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Minnesota Corn Research and Promotion Council

Innovation Grant Final Report 2017

***Interseeding cover crops while side dressing nitrogen***

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During the winter months of last year, we were interested in trying to interseed cover crops while side dressing our nitrogen in 2017. With the help of the MN Corn Research Grant funds, we purchased a Hiniker seed box to mount on our 36 row side dress bar. Our goal was to establish a mixture of cover crops at V5 – V6 stage. These cover crops would sustain in summer dormancy until canopy starts to dry down and open up to allow plants to flourish. Our hope was if we could get good growth, we would not strip till these acres and plant soybeans directly between the rows the following spring. The additional root mass would allow for more water infiltration and increase biological activity. The seed was dispensed by air and dropped in between each row. We were concerned about seed to soil contact with only our rolling coulter for moving any dirt, so we added a set of two drag teeth behind each coulter. We felt this was better than leaving the seed on top of the ground and hope for germination. A mixture of brassicas, turnips, rapeseed, radish, and annual rye grass were seeded.

We were very fortunate to receive some measurable rain soon after application of the cover crops. The seeder box with air application created a uniform emergence between the corn rows. As summer progressed, the mix seemed to get established very well and went into dormancy. We found the established cover crop helped to suppress weeds and kept ground temperatures cooler on the few warm days we had. We held a field day on our farm sponsored by our strip till bar manufacturer, ETS, and had about 80 people in attendance. The local NRCS staff was also on had with the water infiltration simulator. For this demonstration, they compared soils from long term tilled, no-tilled and to our surprise, our soils. To our excitement, our soils have already transitioned to show phenomenal water infiltration over the heavy tilled soils and very comparable to the no-till sample. We were delighted to see these changes just a few years into a strip till transition. Knowing the addition of cover crops will be an added benefit, we look forward to increased soil health. We did leave some check strips in several places with no cover crops to determine if any yield was affected. During harvest we collected yield information on covers versus no covers and found a 0-2 bushel advantage to having cover crops in the field. We will monitor these same areas for any noticeable yield difference in the soybeans to be planted in 2018.

This project didn’t present any challenges and was very workable with our design of mounting the seed box and applying the seed. The addition of the drag teeth behind our coulters seemed adequate to moving enough dirt to help with germination. We have discussed if we might gain quicker or more uniform emergence if we mounted drill type disk openers but would lose the broadcast type seeding throughout the whole row unless we mounted several openers per row. We do plan to change our mix of cover crops in favor of more annual or cereal rye grass to create more of a “blanket” coverage and ability to over winter as well. Plans are to interseed all of our acres for 2019 soybeans in our corn for the upcoming year. We looked at changing our herbicide program but were concerned about residual chemistry affecting cover crop emergence. We will continue to use Verdict as our burndown and pre-emerge on our strip till acres and follow with Status and Roundup Powermax as our postemerge treatment. We did receive many questions and concerns over the “weeds” in our fields! After explanations were given, curiosity took over and several farmers/neighbors made positive comments about our work in the field. We have fielded many phone calls and farm visits to date. These conversations are very enjoyable. We have also had calls from other landowners that are pleased with our soil health management and may create expansion opportunities for us.

In closing, we are very thankful to have received the grant funds to purchase the seed box. We gained double use of this as we move it to our Salford vertical tillage tool and seed cereal rye immediately after sugarbeet harvest. The investment looks to fill two desires to improve soil health and concerns of erosion. We hope the grant funding remains in place to help with other new ideas and that we can all learn from this. I look forward to seeing results of all projects funded. Please share the opportunities available through this program at any events in 2018! If there is a need, I would be willing to share our experiences with soil health at any event.

Sincerely,

Brian Ryberg

Ryberg Farms Inc.