

# A FARMERS PERSPECTIVE TO MANAGING SOIL SUSTAINABILITY

BROCK GOBROGGE, CCA  
CROP MANAGER  
DYKHUIS FARMS, INC.  
HOLLAND, MI





- Holland, MI
- Owned by the Dykhuis Family, Robert (Founder) and Joe (President) lead the day to day operations of the farm
- Large Hog Farm
- Farming 3,000 Acres of Corn, Soybeans, and Wheat in West Michigan



# SUSTAINABILITY

*THE ABILITY TO BE MAINTAINED AT A CERTAIN RATE OR LEVEL*

## WHAT DOES IT MEAN TO DYKHUIS FARMS?

- CAN WE MAINTAIN PROFITABILITY? SHORT OR LONG TERM ROI
- CAN WE MAINTAIN AND IMPROVE OUR RESOURCES?
- DO THE DECISIONS WE MAKE HAVE A POSITIVE OR NEGATIVE IMPACT?
  - ON BOTH A FARM AND OUR ENVIRONMENT





# MANAGING SOIL HEALTH

- PATTERN TILE
- MINIMUM TILLAGE/STRIP-TILLAGE
- GRASS WATERWAYS
- COVER CROPS





# INCREASING SOIL STRENGTH

- SOIL STRENGTH =
  - CROP ROTATION
  - PERMANENT SOIL COVER
  - REDUCED TILLAGE





# KUHN KRAUSE GLADIATOR STRIP-TILL



- Produces a great seedbed, especially in heavier soil
- Will warm the soil up much quicker than No-Till
- Allows the plant to get "with the program" much quicker
- Maintains No-Till benefits between the strip (soil pore space)
- Added tillage expense as compared to No-Till



# COVER CROPS... DO THEY PAY?

- DYKHUIS FARMS IS STILL THE INFANTILE STAGES OF COVER CROP USAGE, BUT ALL IN!
- SHORT TERM BENEFITS
  - YEAR ROUND GROUND COVER
  - CONSTANT ENVIRONMENT FOR SOIL LIFE TO LIVE
  - "SPONGE" FOR AS APPLIED NUTRIENTS AKA MANURE
- POTENTIAL LONG TERM USE BENEFITS (3+ YEARS)
  - ALLEVIATE SOIL COMPACTION
  - INCREASE ORGANIC MATTER
  - INCREASE CROP YIELDS





# MANAGEMENT CHALLENGES GROWING COVER CROPS IN WEST MICHIGAN

- LENGTH OF GROWING SEASON ONCE CROPS COME OFF
- LIMITED SEEDING METHODS
  - HIGH-BOY SEEDER
  - AIRPLANE
  - INTERSEEDING EARLY IN VEGETATIVE STAGE IN CORN
- NEED MOISTURE AND SUNLIGHT FOR SEED TO GERMINATE





# WHEAT BACK IN THE ROTATION



Also looking at other summer harvest small grain niche markets in West Michigan



# NUTRIENT MANAGEMENT AT DYKHUIS FARMS

- INTENSIVE SOIL SAMPLING (2.5 AC GRIDS)
- TISSUE TESTING
- NUTRIENT APPLICATIONS BASED OFF PRODUCTION CAPABILITIES PER FARM (COMPILATION OF HISTORICAL YIELD DATA)
- “SPOON” FEEDING THE CROP WITH MULTIPLE APPLICATIONS OF NUTRIENTS
- MICRO-MANAGING EVERY ACRE FOR NUTRIENT APPLICATION



## DRAGLINE MANURE



- 25 million gallons produced/year
- 95% of DFI manure is applied via dragline
- Row units incorporate manure with vertical tillage
- Minimal soil disturbance
- Great food source for microbial activity
- Awesome cover crop starter fertilizer



## PLANTER IS 2<sup>ND</sup> APPLICATION



- Applying N,K,S, and Micronutrients
- 50-70# of N
- This helps to increase sidedressing window



## 360 YELDCENTER Y-DROP



- Allows maximum flexibility in N timing
- Will monitor Soil N ( $\text{NO}_3$  and  $\text{NH}_4$ )
- Will apply supplemental N when soil N "Tank" gets low
- Goal is to apply in the V8 – V10 timeframe
- Allows us to let mother nature show us the cards we have been dealt for the year and manage accordingly
- Avoids putting all our N needs in one basket
- Increase N efficiency =  $\#N \text{ per Bushel} < 0.8$
- Ability to apply other micros that would otherwise leach past the corn roots before interception (K, S, and B)







# IRRIGATION APPLICATION



- Ability to fertigate manure, roughly 5# N per 1000 gal
- Most cost effective way to apply manure
- Can utilize the growing crop to sequester applied nutrients
- Added benefit when water is needed
- Have to watch for applying more than soil's water holding capacity, can lead to nutrient runoff



# WHAT DOES THIS ALL MEAN??

- IMPROVING SOIL HEALTH BY UTILIZING CONSERVATION MANAGEMENT
- ABILITY TO NOT OVERAPPLY NUTRIENTS BY STUDYING THE CROP AND APPLYING WHAT THE CROP IS ASKING FOR
- USING COST EFFECTIVE MEASURES TO APPLY NUTRIENTS
- INCREASING YIELDS BY COMBINING ALL OF THESE MEASURES



THANK YOU!