

Robison Farms

Cover Crop  
Research Plots

2012 Research



# Robison Farms History

- Homesteaded in Clark County in 1837
- Farm was in the family for over 150 years
- Johnson County in 1940's
- Icle Robison – Don and Dave's Grandfather used cover crops and dairy manure continuously
- Bob Robison – Don and Dave's father used clovers and soil conservation

# History part 2

- No till started in late 60's
- **Too much land, too little equipment**
- 1500 acres in early 70's
  - Five Sons
  - Oliver 1855
  - John Deere 4020
  - Farmall M
  - Farmall H
  - 200+ head of beef cows
  - 85 sows in farrow to finish
  - Clark, Parke, Shelby, Decatur, Johnson Counties
- **Do the Math!**

# History part 3

- First Allis Chalmers no till planters in Central Indiana
- First Tye No Till Drill in Indiana
- First Max E Merge 4 row no till planter
- First Max E Merge 6 row no till planter
- A lot of mistakes
- A lot of being laughed at
- A lot of fun

# The Why

- Cover Crops have a lot of anecdotal evidence for why to use them.
  - Makes sense just to think about it
  - Few negatives – many positives
  - Worms
  - Rain Percolation
  - Groundwater nitrate runoff? Will it be mandated?
- BUT
  - How much benefit is there?
  - **I like to see real, hard data not warm fuzzies**

# The Location

- Five Points farm east of Greenwood, IN
- Very similar lay of the land throughout plot
- Very similar if not exactly the same soil type
- Great frontage on a heavily traveled road
- 11 Plots with check plots added
  - Side Test – 24" water main had been put in this area three years prior
  - Did we get paid enough to allow the soil disturbance

# The How

- 7" row soybeans
  - Dave and I "aerial" applied the seed at 50% leaf yellow leaf.
- Over the shoulder spreaders
- 24 corn rows wide x 100' long (1/8 acre each)
- Seeded September 7, 2011
- Fall rains were adequate to good

# The Tools

Spectrum Technologies SPAD 502DL  
**\$2120**



Agriculture Solutions **\$299**  
0-1000psi measurement



# The Details

- Brookston Soils
- 28+ years of no-till (mostly)
- Previous Crop – Soybeans
- Recent Crop Averages
  - Corn 198 bpa
  - Beans 48+ bpa
- Corn Planted May 7
- 175 units N applied – credited 50 units from beans for 225 unit total



# The Plan

- Seed in fall
- Use Chlorophyll Meter **weekly** in **30** locations per plot
- Track any changes in numbers
  - Differences per mix or species?
  - Did some release their nutrients early? Late?
  - Was their one mix, blend or species that was **the right one**?
- Did cover crops make financial sense?

## Plan 2

- Can cover crops improve soil health beyond thirty years of no till?
- Can cover crops reduce compaction more than thirty years of no till?
- Can I withstand the heat of being in the field each week in the hottest summer I can ever remember?

# The Data

2012 August 2 Chlorophyll Worksheet - Mid Season Drought Comparison - Microsoft Excel

Security Warning - Automatic update of links has been disabled. Enable Content

F10 Soybeans

### Chlorophyll Data

2011 Cash Crop and Fall 2011 Cover Crop Planted													2012 Cash Crop Data		Penetrometer Depth	
Field	Farm	Cover Crop	February Cover Cr.	2011 Crop	Additional Nutrients	3/21/2012 Chlorophyll	3/27/2012 Chlorophyll	3/27/2012 Inchi	2012 Crop	N Appl	7/26/2012	6/20				
Research Plots	Robison Five Points	NutriBuilder Mix	No	Soybeans	No	37.6	45	10.6"	Corn	175	19	3				
Research Plots	Robison Five Points	GroundBreaker Mix	No	Soybeans	No	41.6	42.1	9.8"	Corn	175	25	4				
Research Plots	Robison Five Points	Crimson CoverAll Mix	No	Soybeans	No	46.5	38.9	6.8"	Corn	175	25	4				
Research Plots	Robison Five Points	Oats/Radish Mix	No	Soybeans	No	43	39.7	10.2"	Corn	175	9	4				
Research Plots	Robison Five Points	Forager Mix	No	Soybeans	No	37	45.9	10.8"	Corn	175	22	4				
Research Plots	Robison Five Points	Cereal Rye Graze King 90	No	Soybeans	No	37.3	40.3	21.8"	Corn	175	12	4				
Research Plots	Robison Five Points	SoilBuilder Blend	No	Soybeans	No	38.4	39.5	11.8"	Corn	175	14	4				
Research Plots	Robison Five Points	Check Plot	No	Soybeans	No	0	0	0	Corn	175	9	3				
Research Plots	Robison Five Points	7XCC Mix	No	Soybeans	No	38	36.8	15.4"	Corn	175	6	3				
Research Plots	Robison Five Points	Research Plot (no cover crop)	No	Soybeans	No	47.5	60.4	13.6"	Corn	175	6	4				

For 2012 Corn numbers... Chlorophyll Data showing a number equal to or higher than 41.00 does not need additional nitrogen based on anecdotal evidence of cover crop farmers in the Midwest.

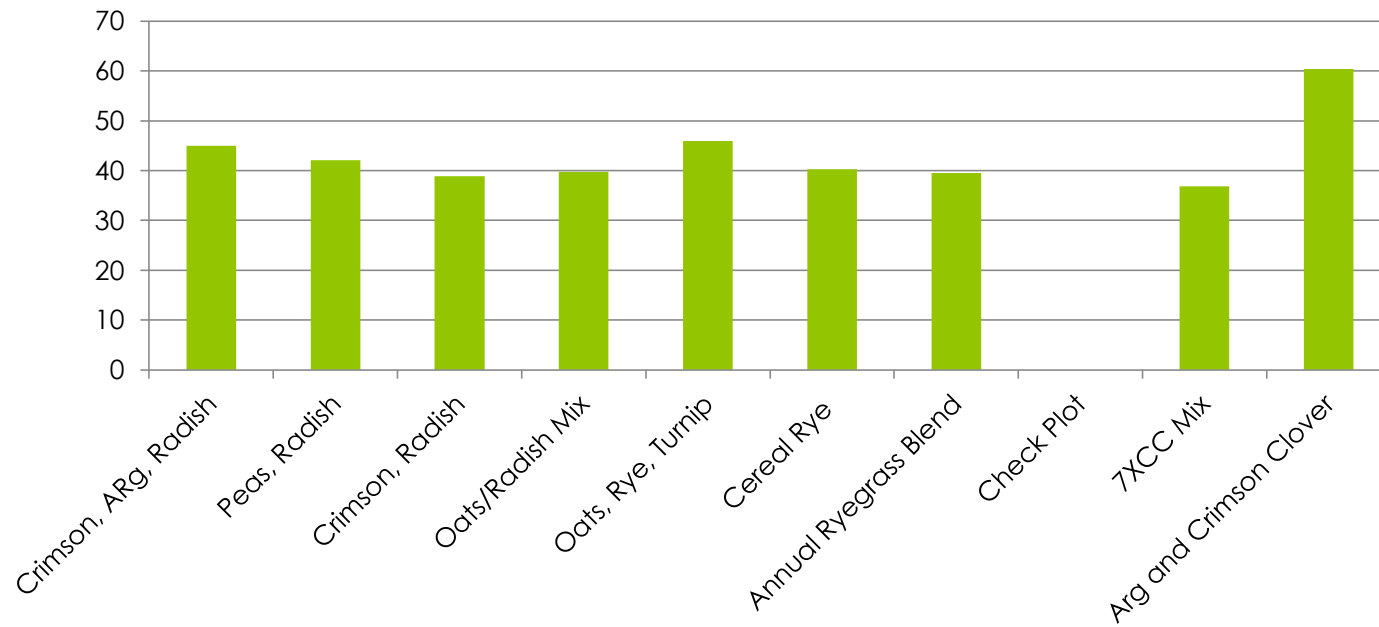
Master Data Sheet | NutriBuilder Chart | GroundBreaker Chart | Crimson CoverAll Chart | OatsRadish Chart | Forager Chart | Cereal Rye Chart | SoilBuilder Chart | 7XCC Chart

Ready 10 of 19 records found

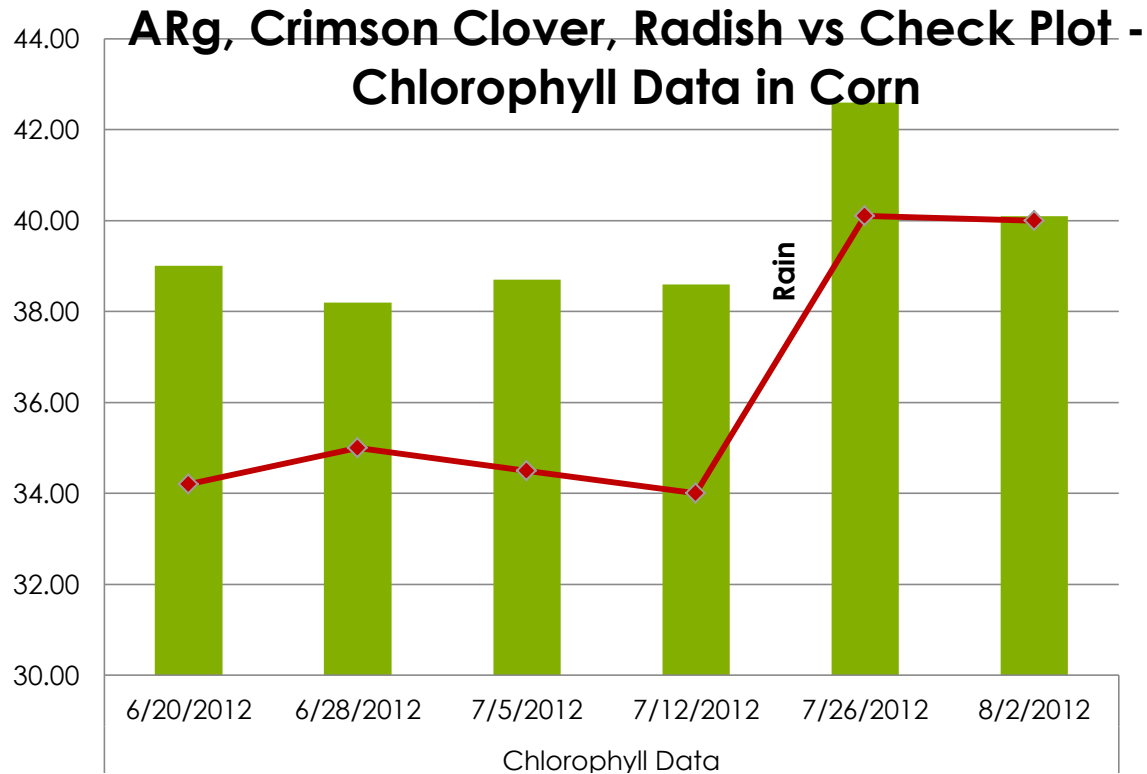
11:24 PM 11/15/2012

# Starting Point – Mild winter

## 3/27/2012 Chlorophyll

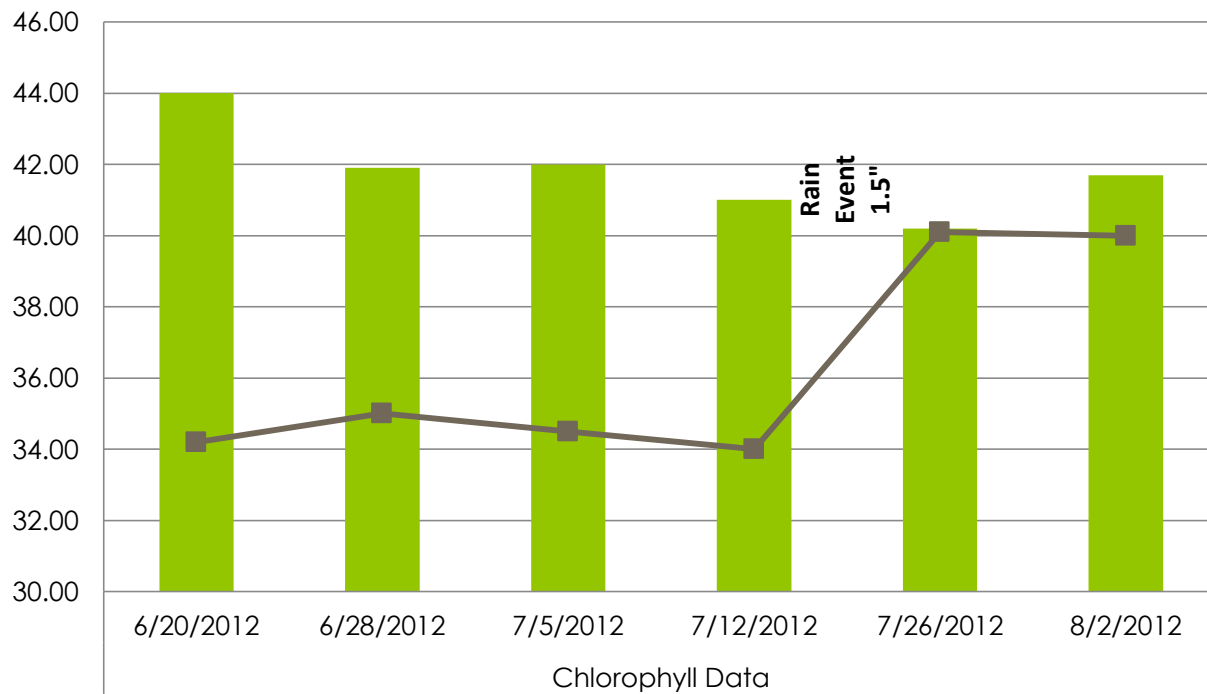


# ARg, Crimson Clover, Radish



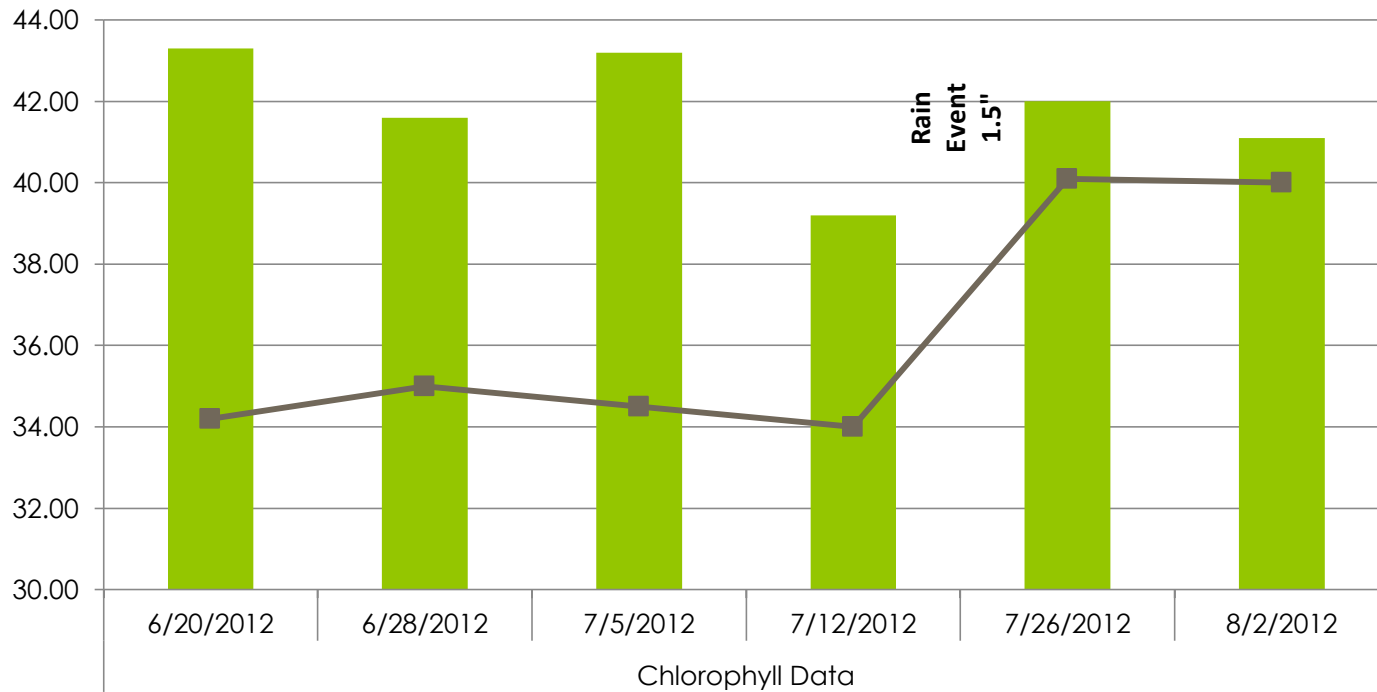
# Peas, Radish

## Peas, Radish vs Check Plot - Chlorophyll Data in Corn



# Crimson, Radish

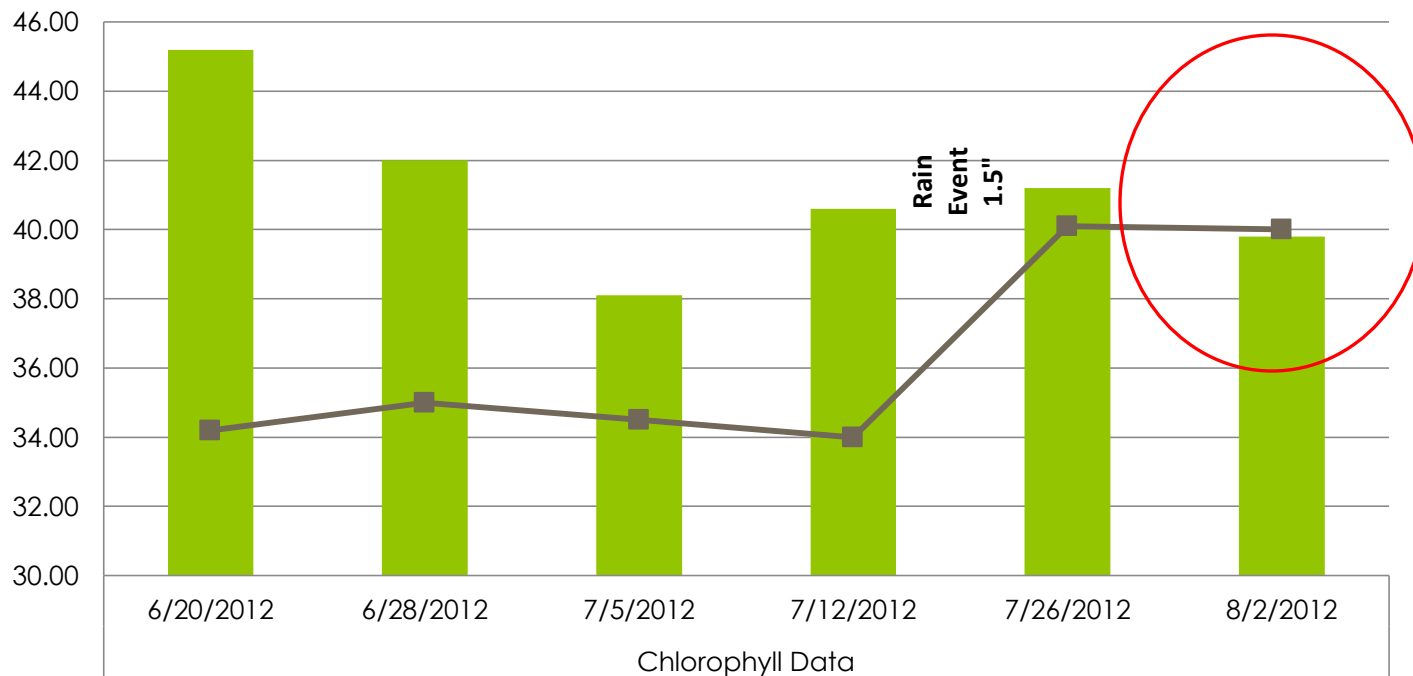
## Crimson, Radish vs Check Plot - Chlorophyll Data in Corn





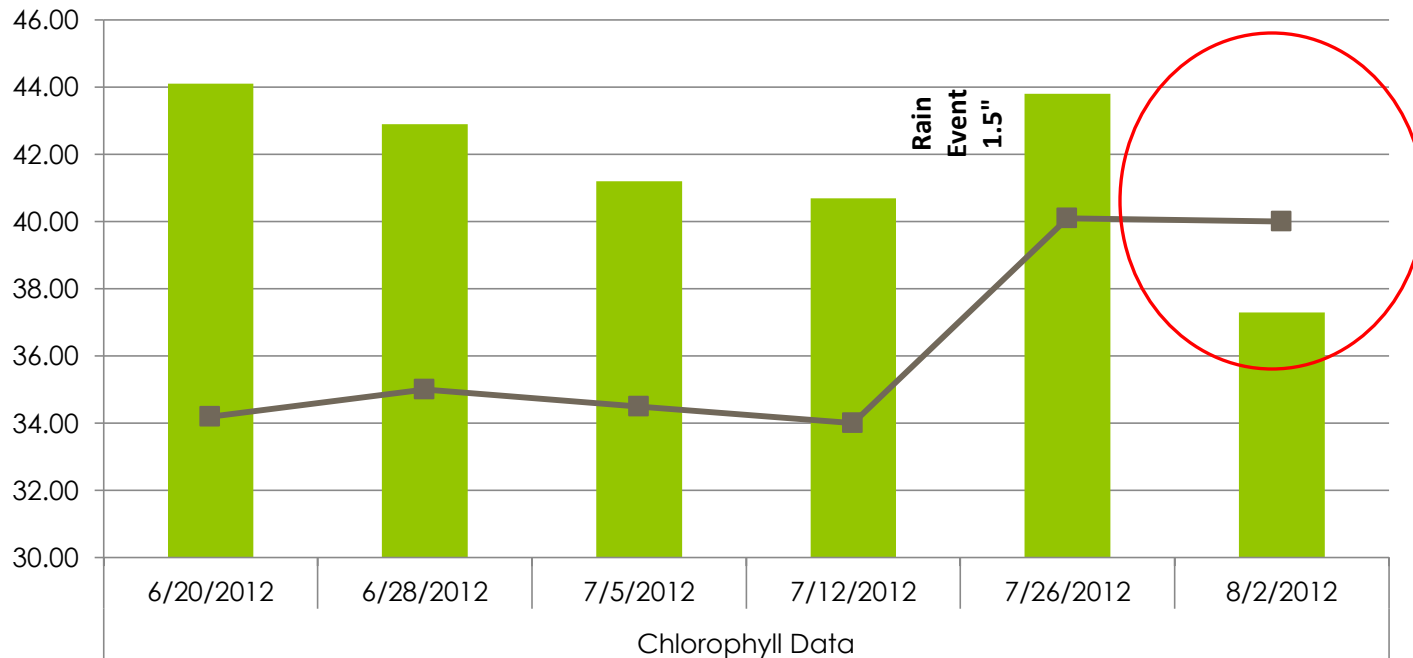
# Oats, Radish

## Oats/Radish vs Check Plot - Chlorophyll Data in Corn



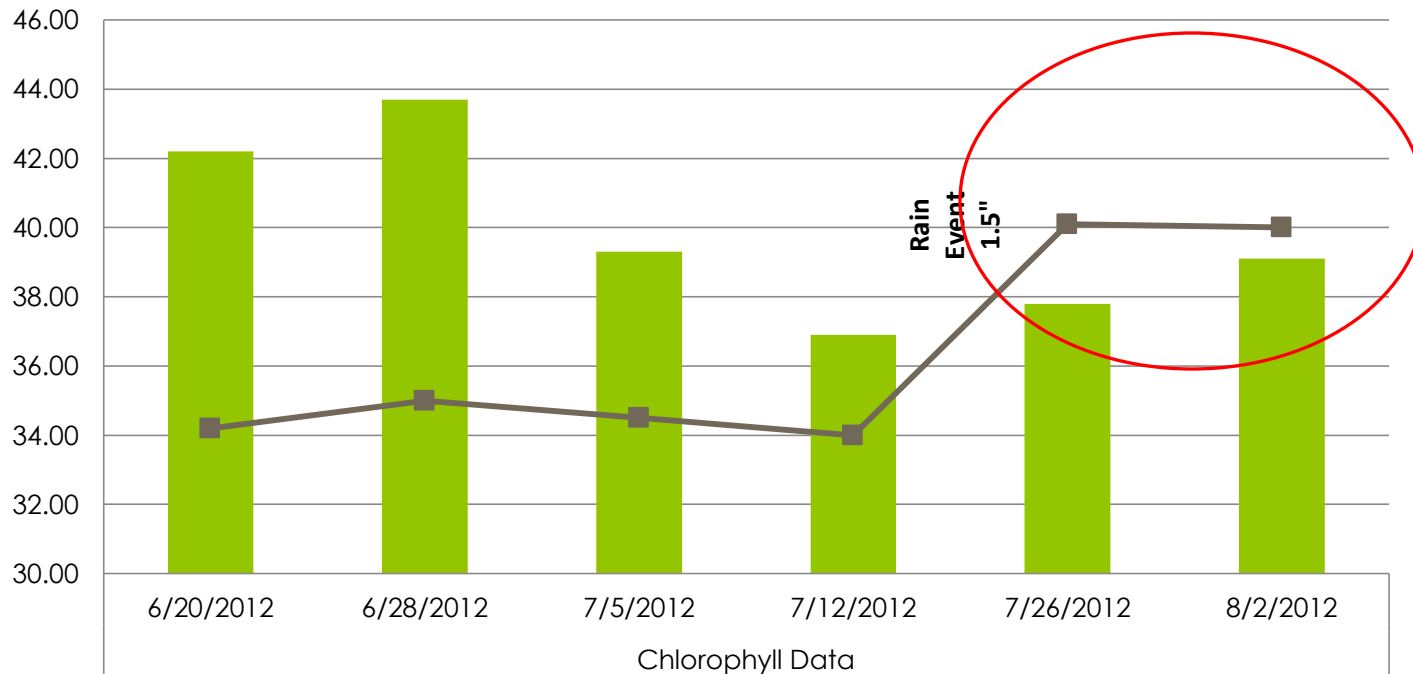
# Oats, Rye, Turnips

## Oats, Rye, Turnips vs Check Plot - Chlorophyll Data in Corn



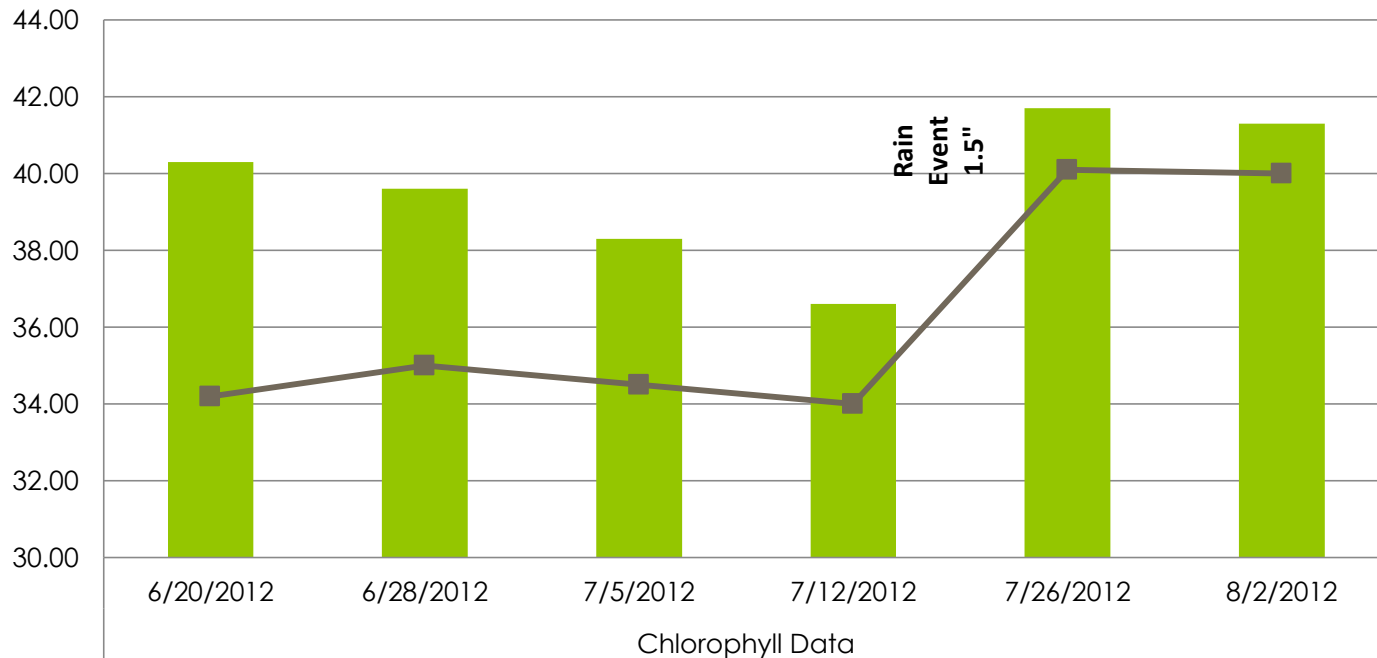
# Cereal Rye

## Cereal Rye vs Check Plot - Chlorophyll Data in Corn



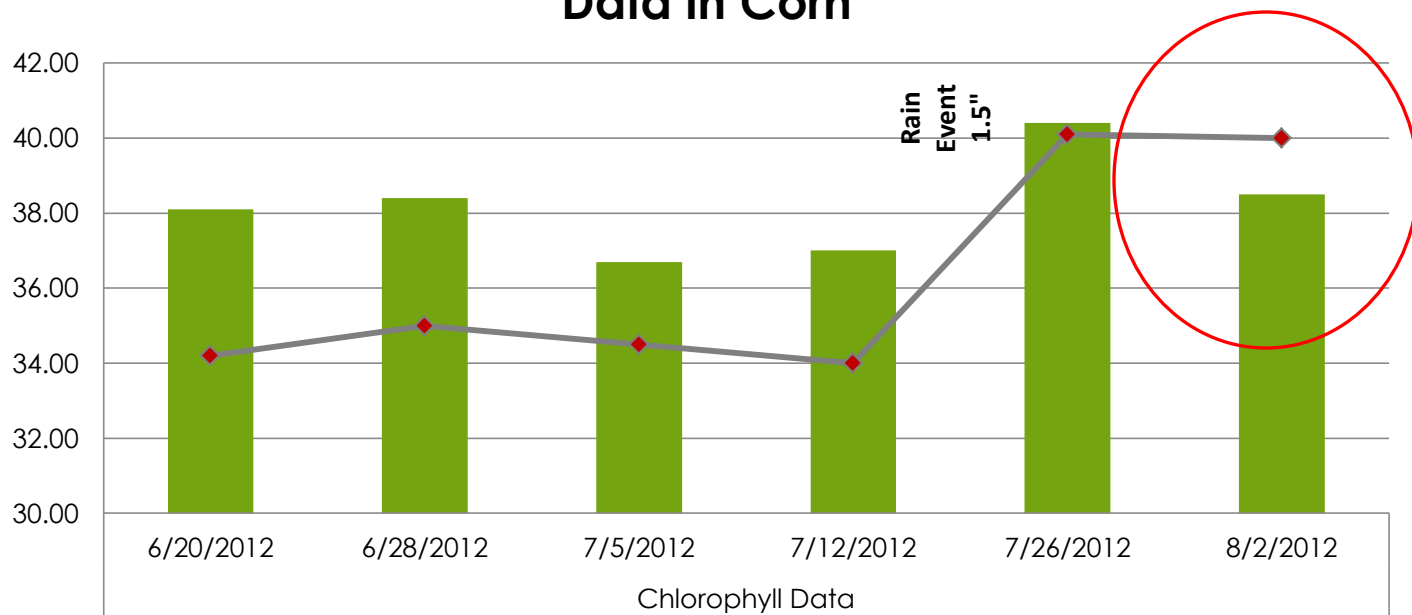
# ARg Blend

## ARg Blend vs Check Plot - Chlorophyll Data in Corn



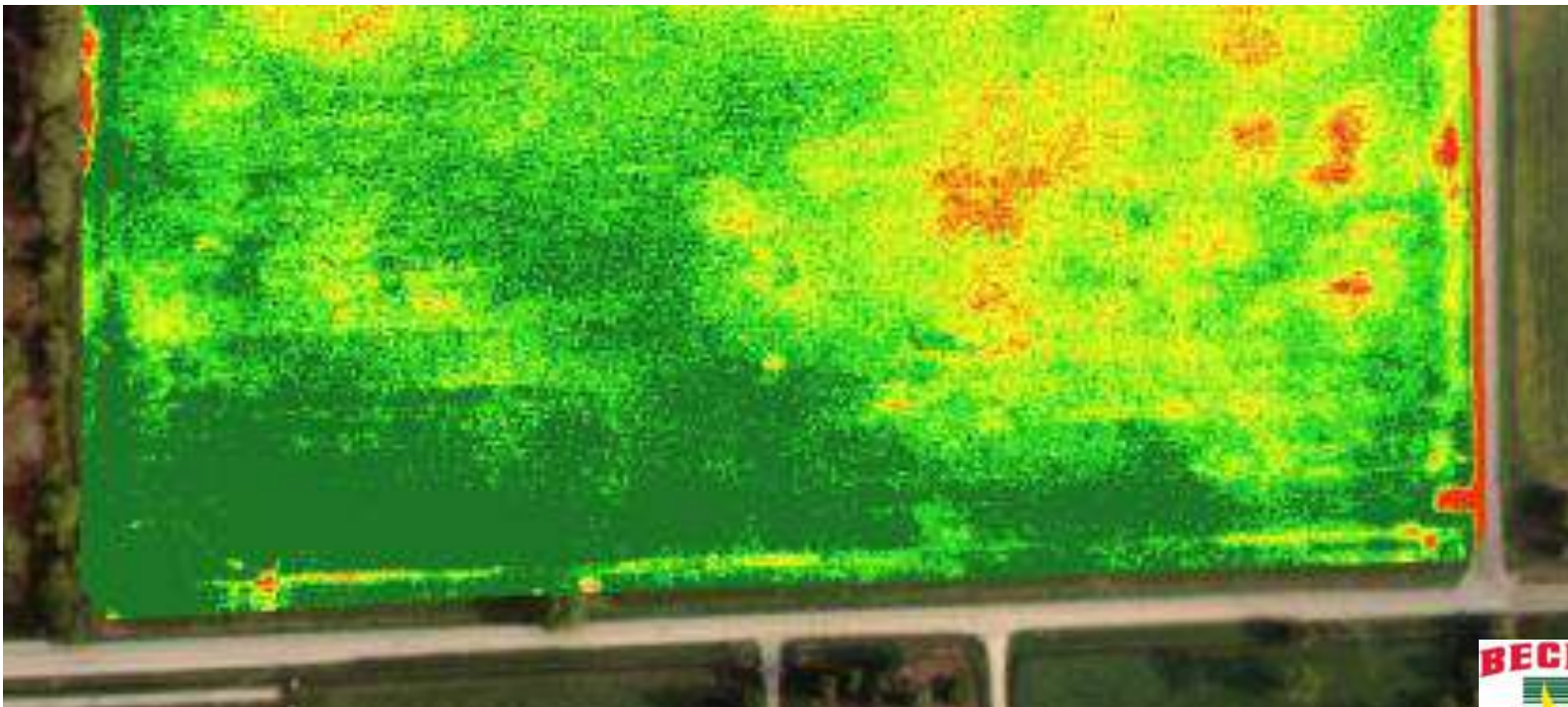
# 7 Way “Kitchen Sink” Mix

## 7 Way Cocktail Mix vs Check Plot - Chlorophyll Data in Corn



# Crop Health Image

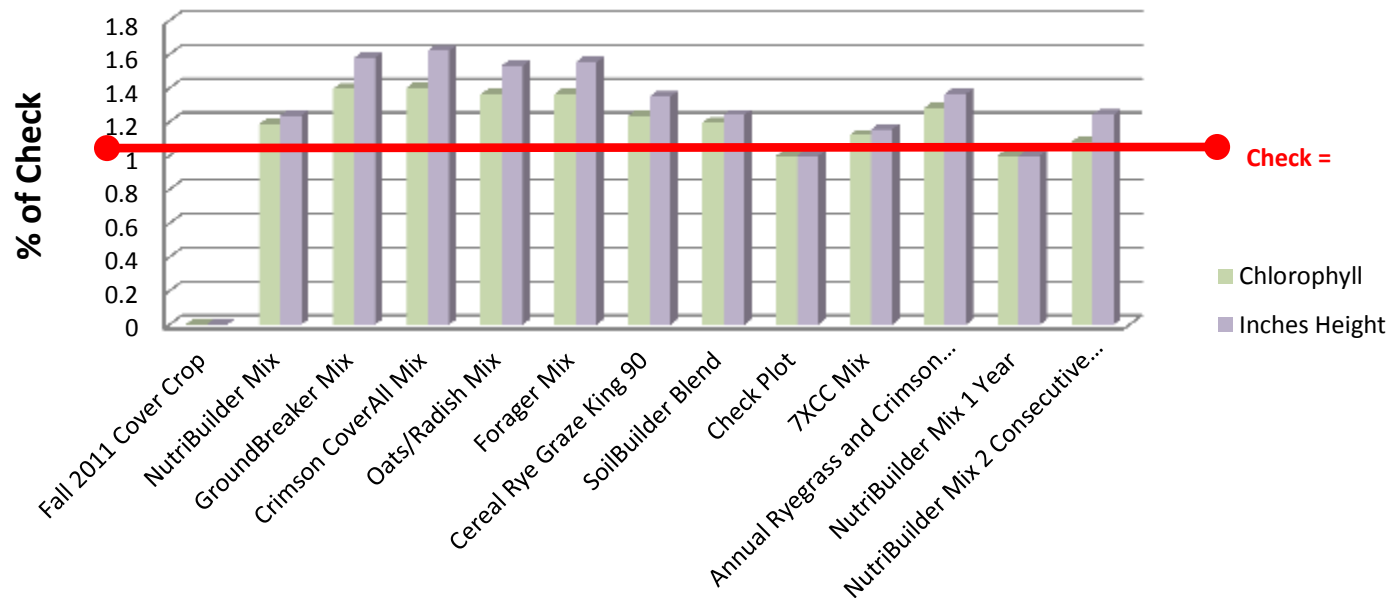
- Robison Farms
- Field Report
- 9/5/2012
- Craig Rogers
- 800-937-2325
- [crogers@beckshybrids.com](mailto:crogers@beckshybrids.com)



# Overview

## Cover Crop Plots Compared to Check Plots in 2012 Drought

*Chlorophyll Units and Height in Inches June 20-July 26*



# The Weather

- Germination to Pollination = 63 days
- Weather from July 4-12? 7 days over 95°



# Yield Data

- Certified Field Average  
107bpa
- Hand Check Estimate  
105bpa
- **Cover Crop Area  
Average 142.47bpa**



# The Numbers – Cost/Acre

Plot	Seed Rate	Cost/lb	App Cost	Seed Cost/Ac
check (no cover crop)	0	\$ -	\$ -	\$ -
Annual Ryegrass Blend	20#	\$ 0.75	\$ 14.00	\$ <b>29.00</b>
Winter Cereal Rye	1bu	\$ 18.48	\$ 14.00	\$ <b>32.48</b>
Annual Ryegrass + Crimson Clover	20#	\$ 0.98	\$ 14.00	\$ <b>33.60</b>
Annual Ryegrass + Crimson Clover + Radish	21#	\$ 1.47	\$ 14.00	\$ <b>44.87</b>
Oats + Radish	69#	\$ 0.48	\$ 14.00	\$ <b>47.12</b>
Austrian Winter Peas + Radish	40#	\$ 1.19	\$ 14.00	\$ <b>55.65</b>
Crimson Clover + Radish	20#	\$ 2.10	\$ 14.00	\$ <b>56.00</b>
Oats + Rye + Appin Turnips	105#	\$ 0.58	\$ 14.00	\$ <b>74.90</b>

# The Yield

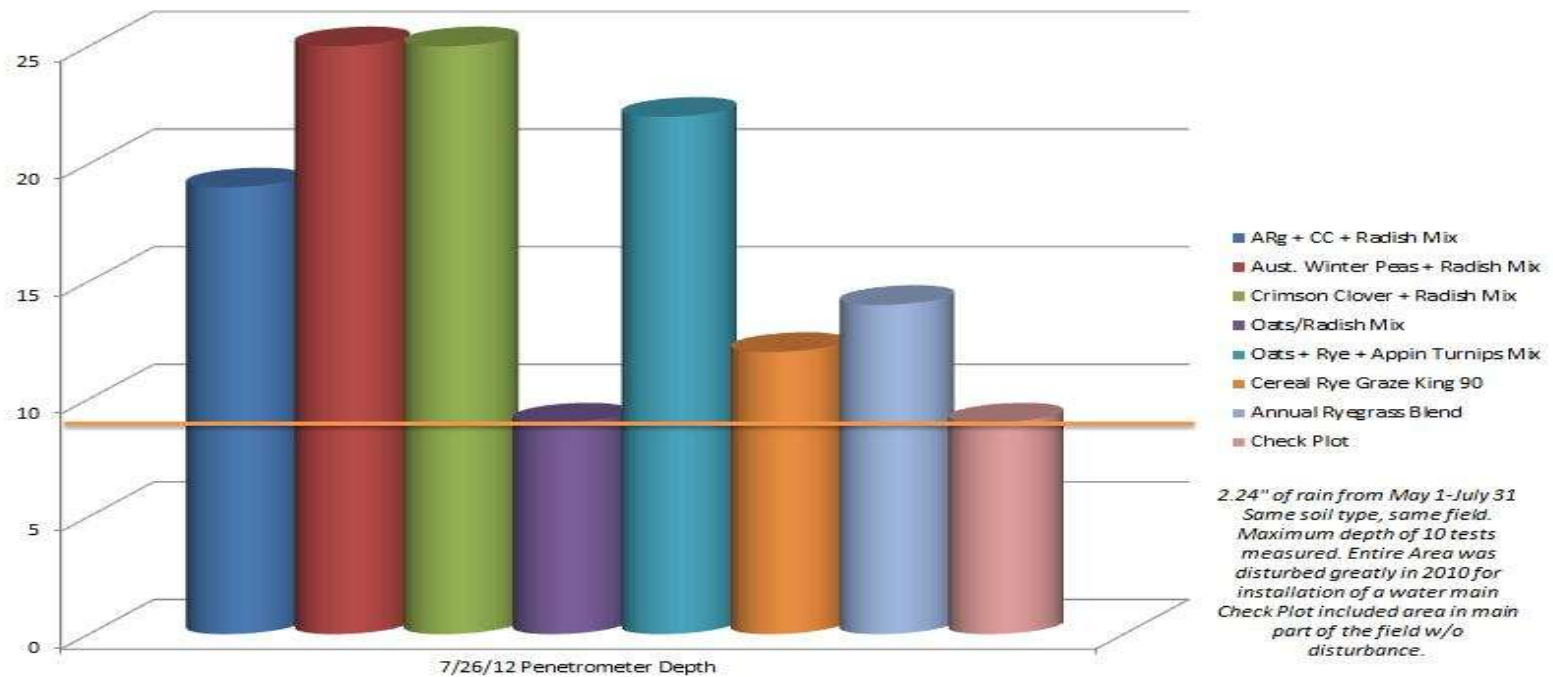
Plot	Yield
check (no cover crop)	<b>105.24</b>
Annual Ryegrass + Crimson Clover + Radish	<b>120.31</b>
Winter Cereal Rye	<b>126.86</b>
Oats + Radish	<b>138.79</b>
Annual Ryegrass Blend	<b>134.27</b>
Annual Ryegrass + Crimson Clover	<b>136.41</b>
Crimson Clover + Radish	<b>153.99</b>
Oats + Rye + Appin Turnips	<b>164.37</b>
Austrian Winter Peas + Radish	<b>164.82</b>

# The Compaction

## Measuring Soil Compaction After Different Cover Crops

Robison Farms, Greenwood Indiana

Higher Numbers = Greater Depth in Inches = Less Compaction



# Top Three Yields - Hmmmm

- **Penetrometer**  
**Data top 3**
  - **Peas, Radish**
  - **Crimson/Radish**
  - **Oats/Rye/Turnip**



# The NET PROFIT - The reason we did the whole thing!!!!

Plot	Revenue	(Revenue - Seed)	Net Advantage
check (no cover crop)	\$ 605.13	\$605.13	<b>\$0.00</b>
Annual Ryegrass + Crimson Clover + Radish	\$ 691.78	\$646.91	<b>\$41.78</b>
Winter Cereal Rye	\$ 729.45	\$696.97	<b>\$91.84</b>
Oats + Radish	\$ 798.04	\$733.29	<b>\$128.16</b>
Annual Ryegrass Blend	\$ 772.05	\$743.05	<b>\$137.92</b>
Annual Ryegrass + Crimson Clover	\$ 784.36	\$750.76	<b>\$145.63</b>
Crimson Clover + Radish	\$ 885.44	\$829.44	<b>\$224.31</b>
Oats + Rye + Appin Turnips	\$ 945.13	\$870.23	<b>\$265.10</b>
Austrian Winter Peas + Radish	\$ 947.72	\$892.07	<b>\$286.94</b>

# Remember the water line?

- Utilities like to pay for 5 years crop loss
  - **It isn't enough!**
  - Crop yield in the best area was just 65% of Check
  - Average was around 50%
  - Worst?
  - This is the fourth growing season after the water line was put in



# Summary

- Do we expect this huge difference every year? **NO**
- Do we expect that in a wet year some other cover crops may do better? **YES**
- Do we expect that in most years there are tangible financial advantages to cover crops? **YES**
- Will we repeat the study for verification? **Yes** – but will utilize Crop Health Imaging more and do less manual Chlorophyll data checking




# The Blog



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## Cover Crops Provide Improved Corn Yields in On-Farm Trial

SEPTEMBER 4, 2012

*All of what is reported below was accomplished after only one year of cover crops. This work was inspired by a conversation Don and I had last winter with Dr. Eileen Klavivko from Purdue University. As I say in cover crop meetings,*

“ Don't expect a miracle the first year – but look for one.

Over the exceptionally dry and super hot late-spring/summer months of 2012 my brother

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# The Conclusion

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  - Email Don Robison: [robisonfarms@gmail.com](mailto:robisonfarms@gmail.com)
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