

**Rick Clark**

**Steward**

**Change is Good!**



**The future  
looks bright.  
It takes the  
support  
from  
everyone.  
Life is good.**



- **9 crop system / plus 1**
- **5600 acres certified organic**
- **Remainder of acres in transition**
- **No starter fertilizer in 9 years**
- **No fungicide in 9 years**
- **No seed treatment in 9 years**
- **No insecticide in 9 years**
- **No P or K in 9 years**
- **No ag lime applied in 9 years**
- **No Nitrogen applied in 4 years**
- **Organic with no tillage**

# The 6 principles of soil health

- 1. Minimize disturbance**
- 2. Maximize diversity**
- 3. Living roots**
- 4. Armor the soil**
- 5. Context**
- 6. Livestock**
- 7. Commitment ( maybe add one more )**

# Balance

**A symbiotic relationship with mother nature.**

**Take advantage of the free stuff !!**



**The energy from the sun is powerful and it is free.**

# Nutrient Sequestration

## Cereal Rye

	<b>N</b>	<b>P2O5</b>	<b>0-46-0</b>	<b>K2O</b>	<b>0-0-60</b>	<b>Sulfur</b>	<b>Mg</b>	<b>Ca</b>	<b>Biomass</b>
<b>12" rye</b>	<b>82</b>	<b>15</b>	<b>32</b>	<b>76</b>	<b>133</b>	<b>5</b>	<b>4</b>	<b>11</b>	<b>2000</b>
<b>18" rye</b>	<b>120</b>	<b>20</b>	<b>44</b>	<b>128</b>	<b>213</b>	<b>6</b>	<b>6</b>	<b>18</b>	<b>4000</b>
<b>28" rye</b>	<b>134</b>	<b>30</b>	<b>64</b>	<b>169</b>	<b>281</b>	<b>10</b>	<b>12</b>	<b>31</b>	<b>6800</b>
<b>Dead rye</b>	<b>84</b>	<b>29</b>	<b>64</b>	<b>39</b>	<b>65</b>	<b>3</b>	<b>11</b>	<b>29</b>	<b>3500</b>

**Note: Dead rye sample was taken 2 months after termination.**

# The Power of Cereal Rye

	<b>N</b>	<b>\$ N</b>	<b>18-46-0</b>	<b>\$ P</b>	<b>0-0-60</b>	<b>\$ K</b>	<b>Total \$\$</b>
<b>12" rye</b>	<b>82</b>	<b>\$91.02</b>	<b>32</b>	<b>\$36.48</b>	<b>133</b>	<b>\$101.06</b>	<b>\$228.56</b>
<b>18" rye</b>	<b>120</b>	<b>\$133.20</b>	<b>44</b>	<b>\$50.16</b>	<b>213</b>	<b>\$161.88</b>	<b>\$345.24</b>
<b>28" rye</b>	<b>134</b>	<b>\$148.74</b>	<b>64</b>	<b>\$72.96</b>	<b>281</b>	<b>\$213.56</b>	<b>\$435.26</b>
<b>Dead rye</b>	<b>84</b>	<b>\$93.24</b>	<b>64</b>	<b>\$72.96</b>	<b>65</b>	<b>\$49.40</b>	<b>\$215.60</b>

**100 lbs of rye @ .29/lb = \$29/a**

**N = \$1.11/lb**

**P = \$1.14/lb**

**K = \$0.76/lb**

**August 1, 2022**



**Nitrogen is all around us and it is free.**

**The air we breathe contains 78.1% N<sub>2</sub>**

**Capture some of that N with legumes**

# The power of Balansa Fixation clover

	<b>N</b>	<b>P2O5</b>	<b>K2O</b>	<b>Ca</b>	<b>Mg</b>	<b>S</b>	<b>B</b>	<b>Mn</b>	<b>Zn</b>	<b>Biomass</b>
<b>May 20, 2020</b>	<b>75</b>	<b>30</b>	<b>138</b>	<b>28</b>	<b>6</b>	<b>6</b>	<b>11</b>	<b>95</b>	<b>26</b>	<b>3,800</b>
<b>June 4, 2020</b>	<b>114</b>	<b>56</b>	<b>213</b>	<b>61</b>	<b>12</b>	<b>9</b>	<b>15</b>	<b>80</b>	<b>26</b>	<b>6,800</b>
<b>June 8, 2020</b>	<b>262</b>	<b>87</b>	<b>444</b>	<b>228</b>	<b>40</b>	<b>33</b>	<b>35</b>	<b>46</b>	<b>28</b>	<b>12,700</b>
<b>July 24, 2020</b>	<b>52</b>	<b>15</b>	<b>24</b>	<b>46</b>	<b>7</b>	<b>4</b>	<b>9</b>	<b>40</b>	<b>19</b>	<b>5,400</b>

**June 8<sup>th</sup> sample:**

**Organic carbon 5200 lbs/a**  
**C:N 20:1**

# The Power of Legume Cocktails

	N	\$ N	18-46-0	\$ P	0-0-60	\$ K	Total \$\$
May 20	75	\$83.25	65	\$74.10	177	\$134.52	\$291.87
June 4	114	\$126.54	122	\$139.08	267	\$202.92	\$468.54
June 8	262	\$290.82	189	\$215.46	610	\$463.60	\$969.88
July 24	52	\$57.72	33	\$37.62	32	\$24.32	\$119.66

Cocktail cost = \$33/a

N = \$1.11/lb

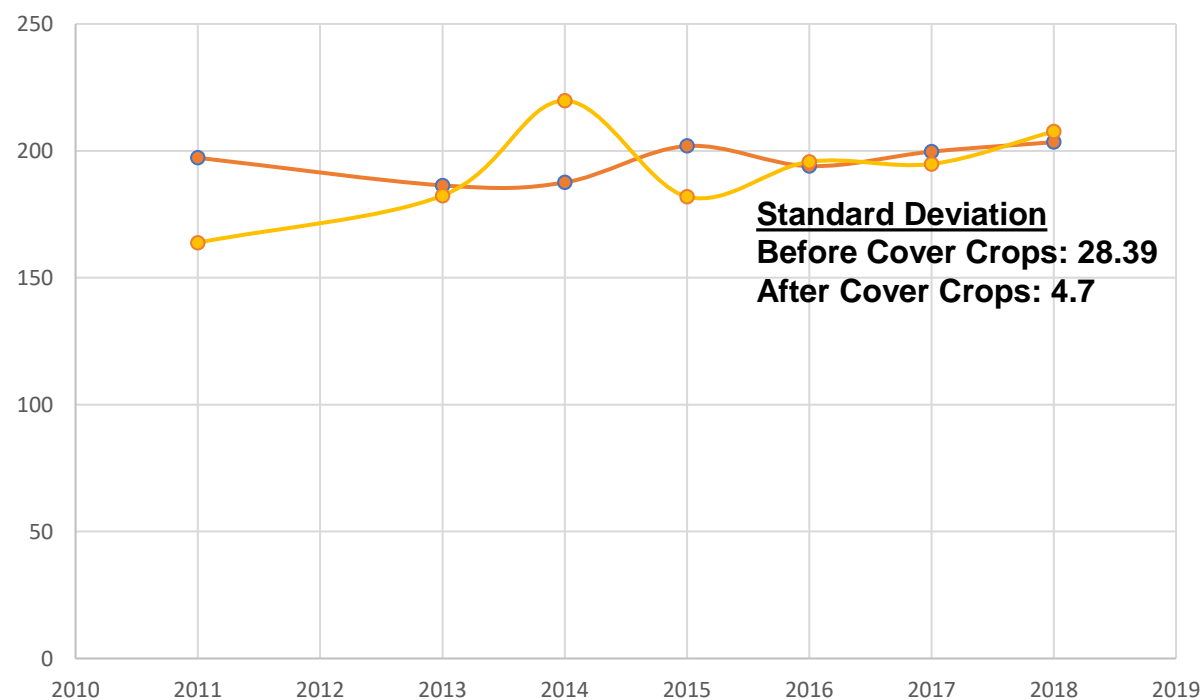
P = \$1.14/lb

K = \$0.76/lb

August 1, 2022

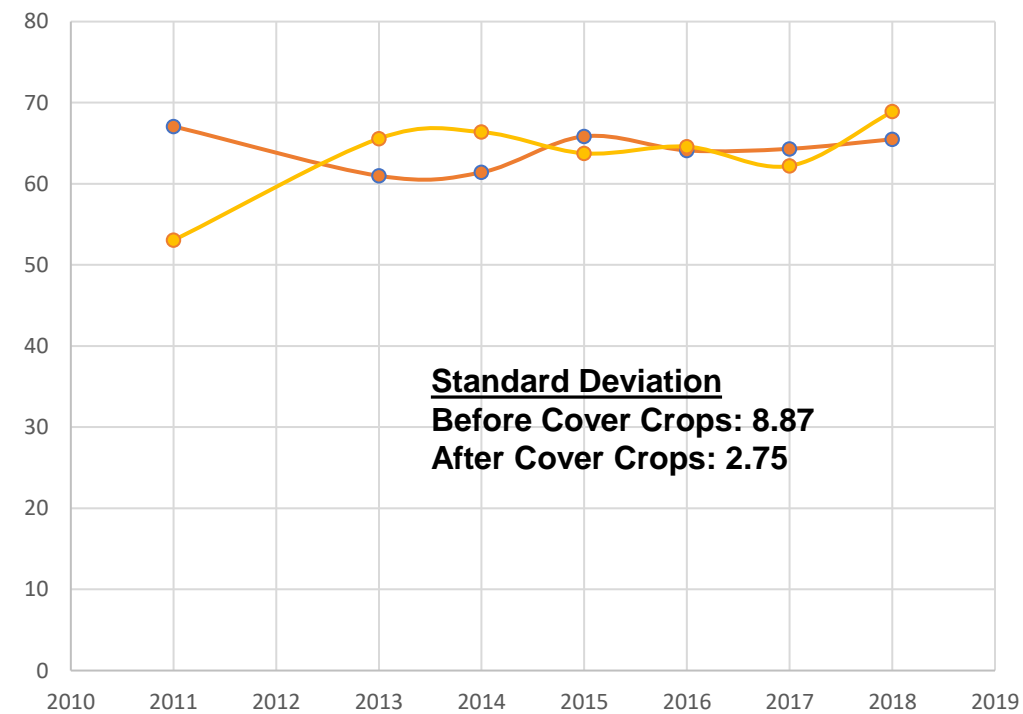
# Stability

## Corn Corn Yield Comparison



Expected Yield Yield Achieved

## Soybeans Soybean Yield Comparison



Expected Yield Yield Achieved

# Input Reductions

<b>Input</b>	<b>2011</b>	<b>2022</b>	<b>% change</b>
<b>Diesel fuel</b>	<b>30,011 gal</b>	<b>15,460 gal</b>	<b>48.5</b>
<b>Horsepower</b>	<b>3350</b>	<b>1200</b>	<b>64.2</b>
<b>Synthetic N</b>	<b>220 lbs/A</b>	<b>0</b>	<b>WOW!</b>
<b>MAP</b>	<b>330 tons</b>	<b>0</b>	<b>WOW!</b>
<b>Potash</b>	<b>400 tons</b>	<b>0</b>	<b>WOW!</b>
<b>Lime</b>	<b>2100 tons</b>	<b>0</b>	<b>WOW!</b>
<b>Chemistry</b>	<b>\$74/A</b>	<b>0</b>	<b>WOW!</b>

# Money in your pocket!

<b>Diesel fuel</b>	<b>\$ 62,000</b>
<b>Synthetic N</b>	<b>\$ 605,000</b>
<b>MAP</b>	<b>\$ 334,000</b>
<b>Potash</b>	<b>\$ 347,000</b>
<b>Lime</b>	<b>\$ 126,000</b>
<b>Chemistry</b>	<b>\$ 483,000</b>
<b>Seed</b>	<b>\$ 105,000</b>

**Total \$ 2,062,000**

**Note: The total dollar amount is repeated every year.**

**August 1, 2022**

# Thoughts to be aware of

- **Cocktail packages prescribed for weed problems**
- **Nutrient density goes up as soil health goes up**
- **There are no failures. Outcomes we did not expect**
- **Carbon markets will require soil health practices**
- **Do not underestimate the power of networking**
- **Unfortunately, a farmer's success is measured by yield**
- **View cover crop as important as the cash crop**
- **3 pass system**
- **Stop looking at single year ROI, take the average**

# More thoughts...

- **Diversity is essential**
- **More biomass the better**
- **Continue to Haney soil health test**
- **Do whatever you can to have a cover on every acre**
- **Establish a baseline to monitor change**
- **Test on your own farm to see what works or does not work**
- **Mother Nature has guided me where to go**
- **Do not jeopardize the livelihood of the farm**
- **Adding biology during transition is essential**



# More thoughts...

- Remember, the people who are being talked about are the ones creating change. Change is good!
- The success of next years cash crop starts with the success of this years cover crop
- Don't make excuses that support your agenda
- Incorporate SAP testing into the system
- Annuals become perennials
- 70 / 30 rule
- Tillage has to stop

# Thoughts?

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# A few new ideas coming

- **Light**
- **Sound**
- **Frequency of water**
- **Biology**
- **Bio chemistry**
- **N fixing corn**
- **Open pollinator corn**



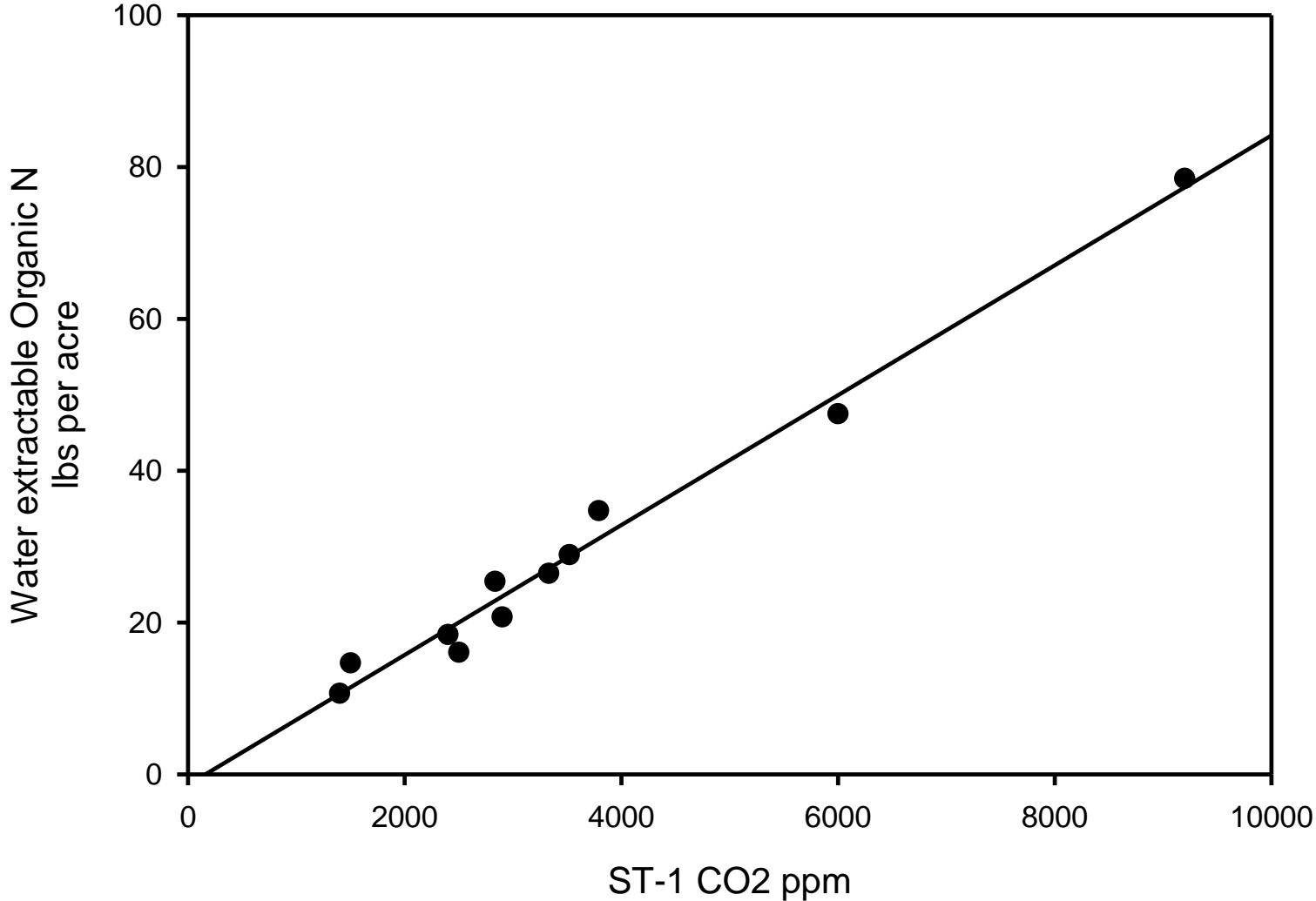
**Rick Haney  
and Jason  
Snavelly.**

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4064**

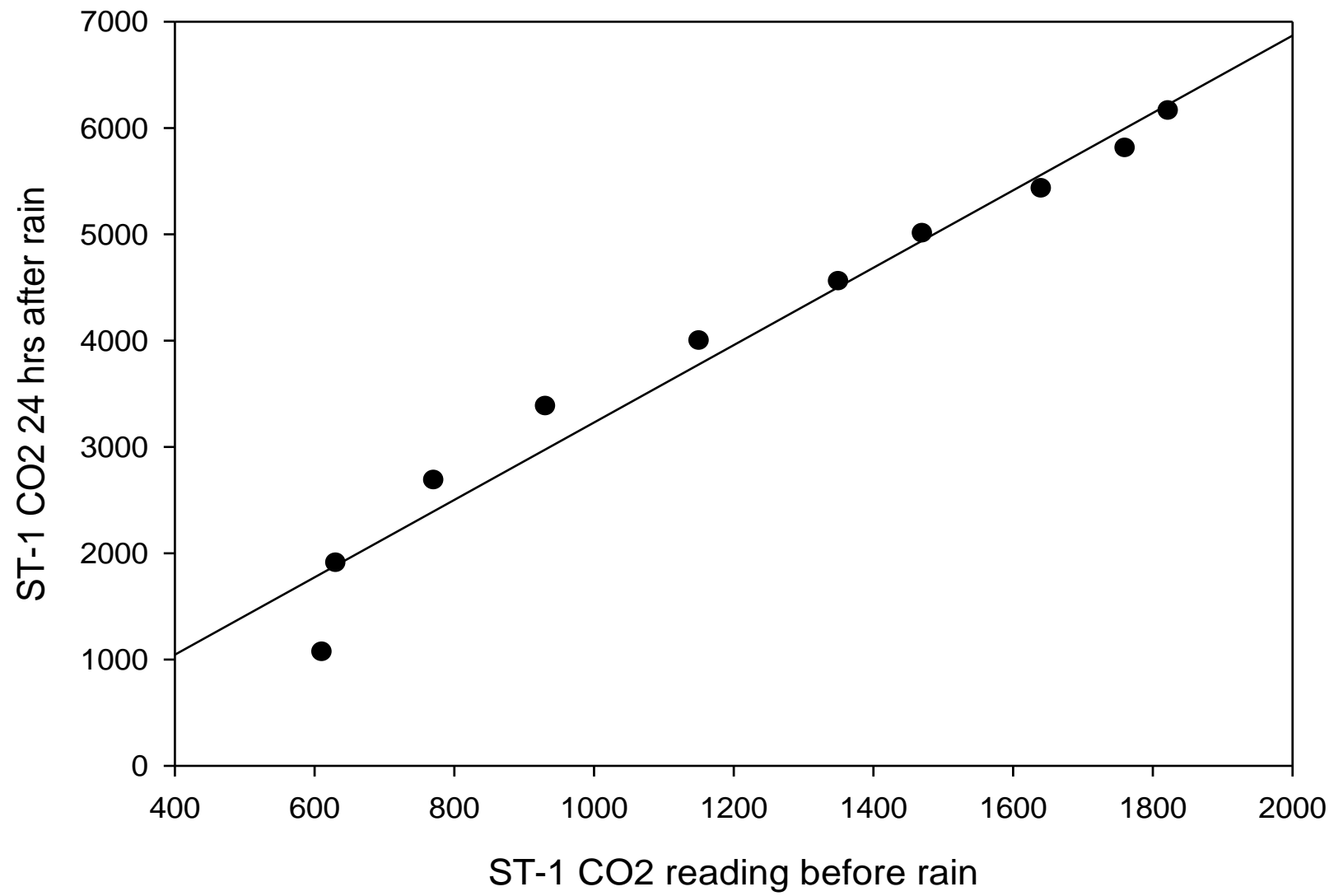
**Permission from Dr. Rick  
Haney. The Legend.**

# Preliminary ST-1 CO2 vs Organic N



Permission from Dr. Rick Haney. The Legend.

# In Field CO2 respiration



Permission from Dr. Rick Haney. The Legend.

# Epigenetics

**Heritable phenotype changes that do not involve alterations in the DNA sequence. These phenotypic trait changes may result from external or environmental factors or be part of normal development.**

# Maslins

**A mixture composed of different species of grains. We are doing this with rye, barley, and wheat. This is a 3,000 year old tradition.**





**Johnson Su bio reactor. This is the beginning of our biology journey.**

**April 27<sup>th</sup>**



**No till soybeans  
at boot stage of  
the cereal rye.  
This moves up  
our planting  
date by 35-45  
days.**

**June 2<sup>nd</sup>**



**Roll crimping rye at anthesis and the beans are at v1.5 to v2 growth stage. This mat or armor will suppress weeds until beans can canopy.**

**July 19th**



**July 19th**

**This is a field of organic soybeans. The concept of going organic while utilizing cover crops and no till excites me. This is a system we will need to continue perfecting.**

**June 2<sup>nd</sup>**

**Rolling cereal rye  
ahead of the  
soybean planter.  
We did this  
because the rye  
was 72" tall and it  
lodged. Again,  
constantly being  
flexible to change  
plans.**





**July 16<sup>th</sup>**

**Absolutely amazing. No inputs of any kind.**

**Oct 17<sup>th</sup>**

**One of the  
cleanest  
bean fields  
we had.  
This can be  
done.**





**No till planting corn into standing alfalfa. This is the 2<sup>nd</sup> pass of the 3 pass system. This is much more difficult than it looks. You need corn with good vigor to handle this challenge.**





**Roll crimping the alfalfa when corn is at growth stage v2. We know this will not terminate the alfalfa, but we are trying to give the corn every competitive advantage we can. This is also the 3<sup>rd</sup> pass of the system.**

**August 2<sup>nd</sup>**



**This is the final product of the 3 pass corn system. I am hopeful of this system for corn production.**

# **You can't do that...Oh yes I can!**

- Sacrifice yield to maintain soil health**
- Grow the nitrogen we need with legumes or cocktails that include each of the 4 categories**
- Plant green into living cover crops**
- Plant beans into 72" tall rye**
- Plant corn into cereal rye**
- It's ok to have 38 plans**
- Park your planter no matter the date**
- Don't plant corn in April again**
- Plant multiple cash crops in same field**

# **You can't do that...Oh yes I can. Continued**

- Totally eliminate all inputs**
- No CFAP ( government subsidy ) payments in 2020**
- Eliminated crop insurance 5 years ago**
- No longer in any government programs ( ARC or PLC )**
- Regen acres ( no cash crop )**
- Certified organic with no tillage. 3 pass system**
- To truly be regenerative, you have to take everything away. Everything!**

**If you are not uncomfortable with what you are doing, then you are not trying hard enough to change.**

**I challenge everyone here today to get a little uncomfortable. I think you will like how it feels.**

**I am proud to be a farmer.**

**But, I am more proud of the way I farm.**

**Regenerative Organic Stewardship**

**With no tillage**

**Thank you.**

# Farm Green Podcast

Live Thursdays 7:30 EST.

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# Thoughts?

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