

Sulfur in Soybean: Now, Later, or Ever?



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Purdue Crop Chat

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Soybean + Sulfur Checklist

- Sources
- Timing
- Rate
- Responsiveness
- Interactions to Avoid
- Intense Management Synergies



AMS
20 lb S



UTC

LaCrosse, IN 2020

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Sulfur Fertilizer Sources



No Sulfur



20 lb S/ac

No Sulfur



20 lb S/ac





AMS 20 lb S

AMS:ES

UTC

LaCrosse, IN - 2017

Nutrient Application After Planting (PRE)

- LaCrosse, IN. Sandy loam to Loamy Sand
 –pH 6.6, 2.5% O.M., 35 M3P, 125 M3K, 3-8 M3S

		2018	2019	2020	2021	2022
Planting Date		May 22	May 20	May 4	May 15	May 12
Nutrients (kg/ha)						
Sulfur	S Sources	20	15	15	15	15
Nitrogen	Urea (46-0-0)	.	20	20	20	20
P₂O₅	TSP (0-45-0)	.	60	60	60	60
K₂O	KCl (0-0-60)	.	60	50	.	.

Treatments	N	P ₂ O ₅	K ₂ O	S	Sulfate	Thio	Elem. S	Ca	Mg
UTC	.	.	.	.	.	.	.	.	.
NPK	46	45	60	.	.	.	.	.	.
AMS	21	0	0	24	all	.	.	.	.
MES_10	12	40	0	10	half	.	half	.	.
Sulf4R	0	0	0	17	all	.	.	22	.
K_Mag	0	0	22	21	all	.	.	.	10.5
Tlger90CR	0	0	0	90	.	.	all	.	.
AMS_Tiger	21,0	0,0	0,0	24,90	half	.	half	.	.
spray_ATS	12	0	0	26	.	all	.	.	.
MES_15	13	33	0	15	half	.	half	.	.
Super_Sulfur	11	0	0	75	.	.	all	.	.

2018-2022 Sulfur Sources: Leaf N @ R3

Leaf Nitrogen	2018	2019	2020	2021	2022	Trt*YR**
UTC	5.0	5.7	4.6 e	5.2 e	.	5.1
NPK (or NP)	.	5.6	4.9 de	5.5 d	.	5.3
AMS	5.2	5.2	5.5 bc	5.8 bcd	.	5.4
MES_10	5.3	5.3	5.8 ab	5.9 ab	.	5.6
Sulf4R	5.2	5.3	5.7 ab	6.1 a	.	5.6
K_Mag	5.1	5.1	5.8 ab	6.0 ab	.	5.5
Tlger90CR	5.0	5.2	5.2 cd	5.8 bc	.	5.3
AMS_Tiger	5.1	5.4	5.5 bc	5.8 abc	.	5.4
spray_ATS	5.2	5.0	5.6 abc	5.6 cd	.	5.3
MES_15	.	5.6	5.9 a	6.0 ab	.	5.8
Super_Sulfur	.	5.2	5.7 ab	5.8 bc	.	5.5

2018-2022 Sulfur Sources: Leaf S @ R3

Leaf Sulfur	2018		2019		2020		2021		2022		Trt*YR**
UTC	0.28	d	0.30		0.24	c	0.28	d	.		0.28
NPK (or NP)	.	.	0.31		0.24	c	0.29	d	.		0.28
AMS	0.36	a	0.31		0.34	a	0.33	abc	.		0.34
MES_10	0.36	ab	0.32		0.33	a	0.34	a	.		0.34
Sulf4R	0.36	a	0.30		0.34	a	0.33	abc	.		0.33
K_Mag	0.36	a	0.33		0.33	a	0.34	ab	.		0.34
Tlger90CR	0.30	c	0.30		0.29	b	0.32	c	.		0.30
AMS_Tiger	0.35	b	0.32		0.33	a	0.33	abc	.		0.33
spray_ATS	0.36	ab	0.32		0.31	b	0.32	bc	.		0.33
MES_15	.	.	0.30		0.33	a	0.33	abc	.		0.32
Super_Sulfur	.	.	0.32		0.29	b	0.32	bc	.		0.31

2018-2022 Sulfur Sources: Leaf N:S @ R3

Leaf N:S	2018		2019		2020		2021		2022		Trt*YR**
UTC	18.0	a	19.3	a	19.3	b	18.9	a	.		18.9
NPK (or NP)	.	.	18.1	ab	20.9	a	18.7	ab	.		19.2
AMS	14.4	cd	17.2	bcd	16.0	f	17.4	d	.		16.2
MES_10	14.7	c	16.6	cd	17.6	cde	17.4	d	.		16.6
Sulf4R	14.2	cd	17.7	abc	16.8	def	18.3	ab	.		16.7
K_Mag	13.9	d	15.3	d	17.5	cde	17.8	cd	.		16.1
Tlger90CR	16.9	b	17.6	abc	18.1	bcd	18.3	abc	.		17.7
AMS_Tiger	14.7	c	16.7	bcd	16.6	ef	17.9	cd	.		16.5
spray_ATS	14.4	cd	15.4	d	18.1	bc	17.6	cd	.		16.4
MES_15	.	.	18.6	ab	17.8	cde	18.3	abc	.		18.2
Super_Sulfur	.	.	16.0	cd	19.3	b	18.1	bcd	.		17.8

2018-2022 Sulfur Sources: Yield

Yield (bu/ac)	2018		2019		2020		2021		2022		Avg.	
UTC	61.7	d	54.9		51.6	e	61.8	d	50.8	c	56.1	c
NPK	.	.	55.2		55.8	de	63.3	cd	56.5	abc	57.7	c
AMS	72.0	ab	53.6		63.2	ab	70.1	b	59.7	ab	63.7	ab
MES_10	73.4	a	59.3		63.8	ab	68.9	bc	60.8	ab	65.2	a
Sulf4R	72.8	ab	53.8		61.6	bc	72.3	ab	58.2	ab	63.7	ab
K_Mag	67.9	bc	56.2		60.2	bcd	69.1	bc	56.8	ab	62.1	b
Tlger90CR	65.5	cd	57.9		62.8	abc	73.3	ab	55.4	bc	63.0	ab
AMS_Tiger	68.8	abc	60.9		66.3	a	72.7	ab	57.2	ab	65.2	a
spray_ATS	68.6	abc	59.0		63.1	ab	69.2	bc	61.2	ab	64.2	ab
MES_15	.	.	56.5		64.0	ab	76.3	a	61.6	a	64.6	ab
Super_Sulfur	.	.	58.5		63.9	ab	74.5	ab	57.7	ab	63.7	ab

2018-2022 Sulfur Sources

- **Leaf S at R3**

- AMS, MES10, Sul4R, and K-Mag increased leaf S conc the most
- ATS, AMS:Tiger were the second tier.

- **Leaf N:S @ R3**

- AMS, MES10, and K-Mag consistently balanced N:S the best
- ATS, AMS:Tiger were the second tier.

2018-2022 Sulfur Sources

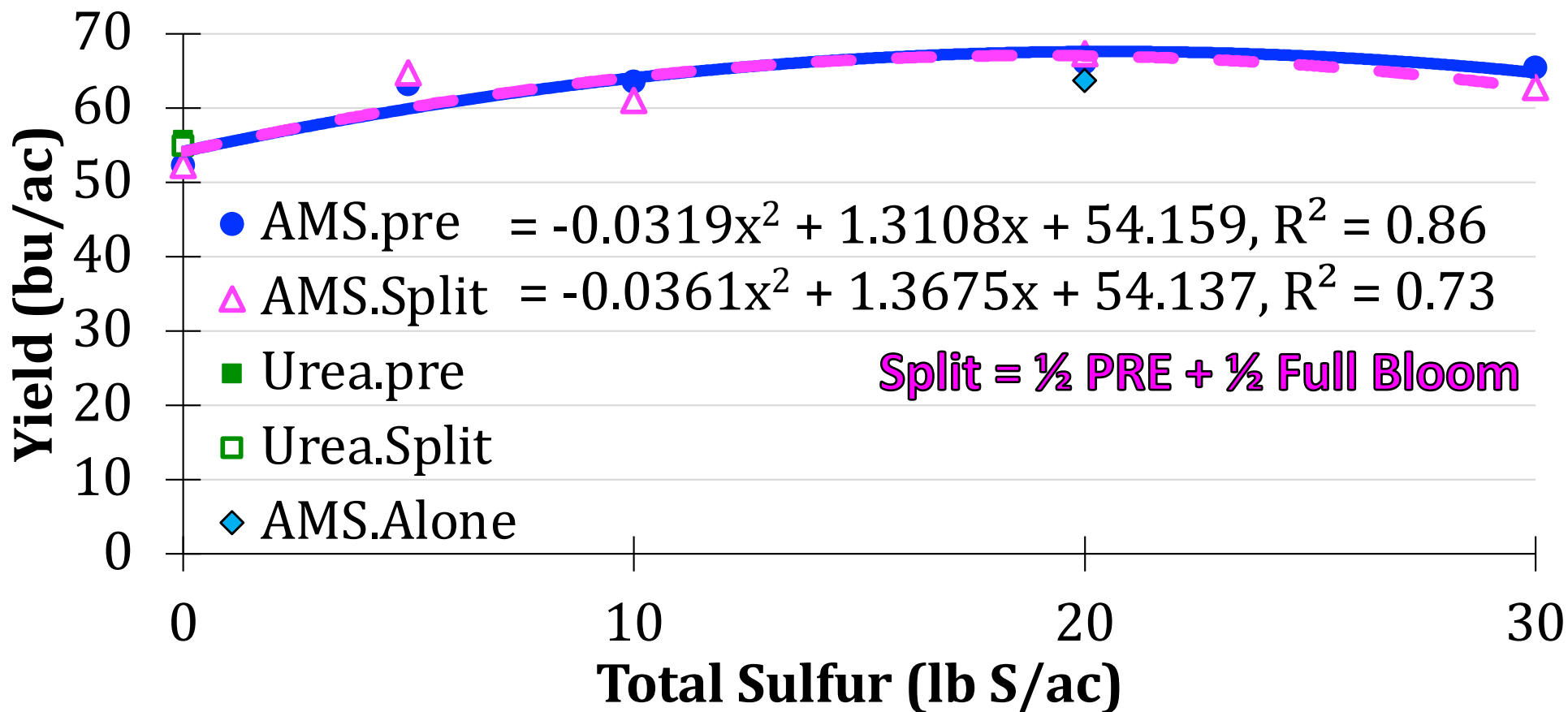
- **Yield Trend:**

- Low S rate (15 lb S / ac) needed a blend of sulfate and elemental S
- Higher rate (20 lb S / ac) seem to displace the differences and more soluble sources
- CI effects in 2019, 2020 masked some S benefits

- **Protein Trend:**

- Most S sources improved absolute protein 2 to 4%, K-Mag and Tiger occasionally did not improve protein as much.
- N treatment did not improve protein.

18 AMS Rate x Timing: LaCrosse



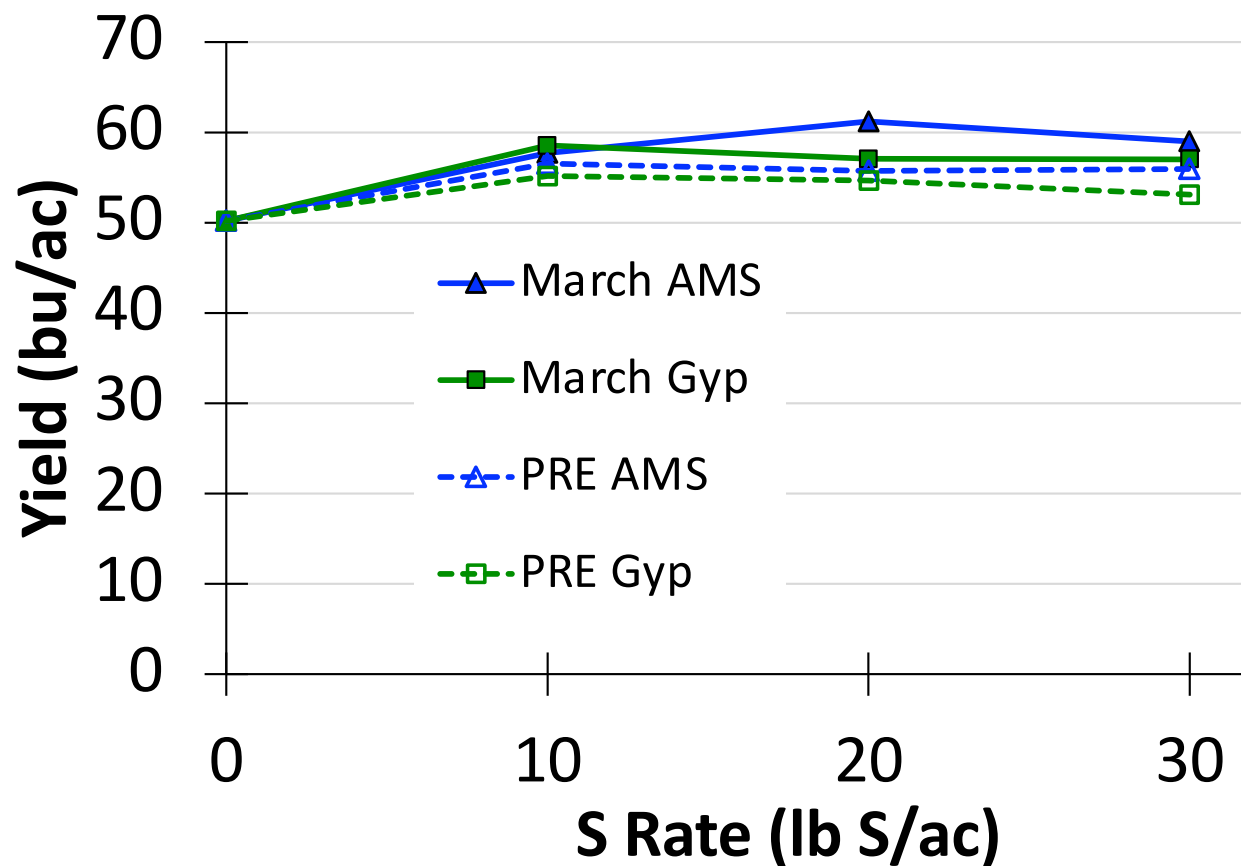
22 Sulfur Timing: March vs. PRE

- LaCrosse
- Timing: March vs. PRE
- Source:
 - **AMS** 21-0-0-24S
 - **PolyS** 0-14-0-19S, 3.6Ca, 12.2Mg
 - **Gypsum** 0-0-0-17S, 22Ca
- Rate: 0, 10, 20, 30 lb S/ac

S Timing: Other Nutrients Applied

S Rate	AMS	PolyS	PolyS	PolyS	Gypsum
lb S/ac	lb N/ac	lb K₂O/ac	lb Mg/ac	lb Ca/ac	lb Ca/ac
0	.	.			.
10	8.8	7.4	6.4	1.9	12.9
20	17.5	14.7	12.8	3.8	25.9
30	26.3	22.1	19.3	5.7	38.8

22 Sulfur Timing: March vs. PRE

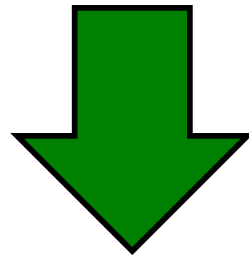
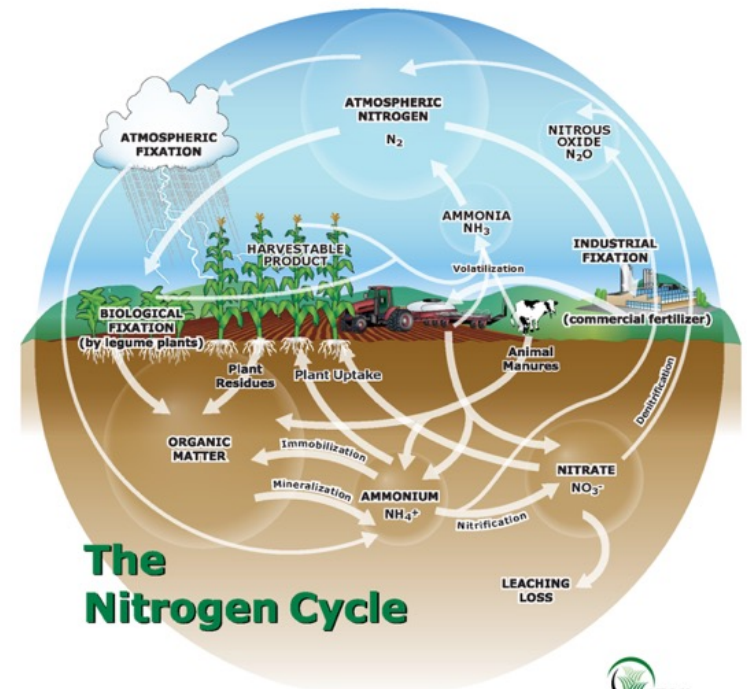
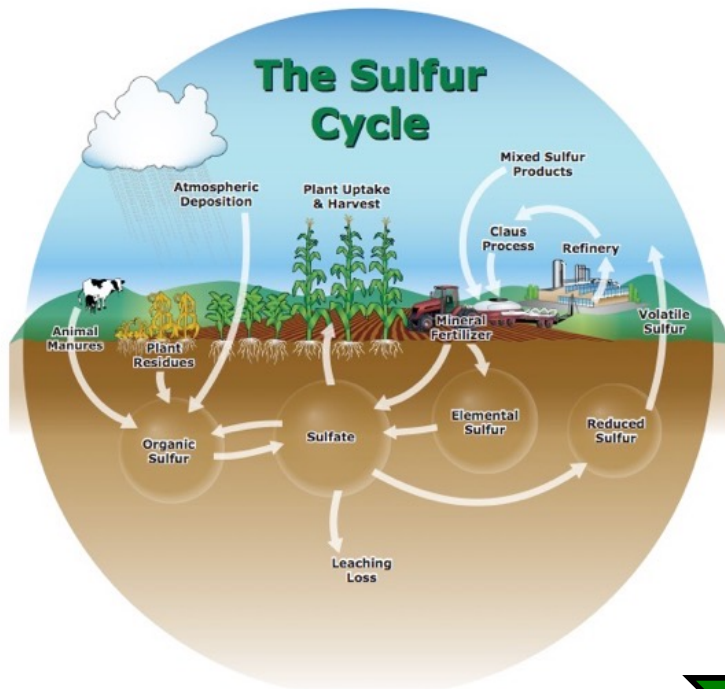


Timing

- March 58.0 a
- PRE 55.5 b
- UTC 50.2 c

Rate by Timing

- March → ~20 lb S/ac
- PRE → ~10 lb S/ac



High Yielding Soybeans!



Sulfur Interactions with Management

- S x Planting
- S x R4 Foliar Protection
- Variety x S-NPK

N+S x Planting Date: 2018

EARLY **LATE**

May 11th June 5th



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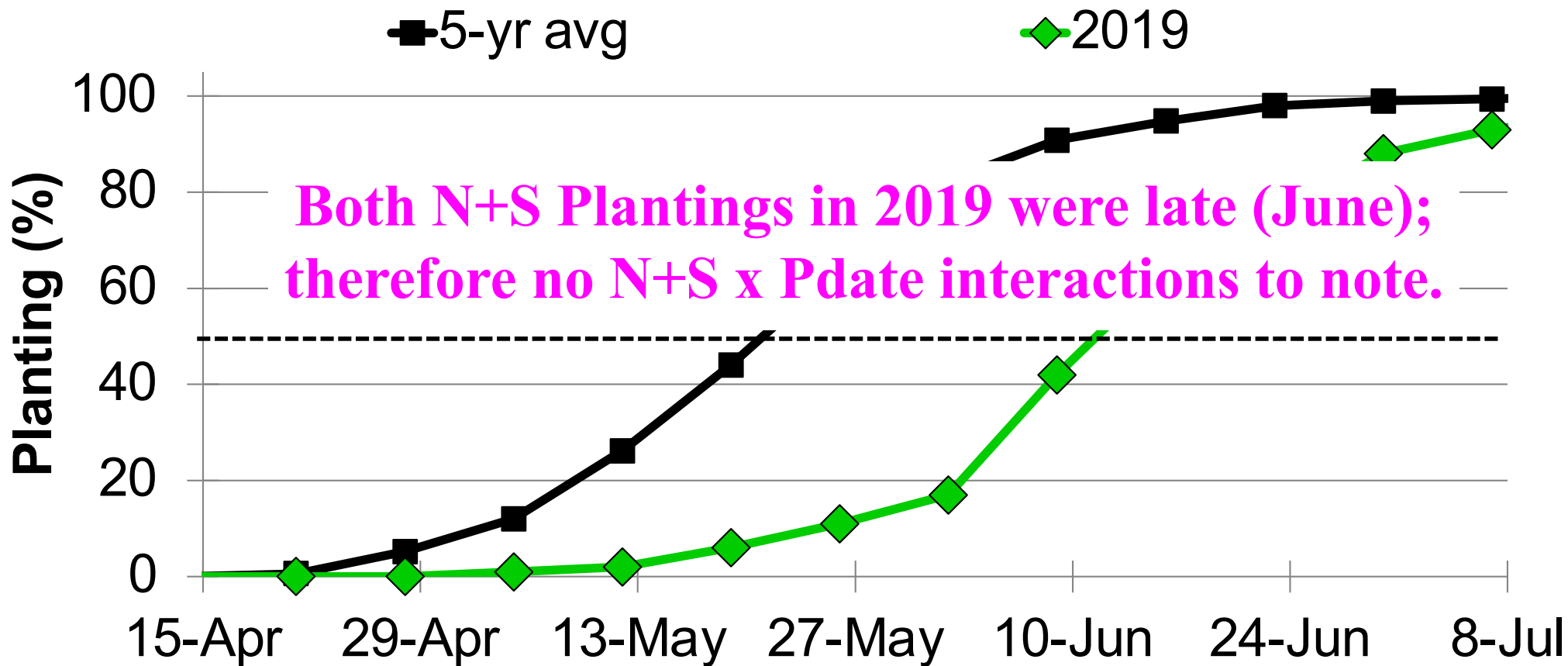
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<i>Fertility Treatments</i>			
Treatment	Timing	N	S
		lb N/ac	lb S/ac
UTC	.	.	.
AMS	PRE	17.5	20
ATS	PRE	9.3	20
AMS + UREA	PRE	40	10
AMS + UREA	V4	40	10
V4 + R3	V4 + R3 Dr	80	20
AMS + UAN	R3 Direct	40	10
UAN	R3 Direct	40	.
AMS	R3 Direct	8.75	10
R3 + CORON	R3 Dr + 4x	80	20



<i>Fertility Treatments</i>				<i>Yield</i>	
Treatment	Timing	N	S	11-May	5-Jun
		lb N/ac	lb S/ac	bu/ac	
UTC	.	.	.	62.4 de	59.2 e
AMS	PRE	17.5	20	69.5 bc	60.7 e
ATS	PRE	9.3	20	71.5 abc	61.9 e
AMS + UREA	PRE	40	10	74.2 ab	62.8 de
AMS + UREA	V4	40	10	75.9 a	58.0 e
V4 + R3	V4 + R3 Dr	80	20	76.1 a	57.6 e
AMS + UAN	R3 Direct	40	10	77.3 a	59.9 e
UAN	R3 Direct	40	.	72.8 abc	60.5 e
AMS	R3 Direct	8.75	10	68.1 cd	59.7 e
R3 + CORON	R3 Dr + 4x	80	20	72.4 abc	57.2 e
				LSD _{0.10} = 6.1	

Indiana Soybean: Late Plantings



2020 N+S x Planting Date

Treatment	Timing	N	S
		lb N/ac	lb S/ac
UTC	.		
AMS	PRE	17.5	20
ATS	PRE	9.3	20
AMS + Urea	PRE	40	10
AMS + Urea	V4*	40	10
V4 + R3	V4*+ R3 Dr	80	20
AMS + UAN	R3 Direct	40	10
UAN	R3 Direct	40	.
Gypsum 10	PRE	.	10
Gypsum 20	PRE	.	20

2020 N+S x Planting Date

Treatment	Timing	N lb N/ac	S lb S/ac	Yield			
				12-May		8-Jun	
				bu/ac			
UTC	.			61.9	de	61.9	de
AMS	PRE	17.5	20	79.8	a	68.6	bcd
ATS	PRE	9.3	20	76.0	ab	66.1	de
AMS + Urea	PRE	40	10	82.6	a	66.5	cde
AMS + Urea	V4*	40	10	81.3	a	65.0	de
V4 + R3	V4*+ R3 Dr	80	20	83.0	a	69.7	bcd
AMS + UAN	R3 Direct	40	10	70.7	bcd	65.0	de
UAN	R3 Direct	40	.	68.0	bcd	59.1	e
Gypsum 10	PRE	.	10	76.7	ab	68.5	bcd
Gypsum 20	PRE	.	20	75.2	abc	66.7	cde

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2021 S x Planting Date: West Lafayette

Treatment	Timing	N	S	14-May		10-Jun	
		lb N/ac	lb S/ac	bu/ac			
UTC	.	.	.	69.0	cde	54.1	g
AMS	PRE	17.5	20	72.3	abcd	56.0	g
Gyp	PRE	.	20	76.9	a	55.4	g
ATS	PRE	9.3	20	.	.	.	.
Urea	PRE	40	.	67.3	def	57.3	g
AMS_Urea	PRE	40	20	75.2	ab	56.0	g
AMS	V4	17.5	20	73.4	ab	57.4	g
Gyp	V4	.	20	70.4	bcde	56.8	g
Urea	V4	40	.	65.4	abcd	54.0	g
AMS_Urea	V4	40	20	63.3	f	54.1	g

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2022 S x Planting Date: West Lafayette

Treatment	Timing	N	S	12-May		6-Jun	
		lb N/ac	lb S/ac	bu/ac			
UTC	.	.	.	61.8	def	59.0	efg
AMS	PRE	17.5	20	64.0	bcde	61.4	def
Gyp	PRE	.	20	67.1	abcd	64.6	abcde
ATS	PRE	9.3	20	69.3	ab	53.4	g
Urea	PRE	40	.	64.4	bcde	63.9	bcde
Gyp_Urea	PRE	40	20	67.9	abc	65.3	abcd
AMS	V4	17.5	20	69.8	ab	63.9	bcde
Gyp	V4	.	20	70.7	a	62.3	cdef
Urea	V4	40	.	65.4	abcd	56.6	fg
Gyp_Urea	V4	40	20	61.8	cdef	62.0	cdef

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N+S x Planting Interactions

- **EARLY** planting still proves to increase yield.
- **N+S Fertility** increased yield in **EARLY** planted soybeans in 2018, 2020 (10+ bu/ac), 2021, 2022
- **N+S Fertility** did not affect the yield of **LATE** planted soybeans in 2018, 2019, 2020, 2021.
- **Cool and/or wet conditions** associated with **EARLY** plantings likely increased the yield response to the **N+S Fertility** due to limited mineralization of soil organic matter and slow soybean growth (roots, nodules).

S x Planting: Trends of Sources

- **2018 EARLY: ATS, AMS + Urea > AMS**
 - UTC did not differ by Pdate
- **2020 EARLY: AMS, AMS + Urea > ATS, Gypsum**
 - UTC did not differ by Pdate
- **2021 EARLY: Gypsum, AMS + Urea > AMS**
 - 15 bu difference b/t UTC-Pdate 1 and UTC-Pdate 2
- **2022 EARLY: ATS, Gyp + Urea**
 - UTC did not differ by Pdate

Sulfur Synergies with Foliar Protection?

- **2 x 4 Factorial** with 5 replications
- **2 Sulfur** → 0, 20 lb S/ac
- **4 Foliar Protection @ R4 (prophylactic)**
 - None
 - Fungicide: Priaxor 4 oz/ac
 - Insecticide: Fastac 3.2 oz/ac
 - Both: Priaxor + Fastac
- West Lafayette, Wanatah
- 2019, 2020, 2021, 2022



S x R4 Protect: 19 W. Lafayette

R4 Foliar	No Sulfur		Sulfur	
None	67.0	d	69.2	cd
Fung.	68.4	cd	71.6	abc
Insect.	66.7	d	73.4	ab
Both	66.7	d	74.5	a

- No benefit from R4 protection alone
- 6.7 bu/ac increase with pre-S + R4 Insecticide
- 7.5 bu/ac increase with pre-S + R4 Both
- **Leaf retention and “stay-green” during seed fill?**

S x R4 Protect: 20 W. Lafayette

R4 Foliar	No Sulfur	Sulfur
None	62.2	62.2
Fung.	68.1	66.0
Insect.	64.0	64.1
Both	67.4	67.4

- Fung. and Both improved yield regardless of Sulfur
- Sulfur did not improve yield nor did it provide synergies w/ R4 Foliar
- **Late planting (June 3, 2020) coupled with late season dry conditions during seed fill negated responses.**

S x R4 Protect: 21 W. Lafayette

R4 Foliar	No Sulfur	Pre-AMS	V4_AMS
None	74.0	82.3	81.7
Fung.	74.0	83.5	83.3
Insect.	73.8	86.9	82.7
Both	78.4	87.3	82.4

- **AMS PRE to V4 increased yield ~8 bu/ac**
- **Additional 4-6 bu/ac with R4 insect with pre-AMS** but no other improvements with R4 foliar protection.

S x R4 Protect: 21 Wanatah

R4 Foliar	No Sulfur	Pre-AMS	V4_AMS
None	71.3	73.0	70.9
Fung.	71.9	71.8	73.3
Insect.	71.6	71.9	72.9
Both	72.8	73.2	74.4

- No response

S x R4 Protect: 22 W. Lafayette

R4 Protect	No Sulfur	Pre-AMS	V4-AMS
None	69.2	74.7	76.7
Fung.	72.1	75.9	76.5
Insect	70.3	74.5	75.9
Both	73.7	80.3	78.7

- **AMS PRE to V4 increased yield ~6 bu/ac**
- **Additional 5.5 bu/ac with R4 both with pre-AMS** but no other improvements with R4 foliar protection.



S Fertilizer Blends Broadcasted at Planting of Soybean

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Treatment	Sulfur	Nitrogen	Phosphorus	Potassium
	lb S/ac	lb N/ac	lb P₂O₅/ac	lb K₂O/ac
Untreated
N	.	17.5	.	.
P	.	.	40	.
K	.	.	.	60
NPK	.	17.5	40	60

Treatment	Sulfur	Nitrogen	Phosphorus	Potassium
	lb S/ac	lb N/ac	lb P ₂ O ₅ /ac	lb K ₂ O/ac
Untreated	.	.	.	.
N	.	17.5	.	.
P	.	.	40	.
K	.	.	.	60
NPK	.	17.5	40	60
Sulfur + N	20	17.5	.	.
Sulfur + P	20	17.5	40	.
Sulfur + K	20	17.5	.	60
Sulfur + NPK	20	17.5	40	60

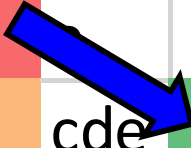
2019 Sulfur x NPK

	No AMS		AMS	
UTC	50.0	b		
N	50.0	b	53.4	b
P	53.5	b	57.8	a
K	45.3	c	50.9	b
NPK	50.8	b	50.7	b

- K impeded yield ~ 5 bu/ac
 - Addition of N and P alleviated the yield hit (same as UTC)
 - Addition of N and S alleviated the yield hit (same as UTC)
- ~8 bu/ac improvement with AMS + P

2020 Sulfur x NPK

	No AMS		AMS	
UTC	50.6			
N	54.4	cde	63.3	a
P	56.8	bcd	58.9	abc
K	51.4	e	62.3	a
NPK	53.7	de	60.2	ab



- K did not have negative impact
- 6.2 bu/ac improvement with P
- 12.7 bu/ac improvement with AMS
 - 3.8 bu/ac numeric improvement with N (urea alone)

2021 LaCrosse: Sulfur x NPK

Source	Yield	N		P	K	S		Mn	N:S	
UTC	58.4	4.9	b	0.32	2.17	0.264	cd	35	18.5	abcd
N	57.5	4.8	b	0.32	2.13	0.255	d	33	19.0	ab
P	57.9	5.0	b	0.33	2.14	0.265	cd	42	18.8	abc
K	62.5	5.1	b	0.31	2.16	0.270	bcd	33	18.7	abc
NPK	63.6	4.9	b	0.33	2.24	0.256	d	36	19.2	a
AMS	55.7	4.9	b	0.30	1.96	0.283	bc	41	17.4	e
AMS_P	63.8	5.6	a	0.36	2.10	0.320	a	35	17.5	de
AMS_K	62.8	5.1	b	0.33	2.25	0.286	b	34	18.1	bcde
AMS_PK	62.5	5.1	b	0.33	2.25	0.286	b	39	17.7	cde
Trt	ns	*		ns	ns	***		ns	*	
CV	11.2	6.4		8.0	8.0	6.3		21.4	5.0	

21 W. Lafayette: S+NPK x Variety

Var ***

Fert***

V x Fert: ns

CI Incl. → 68.2

CI Intermed. → 74.6

ACRE 21	Pooled Over Varieties			
Source	No AMS		AMS	
UTC	67.9	c		
N	68.5	c	75.0	b
P	69.1	c	78.5	a
K	67.1	c	74.9	b
NPK	68.3	c	73.4	b

21 W. Lafayette: S+NPK x Variety

ACRE 21	Pooled Over Varieties												
Source	Yield		N		P	K		S		Mn		N:S	
UTC	67.9	c	5.4	bc	0.35	1.92	c	0.29	bc	46.5	ef	18.7	a
N	68.5	c	5.2	d	0.33	1.93	c	0.28	c	45.5	f	18.7	a
P	69.1	c	5.5	b	0.36	2.02	ab	0.29	b	47.9	def	18.9	a
K	67.1	c	5.3	cd	0.35	2.03	a	0.28	c	48.3	de	19.2	a
NPK	68.3	c	5.4	bc	0.35	1.93	bc	0.29	bc	48.9	cde	18.9	a
AMS	75.0	b	6.0	a	0.36	2.02	ab	0.35	a	49.4	bce	17.2	b
AMS+P	78.5	a	6.0	a	0.36	2.05	a	0.35	a	52.2	a	17.1	b
AMS+K	74.9	b	6.1	a	0.36	2.10	a	0.35	a	51.4	abc	17.4	b
AMS+PK	73.4	b	5.9	a	0.35	2.03	a	0.34	a	51.9	ab	17.3	b
Var	***		**		***	ns		***		***		ns	
Fert	***		***		ns	*		***		**		***	
Var*Fert	ns		ns		ns	ns		X		X		ns	
CV (%)	5.6		4.5		7.3	6.0		5.6		7.1		4.8	

21 Wanatah: S+NPK x Variety

Var ***

Fert***

V x Fert: ns

CI Incl. → 73.5

CI Intermed. → 69.3

Pinney 21	Pooled Over Varieties			
Source	No AMS		AMS	
UTC	70.0	cd		
N	70.7	bcd	71.7	abc
P	70.9	bcd	72.9	a
K	69.7	d	73.1	a
NPK	71.5	abcd	72.1	ab

21 Wanatah: S+NPK x Variety

Pinney 21	Pooled Over Varieties													
Source	Yield		N		P		K		S		Mn		N:S	
UTC	70.0	cd	5.8	cd	0.43	ab	2.10	ab	0.34	c	35	bc	17.5	bc
N	70.7	bcd	6.0	bc	0.42	bc	2.02	bc	0.33	cd	34	c	18.3	a
P	70.9	bcd	5.9	cd	0.43	ab	2.04	bc	0.33	c	34	c	17.7	ab
K	69.6	d	5.8	d	0.41	c	2.19	a	0.32	d	35	bc	18.2	a
NPK	71.5	bcd	5.9	cd	0.44	ab	2.18	a	0.33	c	38	ab	17.8	ab
AMS	71.7	abc	6.0	ab	0.42	bc	2.00	c	0.37	a	35	bc	16.2	e
AMS + P	72.9	a	6.2	a	0.45	a	2.04	bc	0.38	a	39	a	16.4	de
AMS + K	73.1	a	6.2	a	0.42	c	2.19	a	0.37	bc	40	a	16.9	cd
AMS + PK	72.1	ab	6.2	a	0.43	bc	2.15	a	0.36	b	39	a	17.3	bc
Var	***		**		ns		*		*		**		ns	
Fert	*		***		*		**		***		*		***	
Var*Fert	ns		ns		ns		ns		ns		ns		ns	
CV (%)	3.4		3.4		5.2		5.9		4.3		12.7		4.9	

22 W. Lafayette: S+NPK x Variety

YIELD

Var ns

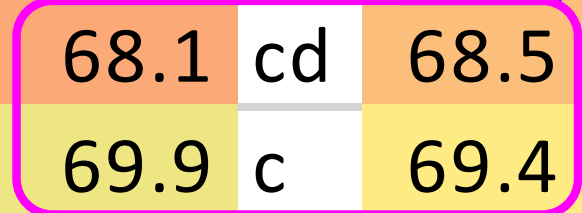
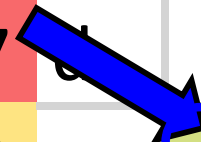
Fert**

V x Fert: ns

CI Incl. → 69.9

CI Intermed. → 69.7

W.Laf. 22	Pooled Over Varieties			
Source	No AMS		AMS	
UTC	66.7	d		
N	69.3	c	70.5	bc
P	73.1	a	72.8	ab
K	68.1	cd	68.5	cd
NPK	69.9	c	69.4	c



22 W. Lafayette: S+NPK x Variety

Seed Weight

Var **

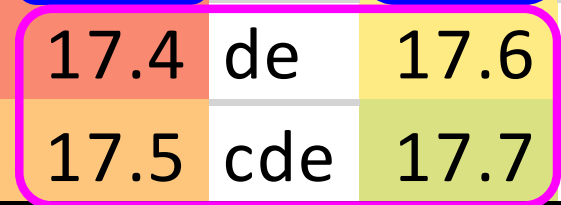
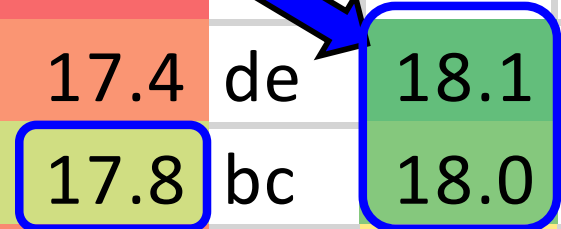
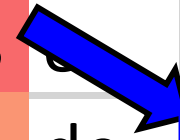
Fert**

V x Fert: ns

CI Incl. → 17.8

CI Intermed. → 17.5

W.Laf. 22	Pooled Over Varieties			
Source	No AMS		AMS	
UTC	17.3			
N	17.4	de	18.1	a
P	17.8	bc	18.0	ab
K	17.4	de	17.6	cd
NPK	17.5	cde	17.7	bc



Sulfur Management Considerations

- **Soluble S Fertilizer applied PRE to early V stages** of greatest benefit and flexibility
- **Broadcast of 15 to 20 lb S/ac** with soluble source near planting such as AMS, MES10, pelletized Gypsum, or before emergence with ATS.
- **Leaf Nutritional Snapshots then Apply Sulfur**
 - “Close” to **critical S levels (0.25%)**
 - **N:S ~18:1 or higher**
- **Nutrient interactions** can mask yield reductions and limit yield improvements based on **timing of potash**.
- **Phosphorus blending** is promising.

Sulfur Management Considerations

- **Timely planting is foundational** for high yielding soybeans; which seems to be intensified when coupled with PRE applications of N + S.
- **Field conditions** that affect sulfur availability and nodulation + N fixation (e.g., soil temp, planting, residue)
- **Synergies** with baseline sulfur and R4 foliar protection seem to have connections to soil conditions (e.g., time of planting)

Thanks for the support!



Purdue Crop Chat



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