A photograph of a farm at sunset. A vibrant rainbow arches across the sky, its colors transitioning from purple at the top to yellow at the bottom. In the foreground, several tall, cylindrical metal silos are illuminated by the warm, golden light of the setting sun. The silos are arranged in a line, with some appearing closer than others. The background shows a line of trees and utility poles under a soft, hazy sky. The overall scene is peaceful and picturesque.

# Manure, no till and Cover Crops on a Dairy and Grain Farm

Dan Meyer

# Farm History and Facts

- 1250 acres
- 150 milking cows and 400 total Holsteins with youngstock
- Corn, soybeans, wheat, oats, barley, alfalfa/grass hay, dry field peas...
- Our children are the 5<sup>th</sup> generation to walk the same fields as my great grandfather



# Road to Cover Crops and No-til

- Started Chisel plowing in 1987
- No-till drill in 2004
- All no-till 2014
- New way of managing manure evolved
- Easiest fields to transition to no-till were those that had been chiseled longest and history of manure in rotation



# Goals!



Don't get  
snookered  
when  
applying  
manure



1. If this is your field what would make manure application less risky for surface and ground water.
2. What would make the guy with his hands on his hips happier also.

# Manure application in no till before Winter Wheat Planting



Apply Manure  
Before Winter Wheat  
Planting



- Mix 4 # grass hay mix with wheat seed in fall
- Early Spring frost seed 10 pounds red clover alone, 10 # alfalfa with 4 pounds clover and/or add 2 pounds white clover
- Apply manure after wheat harvest and have green growing crop holding nutrients, wide window all the way through fall and the next spring.



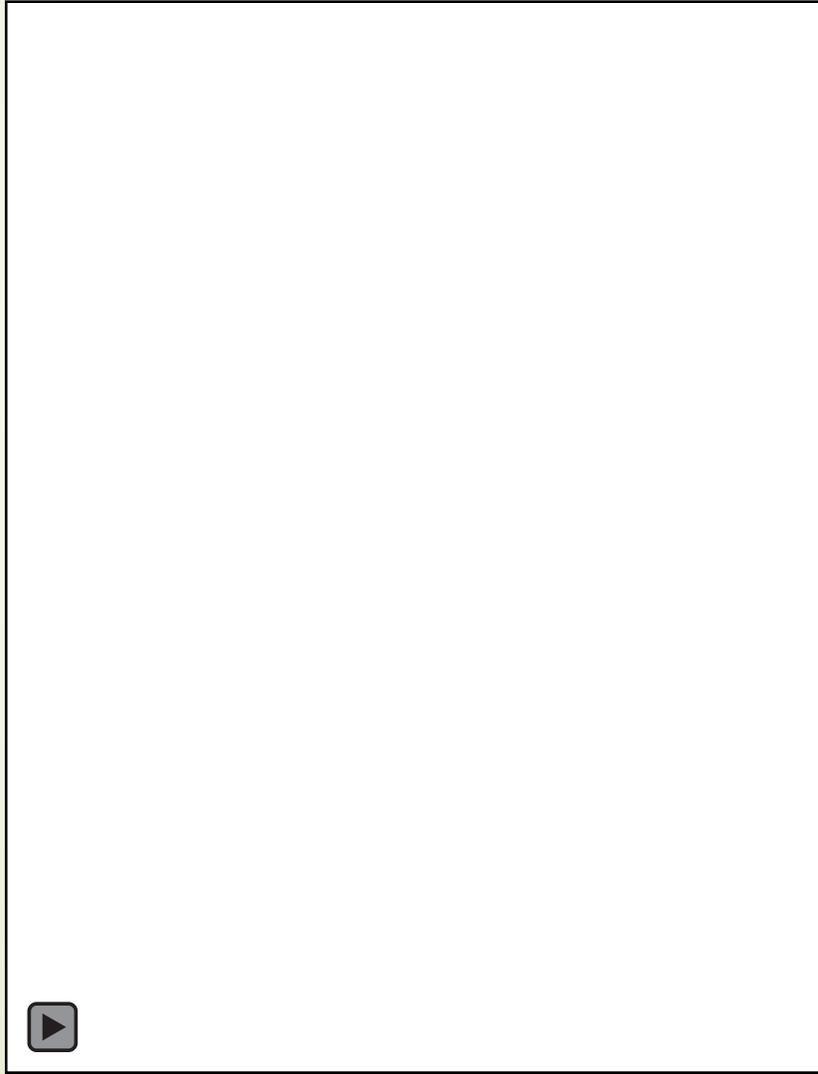
# Cover Crop No Brainer

➔ Winter Wheat and fall small grains planting before or after manure application



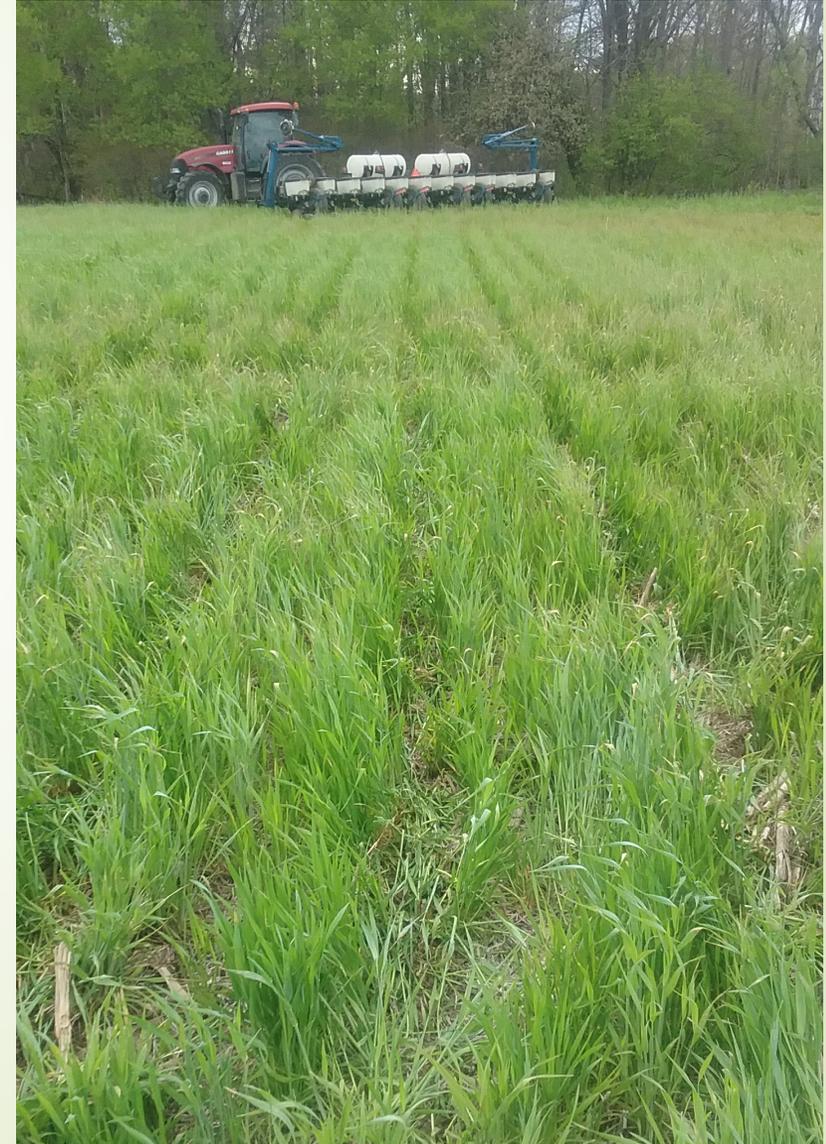


# Green planting to catch manure nutrients

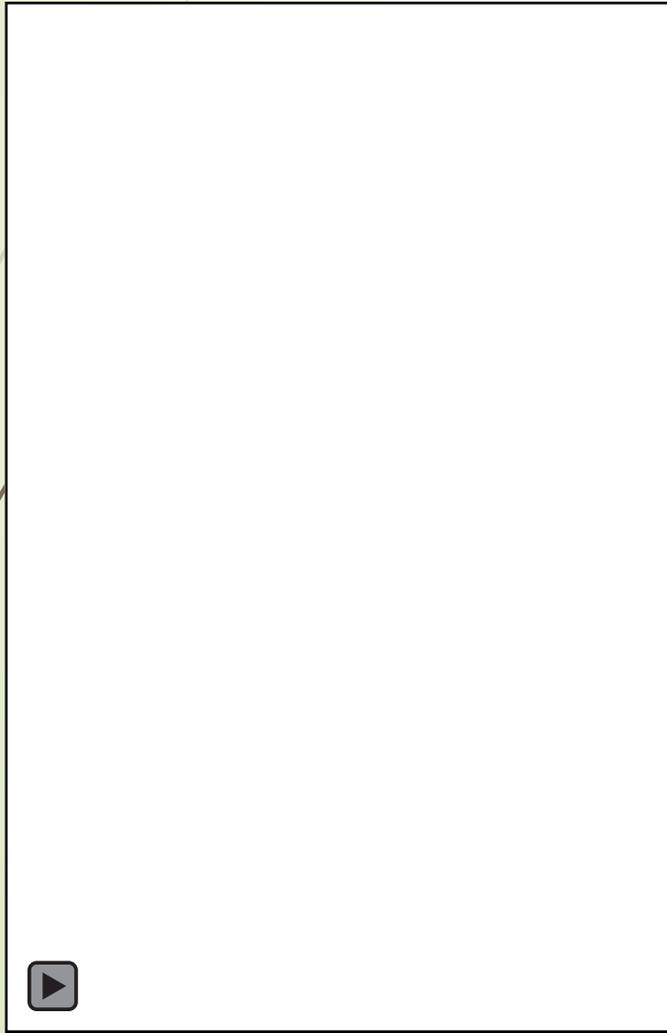


# No-Till into growing Cover crop

- ▶ Terminate cover-crop at about 8 inches before corn
- ▶ Soybeans are not hurt by very tall cover crops unless dry conditions
- ▶ Apply manure to green growing cover crop either fall or spring
- ▶ Extra nitrogen needed early
- ▶ Corn will be emerald green in August



Manure into hay or cover crops can be great alternative on less than ideal spring



# Manure and Fertilizer Placement and Timing- Winter Wheat



Manure often encourages great fall growth, balanced complete fertilizer

Limit to 5,000-10,000 gal. per acre

Do not see nitrogen from manure in spring until soil temps warm

Usually need to apply AMS and nitrogen (urea or 28%) in early spring....



# Fit Manure into No-till and Cover-Crop with Wider Window of Small Grains

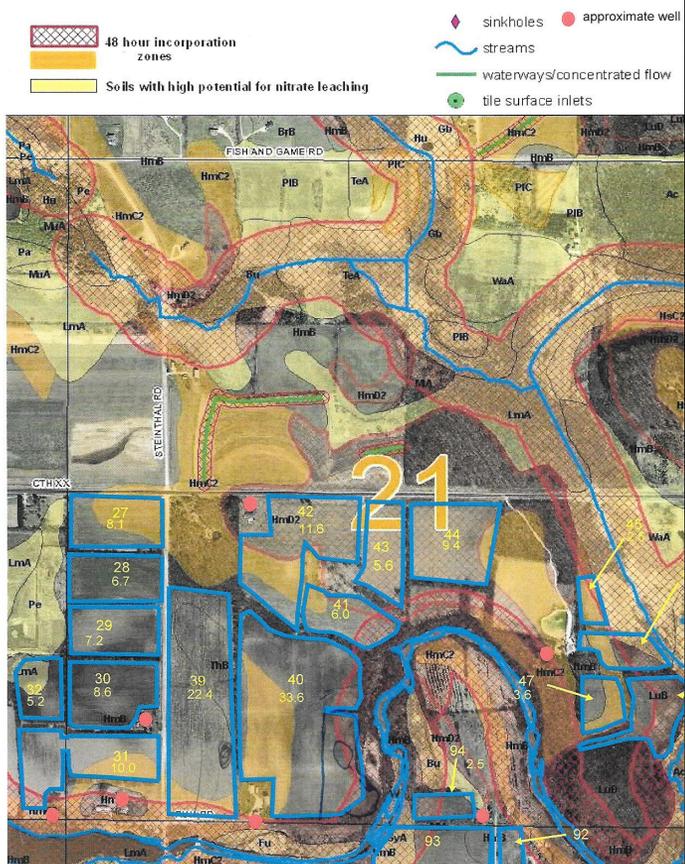
- ▶ Plan ahead-work with the weather
- ▶ No hard rule on how or when to plant or spread
- ▶ Plant cover crop asap = \$\$\$ and success
- ▶ Adjust rates of manure and cover crop based upon timing
- ▶ Even spread pattern
- ▶ Manure will retain more moisture at planting time
- ▶ Liquid 5000-10000 gal.
- ▶ Dry 10-20 tons per acre
- ▶ Know your fields and fertility



# Follow guidelines

Dan Meyer - Steintal, XX, Rockville

## Manitowoc County Ordinance and Nutrient Management Restrict Schleswig Section 21



It is a violation of Manitowoc County ordinance to allow manure to flow off cropland to surface water groundwater regardless of the map. All hazards are not identified on this map. 1 inch = 708 feet

### MANURE RESTRICTIONS FOR DAN MEYER – ALL MANURE IS UNINCORPORATED

Never spread manure on surface water, grassy waterways, concentrated flow channels, vegetative buffers, non-farmed wetlands, sinkholes, wells, sand/gravel pits.

#### WELLS

Sheboygan: NOTED AS WHITE CIRCLE WITH W ON MAPS

No manure can be applied within 50 feet of a well.

In areas upslope of a well (area that drains to the well), no manure within 200' of a well.

Manitowoc: NOTED AS RED CIRCLE ON MAPS

No manure can be applied within 100 feet of a well.

In areas upslope of a well (area that drains to the well), no manure within 300' of a well.

#### EXPOSED BEDROCK OR SINKHOLE, GRAVEL PIT/QUARRY

Sheboygan: GP AS SOIL TYPE ON MAP IS GRAVEL PIT OR SHALLOW BEDROCK.

Do not apply manure to areas of exposed bedrock or to sinkholes.

Do not apply manure within areas 200' upslope of a sinkhole, fractured shallow bedrock, or gravel pit/quarry.

Manitowoc: NOTED AS RED CROSS HATCH ON MAPS, SINKHOLE DENOTED BY RED DIAMOND

No manure can be applied within 100 feet of area of exposed bedrock, sinkhole or gravel pit/quarry.

Do not apply manure within areas 300' upslope of a sinkhole, fractured shallow bedrock, or gravel pit/quarry.

#### SWQMAs (Surface water quality management areas)

Sheboygan: NOTED AS BLUE HATCH PATTERN ON MAPS

No manure can be applied to an intermittent stream, perennial stream, lake or pond.

Non-frozen ground: If >30% crop residue, maximum liquid manure application rate= 7,500 gal/acre.

Non-frozen ground: If <30% crop residue, maximum liquid manure application rate= 5,000 gal/acre.

Frozen ground: No manure can be applied within SWQMA (300' of stream, 1000 feet of a lake or pond).

Manitowoc: STREAMS/PONDS IN BLUE, SETBACK IN RED CROSS HATCH ON MAPS

No manure can be applied within 300 feet of area of an intermittent stream, perennial stream or pond.

No manure can be applied within 1000 feet of a lake.

No manure can be applied within 50 feet of a channel that flows to an intermittent stream, perennial stream, pond, lake or sinkhole. Example: road ditch, grassy waterway etc.

#### ADDITIONAL MANURE RESTRICTIONS (all listed above still apply)

Sheboygan: SLOPES 6-11% PINK ON MAPS, SLOPES 12% ARE RED

FROZEN/ SNOW COVERED GROUND

No manure on slopes >9%.

Liquid manure applications are limited to 7,000 gallons/acre.

Manitowoc: SLOPES 6% OR GREATER ORANGE ON MAPS

SPRING, SUMMER & FALL APPLICATIONS (APRIL 16-NOVEMBER 30)

Slope <6% - no additional manure application restrictions.

Slope 6-11% - Can apply manure if field is in hay, has 40% crop residue, or has contour strips.

Slope ≥12% - Do not apply manure.

WINTER APPLICATIONS (DECEMBER 1 – APRIL 15)

Slope <6% - no additional manure application restrictions.

Slope 6-11% - Can apply **solid** manure if field is in hay, has 40% crop residue, or has contour strips.

No **liquid** manure can be applied to fields with 6-11% slopes.

Slope ≥12% - Do not apply manure.



Plan Ahead.....  
Then Make Good Decisions  
To Fit Manure Into System



# Doing all this economically



- We grow our own rye, wheat, triticale and clover seed.
- Growing cover-crop seed can be worth \$1000 per acre compared to cost of purchasing commercial seed
- On farm seed cleaner
- Homegrown seed are majority used
- Cheap to add a few pounds of rape, turnips sunflower or radishes \$1-3 per pound.
- Manure applied before or after planting cover crops = More growth
- Create a living "carpet" on your fields to reduce runoff and hold nutrients





## Financial benefits of no-till, manure and cover crops

- Reduced acres per cow committed to hay, majority of our heifer feed is cover crops
- Less fuel, maintenance and replacement
- Instead of time spent chisel plowing or doing spring tillage we can focus on cows, applying manure harvesting forages and planting
- Reduced Fertilizer and more consistent yield

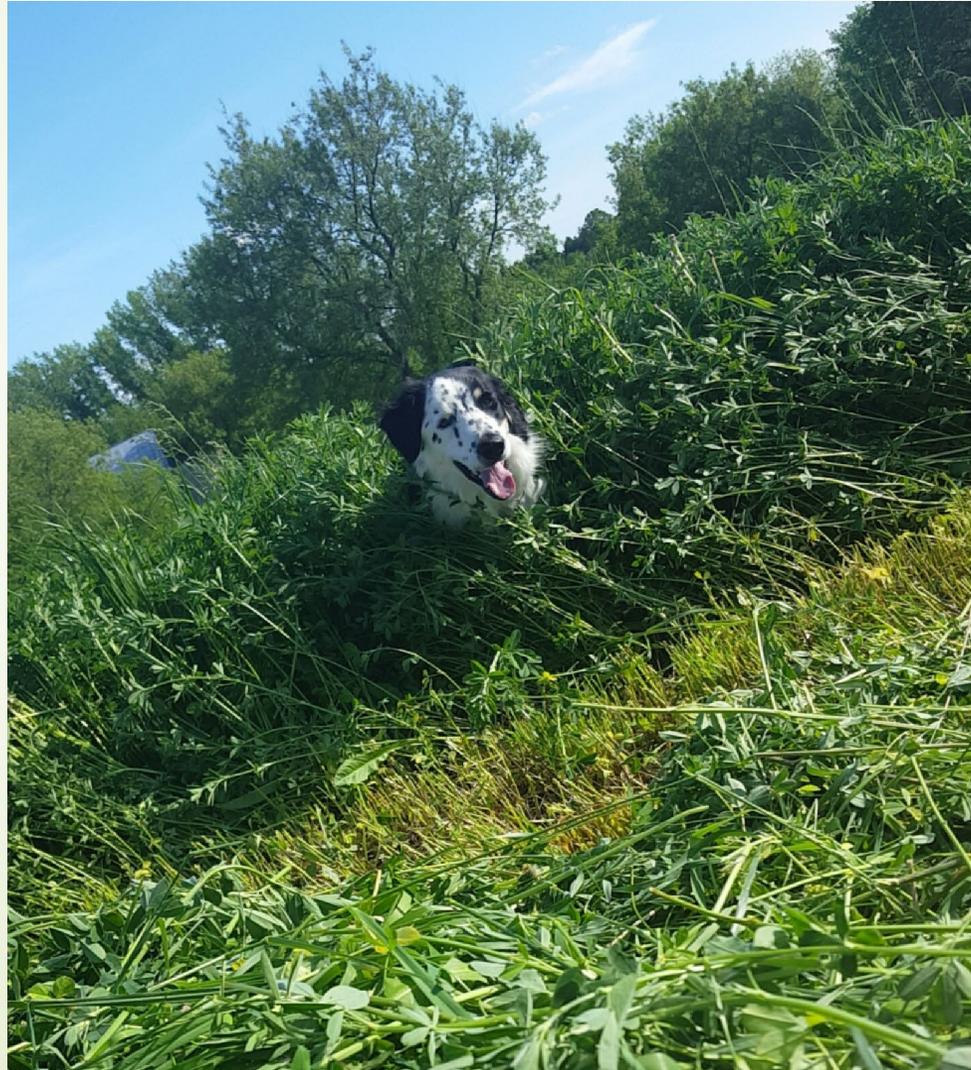


Benefits of No-till, diversified crop rotations including small grains, cover crops and manure.

- Much better soil structure and water infiltration
- More consistent crops on our variable soils
- Reduce Erosion
- Increase organic matter
- One person can plant
- Grain drill planting  $\frac{1}{2}$  gallon fuel per acre, corn planter  $\frac{1}{4}$  gallon fuel per acre
- Harvest in very wet conditions if needed.
- Apply manure in less than ideal conditions with the help of cover crops and soil structure
- \*\*\*Be careful, sometimes infiltration of nutrients can be to fast\*\*\*



Thank You to Practical Farmers of  
Iowa For Inviting Me To Speak!!!



# Questions?

