# 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 PROFITABLITLY? 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 then 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 incoroporate 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

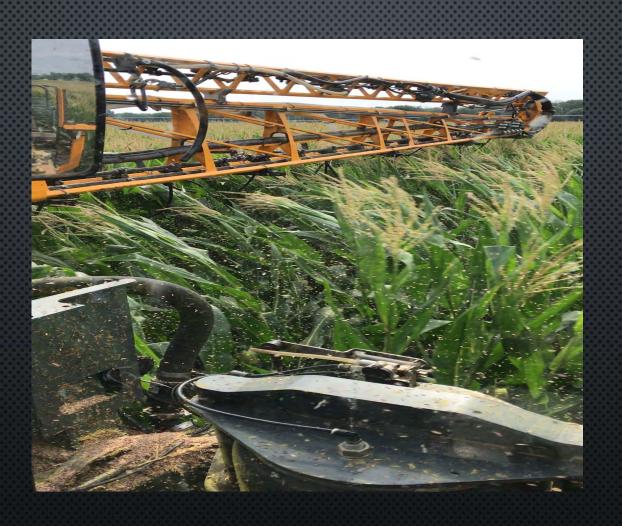


- Applying N,K,S, and Micronutrients 50-70# of N
- This helps to increase sidedressing window

#### 360 YIELDCENTER Y-DROP



- Allows maximum flexibility in N timing
- Will monitor Soil N (NO3 and NH4)
- 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 has 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 per Bushel < 0.8</li>
- 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 then soil's water holding capacity, can lead to nutrient runoff

#### MHAT DOES THIS ALL WEANSS

- 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!