





2020 Union County Research Newsletter

Including: 2020 Soybean Foliar Fertility Trial 2020 Soybean Foliar Fungicide Trial 2020 Corn Foliar Fungicide Trial



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NC COOPERATIVE EXTENSION

2020 Union County Soybean K Fertility Trial

Planting Date	July 16, 2020	Agent Notes - This was a foliar fertility study in soybeans that aimed to identify if these products positively impact yield and nutrient levels in the soybeans. The foliar products all had a focus on potassium as the main nutrient source. In addition to looking at multiple products,					
Seeding Rate	140,000						
Spacing	7.5	we also looked at multiple application timings. The applications were made at the following growth stages: V3, R1, R3, V3 and R1, and V3 and R3. These different application timings were based on the growth stages in which soybeans need potassium most, and if					
Harvest Date	November 6, 2020						
# of Replications	4	Austin Grading and Farm Services for partnering with us for this trial.					
ata	Month	Avg. High Temp.	Avg. Low Temp.	Avg. Rainfall (in.)			
Ū,	July	92.5	71.6	3.3			
the	August	89	70.6	4.1			
eat	September	80.7	62.2	4.5			
M	October	75.8 53.5 6.6					

*Weather data based on National Oceanic and Atmospheric Administration (NOAA) data (https://w2.weather.gov/climate/index.php?wfo=gsp)

Average Yields For All Products and Application Timings				
Company	Product	Application Timing	Average Yield*	
		V3	44.80	
		R1	40.35	
AgBiologic	OvertheTop	R3	43.75	
		V3 and R1	43.15	
		V3 and R3	45.14	
		V3	40.25	
		R1	41.59	
Brandt	SmartKB	R3	37.82	
		V3 and R1	39.61	
		V3 and R3	45.23	
		V3	39.80	
		R1	42.33	
Winfield	Gainer Wif K	R3	41.94	
		V3 and R1	43.71	
		V3 and R3	44.69	
UTC	UTC	UTC	40.74	

Average Yield Combining Applications Over Time				
Company	Product	Average Yield		
AgBiologic	OvertheTop	43.44		
Winfield	Gainer Wif K	42.39		
Brandt	SmartKB	40.90		
UTC	UTC	40.74		

Cost of Product					
Company	Product	Cost of Unit	Rate (per acre)	Cost (per acre)	
AgBiologic	OvertheTop	\$120 per 15 lbs	1 lb	\$8.00	
Winfield	Gainer Wif K	\$24 per gallon	5 lb	\$7.72	
Brandt	SmartKB	\$77.72 per 50 lbs	1 qt	\$6.00	

Charts





- When applying economic information to the yield data, there may be opportunity to receive a positive ROI for applying these products.
 - For every product, combination application at V3 and R3 resulted in a positive ROI
- IMPORTANT NOTE: There were no visible symptoms or evidence of K deficiency in the field throughout the season other research has shown that foliar products are most effective in fields with visible deficiency symptoms.

NC COOPERATIVE EXTENSION





2020 Union County Soybean Foliar Fungicide Trial

Seeding Rate Row Spacing # of Replications Variety Plot Design Plot Size Date of R1 App. Date of R3 App. Harvest Date	140,000 15" 4 P55A49X RCB 6' X 35' July 10, 2020 August 8, 2020 November 6, 2020	Agent Notes - For this MOA fungicides compa- at two different growth s potential differences Typically, these fungici 11 or MOA 3, MOA 7, season, we did not ide and saw little to no di Grading and Farm Serv	s foliar fungicide stud red to 3 MOA fungici stages (R1 and R3) to based on FRAC o des contained either and MOA 11. Over entify any specific dis isease pressure. Tha ices for partnering wit	ly, we observed 2 ides, both applied see variation and code/company/etc. MOA 3 and MOA the course of the seases in the field ank you to Austin th us for this trial.
)ata*	Month	Avg. High Temp.	Avg. Low Temp.	Avg. Rainfall (in.)
	July	92.5	71.6	3.3
the	August	89	70.6	4.1
ea	September	80.7	62.2	4.5
>	October	75.8	53.5	6.6
*Weather data based on National Oceanic and Atmospheric Administration (NOAA) data (https://w2.weather.gov/climate/index.php?wfo=gsp)				

Chart of Soybean Effect of Timing and Product on yield							
Company	Product	Application v	Viold	Grouping	MOA MOA		
Company	Plouuci	Timing	Tleiu	Grouping	3	7	11
Bayer	StrategoYLD	R3	45.31	A	x		x
BASF	Revytek	R3	42.50	AB	X	X	X
Syngenta	MiravisNeo	R1	42.32	AB	x	x	X
BASF	Revytek	R1	41.50	ABC	X	x	х
Bayer	ApproachPrima	R1	40.89	BC	Х		Х
Bayer	StrategoYLD	R1	40.77	BC	х		Х
Syngenta	MiravisNeo	R3	39.94	BC	х	х	Х
Bayer	ApproachPrima	R3	39.53	BCD	X		х
Syngenta	QuiltXcel	R3	38.09	CD	Х		Х
Syngenta	QuiltXcel	R1	37.85	CD	Х		Х
Check	Check	NA	35.49	D			
		Mean	40.28				
		F Value	1.14				
Bolded var	rieties are not signifi	cantly differen	t than the	highest yieldi	ng variet	y at P<0.1	



Looking at the effect of product on yield (disregarding timing)						
Company	ompany Broduct		Grouping	MOA		
Company	Froduct	Tielu	Grouping	3	7	11
Bayer	StrategoYLD	43.04	A	X		х
BASF	Revytek	42.00	AB	X	X	X
Syngenta	MiravisNeo	41.13	AB	X	x	X
Bayer	ApproachPrima	40.21	ABC	X		X
Syngenta	QuiltXcel	37.97	CD	Х		Х
NA	Check	35.49	D			
Mean 40.28						
F Value 2.16						
Bolded va	rieties are not significantly differer	nt than the	highest yieldi	ing variet	y at P<0.1	1

Looking at the effect of timing on yield (disregarding product)				
Timing	Yield	Grouping		
R1	40.68537977	A		
R3	40.6634504	A		
Looking at all products, timing had no significant impact on yield (at P<0.1)				

		Cost of Chemical		
Company	Product	Price (\$/gal)	Rate (oz/ac)	Cost (\$/ac)
Bayer	ApproachPrima	\$235.00	5	\$9.18
Syngenta	QuiltXcel	\$120.00	10.5	\$9.84
Bayer	StrategoYLD	\$375.00	4	\$11.72
BASF	Revytek	\$315.00	8	\$19.69
Syngenta	MiravisNeo	\$189.70	13.7	\$20.30



ROI calculated using local distributer cost of products (found in chart "Cost of Product," an estimated application cost of \$7 per acre, and using soybean price of \$14.90 per bushel (grain bid on March 9th, 2021).



Take Home Messages:

- Applying fungicides ar R1 and R3 results in statistically similar yield, so growers can apply fungicides at either R1 or R3 and receive similar yield benefits (IN MOST CASES)
 - $\,\circ\,$ In the case of Stratego YLD, applying at R3 yielded significantly higher than applying at R1
- Fungicides containing 3 MOA tended to appear in the high yield group, so you will likely get a more stable yield benefit from products with more MOAs.
- Stratego YLD, Approach Prima, Revytek, and Miravis Neo all displayed evidence of a yield benefit, and all fungicides in the study resulted in a positive ROI.





2020 Union County Corn Foliar Fungicide Trial

Planting Date	June 8, 2020				
Seeding Rate	28,000	Agent Notes - For	this foliar fungicide study,	we observed fungicides	
Row Spacing	30"	at different price p	at different price points from two companies applied at the V5 growth stage. These functions contained either MOA 3 and MOA 11 or		
# of Replications	3	stage. These fungicides contained either MOA 3 and MOA 11 or MOA 7 and MOA 11. Over the course of the season, we did not identify any specific diseases in the field but saw a high level of disease pressure from that looked like a form of rust and other fungal			
Variety	D54VC14				
Plot Design	RCB				
Plot Size	20' X 200'	disease pressure from that looked like a form of fust and other lungar diseases. Thank you to Smith Brothers Farm for partnering with us for this trial.			
V5 Application	July 2, 2020				
Harvest Date	Oct. 7, 2020				
	Month	Avg. High Temp.	Avg. Low Temp.	Avg. Rainfall (in.)	
Data*	Month May	Avg. High Temp. 75.6	Avg. Low Temp. 55.5	Avg. Rainfall (in.) 6.6	
ier Data*	Month May June	Avg. High Temp. 75.6 85.4	Avg. Low Temp. 55.5 66.6	Avg. Rainfall (in.) 6.6 2.8	
eather Data*	Month May June July	Avg. High Temp. 75.6 85.4 92.5	Avg. Low Temp. 55.5 66.6 71.6	Avg. Rainfall (in.) 6.6 2.8 3.3	
Weather Data*	Month May June July August	Avg. High Temp. 75.6 85.4 92.5 89	Avg. Low Temp. 55.5 66.6 71.6 70.6	Avg. Rainfall (in.) 6.6 2.8 3.3 4.1	
Meather Data*	Month May June July August ata based on N (https://w	Avg. High Temp. 75.6 85.4 92.5 89 ational Oceanic an	Avg. Low Temp. 55.5 66.6 71.6 70.6 d Atmospheric Administrati	Avg. Rainfall (in.) 6.6 2.8 3.3 4.1 on (NOAA) data	

				MOA	
Company	Product	Average Yield	Group 3	Group 7	Group 11
Syngenta	QuiltXcel	134.70	Х		Х
UTC	UTC	140.37			
BASF	HeadlineAMP	144.10	Х		Х
Syngenta	MiravisNEO	144.45	Х	Х	
BASF	Veltyma	145.17	Х		Х
There was no statistical differe	nce between prod	uct applications	and the unt	reated chec	k (UTC)

Company	Product	Suggested Application Time		
Syngenta	QuiltXcel	Early: V4-V8; Late: R1		
BASF	Headline AMP	VT-R2		
Syngenta	MiravisNEO	Early: V4-V8; Late: VT-R1		
BASF	Veltyma	V16-R3		
Note that application was made at V5, outside of suggested application times for some chemicals and before heavy disease pressure in the field. Later applications (at VT) were not possible due to weather and lack of equipment				
	and	lack of equipment.		

Chemical Cost				
Company	Product	Price (\$/gal)	Rate (oz/ac)	Cost (\$/ac)
Syngenta	QuiltXcel	\$120.00	10.5	\$9.84
BASF	Headline AMP	\$155.00	10	\$12.11
Syngenta	MiravisNEO	150	13.7	\$20.30
BASF	Veltyma	\$320.00	7	\$17.50





Take Home Messages

- Fungicides, in most cases, can increase yield potential when applied at V5, though not significantly.
- 2021 changes:
 - VT application
 - $\circ\,$ New equipment that stimulates an aerial application