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**Innovation Grant Progress Report**

PROJECT TITLE: Examination of Zone Tillage Versus Conventional Tillage

REPORTING PERIOD: May – October 2017

FARMER INNOVATOR: BWT Farms LLLP

COLLABORATING ORGANIZATION/PERSON: Ron Anderson

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1. PROJECT ACTIVITIES COMPLETED DURING THE REPORTING PERIOD. (*Describe project progress specific to goals, objectives, and deliverables identified in your project proposal.*
2. Implemented 1258 acres of zone tillage April – May
3. Water samples taken only from field outlets that are only supplied by BWT tile, will resample fall also on conventional and zone tillage fields.
4. Soil bulk density and granulation tests performed on the like soils types of both tillage systems.
   1. Expect to find better granulation and density on zone tillage system.
5. Monitor corn residue degradation and earth worm activity.
6. Replicated plot data of multiple varieties on both tillage systems
   1. Yield, Moisture, and Root activity monitored.

2.) IDENTIFY ANY SIGNIFICANT FINDINGS AND RESULTS OF THE PROJECT TO DATE. (*There may be none to report at some stages of the project)*

1. Water retention in drought areas better with zone tillage.
2. Emergence slower, however, more even, NO root ball effect or pinning on corn on corn. Believe this to be a 2-4% better emergence.
3. Early plant development protection from environmental factors, ie wind, Zone Tillage
4. Soil absorption of rain events better by 1 to 2 days. Zone Tillage
5. Earth worm activity, though late is 48% greater measure by worm huts vs. conventional tillage.
6. Yield in drought area better with zone tillage as an aggregate, this is variety specific.
7. Piercing root system genetics seem to excel, will have further measurements as plot data comes in.
8. Compaction preliminary testing with Soil penetrometer shows less compaction to 32 inches.

3.) CHALLENGES ENCOUNTERED. (*Describe any challenges that you encountered related to project progress specific to goals, objectives, and deliverables identified in the project proposal.*)

1. Zone tillage timing, early or later.
2. Zone tillage depth and pressure consistency on tool bar.
3. Timing of testing, drought and excess moisture obviously impact density testing or ability to test.
4. Crop staging makes a significant difference on soil tightness and compaction readings.
5. Need for different tool, BWT has since purchased a Dawn Pleribus system to better individual row pressure.

4.) EDUCATION AND OUTREACH ACTIVITES. *(Describe any opportunities to engage with farmers, influencers or the media about your project.)*

1. Met with concerned citizen group in Dickenson County regarding soil management strategies.
2. Met with Iowa state representatives regarding change in tillage practice and expected benefits to soil heath and water quality.
3. Held 2 meetings with BWT Farms grower’s (13) gave overview on direction of tillage. 3 have either adopted or will be trying the zone tillage system after seeing BWT results. Toured an additional 14 farmers through the research plots to describe intentions.
   1. BWT and growers will convert 7,000 + acres to zone tillage system
4. Numerous industry field visits with bankers, retailers, manufacturers, and distributors, conducted replicated field trials on both systems to determine BMP’s for each system

5.) HOW CAN WE HELP? *(Please let us know how we can improve the experience or assist in your project if possible.)*

1. Tissue testing protocols to measure systems, or ideas of best timing for measurement.
2. Tillage resources personnel to shorten learning curve of do and do not’s.
3. Tile monitoring ideal timings, ensure we are taking a representative sample.