

**JULY 18, 2019
HOLSUM DAIRIES
CUSTER RD & HWY BB
HILBERT, WI**

Advanced Nutrient Management Technology & Application

**Spring vs. Fall Manure Application:
Dr. Carrie Laboski, University of
Wisconsin-Madison Professor and
Extension Soil Scientist**

**Trial Walk-Through:
Standing Corn Manure Applications**

**2019 Manure Application Technology
Demonstration and Discussion**



**Conservation Professional
Training Program**



**Kapral Agronomy
Consulting LLC**



**CCASA
Calumet County
Agriculture Stewardship
Alliance**



**DEPARTMENT OF
SOIL SCIENCE
University of Wisconsin-Madison**

Section 1

John Deere 8345R and 7250 gal. Nuhn Vac Tank

No Cover Crop Incorporation

Side dress tanker application using a 7 row 30" toolbar with VT blades. Tractor and tank were also set up to run on 30" rows without damaging standing corn. In this section we applied to reach the target of 160 lbs per acre of Nitrogen which resulted in an average application of 12,778 gallons per acre. This rate of Nitrogen is achievable through automated speed variation controlled by the ManureSense technology on the tanker. As well as tracking Nitrogen, P205 (Avg. 53lbs/ac) and Ammonium (Avg. 61 lbs./ac) application can be documented as well.



Planting Date: June 8th, 2019 at target population of 35,000

Manure Application: June 26th, 2019

Data Point 1



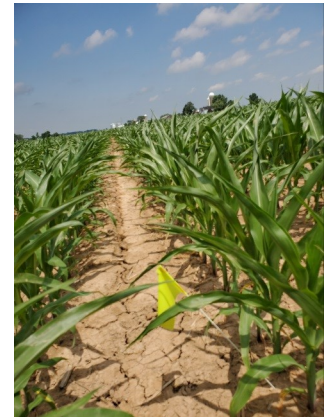
June 20th



July 1st



July 9th



July 15th

Data Point 2

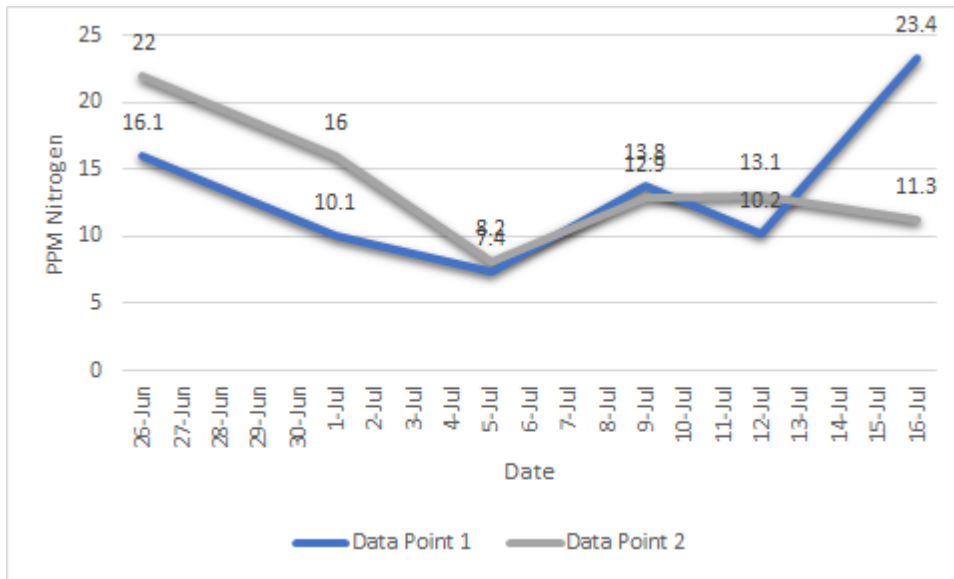


Section 1

John Deere 8345R and 7250 gal. Nuhn Vac Tank No Cover Crop Incorporation

Nitrogen Test (PPM)

Data Point	Population	Pre-Application	Post Application (AVG)	Change in Nitrogen (AVG)
1	33,000	16.1	13.50	1.46
2	35,000	22	13.92	-2.14



8345R and 7250 Nuhn set up with 30" spacing for this application, tanker is carrying a 7 row toolbar

Minimal disturbance between rows and minimal crop damage



Section 2, 4 and 6

12 row 30" Side dress Applicator

In these sections there was an application of 25 gal./ac of 32% to reach the target of 85lbs. of available N per acre. This application was repeated in between all of the other trials in order to compare to the standard method of side dress most often used to provide post emergence N.



Planting Date: June 8th, 2019 at target population of 35,000

Manure Application: June 26th, 2019

Data Point 3



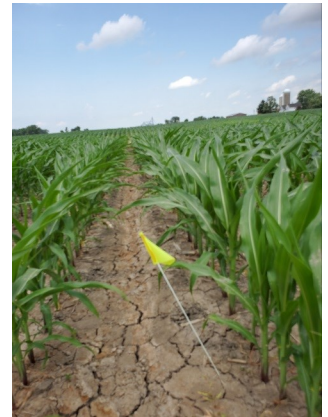
June 20th



July 1st

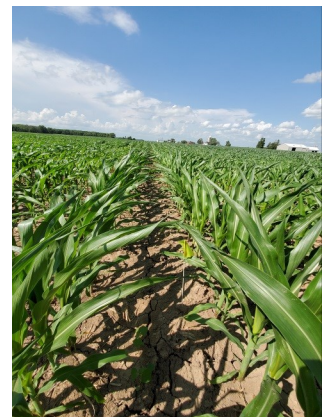


July 9th



July 15th

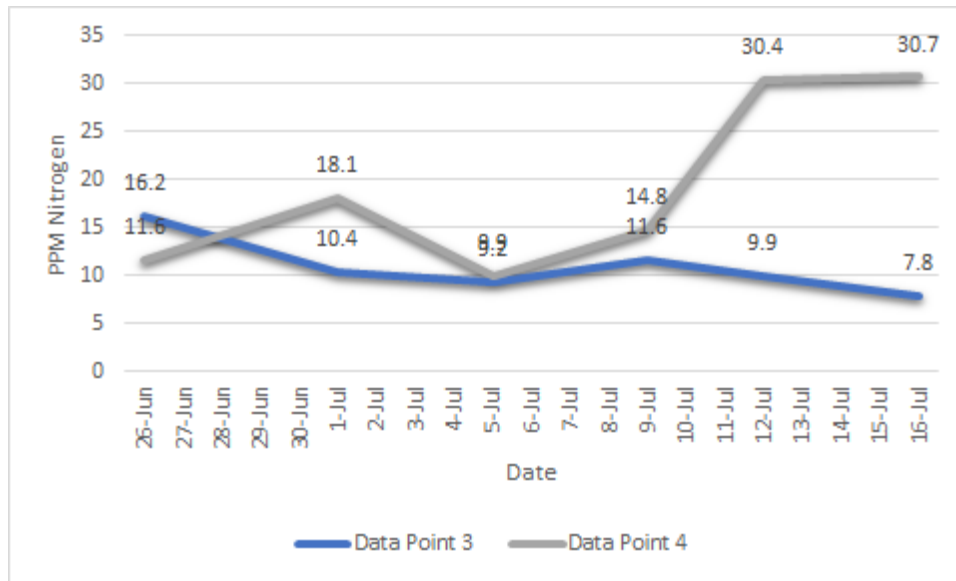
Data Point 4



Section 2, 4 and 6

12 row 30" Side dress Applicator

Nitrogen Test (PPM)				
Data Point	Population	Pre-Application	Post Application (AVG)	Change in Nitrogen (AVG)
3	35,000	16.2	10.85	-1.68
4	33,000	11.6	19.25	3.82



June 22



July 2



July 15



Section 3

John Deere 8345R and 7250 gal. Nuhn Vac Tank

Cover Crop Incorporation

Manure was applied with the tanker at a target of 8,000 gal./ac controlled by the Speed Automation function, actual applied average was 7,989 gal./ac. The application of P205, Total N and Ammonium was recorded respectively as 38 lbs/ac, 98 lbs/ac and 44 lbs/ac. Cover crop was applied through the tanker on the west 40' of the section, the other 80' had cover crop and potash broadcast on by the Coop prior to manure application.



Planting Date: June 8th, 2019 at target population of 35,000

Manure Application: June 26th, 2019

Data Point 5



June 20th



July 1st



July 9th



July 15th

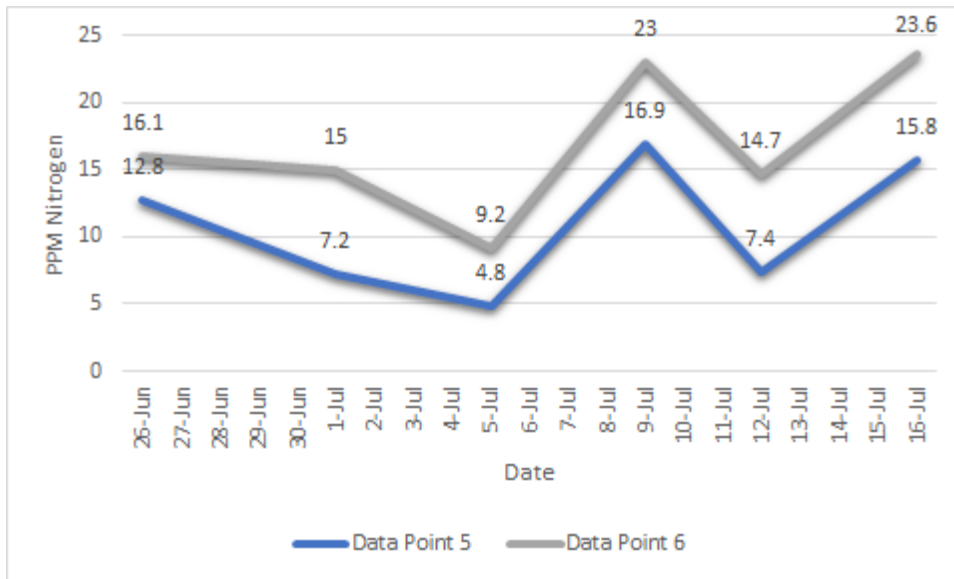
Data Point 6



Section 3

John Deere 8345R and 7250 gal. Nuhn Vac Tank Cover Crop Incorporation

Nitrogen Test (PPM)					
Data Point	Population	Pre-Application	Post Application (AVG)	Change in Nitrogen (AVG)	
5	35,000	12.8	10.82	0.6	
6	34,000	16.1	16.93	1.5	



Coop applicator used to spread on cover crop and potash prior to manure application

Ability to run cover crop through the tank and inject between rows can save trips across field



Section 5

John Deere 8345R and 7250 gal. Nuhn Vac Tank

No Cover Crop Incorporation

Manure was applied with the tanker at a target of 8,000 gal./ac controlled by the Speed Automation function, actual applied average was 8,183 gal./ac. The application of P205, Total N and Ammonium was recorded respectively as 42 lbs/ac, 98 lbs/ac and 44 lbs/ac.



Planting Date: June 8th, 2019 at target population of 35,000

Manure Application: June 26th, 2019

Data Point 9



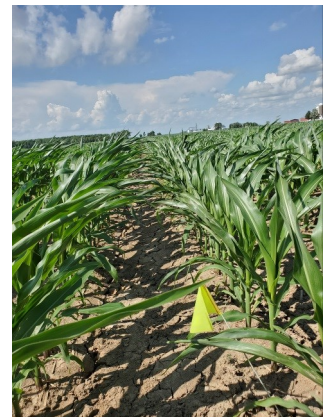
June 20th



July 1st



July 9th



July 15th

Data Point 10

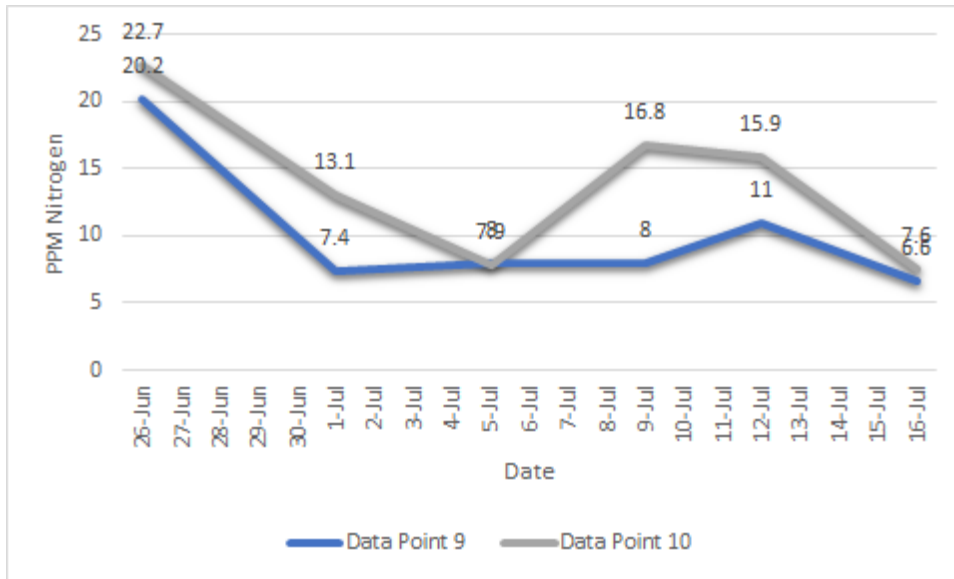


Section 5

John Deere 8345R and 7250 gal. Nuhn Vac Tank No Cover Crop Incorporation

Nitrogen Test (PPM)

Data Point	Population	Pre-Application	Post Application (AVG)	Change in Nitrogen (AVG)
9	32,000	20.2	10.20	-2.72
10	36,000	22.7	14.00	-3.02



8345R and 7250 Nuhn set up with 30" spacing for this application, tanker is carrying a 7 row toolbar

Minimal disturbance between rows and minimal crop damage



Section 7

John Deere 8345R and 7250 gal. Nuhn Vac Tank

Cover Crop Incorporation

Manure was applied with the tanker at a target of 8,000 gal./ac controlled by the Speed Automation function, actual applied average was 7,520 gal./ac. The application of P205, Total N and Ammonium was recorded respectively as 30 lbs/ac, 86 lbs/ac and 33 lbs/ac. Cover crop was applied through the tanker on the west 40' of the section, the other 80' had cover crop and potash broadcast on by the Coop prior to manure application.



Planting Date: June 8th, 2019 at target population of 35,000

Manure Application: June 26th, 2019

Data Point 13



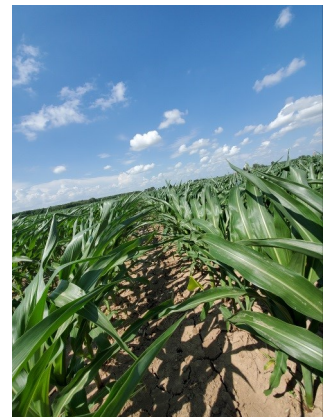
June 20th



July 1st

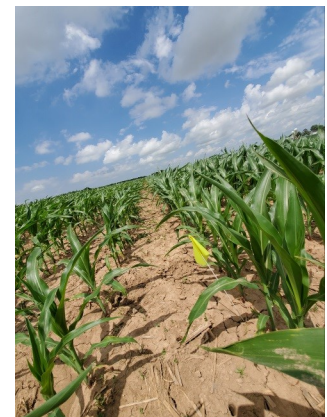


July 9th



July 15th

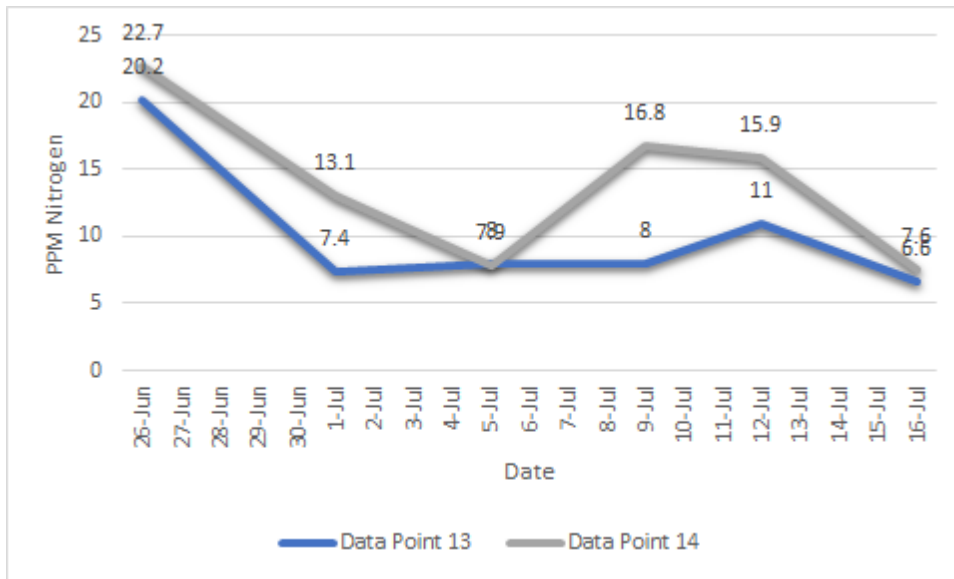
Data Point 14



Section 7

John Deere 8345R and 7250 gal. Nuhn Vac Tank Cover Crop Incorporation

Nitrogen Test (PPM)				
Data Point	Population	Pre-Application	Post Application (AVG)	Change in Nitrogen (AVG)
13	32,000	16.7	17.05	-0.12
14	34,000	12.9	9.68	-0.56



Coop applicator used to spread on cover crop and potash prior to manure application

Ability to run cover crop through the tank and inject between rows can save trips across field



Section 1, 3, 5, 7

John Deere 8345R and 7250 gal. Nuhn Vac Tank Manure Sense NIR Mapping

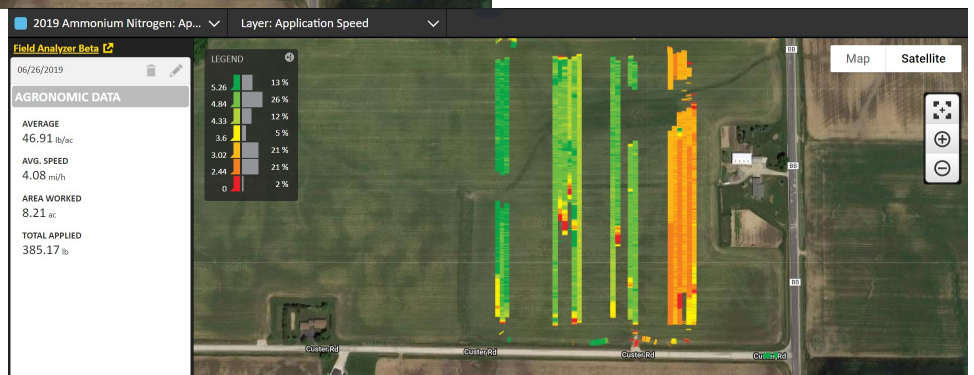
Phosphorous Application



Ammonium Nitrogen Application



Application Speed



Total Nitrogen Application



Section 8

AgroMeter SDS 8000

120' Dribble Bar

This machine carries a hose reel and its own toolbar in one unit, drives down and reverses back on one tram line. Total Application was 8,000 gals/ac, 2,000 gals S to N and 6,000 gals N to S. Two side by side passes to cover a 240' section with this machine.



Planting Date: June 8th, 2019 at target population of 35,000

Manure Application: June 26th, 2019

Data Point 15



June 20th



July 1st



July 9th



July 15th

Data Point 16

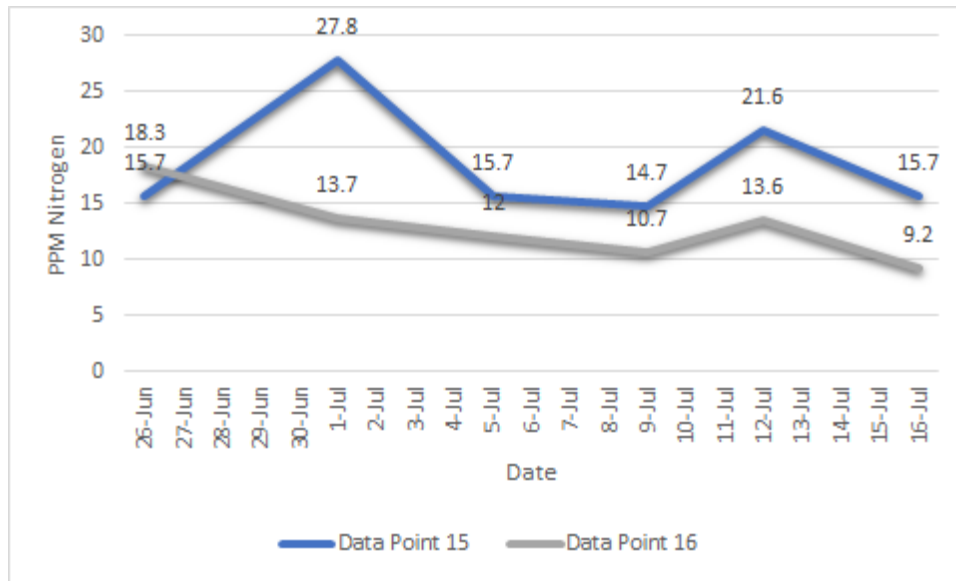


Section 8

AgroMeter SDS 8000

120' Dribble Bar

Nitrogen Test (PPM)					
Data Point	Population	Pre-Application	Post Application (AVG)	Change in Nitrogen (AVG)	
15	35,000	15.7	18.53	0	
16	33,000	18.3	10.92	0.92	



Track lanes and application from AgroMeter

July 1

July 9

June 26



Section 9

John Deere 8295R and Bazooka Toolbar with Row Units

In-row side dress

Dragline Setup for in row manure placement, toolbar and tractor on 30" row spacing in order to limit corn damage.



Planting Date: June 8th, 2019 at target population of 35,000

Manure Application: June 26th, 2019

Data Point 17



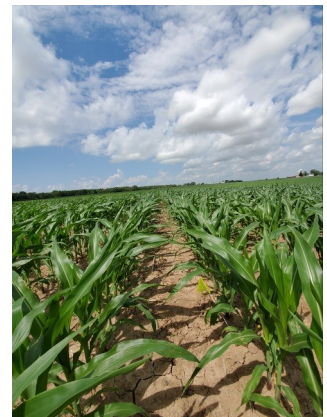
June 20th



July 1st



July 9th



July 15th

Data Point 18



June 20th



July 1st



July 9th

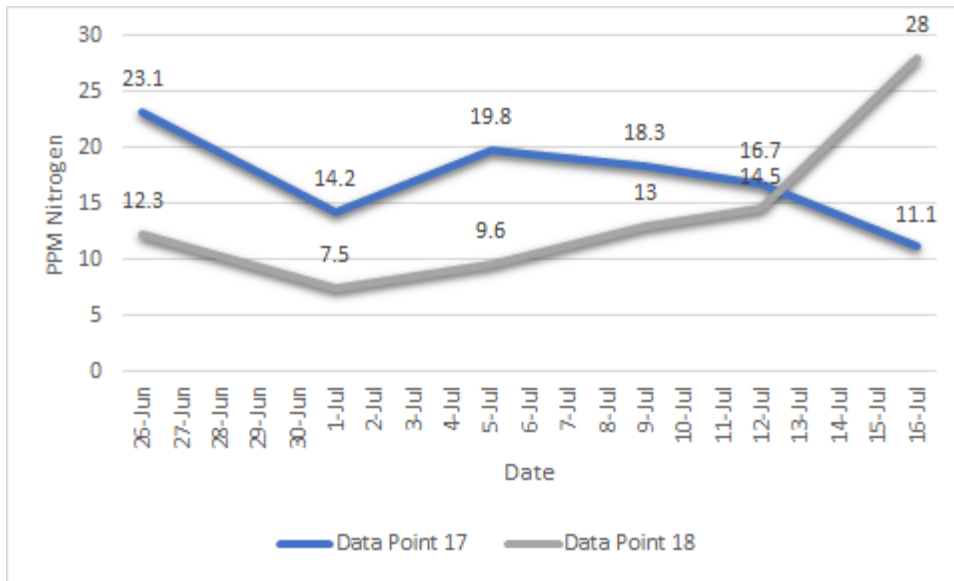


July 15th

Section 9

John Deere 8295R and Bazooka Toolbar with Row Units In-row side dress

Nitrogen Test (PPM)					
Data Point	Population	Pre-Application	Post Application (AVG)	Change in Nitrogen (AVG)	
17	35,000	23.1	17.20	-2.4	
18	33,000	18.3	14.15	3.14	



Crop damage caused by hose drag across corn

June 26



June 26



July 1



Section 10

John Deere 8370R and Bazooka Dribble Bar Traditional Dragline (Across Rows)

8370R running Michelin LSW tires carrying a 40' dribble bar
Running diagonal across the field. Target rate of application was
8000 gal./ac.



Planting Date: June 8th, 2019 at target population of 35,000

Manure Application: June 26th, 2019

Data Point 20



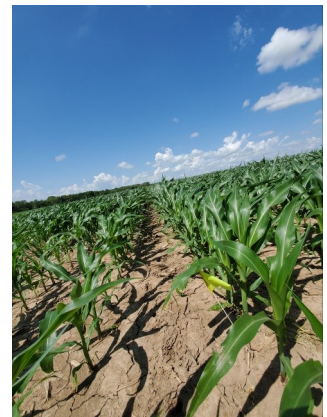
June 20th



July 1st

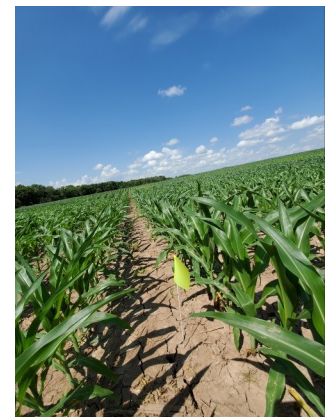
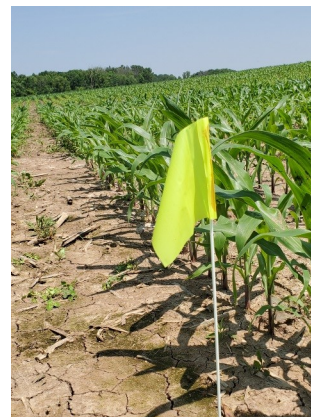


July 9th



July 15th

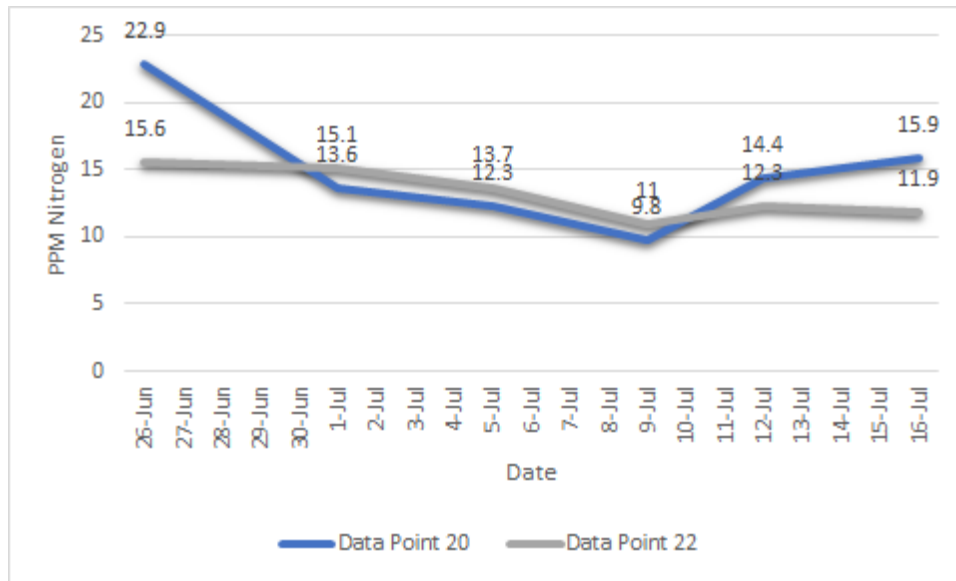
Data Point 22



Section 10

John Deere 8370R and Bazooka Dribble Bar Traditional Dragline (Across Rows)

Nitrogen Test (PPM)				
Data Point	Population	Pre-Application	Post Application (AVG)	Change in Nitrogen (AVG)
20	36,000	22.9	14.82	-1.4
22	35,000	15.6	13.27	-0.74



Crop damage caused by application with LSW tires

July 1



July 9



July 1



Section 11

John Deere 8230 and 60' Splash Bar Traditional Dragline (Across Rows)

8230 running Row Crop Tires (Dual 620's on rear, single 420 on front) carrying a 60' Splash Bar pulling diagonal across the southern half of drag setup. Target Application of 8000 gal./ac.



Planting Date: June 8th, 2019 at target population of 35,000

Manure Application: June 26th, 2019

Data Point 21



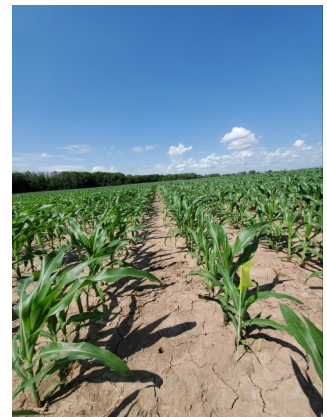
June 20th



July 1st

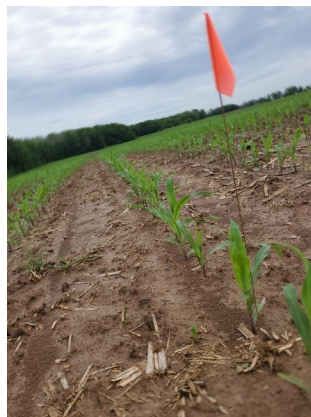


July 9th



July 15th

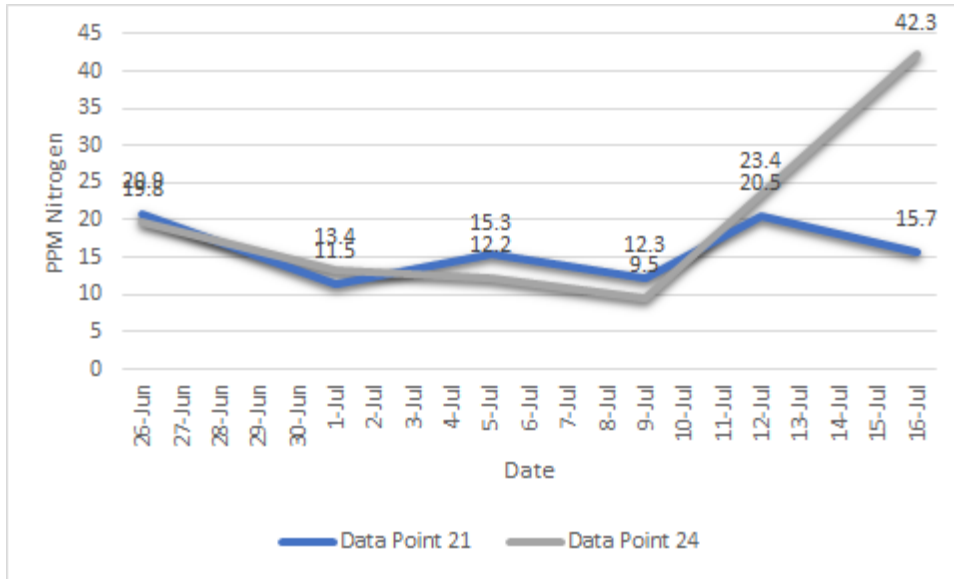
Data Point 24



Section 11

John Deere 8230 and 30' Splash Bar Traditional Dragline (Across Rows)

Nitrogen Test (PPM)					
Data Point	Population	Pre-Application	Post Application (AVG)	Change in Nitrogen (AVG)	
21	36,000	22.9	16.03	-1.04	
24	35,000	15.6	20.10	4.5	



Crop damage caused by application with Row Crop Tires and the drag hose

July 1



July 9



July 1

