

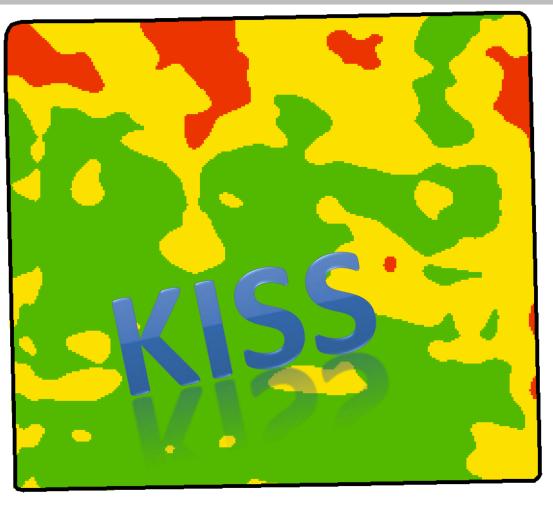
VRT – A View From 30,000 Feet

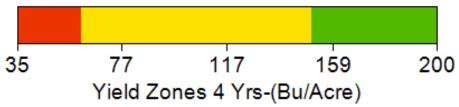


to VRT or Not

4 year Avg. Corn

- Red
 - Avg. 50 bu/ac
 - Rate?
- Yellow
 - Avg. 120 bu/ac
 - Rate?
- Green
 - Avg. 170 bu/ac
 - Rate?





VRT Overview

- The "W's"
- to VRT or Not
- Field Research
- Method Seed
 - Inputs & RxMaps
- Method Fertilizer
 - Zone-Grid
 - Process
 - RxMaps
- Summary





The "W's" of VRT

- Who Joe Farmer
- What fertilizer & seed
- Where Field on foot by foot basis
- When NOW
- Why to VRT or Not
 - Fertilizer or Seed or BOTH





The "W's" of VRT

- Focus on the "What & Why"
- What=VRT Seed or Fert.
- Why -
- 1. Reduce or Equal Inputs
 - Easily measured
- 2. Improve Yield
- 3. Improve Quality
 - Measured @ harvest
- 2 of 3 = Successful VRT





to VRT or Not

- VRT-Can be applied to any field
 - Should it?
 - What method?
 - At what rates?
- First Do the "Field Research"



One farm 1968 to 2014 - 240ac

2 - 120's since 1978

3 - 80's prior to 1978 mid "80" – green manure 1976 late plow down

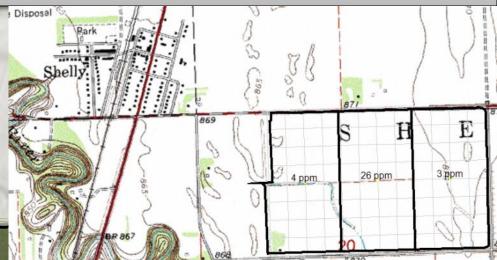


Image Above : DRG

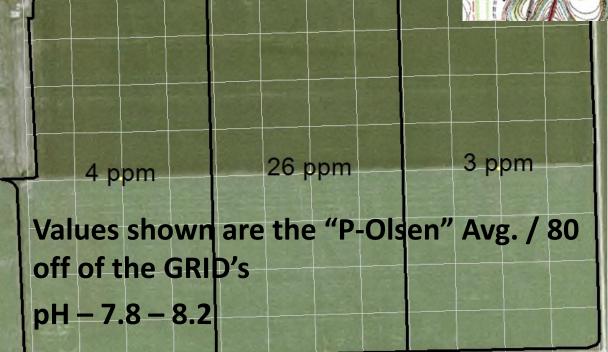
Note: Farm Yard SW &

Field location

Image Left: 2003

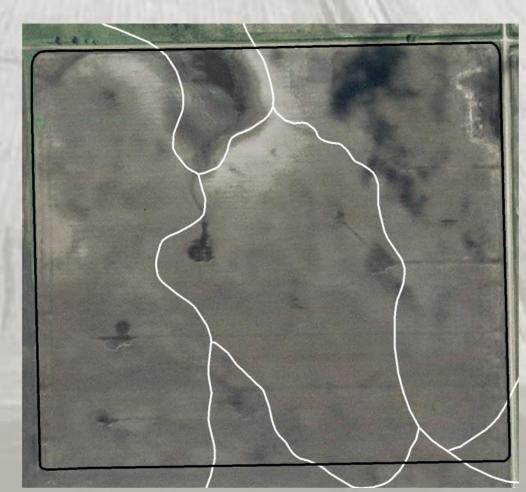
Grid sampled 1996
P-Olsen Results fairly
uniform across each "80"





EXAMPLE FIELD -

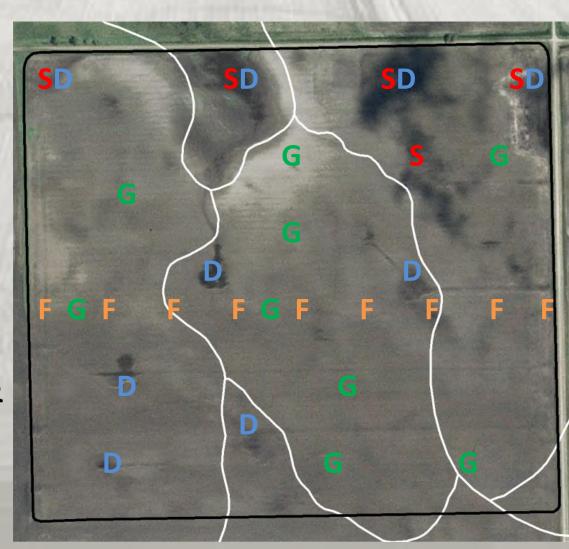
- Corn Yield from 2002-Now
- Veris Data
- Satellite Imagery
 - 1984-2014
- Topography
 - Lidar
- Topography DRG
- Past Soil Tests
 - Conv./Zone/Grid



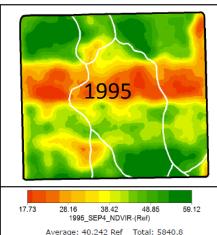
Meet our VRT Field

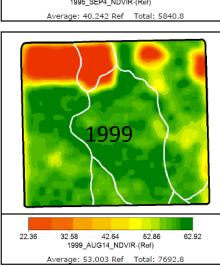
Talk with Farmer

- <u>Salinity</u>
- <u>D</u>rainage
- <u>Fence Line</u>
- Good Ground
- White Lines are Soils Lines
- No Farm Stead & No Manure
- Cropped 1 Field

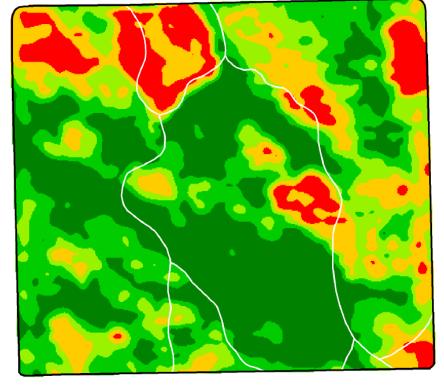


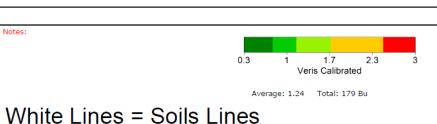
1986 16.47 26.94 37.24 47.7 58.01 1986_AUG26_NDVIR-(Ref) Average: 38.793 Ref Total: 5630.4





VRT - Veris-Imagery-Yield

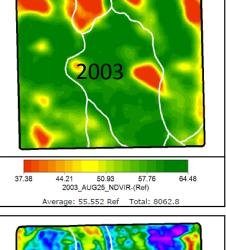


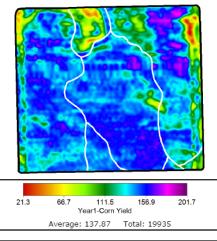


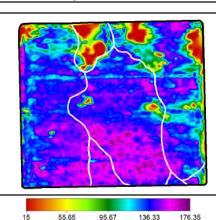
Client: VRT-Zone Creation

Farm: Rx Mapping Field: Veris-Imag-Yld 144.5 Acres



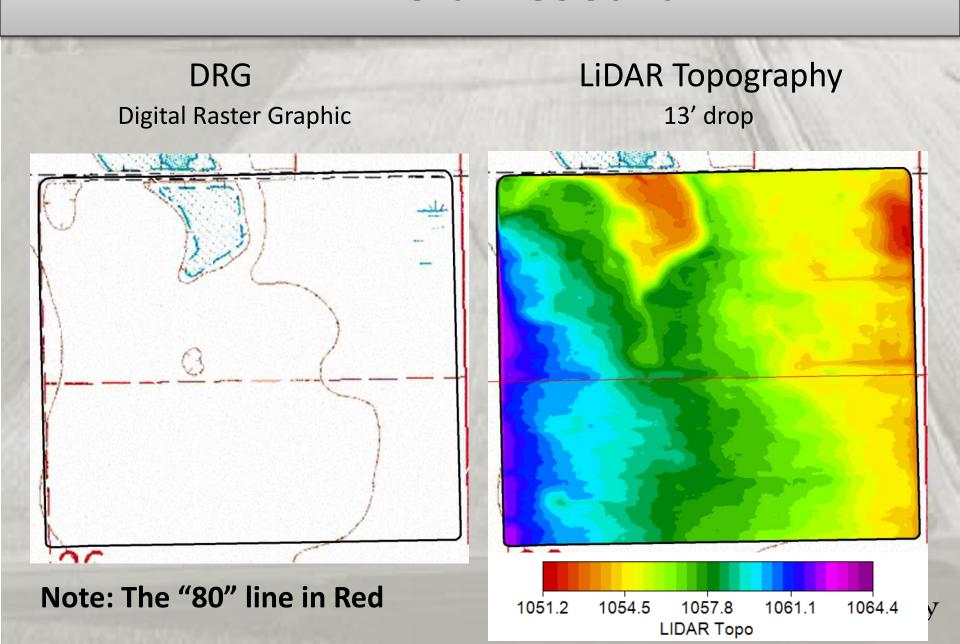






Year4-Corn Yield-(Bu/Acre)

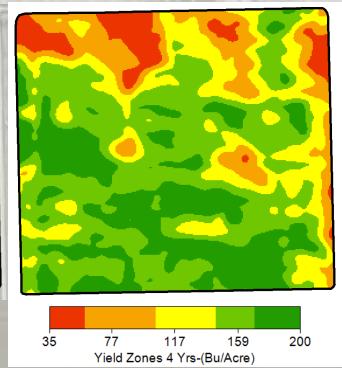
Average: 126.969 Bu/Acre Total: 18338.8 Bu



VRT Methods

- Biggest responses are going to come from:
 - Seed then Fertilizer
- Break this concept out into three methods.
 - Seed
 - Fert. Zones
 - Fert. Grids

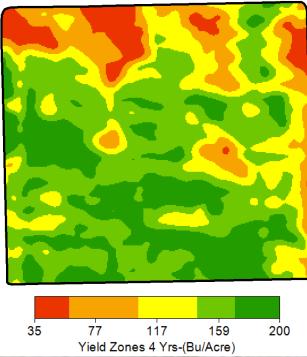
49	50	51	52	53	54	55	56
4.1	42	43	44	45	46	4.7	48
33	34	35	36	3.7	38	39	40
25	26	2.7	28	29	30	31	32
17	18	19	20	2.1	22	23	24
9	10	1.1	12	13	14	15	16
1	2	3	4	5	6	7	8

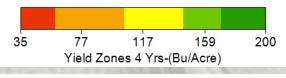


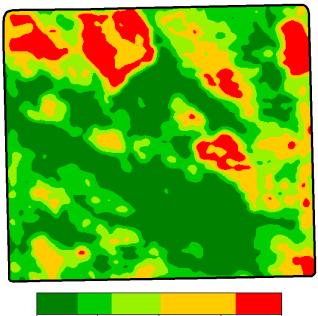
VRT Seed

- Best
 - Yield Data (multiple years)
- Good
 - Imagery (multiple years)
 - Veris?
- Poor
 - Veris?
 - Grid Samples

49	50	5.1	52	53	54	55	56
41	42	43	44	45	46	4.7	48
33	34	35	36	37	38	39	40
25	26	27	28	29	30	31	32
17	18	19	20	21	22	23	24
9	10	1.1	12	13	14	15	16
1	2	3	4	5	6	7	8







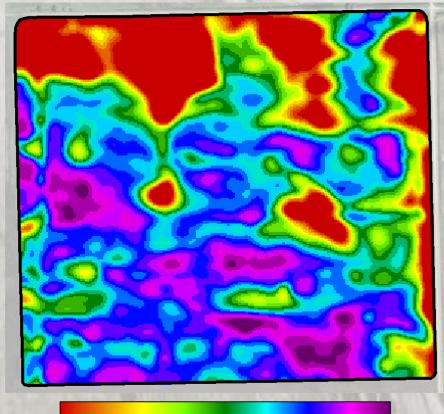
Veris Calibrated

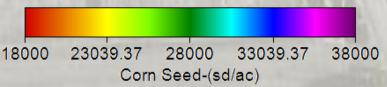
0.3

2.3

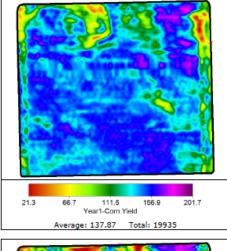
VRT Seed

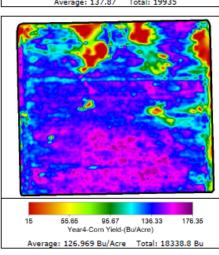
- What Seeding Rates
 - Research
 - Personal Experience
- Enter Rates / Zone
 - Yield Goal / Zone
 - Seed Rate
- Rate by Equation
 - Ex. (Yield Goal/5.3)*1000

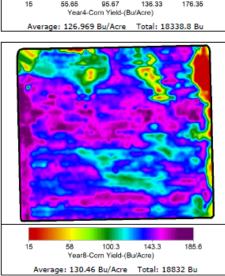




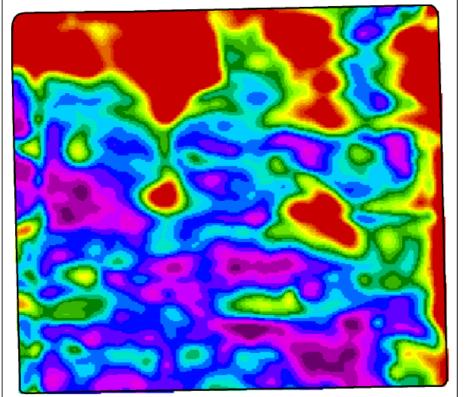


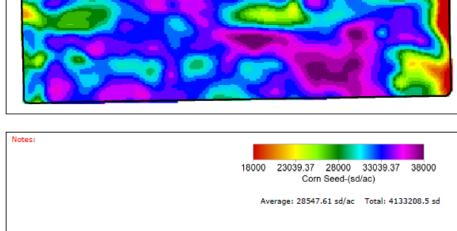


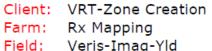




VRT - Corn Seed from Yield

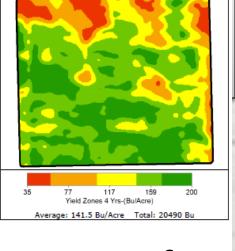






Veris-Imag-Yld 144.6 Acres





4 years of Corn Yield merged

Zones

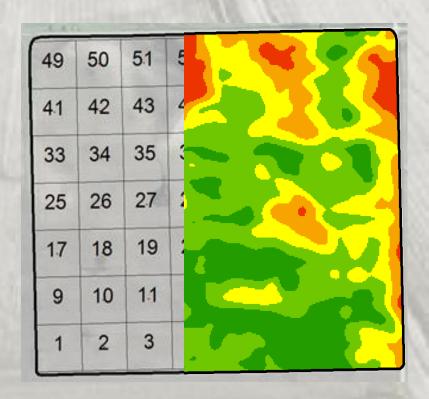
Corn Seed

18,000 to 38,000

Avg. - 28,500

VRT Fertilizer (Zone or Grid)

- Method for Soil Testing?
 - Zones
 - Grids
- Research to GUIDE YOU
 - Cropping history
 - Manure history
 - Soil Test Values history
 - Drainage Changes





VRT Fertilizer (Zone or Grid)

Zones

- Mobile NutrientsNitrogen &Sulfur
- Soil P & K Tests Low

Grids

- Manure past 25 yrs.
- pH & Liming
- Soil P & K Tests erratic

?? Zones or Grids ??

Cutup crop history

Soil P & K Tests High

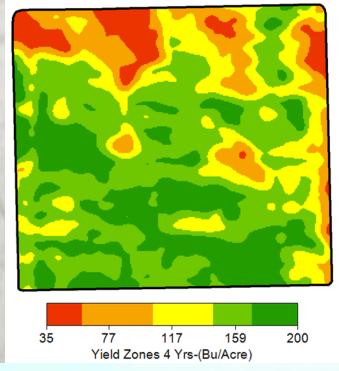
Soil Zinc

Drainage Changes



VRT Fertilizer (Zones)

- Primarily
 - Nitrogen & Sulfur
 - Consistent testing P&K
- Zones from
 - Yield
 - Imagery
 - Topography
 - Veris
 - Combinations



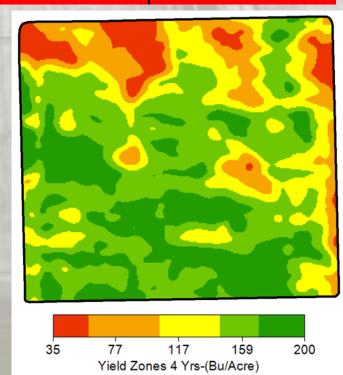




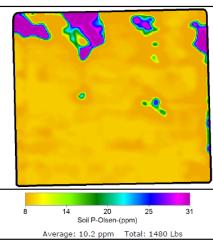
VRT (Zones to Rx)

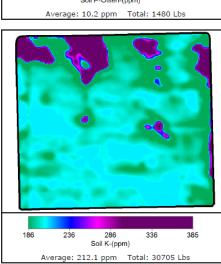
ZoneID	Yield Goal	N-Mult	N-Credits	Seed	рН	ом	N-(N1+N2)	P-O ppm	K ppm	S1 lb	Zn ppm	Salt1	N fert lb	P fert lb	K fert lb
D GREEN	200	0.9	30	36000	7.7	3.5	16	9	209	44	1.45	0.45	134	94	0
L GREEN	no test														
YELLOW	150	1	30	30000	7.8	2.9	6	8	186	120	1.16	1.05	114	74	15
ORANGE	110	1.1	15	22000	7.8	2.9	6	8	186	120	1.16	1.05	100	55	11
RED	50	1.2	0	14000	7.9	3.5	288	31	385	120	1.58	3.24	0	0	0

- Example Field
- 2014 Soybeans to Corn
- No test on the L.Green
- Yellow & Orange pulled as 1 zone

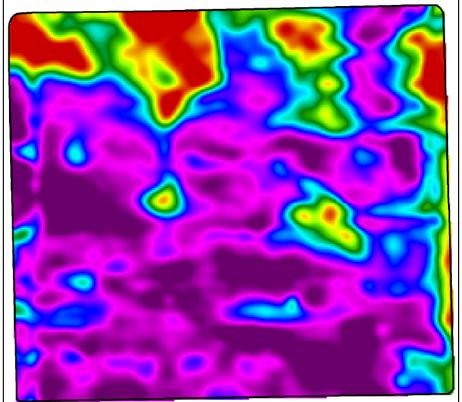


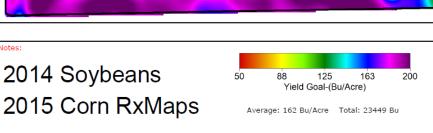
6 77 147 218 288 Soil N 0-18-(Lbs/Acre) Average: 32.2 Lbs/Acre Total: 4663 Lbs





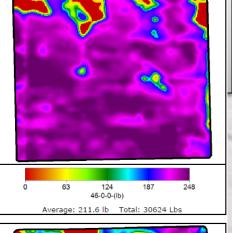
VRT - Fertilizer from Zones

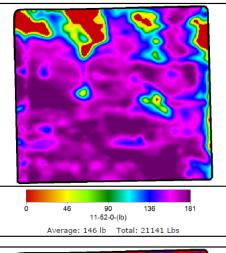


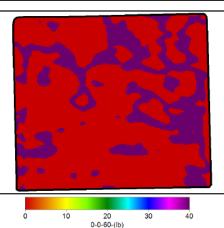












Average: 11.4 lb Total: 1645 Lbs

VRT Fertilizer (Grid)

- Primarily
 - Manure
 - -pH
 - Phosphorus*
 - Potassium*

•	Requires Yield or	
	Yield Goals	BOR LT.

- Example
 - 2' Sample Cores

Sample &	ALL AND ADDRESS OF THE PARTY OF		ACCORDING TO SERVICE			- 1/	
49	50	5.1	52	53	54	55	56
4.1	42	43	44	45	46	4.7	48
33	34	35	36	37	38	39	40
25	26	27	28	29	30	3.1	32
17	18	19	20	2.1	22	23	24
9	10	1.1	12	13	14	15	16
1	2	3	4	5	6	7	8



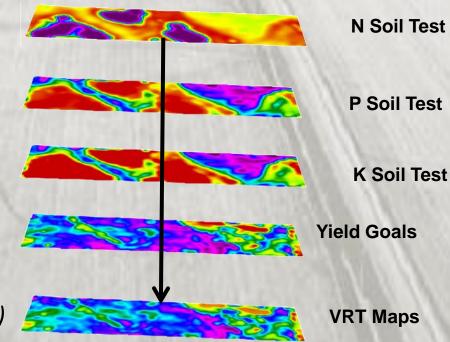


VRT (Grid to Rx)

- Grid Sample Soil Test
- Yield Goal Layer
- Equation for N

N = YG x 1.1 - N Soil Test - Credits

(Credits= Prev. Crop + N from P + Starter)

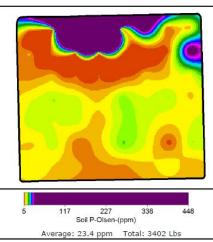


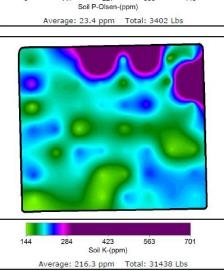
 Creating VRT map for Nitrogen / 0.46 = UREA

Thanks to: Precision Consulting Service for above Graphics

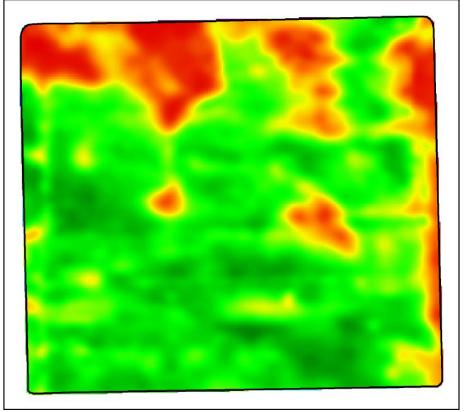


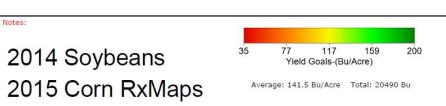
8 91 172 255 336 Soil N 0-18-(Lbs/Acre) Average: 37.5 Lbs/Acre Total: 5443 Lbs





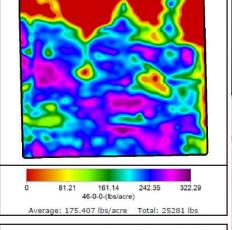
VRT - Fertilizer from Grids

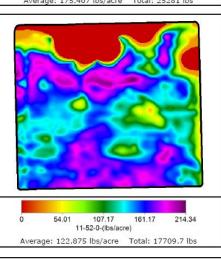


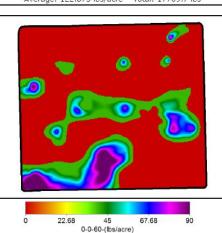






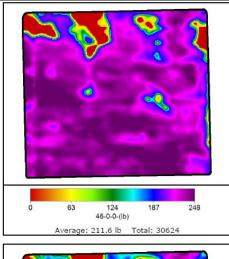


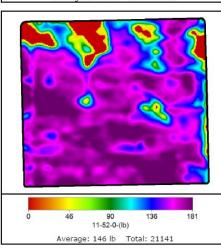


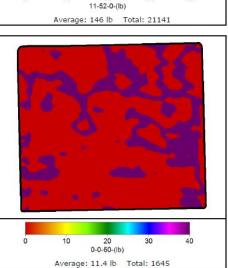


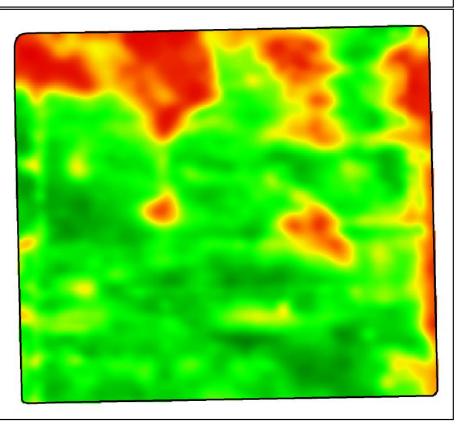
Average: 16.359 lbs/acre Total: 2357.7 lbs

S		\$/Unit	Grid (56)	Zones (3)	Conventional (1)
Ö	Row Crop Test	\$30	\$1,680	\$90	\$30
Ŏ	Sample Cost	\$70		\$210	\$70
2	Grid Sample Cost	\$10	\$560		
etho	VRT Mapping	\$4	\$580	\$580	\$0
Ž	Cost Map & Samp	les	\$2,820	\$880	\$100
<u></u>	46-0-0	\$450	\$5,688	\$6,890	\$8,699
	Avg Rate 46-0-0	,	175	211	267
Ce	11-52-0	\$520	\$4,605	\$5,497	\$5,792
	Avg Rate 11-52-0	<i>'</i>	122	146	154
မ	0-0-60	\$500	\$590	\$411	\$1,086
.e	Avg Rate 0-0-60		16	11	30
iffere	Cost Fertilizer		\$10,882	\$12,798	\$15,577
	Total Cost		\$13,702	\$13,678	\$15,677
St	Cost / Savings		-\$1,975	-\$1,999	<i>\$0</i>
Cost	Cost / Acre	144.8 ac	\$94.63	\$94.46	\$108.27
)	Cost / Savings		-\$13.64	-\$13.80	\$0.00



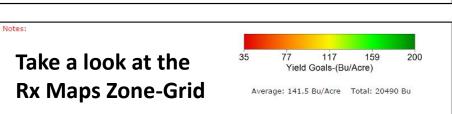






VS

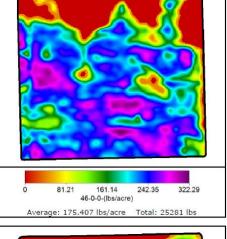
Grid Fert

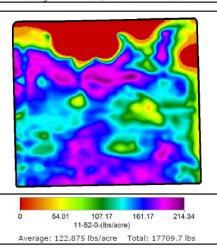


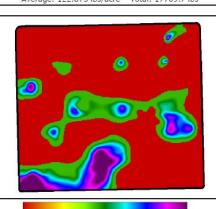


Zone Fert







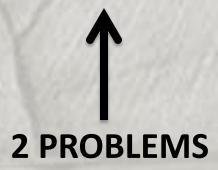


0-0-60-(lbs/acre)

Average: 16.359 lbs/acre Total: 2357.7 lbs

Yield & Quality Improvements

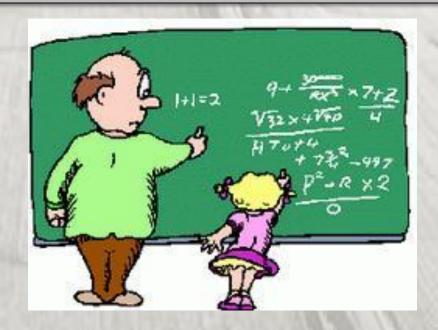
- Not measured in this example
- Need to put out check strips to measure
- This is the most difficult to measure
 - Requires planning
 - Also follow up





Summary

- Know the W's
 - Why & What to VRT
- Field Research
- Seeding
 - Know your Varieties
- Fertilizing
 - Why to Grid
 - Why to Zone
- Measure Results
 - Requires "Check Strips"









Contact:

www.gktechinc.com

QUESTIONS?

Thanks to John Lee & Richard Jenny

