

Technologies in Agriculture: Precision Cropping

Ryan Adams
Manager, Agronomic Services
Northern Alberta Division
Crop Production Services Canada



Agenda

- Machinery Advances
 - Sprayers
 - Seeding Tools
 - Harvesters
- Data Sources
- Big Data



Advancements in
SPRAYING





Source: <http://www.cropcareequipment.com/img/aboutUs.jpg>



Source: www.deere.ca

JOHN DEERE

Rate 1
3.2

Rate 2
7.5

Rate 3
10.0

⊕/⊖
(gal/ac)

3.2 ⊕/⊖
gal/ac

793
(gal)

34 ⊕/⊖
psi



BoomTrac
Pro

L
50

C
50

R
46

(in)

Ground



97 W Turn

KMBS (m)



Temperature (C)

18.4

DeltaT (C)

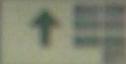
6.6

Wind Speed (mph)

8.7

W

1.33 rpm



(gal/ac)

0
0
psi

R3 R4 R5

Ground

4538.7 (ft)

10:24pm

18

30

100 %

1453.6

ac

0.0

gal/ac

0.0

gal/ac

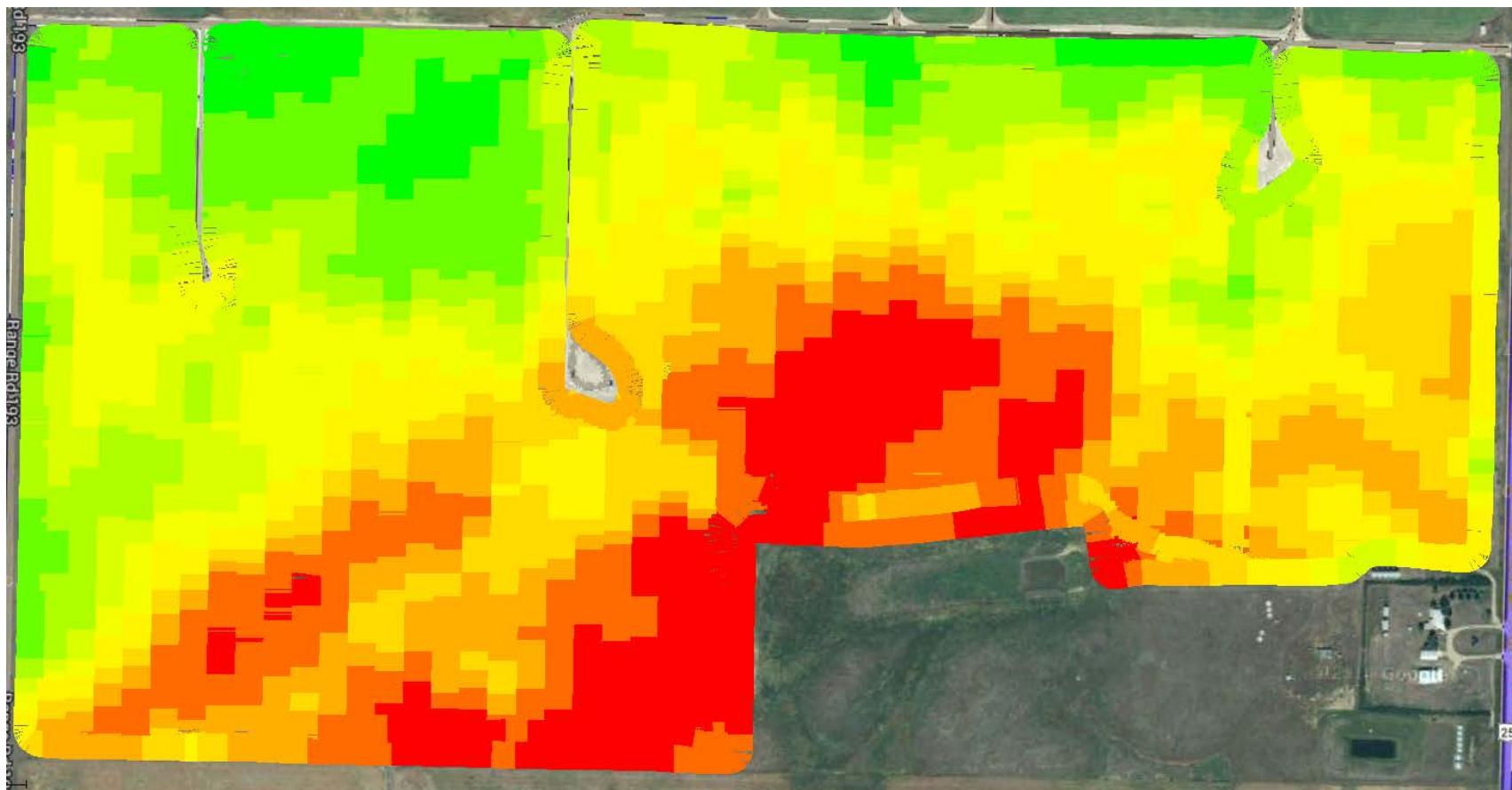
Spraying As-Applied Map

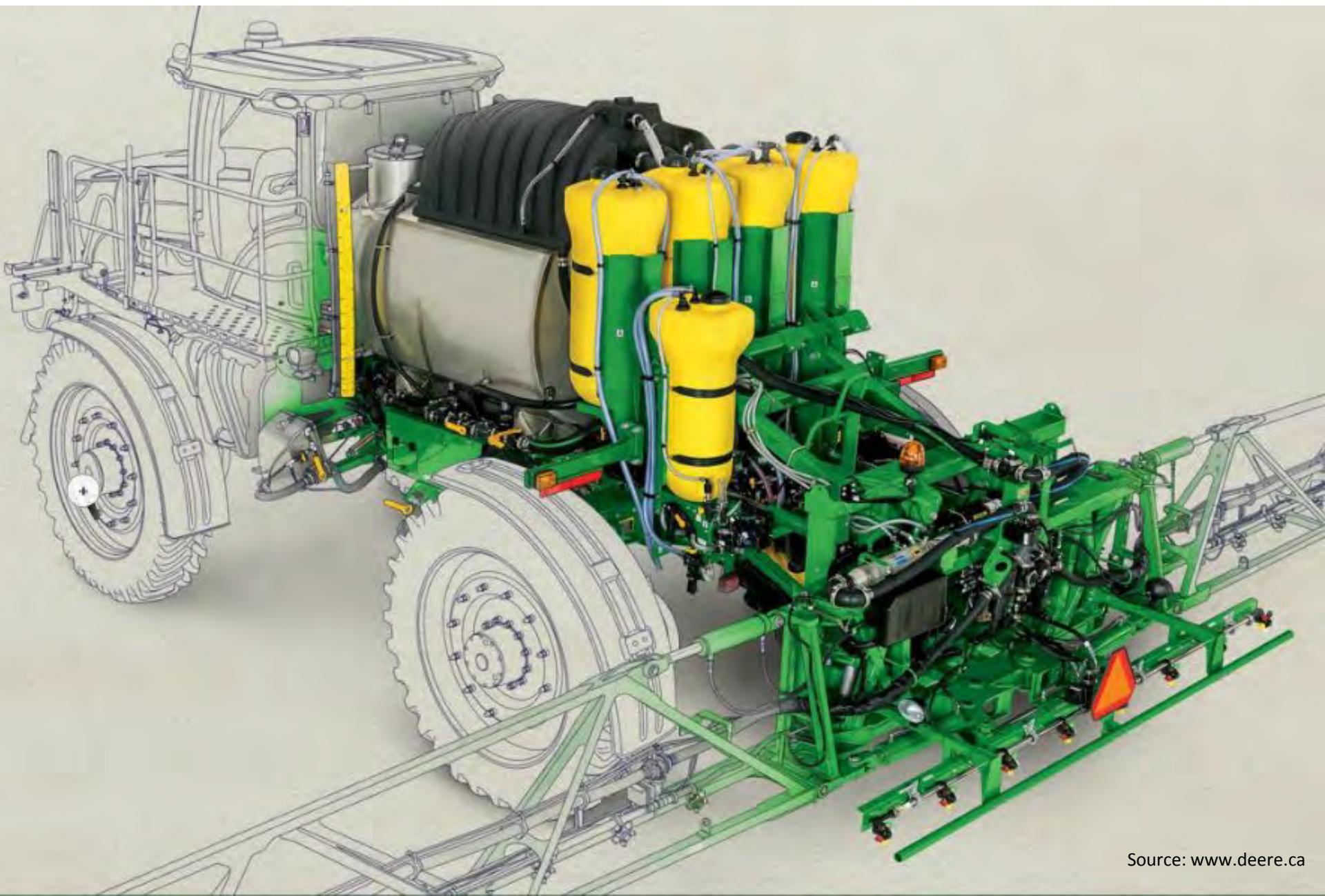


Rate Applied(Liquid vol)
(gal(US)/ac)

4.25 - 160.00	(14.63 ac)
3.88 - 4.25	(25.59 ac)
3.81 - 3.88	(29.24 ac)
3.76 - 3.81	(29.42 ac)
3.73 - 3.76	(29.53 ac)
3.69 - 3.73	(29.84 ac)
3.65 - 3.69	(29.69 ac)
3.60 - 3.65	(29.60 ac)
3.52 - 3.60	(28.89 ac)
0.67 - 3.52	(24.82 ac)

Spraying Elevation Map











SEEDING

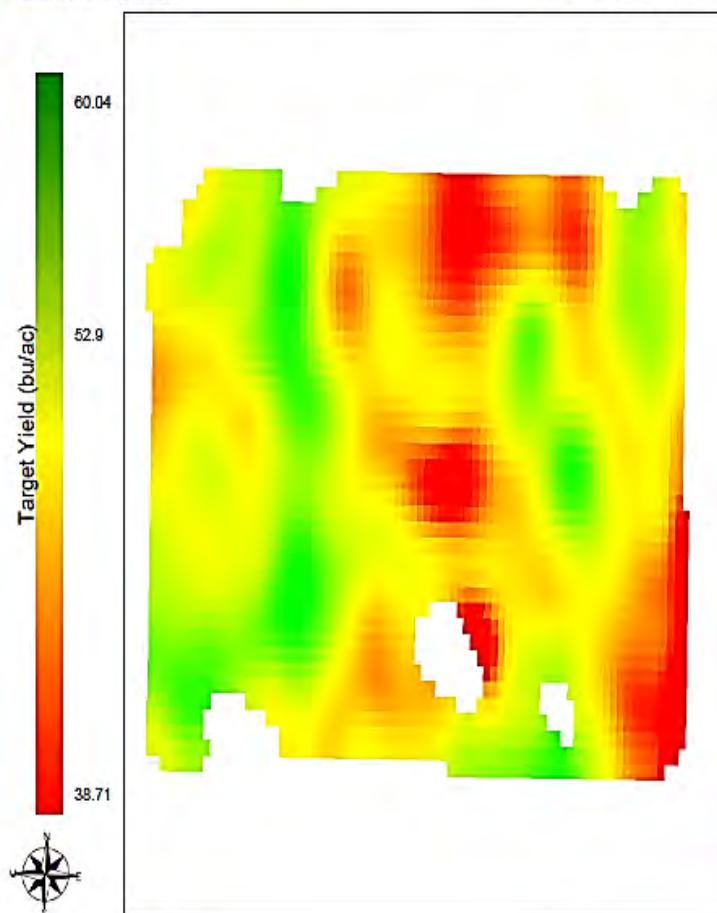




Source: Emile deMilliano

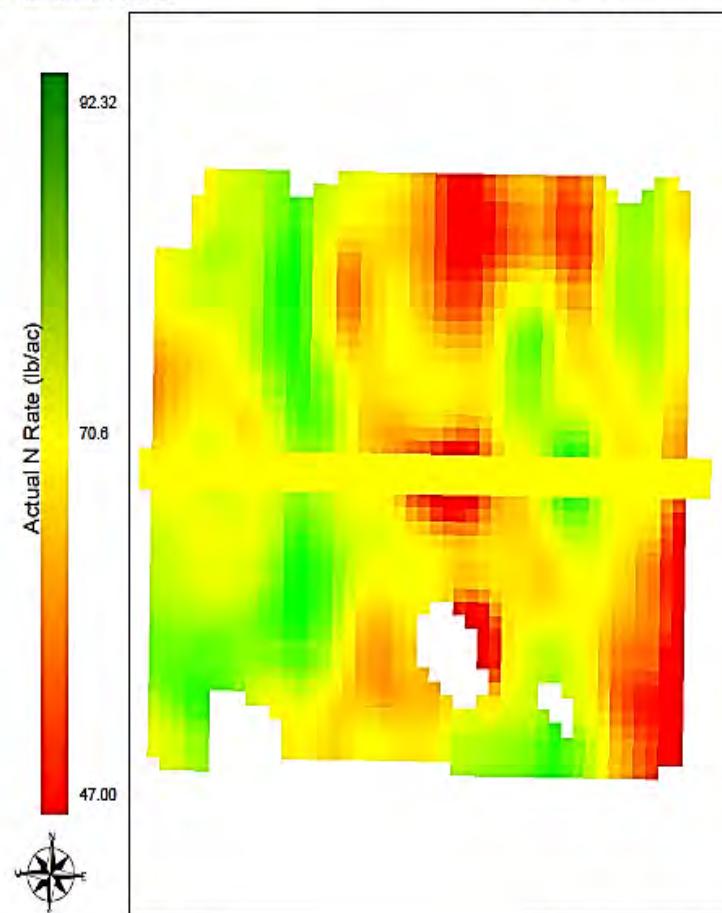






Corporation: Spiller Farms
 Farm: Spiller Farm
 Field: Lois SE 23 45 16 W4
 Area: 150.7 ac
 OM: 6%
 Soil N Supply: 25
 Other N Supply: 31

Crop: Canola
 Crop Price: \$12.50
 Base Yield: 44 bu/ac
 Adjusted Yield: 52.9 bu/ac
 Yield Difference: 8.9 bu/ac
 Image Date: 7/24/2010



Corporation: Spiller Farms
 Farm: Spiller Farm
 Field: Lois SE 23 45 16 W4
 Area: 150.7 ac
 Guaranteed Analysis: 24 - 0 - 0 - 7
 Typical N Rate: 70 lbs/ac
 Prescription N Rate: 70.6 lbs/ac

Min. Product Rate: 18.3 gal/ac
 Avg. Product Rate: 27.4 gal/ac
 Max. Product Rate: 35.9 gal/ac
 Total Product: 4,136.61 gal
 Net VR Benefit: \$110.30/ac





Photosynthesis & Solar Energy



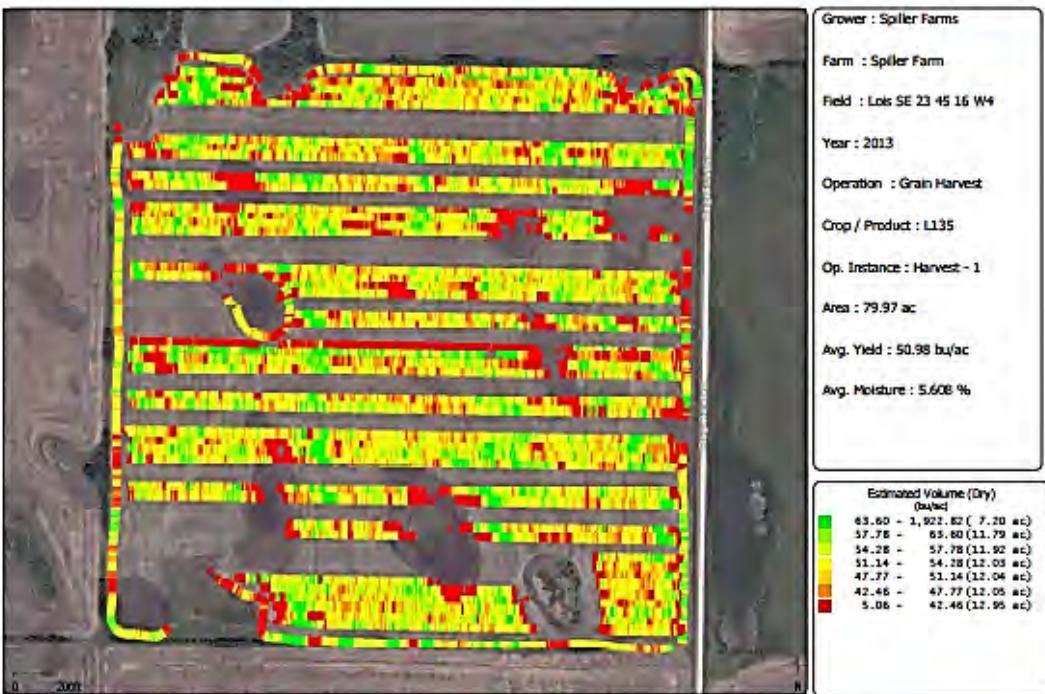






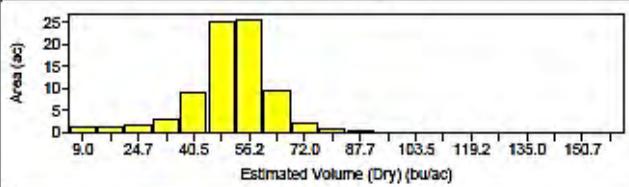


Yield Data



Spiller Farms | Spiller Farm | Lois SE 23 45 16 W4 2013 | Grain Harvest | L135 | Harvest - 1

Dataset	Area ac	Average Moisture %	Est. Weight (Wet) lb	Est. Volume (Dry) bu	Avg. Yield (Dry) bu/ac	Date Logged
L0:Harvest	72.44	5.502	191,776	3,687.5	50.90	25/09/2013
L0:Harvest	7.527	6.623	20,225	388.89	51.67	26/09/2013
Totals	79.97	5.608 Average	212,001	4,076.4	50.98 Average	25/09/2013 - 26/09/2013



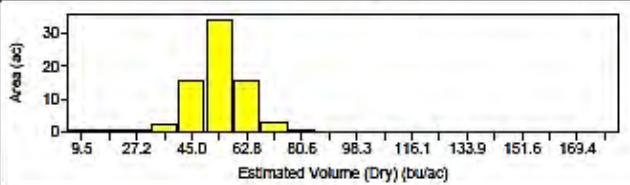
echelon
THE NEXT LEVEL OF AGRICULTURAL SOLUTIONS

Yield Data



Spiller Farms | Spiller Farm | West of Jims NE 22 45 16 W4
2013 | Grain Harvest | L135 | Harvest - 1

Dataset	Area ac	Average Moisture %	Est. Weight (Wet) lb	Est. Volume (Dry) bu	Avg. Yield (Dry) bu/ac	Date Logged
10:10/10/2013	72.60	5.934	201,312	3,870.9	53.32	10/10/2013
Totals	72.60	5.934 Average	201,312	3,870.9	53.32 Average	10/10/2013

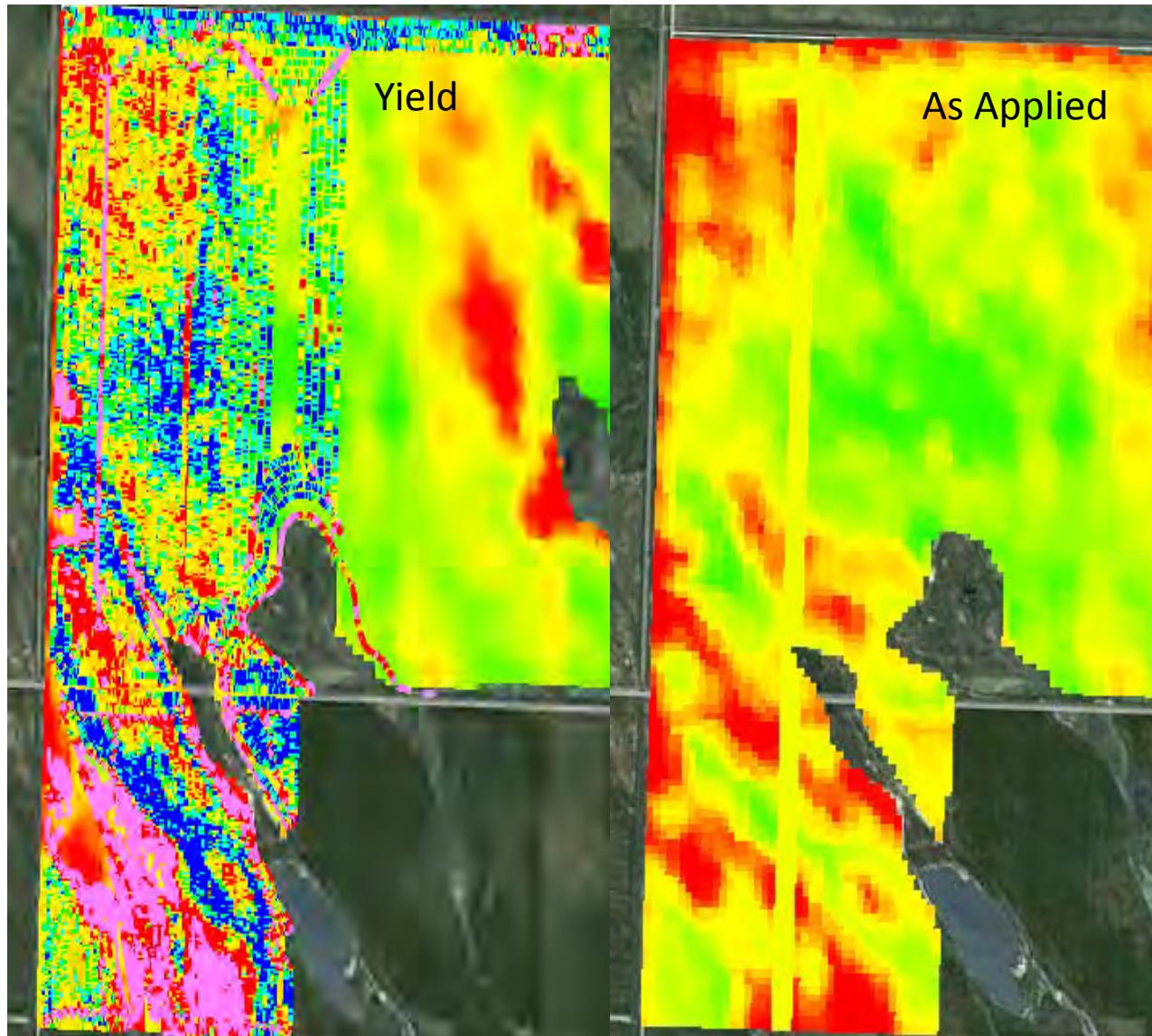


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DATA SOURCES



West Place NH SW 2 Sec 3 SE 11 16 25 W4



Data Sources

- Seeding
 - Fertilizer rates as applied
 - Seed rates as applied
- Spraying
 - Products applied
 - Rate applied
 - Placement
 - Water Volume
 - Time and Date of application
- Harvest Data
 - Yield
 - Moisture



What can we ask of
BIG DATA



IMPROVEMENTS REQUIRED



Acknowledgements

Emile deMilliano *Manager, Training CPS*

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Triple T Dairy *Sturgeon County AB*

John Deere Canada



QUESTIONS?

