Fields of Green

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Wade Walters 402-759-1831
walterswade@outlook.com
Spencer Walters 402-759-1830
Mike Walters 402-759-1315
Rick Walters 402-759-1317

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Family Updates:

Wade and Abby welcomed their second daughter, Quinn Lucy Walters, on February 12th.

Exploring Promising Innovations: Farmers Conduct Diverse Research Trials to Maximize Yields and Soil Health

On our farm we have eight research projects ongoing in 2023 that are testing new products coming to market, products already on the market and practices that can help us improve yields and our soils. These trials allow us to evaluate the different products for companies and gain a better understanding of how their products can help improve our farm.

This year we are working with Farmers Business Network to run 4 replicated trials on new products that 3rd party companies are evaluating before bringing them to market. These trials work by companies giving us the product in exchange for us providing the ground to try them on plus a stipend for the time it takes to put in the trials.

One product is a non-ionic surfactant with a blend of biostimulants designed to enhance weed control. Another is a foliar product applied with fungicide that stimulates the soil microbes to increase the availability of nitrogen and phosphorus to the corn plant. The other trials are seed applied. One trial is on soybeans that promises to increase tolerance to extreme temperatures and drought through a diverse blend of rhizosphere bacteria and symbiotic fungi. Plants in this trial will hopefully yield more by operating more efficiently, having greater plant growth, and

more vigor. The last replicated trial on corn is a product that is a bacterial inoculant on corn that is designed to solubilize soil minerals such as phosphorus, potassium and other micronutrients, fix atmospheric nitrogen, and confers heat, cold and drought tolerance to the corn by increasing nutrient use efficiency and stress tolerance. All of these trials cover 40-60 acres each and will be evaluated throughout the year by agronomists and through yield data at harvest.

We also have some larger scale trials this year with commercially available products that have been tested before on our farm. This year we are splitting fields with two products from New Leaf Symbiotics called Terrasym. These products were tested on corn in 2020 and showed a good yield impact so we are trying them out again. These products contain PPFMs which are naturally occurring microbes that help plants reach their full genetic potential. Pink-pigmented facultative methylotrophs - PPFMs for short - can be found on nearly every plant on earth, but for years, scientists didn't fully understand the role they play in supporting plant health. These microbes evolved alongside plants in a symbiotic relationship. PPFMs consume methanol, a byproduct of plant metabolism, and produce molecules that help plants take in more nutrients, encouraging earlier, more vigorous root development. Our goal is to produce higher yields from plants that are stronger, healthier, and more resilient to environmental stress such as heat and drought.

On the seed side of our business, we have a corn plot that is trialing new seed genetics for Becks and two other seed companies. We also have informal tests out trialing soybean inoculant.

In addition to our formal trials, we are also continually testing Pivot Bio Proven 40 and the impact that implementing a cereal rye cover crop has on soil health and yields.

As you can see, we put a lot of time and effort into researching the next product or practice that can help us improve our production practices and garner more yield from each acre. Continuous improvement is our goal.

Measuring Soil Health Leads to Insight on our Acres

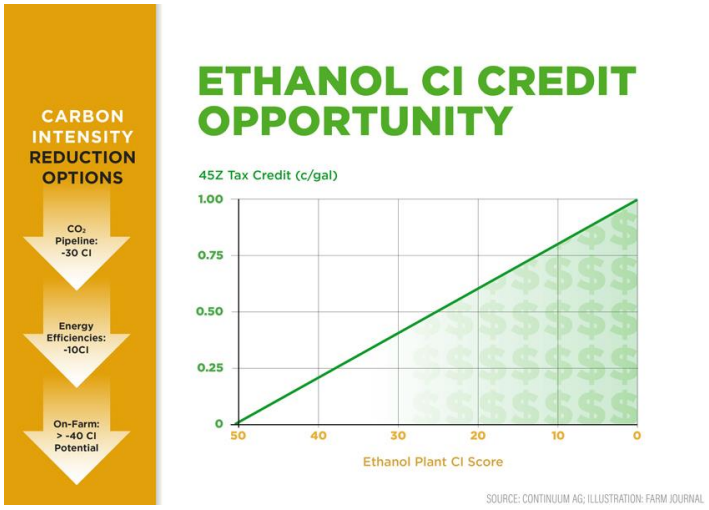
This spring we took some samples to see how our rye cover crop affects our soil structure. Some insights we gained from the samples that Ward Labs ran for us are that having a cover crop doesn't affect soil pH or Organic matter, soil respiration CO2-C ppmC is about double on the cover cropped acre, and microbially active carbon is about double on the rye acres. The rye also helps hold the soil in place and reduce erosion on our hillier ground. On the flip side we do see that the rye may tie up some nutrients in the soil as Nitrogen, Phosphorus, and Potassium


WARD Laboratories, Inc.

levels are lower in the rye cover cropped area. Another downfall of rye is that when killed it can attract insect pests like seed corn maggots that lay their eggs in the rye stubble. Those maggots then feed on seedling corn and soybean plants and have caused us some stand loss issues in soybeans this year. The soil health score on the test rated our rye cover cropped ground with a score of 20.58 and our non-cover cropped soil with a score of 15.73. According to Ward Labs, the score can range from 0 to 50 but most soils do not score higher than 30. Ward Labs likes to see the score above 11 but 11 is simply a starting point.

Data-Driven Sustainability: Farmers Play a Key Role in Lowering Ethanol's Carbon Footprint

A section of the Inflation Reduction Act gives a tax credit to biofuels and ethanol producers who can prove that they are producing a lower emissions fuel. The heart of this initiative lies in the concept of carbon intensity scores. These scores quantify the amount of carbon emissions produced throughout the lifecycle of a fuel, from production to consumption. The lower the score, the cleaner and more environmentally friendly the fuel is considered. Ethanol plants are now encouraged to implement measures that significantly reduce their carbon intensity scores, thereby contributing to the overall goal of reducing greenhouse gas emissions. For example, in ethanol the environmental impact of the corn purchased by ethanol plants is included in part of that plant's Scope 3 emissions (includes all indirect emissions which are not included in scope 2). Most plants have already done a lot of the work on their Scope 1 and 2 emissions (scope 1 emissions, which deals with direct emissions from owned or controlled sources; scope 2 emissions, that are indirect emissions from the generation of purchased energy) to reduce their own energy use and emissions. However, Scope 3 emissions, supply chain emissions, have been tough to tackle because there has been no incentive for producers to voluntarily collect that information and share it with end users.



In this new program which is funded for 2025-2027, grain will be assessed with a Carbon intensity (CI) score, which has a set of parameters determined by the Department of Energy.

Currently, the standard CI score for corn is 29.1. The Inflation Reduction Act sets a weighted average below 25. Ethanol producers will then be paid 5.4 cents per gallon for each point reduction in CI score below 50 that can be achieved (the average corn ethanol plant's CI score currently sits between 52 and 78) . The hope is that part of this tax credit will then be passed on to the farmer for providing data proving that the corn the ethanol plant buys was produced with a lower carbon intensity practices allowing them to qualify for the credit. The data requirements for this program will be extensive as the farmer will have to provide their yields, fuel/energy usage, tillage practices, cover crop history, fertilizer use, and herbicide use to determine their individual CI scores.
Our next steps as a farm will be to input all of the data required into a model to determine our CI score so that we are ready to take advantage of these types of programs if they get embraced by our local ethanol producers. The 2024 crop could potentially be included in this program as most of it will be sold in 2025 so we have to start thinking ahead to be ready when these programs roll out.

Market Update 6-14-23

Corn: Shickley Grain		
	Harvest Delivery	$5.10
Soybeans: Shickley	Harvest Delivery	$11.68
Grain		
Soybeans: Cargill		
Carleton	June 2022 Delivery	$13.54
	October Delivery	$11.81
Corn: Poet Fairmont	June 2022 Delivery	$6.36
	October Delivery	$5.37