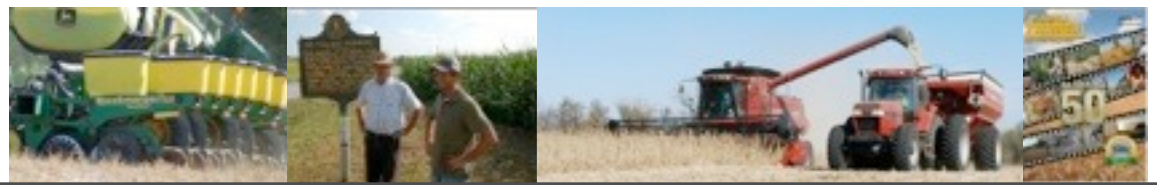
What we've learned about applying Nitrogen in No-Till

Bob & Monte Bottens
Bottens Family Farm
January 12, 2013

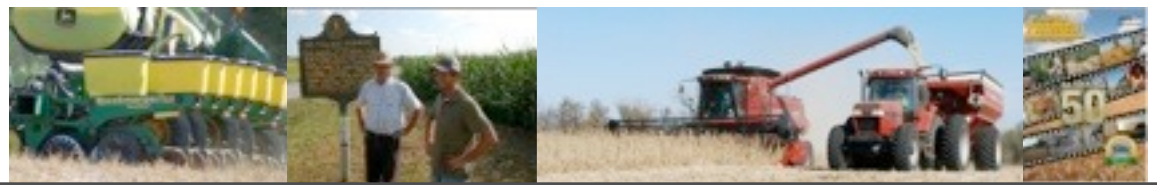



We need to examine what the plant needs for nutrients to thrive in order to better understand what it needs to excel and realize plant health.

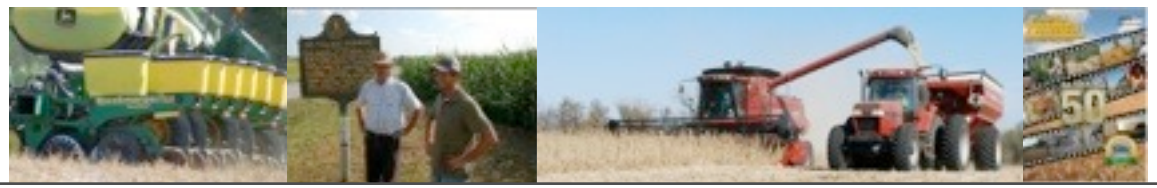
We are trying to maximize a thriving environment for the plant to get maximum corn yields.



Soil types
Field drainage
Yield goals
Field history
Soil cover from previous crops
Application equipment
Timing
Rates



1. Our History of N application
   - **a.** Anhydrous applicator
   - **b.** Low rate planter w/anhydrous
   - **c.** All planter
   - **d.** Planter and side-dress



Planter setup in transport

300 gal Thio, 1000 gal 4 10 10, 400 gal starter, 2600 gal N
60 acres per fill, 20 min refill time all products

500 gallon sidequest tanks

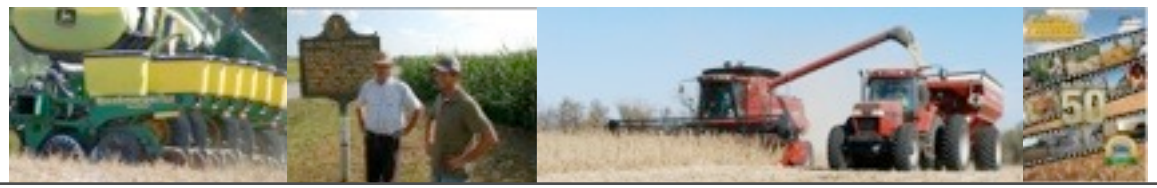
Sidequest side mount tank valves

Electric and manual shut offs

Check your seed depth

Small cob size, large kernel size

2. N rate determination
   - **a.** Drainage
   - **b.** Previous crop
   - **c.** Previous Yield Zones



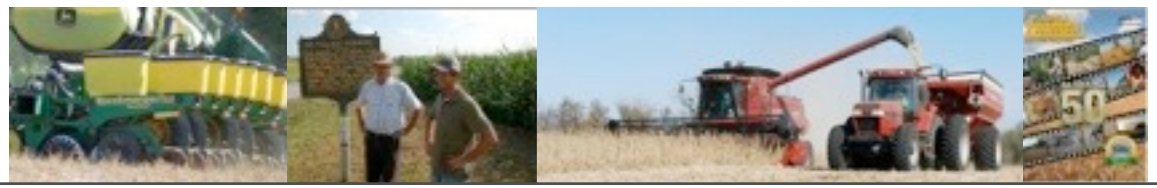
Little wet here, not now with the tile

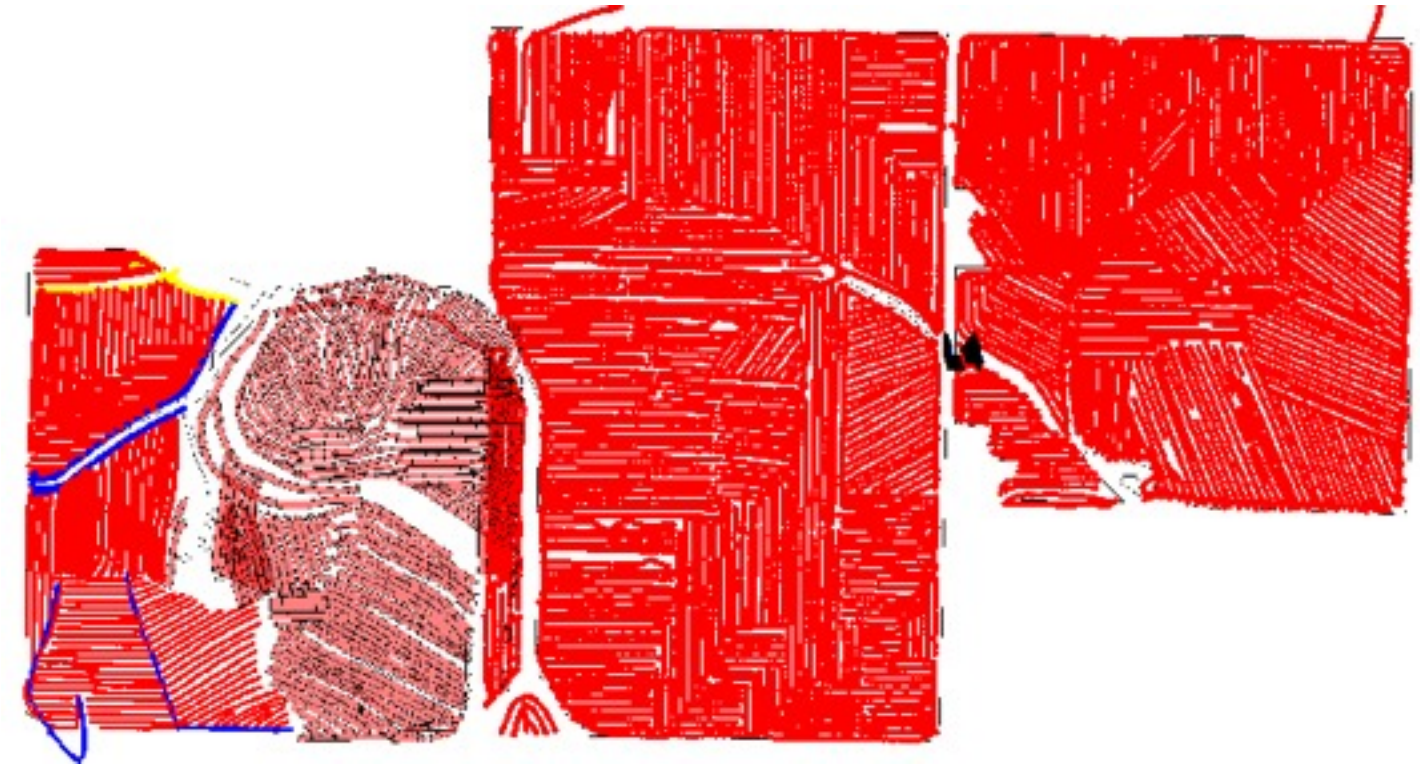
Tile Installation



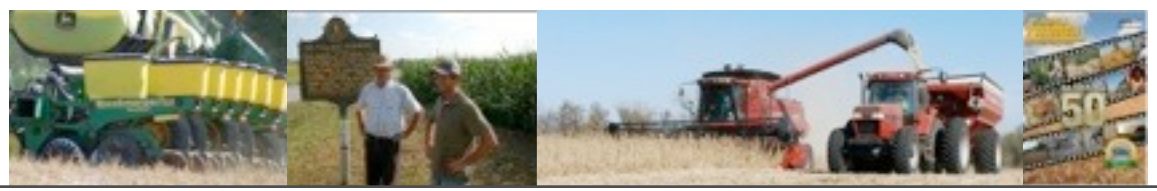

a. Drainage

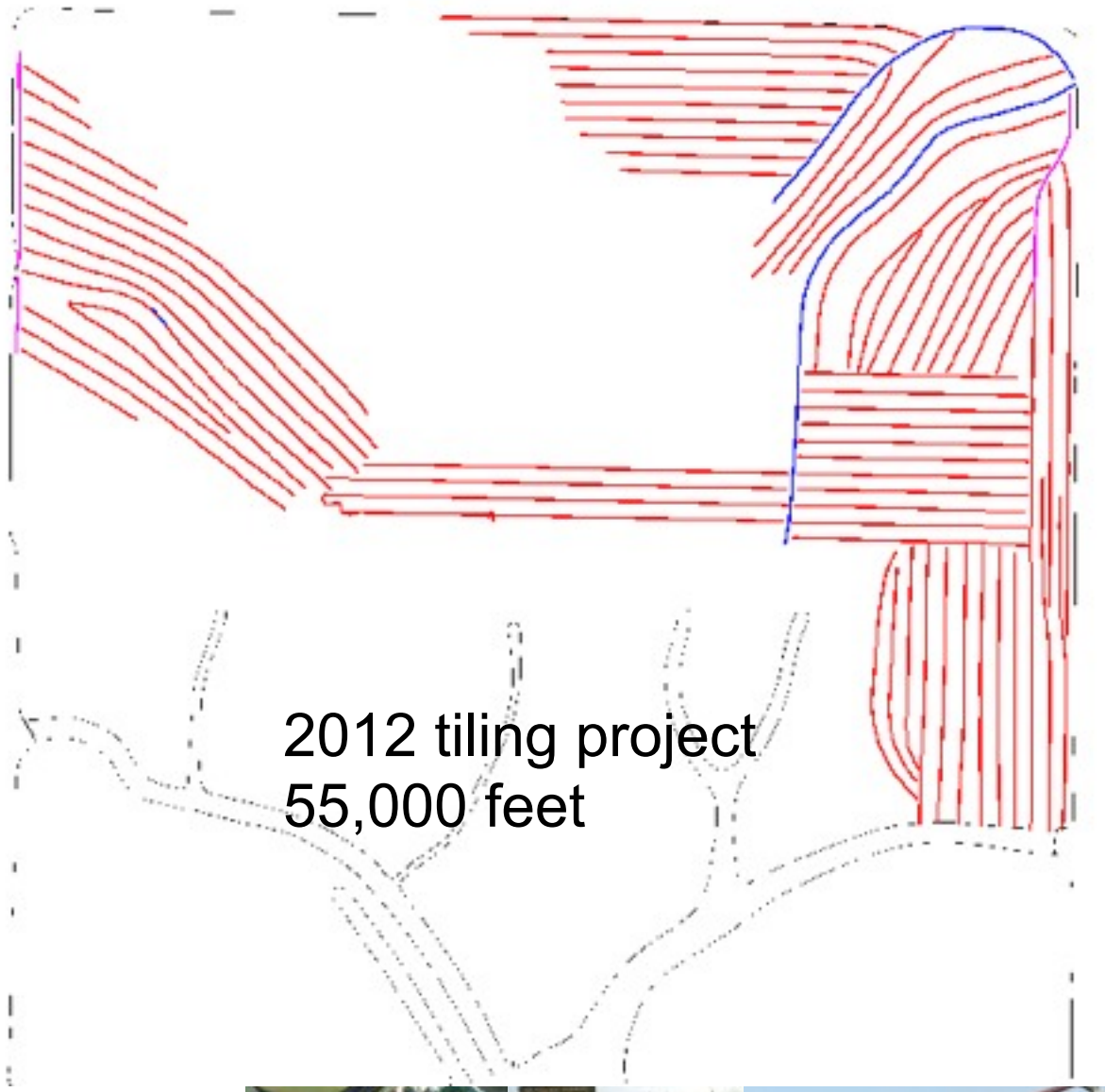
How to tile the hills

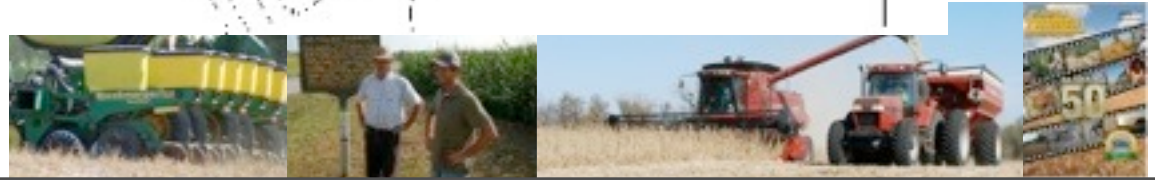




560 acres pattern tiling

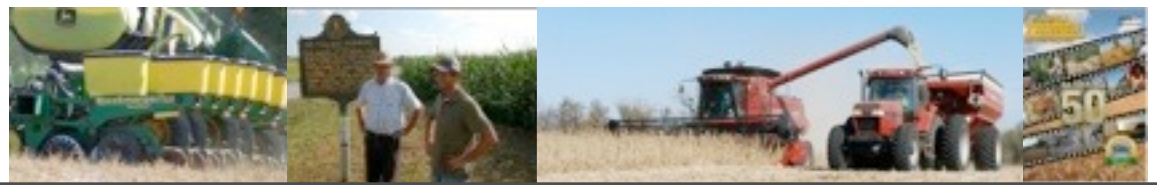



2012 tiling project
55,000 feet

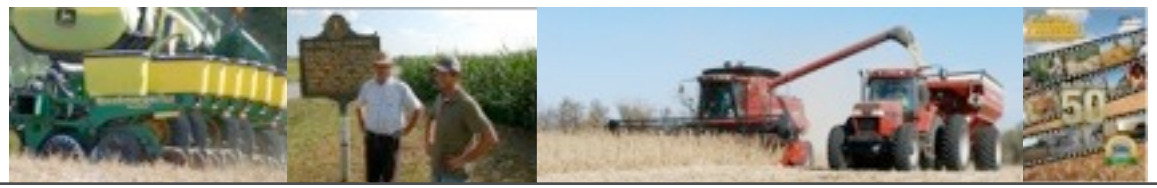


"For years I always ran 10-15 year old equipment but put in a million feet of tile in that same time period My favorite saying was "the corn plant doesn't know if I have a new combine or old combine. It does know if I have tile."

"Posted by Barker on Newagtalk.com"



3. 2012 N trial
   - **a.** Baseline planter N by yield zone
   - **b.** Side dress strips
   - **c.** Yield Results

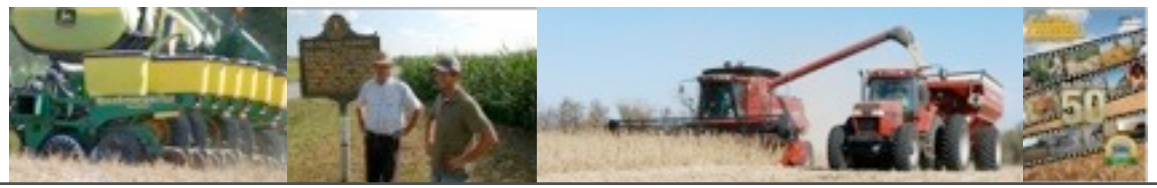


Nitrogen Study 2012

- Goal:
  - Try to determine effectiveness of sidedress application of N and Thio-sul

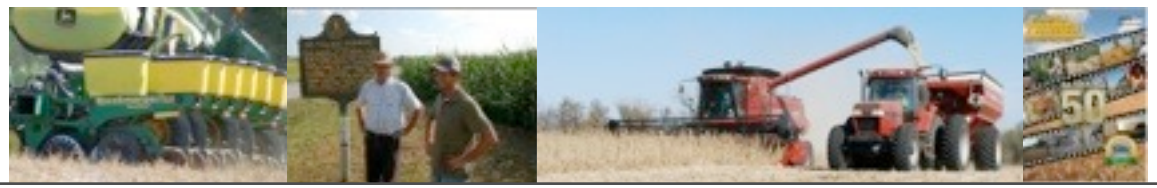
Method:

Apply ½ estimated yield goal N with planter in a 3 by 2 setting, balance later

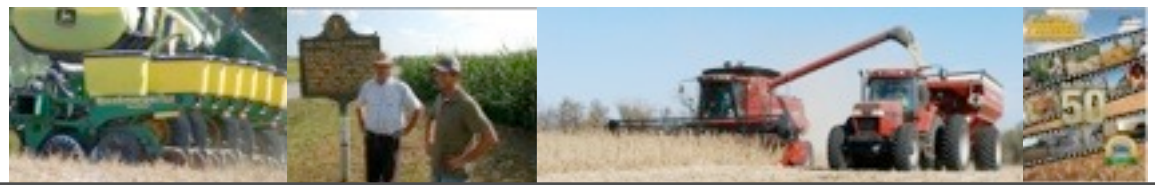


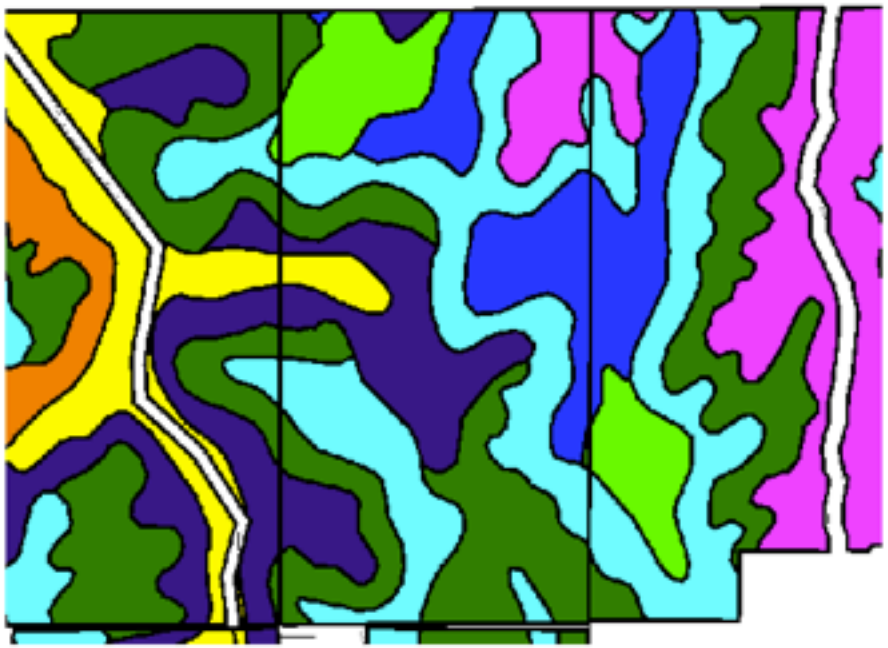
Nitrogen Rate study 2012

- Apply different rates with High Clearance Miller Nitro sidedress bar with coulters and knives to determine what rate is most cost effective per yield
- Two passes is some places



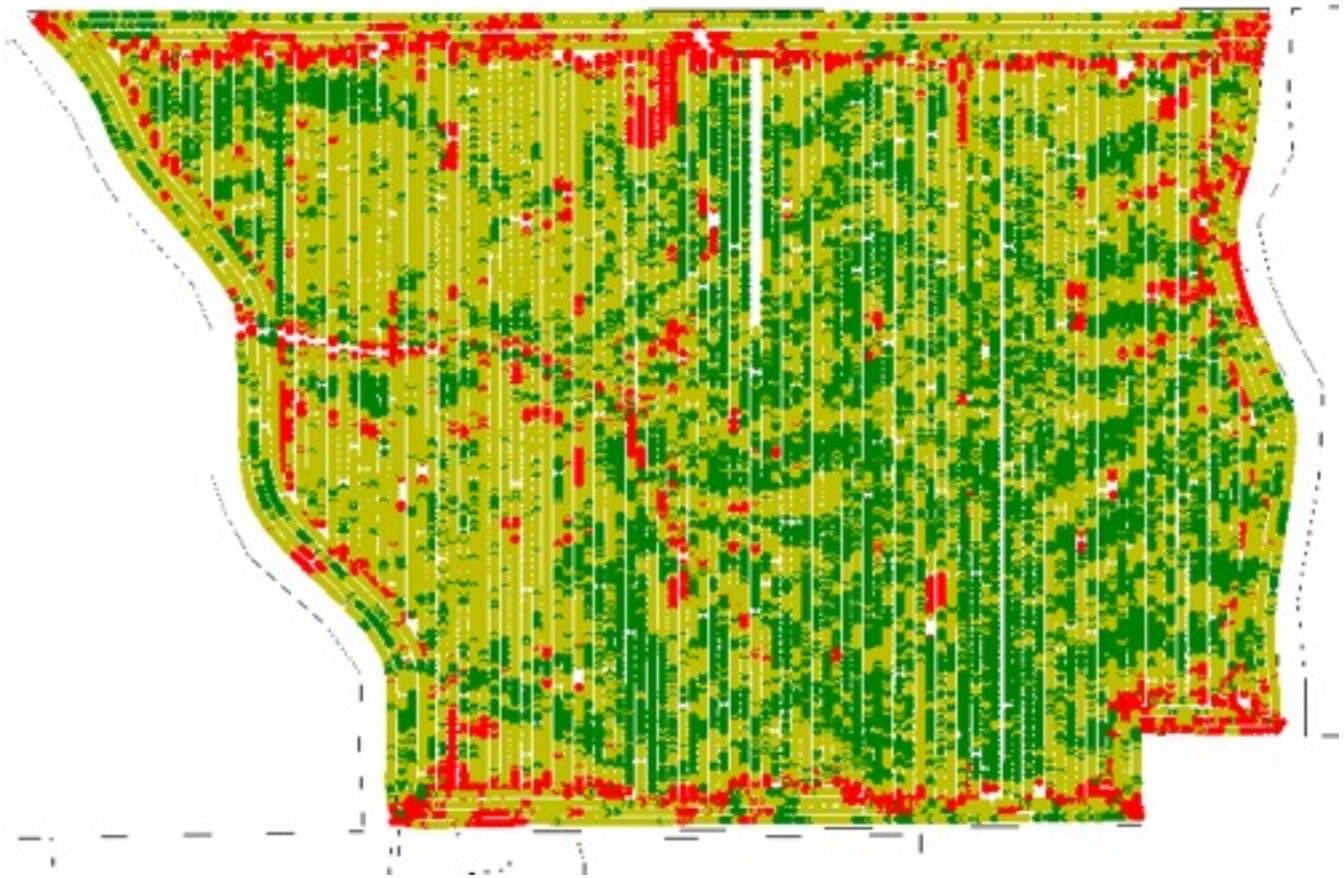
USDA photo N test field





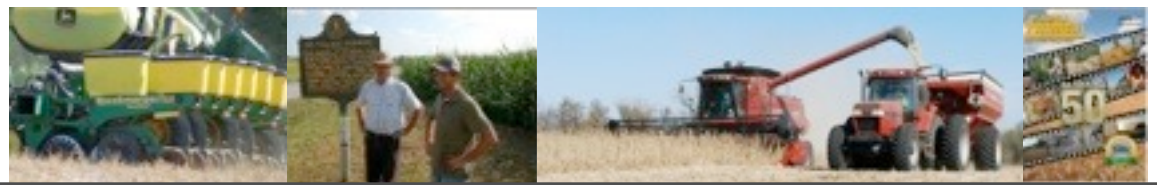
19D3
36A
36B
36C2
41A
74
567D2
957D3
962D3

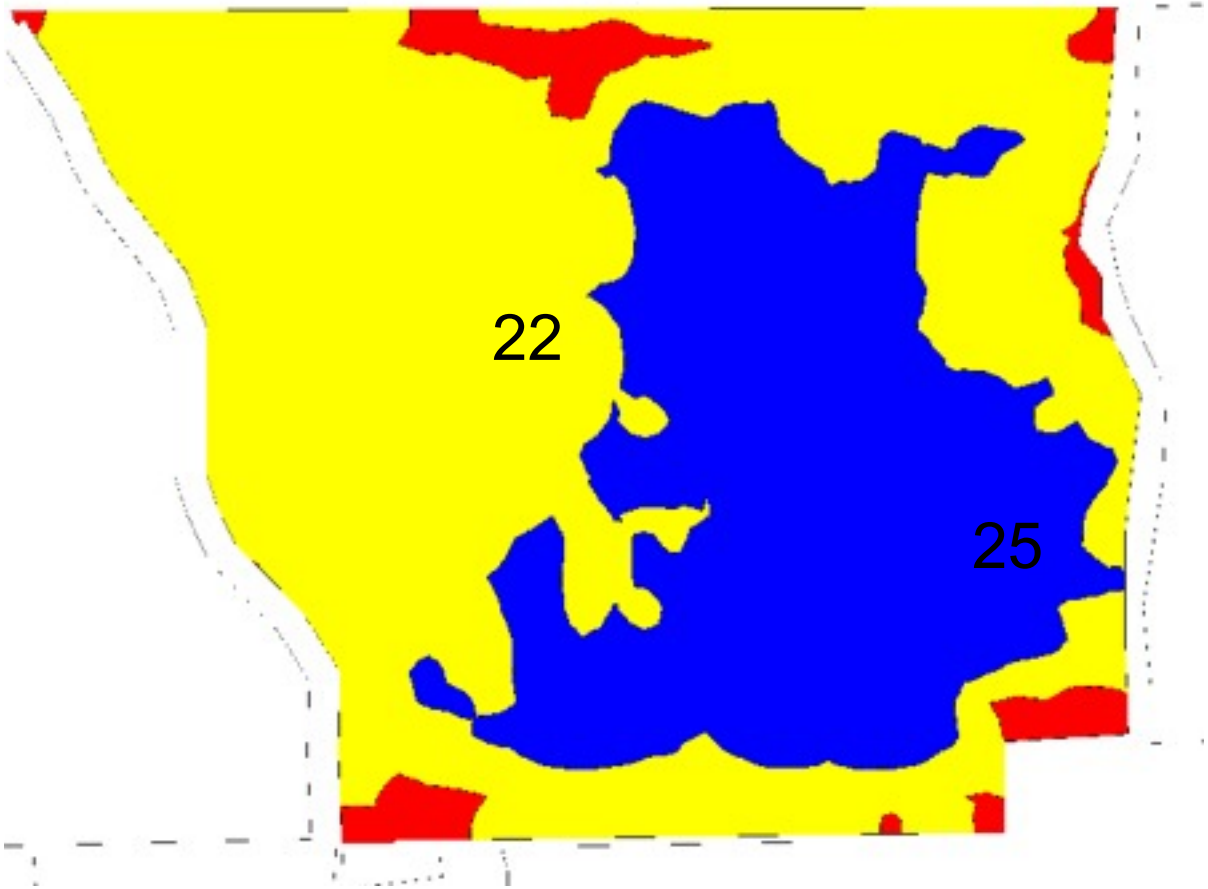
BOTTENS Family Farm



Yield 2010

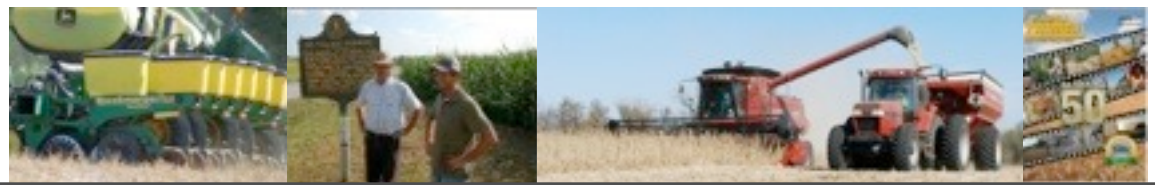
Base for variable rate 2012



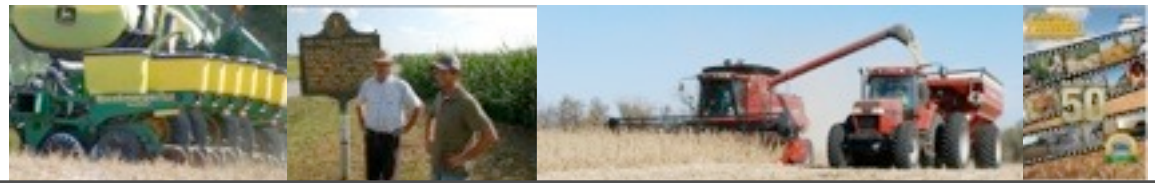


Planned N at planting 25 22 18

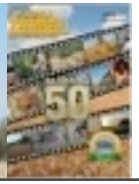
Application Rate varied according to Yield 2010

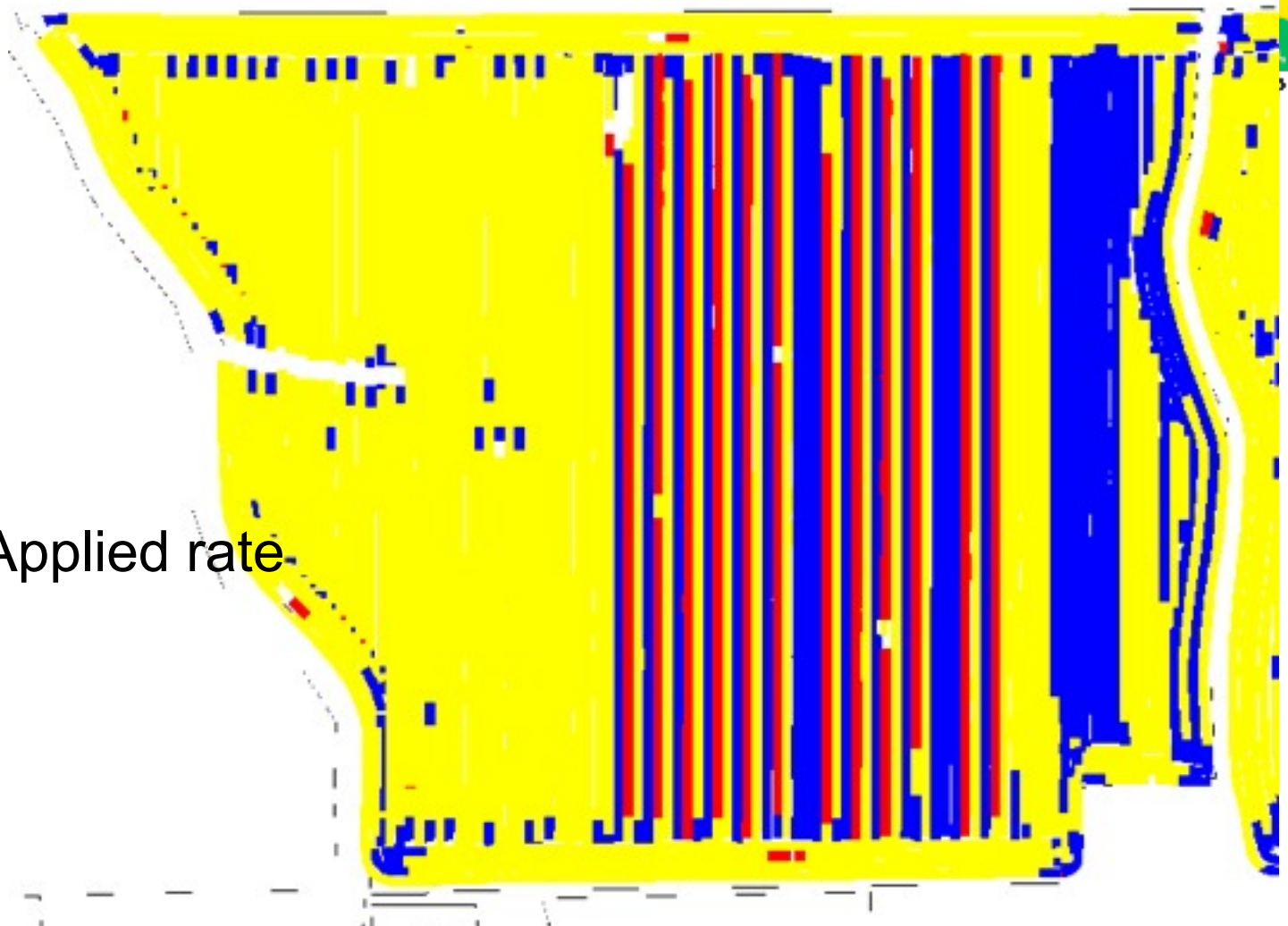


Corn on corn no till

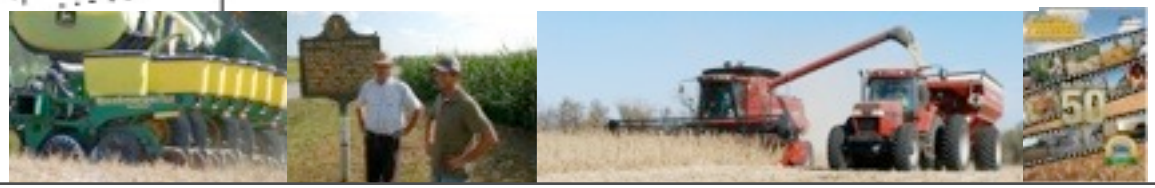


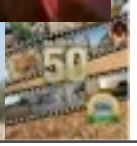

Miller
Miller





Applied rate

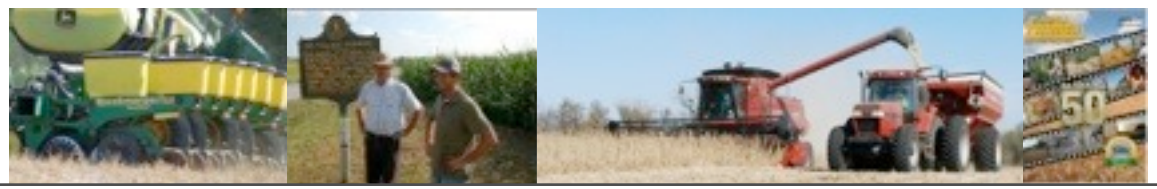


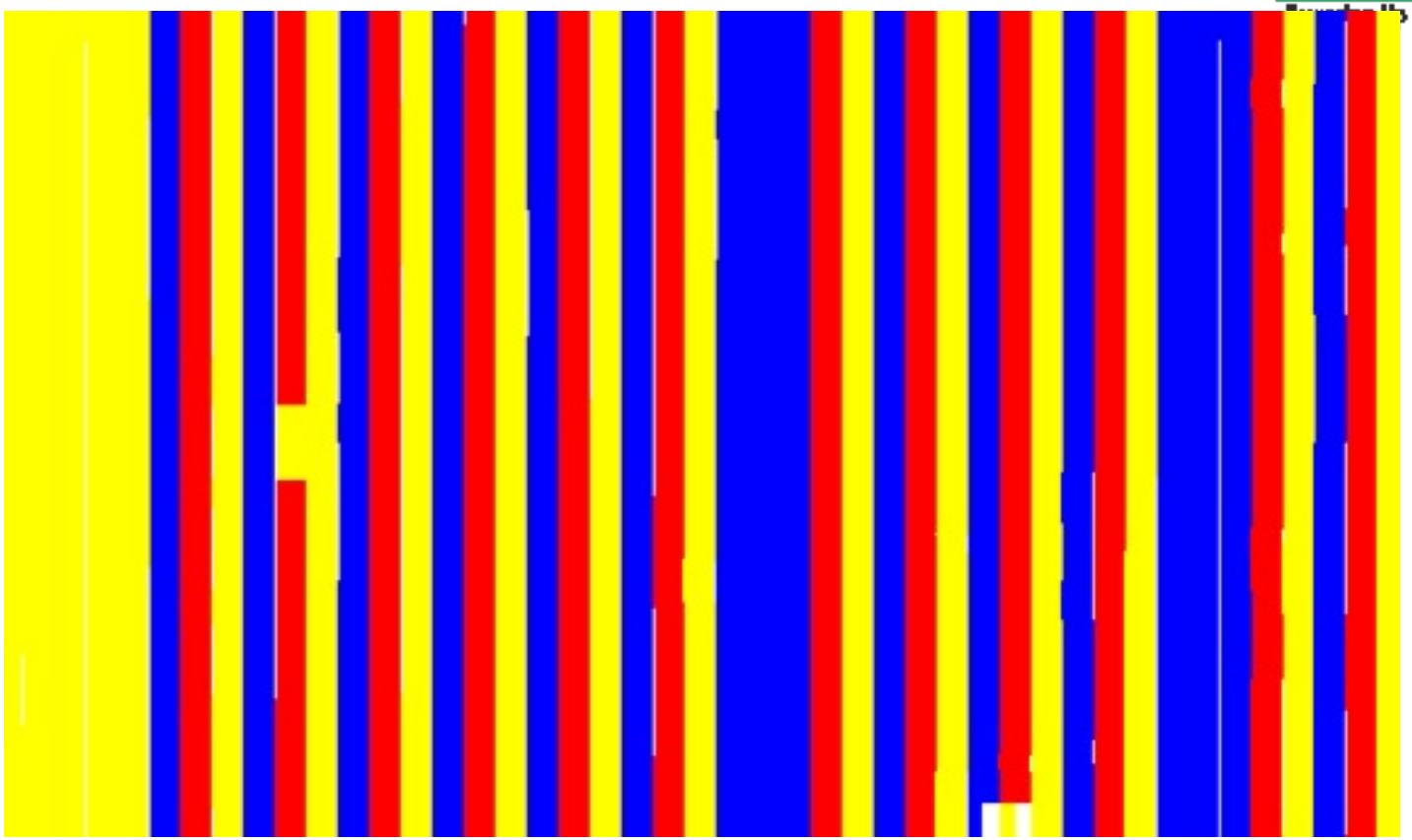


Knife slot from sidedressing 32% N

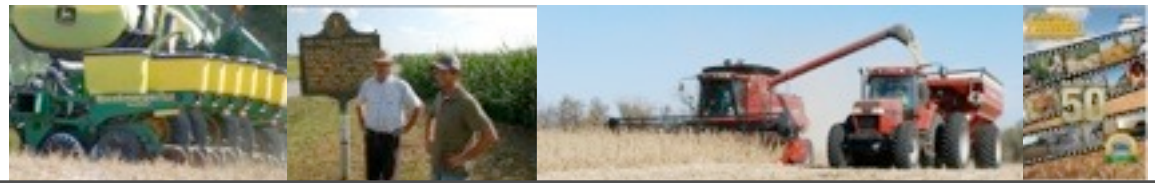
Tillage for the year


Applied Rate
29.12 gal/a
N
Target 29.00 gal/a
Actual 29.06 gal/a
L29
Location 1: 32 sidedress





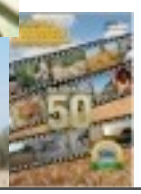
Blue=25 Hi-rate 22 yellow 18 lo-rate = red



High Clearance- great coverage

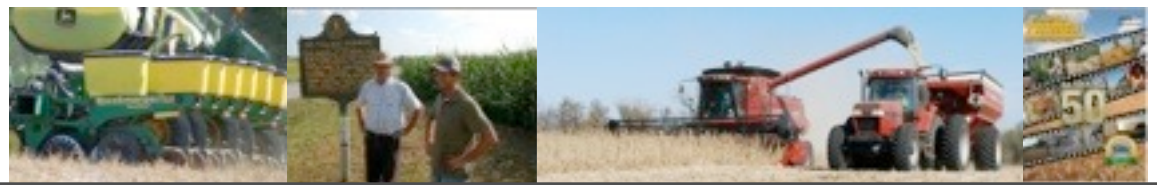
with our hills, airplanes cannot maintain even height above canopy, 50 foot of rise in 1200 ft with trees and airplanes don't mix

Foliar Fertilization + Fungicide



Nice color

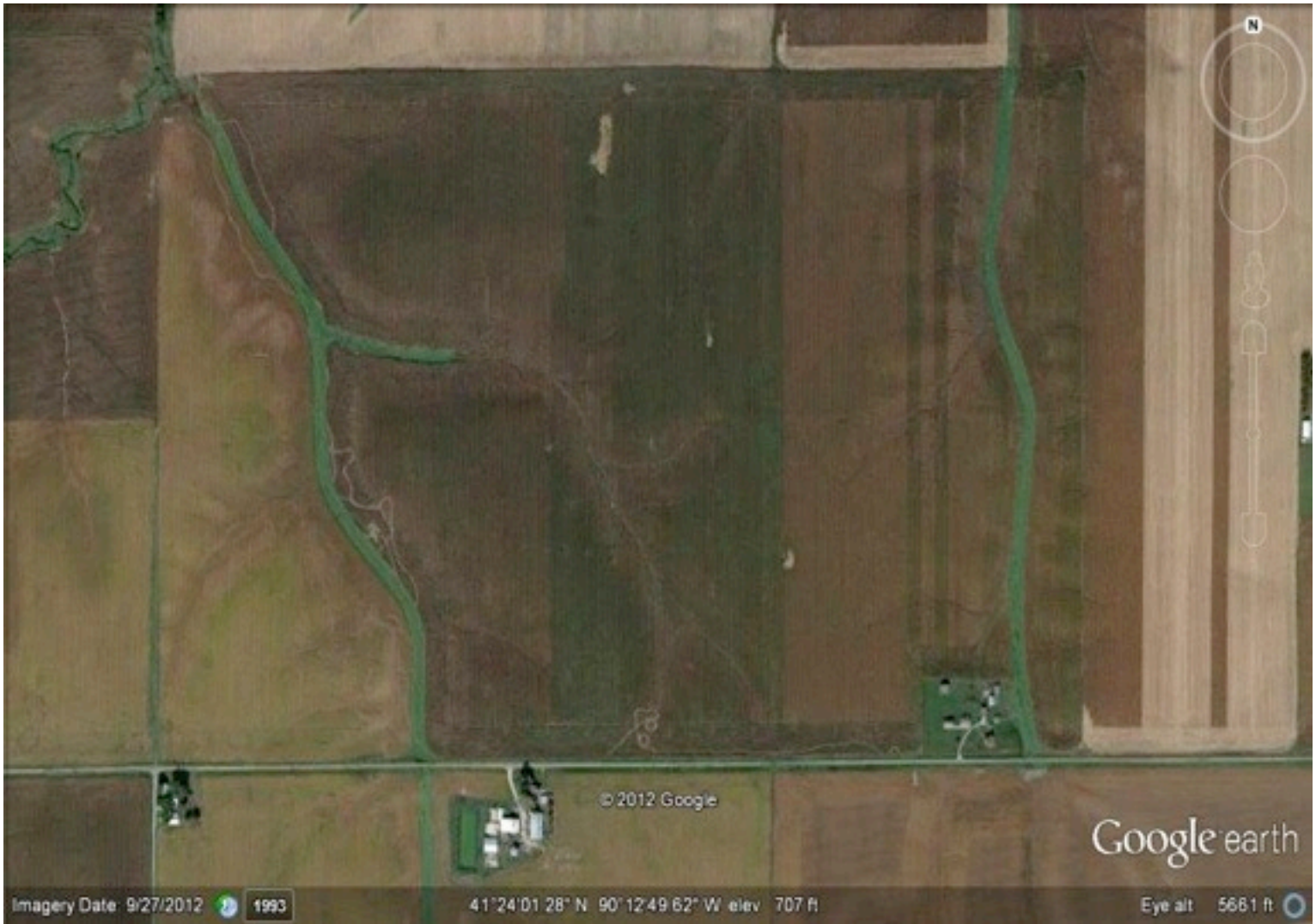
nice color



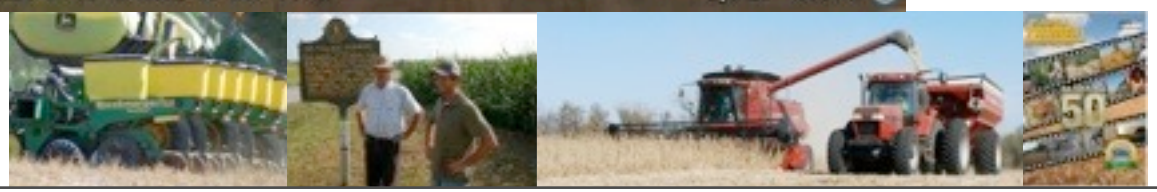
Drought 2012

No till conserved moisture more

21st Annual National No-Tillage Conference
Indianapolis, Ind. • Jan. 9-12, 2013
Powering Up Your No-Till Systems

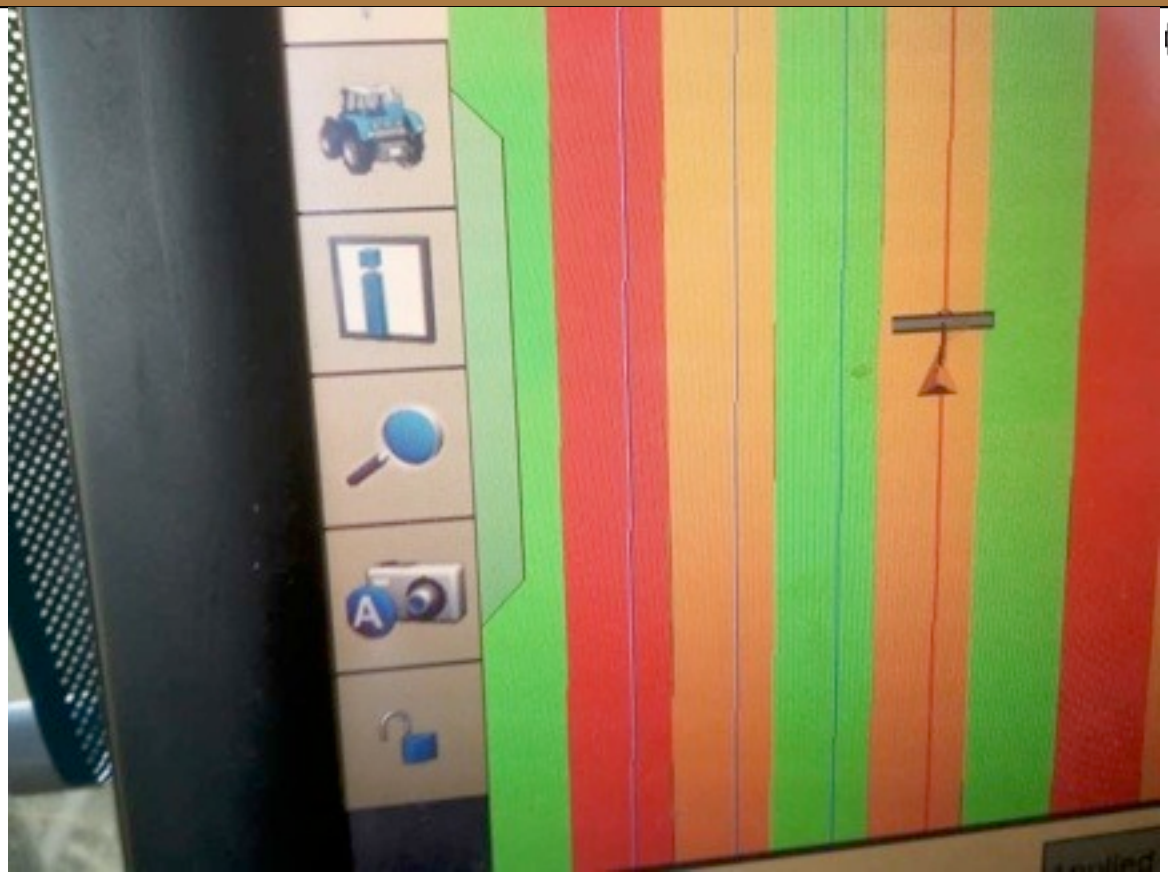


NO-TILL FARMER



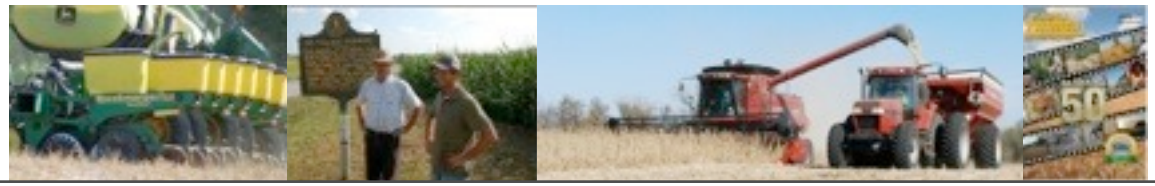
Sidedressing corn

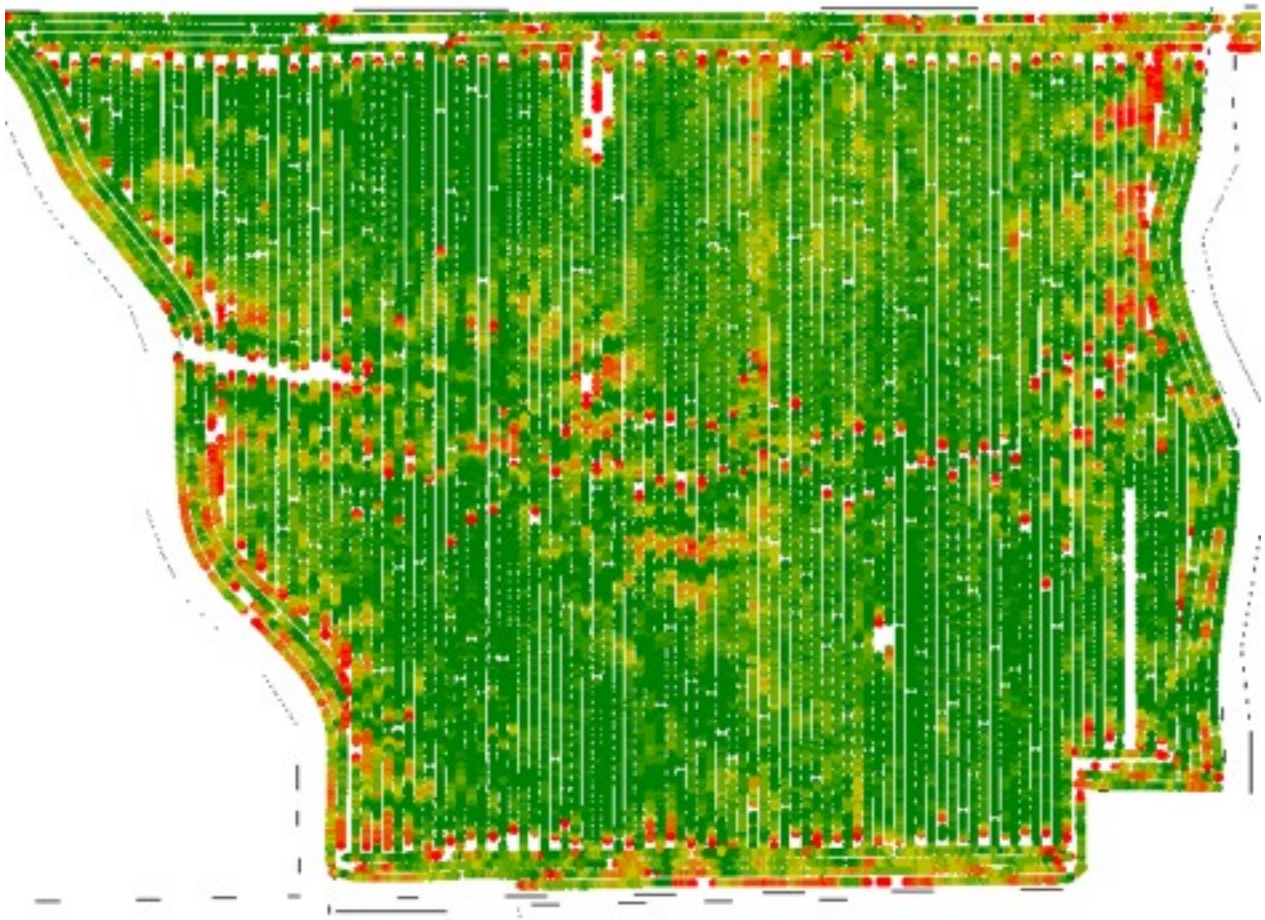
12 row applicator @ 10 MPH



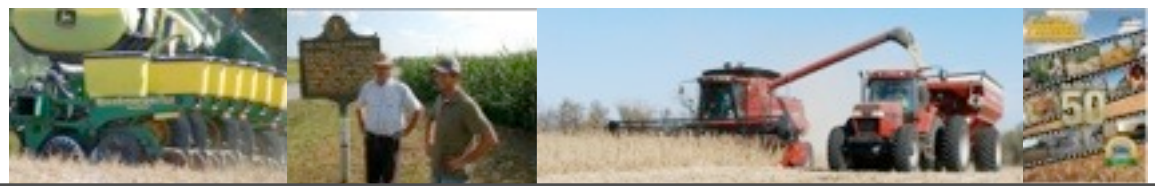
Harvesting with sidedress rate map in back

Could easily see what rate was used where

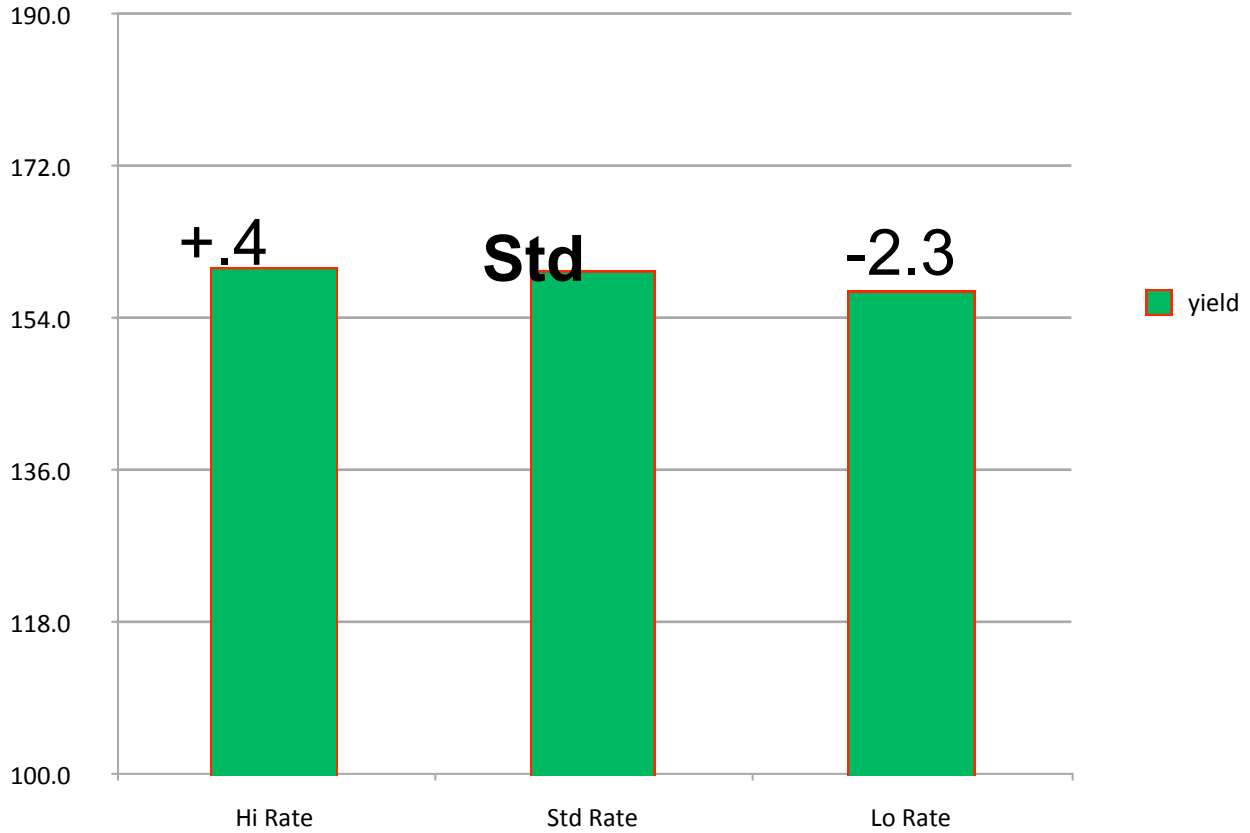


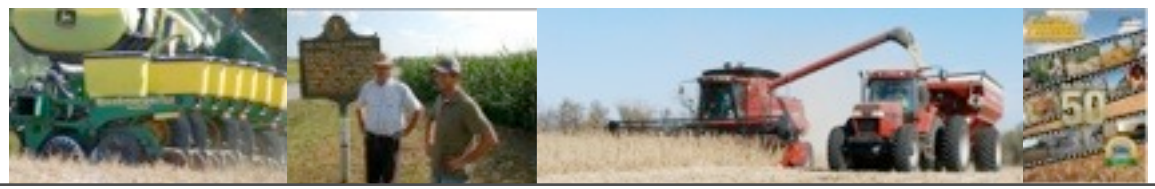


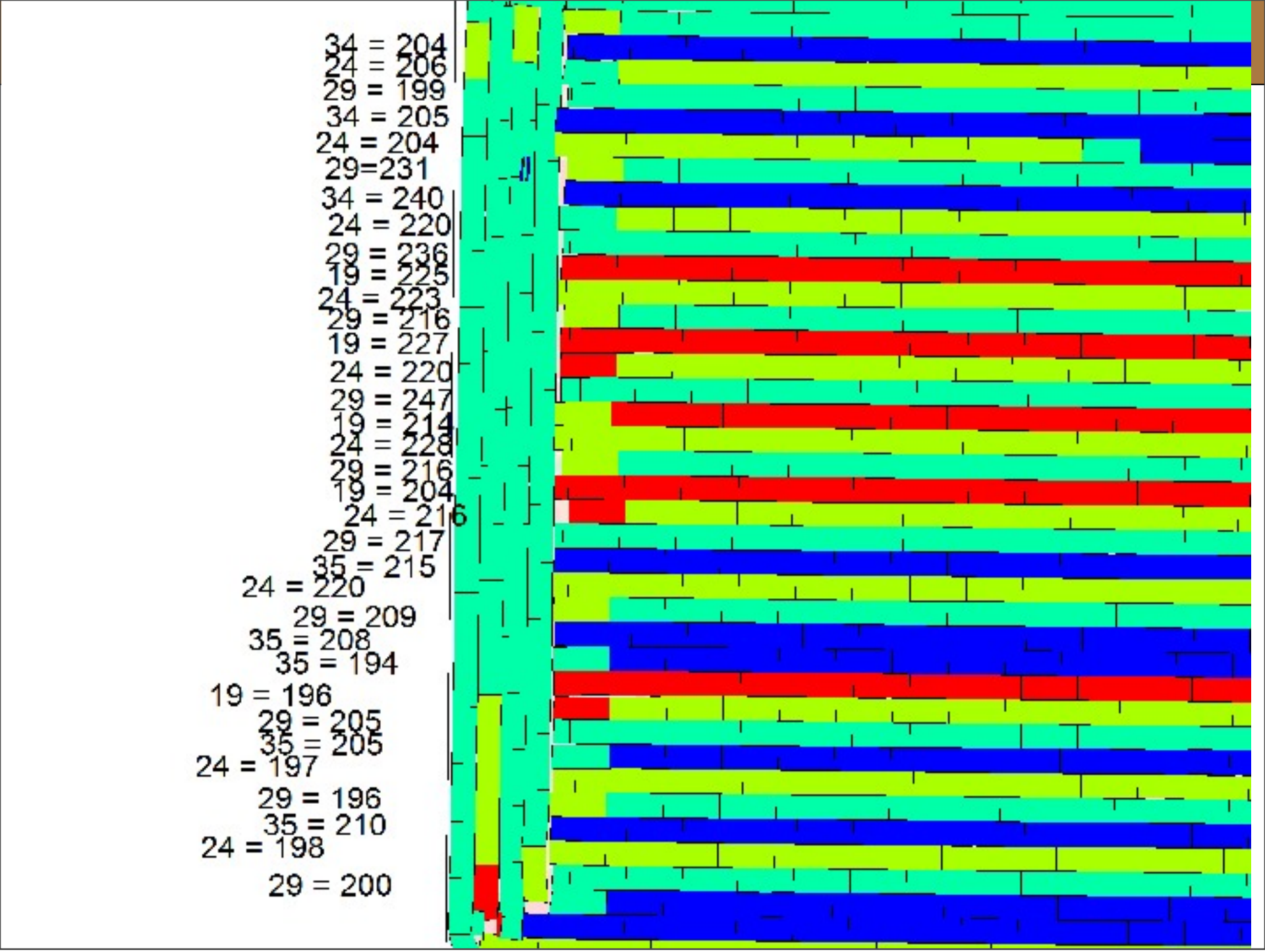
Yield 2012



Yield by Sidedress Rates



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19 = 225
24 = 223
29 = 216
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24 = 197
29 = 196
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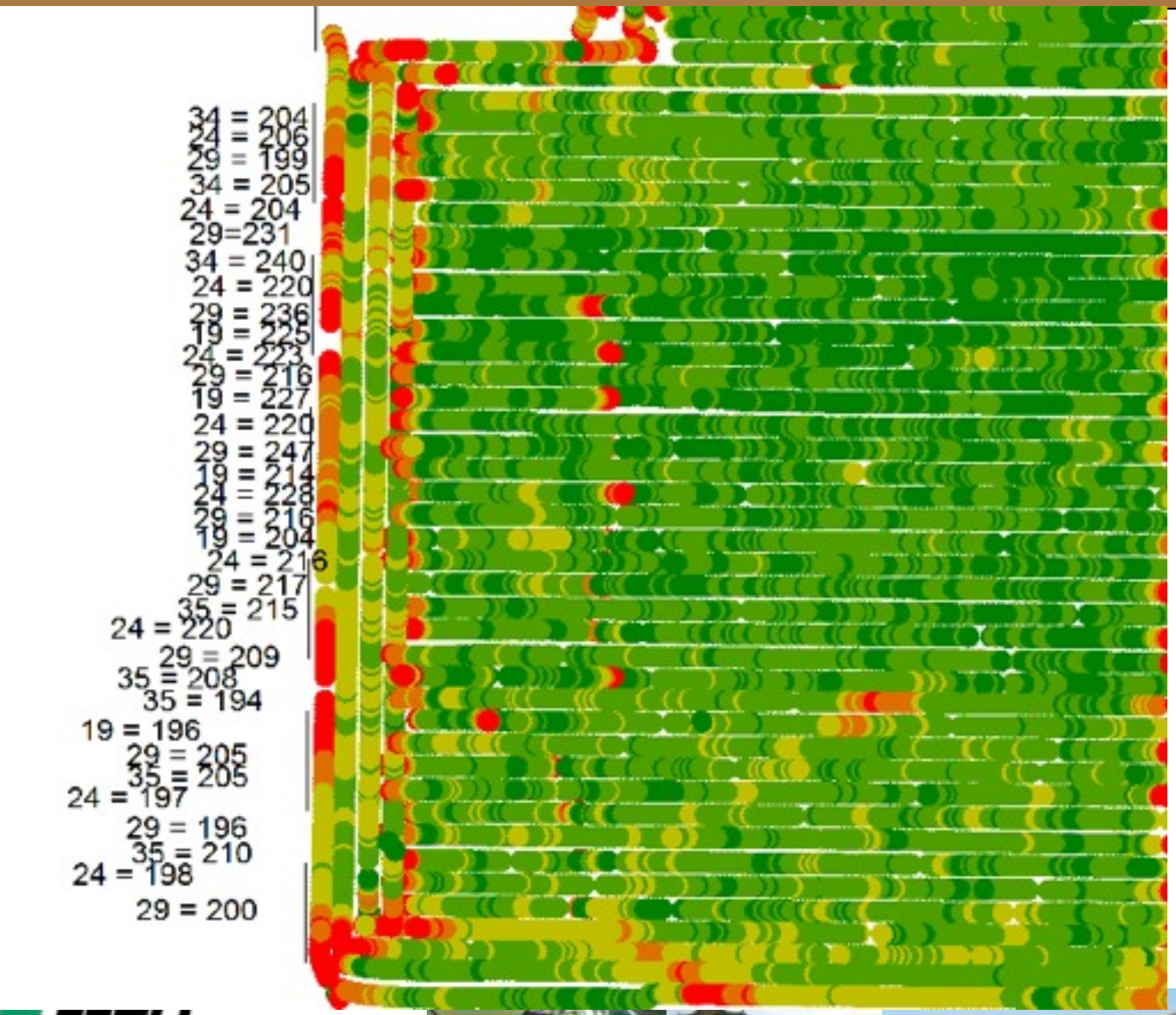
24 = 198
29 = 200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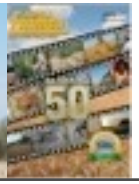
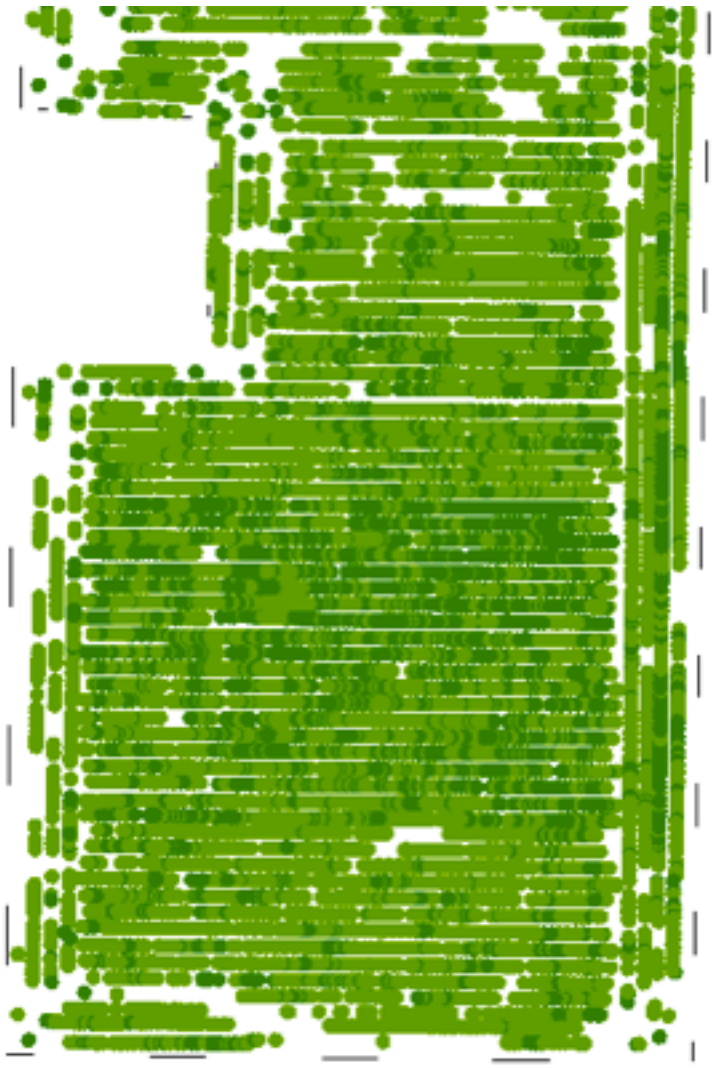


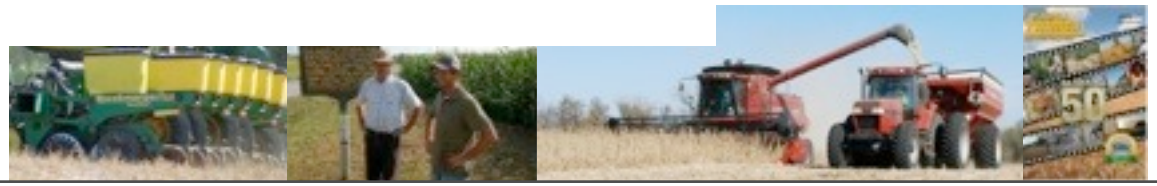
19	24	29	35
225	206	199	206
227	204	231	205
214	220	236	240
204	223	216	215
196	220	247	208
	228	216	205
	216	217	210
	220	209	
	197	205	
	198	196	
		200	
213	213	216	213

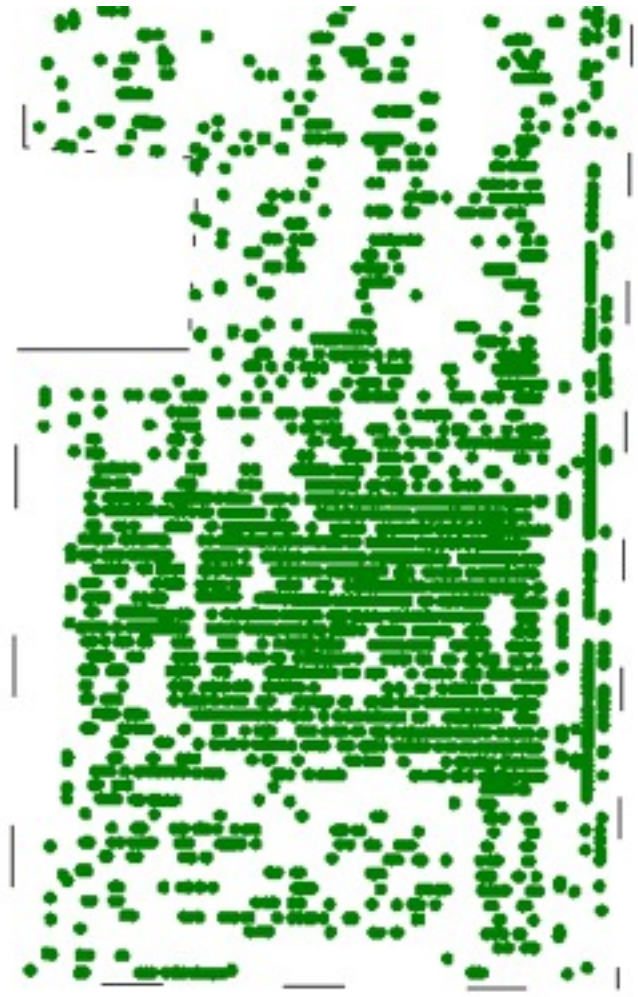


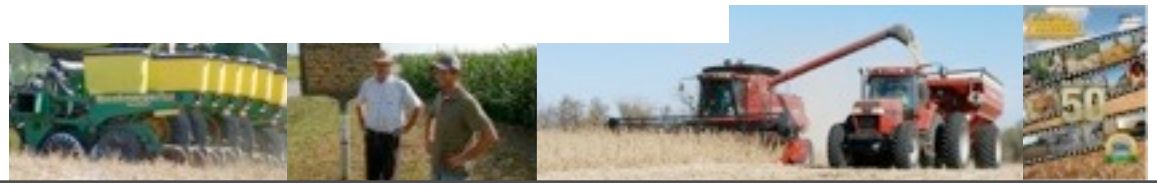
All points
Over 180
Bu / Acre

All points
Over 200
Bu / acre

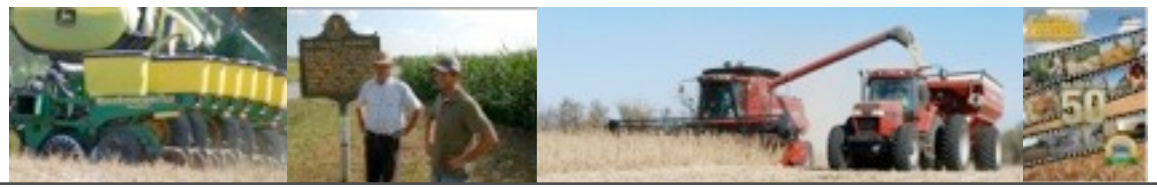




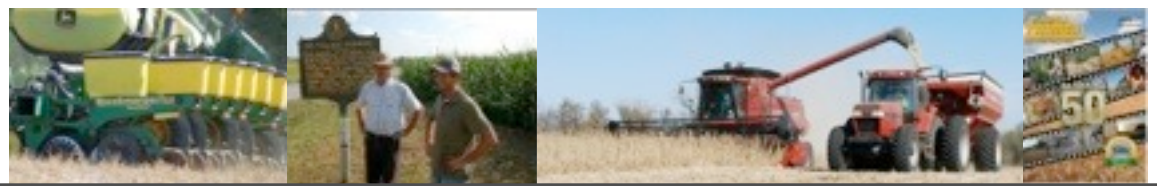
All points
Over 220
Bu / acre



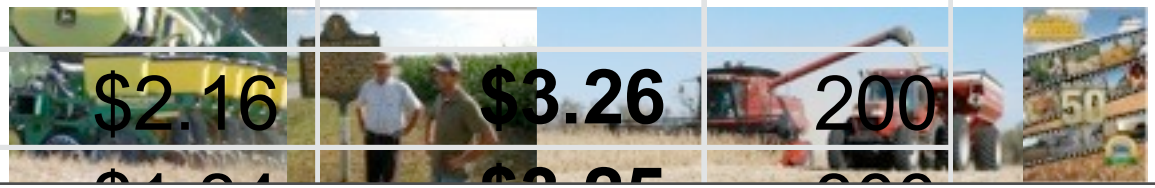
4. Cornell model
   a. Predictive vs actual result



Efficiency of N



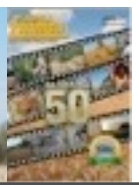
		UNIT PER		
		BUSHEL Yield		
		Field	plot	
N	**158**	**0.87**	**0.74**	
P	16	0.09	0.07	
K	16	0.09	0.07	
S	29	0.16	0.14	
Foliar = 8 units N Plus Micros				
FLD A	182.5	$2.16	$3.26	200
PLOT				



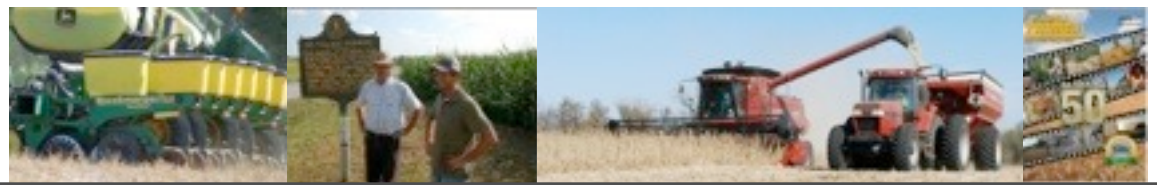
Field		Year	Crop	Size	Planted	Harvested
Bush 80		2012	C.O.B.			

Inputs	ACRES	rate	UNIT	Quantity	Unit Cost	per acre	Total
Supplies							
4-10-10		74	15.00gallons	1110.00gallons	$2.01	$30.16	$2,231.97
32% Nitrogen		74	38.00gallons	2812.00gallons	$2.07	$78.66	$5,820.82
Thio-Sul		74	10.00gallons	740.00gallons	$2.21	$22.08	$1,633.91
Ignition		74	5.00gallons	370.00gallons	$5.23	$26.15	$1,935.10
Accelerate		74	0.50gallons	37.00quarts	$2.21	$1.10	$81.68
Corn		74	34000seeds	31.45bag	$222.00	$94.35	$6,981.90
Roundup power max		74	48.00oz	27.75gallons	$16.00	$6.00	$444.00
Turbo		74	15.00gallons	1920.00oz	$0.39	$10.24	$757.65
BB 5		74	3.46oz	2.00gallons	$31.85	$0.86	$63.70
Harness Extra 5.6		74	1.50qt	27.75gallons	$26.19	$9.82	$726.77
Headline AMP		74	10.00oz	5.78gallons	$219.68	$17.16	$1,270.03
Pit-stop		74	16oz	9.25gallons	$9.01	$1.13	$83.34
Traction		74	4gallons	296.00gallons	$2.07	$8.28	$612.72
Top-End		74	4quarts	296.00quarts	$2.08	$8.33	$616.42
All Applications		74	1	all trips	$60.00	$60.00	$4,440.00
capture LFR		74	2.6oz	1.50gallons	$218.18	$4.42	$327.27
Total Supplies		74				$394.47	$29,190.93

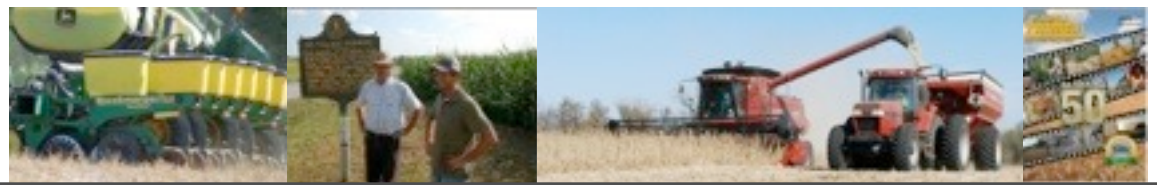


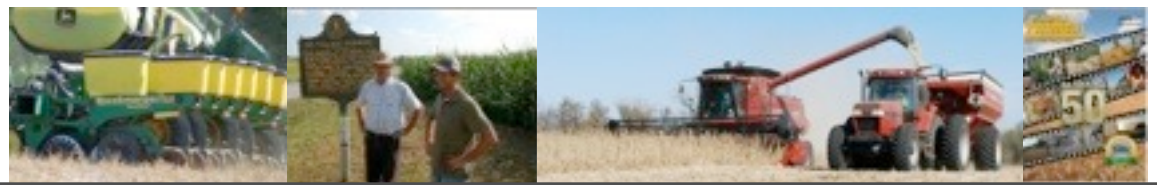
All Fert Inputs	$115.57
All Applications	$60.00
Total Inputs	$394.47



	YLD	Per Bu	w/rent	Rent
FLD AVG	183	$2.16	**$3.26**	200
PLOT AVG	214	$1.84	**$3.25**	300



5. Future plans
   - **a.** Additional planter/side-dress split trials
   - **b.** Cornell study versus actual results
   - **c.** Foliar trials
     - **i.** Standard, long-chain, encapsulated urea
     - **ii.** Draft, fungicide, both
   - **d.** Imagery



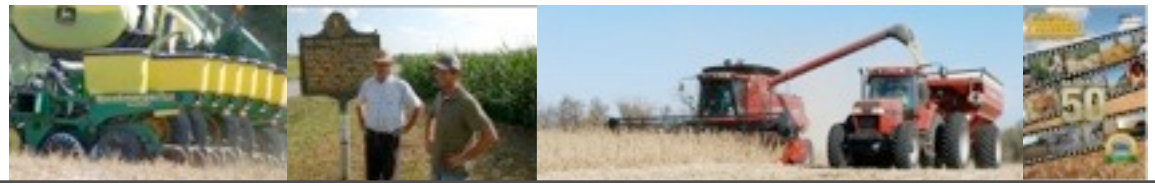
Too full

Cab top does not hold corn well

Too much yield to hold it in the bin

Really just a problem at local elevator not ours, thank goodness

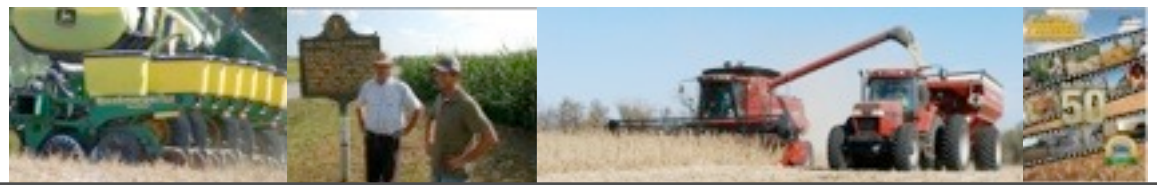
8010 431 sep hrs three yrs use 1900 A/yr



Trying to minimize compaction

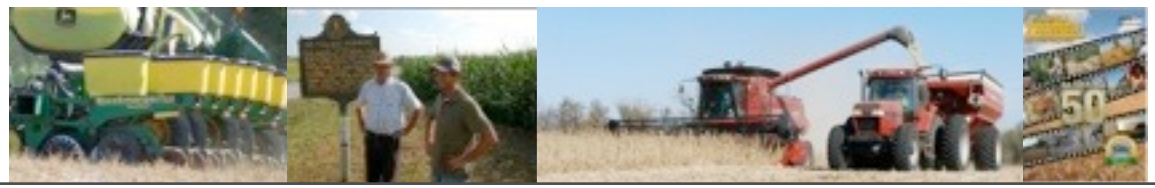
No-till plus wide area of coverage

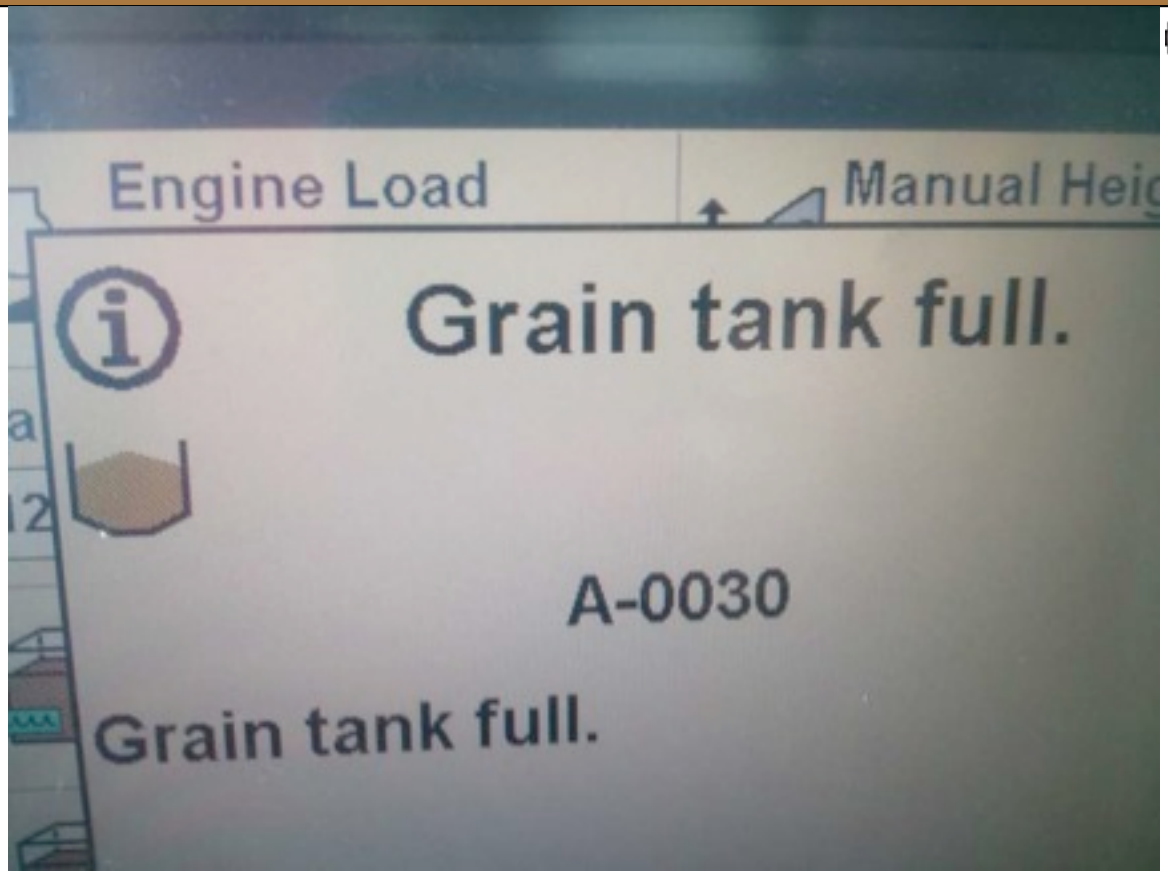
Relative to the comment "in their minds notill is the answer for everything", I know that a number of us in the "no-till community" can sound that way. For those of us who have moved away from major tillage our enthusiasm can be a bit much for guys who have had a negative "no-till" experience to swallow. I get that.



So, I would suggest this mindset... we notillers don't believe that "no-till" is the answer for everything so much as we have come to the conclusion that annual, major, disruptive tillage is NOT the answer for everything. They are different ways to approach different challenges in farming. Long term very low or no-till farming systems are incredibly different than simply removing tillage from a tillage based production system.

By notilltom on newagtalk.com





Goal at start of year

Got er done