



JOHN DEERE



LandMark Implement's Nitrogen Management Plot Book



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LEXINGTON TEST PLOT

Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation	Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation
ExactEmerge 1	90.1%	2.05	30.0%	Customer Planter 1	99.3%	1.40	22.6%
ExactEmerge 2	93.5%	1.71	26.0%	Customer Planter 2	99.3%	1.78	28.7%
ExactEmerge 3	100.0%	0.56	9.0%	Customer Planter 3	102.0%	1.03	17.1%
ExactEmerge 4	95.6%	1.38	21.5%	Customer Planter 4	101.1%	1.08	17.7%
ExactEmerge 5	90.5%	2.43	35.7%	Customer Planter 5	102.3%	1.27	21.1%
ExactEmerge 6	97.5%	1.43	22.7%	Customer Planter 6	96.8%	2.12	33.4%
ExactEmerge 7	97.2%	1.21	19.2%	Customer Planter 7	100.7%	1.74	28.6%
ExactEmerge 8	97.3%	1.33	21.1%	Customer Planter 8	96.0%	1.79	28.0%
ExactEmerge 9	96.7%	1.46	23.0%	Customer Planter 9	94.8%	1.69	26.1%
ExactEmerge 10	98.3%	0.85	13.6%	Customer Planter 10	92.0%	2.00	30.0%
ExactEmerge 11	93.5%	1.45	22.0%	Customer Planter 11	102.2%	1.31	21.8%
ExactEmerge 12	87.2%	2.48	35.1%	Customer Planter 12	96.2%	1.70	26.6%
Average	94.8%	1.53	23.2%	Average	98.6%	1.58	25.1%
Target Population	34000			Target Population	34000		

BEATRICE TEST PLOT

Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation	Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation
ExactEmerge 1	96.6%	1.69	21.0%	Customer Planter 1	85.0%	3.81	41.8%
ExactEmerge 2	104.3%	1.60	21.5%	Customer Planter 2	92.2%	2.79	33.2%
ExactEmerge 3	96.2%	1.52	18.9%	Customer Planter 3	99.9%	1.28	16.5%
ExactEmerge 4	103.3%	2.69	35.9%	Customer Planter 4	97.6%	2.20	27.8%
ExactEmerge 5	100.1%	0.73	9.4%	Customer Planter 5	100.4%	2.33	30.2%
ExactEmerge 6	99.5%	0.85	10.9%	Customer Planter 6	100.1%	2.70	35.0%
ExactEmerge 7	101.6%	0.83	10.9%	Customer Planter 7	92.5%	2.63	31.4%
ExactEmerge 8	96.6%	1.91	23.9%	Customer Planter 8	97.2%	1.47	18.5%
ExactEmerge 9	97.5%	2.23	28.1%	Customer Planter 9	94.9%	3.37	41.3%
ExactEmerge 10	98.7%	0.98	12.5%	Customer Planter 10	96.9%	3.16	39.6%
ExactEmerge 11	96.6%	2.20	27.5%	Customer Planter 11	97.6%	3.53	44.4%
ExactEmerge 12	99.9%	0.91	11.8%	Customer Planter 12	93.8%	2.66	32.2%
Average	99.2%	1.51	19.4%	Average	95.7%	2.66	32.7%
Target Population	27000			Target Population	27000		

HEBRON TEST PLOT

Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation	Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation
ExactEmerge 1	89.0%	3.46	50.6%	Customer Planter 1	95.4%	1.53	23.9%
ExactEmerge 2	94.2%	1.59	24.5%	Customer Planter 2	94.0%	1.69	26.0%
ExactEmerge 3	88.9%	2.39	34.8%	Customer Planter 3	95.8%	1.70	26.7%
ExactEmerge 4	90.4%	2.36	35.0%	Customer Planter 4	96.6%	1.98	31.4%
ExactEmerge 5	96.0%	1.45	22.8%	Customer Planter 5	85.9%	2.70	38.1%
ExactEmerge 6	91.6%	1.95	29.3%	Customer Planter 6	88.9%	2.76	40.2%
ExactEmerge 7	93.7%	1.79	27.5%	Customer Planter 7	93.7%	2.85	43.7%
ExactEmerge 8	93.4%	1.65	25.3%	Customer Planter 8	91.3%	2.05	30.7%
ExactEmerge 9	96.2%	1.39	21.9%	Customer Planter 9	82.5%	3.54	47.9%
ExactEmerge 10	89.9%	2.06	30.4%	Customer Planter 10	94.1%	2.68	41.4%
ExactEmerge 11	96.2%	1.28	20.1%	Customer Planter 11	100.8%	0.96	15.9%
ExactEmerge 12	95.3%	1.53	23.9%	Customer Planter 12	98.4%	1.58	25.6%
Average	92.9%	1.91	28.8%	Average	93.1%	2.17	32.6%
Target Population	34300			Target Population	34300		

HASTINGS TEST PLOT

Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation	Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation
ExactEmerge 1	106.2%	1.50	25.9%	Customer Planter 1	93.9%	1.79	27.3%
ExactEmerge 2	96.5%	1.16	18.2%	Customer Planter 2	94.5%	3.04	46.7%
ExactEmerge 3	96.0%	1.39	21.8%	Customer Planter 3	93.6%	1.85	28.2%
ExactEmerge 4	88.0%	2.25	32.2%	Customer Planter 4	84.9%	2.62	36.2%
ExactEmerge 5	96.6%	2.22	34.9%	Customer Planter 5	82.5%	4.06	54.5%
ExactEmerge 6	93.5%	1.62	24.6%	Customer Planter 6	100.7%	1.21	19.8%
ExactEmerge 7	96.5%	1.77	27.8%	Customer Planter 7	95.5%	2.32	36.1%
ExactEmerge 8	97.4%	1.89	29.9%	Customer Planter 8	87.3%	2.73	38.8%
ExactEmerge 9	96.6%	1.62	25.5%	Customer Planter 9	87.5%	2.47	35.2%
ExactEmerge 10	95.0%	1.95	30.2%	Customer Planter 10	97.3%	1.58	25.0%
ExactEmerge 11	82.2%	2.80	37.4%	Customer Planter 11	98.4%	1.77	28.3%
ExactEmerge 12	88.1%	2.30	32.9%	Customer Planter 12	96.8%	1.77	27.8%
Average	94.4%	1.87	28.4%	Average	92.7%	2.27	33.7%
Target Population	34000			Target Population	34000		

SMITH CENTER TEST PLOT

Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation	Planter Type and Rep #	% Population Desired Vs Actual	Standard Deviation	Coefficient of Variation
ExactEmerge 1	97.9%	3.02	29.7%	Customer Planter 1	97.7%	2.54	28.5%
ExactEmerge 2	100.4%	4.21	42.4%	Customer Planter 2	95.3%	4.25	46.5%
ExactEmerge 3	99.9%	0.85	9.8%	Customer Planter 3	100.5%	3.16	36.4%
ExactEmerge 4	103.9%	2.37	24.8%	Customer Planter 4	103.1%	1.02	12.1%
ExactEmerge 5	98.2%	2.41	23.7%	Customer Planter 5	92.4%	3.36	31.2%
ExactEmerge 6	96.9%	1.53	14.9%	Customer Planter 6	97.1%	3.39	33.1%
ExactEmerge 7	99.6%	1.63	18.7%	Customer Planter 7	93.4%	2.33	25.0%
ExactEmerge 8	100.6%	0.78	9.0%	Customer Planter 8	99.0%	3.02	34.3%
ExactEmerge 9	101.4%	2.29	26.7%	Customer Planter 9	91.7%	3.58	37.7%
ExactEmerge 10	90.2%	2.70	27.9%	Customer Planter 10	91.9%	3.03	31.9%
ExactEmerge 11	93.5%	2.54	27.2%	Customer Planter 11	104.9%	1.68	20.2%
ExactEmerge 12	92.0%	2.65	28.0%	Customer Planter 12	91.2%	3.06	32.1%
Average	97.9%	2.25	23.6%	Average	96.5%	2.87	30.7%
Target Population	21000/24000			Target Population	21000/24000		

Hastings Test Plot

Irrigated Overview: The west half of the plot was planted with a John Deere ExactEmerge 1725 CCS mounted vertical fold planter which used the 360 Yield Center Bandit fertilizer system. The customer planted the east half. The field had manure applied in prior years. The field was growing wheat when planted as a cover crop and corn was chopped for silage the prior year. Other than the Nitrogen applications, both sides were managed in a similar fashion.

Previous Crop: Corn for silage and growing wheat as a cover crop at planting.

Tillage Practice: No-Till

Target Population: 34,000 seeds per acre

Customer side (west side) of the plot fertilizer applications:

- Side Dress Application: 63.5 gallons of 32-0-0

John Deere / 360 Yield Center (east side) of the plot fertilizer applications:

32-0-0 at Planting with 360 Bandits

- 34 gallons

32-0-0 applied between V10 and VT (pre tassel)

- Y-dropped on at 22.9 gallons per acre with John Deere R4038

Observations / Potential changes if we were to duplicate this in the future:

- On 23.3 less pounds of total actual Nitrogen we are producing 8 more bushels
- Nitrogen Efficiency was 0.796 # applied per bushel verses 0.917 #
- With less nitrogen applied we achieved an additional \$17.40 per acre profit

SOIL ANALYSIS REPORT

CLIENT:
38770
JUSTIN ATWOOD
LANDMARK IMPLEMENT
915 BREWSTER RD
HOLDREGE, NE 68949



1602 Park West Dr.
PO Box 169
Hastings, NE 68902
800.557.7509
402.463.3522
Fax 402.463.8132

LAB NO: 97583 - 97584
INVOICE NO: 621213
DATE RECEIVED: 06/25/2018
DATE REPORTED: 06/26/2018

SOIL ANALYSIS RESULTS FOR: LANDMARK		FIELD IDENTIFICATION: HASTINGS																
METHOD USED:		1:1 Water-Soil	Sikora	1:1 Water-Soil	XSL(0)	LOI(0)	Cd Reduction	c-Mehlich 3	Mehlich 3 ICP	Ammonium Acetate	Mehlich 3 ICP	DTPA	Baron					
Lab Number	Sample ID	Water-Soil pH	Buffer pH	Sol. Salts mmol/cM	Excess Lime	% Organic Matter	Nitrate-Nitrogen ppm	Phosphorus ppm P	Potassium ppm K	Sulfur lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Baron ppm B
97583	TOP	6.2	6.9	0.15	No	2.4	7	50	397	12	43	295	44	2.8				
97584	SUB	12 - 24				7	25											

FERTILIZER RECOMMENDATIONS:		POUNDS ACTUAL NUTRIENT PER ACRE																						
Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:			N	P ₂ O ₅	K ₂ O	Zn	S	Mn	Cu	MgO	B	Ca	Cl	Cation Exchange Capacity						
				6.0	6.5	7.0												%H	%K	%Ca	%Mg	%Na		
97583	TOP	CORN	250 bu	0.0	0.2	0.3	250	0	0	0	0			0		0		18	7	6	73	14	1	
97584	SUB																							

SPECIAL COMMENTS AND SUGGESTIONS:
 Lab Number(s): 97583
 NITROGEN RECOMMENDATION: Subsoil nitrate sample(s) used in making the N recommendation.
 Lab Number(s): 97583
 CORN: Nitrogen fertilizer recommendations have been adjusted for soil organic matter content.

Analyses are representative of the samples submitted Samples are retained 30 days after report of analysis Explanations of soil analysis terms are available upon request
 Reviewed and Approved By: Hans Burken Agronomist
 Approved By: *Hans Burken*
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Hastings Plot - Irrigated

East Side - Customer					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
Side Dress Fert	63.5	Gal / Acre	32-0-0	224.7 # of N	\$ 79.29
				Total	224.7 # of N
Corn Seed	34000	Seeds / Acre			\$ 125.00
Irrigation					\$ 50.00
Herbicide - Pre					\$ 28.67
Herbicide - Post					\$ 25.19
Side Dress Fertilizer Application - coulter injected				6/1/18	\$ 10.00
Planting - No Fertilizer Applied				5/1/18	\$ 20.00
Herbicide Application - Pre				5/4/18	\$ 7.00
Herbicide Application - Post				6/8/18	\$ 7.00
Harvest Cost	\$ 0.38	per wet bushel			\$ 93.10
Hauling Cost	\$ 0.10	per wet bushel - over 5 miles			\$ 24.50
Insurance Cost	\$ 22.00	Multi Peril and Hail			\$ 22.00
Cash Rent - Estimated					\$ 275.00
TOTAL COST					\$ 766.75

West Side - JD/360YC Applied Nitrogen					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
At Planting	34	Gal / Acre	32-0-0	120.3 # of N	\$ 42.45
Y Drop App	22.9	Gal / Acre	32-0-0	81.0 # of N	\$ 28.59
				Total	201.4 # of N
Corn Seed	34000	Seeds / Acre			\$ 125.00
Irrigation					\$ 50.00
Herbicide - Pre Chemical Cost					\$ 28.67
Herbicide - Post Chemical Cost					\$ 25.19
Planting - Banding Nitrogen				5/1/18	\$ 30.00
Y Drop Application				6/29/18	\$ 15.00
Herbicide Application - Pre				5/4/18	\$ 7.00
Herbicide Application - Post				6/8/18	\$ 7.00
Harvest Cost	\$ 0.38	per wet bushel			\$ 96.14
Hauling Cost	\$ 0.10	per wet bushel - over 5 miles			\$ 25.30
Insurance Cost	\$ 22.00	Multi Peril and Hail			\$ 22.00
Cash Rent - Estimated					\$ 275.00
TOTAL COST					\$ 777.35

Projected Profit				Nitrogen Efficiency		
Customer			YIELD	245	Total # N Applied	224.7
	Costs	\$ 766.75	Price Per Bushel	\$3.50	#N / Bushel	0.917
			Revenue	\$857.50		
	Cost / Bu	\$ 3.13	Profit	\$90.75		
JD/360YC	Costs	\$ 777.35	YIELD	253	Total # N Applied	201.4
			Price Per Bushel	\$3.50	#N / Bushel	0.796
			Revenue	\$885.50		
	Cost / Bu	\$ 3.07	Profit	\$108.15		
			Additional Profit / Acre	\$17.40		

Lexington Test Plot

Overview: The east half of the plot was planted with an ExactEmerge and used the 360 Yield Center Bandit fertilizer system. The customer planted the west half with a 1720 CCS planter with eSet seed meters. The field has had manure applied. The west part of the field was strip-tilled to apply fertilizer and create a seedbed. Other than the Nitrogen applications, both sides were managed in a similar fashion.

Irrigated

Previous Crop: Corn

Tillage Practice: Strip-Till

Target Population: 34,000 seeds per acre

Customer side (east side) of the plot fertilizer applications:

Spring Strip-Till

- 20 Gallons of 32-0-0

Starter at Planting

- 3.1 Gallons of 10-34-0

Top Dress Dry

- 100# of actual N (46-0-0)

John Deere / 360 Yield Center (east side) of the plot fertilizer applications:

32-0-0 at Planting with 360 Bandits

- 20 Gallons

Starter applied at planting

- 10-34-0 - 3.1 Gallons

32-0-0 applied between V10 and VT (pre tassel)

- Y-dropped on at 27.49 gallons per acre with Hagie STS12

Observations / Potential changes if we were to duplicate this plot in the future:

- We believe the entire plot should have been strip-tilled to make it more uniform between the two sides, but not apply the 32-0-0 to the east half. We believe the effect of this may be a reduced stand.
- Yielded 7 more bushels per acre on 2.7 # less Nitrogen
- Nitrogen efficiency was very good on both sides of the plot with 0.590# / Bushel on the 360 side compared to 0.614 # of applied nitrogen. Both were very low due to previous application of manure.
- The 360 Yield Center system achieved a \$17.81 per acre additional profit.

SOIL ANALYSIS REPORT

1602 Park West Dr.
PO Box 169
Holdings, NE 68902
800.557.7509
402.463.3522
Fax 402.463.8132

**Servi-Tech
Laboratories**
www.servitechlabs.com

CLIENT:
38770
JUSTIN ATWOOD
LANDMARK IMPLEMENT
915 BREWSTER RD
HOLDREGE, NE 68949

LAB NO: 97621 - 97622
INVOICE NO: 621228
DATE RECEIVED: 06/26/2018
DATE REPORTED: 06/27/2018

FIELD IDENTIFICATION: LEX

SOIL ANALYSIS RESULTS FOR: LANDMARK

Lab Number	Sample ID	Sample Depth	1:1 Water-Soil		Buffer pH	Water-Soil Sol Salts mmol/cm	XSL(l) Excess Lime	LO(l) % Organic Matter	Cd Reduction Nitrate-Nitrogen ppm	c-Mehlich 3 Phosphorus ppm P	Potassium ppm K	Sulfur ppm	Ammonium Acetate Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B
			Soil pH	Water-Soil pH																
97621	TOP	0 - 12	7.7	0.28		L0	2.2	12	43	55	696	34	122	3125	516	105	2.7			
97622	SUB	12 - 24						10	36											

FERTILIZER RECOMMENDATIONS:

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:		N	P ₂ O ₅	K ₂ O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
				6.0	7.0											
97621	TOP	CORN	240 bu			215	0	0	0	0			0	0	0	
97622	SUB															

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 97621
NITROGEN RECOMMENDATION: Subsoil nitrate sample(s) used in making the N recommendation.
Lab Number(s): 97621
CORN: Nitrogen fertilizer recommendations have been adjusted for soil organic matter content.

POUNDS ACTUAL NUTRIENT PER ACRE

Cation Exchange Capacity	
CEC	%H %K %Ca %Mg %Na
22	0 8 70 19 2

Analyses are representative of the samples submitted

Samples are retained 30 days after report of analysis

Explanations of soil analysis terms are available upon request

Reviewed and
Approved By:

Hans Burken
Agronomist

Hans Burken

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Lexington Plot - Irrigated

West Side - Customer					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
Spring StripTill	20	Gal / Acre	32-0-0	70.8 #ofN	\$ 23.23
At Planting	3.1	Gal / Acre	10-34-0	3.6 #ofN	\$ 20.68
			46-0-0 Nutrasphere		
Top Dress	100	#/Acre	Treated	100.0 #ofN	\$ 38.04
			Total	174.4 #ofN	
Corn Seed	34000	Seeds/ Acre			\$ 110.50
Irrigation					\$ 75.00
Herbicide - Pre					\$ 13.96
Herbicide - Post					\$ 22.53
Strip Till Operation					\$ 20.00
Planting - Applying Starter				5/1/18	\$ 20.00
Top Dress Dry					\$ 6.50
Herbicide Application - Pre					\$ 7.50
Herbicide Application - Post					\$ 7.50
Disking - manure incorporation					\$ 14.50
Manure Application / Hauling-Spreading					\$ 15.00
Harvest Cost	0.38	per wet bushel			\$ 107.92
Hauling Cost	0.1	per wet bushel - over 5 miles			\$ 28.40
Insurance Cost	22	Multi Peril and Hail			\$ 22.00
Cash Rent - Estimated					\$ 275.00
					TOTAL COST
					\$ 828.26

East Side - JD/360YC Applied Nitrogen					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
At Planting	20	Gal / Acre	32-0-0	70.8 #ofN	\$ 23.23
At Planting	3.1	Gal / Acre	10-34-0	3.6 #ofN	\$ 20.68
Y Drop Application	27.49	Gal / Acre	32-0-0	97.3 #ofN	\$ 31.92
			Total	171.7 #ofN	
Corn Seed	34000	Seeds/ Acre			\$ 110.50
Irrigation					\$ 75.00
Herbicide - Pre Chemical Cost					\$ 13.96
Herbicide - Post Chemical Cost					\$ 22.53
Field Cultivating prior to planting					\$ 13.75
Planting - Applying Starter / Banding Nitrogen				5/1/18	\$ 30.00
Y Drop Application				6/28/18	\$ 15.00
Herbicide Application - Pre					\$ 7.50
Herbicide Application - Post					\$ 7.50
Disking - manure incorporation					\$ 14.50
Manure Application / Hauling-Spreading					\$ 15.00
Harvest Cost	0.38	per wet bushel			\$ 110.58
Hauling Cost	0.1	per wet bushel - over 5 miles			\$ 29.10
Insurance Cost	22	Multi Peril and Hail			\$ 22.00
Cash Rent - Estimated					\$ 275.00
					TOTAL COST
					\$ 837.75

Projected Profit				Nitrogen Efficiency		
Customer	Costs	\$ 828.26	YIELD	284	Total # N Applied	174.4
			Price Per Bushel	\$3.90	#N / Bushel	0.614
	Cost / Bu	\$ 2.92	Revenue	\$1,107.60		
			Profit	\$279.34		
JD/360YC	Costs	\$ 837.75	YIELD	291	Total # N Applied	171.7
			Price Per Bushel	\$3.90	#N / Bushel	0.590
	Cost / Bu	\$ 2.88	Revenue	\$1,134.90		
			Profit	\$297.15		
			Additional Profit / Acre	\$17.81		

Smith Center Test Plot

Overview: The field is broke up into five different sections with two larger sections planted with the ExactEmerge planter which used the 360 Yield Center Bandit Fertilizer system. The customer planted the other three sections of the field and both having similar amounts of the area of the field. The west section against the creek alternated planting between the customers planter and the JD/360 system. Other than the Nitrogen applications, both sides were managed in similar fashion.

Dryland

Previous Crop: Wheat

Tillage Practice: No-Till

Target Population: 24,000 seeds per acre on the bottom ground - 21,000 seeds per acre on upland ground

Customer side (east side) of the plot fertilizer applications:

Spring applied through the TAPPS System

- 149# Actual N - NH₃
- 6.86 Gallons - 10-34-0
- 2.94 Gallons - 12-0-0-26

At Planting:

- 2 Gallons of 10-34-0
- 2 Gallons 32-0-0
- 1 Quart Micro 500

John Deere / 360 Yield Center (east side) of the plot fertilizer applications:

At Planting with 360 Bandits

- 25 Gallons - 32-0-0
- 7 Gallons - 10-34-0
- 3 Gallons - 12-0-0-26

At Planting in row

- 10-34-0 - 2 Gallons
- 32-0-0 - 2 Gallons
- 1 Quart Micro 500

32-0-0 applied between V10 and VT (pre tassel)

- Y-dropped on at 10 Gallons per acre with Hagie STS12 - This was done on 6 passes of 24 rows each. Remainder of the field did not receive this treatment

Observations / Potential changes if we were to duplicate this plot in the future:

- Both sides achieved very high yields and very good nitrogen efficiency
- Due to the amount of Nitrogen in the soil portions of the field on the 360 YC side did not receive additional late season Nitrogen as part of our test.
- Yields –
 - o Customer's System
 - Bottom – 220 Bu/A – 0.652 # of N/Bu
 - Upland – 206 Bu/A – 0.697 # of N/Bu
 - o 360 Yield Center
 - Bottom – with Y Drop Application – 228 Bu/A – 0.638 # of N/Bu - \$4.26 additional profit
 - Upland – with Y Drop Application – 219 Bu/A – 0.664 # of N/Bu - \$21.76 additional profit
 - Bottom – with no additional N – 232 Bu/A – 0.474 # of N/Bu - \$18.26 additional profit
 - Upland – with no additional N – 189 Bu/A – 0.582 # of N/Bu - \$83.24 loss in profit due to exceptional yield on customer's portion. Should have applied additional late season N on the upland ground.

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SOIL ANALYSIS REPORT

CLIENT:
38770

JUSTIN ATWOOD
LANDMARK IMPLEMENT
915 BREWSTER RD
HOLDREGE, NE 68949



1602 Park West Dr.
PO Box 169
Hastings, NE 68902
800.557.7509
402.463.3522
Fax 402.463.8132

LAB NO: 97758 - 97759
INVOICE NO: 621273
DATE RECEIVED: 06/28/2018
DATE REPORTED: 06/29/2018

SOIL ANALYSIS RESULTS FOR: LANDMARK

FIELD IDENTIFICATION: SC

Lab Number	Sample ID	Sample Depth	1:1 Water-Soil		LOI(r)	Cd Reduction	c-Mehlich 3	Mehlich 3 ICP		Ammonium Acetate		Mehlich 3 ICP		DTPA		Boron ppm B
			Soil pH	Buffer pH				% Organic Matter	Nitrate-Nitrogen ppm	Phosphorus ppm P	Potassium ppm K	Sulfur lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	
97758	TOP	0 - 12	7.8		2.0	16	58	24	11	40	6461	74	21	1.2		
97759	SUB	12 - 24				14	50									

FERTILIZER RECOMMENDATIONS:

POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:		N	P ₂ O ₅	K ₂ O	Zn	S	Mn	Cu	MgO	B	Ca	Cl	Cation Exchange Capacity						
				6.0	6.5												7.0	%H	%K	%Ca	%Mg	%Na	
97758	TOP	CORN	150 bu			80	30	0	0	0			0	0	0		27	0	5	92	2	0	
97758	TOP	CORN	180 bu			115	40	0	0	0			0	0	0								
97759	SUB																						

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 97758
 CORN: Consider applying part of the recommended nitrogen (N) and phosphate (P2O5) fertilizer in a band at planting, especially with early-planted corn. Avoid placing fertilizer in direct contact with seed to prevent potential injury to young seedlings.
 Lab Number(s): 97758
 NITROGEN RECOMMENDATION: Subsoil nitrate sample(s) used in making the N recommendation.
 Lab Number(s): 97758
 CORN: Nitrogen fertilizer recommendations have been adjusted for soil organic matter content.

Analyses are representative of the samples submitted
 Reviewed and Approved By: Hans Burken
 Agronomist

Explanations of soil analysis terms are available upon request
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Smith Center Plot - Dryland

Customer					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
TAPPS Application	149	lbs / Acre	NH3	122.2 # of N	\$ 35.46
TAPPS Application	6.86	Gal / Acre	10-34-0	8.0 # of N	\$ 16.05
TAPPS Application	2.94	Gal / Acre	12-0-0-26	3.9 # of N	\$ 4.17
Corn Seed	23400	Seeds / Acre			\$ 78.98
Planting	2	Gal / Acre	32-0-0	7.1 # of N	\$ 3.14
Planting	2	Gal / Acre	10-34-0	2.3 # of N	\$ 4.68
Planting	0.25	Gal / Acre	Micro 500	0.0 # of N	\$ 3.38
				Total	143.5 Total N Applied
Herbicide - Pre					\$ 13.97
Herbicide - Post					\$ 15.12
TAPPS Application Operation	4/19/18				\$ 25.00
Planting - Applying Fertilizer	5/8/18				\$ 20.00
Herbicide Application - Pre	5/3/18				\$ 7.50
Herbicide Application - Post	6/12/18				\$ 7.50
Harvest Cost	0.38	per wet bushel			\$ 83.60
Hauling Cost	0.1	per wet bushel - over 5 miles			\$ 22.00
Insurance Cost	18	Multi Peril and Hail			\$ 18.00
Cash Rent - Estimated					\$ 100.00
TOTAL COST					\$ 458.56

JD/360YC Applied Nitrogen - With Y DROP					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
Planting - Bandit	25	Gal / Acre	32-0-0	88.5 # of N	\$ 39.25
Planting - Bandit	7	Gal / Acre	10-34-0	8.2 # of N	\$ 16.38
Planting - Bandit	3	Gal / Acre	12-0-0-26	4.0 # of N	\$ 4.26
Planting - in row	2	Gal / Acre	32-0-0	7.1 # of N	\$ 3.14
Planting - in row	2	Gal / Acre	10-34-0	2.3 # of N	\$ 4.68
Planting - in row	0.25	Gal / Acre	Micro 500	0.0 # of N	\$ 3.38
Y Drop Application	10	Gal / Acre	32-0-0	35.4 # of N	\$ 15.70
				Total	145.4 Total N Applied
Corn Seed	23400	Seeds / Acre			\$ 78.98
Herbicide - Pre					\$ 13.97
Herbicide - Post					\$ 15.12
Y Drop Application	7/5/18				\$ 15.00
Planting - Applying Fertilizer	5/8/18				\$ 30.00
Herbicide Application - Pre	5/3/18				\$ 7.50
Herbicide Application - Post	6/12/18				\$ 7.50
Harvest Cost	0.38	per wet bushel			\$ 86.64
Hauling Cost	0.1	per wet bushel - over 5 miles			\$ 22.80
Insurance Cost	18	Multi Peril and Hail			\$ 18.00
Cash Rent - Estimated					\$ 100.00
TOTAL COST					\$ 482.30

JD/360YC Applied Nitrogen - Only with the planter					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
Planting - Bandit	25	Gal / Acre	32-0-0	88.5 # of N	\$ 39.25
Planting - Bandit	7	Gal / Acre	10-34-0	8.2 # of N	\$ 16.38
Planting - Bandit	3	Gal / Acre	12-0-0-26	4.0 # of N	\$ 4.26
Planting - in row	2	Gal / Acre	32-0-0	7.1 # of N	\$ 3.14
Planting - in row	2	Gal / Acre	10-34-0	2.3 # of N	\$ 4.68
Planting - in row	0.25	Gal / Acre	Micro 500	0.0 # of N	\$ 3.38
				Total	110.0 Total N Applied
Corn Seed	23400	Seeds / Acre			\$ 78.98
Herbicide - Pre					\$ 13.97
Herbicide - Post					\$ 15.12
Planting - Applying Fertilizer	5/8/18				\$ 30.00
Herbicide Application - Pre	5/3/18				\$ 7.50
Herbicide Application - Post	6/12/18				\$ 7.50
Harvest Cost	0.38	per wet bushel			\$ 74.27
Hauling Cost	0.1	per wet bushel - over 5 miles			\$ 19.54
Insurance Cost	18	Multi Peril and Hail			\$ 18.00
Cash Rent - Estimated					\$ 100.00
TOTAL COST					\$ 435.97

Profitability				Nitrogen Efficiency		
Customer - Bottom		Yield	220	Total # N Applied	143.5	
	Costs	\$ 458.56	Price Per Bushel	\$3.50	#N / Bushel	0.652
			Revenue	\$770.00		
	Cost / Bu	\$ 2.08	Profit	\$311.44		
Customer - Upland		Yield	206	Total # N Applied	143.5	
	Costs	\$ 458.56	Price Per Bushel	\$3.50	#N / Bushel	0.697
			Revenue	\$721.00		
	Cost / Bu	\$ 2.23	Profit	\$262.44		
JD/360YC - Y Drop		Yield	228	Total # N Applied	145.4	
Bottom	Costs	\$ 482.30	Price Per Bushel	\$3.50	#N / Bushel	0.638
			Revenue	\$798.00		
	Cost / Bu	\$ 2.12	Profit	\$315.70		
		Additional Profit / Acre	\$4.26			
JD/360YC - Y Drop		Yield	219	Total # N Applied	145.4	
Upland	Costs	\$ 482.30	Price Per Bushel	\$3.50	#N / Bushel	0.664
			Revenue	\$766.50		
	Cost / Bu	\$ 2.20	Profit	\$284.20		
		Additional Profit / Acre	\$21.76			
JD/360YC		Yield	232	Total # N Applied	110.0	
Bottom	Costs	\$ 435.97	Price Per Bushel	\$3.50	#N / Bushel	0.474
			Revenue	\$812.00		
	Cost / Bu	\$ 1.88	Profit	\$329.70		
		Additional Profit / Acre	\$18.26			
JD/360YC		Yield	189	Total # N Applied	110.0	
Upland	Costs	\$ 435.97	Price Per Bushel	\$3.50	#N / Bushel	0.582
			Revenue	\$661.50		
	Cost / Bu	\$ 2.31	Profit	\$179.20		
		Additional Profit / Acre	(\$83.24)			

Beatrice Test Plot

Overview: 160 acres of dryland. Dry fertilizer was applied to the whole field last fall with a John Deere 2510S strip-till rig. The west half, end rows and one pass next to the east road was planted by the customer with his 1775NT with an Rx with an average of 27,000. The east 70 acres were planted with the 1775NT ExactEmerge with 360 Yield Center Bandits at a flat rate of 27,000. Other than the Nitrogen applications, both side were managed in a similar fashion.

Dryland

Previous Crop: Soybeans

Tillage Practice: 27,000 seeds per acre

Customer Side (west side) of the plot fertilizer applications:

Strip-Till - Fall

- 150# MESZ
- 150# Urea

Starter at Planting

- 3.2 Gallons of Impulse Starter

Side Dress Nitrogen

- 271.4# Urea

John Deere / 360 Yield Center (east side) of the plot fertilizer applications:

Strip-Till - Fall

- 150# MESZ
- 150# Urea

Starter at Planting

- 3.2 Gallons of Impulse Starter

28-0-0 at Planting with 360 Bandits

- 10 Gallons

28-0-0 applied between V10 and VT (pre tassel)

- Y-dropped on at 19 Gallons per acre with Hagie STS12

Observations / Potential changes if we were to duplicate this plot in the future:

- ExactEmerge visibly achieved a better stand of corn
- Would like to remove the Urea from the Fall Strip-Till operation and apply more liquid N in the spring with the planter to see if we can increase our Nitrogen efficiency per bushel.
- Yield was the same between both sides of the plot (216 Vs 215) on 38.7 less pounds of N
- Nitrogen Efficiency was 0.806# of N with the 360 system Vs 0.982 # of N with the customer's system
- Our profitability was \$7.60 lower than the customers. We believe the difference in profitability could be negated in cost of application

SOIL ANALYSIS REPORT

CLIENT:
38770
JUSTIN ATWOOD
LANDMARK IMPLEMENT
915 BREWSTER RD
HOLDREGE, NE 68949



1602 Park West Dr.
PO Box 169
Holdings, NE 68902
800.557.7509
402.463.3522
Fax 402.463.8132

LAB NO: 97585 - 97586
INVOICE NO: 621213
DATE RECEIVED: 06/25/2018
DATE REPORTED: 06/26/2018

SOIL ANALYSIS RESULTS FOR: LANDMARK												FIELD IDENTIFICATION: BEATRICE											
METHOD USED:						Mehlich 3 ICP						DTPA											
Lab Number	Sample ID	Sample Depth	Water-Soil 1:1 pH	Sikora Buffer pH	Water-Soil 1:1 pH	Excess Lime	XS(L)	LOI(r)	Cd Reduction	c-Mehlich 3 Phosphorus ppm P	Potassium ppm K	Sulfur ppm	lb. S/A	Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B		
97585	TOP	0 - 12	5.4	6.2	0.15	No		2.6	7	37	187	11	40	2250	369	23	1.2						
97586	SUB	12 - 24							5	18													

FERTILIZER RECOMMENDATIONS:												POUNDS ACTUAL NUTRIENT PER ACRE						Cation Exchange Capacity					
Lab Number	Sample ID	Crop To Be Grown	Yield Gal	Lime, ECC Tons/A to raise pH to:			N	P ₂ O ₅	K ₂ O	Zn	S	Mn	Cu	MgO	B	Ca	Cl	CEC	%H	%K	%Ca	%Mg	%Na
				6.0	6.5	7.0																	
97585	TOP	CORN	200 bu	5.2	6.5	7.7	190	15	0	0	0		0	0	0		25	39	2	46	13	0	
97586	SUB																						

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 97585
 CORN: Consider applying part of the recommended nitrogen (N) and phosphate (P2O5) fertilizer in a band at planting, especially with early-planted corn. Avoid placing fertilizer in direct contact with seed to prevent potential injury to young seedlings.

Lab Number(s): 97585
 NITROGEN RECOMMENDATION: Subsoil nitrate sample(s) used in making the N recommendation.

Lab Number(s): 97585
 WARNING: At this soil pH, aluminum may be present which can reduce crop growth and yield. Applying and incorporating the recommended rate of lime would correct the problem. Contact the Servi-Tech laboratory to request a soil aluminum test or for additional information.

Lab Number(s): 97585
 CORN: Nitrogen fertilizer recommendations have been adjusted for soil organic matter content.

Analyses are representative of the samples submitted Samples are retained 30 days after report of analysis Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Hans Burken *Hans Burken* Page 1 of 1

Agronomist 06/26/2018 2:17 pm

Beatrice Plot - Dryland

West Side - Customer					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
Fall StripTill	150	lbs / Acre	MESZ	15.0 # of N	\$ 31.88
Fall StripTill	150	lbs / Acre	46-0-0 - Treated	69.0 # of N	\$ 24.38
At Planting	3	Gal / Acre	Impulse Starter	3.2 # of N	\$ 9.75
Sidedress	271.4	lbs / Acre	46-0-0	124.8 # of N	\$ 39.35
				Total	212.0 # of N
Corn Seed	27000	Seeds / Acre			\$ 86.82
Herbicide - Pre					\$ 14.00
Herbicide - Post					\$ 23.00
Strip Till Operation					\$ 25.00
Planting - Applying Starter				4/30/18	\$ 20.00
Side Dress Application				5/18/18	\$ 15.00
Herbicide Application - Pre					\$ 7.50
Herbicide Application - Post					\$ 7.50
Harvest Cost	\$ 0.38	per wet bushel			\$ 82.08
Hauling Cost	\$ 0.10	per wet bushel - over 5 miles			\$ 21.60
Insurance Cost	\$ 18.00	Multi Peril and Hail			\$ 18.00
Cash Rent - Estimated					\$ 200.00
TOTAL COST					\$ 625.85

East Side - JD/360YC Applied Nitrogen					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
Fall StripTill	150	lbs / Acre	MESZ	15.0 # of N	\$ 31.88
Fall StripTill	150	lbs / Acre	46-0-0 - Treated	69.0 # of N	\$ 24.38
At Planting	10	Gal / Acre	28-0-0	29.7 # of N	\$ 11.70
At Planting	3	Gal / Acre	Impulse Starter	3.2 # of N	\$ 9.75
Y Drop Applicati	19	Gal / Acre	28-0-0	56.4 # of N	\$ 22.23
				Total	173.3 # of N
Corn Seed	27000	Seeds / Acre			\$ 86.82
Herbicide - Pre Chemical Cost					\$ 14.00
Herbicide - Post Chemical Cost					\$ 23.00
Strip Till Operation					\$ 25.00
Planting - Applying Starter / Banding Nitrogen				4/30/18	\$ 30.00
Y Drop Application				7/2/18	\$ 15.00
Herbicide Application - Pre					\$ 7.50
Herbicide Application - Post					\$ 7.50
Harvest Cost	\$ 0.38	per wet bushel			\$ 81.70
Hauling Cost	\$ 0.10	per wet bushel - over 5 miles			\$ 21.50
Insurance Cost	\$ 18.00	Multi Peril and Hail			\$ 18.00
Cash Rent - Estimated					\$ 200.00
TOTAL COST					\$ 629.95

Projected Profit				Nitrogen Efficiency	
Customer		YIELD	216	Total # N Applied	212.0
	Costs	\$ 625.85	Price Per Bushel	\$3.50	#N / Bushel
			Revenue	\$756.00	0.982
	Cost / Bu	\$ 2.90	Profit	\$130.15	
JD/360YC	Costs	\$ 629.95	YIELD	215	Total # N Applied
			Price Per Bushel	\$3.50	#N / Bushel
			Revenue	\$752.50	0.806
	Cost / Bu	\$ 2.93	Profit	\$122.55	
			Additional Profit / Acre	(\$7.60)	

Hebron Test Plot

Overview: The west half of the plot was planted with an ExactEmerge planter and used the 360 Yield Center Bandit Fertilizer system. The east half utilized spring applied NH₃ and the customer planted it with their planter. Other than the Nitrogen applications, both sides were managed in similar fashion.

Irrigated

Previous Crop: Soybeans

Tillage Practice: No-Till

Target Populations: 34,300 seeds per acre

Customer Side (west side) of the plot fertilized applications:

NH₃ - Spring Applied - Knife

- 176.2# Actual N

Dry Application

- 175# of 11-52-0

Starter at Planting

- 6.5 Gallons of 10-34-0 Starter

Applied with Pre Emerge herbicide

- 10 Gallons of 32-0-0

John Deere / 360 Yield Center (east side) of the plot fertilizer applications:

Dry Application

- 175# of 11-52-0

Applied with Pre Emerge herbicide

- 10 Gallons of 32-0-0

Starter at Planting

- 5 Gallons of 10-34-0 Starter

32-0-0 at Planting with 360 Bandits

- 33.7 Gallons

32-0-0 applied between V10 and VT (pre tassel)

- Y-dropped on at 20 and 25 Gallons (for comparison) per acre with Hagie STS12

Observations / Potential changes if we were to duplicate in this plot in the future:

- When making the Nitrogen application recommendations prior to Y Drop, we missed the 10 gallons of 32-0-0 that was applied with herbicide. Ideally, we would have reduced our Y-Drop application by 10 gallons and applied similar amount of Nitrogen to the customer's application.
- Tractor broke down on the JD/360 YC side at the beginning of planting which resulted in being 4 days later than the east sides planting date. We feel that this had some impact on the yield.
- Achieved a 5 Bu/A additional yield with a Nitrogen Efficiency of 1.158 # of N per bushel which is higher than the customer's N Efficiency of 1.101 # of N per bushel.
- Due to the extra 10 GPA of 32-0-0 applied our profitability was \$10.70 lower than the customer's.

SOIL ANALYSIS REPORT

CLIENT:
38770
JUSTIN ATWOOD
LANDMARK IMPLEMENT
915 BREWSTER RD
HOLDREGE, NE 68949



1602 Park West Dr.
PO Box 169
Holdings, NE 68902
800.557.7509
402.463.3522
Fax 402.463.8132

LAB NO: 97587 - 97588
INVOICE NO: 621213
DATE RECEIVED: 06/25/2018
DATE REPORTED: 06/26/2018

SOIL ANALYSIS RESULTS FOR: LANDMARK												FIELD IDENTIFICATION: HEBRON											
METHOD USED:						Mehlich 3						DTPA											
Lab Number	Sample ID	Sample Depth	Water-Soil pH	Sikora Buffer pH	Water-Soil pH	1:1 Water-Soil pH	XSL(l)	LO(l)	Cd Reduction	c-Mehlich 3 Phosphorus ppm P	Ammonium Acetate Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B					
97587	TOP	0 - 12	6.0	6.8	0.32	No	2.2	7	25	34	3297	539	52	0.7									
97588	SUB	12 - 24						4	14														

FERTILIZER RECOMMENDATIONS:												CATION EXCHANGE CAPACITY						
POUNDS ACTUAL NUTRIENT PER ACRE												CEC						
Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:	6.0	6.5	7.0	N	P ₂ O ₅	K ₂ O	Zn	S	Mn	Cu	MgO	B	Ca	Cl
97587	TOP	CORN	260 bu	0.0	1.1	1.7	270	25	0	3	0	0	0	0	0	0	0	0
97588	SUB																	

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 97587
 CORN: Consider applying part of the recommended nitrogen (N) and phosphate (P2O5) fertilizer in a band at planting, especially with early-planted corn. Avoid placing fertilizer in direct contact with seed to prevent potential injury to young seedlings.

Lab Number(s): 97587
 NITROGEN RECOMMENDATION: Subsoil nitrate sample(s) used in making the N recommendation.

Lab Number(s): 97587
 CORN: Nitrogen fertilizer recommendations have been adjusted for soil organic matter content.

Analyses are representative of the samples submitted Samples are retained 30 days after report of analysis Explanations of soil analysis terms are available upon request

Reviewed and Approved By: Hans Burken Agronomist *Hans Burken*

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Hebron Plot - Irrigated

East Side - Customer					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
Spring NH3 Appli	176.2	#/Acre	NH3 with N-Serve	176.2 # of N	\$ 52.88
At Planting	6.5	Gal / Acre	10-34-0	7.6 # of N	\$ 13.63
Dry Application	175	#/Acre	11-52-0 & Zinc	18.7 # of N	\$ 39.69
With Herbicide	10	Gal / Acre	32-0-0	35.4 # of N	\$ 13.27
				Total	237.9 # of N
Corn Seed	34300	Seeds / Acre			\$ 102.90
Irrigation					\$ 50.00
Herbicide - Pre					\$ 14.00
Herbicide - Post					\$ 32.00
Fungicide/Insecticide Aerial Treatment				7/15/18	\$ 36.06
NH3 Knife Application				3/4/18	\$ 16.00
Planting - Applying Starter				4/23/18	\$ 22.50
Dry Application				5/10/18	\$ 7.00
Herbicide Application - Pre					\$ 7.50
Herbicide Application - Post					\$ 7.50
Harvest Cost	\$ 0.38	per wet bushel			\$ 82.08
Hauling Cost	\$ 0.10	per wet bushel - over 5 miles			\$ 21.60
Insurance Cost	\$ 35.00	Multi Peril and Hail			\$ 35.00
Cash Rent - Estimated					\$ 300.00
TOTAL COST					\$ 853.62

West Side - JD/360YC Applied Nitrogen					
Operation	Amount	Units	Product	Actual N Applied	Per Acre Cost
At Planting	33.7	Gal / Acre	32-0-0	119.3 # of N	\$ 44.73
At Planting	5	Gal / Acre	10-34-0	5.8 # of N	\$ 10.49
Dry Application	175	#/Acre	11-52-0 & Zinc	18.7 # of N	\$ 39.69
With Herbicide	10	Gal / Acre	32-0-0	35.4 # of N	\$ 13.27
Y Drop Applicati	21.7	Gal / Acre	32-0-0	76.8 # of N	\$ 30.60
				Total	256.0 # of N
Corn Seed	34300	Seeds / Acre			\$ 102.90
Irrigation					\$ 50.00
Herbicide - Pre					\$ 14.00
Herbicide - Post					\$ 32.00
Fungicide/Insecticide Aerial Treatment				7/15/18	\$ 36.06
Y Drop Application				6/28/18	\$ 15.00
Planting - Applying Starter and Nitrogen				4/27/18	\$ 30.00
Dry Application				5/10/18	\$ 7.00
Herbicide Application - Pre					\$ 7.50
Herbicide Application - Post					\$ 7.50
Harvest Cost	\$ 0.38	per wet bushel			\$ 83.98
Hauling Cost	\$ 0.10	per wet bushel - over 5 miles			\$ 22.10
Insurance Cost	\$ 35.00	Multi Peril and Hail			\$ 35.00
Cash Rent - Estimated					\$ 300.00
TOTAL COST					\$ 881.81

Projected Profit				Nitrogen Efficiency		
Customer			YIELD	216	Total # N Applied	237.9
	Costs	\$ 853.62	Price Per Bushel	\$3.50	#N / Bushel	1.101
			Revenue	\$756.00		
	Cost / Bu	\$ 3.95	Profit	(\$97.62)		
JD/360YC	Costs	\$ 881.81	Yield - Estimated	221	Total # N Applied	256.0
			Price Per Bushel	\$3.50	#N / Bushel	1.158
			Revenue	\$773.50		
	Cost / Bu	\$ 3.99	Profit	(\$108.31)		
			Additional Profit / Acre	(\$10.70)		