

What I've Learned From My Onfarm No-Till Research

Mike Starkey
Starkey Farms
January 14, 2012



20th Annual National No-Tillage Conference

St. Louis, Missouri * Jan. 11-14, 2012



St. Louis, Missouri • Jan. 11-14 2012

No-Tillage Today 56 No-Till K Tomatoes



NO-TILL FARMER



20th Annual National No-Tillage Conference

St. Louis, Missouri * Jan. 11-14, 2012



NO-TILL
FARMER



20th Annual National No-Tillage Conference

St. Louis, Missouri * Jan. 11-14, 2012



Background (2011)

Brownsburg in Central Indiana
Corn/Soybeans on approx. 3000 acres
100 % No-Till Farming

Family Farm
Brothers Dave and Mike with their sons Jeff and Nick
Employee AJ Adkins

Brookston, Crosby, Miami Soils
Deep, Poorly drained, Silt Loam – Silty Clay Loam 0-2% Slope.
(High yield potential w/good management)



20th Annual National No-Tillage Conference

St. Louis, Missouri * Jan. 11-14, 2012



St. Louis, Missouri • Jan. 11-14 2012

No-Tilling Today 56 No-Till K Tomatoes



20th Annual National No-Tillage Conference

St. Louis, Missouri * Jan. 11-14, 2012



**NO-TILL
FARMER**



Plant
Harvest

FLORIDA

GOLF

FLORIDA

BUTLER GAME

~~COLTS~~

~~Sell Colts tickets~~

Give Colts tickets AWAY



- 100% No-Till Farming since 2001
- No-till soybeans since 1989
- Tried no-till corn from 1992-1994, but unsuccessful
 - Planter set-up
 - Poor hybrids in a no-till environment
 - *Insufficient placement of nitrogen* (currently applying 80-lbs less total N w/ consistent yield increases)

**NO-TILL
FARMER**



– Background Prior to 2002

- 3000 acres
- Tillage
 - Soybeans: No Till
 - (15" air seeder)
 - Corn: Spring 1-pass finisher
 - 16 row Kinze planter with Auscherman coulters
- Fertility
 - Lime from various sources
 - Fall P&K (Co-op recs. up to 500#/a)
 - UAN 10gpa banded with planter
 - NH3 side-dressed
 - Soil sampling by grids analyzed by the local Co-op



Why No-Till

- Input costs were increasing
- Yields seemed to be plateauing
- Fertility levels stayed level
- Organic levels stayed level



Changes Made Since No-Tilling

- Sample by Soil Type and Management Zones
- Apply 75 lbs. N with Planter
- VRT sidedress N application w/28%N
- Soybean and Corn Planters Set up with precision planting applications
- Use of Cover Crops



On Farm Research

- All started with the yield monitor
- Recorded yield data since 1995
- Have recorded and analyze data from hybrid comparisons to monitoring N and P levels from tile outlets



- Evaluation of data is extremely important on your own farm
- Farmers need to improve what works for them on their farms
- The sooner they find answers to improve what works best on their farm the quicker they can improve their bottom dollar

**NO-TILL
FARMER**



2011 Observations

- Soybean herbicide and foliar applications
- Nitrogen applications
- Planter Equipment changes



MY OPINION ONLY!





Soybeans Sprayer Applications



2009 Spray Application

- Yield monitor showed dramatic yield decrease in soybean field
- Same soybean variety
- Same planting date
- Same fertility program
- Different Herbicide in field



Theory

- Glyphosate stunted soybean plant and reduced the yield



2010 Plan of Action Options

- Plant Non-Gmo and Liberty Link soybeans?
- Old LL genetics vs. new RR2 genetics?
- No premium for non-gmo soybeans?
- Expensive herbicide costs?
- Run more strip tests?



2010 Action

Seed company offered to exchange RR2 varieties for RR1 varieties at no additional cost

Spray non-gmo herbicide on RR2 and RR1 varieties with side by side comparisons with glyphosate herbicide on three different fields



2010 Results



2010 Results

- NO YIELD DIFFERENCE!



2011 Plan of Action Options

- Plant RR2 varieties along with non-gmo varieties (\$1.50 premium)
- Spray non-gmo product with side by side glyphosate application on two separate farms
- Plant LL soybeans



2011 Action

- Planted non-gmo varieties on 400 acres (\$1.50 premium)
 - Planted RR2 and RR1 varieties
- Sprayed side by side comparison of non-gmo herbicide and glyphosate on RR varieties on three different farms





2011 Observations





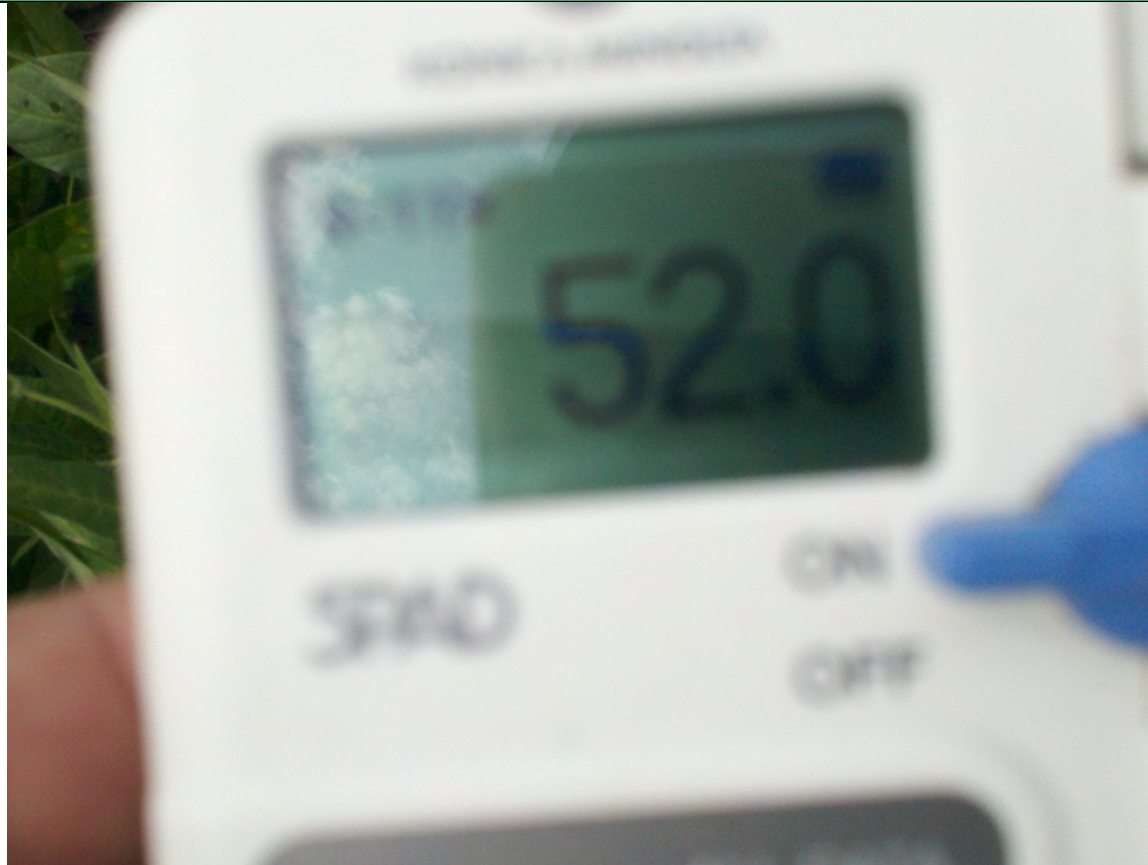
2011 Observations





2011 Observations





2011 Observations





2011 Observations



Yield Observation

Yield with non-gmo app

- 57.5 bushel per acre

Yield with glyphosate app

- 53.0 bushel per acre



2011 Application Observation

Non-Gmo Herbicide App

- Planted 5/14/2011
- Sprayed 6/13/2011

Glyphosate application

- Planted 5/14/2011
- Sprayed 6/20/2011



2009 Application Observation

- Planted 5/22/2009
- Sprayed 7/03/2009
- Harvest Yield non-gmo herbicide 59.5
- Harvest Yield glyphosate herbicide 54.4



2010 Application Observation

- Planted 4/22/2010
- Sprayed 6/03/2010
- Harvest yield 62 bushel per acre for both non-gmo herbicide and glyphosate



2012 Plan of Action

- Plant non-gmo (\$2.00 premium) on annual rye grass fields
- Spray full rate of residual herbicide with burndown of glyphosate
- Observe side by side of non-gmo herbicide and glyphosate at different application dates



My Opinion

- Glyphosate is not the problem
- Application date is the problem
- Put sprayer away after July 1!
- If need to: spot spray only and use herbicide specific to weed escapes





Does the non-gmo herbicide increase yields under the right conditions and time?

Burning the main bud may trigger the plant into branching and setting more pods.



We Need More Research!

Best way is to do it on your own farm

Can independently do without funding

Share info and data with others via no-till
conference and regional workshops



Annual Nitrogen Strip Trials

- More N on planter safely the better
- N has to be spoon fed to maximize yield
- Mixing Thio with 28% is a must
- Plant race horse hybrids on annual rye grass fields



2007 Nitrogen Strip Trial

Sidedress Amount	Yield
0 lbs	145 bushel
50 lbs	150 bushel
60 lbs	151 bushel
70 lbs	151 bushel
80 lbs	164 bushel
90 lbs	170 bushel
100 lbs	165 bushel



2011 Nitrogen Strip Trial Results

71 lbs N applied at Planting

<u>VARIETY</u>	<u>%m</u>	<u>20gal.</u>	<u>25gal.</u>	<u>30 gal.</u>	<u>35gal.</u>
LG2549vt3	17%	<u>53lb.</u>	<u>66lb.</u>	<u>80lb.</u>	<u>95lb.</u>
109 day			144bpa	136bpa	149bpa
semi-flex		154bpa	152bpa	160bpa	164bpa
LG2555vt3	18%				
110 day		155bpa	170bpa	170bpa	171bpa
flex		154bpa	181bpa	186bpa	187bpa
With/Enhance	19%	186bpa	180bpa	181bpa	181bpa

Note: gallon mixture of nitrogen is 80/20 of 28% N with liquid Thiosul



2012 Plan of Action

- Continue with 71 lbs. of N on planter
 - (5 lbs.in seed trench with 66 lbs. sideband)
- Apply 20% less N at sidedress when using Enhance on 25% of acres
- Sidedress fixed ear hybrids first
- Continue with strip sidedress trials



2012 Equipment Changes





Annual Rye Grass Stand

KB Royal Annual Rye Grass December 24, 2011





Cover Crop Mix Stand





**NO-TILL
FARMER**





NO-TILL
FARMER





NO-TILL FARMER



20th Annual National No-Tillage Conference

St. Louis, Missouri * Jan. 11-14, 2012



20th Annual
National
No-Tillage
Conference

St. Louis, Missouri • Jan. 11-14 2012

Be the K Tomatoes



**NO-TILL
FARMER**

