawn, growing season precip is CCSP farm Non growing season precip from NDSU climate maps						

Figure 4. Growing season temperature and precipitation 2008

Precipitation in 2008 ended above normal. However yields of soybeans and corn were hurt by lack of in-season precipitation. The season was near perfect for cereal crops which resulted in excellent wheat yields. Moderate temperatures helped greatly to make use of the small amount of rain in July and August. Bean and corn yields were still reduced.

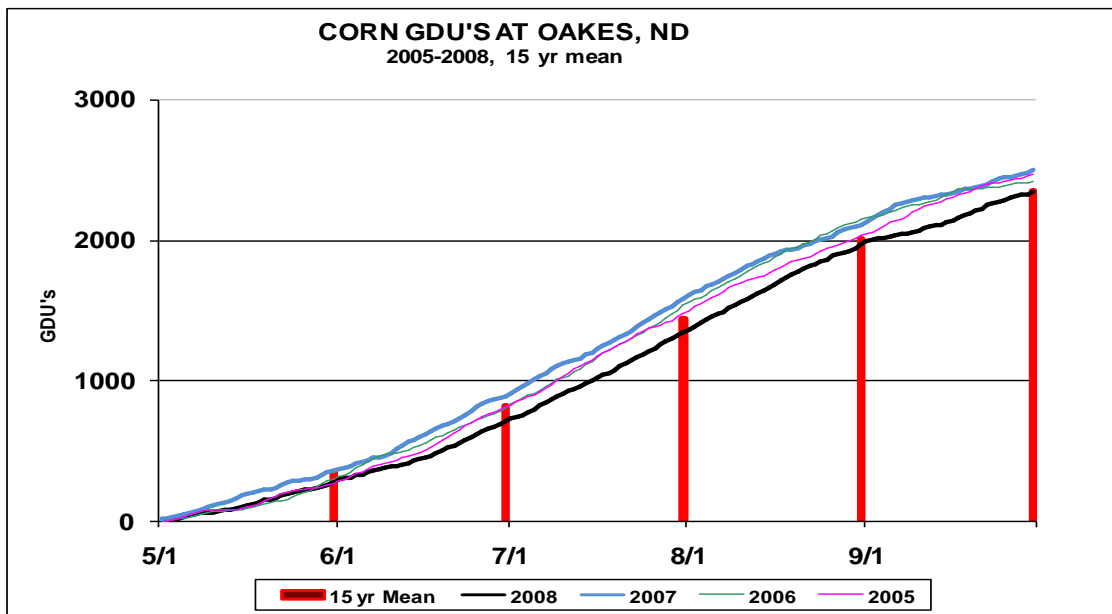


Figure 6. Growing degree units accumulated for corn at Forman, ND, 2338 in 2008 and the 15-yr mean of 2345.

Crop	Planting Date	Harvest Date	Planting Rate	Chemical	Rate	Date
Alfalfa 2nd Yr	8/28/2006	June July	15 #			
Alfalfa(establish)	8/3/2007 Planting	Harvest	20 #	RU/24D/Valor (kill out) Select	44 oz+1.5pts+3oz 9 oz+1qt class	09/12/08 09/12/08
HRSW Faller	4/19/2008	8/8/2008	90#	Axial Tilt WideMatch MCPE Interlock Prosario Round Up Ultra Max Bird Shield	8.2 oz pt/ac 4 oz/ac 1 pint 1/2 pint 4 oz 6.5 oz 22 oz 1 pint	06/01/08 06/01/08 06/01/08 06/01/08 06/01/08 07/03/08 08/01/08 07/26/08
HRWW CDC Falcon on Spring Wheat and Flax On Soybean	9/16/2007 Planting	7/30/2008 Harvest	114 #	Powerflex 2-4D Headline Interlock Folicur Proline Round Up Ultra Max Bird Shield	3.5 oz 1/2 pt 8 oz/ac 4 oz/acre 3 oz 3 oz 22 oz 1 pint	05/22/08 05/22/08 05/22/08 05/22/08 06/09/08 06/19/08 07/17/08 07/13/08
Corn 4327 38H72 South Bulk Dekalb 4295 Pioneer 4327 NK 3000GT Pioneer 38H72 Pioneer 38Y17 Pioneer 38P43	5/3/2008 Planting	11/1/2008 Harvest	32,000	Roundup Ultra Max II Lumax Roundup Weather Max II Roundup Weather Max II	22 oz 3 pt 22 oz 22 oz	05/15/08 05/15/08 06/17/08 06/30/08
Soybean	5/18/2008 Planting	10/4/2008 Harvest	180,000	RU+1.5 24-d+2oz valor Roundup Ultra Max II +Resource on 30 plots Roundup Weather Max II	22 oz 3 oz 22 oz	11/12/2007 06/17/08 06/17/08 06/30/08
Flax	4/23/2008 Planting	8/18/2008 Harvest	120#	Round Up Ultra Max 2-4d Valor Callisto Bison Advanace Select Roundup Weather Max II	44 oz 1.5 pt 2 oz 6 oz 11 oz 12 oz 22 oz	11/12/07 11/12/07 11/12/07 04/28/08 06/14/08 06/14/08 8/10/2008
<p>Fertilizer</p> <p>Corn received nitrogen to bring soil+fert levels to 150 lbs for all but soy and alf ground which received 97 lbs N fert. All plot received 45 lbs P. 5 Gallons 10-34,1pint zinc. 1.5 % Avail in furrow Corn on Corn was Strip tilled with 50 lbs N as 28% banded 5-7 inches deep</p> <p>Winter Wheat at planting 78 lbs 11-52-0, 2 spring stream bar apps at 60 lbs each Spring Wheat at planting 105 lbs 11-52-0, 2 stream bar apps one at 60 one at 50 lbs</p> <p>Soybeans 10 gallons 10-34-0</p> <p>Flax 50 lbs n stream bar during light rain</p>						

Figure 7. Crop Inputs and timing.

AGRONOMIC PRACTICES AND YIELD

A general outline of agronomic practices used is listed in Figure 7.

Wheat: CDC Falcon HRWW was planted on September 15-16, 2007 with a John Deere (JD) 1560 single disk drill in the 3 disk drill plots (Rotation "A") with the balance of the plots seeded with a 10-foot Concord air drill with triple shot Anderson seed boots at a 10-inch spacing. Faller spring wheat was planted with the JD 1560 drill and the Concord drill on April 19, 2008. Starter fertilizer at a rate of 78 lb/ac of 11-55-0 was placed with the winter wheat seed in all non alfalfa winter wheat plots. In the "N" rotation where alfalfa is grown for 2 years following winter wheat, an additional 80 lbs of 11-55-0 was deep banded with the Concord. Fertilizer nitrogen applications of 20 gal/ac 28-0-0 was applied with stream bars to HRWW on April 24, and 20 gallons again on May 23. An application of 20 gal/ac of 28-0-0 with stream bars was applied to HRSW on May 23th and 15 gallons 32-0-0 was applied on June 4.

Flax: York flax was planted with the Concord air drill on April 23. Flax received a post application of 60 lbs/ac Nitrogen as 32-0-0.

Corn: We expanded our work with corn this year. We planted Dekalb DKC 43-27 in the rotation plots on non-corn ground. In the corn on corn plots we planted a different variety from last year, Pioneer 38H72 so as to not stay with similar genetics that may be more susceptible to disease in last year's residue. We also had a 3rd year corn on corn variety trial in bulk area 4 on the south side of the plots, see results in figure 12, page 16. All corn was planted with an 8-row John Deere 7200 planter with 30-inch spacing equipped with Sunco residue cleaning wheels, Keaton seed firmers with in-furrow fertilizer placement. Corn planting began in the main plots on May 3 and was finished in the last bulk area on May 9. Corn received 30 gal/ac of 28-0-0 and 6.5 gal/ac 10-34-0 placed in a 3" by 2" band at planting with 5 gallons 10-34-0 in furrow with 1.5% Avail and 1 pint zinc chelate. A strip-till operation was performed on November, 9th-11th 2007 to all 2007 corn plots that would be corn in 2008. This year the old corn plots got 50 lbs of nitrogen put down in the strip as 28%. The winter wheat, spring wheat, and flax plots that would go to corn were also strip tilled except rotation "A". Rotation "A" plots were not fall fertilized.

Soybeans: Pioneer 90M60 soybeans were planted in 30-inch rows with the John Deere 7200 planter on May 17-18. Soybean plots received 10 gal/ac of 34-0-0 in a 3" by 2" band at planting.

Alfalfa: Dairyland Hybriforce-400 alfalfa was planted August 3, 2007 @15 lbs / acre.

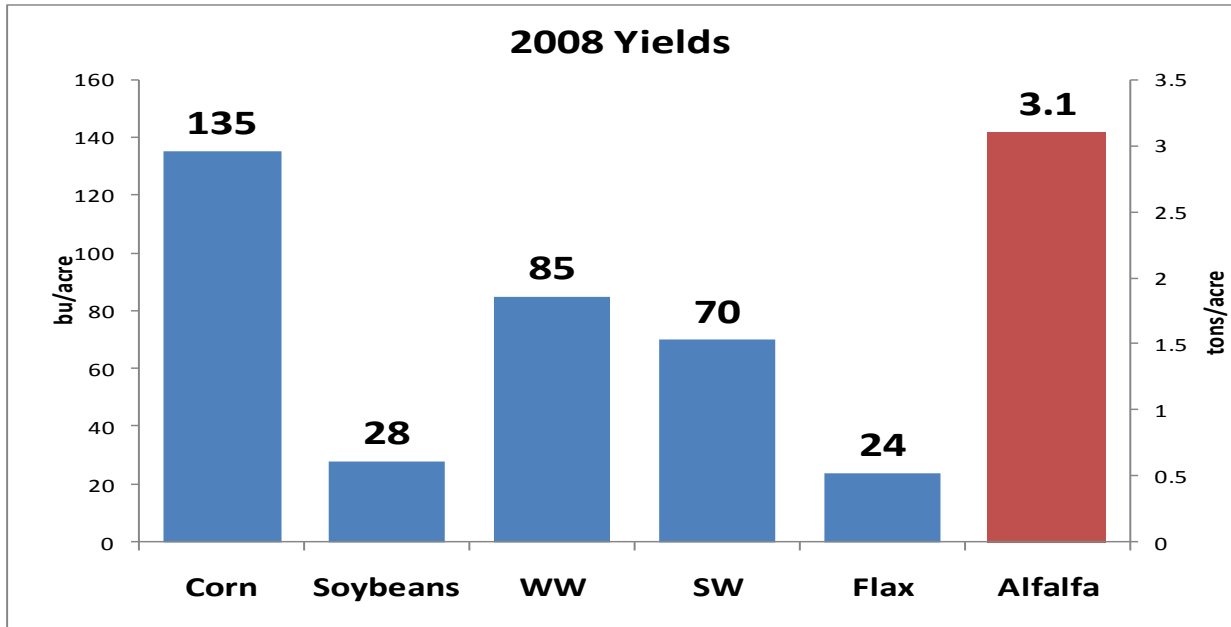


Figure 8. Crop yield averaged across all rotations at the Conservation Cropping Systems Project in 2008.

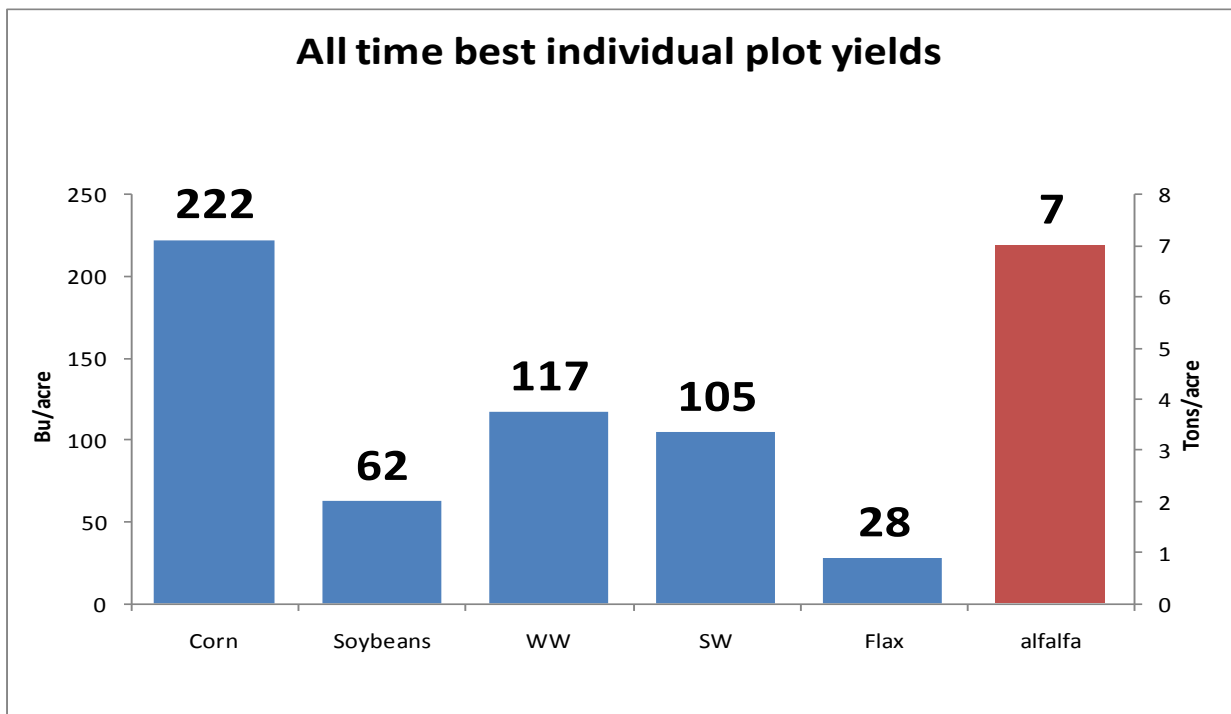


Figure 9. Best individual plot yields to date.

Crop observations

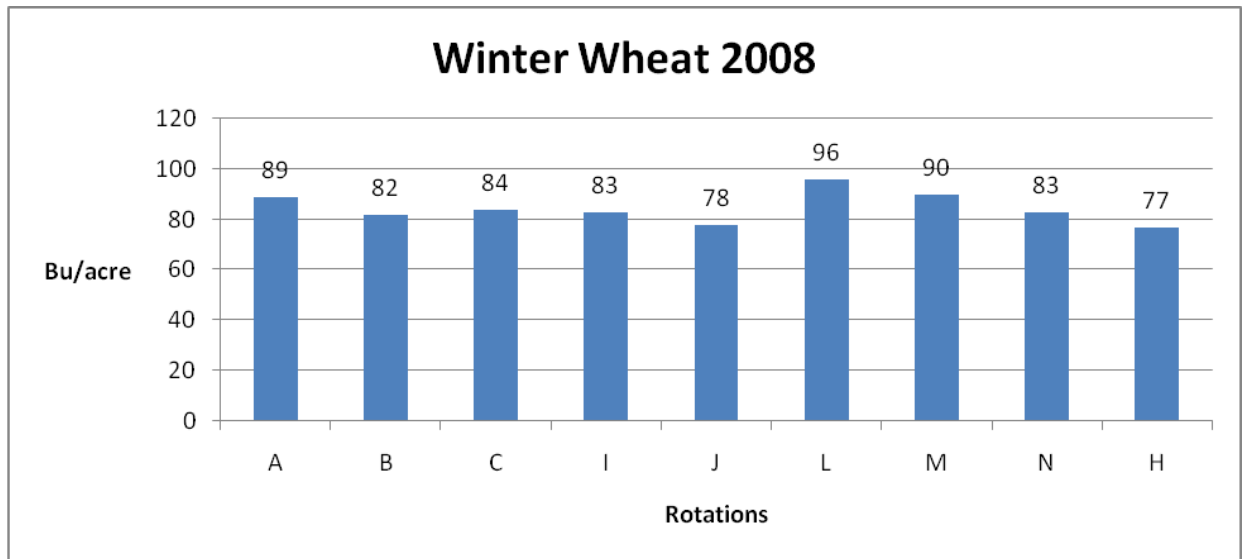


Figure 10. Rotation effect on Winter Wheat.

For rotation key see figure 2

Wheat

Winter wheat was planted a little early on September 15-17, seeing a rain system coming in. This turned out to be the right thing to do as rain was scarce the rest of the 2007 fall. Our crop got off to a very good start. I was worried that we would be at risk for wheat streak as our small plots do not offer much isolation. It turned out to be a great wheat year. Our biggest pest problem on the plots is blackbird damage, which can be very damaging to plots close to sloughs. Otherwise the CDC Falcon preformed very well with no lodging. Our total nitrogen application was 110 lbs, which may have been a little shy for the year that we had. Protein was a little low at 11.2 percent indicating the possibility that more N could have been applied. Some plots yielded close to 100 bushels and most farmers with winter wheat had good yields as well. Planting winter wheat following soybeans is an option some farmers are taking. We wanted to explore this on our farm so we planted 3 soybean plots in a new rotation on October 4. The dry fall and late seeding did not result in a very good stand. The winter was also tough on what came up resulting in some pretty tough looking plots. We decided to keep the plots into wheat. The option is of course to kill out what winter wheat is there and then plant corn. In the end the plots yielded very well at 77 bushels.

We planted Faller spring wheat April 16, the same day as the previous 2 years and did have some rain shortly afterward which was nice to get the seed soaked up. The spring wheat also did well with little disease problems. Protein was below 14 so our nitrogen

could have been stronger here as well, but there was no lodging. Weed control went well on both crops.

Flax

We had our best year to date with flax. This has been an especially challenging crop for weed control. We put on a fall Round-up, 2-4D, valor application for the 2008 soybeans and hit the flax ground as well. We seeded the flax with the Concorde drill so much of the value of the valor may have been lost. Callisto had just been labeled for early post planting so I decided to try that. We were very happy to see clean early season flax! We came in prior to budding with the usual Bronate/Select spray and weed control was excellent. Pre-harvest Round-up was applied and we harvested the nicest flax crop to date. The stand was not quite as good as it could have been so we still have room for improvement.

Corn

We started planting corn when the soil was a little wet, May 3, because recent history has taught us that opportunities soon pass. As it was we had an extended period of good planting weather although cold temperatures prevailed. When the corn finally started to emerge it showed the effects of cold and hard soil. A little moisture will alleviate the hard soil but we did not get any rain. We may want to pursue some improvements in our planter such as down pressure monitors. I feel it is worth spending a little time here on side wall compaction. I used a combination of standard John Deere closing wheel and a Martin spiked wheel on our planter. Our clay loam soil when seeded wet will compact. The smooth John Deere wheels had to be adjusted just right with a fair amount of down pressure to close the furrow. The spiked wheels dug up the ground quite a bit and made it lumpy. I was concerned it would dry out. There are a lot of little things to watch that make a big difference. Everything seemed to work fine in the drier ground, it was the marginally wet stuff that bothered. In the end there did not seem to be a lot of difference in stand. Pheasants, gophers, and rabbits seemed to have more impact than the closing wheels from a visual perspective. We did some limited stand counts and nothing jumped out at us. Having the patience to wait for good soil conditions has its merits, but even this year, as cold as it was, the early seeded corn seemed to get bigger faster. Did it mature any faster? Not really. In fact most people that I talked to felt there was no advantage and maybe a disadvantage to planting early this year. In looking at the ndawn recorded temperatures at Oakes it is easy to see why the corn had early growth problems. The late April snow kept things very cold for a week and then from May 7-13 there was another blast of cold air.

Our "A" rotation which is a low disturbance "disk drill only" trial was interesting this year. When we came to these plots to seed corn, it was a very nice sunny day with low humidity. These plots are all winter wheat stubble so I decided to lift up the residue managers and plant directly through the straw sensing we may be in for a dry year. The dry straw cut nicely and there was little if any hair pinning. Since temperatures stayed cool for most of the early part of the season, these plots looked pretty poor. However,

as soil moisture became depleted by early to mid August, these plots started to look pretty good and the yields were some of the best in the plots.

I decided to try some different management on the “corn on corn” plots this year. At the time corn prices and demand were high so growing corn on corn just seemed to be something we had to do. First of all the corn on corn plots were strip tilled in the fall with 50 lbs of nitrogen applied. I switched to completely different genetics and a longer day growthier corn plant. This all looked really good up until late August. We had nice rains in June but then we went back to dryer conditions similar to 20 years past. Through all of July and August the biggest rain we had at one time was half an inch with several ¼ inch rains. It was just enough with the cool temperatures to keep the row crops alive. Then Labor day weekend came with high temps and high winds. This pretty much took the life out of the corn and beans. The longer day corn in the corn on corn plots suffered more because it was not as mature. However, we had a corn on corn variety trial that was 3rd year corn and the shorter day varieties were not dramatically better. For corn, it was one of those years to look at very cautiously when planning since many conditions were a long way from being normal. Fortunately an extended period of no frost and warm fall temperatures gave us an average GDU accumulation October 1 of 2338, just 7 short of the average 2345. Most corn reached maturity.

Soybeans

Nice seeding conditions continued from corn planting right into soybean planting and we soon found ourselves begging for rain. Beans planted 1 inch deep need a shot of rain to germinate. Finally rain came in early June and the beans emerged and looked great. We added a fall applied herbicide to the 08 soybean crop this year of Roundup, Valor and 2-4D. This was applied November 12, 2007 right after corn harvest, right over the top of the corn residue. I did not have high hopes for this working but wanted to get better control of volunteer canola and dandelion. When it came time for the first trip of Round up on the beans, I noticed that there were very few weeds on most plots. The plots that did have weeds were not treated. This looked good enough for me to try it again for the 2009 season. Both soybeans and corn required 3 shots of Round-Up. The cold and or dry weather was not the best for glyphosate applications and weed control suffered. We will dedicate a speaker at the 2009 field day to weed resistance management as I feel this is an extremely important issue especially for no-till. The soybeans looked fairly good in spite of the dry weather but the hot winds of Labor day weekend finished them off prematurely and probably cost several bushels of yield. Soybeans did not do well in the immediate area and our yields were comparable in the mid to upper 20's.

Alfalfa

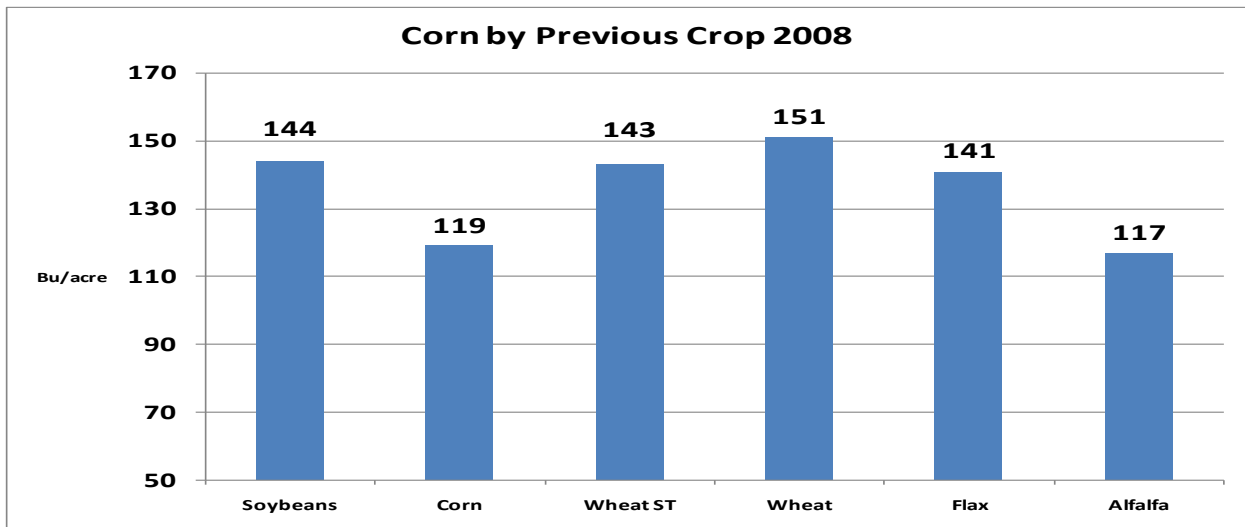
Alfalfa continues to be a fun crop to grow on the demo farm as stand establishment is so easy when fall seeded into winter wheat stubble. Every year it seems to work. I am sure we will hit a year with a dry fall sooner or later. By seeding in early August we often catch a rain. In combination with longer nights and cooler days of fall alfalfa

seems to catch very well. The wheat stubble helps hold the moisture at the soil surface and when winter comes the stubble catches snow and protects the young plants. We grow the alfalfa 2 years and it is killed out in the fall of the second year. The following spring corn is seeded directly into what is arguably the nicest seed bed on the farm. The first corn crop tends to be either the best or the poorest, depending on moisture. This year with less rainfall, the corn yield on alfalfa was on the poor side. Last year, with plentiful moisture the alfalfa ground produced the best corn yield.

Cover Crops

This was our first year to look at cover crops and their range of possible uses. Things we are looking at on the farm are moisture uptake after winter wheat, yield influence on the following corn crop, seeding mixtures, use around wetlands, and displays for field days. Our first experience has been a little mixed. We had good luck establishing stands with the concorde drill but not so good with the disc drill. Cover crops generally don't like to be seeded too deep and that may have been our trouble. I used one notch deeper than the alfalfa setting and visually the seed looked OK. It is quite difficult to find the seed so it may be good to use some dye or something else to make the small seeds a little easier find. Broadcasting the seed is an option we are considering as well. The concorde could be set to engage the seeding wheels while still being out of the ground for our small test plots. We planted sugarbeets and sunflowers on a slough edge with disappointing results. I felt the blackbirds ate most the sunflowers and the sugarbeets did not grow well. This again is small ¼ acres plots and field size planting may turn out different. Some of the soil we planted in looked pretty tough. We have made arrangements to have the NRCS soil scientist to document the soil characteristics. Maybe the soil is just too tough to grow these crops. We will try again in 09 and see if some changes in planting techniques and crop choices will help. It appeared that the turnip and radishes do very well in the fall. For demonstration purposes we seeded cover crops the first week of June so there would be something to see by our field day in early July. These crops grew but not very aggressively. We also seeded cover crops following winter wheat harvest. First impressions were that when the weather cooled down both the early and late seeded crops were more aggressive and had color improvement. Nitrogen fertilizer may be something to consider with some of the crops. One of the things we are considering doing is to use part of the nitrogen fertilizer we would put on the following cash crop with the idea of stimulating more cover crop growth which could help the cover grow to pull up deep residual soil nitrogen. This would stabilize the nitrogen for next year's crop plus improve organic matter and soil health. At Forman we received over 10 inches of rain last fall and a good amount of snow this winter. Excessive soil moisture this spring is practically guaranteed. Cover crops would be very beneficial in prevent plant areas to stabilize nitrogen, prevent and reduce salinity, and use up excess moisture. We have scheduled a speaker at the 09 field days to talk about salinity management. There are things a grower can do. Some items are costly like tile drainage; some less costly like cover crops. Probably the worst thing to do is tillage or spray, keeping the soil black, right up to the edge of the water. This allows moisture to wick up and deposit salt at the soil surface. When the soil dries up the salts will inhibit crop growth until the salts are leached back down below the root zone.

Rotation effects



Note: The "Wheat ST" was Strip tilled
 11. Effect on corn yield by previous crop

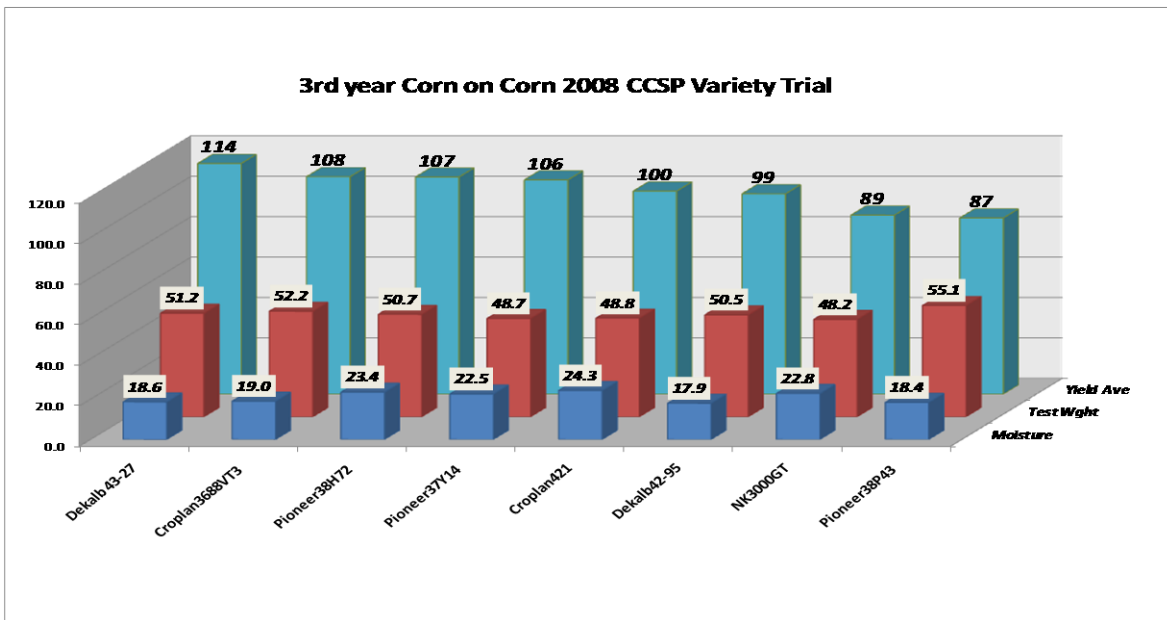


Figure 12. Variety Trial

Someone once told me that as farmers, we have control over about 25% of what goes on with our crops. The rest is weather and luck. I always enjoy something that forces one to be "lucky". After experiencing the thrill of victory and the agony of defeat on more than one endeavor this year most of us yearn for stability. It has become apparent that some things just plainly "work". Farm operations vary, but having diverse crops in a

rotation does make many things work by design and not luck. Most markedly this year was wheat. Corn was anticipated to be “king” but the reality was wheat probably deserved the title. It was a wheat year. Harvest went well with no need for drying or rutting up fields. Price opportunities were there, but that could be said about everything. Weed control issues are much better dealt with in a rotation. Agronomically, the list is long in support of rotations. Economically, you could make the argument that planting only the highest returning crop each year would be the best, but remember, volatility is killing market predictions. Many of the effects seen on our farm are specific to management preference and opinions, so I will talk about them in my final comments section.

A copy of all our annual reports, more detailed yield graphs and tables, periodic crop updates and comments can be found on our website, www.notillfarm.org.

Education

Our goal at CCSP is to promote conservation practices that are economically feasible for producers to utilize. Our main field day was held on July 10, 2008 where nearly 200 people attended. Again this year we hosted a tour of NRCS employees in the afternoon before the main field day. We also were able to include a group of high school ag educators. The group included vocational ag instructors, Future Farmers of America advisors, and high school teachers attending a mid-summer education course at Wahpeton State School of Science who took the time to join with the NRCS people. Later in the afternoon we had our main tour. “Farm Talk with Mick Kjar” was broadcast live from the tour where many of the board members, guests and members of the CCSP staff were able to visit live on the radio about their interests in conservation farming.

Others items worthy of mention included a very nice front page article on the farm published in the Sargent County Teller. We were also interviewed on a Prairie Public Radio Series dealing with carbon sequestration. Prairie Public TV highlight the farm in a series that that they did.

In the early part of September a small group of farmer from Grant County in Minnesota came for a small informal tour. On November 4th we once again hosted the Wahpeton School ag class for a farm tour that involved talks about winter wheat, cover crops and corn plot testing.

Impromptu small tours with sponsors, producers, or any interested group are always welcome. We look forward to the open exchange of ideas. Our next field day is scheduled for Thursday July 9, 2009.

Final comments from the Farm Manager.

Sponsors keep this project going so I want to thank all who have given their time, money, and talents in an effort to keep soil productive and available to feed a future world.

2008 was a very interesting and exhausting year. There have been massive fluctuations in all markets ranging from commodities, stocks, metals, and currencies. We will go forward but who will be paying the bill and via what channels of credit? As always, those who have cash and equity pick up the slack. It seems at the moment most farmers are in good financial shape. Farming is an expensive business and losses will not be tolerated for any length of time especially in the current banking world. I think the scariest thing is that the financial world is being driven by devices that most of us do not have the time nor the patience to understand. It was curious to watch the debate as to whether speculators were falsely raising the price of commodities. I could only think if that were true, we would be having piles of corn all around as there were in the 80's. The corn price has since declined, and corn is still moving but ethanol is not enjoying the optimism that it had. One has to believe that people will still eat. Many smart people said the economy was fundamentally strong only a few months ago, now we have lost half the value in equity markets and the world is reeling in a financial disruption. It appears you have to be either optimistic or pessimistic and work from there. I hope we have reached the bottom and can once again enjoy optimism.

One thing that does not change is the need to keep soil in place. In the great Depression on the 1930's the financial stress was made even worse by drought and severe soil erosion. Some of the land lost thousands of years of topsoil development. If we are to feed a world population of 12 billion plus souls in the not too distant future, eroded soil will not meet the challenge. We have to find and use economical and productive ways to farm while limiting soil erosion to acceptable levels. Water conservation is just as vital. Populations are increasing in areas that use water for irrigation. The water in the desert southwest is under increasing pressure and will limit the agricultural production as the population grows. All of our problems do have answers, but no one likes a bitter pill. Most solutions are better implemented earlier rather than later and cost far less.

It is always fun to see how things turn out at the plots. It was especially fun to grow wheat and flax this year. Corn and beans struggled. Alfalfa had a really good first cutting, but lack of rain diminished the 2nd cutting and eliminated the 3rd. Weed control was challenging as glyphosate was sprayed in less than optimal conditions and some pre-emerge herbicides did not get rain for activation. The wheat turned an off color yellow after being sprayed in cold conditions. A 3rd pass of glyphosate was needed mostly for pigweed in corn and beans. At the end of the season weed control was good. I have decided that weed control has to be taken on very aggressively. Using short term economics

can dramatically reduce effective weed control product use and measures. I suggest that you match your economic philosophy to farm philosophy. If you or your family want to farm long term, the weed control objectives must be long term as well. It is not a matter of if weed resistance will happen but when. Even if your neighbor gets resistance issues first, you will have some warning and should be able to avoid a disaster. A lot is at stake with this issue and one should become aware of how best to deal with it. I will continue using fall treatments where they will fit in and use more types of chemistries. A disadvantage on the plots is that sensitive crops may be right beside the target crop. Drift retardants and air induction nozzles will only do so much when using products like dicamba. You will have even more flexibility on your own farm in most cases.

Spring is fast approaching and we are looking forward to another year of crops. We will continue with most of the rotations. Some of the demo's that will be new or have been recently added are manure and compost, cover-crops, continues corn, nematode corn seed treatment, winter wheat following soybeans, switch grass, and fall applied herbicides. We have three different winter wheat varieties planted and also in winter wheat a fall applied herbicide demo. A new piece of equipment scheduled for spring delivery will be a twin disc drill, donated by Amity Technology of Fargo. This piece of equipment will offer some exciting possibilities for our farm. We also hope to add more informal field days for small groups. The work that goes on the farm is only a part of what the project has to offer. With all of the board members actively involved with agriculture and most of them farmers themselves a tremendous wealth of knowledge and experience exists within our group and is available for the asking.



Small Group Discussion at 2008 summer field day.