

YIELD BOOK 2016 FIELD TRIAL SUMMARY

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timing matters • placement matters • coverage matters

2016 FIELD TRIALS: Heads you win. Tales you win.

At 360 Yield Center, we try to develop tools that make you money no matter the year, the weather . . . or even the market prices. Our goal, for any product we bring to market, is to give you a one-year return on your investment. Sometimes, that ROI will come from increases in yield. Sometimes, it will come from cost savings from a reduction of inputs.

The last two years have shown how this approach to product development works. In 2015, mother nature threw buckets of water over much of the corn growing regions of the US. That pushed nitrogen deep into the soil – making it unavailable to the corn plant. Mid-season nitrogen application through 360 Y-DROP fed the crop at the critical time and boosted yields by an average of 13.8 bushels per acre.

In 2016, many regions had environmental conditions – heat and moisture – that fired up the mineralization machine. This made "free" nitrogen available to the plant and reduced the need for applied nitrogen. For growers that planned for a mid-season application, they could reduce the amount of applied N and pocket the savings. In many cases, the input costs savings in 2016 were equal to the value of the yield improvement in 2015.

In this book, we have summarized the results from hundreds of trials and treatments. Some of these were conducted by our team of agronomists, some by customers and some by third parties. We don't always win these trials. But we always learn. This year, one big lesson is that if nitrogen isn't the limiting factor, then adding more N is not going to pay. In many of our tests, we simply didn't lower the applied N enough to discover how low you could go before affecting yield.

Here are a few conclusions to take away from this year's testing:

Timing matters – even in a year where nitrogen wasn't the limiting factor for many of us, corn responded to mid-season application by adding over seven bushels.

Placement matters – moving N application closer to the root mass improves effectiveness – and adds about five bushels

Coverage matters – hitting the pests where they live increases efficacy of pesticides and fungicides. Coverage of the ear leaf and underside of the leaf adds bushels.

We hope the data included here helps you make informed decisions that can improve your profitability. Of course the best tests are the ones conducted on your farm and your fields. We encourage you to put our technology to the test in your operation.

TIMING MATTERS

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Corn plants use 75% of their annual nitrogen need after V10. By waiting until mid-season, you have time to evaluate nitrate needs and apply more or less UAN to minimize costs while maintaining yield potential. N efficiency is the key. It takes 1.1 units of N to produce a bushel of corn. That's a combination of the "free" mineralized N and supplied N. Too often, we provide the full amount of needed nitrogen with our pre-plant applications. However, with strong mineralization we can get 20-50 lbs of free N. Our goal is manage nitrogen with later applications that allow us to lower the Nitrogen Use Efficiency ratio to .7. That lowers input costs while maintaining full yield potential.



TIMING MATTERS

Manning, lowa

DETAILS

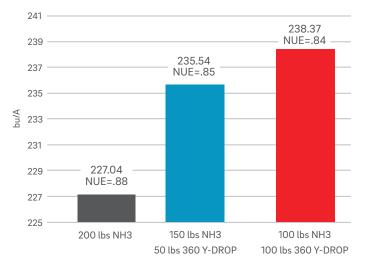
The grower compared 360 Y-DROP to typical one-and-done spring applied NH3 with the goal of evaluating timing and placement of N (keeping total N rate constant). Rates were consistent between both applications, with the only changes being in timing and placement.

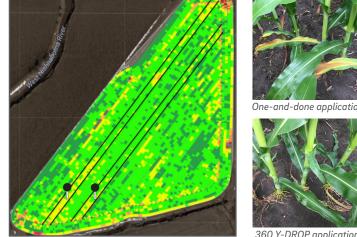
- + NH3 applied April 11th prior to planting on April 25th
- + Nitrate measurements were taken at V7 and R2
- + Application with 360 Y-DROP made at V12

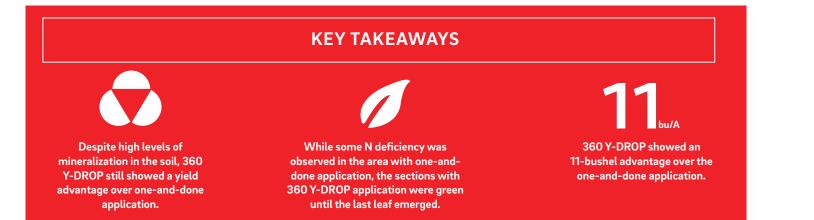
FIELD DETAILS

- + NuTech Hybrid Seed
- + 360 Y-DROP application made with John Deere 4730
- + No-till with a corn/bean rotation

RESULTS

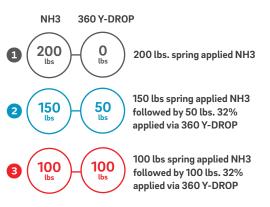






METHODS

3 TREATMENTS THROUGHOUT THE FIELD



Northern Illinois

DETAILS

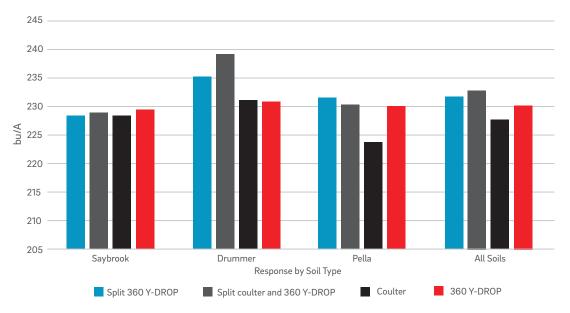
+ Treatments: 80' (4 harvest strips) across field

+ All treatments had 53 lbs N + 8 lbs S banded (183 lbs N, 24 lbs S total for the year)

METHODS

- 1 V6: 65lbs N + 8lbs S 360 Y-DROP fb 65lbs N +
- V12: 8 lbs S 360 Y-DROP
- V6: 65lbs N + 8lbs S coulter fb 65lbs N + V12: 8 lbs S 360 Y-DROP
- **3** V6: 130 lbs N + 16lbs S coulter

4 V6: 130 lbs N + 16lbs S 360 Y-DROP





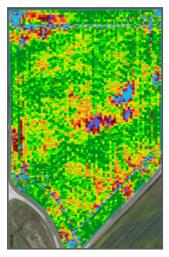
6 2016 YIELD BOOK ----



RESULTS

Analysis of soil type response to different applications:

- + Saybrook: silt loam, good OM, decent mineralization, well drained
- + Drummer: silty clay loam, more poorly drained, similar OM and poorer mineralization compared to the saybrook
- + Pella: clay loam, decent OM, poorly drained, heavier clay content than saybrook
- **1** Split 360 Y-DROP = 231.89 bu/A
- 2 Split coulter and 360 Y-DROP = 232.86 bu/A
- 3 Coulter = 228.03 bu/A
- 4 360 Y-DROP = 230.19 bu/A



TIMING MATTERS

Bringhurst, Indiana

DETAILS

The grower, Brenton Peters, ran a comparison of an all pre-plant nitrogen program versus a base plus program with 360 Y-DROP.

METHODS

PRE-PLANT PROGRAM

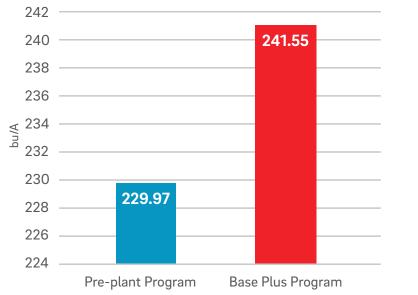
180 lbs NH3 + 75 lbs with planter

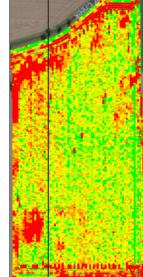
TOTAL N = 255 LBS

BASE PLUS PROGRAM 1 75 lbs with planter 2 105 lbs. with 360 Y-DROP TOTAL N = 180 LBS

RESULTS

Trials showed an average of 11 bu/A advantage with 360 Y-DROP with less total N applied.







Cumberland County, Illinois

DETAILS

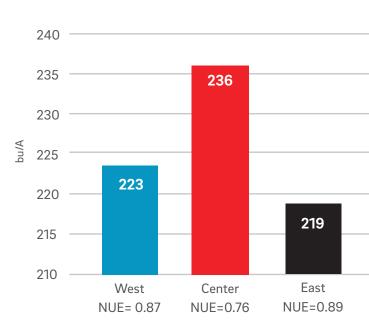
The grower ran a comparison of pre-plant followed by sidedress applications versus pre-plant, sidedress and an additional 360 Y-DROP application with less N applied overall.

METHODS



RESULTS

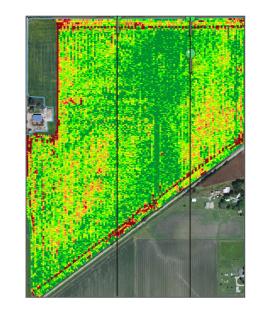


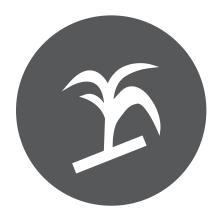






EAST **1** 60 lbs 32% W&F 2 Sidedress 195 lbs of NH3 at V5 TOTAL N = 255 LBS





PLACEMENT MATTERS

Once you understand that nitrogen moves vertically – not laterally – it is easy to understand why it is critical to place nitrogen as close to the root zone as possible. Only about 30% of broadcast urea lands over the root zone. And with coulter application systems, roots must grow into the nitrogen channel that sits 15" away from the corn plant – that takes time and moisture. Improved efficiency and rapid response comes from placement directly over the root mass.



Tremont, Illinois

DETAILS

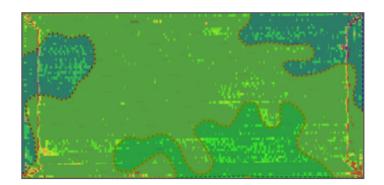
In this trial the grower compared other management strategies to 360's Base Plus approach.

Coulter applications were made at V8 as that was the latest time the grower could get into the field with the coulter bar. With a dry June and high mineralization rates, nitrogen wasn't needed at that time. An application with 360 Y-DROP was also made at V8 to compare placement of N as well.

360 SOILSCAN was used to pull nitrates until results got below 10 ppm at V12 at which point the grower decided to apply additional N with 360 Y-DROP.

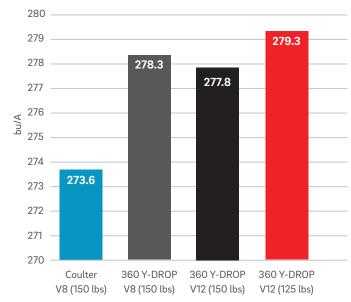
RESULTS

Strip 1: V8 Coulter (150 lbs.) = 273.6 bu/ac Strip 2: V8 360 Y-DROP (150 lbs.) = 278.3 bu/ac Strip 3: V12 360 Y-DROP (150 lbs.) = 277.8 bu/ac Strip 4: V12 360 Y-DROP (125 lbs.) = 279.3 bu/ac



METHODS

- 1 Base 25 lbs. broadcast weed and feed incorporated with turbo chopper, 60 lbs. planter applied 2x2x2
- **2** V6 and V8: Soil sampling with 360 SOILSCAN
- **3** V8: Strip 1: Coulter 150 lbs; Strip 2: 360 Y-DROP 150lbs
- 4 V10 and V12: Soil sampling with 360 SOILSCAN
- **5** V12: Strip 3: 360 Y-DROP 150 lbs; Strip 4: 360 Y-DROP 125 lbs



KEY TAKEAWAYS 5 **360** SOILSCAN Δ 360 SOILSCAN allowed the grower Placement of nitrogen with 360 The Base Plus approach allowed Y-DROP resulted in an average of 5 to measure in season and adjust the grower to make an additional application later in the growing bu/A more than coulter. nitrogen rates. season when the crop needed it most.

Waldron, Michigan

DETAILS

In this trial the grower, Stan Smith, compared applications right by the corn row to apps that were made 15" from the plant at V9. 360 Y-DROP was used to place nitrogen within 1" of the base of the plant. The 360 Y-DROP hoses were then tied together to place nitrogen 15" away, in the middle of the row, to imitate a regular drop.

FIELD DETAILS

- + Soybean prior crop
- + 3% OM
- + Sandy loam
- + No rain for 1.5 months after planting
- + Good mineralization, no early season losses, and lower yield potential than previous year

METHODS

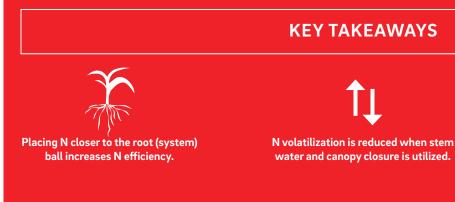
1 65 lbs N at planting 28% W&F broadcast

2 105 lbs N at V9 28% and ATS

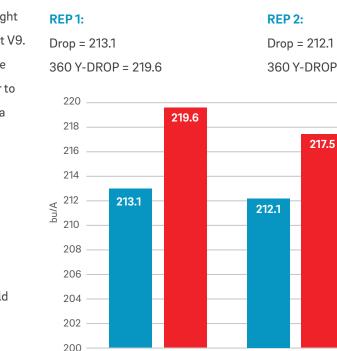




DROP







Drop 360 Y-DROP

REP 1

RESULTS

Drop = 212.1 360 Y-DROP = 217.5

Drop 360 Y-DROP REP 2







360 Y-DROP



Placement of nitrogen with 360 Y-DROP resulted in a 5-6 bu/A advantage over placement in the center of the row.

PLACEMENT MATTERS

Tazewell Country, Illinois

DETAILS

The grower compared in-season nitrogen application of urea with spinner box at V8 vs. 360 Y-DROP at V12. Consistent application rates were used, with the only changes being in timing, product, and application method.

NOTE: This year, the environment was extremely favorable for mineralization of organic matter, leaving a lot of natural N readily available to the crop. Because of this, no application was made at V4 or V6 stages.



25# of N broadcast

Planting and 60# of N 2x2 application

METHODS

RESULTS

255

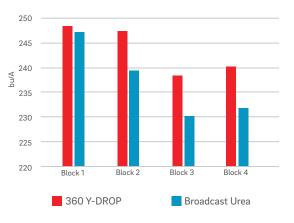


+ V8 measurement: 15ppm of nitrates. 125# of N was applied in the form of urea with urease inhibitor.

NOTE: 2 days after application, the area received 0.2" of rain favoring incorporation of Urea into soil, and reducing volatilization (loss of N into atmosphere).

360 Y-DROP APPLICATION

+ V12 measurement: 12ppm. 125# of N in the form of UAN with urease inhibitor was applied.



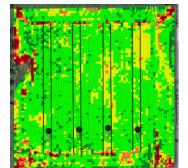
Application



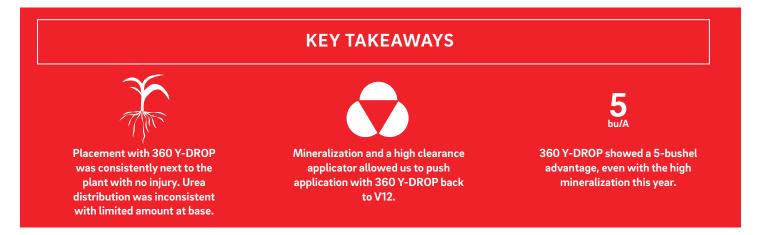
Distribution of urea can be erratic due to size of granular, wind, and other variables.



Granules inside the whorl caused leaf burning.



P Denotes Urea Strir



adel, lowa DETAILS

The whole field received 160 lbs. N in the fall (NH3) and 50 lbs. spring W&F. The grower left a check strip, but on each side of the check strip he applied 50 units of nitrogen. On one side the in season pass was made via 360 Y-DROP at V10 and the other was top dress urea at V8.

There was a yield advantage to both applications, however the Urea application did not pay for itself as the 360 Y-DROP pass did. Placement of nutrients matters in this plot. (Tests conducted by Agrivision)

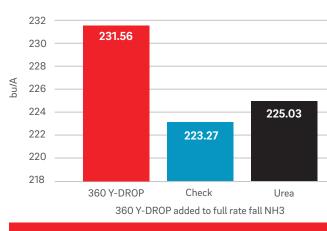
METHODS

1 Fall NH3 160 lbs + 50 lbs W&F

2 50 lbs. applied with 360 Y-Drop and Urea

ACHESON

Rx	Yield	ROI for N
360 Y-DROP	231.56	\$704.66
Check	223.27	\$698.15
Urea	225.03	\$684.31







grimes, lowa

DETAILS

In both plots the grower applied 150 lbs. of fall NH3. Check strips were left and compared to a 360 Y-DROP rate of 60 lbs. at V10. Both farms saw a phenomenal amount of mineralization, but 360 Y-DROP still showed a yield response in both applications. (Tests conducted by Agrivision)

METHODS

Usually Fall applied one-and-done NH3 150 lbs

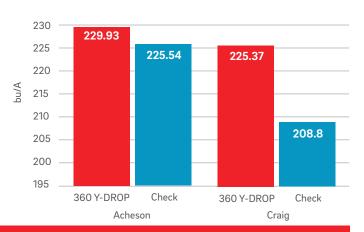
2 60 lbs. applied with 360 Y-Drop

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A	C I	-0	U	

Rx	Yield	ROI for N	Difference
360 Y-DROP	229.93	\$710.26	\$11.64
Check	225.54	\$721.89	\$11.04

CD	A 1/	C
CR.	AI	9

Rx	Yield	ROI for N	Difference
360 Y-DROP	225.37	\$694.30	¢21.00
Check	208.8	\$663.30	\$31.00



COVERAGE MATTERS

For optimum pest control, you have to hit the target. For fungicides, that means reaching the top and bottom of the ear leaf. For insecticides, it means getting deep into the canopy and the undersides of the leaves – where the pests live. Those are difficult areas for aerial applicators to hit. Look at the coverage differences on the bottom of the ear leaf between 360 UNDERCOVER (left) and aerial application.

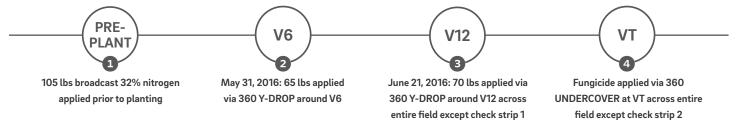




COVERAGE MATTERS

Philo, Illinois DETAILS

The grower, Steve Hettinger, left two check strips in the test field. The first strip measured the value received from applying nitrogen during the rapid growth period of the corn plant, at V12 via 360 Y-DROP. The second check strip was left to learn how 360 UNDERCOVER affected plant health with fungicide at VT.



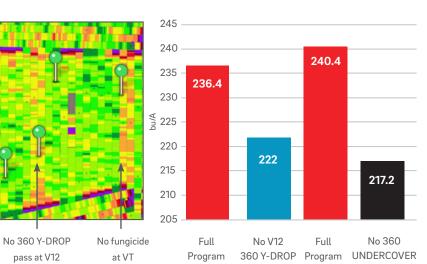
360 Y-DROP and 360 UNDERCOVER.

field except check strip 2

METHODS

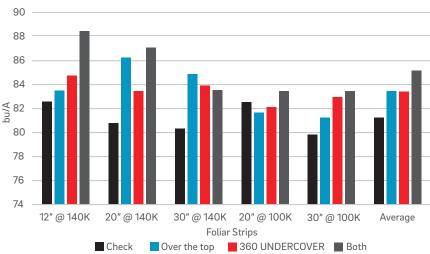
RESULTS

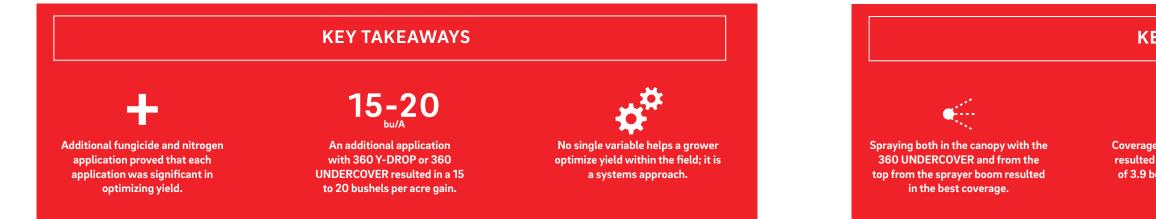
- 105 lbs broadcast 32% applied S
- **GR 2** V6: 65 lbs N applied via **360 Y-DROP**
- 20 **3** V12: 70 lbs N applied via **360 Y-DROP**
- 3 4 VT: Fungicide applied via 360 UNDERCOVER
- 105 lbs broadcast 32% applied
- TRI 2 V6: 65 lbs N applied via 360 Y-DROP
- Š **NO V12 NITROGEN APPLICATION**
- ц С **4** VT: Fungicide applied via 360 UNDERCOVER
- № 105 lbs broadcast 32% applied
- STRIP **2** V6: 65 lbs N applied via 360 Y-DROP
- S 3 V12: 70 lbs N applied via 360 Y-DROP
- 한 NO VT FUNGICIDE APPLICATION



The grower, Steve Hettinger, saw an 15-20 bu/A advantage with the full program of

RESULTS





Tremont, Illinois DETAILS

The grower used 360 UNDERCOVER on a 60 ft. Miller syst This soybean field had multiple row spacings (12",20",30") populations (100,000 and 140,000) to study application ef in multiple management strategies.

Insecticide, fungicide, and a foliar fertilizer containing Mn,Z S was applied.

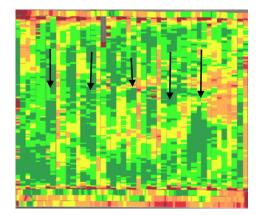
A check strip was left in each row spacing and each popula Strips included 360 UNDERCOVER in the canopy, above th canopy with the regular spray boom, and a combination of both in and above the canopy.



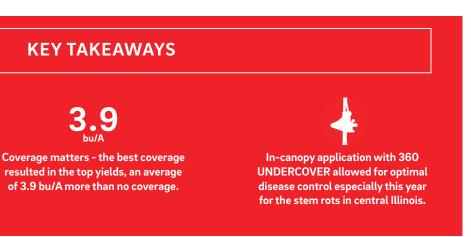


METHODS

stem.	$\ensuremath{\mathfrak{S}}$ The field was set in blocks with four application strips in each.
) and	igstarrow Blocks started from the west:
effects	+ 12" @ 140,000
	+ 20" @ 140,000
Zn, and	+ 30" @ 140,000
	+ 20" @ 100,000
ation.	+ 30" @ 100,000
:he	
f both in	



Arrows point to above and below applications with 360 UNDERCOVER.



COVERAGE MATTERS

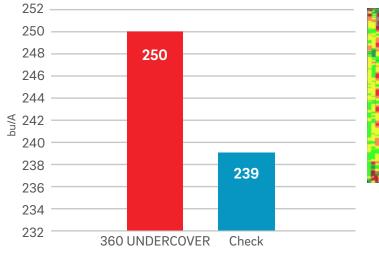
Danville, Illinois **DETAILS**

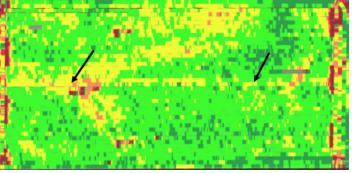
On this farm, the nitrogen program included 120 lbs pre-plant/incorporated + 75 lbs applied via 360 Y-DROP so nitrogen was not a limiting factor. The grower, Mark Shortz, used a Hagie STS and 360 UNDERCOVER to apply Headline Amp at brown silk (R1) and a check strip was left through the middle of the field.

METHODS

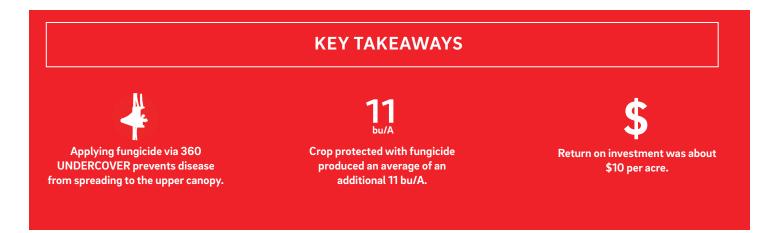
- Headline Amp applied via 360 UNDERCOVER at R1
- Check strip left through the middle of the field

RESULTS





Arrows indicate check strip



Moweaqua, Illinois

DETAILS

On these farms, the grower, Aaron Downs, used a Hagie equipped with 360 UNDERCOVER to apply Headline Amp fungicide in Corn at VT and Priaxor in Soybeans at R2. Check strips were left within each field to study how plant health affects crop yields.

METHODS

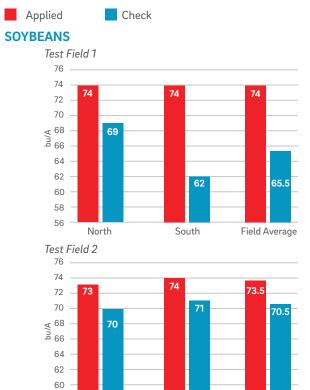
- S Corn Field: Headline Amp 12 oz/A applied via 360 UNDERCOVER at VT
- Soybean Fields: Priaxor 4 oz/A applied via 360 UNDERCOVER at R2

RESULTS

58

56

East



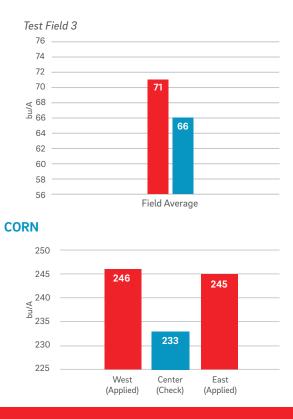
West



Field Average



ERCOVER at VT



KEY TAKEAWAYS



North Central Research Station - 2016

AGROLIQUID[®] NITROGEN METHOD OF APPLICATION COMPARISON

Stephanie Zelinko | Field Agronomy Research Manager







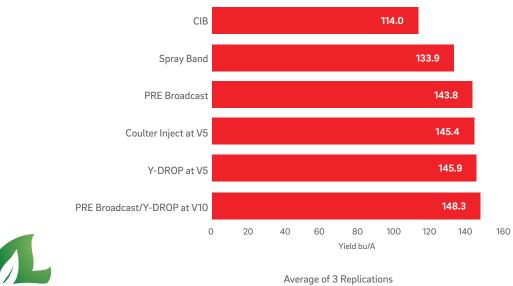
360 Y-DROP

Sidedress

RESULTS

Product	2015	2016	Average
Pre-Emergence	125.3	136.0	130.7
Sidedress at V5	133.7	148.2	141.0
1/3 PRE; 2/3 SD V5	128.5	141.4	135.0
1/3 PRE; 2/3 YD V5	141.4	154.9	148.2
/3: PRE; SD V5; SD V10	128.8	148.7	138.8
I/3: PRE; SD V5; YD V10	130.7	133.8	132.3

NITROGEN METHODS OF APPLICATION COMPARISON



AGROLIQUID.

AGROLIQUID® FOLIAR APPLICATIONS ON CORN AT VT

Stephanie Zelinko | Field Agronomy Research Manager

DETAILS

Water sensitive spray paper was placed within the corn canopy to evaluate (1) how far into the canopy sprayed product penetrated and (2) how much of the leaf's surfaces the applied product covered. Spray paper was placed vertically on the stalk of the corn plant from the top to just below the ear leaf to determine penetration. Additionally two pieces of the spray paper were placed on the center of the leaf, one on the top leaf surface and one on the underside, to observe spray coverage. Applications using three nozzle types were made: flat fan, Turbo TwinJet® and 360 UNDERCOVER® Turbo TeeJet nozzles. A total of 10 gal/A at 40 psi was applied.

FLAT FAN NOZZLES

DEPTH INTO CANOPY

LEAF SURFACE COVERAGE





of surface

RESULTS

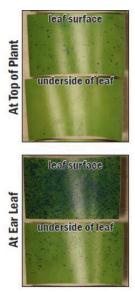
V5 Treatments	2015
No Foliar Application	194.7
2 gal ferti-Rain (BC)	201.2
2 gal ferti-Rain (UC)	212.9
2 gal fR+ Headline (BC)	210.5
2 gal fR+ Headline (UC)	218.7

INDUSTRY DATA

360 UNDERCOVER

DEPTH INTO CANOPY

LEAF SURFACE COVERAGE



2016	Average
161.4	178.1
165.3	183.3
167.5	190.2
171.9	191.2
171.1	194.9 AGROLIQUID

Kentucky, Central Illinois, Ohio **2016 BECK'S PRACTICAL FARM RESEARCH NITROGEN PLACEMENT STUDY - SIDEDRESS**

PURPOSE

To evaluate a traditional sidedress application versus a 360 Y-DROP at the V5 growth stage and their effect on yield.

2016 RESULTS

V5 Treatments	Percent Moisture	bu/A	bu/A Difference
Control: Sidedress Applicator	20.6	216.5	
360 Y-DROP	20.3	222.0	+5.5

Individual results may vary

The multi-year and multi-location nitrogen (N) timing study has shown that split applications of N pay. This study takes it a step further by testing to see if there is a difference in where in-season N is placed. The 360 Y-DROP® averaged 5.5 bu/A more than the traditional sidedress applicator. The 360 Y-DROP had the edge at all three locations where this study was conducted. The largest increase was Central IL at 14.2 bu./A. They also had the highest yield with 264 bu./A. in this study. Nitrogen can be applied within 2 to 3 in. of the stalk base with the 360 Y-DROP as compared to a traditional sidedress applicator which places it approximately 15 in. from the stalk base. This data shows that placement of in-season N affects yield. I recommend optimizing your in-season applications of N by placing it as close to the base of the stalk as possible.

Greg Shepherd | Beck's Field Agronomist

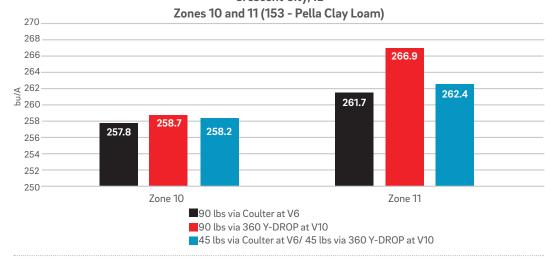
Heyworth, Illinois **CROPTECH CONSULTING INC. MULTIPLE 360 Y-DROP PLOTS**

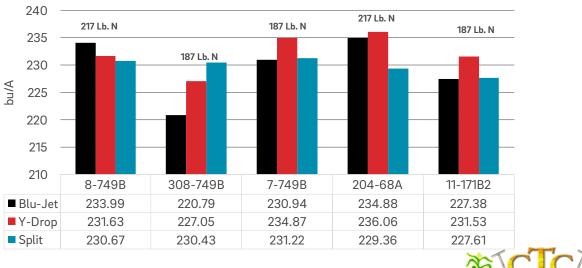
DETAILS

110 lb N Pre-plant, 30 lb N Starter followed by one of three of the following applications:

- Strip One: 90 lbs via Coulter Sidedress at V6
- Strip Two: 90 lbs via 360 Y-DROP at V10
- Strip Three: 45 lbs via Coulter at V6 followed by 45 lbs via 360 Y-DROP at V10

2016 RESULTS







INDUSTRY DATA

Crescent City, IL

Clinton, IL 2016 Y-DROP Plot 2540





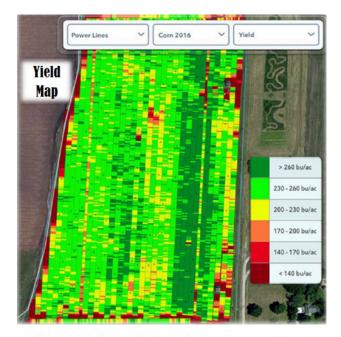
South Farms -Bloomington, Illinois **FS MIFIELD** FOCUS TRIAL 360 Y-DROP

DETAILS

The trial compared nitrogen timings and placements to the base treatment of 27# of N (DAP), 150# N PPI (UAN), and 60# N (Urea) at V8. 360 Y-DROP UAN applications where made at 60# of N to have a consistent 237# of total nitrogen between trials. Foliar treatments looked at variables of plant health with fungicide, insecticide, and micro-nutrients utilizing advanced placement of 360 UNDERCOVER.

2016 RESULTS

Trial	Percent Moisture	%	Yield
1	V10 UAN	19.8	239.1
2	V10 UAN + VT Headline Amp and Hero	20.4	242.1
3	V10 UAN + VT Headline Amp, Hero, Boron	20.6	243.6
4	Urea V8	20.0	235.8
5	V10 UAN	19.7	231.7
6	V10 UAN + VT Headline Amp and Hero	20.7	260.8
7	V10 UAN + VT Headline Amp, Hero, Boron	20.9	263.2



"In my opinion the yield gap was a lot larger than the final numbers show. The difference in the overall plant health left an impression. It appeared to be a different hybrid with a longer maturity. We will definitely be interested in exploring more acres with Y-DROP and UNDERCOVER on our farm in the future."

> Jeff Lynch -Grower-



UNIVERSITY OF ILLINOIS ¹⁵N 360 Y-DROP 2016 DATA

Credit: Kelsey Griesheim, Dr. Richard L Mulvaney, and Tim Smith at Crop Smith Inc.

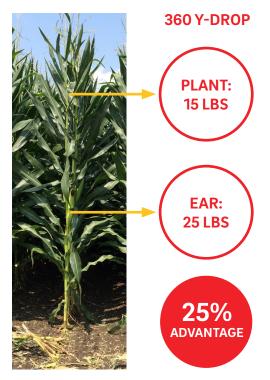
DETAILS

360 Yield Center partnered with the University of Illinois using a tracer ion in a nitrogen solution called ¹⁵N to compare uptake efficiencies from various in season nitrogen applications. In this particular study an application of 100 lbs. was broadcast applied prior to planting. When the crop approached V8 all applications of 100 lbs. were made with the ¹⁵N ion tracer incorporated in the UAN solution.

METHODS

- 100 lbs N broadcast pre-plant
- **2** 100 lbs 15 N at V8 via one of the three application methods:
 - Treatment 1: 360 Y-DROP every row
 - Treatment 2: 360 Y-DROP every other row
 - Treatment 3: Coulter

This protocol was replicated three times within the plot to verify the results.

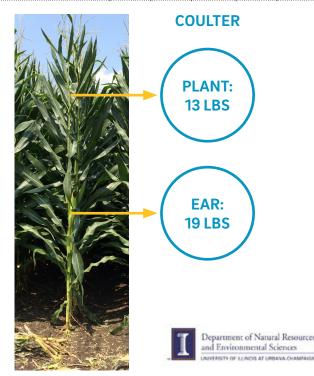




2016 RESULTS

Based on efficiencies the 360 Y-DROP (every row) was 11% more efficient at getting N into the plant than 360 Y-DROP every other row and 25% more efficient than coulter.

Percent Recovery of Fertilizer ¹⁵ N					
Treatment Method	Total lbs	Grain	Stover	Total	Loss
360 Y-DROP (every row)	100	25	15	40	
360 Y-DROP Single Hose (every other row)	100	22	13	36	-11%
Coulter (center row)	100	19	13	32	-25%



Multiple Locations	(llinois	
WINFIELD®	Location	Trial Type
2016 SPLIT NITROGEN APPLICATION RESULTS		

TREATMENTS

Rates based on location needs:	Cu
Base Rate + Y-Drop at V10-V12	
Base Rate + Side-dress at V4 - V5	
15 LOCATIONS	
Rates based on location needs:	
2@80	
1@90	
6 @ 100	
6 @ 110	

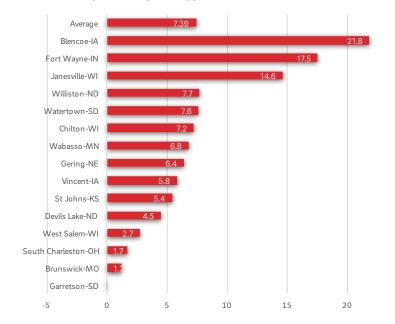
25

2016 RESULTS

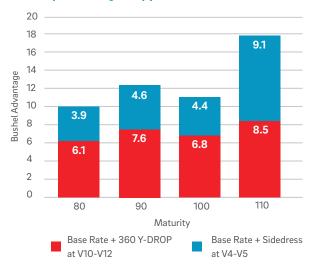
7.4 bu/A advantage to the V10 360 Y-DROP split application

5.5 bu/A response to the V4 Sidedress application

Location response to split N application at V10



2016 Split Nitrogen Application



Location	Trial Type	Strip Details	Total N	Yield
		Timing		
Duin alcount II	360 Y-DROP vs.	Pre-plant 180 lbs Anhydrous Ammonia via AA Knife, Planter 75 lbs UAN	255	241.6
Bringhurst, IL	Pre-plant and Planter	Planter 75 lbs UAN, 105 lbs UAN via 360 Y-DROP	180	230.0
	Sidedress NH3 vs.	Pre-plant 60 lbs UAN 32% Broadcast, Sidedress 195 lbs Anhydrous Ammonia via AA Knife	255	221.0
Cumberland County, IL	Sidedress NH3 + 360 Y-DROP	Pre-plant 60 lbs UAN 32% Broadcast, Sidedress 125 lbs Anhydrous Ammonia via AA Knife, 55 lbs UAN 32% via 360 Y-DROP	240	236.0
		Pre-plant 105 lbs UAN 32% Broadcast, 65lbs UAN 32% via 360 Y-DROP at V4-V6, 70 lbs UAN 32% via 360 Y-DROP at V12	240	238.4
Philo, IL	Late Season Additional N	Pre-plant 105 lbs UAN 32% Broadcast, 65lbs UAN 32% via 360 Y-DROP at V4-V6	170	222.0
T	360 Y-DROP V12 vs.	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 125 lbs UAN 32% via 360 Y-DROP at V12	210	254.0
Tremont, IL	360 Y-DROP VT	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 125 lbs UAN 32% via 360 Y-DROP at VT	210	249.8
		Placement		
		Pre-plant 164 lbs Anhydrous Ammonia and N-serve via AA Knife, 46 lbs Urea Broadcast and Agrotain Ultra stabilizer at V12	210	208.0
Bond County, IL	360 Y-DROP vs. Urea	Pre-plant 164 lbs Anhydrous Ammonia and N-serve via AA Knife, 46lbs UAN 28% via 360 Y-DROP at V18	210	213.1
		Pre-plant 120 lbs UAN Broadcast/Worked in with field finisher, 75 lbs UAN via 360 Y-DROP at V12	195	238.1
Danville, IL	360 Y-DROP vs. Coulter	Pre-plant 120 lbs UAN Broadcast/Worked in with field finisher, 75 lbs UAN via Coulter at V12	195	238.3
		Base Rate 100 lbs N, 110 lbs UAN 32% via Coulter at V4, No Stabilizer	210	241.7
Morrisonville, IL	360 Y-DROP vs. Coulter	Base Rate 100 lbs N, 110 lbs UAN 32% via Coulter at V4, Stabilizer	210	245.9
Morrisonville, IL	Sour-Drop vs. Couller	Base Rate 100 lbs N, 110 lbs UAN 32% via 360 Y-DROP at V12, No Stabilizer	210	246.8
		Base Rate 100 lbs N, Coulter 110 lbs UAN 32% at V4, No Stabilizer	210	234.1
Morrisonville, IL	360 Y-DROP vs. Coulter	Base Rate 100 lbs N, Coulter 110 lbs UAN 32% at V4, Stabilizer	210	232.9
		Base Rate 100 lbs N, 360 Y-DROP 110 lbs UAN 32% at V12, No Stabilizer	210	235.7
		53 lbs N + 8 lbs S Planter, 65 lbs UAN + 8 lbs S via 360 Y-DROP at V6, 65 lbs UAN + 8 lbs S via 360 Y-DROP at V12	183 lbs N 24 lbs S	231.9
Northern, IL	360 Y-DROP vs. Coulter	53 lbs N + 8 lbs S Planter, 65 lbs UAN + 8 lbs S via Coulter at V6, 65 lbs UAN + 8 lbs S via 360 Y-DROP at V12,	183 lbs N 24 lbs S	232.9
		53 lbs N + 8 lbs S Planter, 130 lbs UAN + 16 lbs S via Coulter at V6	183 lbs N 24 lbs S	228.0
Northern, IL	360 Y-DROP vs. Coulter	53 lbs N + 8 lbs S Planter, 130 lbs UAN + 16 lbs S via 360 Y-DROP at V6	183 lbs N 24 lbs S	230.2
T		Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 150 lbs UAN 32% via Coulter at V8	235	273.6
Tremont, IL	360 Y-DROP vs. Coulter	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 150 lbs UAN 32% via 360 Y-DROP at V8	235	278.3
		Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 150 lbs UAN 32% via 360 Y-DROP at V8	235	274.3
Tremont, IL	360 Y-DROP vs. Coulter	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 150 lbs UAN 32% via 360 Coulter at V8	235	271.9
		Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 150 lbs UAN 32% + Limus Stabilizer via 360 Y-DROP at V8	235	272.9
Tremont, IL	360 Y-DROP vs. Urea	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 125 lbs UAN 32% + Urease Inhibitor via 360 Y-DROP at V12	210	243.5
		Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 125 lbs Urea + Urease Inhibitor Broadcast at V8	210	237.1

WINFIELD

EXTENDED FIELD TRIAL DATA

Illinois (continued)

Location	Trial Type	Strip Details	Total N	Yiel
		Coverage		
	Fungicide via 360	Headline AMP via 360 UNDERCOVER at R1		250.0
Danville, IL	UNDERCOVER vs. No Fungicide Crop = Corn	Check - No Fungicide		239.
	Data and Courses	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 150lbs UAN 32% via 360 Y-DROP at V10, 16 GPA Headline AMP via 360 UNDERCOVER at VT	235	271.
Delevan, IL	Rate and Coverage	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 100lbs UAN 32% via 360 Y-DROP at V10, 50 lbs UAN & 16 GPA Headline AMP via 360 Y-DROP and 360 UNDERCOVER at VT	235	273.
Lenzburg, IL	360 UNDERCOVER vs. Over the top (OTT)	Pass 1: Hybrid: W7506DGRIB; 20 GPA Trivapro 360 UNDERCOVER and OTT, 17.3 Moisture		194.
-	Crop = Corn	Pass 2: Hybrid: W7506DGRIB; 20 GPA Trivapro OTT, 17.1 Moisture		184.
Lenzburg, IL	360 UNDERCOVER vs. Over the top (OTT)	Pass 1: Hybrid: W7456RIB; 20 GPA Trivapro 360 UNDERCOVER and OTT, 17.2 Moisture		196.
	Crop = Corn	Pass 2: Hybrid: W7456RIB; 20 GPA Trivapro OTT, 17.8 Moisture		194
Lenzburg, IL	360 UNDERCOVER vs. Over the top (OTT)	Pass 1: Hybrid: W7696RIB; 20 GPA Trivapro 360 UNDERCOVER and OTT, 16.4 Moisture		206
	Crop = Corn	Pass 2: Hybrid: W7696RIB; 20 GPA Trivapro OTT, 16.8 Moisture		213
	Moweaqua, IL 360 UNDERCOVER vs. Check Crop = Corn	12 oz/ac Headline AMP via 360 UNDERCOVER		246
Moweaqua, IL		Check		233
·		12 oz/ac Headline AMP via 360 UNDERCOVER		245
	360 UNDERCOVER vs. Check	12 oz/ac Headline AMP via 360 UNDERCOVER		234
Moweaqua, IL	Crop = Corn	Check		224
	360 UNDERCOVER vs. Check	Check		70.
Moweaqua, IL	Crop = Soybeans	4 oz/ac Priaxor via 360 UNDERCOVER		73.
	360 UNDERCOVER vs. Check	Check		65.
Moweaqua, IL	Crop = Soybeans	4 oz/ac Priaxor via 360 UNDERCOVER		74.
AA	360 UNDERCOVER vs. Check	Check		66.
Moweaqua, IL	Crop = Soybeans	4 oz/ac Priaxor via 360 UNDERCOVER		71.
	360 UNDERCOVER vs. Over	Hybrid: W7506DGRIB; 20 GPA Trivapro via 360 UNDERCOVER and OTT		203
New Athens, IL	the top (OTT)	Hybrid: W7506DGRIB; 20 GPA Trivapro via OTT		209
	Crop = Corn	Hybrid: W7456RIB; 20 GPA Trivapro via OTT		209
New Athene II	Trivapro vs. No Fungicide	Hybrid: W7506DGRIB ; 20 GPA Trivapro, 14.9 Moisture		189
New Athens, IL	Crop = Corn	Hybrid: W7506DGRIB; No Fungicide, 14.5 Moisture		173
	Fungicide via 360	Fungicide via 360 UNDERCOVER		238
Philo, IL	UNDERCOVER vs. No Fungicide Crop = Corn	Check - No Fungicide		217
	Fungicide via 360	Check - No Fungicide		251
San Jose, IL	UNDERCOVER vs. No Fungicide Crop = Corn	16 GPA Headline AMP via 360 UNDERCOVER at R1		258
		Check		81.
T . U	360 UNDERCOVER vs. Over	20 GPA Priaxor, Hero, Smart Trio OTT at R2		83.
Tremont, IL	the top (OTT) Crop = Soybeans	20 GPA Priaxor, Hero, Smart Trio via 360 UNDERCOVER at R2		83.
		20 GPA Priaxor, Hero, Smart Trio via 360 UNDERCOVER and OTT at R2		85.

Illinois (continued)

Location	Trial Type	Strip Details	Total N	Yield
		Other		
Nermal II	Potassium at Sidedress	125 lbs UAN 32% VIA 360 Y-DROP at V12	225	255.4
Normal, IL Potassium at Sideo	Potassium at Sidedress	125 lbs UAN 32% and 3 gal KTS via 360 Y-DROP at V12	225	259.3
Delevan, IL Rate	Data	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 100lbs UAN 32% via 360 Y-DROP at V10	185	255.6
	Rate	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 150lbs UAN 32% via 360 Y-DROP at V10	235	265.2
Tremont, IL Rate	D.	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 150 lbs UAN 32% via 360 Y-DROP at V12	235	277.9
	Kate	Pre-plant 25 lbs UAN 32% Broadcast, 60 lbs UAN Planter, 125 lbs UAN 32% via 360 Y-DROP at V12	210	279.3

Indiana

Location	Trial Type	Strip Details	Total N	Yield
		Timing		
		21 lbs AMS Broadcast Fall 2015, 170 lbs Anhydrous Ammonia via AA Knife Sidedress 5/31/2016	191	210
Indiana	Late Season Additional N	21 lbs AMS Broadcast Fall 2015, 170 lbs Anhydrous Ammonia via AA Knife Sidedress 5/31/2016, 60 lbs UAN 28% via 360 Y-DROP at VT	251	214
la dia a a	360 Y-DROP vs. One-and-Done	165 lbs Anhydrous Ammonia via AA Knife on 6/3/2016		226.9
Indiana	360 Y-DRUP Vs. One-and-Done	165 lbs UAN via 360 Y-DROP on 6/9/2016		227.8
Indiana 360 Y-DROP vs. One-and-Done	120 lbs Anhydrous Ammonia via AA Knife in November 2015, 180 lbs UAN via 360 Y-DROP on 6/9/2016		268.8	
	360 Y-DROP vs. One-and-Done	180 lbs Anhydrous Ammonia via AA Knife in November 2015		264.6
		180 lbs UAN via 360 Y-DROP on 6/9/2016		260.0
		135 lbs UAN 28% via Coulter at V6	135	159.3
	Anhydrous Sidedress and UAN	135 lbs Anhydrous Ammonia via AA Knife at V6	135	159.0
Franklin, IN	Sidedress vs. Combo Sidedress + Late Season	65 lbs UAN 28% via Coulter at V6, 60 lbs UAN 28% via 360 Y-DROP at VT	125	159.6
	360 Y-DROP	65 lbs Anhydrous Ammonia via AA Knife at V6, 60 lbs UAN 28% via 360 Y-DROP at VT	125	159.6
		Placement		
		Pre-plant 100-145 lbs Manure, UAN via 360 Y-DROP at V10		170.2
Larwill, IN	360 Y-DROP vs. Drop	Pre-plant 100-145 lbs Manure, UAN via Drop at V10		167.1
Milford, IN	360 Y-DROP vs. Coulter	45 GPA UAN 28% + ThioSol via Coulter at V6		186.5
willoru, in	SOUT-DROP VS. COULER	VR 30-40 GPA UAN 28% + ThioSol via 360 Y-DROP at V10		182.5

EXTENDED FIELD **TRIAL DATA**

Location	Trial Type	Strip Details	Total N	Yiel
		Timing		
Grimes, IA	360 Y-DROP vs. One-and-Done	150 lbs Anhydrous Ammonia via AA Knife in November 2015, 360 Y-DROP at V10		225.
		150 lbs Anhydrous Ammonia via AA Knife in November 2015		208
		Pre-plant 100 lbs Anhydrous Ammonia + N-serve via AA Knife, 100 lbs UAN 32% via 360 Y-DROP at V12	200	238.
Manning, IA	360 Y-DROP vs. One-and-Done	Pre-plant 150 lbs Anhydrous Ammonia + N-serve via AA Knife, 50 lbs UAN 32% via 360 Y-DROP at V12	200	235
		Pre-plant 200 lbs Anhydrous Ammonia + N-serve via AA Knife	200	227
		Placement		
		UAN via 360 Y-DROP		230
Adel, IA	360 Y-DROP vs. Urea	Urea Broadcast		222
		160 lbs Anhydrous Ammonia via AA Knife Fall 2015, Pre-plant 32 lbs UAN Broadcast, 50 lbs UAN via 360 Y-DROP	242	231
Adel, IA	360 Y-DROP vs. Urea	160 lbs Anhydrous Ammonia via AA Knife Fall 2015, Pre-plant 32 lbs UAN Broadcast	192	223
		160 lbs Anhydrous Ammonia via AA Knife Fall 2015, Pre-plant 32 lbs UAN Broadcast, 50 lbs Urea Broadcast	242	225
		Pre-plant 50 lbs Broadcast, 50 lbs Field Cultivator, 100 lbs UAN 32% via 360 Y-DROP on 6/30/2016	200	221
Boone, IA 360 Y-DROP vs Drop	360 Y-DROP vs Drop	Pre-plant 50 lbs Broadcast, 50 lbs Field Cultivator, 100 lbs UAN 32% via Drop on 6/30/2016	200	214
	Pre-plant 50 lbs Broadcast, 50 lbs Field Cultivator, 70 lbs UAN 32% via 360 Y-DROP on 6/30/2016	170	216	
		115 lbs Pre-plant, 100 lbs UAN via Coulter	215	237
Lake Mills, IA	360 Y-DROP vs. Coulter	115 lbs Pre-plant, 100 lbs UAN via 360 Y-DROP	215	241
		115 lbs Pre-plant, 50 lbs UAN via 360 Y-DROP, 50 lbs UAN via 360 Y-DROP	215	236
Rake, IA	360 Y-DROP vs. Coulter	95 lbs UAN 32% via 360 Y-DROP at V10		204
Nake, IA	Soor Divor vs. coulter	95 lbs UAN 32% via Coulter at V5		208
Rake, IA	360 Y-DROP vs. Coulter	99 lbs UAN 32% via 360 Y-DROP at V10		252
Nanc, IA		99 lbs UAN 32% via Coulter at V5		248
Rake, IA	360 Y-DROP vs. Coulter	53 lbs UAN 32% via 360 Y-DROP at V10		197
Nake, IA	Soor Bhor vs. coulter	53 lbs UAN 32% via Coulter at V5		192
Rake, IA	360 Y-DROP vs. Coulter	122 lbs UAN 32% via 360 Y-DROP at V10		217
Nake, IA	Soo T-Ditor Vs. Coulter	122 lbs UAN 32% via Coulter at V5		218
Rake, IA	360 Y-DROP vs. Coulter	96 lbs UAN 32% via 360 Y-DROP at V10		217
Nake, IA	Soo I-Ditor vs. coulter	96 lbs UAN 32% via Coulter at V5		216
		Coverage		
Dalia 14	360 UNDERCOVER vs. Over	10 oz Headline AMP + Sniper via 360 UNDERCOVER		218
Rake, IA	the top (OTT); Crop = Corn	10 oz Headline AMP + Sniper OTT		214
Dalia 14	360 UNDERCOVER vs. Over	10 oz Headline AMP via 360 UNDERCOVER		235
Rake, IA	the top (OTT); Crop = Corn	10 oz Headline AMP OTT		233
	360 UNDERCOVER vs. Over	10 oz Headline AMP via 360 UNDERCOVER		219
Rake, IA	the top (OTT); Crop = Corn	10 oz Headline AMP OTT		221
	360 UNDERCOVER vs. Over	10 oz Headline AMP via 360 UNDERCOVER		233
Rake, IA	the top (OTT); Crop = Corn	10 oz Headline AMP OTT		234

Kansas

Location	Trial Type	Strip Details	Total N	Yield
		Timing		
Highland, KS 360 Y-DROP vs. One-and-Done	360 Y-DROP vs. One-and-Done	200 lbs Anhydrous Ammonia via AA Knife, 60 lbs UAN 28% via 360 Y-DROP on 6/22/2016	260	248.6
	200 lbs Anhydrous Ammonia via AA Knife	200	254.4	
Highland, KS 360 Y-DROP vs. One-and-Done	360 Y-DROP vs. One-and-Done	100 lbs Anhydrous Ammonia via AA Knife, 60 lbs UAN 28% via 360 Y-DROP on 6/22/2016	160	249.6
	100 lbs Anhydrous Ammonia via AA Knife	100	239.7	

Kentucky

Location	Trial Type	Strip Details	Total N	Yield	
Coverage					
Shalby County KV	360 UNDERCOVER vs. Check	Check		202.0	
Shelby County, KY	Crop = Corn	360 UNDERCOVER		224.0	

Michigan

Location	Trial Type	Strip Details	Total N	Yield
		Placement		
Waldron, MI 360 Y-DROP vs. Drop	Pre-plant 15 lbs AMS Broadcast, 60 lbs UAN 28% Broadcast Pre- emergence, 105 lbs UAN 28% + ATS via 360 Y-DROP at V9	180	219.6	
	Pre-plant 15 lbs AMS Broadcast, 60 lbs UAN 28% Broadcast Pre- emergence, 105 lbs UAN 28% + ATS via Drop at V9	180	213.1	
Waldron, MI 360 Y-DROP vs. Drop	Pre-plant 15 lbs AMS Broadcast, 60 lbs UAN 28% Broadcast Pre- emergence, 105 lbs UAN 28% + ATS via 360 Y-DROP at V9	180	217.5	
	Pre-plant 15 lbs AMS Broadcast, 60 lbs UAN 28% Broadcast Pre- emergence, 105 lbs UAN 28% + ATS via Drop at V9	180	212.1	
		Coverage		
		Check		164.4
360 UNDERCOVER vs. Over Michigan the top (OTT) Crop = Corn	360 UNDERCOVER vs. Over	2 gal ferti-Rain OTT		165.3
		2 gal ferti-Rain via 360 UNDERCOVER		167.5
	2 gal ferti-Rain OTT + Headline		171.9	
		2 gal ferti-Rain via 360 UNDERCOVER + Headline		171.1

North Dakota

Location	Trial Type	Strip Details	Total N	Yield
		Timing		
Enderlin, ND	Late Season Additional N	135 lbs Dry 28-14-12 Broadcast 5/2/2016, 35 lbs 2x2 via Planter, 35 lbs UAN 28% via 360 Y-DROP at V8	205	224.0
		135 lbs Dry 28-14-12 Broadcast 5/2/2016, 35 lbs 2x2 via Planter, Check	170	182.0

EXTENDED FIELD TRIAL DATA

Ohio

Location	Trial Type	Strip Details	Total N	Yield
		Placement		
Durada an Old	360 Y-DROP vs. Coulter	99 lbs UAN 28% via 360 Y-DROP at V6		176.8
Bradner, OH	Bradner, OH 360 Y-DROP vs. Coulter	99 lbs UAN 28% via Coulter at V6		187.2
Durada an Old		93 lbs UAN 28% via 360 Y-DROP at V6		181.7
Bradner, OH	360 Y-DROP vs. Coulter	93 lbs UAN 28% via Coulter at V6		171.4
		95 lbs UAN 28% via 360 Y-DROP at V6		191.5
Bradner, OH	360 Y-DROP vs. Coulter	95 lbs UAN 28% via Coulter at V6		184.8

Ontario

Location	Trial Type	Strip Details	Total N	Yiel
		Timing		
Caledonia, ON	Later Season N Application	105 lbs UAN 28% Broadcast Pre-plant, 69 lbs Dry 2x2 Planter	174	162.
		69 lbs Dry 2x2 Planter, 60 lbs UAN 28% via 360 Y-DROP at V8	129	168.
		Placement		
Ontario	360 Y-DROP vs. Urea	115 lbs Urea Broadcast Spring, 90 lbs UAN via 360 Y-DROP	205	134
		207 lbs Urea Broadcast Spring	207	132
		115 lbs Urea Broadcast Spring	115	124
Harriston, ON	360 Y-DROP vs. Drop	90 lbs UAN 32% via 360 Y-DROP		169
		90 lbs UAN 32% via Drop		154
Ottowa, ON	360 Y-DROP vs. Coulter	25 lbs via Planter	25	147
		25 lbs via Planter, 50 lbs UAN via Coulter, 30 lbs via 360 Y-DROP	105	162
		25 lbs via Planter, 110 lbs UAN via Coulter	135	165
		25 lbs via Planter, 70 lbs UAN via Coulter, 40 lbs via 360 Y-DROP	135	165
		25 lbs via Planter, 140 UAN via Coulter	165	165
		25 lbs via Planter, 110 UAN via Coulter, 30 lbs via 360 Y-DROP	165	168
		Coverage		
Amhersturg, ON	360 UNDERCOVER vs. Over the top (OTT) Crop = Corn	Priaxor via 360 UNDERCOVER, 21.1 Moisture		208
		Priaxor OTT, 22.3 Moisture		208
		Check - No Fungicide, 19.3 Moisture		200
Amhersturg, ON	Headline AMP OTT vs. No Fungicide Crop = Corn	Headline AMP OTT, 22.9 Moisture		198
		Check - No Fungicide, 22.2 Moisture		195
Caledonia, ON	360 UNDERCOVER vs. Over the top (OTT) Crop = Corn	120 ml/ac Total 30 GPA Priaxor OTT 15" Nozzle Spacing at VT, 20.7 Moisture		128
		30 GPA Priaxor via 360 UNDERCOVER at VT, 20.4 Moisture		137
Caledonia, ON	360 UNDERCOVER vs. Over the top (OTT) Crop = Corn	120 ml/ac Total 30 GPA Priaxor via 360 UNDERCOVER at VT, 21.7 Moisture		145
		120 ml/ac and .5L/ac Total 30 GPA Priaxor + Axter OLIGO-B via 360 UNDERCOVER at VT, 20.7 Moisture		142
Ottowa, ON	360 UNDERCOVER vs. Over the top (OTT) Crop = Soybeans	Check		63
		ОТТ		65
		360 UNDERCOVER		64

Wisconsin

Location	Trial Type	Strip Details	Total N	Yield
		Timing		
Manitowoc County, WI	360 Y-DROP vs. One-and-Done	150 lbs Pre-plant	150	138.7
		140 UAN via 360 Y-DROP	140	177.0
Manitowoc County, WI	360 Y-DROP vs. One-and-Done	150 lbs Pre-plant	150	139.3
		140 UAN via 360 Y-DROP	140	182.6
		Placement		
Lowelltown, WI	360 Y-DROP vs. Coulter	106 lbs UAN 32% via Coulter		224.
		106 lbs UAN 32% via Coulter, UAN 32% via 360 Y-DROP		228.
		53 lbs UAN via Coulter, 53 lbs UAN 32% via 360 Y-DROP		232.
		106 lbs UAN 32% via 360 Y-DROP		232.
		VR UAN 32% via 360 Y-DROP		235.
Manitowoc County, WI	360 Y-DROP vs. Coulter	28.9 lbs NRG-N + Stabilizer 2x0 Pre-plant, 157.5 lbs UAN + eNhance via 360 Y-DROP	186.4	189.
		28.9 lbs NRG-N + Stabilizer 2x0 Pre-plant, 157.5 lbs UAN + eNhance via Coulter	186.4	180.
Manitowoc County, WI	360 Y-DROP vs. Coulter	28.9 lbs NRG-N + Stabilizer 2x0 Pre-plant, 157.5 lbs UAN + eNhance via 360 Y-DROP	186.4	212.4
		28.9 lbs NRG-N + Stabilizer 2x0 Pre-plant, 157.5 lbs UAN + eNhance via Coulter	186.4	201.
Manitowoc County, WI	360 Y-DROP vs. Coulter	157.5 lbs UAN + eNhance via 360 Y-DROP	157.5	189.
		157.5 lbs UAN + eNhance via Coulter	157.5	162.
Manitowoc County, WI	360 Y-DROP vs. Coulter	157.5 lbs UAN + eNhance via 360 Y-DROP	157.5	212.
		157.5 lbs UAN + eNhance via Coulter	157.5	186.



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