



Cover Crops in Seed Corn Production

The good, The bad and The ugly

My background:

Corn and Soybean Farmer from Arlington

Own and operate Recker Excavating Inc.

Past President of the Iowa Corn Growers

Past Chairman of the Iowa Land Improvement
Contractors

2014 Pilot Program

- Limited, one year program for 2014 Oelwein seed growers.
- Goal – encourage seed growers with limited cover crop experience to undertake the practice.
- Program details
 - Monsanto shared the cost of cover crop seed planted on 2014 Oelwein seed fields
 - Participants provided field practice information for tracking



Compaction on end rows



Can Radish help this problem?



What I am trying to prevent

My Farm incorporates the following
Conservation Practices:

Grassed waterways

Terraces

Wetlands Cp-27, Cp-28

Grassed Buffer strips

Cover Crops

Conservation Tillage

Precision Nutrient Placement

Quail Buffers

Water control system

Drainage Tile

Started cover crop plan in Spring of 2011.

*Buffet Foundation support of High Yield Conservation project.

*I was willing to experiment on my farm.

*Cover crops worked in my current management plan.

*Started with Radish and Oats on end rows.

*2012 broadcast oats and Radish on half of the seed corn acres.

*2013 used Radish and oats on all seed corn acres.

*2014 used Cereal Rye and Radish.

Proposed Benefits of Cover Crops

- Long-term soil health
- Erosion control
- Nutrient scavenging
- Ideal for seed production fields harvested in September
- Additional means to address compaction issues with seed fields.

Planting Headlands/Driveways

**Broadcast Seeding Radish/Oat Mix.
70 Days After Planting**



**Incorporating Radish Early for Maximum
Tillage Benefit. 81 Days After Planting**





John Deere high
clearance application



Male rows are cut out.
This provides easy
application for cover
crops



Mixture of Oats,
Radish, crop oil, and
Potash

Planting Timing

9-8-14, 58 DAP



10-8-14, 28 DAP



Planting Method

Rye, Drilled 9-15-24, 51 DAP

**Oats, broadcast after tillage, rolled.
9-24-14, 42 DAP**



Planting Mixture

Rye planted in-field, radish/rye mix in headlands



Radish planted early in headlands, planted after harvest in field.





Seed Corn End
Rows



Low Traffic area



Benefits of planting cover crops in Seed Corn

- * Easy to implement
- Eliminated some mechanical tillage.
- Scavenge unused nitrogen and phosphorus.
- Natural living buffer around seed fields.
- Increase soil structure.
- Spring and fall erosion control.
- Help meet Iowa Nutrient Strategy.

Summary

- 18 of 27 seed fields in Oelwein have some portion of their acres covered.
- Range of establishment success
- Planting timing and weather
- Experimenting with several cultural practices
- Best Practices
- Plant at earliest opportunity
 - End rows early, in-field after harvest
- Increase seed-to-soil contact
 - Drilling vs. spreading
 - Tillage incorporation

Cover Crop or Forage Crop

– Cover crop

- Plant material does not leave the field
- Not considered a “crop” on pesticide labels

– Forage crop

- Leaves the field used for food, feed or bedding
 - graze
 - harvest
- Must follow pesticide label restrictions

	Wheat	Rye	Oat	Barley	Triticale	Alfalfa	Clovers	Peas	Canola	Other brassicas	Forage grasses
Corn (cont.)											
Laudis	4	4	4	4	4	9	18	9	9	18	18
Lexar	Nspr	Nspr	Nspr	Nspr	Nspr	18	18	18	18	18	18
Lumax	4.5	4.5	Nspr	4.5	Nspr	18	18	18	18	18	18
Permit	2	2	2	2	2	9	9	9	18	12 to 18	2
Resolve	3	18	9	9	18	10	10	10	10	18	18
Simazine	Nspr	Nspr	Nspr	Nspr	Nspr	Nspr	Nspr	Nspr	Nspr	Nspr	Nspr
Status	1	1	1	1	1	1	4	4	4	4	4
Soybeans											
Assure II	4	4	4	4	4	4	4	0	0	4	4
Authority Assist	4	4	18	9.5	30	12	30	10	40	30	30
Authority Elite	4.5	4.5	12	4.5	4.5	12	12	0	12	12	12
Authority First	4	12	12	12	30	12	30	12	24	30	30
Authority MTZ	4	18	18	4	18	12	18	18	18	18	18
Authority XL	4	4	18	4	36	18	18	36	36	18 to 36	36
Classic	3 to 4	3 to 4	3 to 4	3 to 4	3 to 4	9 to 12	9 to 12	9 to 12	18	18 to 36	3 to 4
FirstRate	4	18	9	12	18	9	18	9	18	18	18
Poast Plus	1	1	1	1	1	0	0	0	0	0 to 1	1
Pursuit	4	4	18	9.5	40	4	4	0	40	40	40
Raptor	3	4	9	9	18	3	18	0	18	9 to 18	18
Reflex (Flexstar)	4	4	4	4	4	18	18	10	18	18	18
Select	1	1	1	1	1	0	1	0	0	0 to 1	1
Valor	1 to 2	4 to 12	4 to 10	3 to 4	4 to 12	4 to 10	4 to 10	3 to 4	4 to 12	4 to 12	4 to 12

Overall Comparison of Nitrate-N Practices

Practice/Scenario	Nitrate-N Reduction	Cost of N Reduction	Other Benefits (Ecosystem Services)
	% (from baseline)	(\$/lb)	
Reducing nitrogen application rate from background to the MRTN	9	-0.58	
Cover crops (rye) on ALL CS and CC acres	28	5.96	++
Install Wetlands to treat 45% of the ag acres	22	1.38	++
Install Denitrification Bioreactors on all tile drained acres	18	0.92	
Install Buffers on all applicable lands	7	1.91	++
Installing Controlled Drainage on all applicable acres	2	1.29	
Perennial crops (energy crops) on ~6.5 million acres	18	21.46	++

Example: Combination Scenarios that Achieve N and P Goal From Non-Point Sources

Practice/Scenario	Nitrate-N Reduction	Phosphorus Reduction	Initial Investment	Total Equal Annualized Cost	Statewide Average EAC Costs
	% (from baseline)	% (from baseline)	(million \$)	(million \$/yr)	(\$/acre)
MRTN Rate, 60% Acreage with Cover Crop, 27% of ag land treated with wetland and 60% of drained land has bioreactor	42	30	3,218	756	36
MRTN Rate, 95% of acreage in Cover Crops, 34% of ag land in heavily tile drained land treated with wetland, and 5% land retirement	42	50	1,222	1,214	58

From Iowa Nutrient Reduction Strategy: Goals for Nonpoint Sources is 41% reduction on Nitrogen and 29% reduction on Phosphorus

Water quality starts on my farm



Wetland in May



Mississippi River

No Silver Bullet in Achieving Soil and Water Quality
My Goal is to get 100% of watershed stakeholders to do
something new.

Questions?

