

WINTER 2010

Fall / Winter Update

INSIDE THIS ISSUE:

2009 FALL REVIEW	1
HAIL	2
BIOREACTOR	3
VERTICAL TILLAGE	4
TILLAGE COMPARISON	5
NITROGEN APPLICATIONS	6
TOP PRODUCER ARTICLE	6-7

The fall and winter of 2009/10 will definitely have a spot in the history books. It's the beginning of March and our snowfall total so far is 58". We haven't seen higher temperatures above 35 since early December. Snow plows, snow blowers and shovels have all gotten a good workout this winter. The winter of 2010 will definitely be remembered.

This crazy winter was preceded by one of the most extreme weather patterns that a corn and soybean crop could possibly sustain. A normal growing season starts out with a warm/dry spring during the April-June time period. An earlier than normal planting season is how we started, but come July, we stayed very cool with plenty of moisture. July 2009 was the coldest July since 1937, averaging 68°, ranking in at 5.8° below normal. July is corn root development month, so being the 38th wettest in 137 years, the corn plant did not have to put down roots.

August warmed up a little bit, but with cooler than normal temps, corn was tracking to be severely behind normal maturity. Black layer in corn normally occurs in early Sept, but this year it did not present itself until mid Sept-Early October. October came and we were still needing warm weather to help the corn dry down, but we got wet again. October ranked as the 2nd wettest and 3rd coldest on record in the past 137 years. Our corn was still over 35% moisture. Because of the late season we were still combining soybeans. A warmer and dry November finally allowed us to complete harvest for both soybeans and corn. Corn was still averaging over 23-25% moisture as compared to a normal harvesting moisture of 15-18%. Normal drying costs per acre is around \$20-\$30/acre. This year our drying costs were closer to \$100/acre. A true input cost that was not expected.

Fall Strip Tillage was completed, but none too early. The Monday before Thanksgiving we went until 2 am and by 5 am the ground was covered with our first major snowfall of the season. Putting the equipment in the shed after the 2009 growing season could not have come soon enough.



OUR FAMILY DOING BUSINESS
WITH YOUR FAMILY!

HAIL, HAIL, AND MORE HAIL...



Above: Ear damage was extensive.

Bottom Left:: See top ears from hail damage fields, and below ears from 2 miles away.

Bottom Right:: Corn was up to 80% defoliated in our area. Some areas upward of 100% defoliated corn.

It was Sunday morning, August 9th and our family was in church. The national weather service had issued a Severe Weather Storm Warning capable of producing high winds and large hail. The storm system passed just south of Fort Dodge, with the heaviest hit area being just 1 mile south of the home farm where Gary and Karma live. An area 2 miles wide was severely hit with hail in excess of 3" and lasting over 30 minutes. Golf ball to baseball size hail hammered crops, homes, and everything in its path. The town of Otho and houses 5 miles around Otho all got new roofs and many of them, new siding as well. It was another major weather system to add to our history books for 2009.

The crop left to harvest within this 2 mile strip was minimal. Much of the corn was harvested in September with yields of only 60 bu./acre. Mold, kernel damage, abnormal moisture and micro-toxins were all part of the grain being harvested. Corn was being docked up to \$1.50 per bushel for poor grain quality and mold. Then large drying charges on top of that because of the corn being over 25% moisture. Combining the corn consisted of blowing out cab air filters every couple of hours due to the dusty conditions. The grain cart sat on the end rows due to the extremely low yields. A couple area farmers that were hit hard had all of their corn harvested and fall tillage done before bean harvest ever started.

Managing risk, that is what farming is all about! The past couple of years, managing your risk has been the key to either being successful or finding yourself coming up short. Crop Insurance is something that we buy on every acre. With upwards of \$800 invested in each acre of corn, a severe crop loss such as this is very detrimental to the bottom line. Dave and Fonda's crops were the hardest hit due to their acres being in the path of this storm. Our corn in this area averaged 65 bu./acre and our beans 12 bu./acre. On our farms that were affected, crop Insurance paid the bills this year, not the bushels harvested.



Smeltzer #4 was severely damaged on the north side with yields averaging 60 bushels. The south end of the field avg'd around 140 bushels.

ON FARM RESEARCH & DEMONSTRATION

A Bioreactor was installed on our Smeltzer #4 Farm this past summer. It will give us a great on-farm comparison as to the viability of this type of drainage practice...



What is a Bioreactor? A Bioreactor is essentially an underground trench filled with a carbon source (commonly wood chips), through which field drainage tile water is allowed to flow. The carbon source provides material upon which microorganisms can colonize. Using wood chips as a food source, the microorganisms begin breaking down nitrate in the water, and expelling the nitrate as a gas.

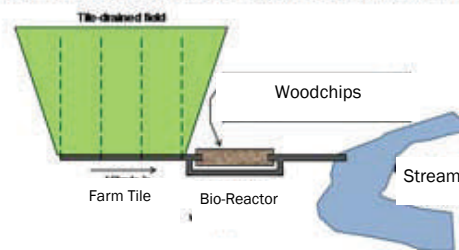
The bioreactor has no adverse effects on crop production and is designed in a way that it does not restrict drainage. An advantage of a bioreactor over designed wetlands is that it does not necessitate taking any land out of production. During periods of high flow, excess water bypasses the bioreactor and continues to flow through the existing field tile.

Background: To make farming operations productive and viable, most ag. land located in NC Iowa is artificially drained or tiled. As a result of the tile systems in place, high concentrations of soluble nutrients like nitrate nitrogen are reaching Iowa's streams and rivers. Edge-of-field treatment systems, such as buffer strips, have been installed to reduce contaminant loads in reviewing waters. However, as research is showing, outside of large rain events most water leaving ag. fields is through subsurface tile flow and is never coming in contact with these filter systems at the surface. To capture subsurface flow, current practices such as wetlands and retention ponds exists, but in addition to their large costs they also require land to be taken out of production. A new practice gaining interest is the use of bio-reactors to reduce the amount of nitrate nitrogen reaching surface waters.

Preliminary Bio-reactor results are showing a 60% reduction of Nitrate Concentration in the water exiting the bio-reactor vs. the water entering the bio-reactor.

Denitrification Bioreactors

- Biologically mediated reduction reaction
- $\text{NO}_3^- \rightarrow \text{NO}_2^- \rightarrow \text{NO} \rightarrow \text{N}_2\text{O} \rightarrow \text{N}_2 \text{ gas}$
- Denitrifiers: anaerobic, need carbon and nitrate



A Field day was hosted on the Smeltzer #4 farm in August. Over 40 attendees from area farms and agencies attended



VERTICAL TILLAGE OR HORIZONTAL TILLAGE?

The conventional tillage program has been around for many years and in some instances is being described as becoming “old fashioned”. It consists of multiple intensive tillage passes across the entire field. Tillage can be a good thing, however too much tillage or the wrong kind of tillage can be very detrimental to the natural characteristics of a healthy soil. Think of a gopher mound that you find in the banks of the road ditches.

Notice the soil particle sizes, the soil aggregation, the “potting soil” type of soil that is there in that gopher mound. Now, what if you could create those type of ideal soil conditions in your field? That’s exactly what we are striving for in the strip tillage system. **A healthier & higher producing soil!**



Vertical Tillage: Tillage where the knife, shank, or blade is pulled through the soil “VERTICALLY” creating a lifting and mixing action through the soil profile. There is no compaction layer created due to nothing being smeared through the soil. Everything is being “lifted” and then released. This is the principal behind a sub-soiler, ripper, or strip tillage applicator. Most commonly vertical tillage is done in the fall.

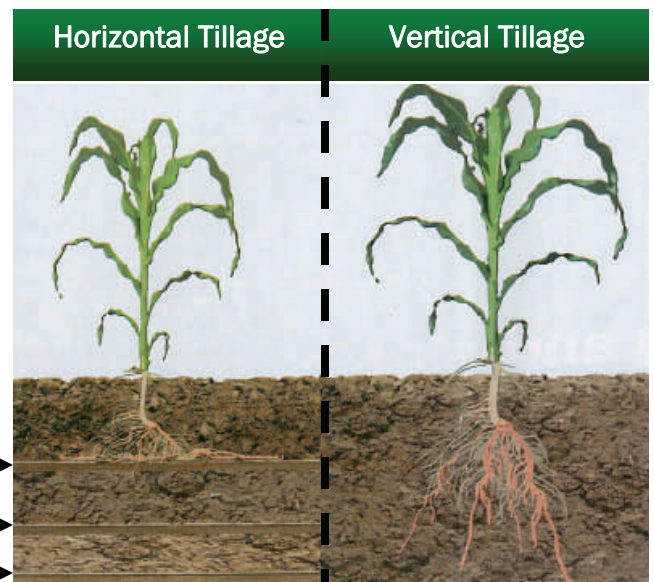
Horizontal Tillage: Tillage where the soil is moved sideways, smeared, or swept sideways. By moving the soil sideways you create a “smearing” action which in most soil conditions creates a “hardpan”. Common horizontal tillage tools would be a disc, field cultivator, or moldboard plow. The field cultivator is most commonly used in the spring to create the “ideal” seedbed. So why is the “hardpan” bad? It is a layer of soil that creates a compacted (sealed off) barrier that does not let roots go down deep nor does it let rain water percolate through the soil profile. Rain water soaks in to the 3-4” level where the field cultivator sweep ran and created the “hardpan” smeared layer. Once that 3-4” is saturated, the rain water then ponds and runs off. This all happens vs. the alternative of the water being able to percolate all the way through the soil profile.

Better understanding these benefits and limitation has helped us consider the implementation of strip tillage on our farm. We are doing a vertical tillage pass in the fall at the same time placing our nutrients where the root zone will be for next year’s crop. We are eliminating the spring field cultivator pass due to its compaction and smearing results that it leaves in our seed bed. See the illustration below as to how the roots as well as rain water is trapped in the top 3-4” of the soil profile. In a sense we are limiting the plants ability to access nutrients and put down a healthy root. Deep roots allow for a strong plant to withstand wind storms, access deep moisture and find the nutrients that are available.



Notice the depth at which the field cultivator ran. The bottom of the cultivator sweep created a smeared sealed off layer. This is referred to as the “hard-pan”.

Field Cultivator
Disc
Moldboard Plow



STRIP TILLAGE VS. CONVENTIONAL TILLAGE...

Getting the results from an On-Farm comparison is always hard to wait for! That is exactly how we felt this past year with all of the trials and comparisons that we had spread out across our farms. Each year we try to pick 2-3 comparisons on our farm that will help us evaluate the “next step” or “new technology” that we should be considering. One of those comparisons this year was comparing a normal conventional tillage program vs. a strip tillage system. The Smeltzer #1 farm was the location of this field size tillage comparison.

Strip Tillage: The right hand side of the field was strip tilled the prior fall. It was soybean stubble that we strip tilled into placing the potassium and phosphorus in the strip about 7” deep. This strip tillage pass was the only tillage done on this side of the field other than the planter, sprayer, and side dress application of nitrogen.

Conventional Tillage: The left hand side of the field received the fertilizer as a broadcast application from a floater hired to spread the fertilizer. This was done in the fall over the bean stubble. Come spring it was then field cultivated, planted to corn, sprayed, and then side dressed with nitrogen.

Summary: Looking at the yield map below, you can see no statistical difference in the yield from the strip tillage to the conventional tillage. This is telling us just what we wanted to know. We were not looking for a yield increase immediately from strip tillage. Reduced labor, fuel, & machinery, & custom spreading charges are all ways that strip tillage is benefiting our operation in the present. After 2 years of strip tillage we can already see the next benefits to come with the strip tillage system. Better water infiltration allowing the crop more available water. Minimal compaction issues giving us a healthier soil for plant life. The soil structure is changing giving us more earth worms, better soil aggregation and creating that “gopher mound” type of soils. We feel we are being better stewards of the soil by keeping it in good health and keeping it in the field, not down the streams and rivers.

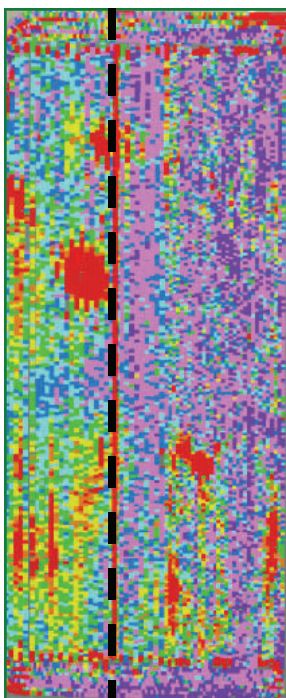


THE VALUE OF “SPLIT-APPLICATION” NITROGEN TO A CORN CROP.

Another comparison that we had on our farm this year was to see how valuable it is to split up our nitrogen application into 2 applications. Nitrogen is the biggest yield limiting nutrient to a corn plant. The corn plant removes (requires) anywhere from 0.9 – 1.2 #'s of nitrogen per bushel of corn. Our yields are pushing the 200 bu./acre depending on the year. So if we are applying upwards of 200 units of nitrogen in one application, normally in the fall, what is the chance that it will still be there come next July? A warm wet fall can be conducive to nitrogen loss as well as a wet spring. I've related it to eating supper in the evening and then skipping breakfast and lunch in hopes that your breakfast will carry over and give you enough energy to get to suppertime. It's the same in the nitrogen requirements of a corn plant. Putting it on in the fall and expecting the plant to have plenty of nitrogen all the way through the next growing season... We can very easily see the nitrogen losses in our field drainage tiles with the bioreactor, so how can we say that the nitrogen that we are putting on all in one application is staying put? That is what we are after in this comparison. It will help us determine on our farm what is the best way(s) to apply nitrogen.

Left side of the yield map below is where the ENTIRE rate of nitrogen was applied when the corn was approximately 6" tall approximately June 1st. It was side dressed NH₃. This entire field was strip tilled the prior fall placing the Potassium and Phosphorus approx 7" deep in the strip.

Right side of the yield map is where we applied 100# of nitrogen in the fall with our strip tillage machine. The balance of the nitrogen was applied the same June 1st side dress application.



Estimated Volume (Dry)		
(bu/ac)		
230 -	300 (5.25 ac)	
200 -	230 (17.82 ac)	
190 -	200 (10.16 ac)	
180 -	190 (10.18 ac)	
170 -	180 (8.84 ac)	
160 -	170 (5.55 ac)	
150 -	160 (2.98 ac)	
0 -	150 (6.18 ac)	

Summary: As you can see by the colored results, the split application of nitrogen (right side) yielded noticeably more. This result does not necessarily support the split application benefit as much as it illustrates the needs for nitrogen to the early germination/growth of the corn plant. Even though all the nitrogen was applied (left side) when the corn was only 6" tall, it proves the importance of providing the corn plant some nitrogen early in its life cycle. We set out to learn if there was a split application benefit, however, this comparison taught us something we were not really looking for: **THE BENEFIT OF NITROGEN BEING AVAILABLE TO THE CORN PLANT VERY EARLY IN ITS LIFE CYCLE.**



Below: The strip till machine applying variable rate Potassium, Phosphorus, and Nitrogen all in one pass. This is done in the fall after harvest. This fall we put down 100# of nitrogen on every corn acre to assure the plant has adequate nitrogen for its early season needs.

Above: Side dressing the nitrogen approximately June 1st. The nitrogen is variable rated throughout the field according to soil sample maps. By feeding the corn multiple times, its like giving the corn plant "power snacks" throughout the growing season.



DAVE AND GARY FEATURED IN TOP PRODUCER MAGAZINE



There's No Place Like Home

By Jeanne Bernick, Feb 2010

Most days, Dave Nelson loves the slower speed of life as a corn and soybean producer near Fort Dodge, Iowa. After a decade in fast-paced sales, Nelson appreciates that when his Blackberry buzzes, it's not a boss needing an immediate answer.

There are days, though, when Nelson wants to jump out of his skin—when the hours in the tractor are so long and quiet he can barely stand it. “I can tell when he's on the edge because he gets on the radio and starts yammering,” says his father, Gary.

A hard-driving, type-A personality, Nelson says coming home to farm with his father has readjusted his gears. He's slowed down some, is spending more time with family and is fulfilling a lifelong dream.

With a creative business strategy, Nelson not only came home to farm in a competitive local land market, he's implemented corporate business skills to double acreage and boost profitability per acre.

Taking the Leap. In 10th grade, Nelson joked about dropping out to farm his family's fourth-generation crop operation. His parents calmly declined. When he graduated high school, they again refused the opportunity, being practical in the knowledge that the size of the operation simply couldn't support him at that time.

“That was a blessing because it forced me to go to college and get a job off the farm,” Nelson says. With a degree in agronomy, he is the first in the family to graduate from college.

Despite becoming a top salesman for Ziegler Cat and Monsanto Company in Iowa and Minnesota, Nelson couldn't shake the longing to farm. “In secret, I would work on business plans and a strategy to get us back to the farm,” he says.

In 2006, Nelson got serious about returning home to Iowa. By now he and his wife, Fonda, had started a family. Fonda grew up on a farm and missed the lifestyle, and both wanted that experience for their children. Nelson's parents' farm consisted of about 1,000 acres, which he knew could not support two families. Land values at the time averaged \$5,000 an acre, making it cost-prohibitive to buy land with limited working capital or equity.

His parents were supportive in the decision, as they felt the time was right to grow the operation. They exchanged equipment use for labor, but they could not finance additional acres for Nelson to farm on his own.

Nelson talked to more than 15 farm managers in the area and many potentially retiring farmers about the possibility of renting land. The young couple came up with a detailed business plan and developed a brochure that explained their business experience, their passion for farming and the family's farming operation.

“The brochure is something people can see and read about us. It's something a farm manager can file away, and it makes an impressive first impression,” Nelson says. The first piece of ground the couple rented in 2007 was a direct result of the brochure, he adds.

Search for Working Capital. While Nelson worked on establishing relationships near his home farm, he struggled with how to finance the land once it came available. About that time, a headhunter called and told him that a local fertilizer equipment dealership was looking for a sales manager. “I thought to myself, ‘What are the odds that this will work out?’” Nelson says.

Indeed, it did. Using their savings, Nelson and his wife, along with his parents, purchased Brokaw Supply Company in Fort Dodge. They formed an LLC and became 50/50 partners. Purchasing the business gave Nelson the diversity to balance risk and provided an income source to fund land expansion.

The purchase fueled Nelson's need for that “busy craziness” that comes with running a retail business. It also allowed Fonda to exercise her business and banking skills. She now manages the office.



TOP PRODUCER CONTINUED...

Running Brokaw Supply Company is helping both generations improve their financial knowledge, even on the farming operation, Gary says.

"In farming, we can always borrow a large percentage of operating costs, but in the retail business, they only loan a small percentage of operating costs," Gary adds. "That has taught us a lot about managing margins."

Overcoming High Rents. When Nelson first spoke with people about starting out in farming, they discouraged him because he couldn't compete with high cash rents. He says he just views high land values as a reality of farming in Iowa.

"I don't want to show up at a sale with a goal to be the highest cash-rent bid," Nelson says. "I'll be a competitive bid, but I want landlords to see what we bring to the table and choose us on those merits."

Nelson decided he had to overcome the high rent challenge much like he would overcome a challenge in the corporate business world. So he figured his operating cost per acre and incorporated that into his business plan to see how much he could pay per acre in cash rent. From there, he looked to find the things that he could offer that separated him from "the farmer down the road."

"When I worked for Monsanto, we sold Roundup in a generic market. I was always looking for ways to differentiate our product. Marketing myself and my operation to potential landowners is really no different," he says.

One thing he could offer was the Beginning Farmer Tax Credit, a credit in Iowa that provides the landowner 5% more for cash rent and 15% for share crop in state tax exemptions if they rent to first-time farmers.

Nelson's attention to detail and thorough analysis with his business plan was helpful in the process of building a banking relationship, says Sharon Heun, Nelson's loan officer with Northwest Bank.

"The Nelsons are very easy to work with, keeping the communication line open as various decisions need to be made within their operation," Heun says.

Nelson and his father have adopted new technologies to improve their cropping operations and farming practices. They use RTK auto-steer and variable-rate fertilizing, planting and herbicide application.

Lately, Nelson has begun using field mapping technology to map rental acres. He then takes the time to show landlords how he is improving yields and managing the land. Recently, Nelson won a national no-till award for his production practices.

Working with Dad. With only 19 years' difference in age, Nelson admits that sometimes it's a challenge to farm with Dad because he runs in a much different gear.

When Nelson first returned to farm, he told his father they needed radios in all the equipment. "Dad said, 'For 20 years, we've used hand signals, and now it's not good enough?' Now Dad won't live without the radios."

Today, they share labor and machinery: The younger Nelson does the precision planting and strip tillage, and the elder Nelson does the spraying and combining. They share the sidedressing work.

Gary says he's thrilled to have his son home farming with him, but it took some time for the next generation to prove his worth. "I spent my lifetime building up this farm, and I trust Dave, so it's been fun learning how to work together," he says.

Now, he's looking forward to the day that his son takes over the entire family farm.

Nelson's desire to grow the operation and expand is enhanced by his father's experience. With the aid of corporate business knowledge, Nelson is discovering you can go home again.

Dave & Fonda's Advice for Starting Out:

It's not by chance that Dave Nelson has successfully made the transition from corporate businessman to beginning farmer. He spent a lot of time thinking about how to make the transition before he ever planted his first acre in 2007.

Here are several tips Nelson offers for making the leap into farming:

1. Seek advice from anyone who will talk to you about being successful in farming.
2. Develop and write a business plan. Continually update and modify it to fit your current situation.
3. Create a brochure for landlords about who you are and what you want to achieve. Share your business plan with them.
4. Speak with farm managers, ag loan officers, university Extension personnel and local ag. industry individuals about your desire to farm and seek their help and advice.
5. Diligently follow up on any land opportunity or leads sent your way.

PHOTO JOURNAL



Above: The hail storm of Aug 9th had baseball size hail caused millions of dollars damage in its path.

Below: Soybean harvest started late on Oct 5th, but yields were good.



Above: An area outside of Callendar had 100% damage to corn. Nothing left but stubs.

Left: Many plants had 2 years on them, but due to cool weather, only 1 of the ears fully pollinated.

Below: Strip tilled beans into corn stalks on the VanDiest Farm. Notice the old corn rows still standing.

Nelson
Family Farms
EST. 1899



Center: Filling the semi with Corn on the John Haire farm.

Far Right: Uncle Tom waiting for a load

Below: A day in the field is not complete without the grandkids coming out to ride with grandma. Deirdre and Estella pose for a picture.

Bottom Right: 2009 marked 36 years that Gary and Karma have been farming together.



PHOTO JOURNAL



Left:: Fonda combining corn on Landcasters. You know her Dad is proud even though it's a John Deere.

Right:: Our new service truck from Brokaw Supply out to repair an airleak on the semi.



Below: Tyson is a farm-boy at heart but sometimes a nap just has to be taken.

Bottom Left:: Filling the rear compartment on the fertilizer tender with MAP. The front compartment holds the Potash.



Left:: With the muddy conditions this fall, many times we had to load on the gravel roads.

Below: Dave filling the strip till machine on the Betty Haire farm.

Bottom Right:: Combining hail damaged corn on the Smeltzer #4 Farm.



NEW
COOPERATIVE INC.
NEW



PHOTO JOURNAL



Left: Fonda and Tyson were combining buddies this fall. Even though Tyson was not driving he was making sure Fonda did it correctly.

Right: The view from the strip till machine is full of monitors, camera's, and auto steer controllers..



Right: Seeding Rye grass on the Iowa Learning Farm for cover crop comparisons.

Below: While everyone else was combining, Dave ran the strip till machine over all of our acres this fall



Below: This last fall we stripped tilled many of our corn stalks for beans next year. This is another example of reducing intensive tillage and using only vertical tillage practices.



OUR FAMILY DOING BUSINESS WITH YOUR FAMILY!

With your help, our Family Farming Operation continues to grow! As the spring of 2010 quickly approaches, we would like to thank all of our farming & business partners. Without your help and assistance we could not be where we are today!

If you or anyone you know is looking for a long term tenant, we would be excited to share more details about our Farming Operation. We pride ourselves in the relationship and open communication with everyone that we do business with. If you have any questions, comments, or suggestions, please feel free to contact us!



Our Century Farm Since 1889

Gary & Karma Nelson

2455 Madison Ave
Fort Dodge, IA. 50501
Cell: 515-571-1886
E-mail: garynelsonappraiser@yahoo.com

Dave & Fonda Nelson

1307 Knollcrest Dr.
Fort Dodge, IA. 50501
Cell: 515-574-9519
E-mail: fdfarms@hotmail.com

Change is difficult, but often essential to survive... *Les Brown*

Nelson Family Farms Newsletter

Nelson Family Farms
EST. 1889

Winter 2010



OUR FAMILY DOING BUSINESS
WITH YOUR FAMILY!