

Rick Clark

Steward



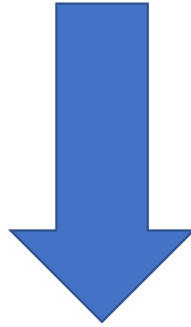
- **Purdue graduate Ag Econ**
- **5th generation farmer**
- **35 yrs practicing**
- **Wife: Carol for 30 yrs**
- **Daughters: Jessica and Rachel**

- **Clark Farm**
- **Father: Richard**
- **Nephew: Aaron**
- **No till soybeans for 15 yrs**
- **No till corn for 10 yrs**
- **Cover crops for 10 yrs**
- **Farming green for 8 yrs**



- **1/3 farm 3 crop rotation**
- **1/3 farm 4 crop rotation**
- **1/3 farm transition to organic**
- **100% non GMO all crops**
- **No starter fertilizer**
- **No seed treatment**
- **No fungicide**
- **No insecticide**

Good Data



Good Decisions



Position of Strength



Farm Green:

Planting the cash crop of corn and soybeans into a living, growing, green cover crop. Termination may not occur for up to 30 days after planting, but typically it has happened within 3-5 days.



Benefits of farming green:

Maximizing what the cover crop was intended to do.

- Sequestration of nutrients**
- Nitrogen fixing**
- Erosion control**
- Increased pounds of biomass**
- Feed microbes**
- Armor the soil**
- Limit evaporation**
- Suppress weeds**

Nutrient Sequestration

Cereal Rye

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

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



What drives our system?

- Diversification
- Cash crop rotation
- Armor the soil
- Building soil health
- Building human health
- Being a good steward
- ROI

Balance

A symbiotic relationship with mother nature.

Input Reductions

| Input | 2011 | 2018 | % change |
|-------------|------------|------------|----------|
| Diesel fuel | 30,011 gal | 15,151 gal | 49.5 |
| Horsepower | 3350 | 1200 | 64.2 |
| Synthetic N | 220 lbs/A | 140 lbs/A | 36.4 |
| MAP | 330 tons | 27 tons | 91.8 |
| Potash | 400 tons | 0 | WOW! |
| Lime | 2100 tons | 0 | WOW! |
| Chemistry | \$40/A | \$18/A | 55.1 |

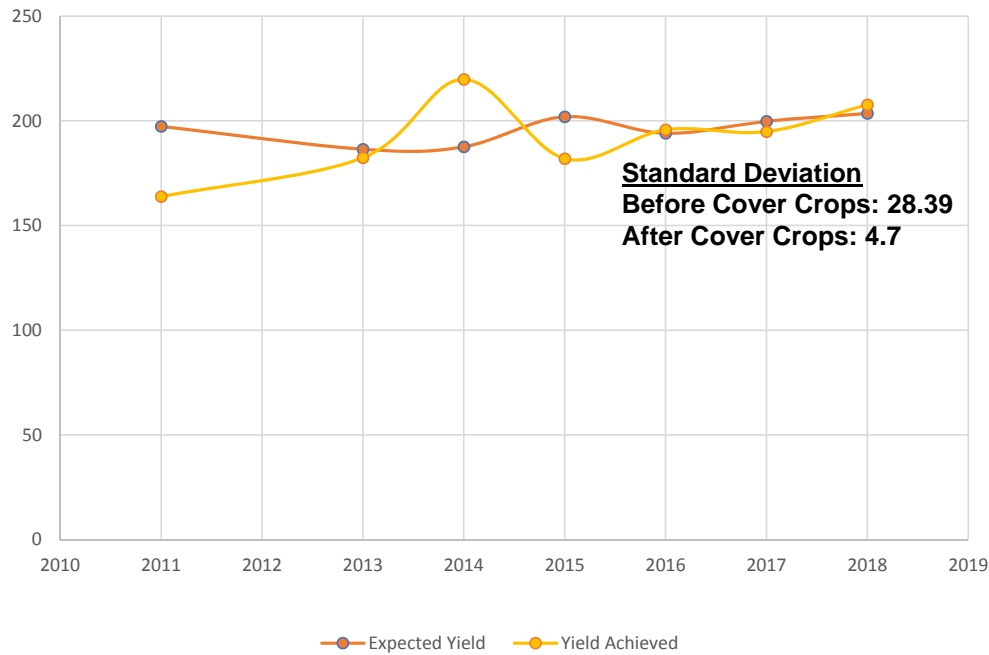
Income Statement Comparison

| | Purdue Producer Expectations | Our Numbers | % Change |
|---------------------------------------|---------------------------------|---------------|----------|
| Yield per Acre | 206 | 200 | |
| Estimated Sales Price | \$3.75 | \$3.75 | |
| Gross Income | \$772.50 | \$731.25 | |
| Variable Costs | | | |
| Fertilizer | \$111.00 | \$84.00 | -24% |
| Seed | \$111.00 | \$72.00 | -35% |
| Cover Crop Seed | \$0.00 | \$20.00 | |
| Pesticides | \$60.00 | \$18.00 | -70% |
| Dryer Fuel | \$37.00 | \$25.00 | -32% |
| Machinery Fuel | \$18.00 | \$10.00 | -44% |
| Machinery Repairs | \$22.00 | \$25.00 | 14% |
| Hauling | \$21.00 | \$18.00 | -14% |
| Insurance | \$40.00 | \$20.00 | -50% |
| TOTAL | \$420.00 | \$292.00 | -30% |
| Contribution Margin | \$352.50 | \$439.25 | 25% |
| Estimated Total Fixed Costs | \$383.00 | \$323.00 | |
| Total Cost | \$803.00 | \$615.00 | -20% |
| Accounting Breakeven per Bushel BE | 224 \$3.90 | 147 \$3.30 | |

Stability

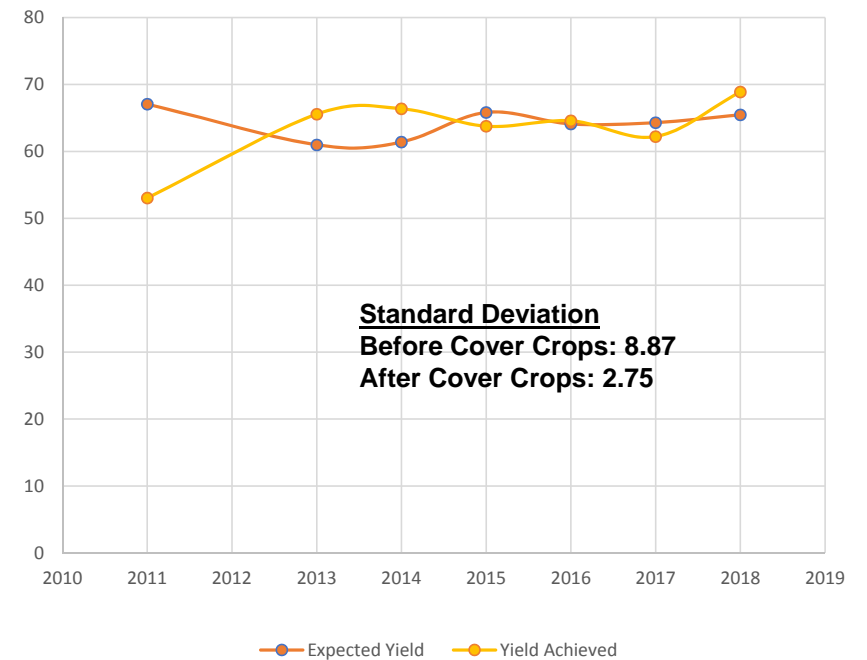
Corn

Corn Yield Comparison

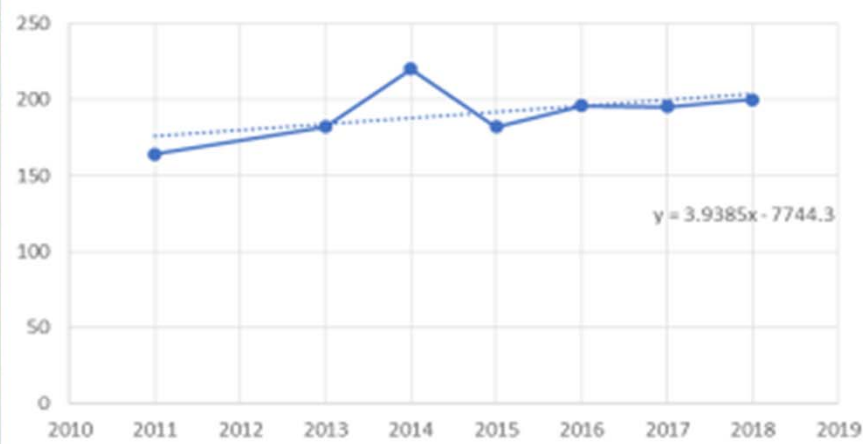


Soybeans

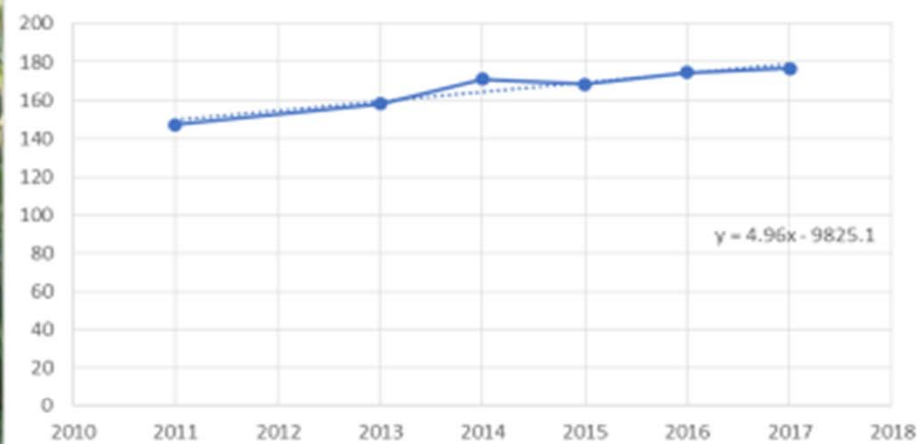
Soybean Yield Comparison



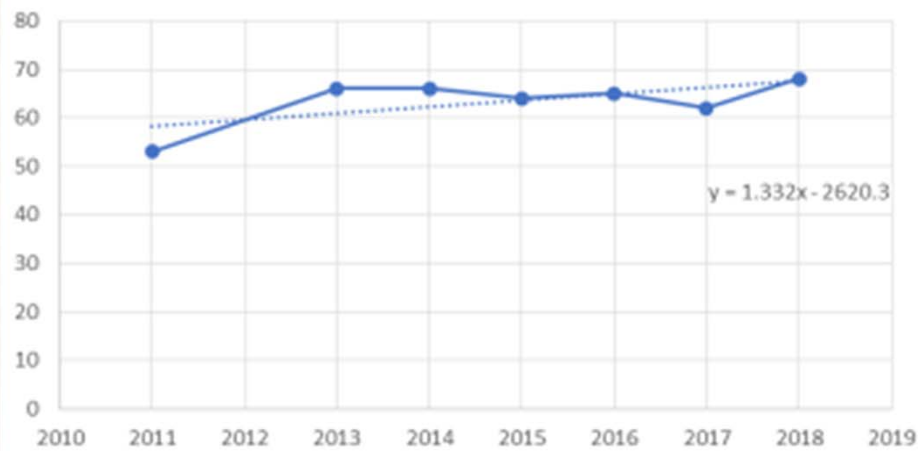
Our Corn Yield Achieved



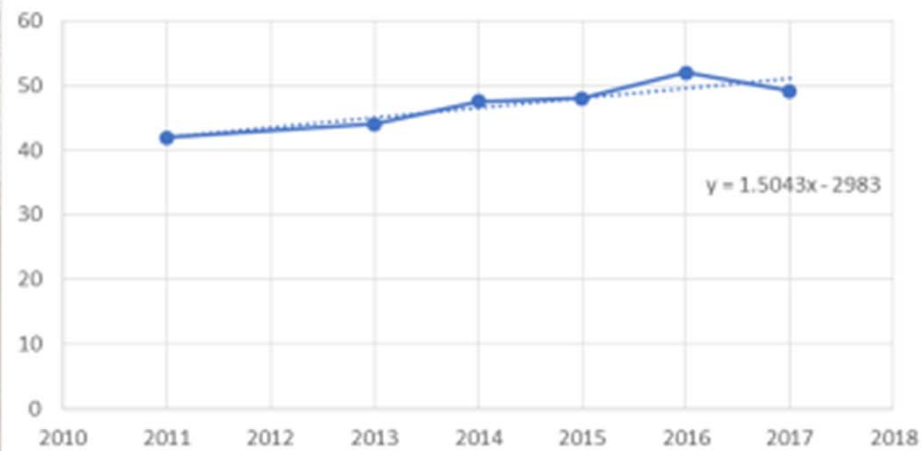
National Yield Achieved



Our Soybean Yield Achieved

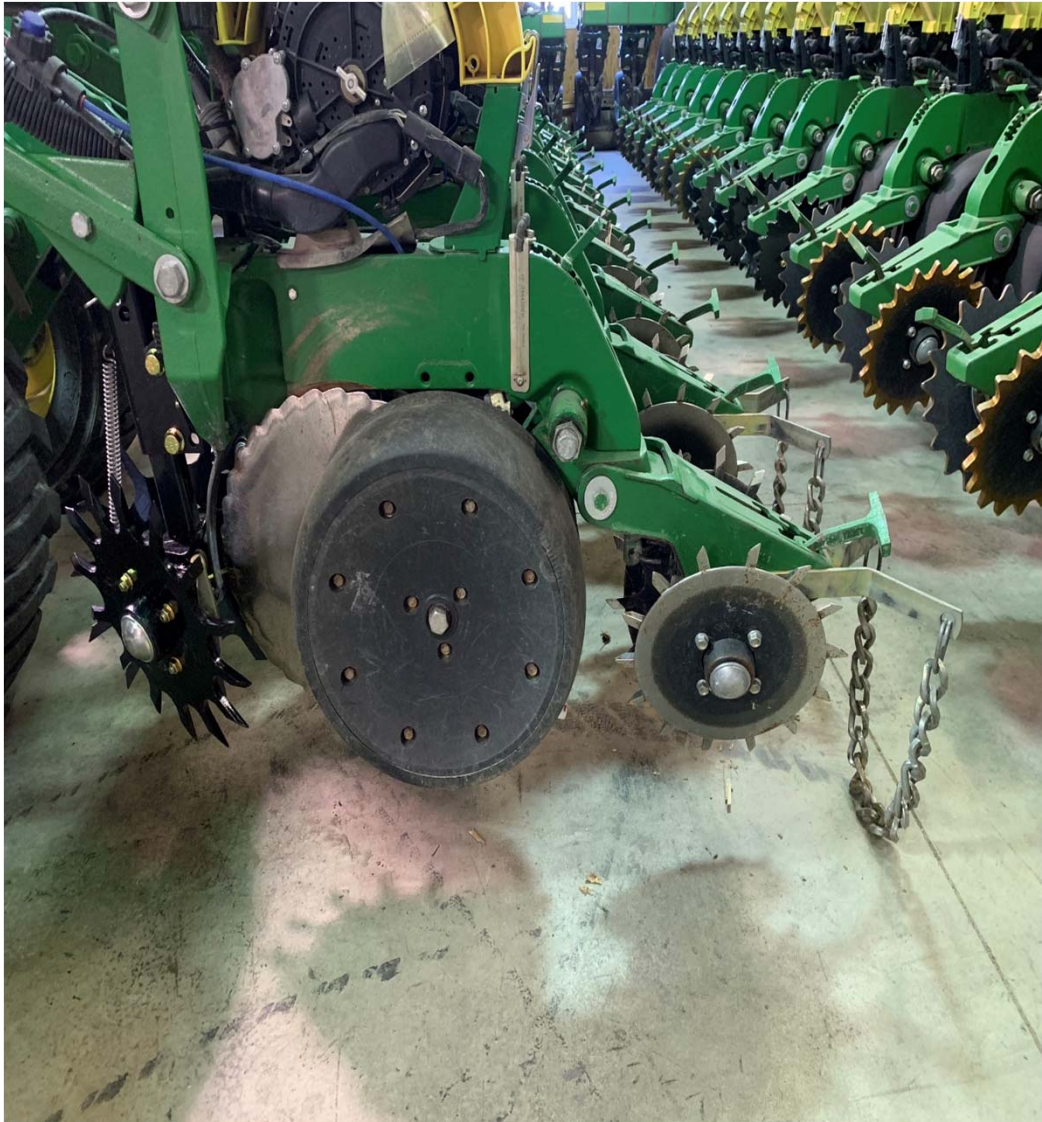


National Yield Achieved



Your Logo or Name Here





**Martin – Till
Spader closing
wheel with depth
blade and drag
chain**

**Precision Tillage
Technology STP
double disc opener**



We ran this setup through cereal rye that was 50" tall and had minimal wrapping. Very pleased.



This is the kind of destruction I am looking for. The Martin-Till closing system coupled with the Precision Tillage Technology double disc opener has allowed for proper closing of the seed slot. We have reduced seedling blight and increased harvestable plants.

Note: corn is planted 3" deep.

WOMD #1

Against weeds



WOMD #2

Against chemicals



April 28



April 28th

**Planting beans at boot stage
has allowed us to move up
our planting date by 30-40
days.**

June 4th

June 4th

- **Terminating cereal rye at anthesis with the roller crimper.**
- **Soybeans are at v2 growth stage**
- **6000 lbs biomass**
- **Suppress weeds**
- **Armor the soil**



July 19th

July 19th

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





Pollinator strips

We must do all we can to provide habitat for the bees and the butterflies, the song birds and all other beneficial pollinators. They are essential if we want to achieve balance.

1 out of 3 bites of food is attributed to pollinators.

Pollinator Palluza

3 Buckwheat

1 Chick pea

1 Common vetch

1 Flax

1 Crimson clover

1 Phacelia

2 Rape

1 Sunflower

1 Lentil

2 Yellow mustard

2 Yellow sweet clover

1 Radish

1 Sunn hemp

1 4010 peas

Available at Cisco Seeds



Gunslinger

30 lbs Haywire oats

5 lbs Austrian winter peas

5 lbs Balansa Fixation clover

3 lbs Sorghum/Sudan

3 lbs Tillage radish

Available at Cisco Seeds

Grazing livestock



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 Stewardship

Thank you.

Thoughts

Choosing the correct seed for Non GMO

- **limited selection**
- **good cold germ**
- **good early vigor**
- **excellent plant health on its own**
- **limit racehorse hybrids, workhorse**
- **moving to earlier hybrids / varieties**
- **new markets: silage, forages, alfalfa**

Growing Non GMO Crops

- filling a need for a customer (Dannon)**
- getting paid a premium**
- lower input cost**
- different management skill set**
- chemical options**
- fertilizer options**
- tillage preferences**
- cover crops**
- getting back to baseline genetics**

Systematic Approach to Regenerative Farming

- 1. cash crop rotation**
- 2. cover crop species diversification**
- 3. no till / minimum till**
- 4. chemical reduction**
- 5. synthetic fertilizer reduction**
- 6. water management (infiltration)**
- 7. drainage**
- 8. livestock grazing**

Cash crop rotation possibilities

corn-wheat-soybeans-alfalfa-alfalfa

corn-idle-grazing-wheat-soybeans-corn

corn-idle-wheat-grazing-corn-soybeans

corn-soybeans-forages-grazing-wheat

corn-soybeans-idle-corn-idle-wheat

We can no longer look at 1 year numbers, we must look at 3-5 year averages.

I am going to save you some frustration

- Start easy. Don't get in over your head**
- Corn into cereal rye**
- Wheat following beans in rolled rye**
- Legumes and liquid manure in the fall**
- Know your date for winter kill species**
- Kill covers early so they don't get out of control**
- Be aware of hard seed**
- I can't plant through that wooly mess**
- Planting dates**
- Network**

Frustrations continued...

- Scout fields. Stay on top of problems**
- Terminate early**
- Keep plants attached**
- Delta Force**
- Moth flights**
- Evernote**
- Good data**
- Slow down and look for validations**
- Educate your landlords**
- Viewed as a threat**

Cocktails for first timers

- **Corn: oats, sorghum/sudan, radish**
- **Beans: cereal rye, sorghum/sudan, radish**
- **Add diversity when you are ready**
- **Don't give up**

May 8th

- **Roll crimping before planting corn**
- **Let the legumes fix as much N as possible**
- **Suppress weeds**
- **Reduce chemicals**
- **Feed the microbes**
- **Armor the soil**





May 8th

- **Planting corn**
- **The best conditions I have ever planted into.**
- **Waiting for the cover crop to maximize what it was intended to do.**

April 29th

- **Planting soybeans**
- **Cereal rye at boot stage**
- **Easier to plant at this height**



June 5th

- **Crimping rye at anthesis**
- **Soybeans are at v2 growth stage**
- **Reduce chemicals / no chemicals**
- **Suppress weeds**
- **Move up planting date 30-45 days**
- **Armor the soil**
- **Feed the microbes**





Soil Health

**30% less nutrient density than
25 yrs ago**



**8 oranges today to equal 1 orange
50 yrs ago.**



Human Health

Rick's contact information

