



WHEAT AND CORN DISEASE MANAGEMENT UPDATE

Louisiana Agricultural
Technical and Management
Conference
February 8-10, 2023



Wheat Disease Management



Septoria leaf blotch



- Crop rotation may reduce inoculum
- Decrease residue (plowing)
- Pathogen-free seed
- Fungicides are effective

Tan spot



Bacterial Streak or Black Chaff



- **Seedborne**
- **Spread by rain/wind/equipment**
- **Aphids may spread**
- **Utilize resistant varieties**
- **Fungicides NOT EFFECTIVE!!!**



Leaf Rust



Stripe Rust



Stem Rust

➤ **Resistant Cultivars**
 ➤ **Fungicides**



✓ **60-80 F**
 ✓ **6-8 Hr Lf Wet**



✓ **40-65 F**
 ✓ **6-8 Hr Lf Wet**



✓ **60-104 F**
 ✓ **6-8 Hr Lf Wet**

LEAF RUST

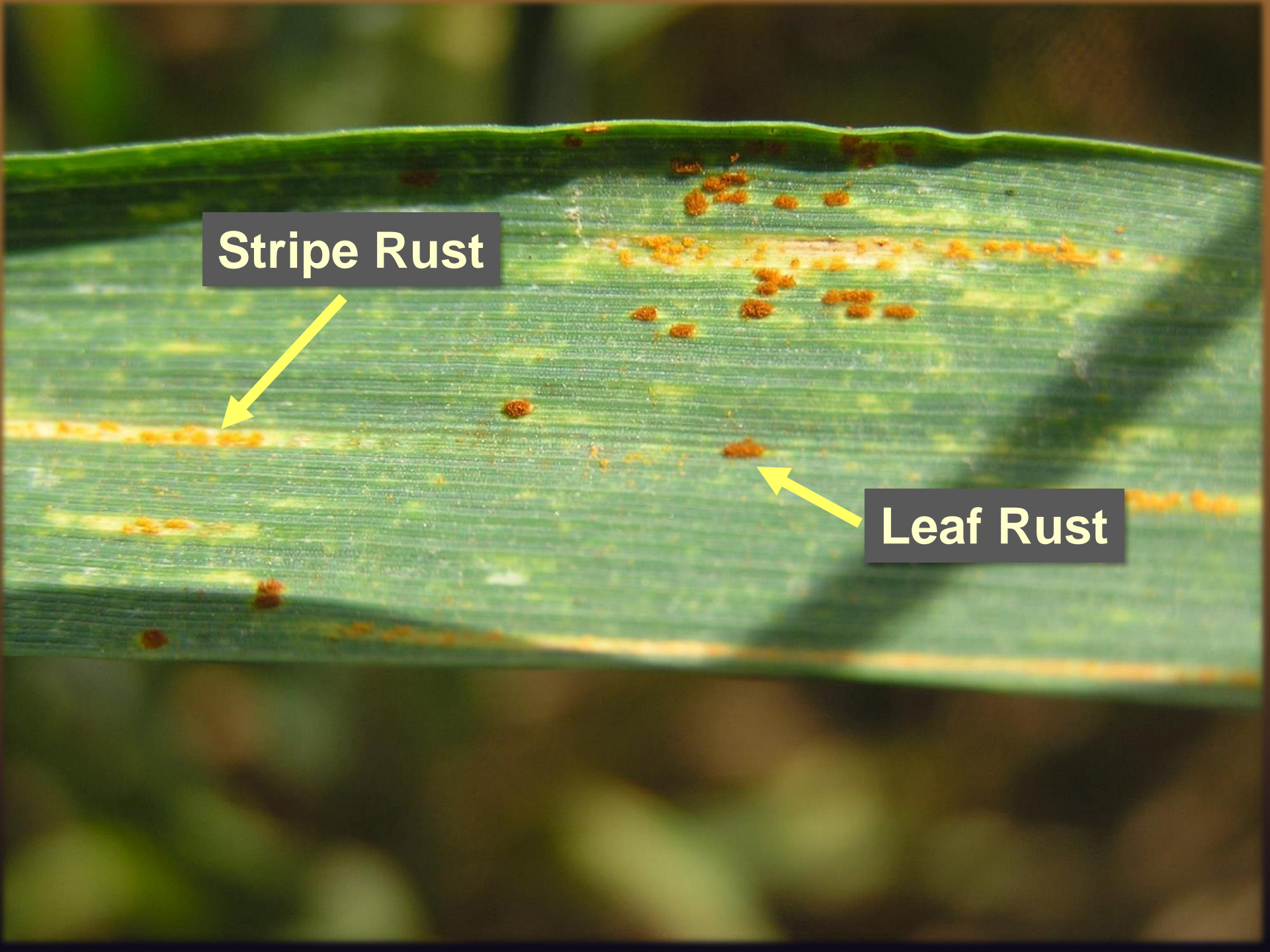




Stripe Rust



Leaf Rust



2019

BASF/Bayer/Dupont/Syngenta

Treatment (fl oz/a)	GS @ Appl	% Leaf Rust		Test WT	Yield bu/A
		18-Apr	30-Apr		
Non-treated	--			52.3	55.3
Nexicor (7.0)	F8			55.3	70.1
Priaxor (4.0)	F8			54.8	65.0
Trivapro (13.7)	F8	0.0	0.7	55.7	79.0
Prosaro (6.5)	F8	0.0	3.7	55.4	72.6
Aproach Prima (6.8)	F8	0.0	2.2	55.8	72.9
HSD (P=0.05)	--	21.3	19.5	0.7	16.4

propiconazole
tebuconazole
strobilurin generics

2020 General Screening

Treatment (fl oz/a)	GS @ Appl	% Stripe Rust	
		6-Apr	30-Apr
Non-treated	--	25.6	39.0
Priaxor (4.0)	F8	0.2	0.8
Trivapro (13.7)	F8	0.3	4.4
Prosaro (8.2)	F8	1.1	1.4
Prosaro Pro (10.3)	F8	0.9	2.3
Aproach Prima (6.8)	F8	0.7	1.9
Tilt (4.0)	F8	1.7	3.2
Trivapro (13.7)	F9	12.3	13.5
LSD (P=0.10)	--	5.1	5.9
LSD (P=0.20)	--	3.9	4.5

% Corn Grain Yield Loss Due to Defoliation

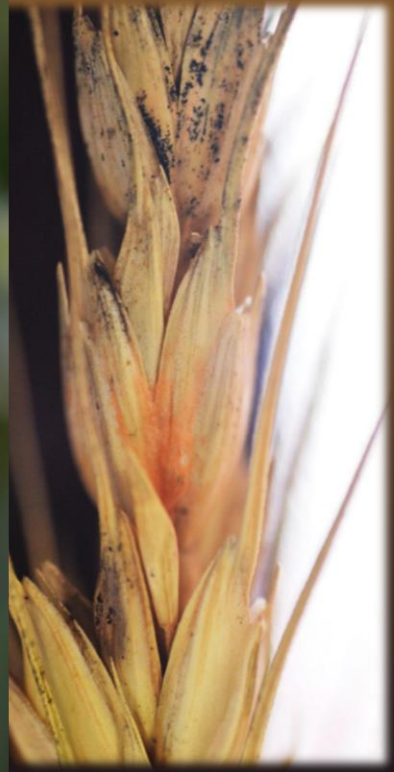
	% DEFOLIATION									
Growth Stage	10	20	30	40	50	60	70	80	90	100
Tassel	3	7	13	21	31	42	55	68	83	100
Silked	3	7	12	20	29	39	51	65	80	97
Silks Brown	2	6	11	18	27	36	47	60	74	90
Pre-Blister	2	5	10	16	24	32	43	54	66	81
Blister	2	5	10	16	22	30	39	50	60	73
Early Milk	2	4	8	14	20	28	36	45	55	66
Milk	1	3	7	12	18	24	32	41	49	59
Late Milk	1	3	6	10	15	21	28	35	42	50
Soft Dough	1	2	4	8	12	17	23	29	35	41
Early Dent	0	1	2	5	9	13	18	23	27	32
Dent	0	0	2	4	7	10	14	17	20	23
Late Dent	0	0	1	3	5	7	9	11	13	15
Nearly Mature	0	0	0	0	1	3	5	6	7	8



- ✓ Susceptible: H
- ✓ MOST DAMAG
- ✓ DON (mycotox
- ✓ 59-86°F and RH
- ✓ Rotate to non-f
- ✓ Plow under inf
- ✓ Moderately res



Blight



Miravis Ace (13.7 fl oz/A)

Prosaro Pro (10.3 fl oz/A)

Sphaerex (7.3 fl oz/A)

Prosaro (6.5-8.2 fl oz)



2020 Fungicide Timing – Dean Lee

Treatment (fl oz/a) ¹	GS @ Appl	Scab 0-9	Yld (bu/a) ²
Non-Treated	--	6.5	22.6
Prosaro (6.5)	Flowering	2.8	34.3
Caramba (13.5)	Flowering	4.3	31.9
Miravis Ace (13.7)	Flowering	3.0	32.6
Miravis Ace (13.7)	Heading	5.0	30.3
Miravis Ace (13.7)	6 DA FLW	6.0	20.1
EXP1	Flowering	2.5	34.8
LSD (0.10)		1.3	8.2

¹ NIS 0.125% v/v.

² Hand harvested plots (15 sq ft.)



2020 Fungicide Timing – Macon Ridge

Treatment (fl oz/a)	GS @ Appl	Scab 0-9	Yld (bu/a)
Non-Treated	--	7.8	21.0
Prosaro (6.5)	Flowering	3.3	43.8
Caramba (13.5)	Flowering	3.0	41.7
Miravis Ace (13.7)	Flowering	3.3	49.4
Miravis Ace (13.7)	Heading	3.0	40.2
Miravis Ace (13.7)	6 DA Flowering	6.8	35.2

Dr. Trey Price





**AT FLOWERING APPLICATION BEST
FOR SCAB MANAGEMENT**

**6 days after
flowering**

Non-Treated

2021-2022 Blanton – Dean Lee

Treatment (fl oz/a) ¹	GS @ Appl.	Scab Index	TW (lb/bu)	Yield (bu/A)
Non-Treated	Flowering	5.1	54.7	76.7
Prosaro (6.5)	Flowering	1.9	56.0	76.3
Miravis Ace (13.7)	Flowering	1.1	54.0	82.6
Prosaro Pro (10.3)	Flowering	2.5	55.8	79.2
Sphaerex (7.3)	Flowering	2.3	54.8	79.1

¹ NIS 0.125% v/v



Locations

Variety Development – www.wheat.lsu.edu

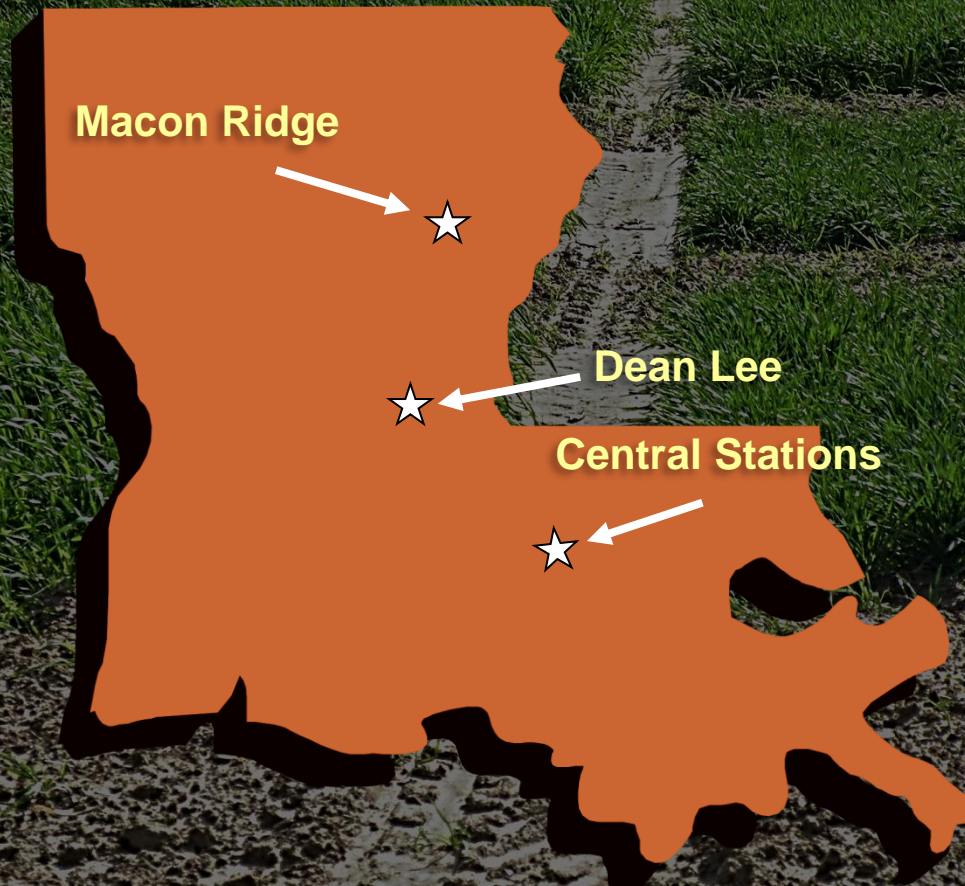





Table 10. Late maturity wheat performance trial across North Louisiana for two years. WITH AND WITHOUT FUNGICIDE.

- Dr. Harrison's OVT at BH, DL, and MRRS
- Sprayed Miravis Ace 2X vs non-sprayed)
- Use data that is averaged over 2-3 years when selecting a variety

	NO FUNG		diff	NO FUNG		diff
	FUNG	FUNG		FUNG	FUNG	
	Grain Yield			FHB SCORE		
Brand / Variety	bu/a			0-9		
SY VIPER	84.1	78.4	5.7	1.0	1.5	-0.5
PROGENY PGX 19-12	88.0	77.5	10.5	0.6	0.8	-0.3
PROGENY #CHAD	85.4	76.9	8.5	1.8	2.8	-1.0
DELTA GROW 1000	78.3	76.2	2.1	0.5	0.7	-0.2
AGRIMAXX 473	83.1	76.0	7.1	0.4	0.5	-0.1
PROGENY #BULLET	80.1	74.9	5.2	0.3	0.5	-0.2
DYNA-GRO 9811	82.7	74.4	8.3	1.3	1.5	-0.3
PROGENY #BUSTER	81.4	74.3	7.1	0.8	1.3	-0.5
LA12275DH-56	77.0	74.0	3.0	1.1	1.6	-0.5
PIONEER 26R59	80.8	73.3	7.5	1.1	1.3	-0.2

2022 SMALL GRAIN PERFORMANCE TRIALS

LAES Research Summary No. 225 August 2022



**NO FUNGICIDES
SEVEN EXPERIMENT
STATIONS**

Frost Damage



- **Damage usually superficial when tillering or earlier**
- **Most susceptible @ heading/flowering (late spring freezes)**
- **Severe damage can occur if 30F or lower**

Growth Stage	Approximate injurious temperature (two hours)	Primary Symptoms	Yield Effect
Tillering	12 F (-11 C)/	Leaf chlorosis; burning of leaf tips; silage odor; blue cast to field	Slight to Moderate
Jointing	24 F (-4 C)	Death of growing point; leaf yellowing or burning; lesions, splitting, or bending of lower stem; odor	Moderate to severe
Boot	28 F (-2 C)	Floret sterility; head trapped in boot; damage to lower stem; leaf discoloration; odor	Moderate to severe
Heading	30 F (-1 C)	Floret sterility; white awns or white heads; damage to lower stems; leaf discoloration	Severe
Flowering	30 F (-1 C)	Floret sterility; white awns or white heads; damage to lower stems; leaf discoloration	Severe
Milk	28 F (-2 C)	White awns or white heads; damage to lower stems; leaf discoloration; shrunken, roughened, or discolored kernels	Moderate to severe
Dough	28 F (-2 C)	Shriveled, discolored kernels; poor germination	Slight to moderate

Corn Disease Management







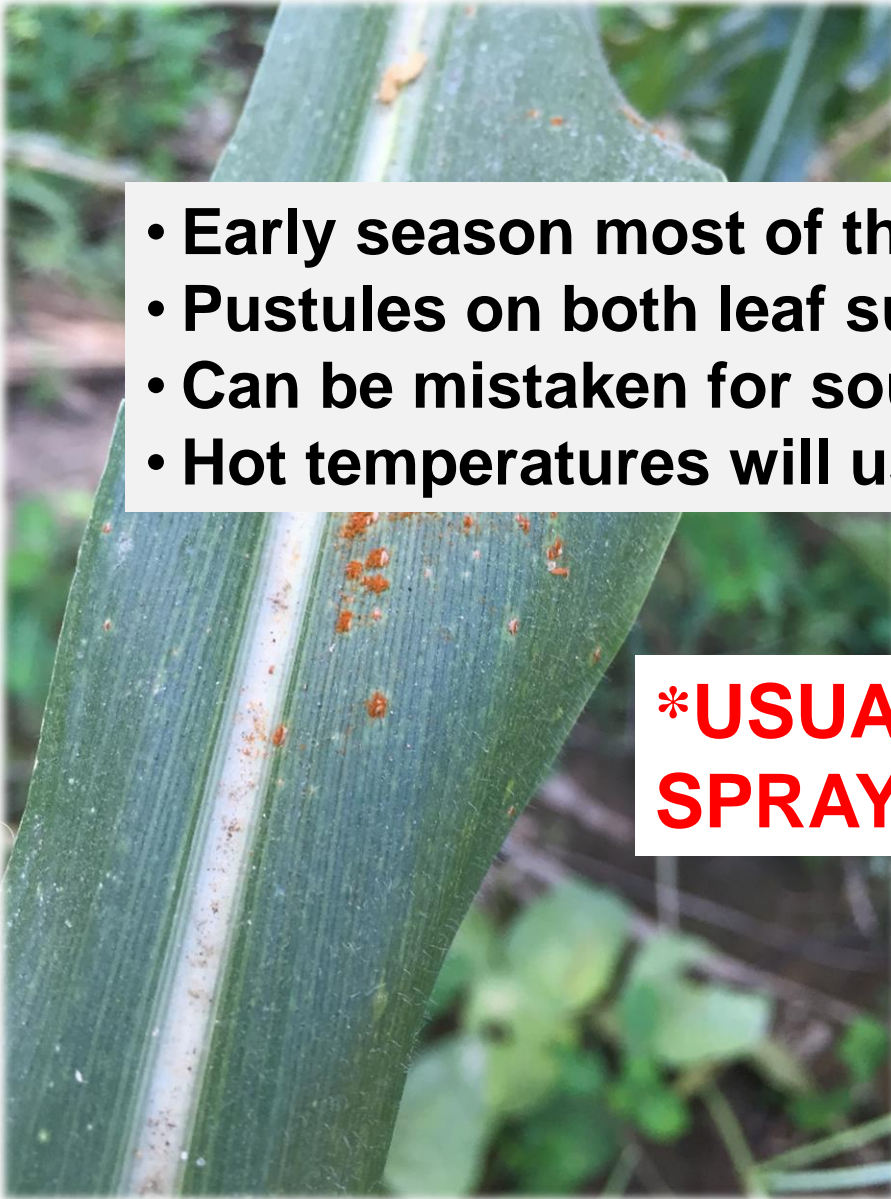
XYWAY FUNGICIDE

FMC
APPLIED AT PLANTING 2X2
NORTHERN CORN LEAF BLIGHT
NOT EFFECTIVE ON SOUTHERN RUST

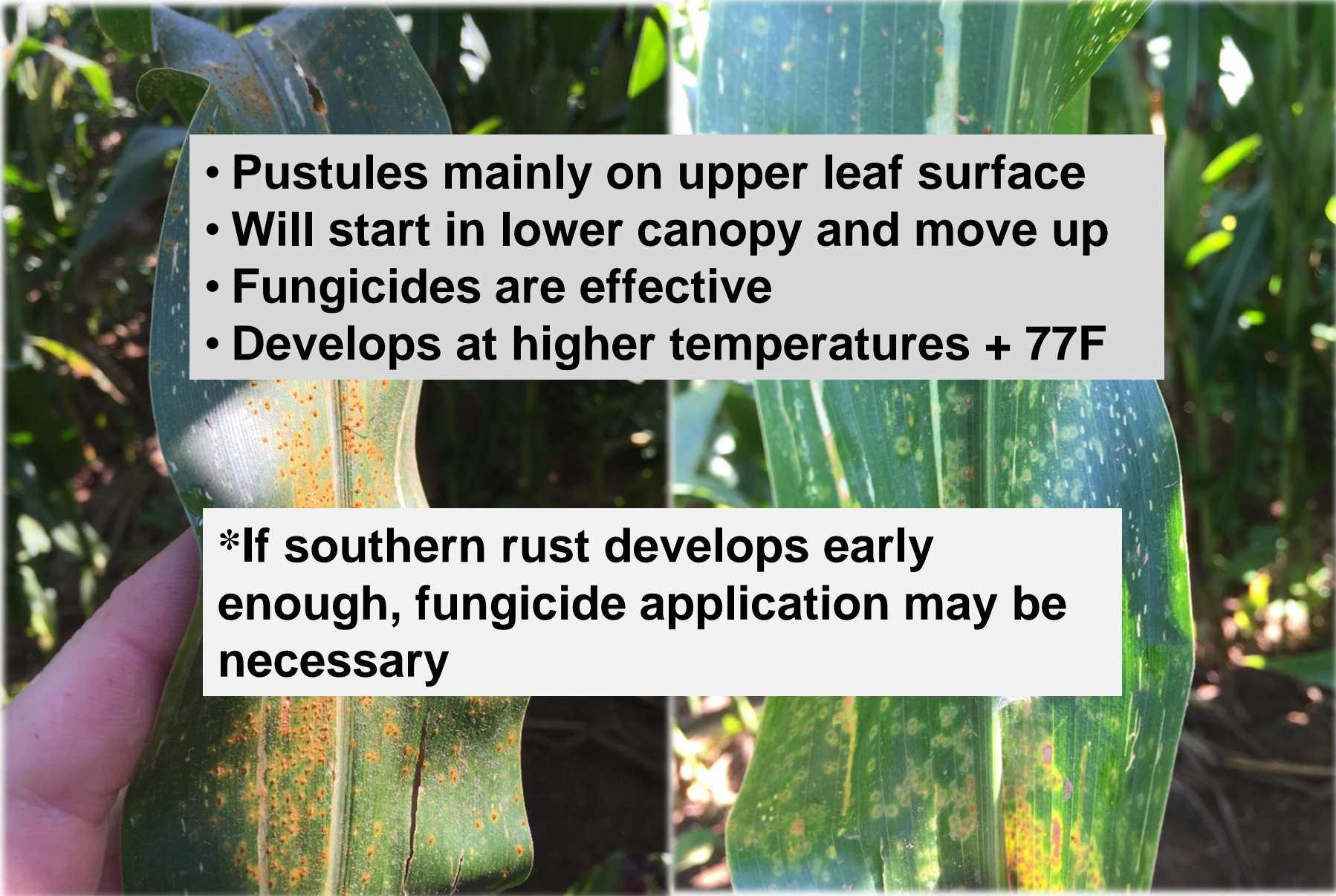
Foliar Diseases – Common rust

- Early season most of the time
- Pustules on both leaf surfaces
- Can be mistaken for southern rust
- Hot temperatures will usually slow it down (+ 77F)

***USUALLY DON'T
SPRAY FOR THIS**



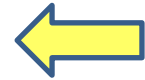
Foliar Diseases – Southern rust

- 
- Pustules mainly on upper leaf surface
 - Will start in lower canopy and move up
 - Fungicides are effective
 - Develops at higher temperatures + 77F

***If southern rust develops early enough, fungicide application may be necessary**

2021 Corn Fungicide Trial – Dean Lee

Treatment (fl oz/a) ¹	GS @ Appl	Southern			Yld (bu/a)
		NCLB 0-9	Rust 0-9	TW (lb/bu)	
Non-Treated	--	3.0	5.3	56.6	96.4
Delaro Complete (8.0)	R1	2.3	4.5	57.2	108.4
Miravis Neo (13.7)	R1	1.5	3.3	57.9	122.0
Trivap	IN A SUSCEPTIBLE VARIETY				.8
Veltyn	PLANTED LATE				.3
Aproach Funga (5.0)	R1	2.0	3.5	57.2	110.7
Lucento (5.0)	R1	1.5	3.5	57.6	122.6
Topguard EQ (5.0)	R1	1.5	3.5	57.3	100.2
LSD (0.10)		0.9	0.9	0.5	19.6

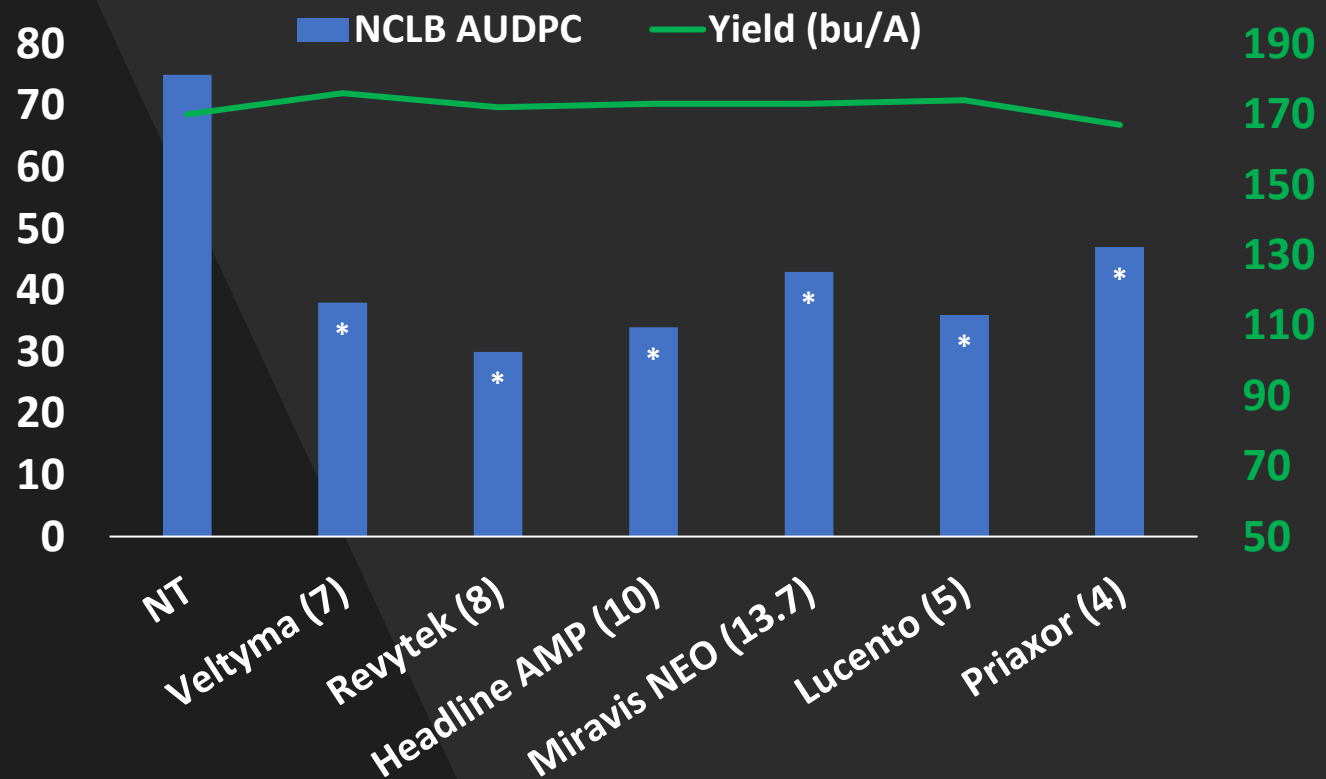


2022 Corn Fungicide – Dean Lee

Treatment (fl oz/a) ¹	June 13	July 19	TW (lb/bu)	Yield (bu/A)
	Southern Rust 0-9	Southern Rust 0-9		
Non-treated	0.1	3.7	54.2	185.0
Lucento (5.0)	0.0	0.1	54.4	204.1
TopGuard EQ (5.0)	0.0	0.0	54.9	197.1
Veltor (5.0)	IN A SUSCEPTIBLE VARIETY PLANTED LATE			8.5
Delaqua (5.0)				4.8
Miramis (5.0)				4.5
Trivapro (13.7)	0.0	0.0	55.6	194.0
LSD (0.10)	0.03	0.9	1.0	12.1
LSD (0.20)	0.26	0.7	0.8	9.2

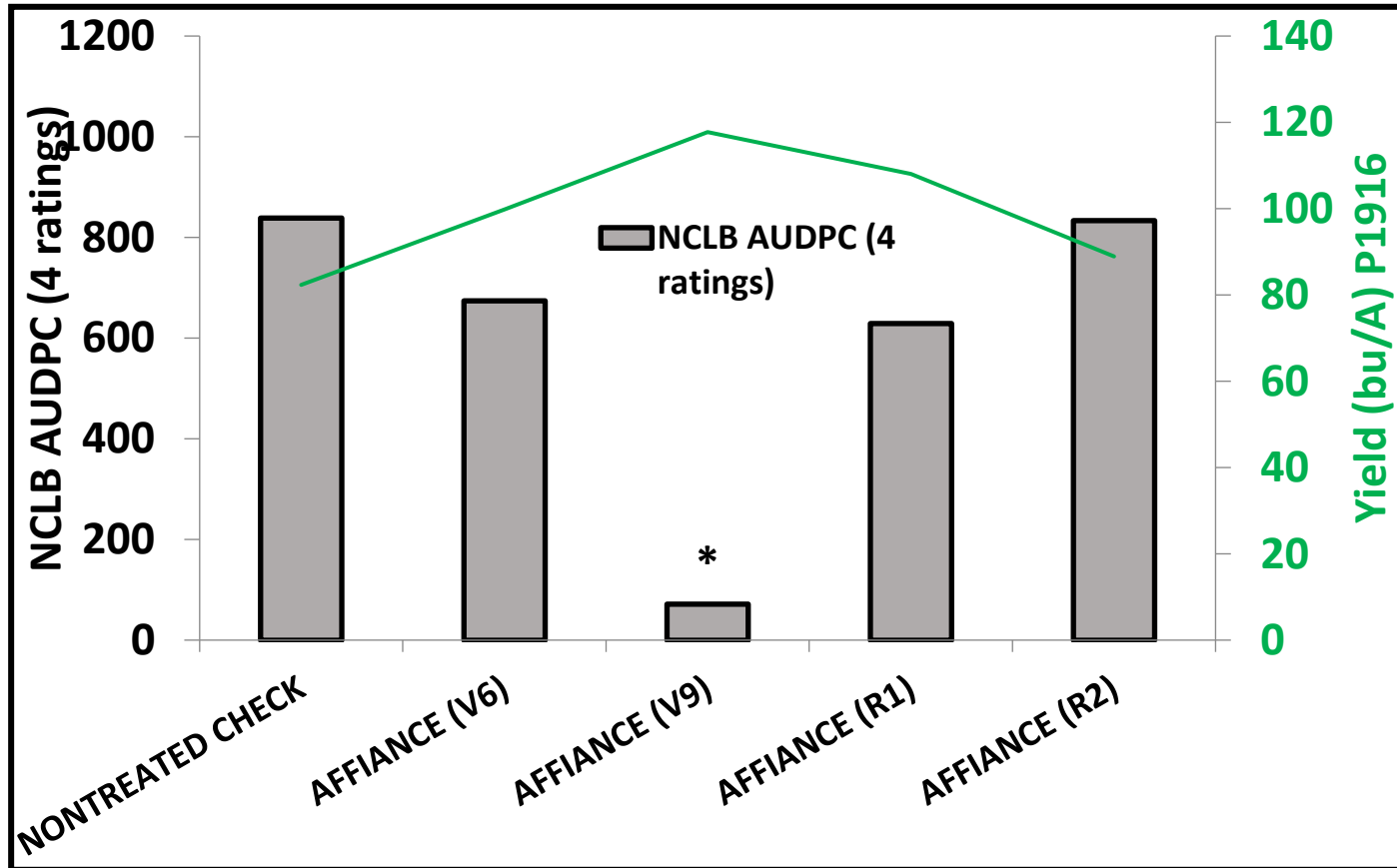
¹ Induce 0.25% v/v

Corn fungicide efficacy trial – MRRS (R1)



Dr. Trey Price

Effect of application timing on NCLB, MRRS – 2017



Maximum disease severity = 70% on 6/29

MRCN1703

Dr. Trey Price



- TREATED VS NONTREATED

Dr. Trey Price

7/13/2017



9/6/2017



8/18/2017



Hybrid Evaluations

- OHTs at MRRS
- Fantastic NCLB pressure
- Data available at

www.lsuagcenter.com



Brand	Hybrid	YLD	GM	TW	PP	PH	EH	HC	NCLB	NCLB	SR
Pioneer	P1828YHR	163.1	17.2	59.5	28082	88.5	36.5	2	4.3	6.5	0.3
Pioneer	P1870YHR	178.1	17.3	60.5	31348	87.3	36.8	2	3.1	5.3	0.3
Pioneer	P1464VYHR	182	15.4	59.3	30368	83.3	34	2	2.8	5	1.3
Mission	AV7516 Q	195.1	16.6	61.4	29552	85.8	37.5	2.5	1.1	4.3	0.8
Pioneer	P1903YHR	205.7	17.5	59.2	29388	74.8	37.5	1.5	1.5	4.1	1.4
Pioneer	P1077YHR	185.2	14.9	59.8	31348	84.5	36.5	2	1.1	3.4	1.8
Dyna-Gro	D54VC14	196.7	14.8	60.2	30694	83.8	33.8	1.8	1.4	3.3	1
Dyna-Gro	D58VC65	173.3	16.3	60.2	27592	84.5	34.8	2	1.3	3	0.8
Progeny	PGY9114VT2P	174.5	15.7	60.7	29715	86	35.5	2	1.1	2.9	0.5
LG	LG 68C59	198.3	18.5	58.5	32491	89	36.5	2	1.5	2.8	0.8

Trey Price

Fungicide Efficacy Table

Fungicide Class	Active ingredient (%)	Product/trade name	Rate/A (fl oz)	Gray leaf spot	Northern leaf blight	Southern rust	Harvest restriction ¹
QoI Strobilurins Group 11	azoxystrobin 22.9%	Quadris 2.08 SC multiple generics	6.0 - 15.5	E	G	G	7 days
	pyraclostrobin 23.6%	Headline 2.09 EC/SC	6.0 - 12.0	E	VG	VG	7 days
	picoxystrobin 22.5%	Aproach 2.08 SC	3.0 - 12.0	F-VG	VG	G	7 days
DMI Triazoles Group 3	propiconazole 41.8%	Tilt 3.6 EC multiple generics	2.0 - 4.0	G	F-G	F-G	30 days
	prothioconazole 41.0%	Proline 480 SC	5.7	U	VG	G	14 days
	tebuconazole 38.7%	Folicur 3.6 F multiple generics	4.0 - 6.0	U	VG	F-G	36 days
	tetraconazole 20.5%	Domark 230 ME	4.0 - 6.0	E	VG	VG	R3 (milk)
	azoxystrobin 13.5% propiconazole 11.7%	Quilt Xcel 2.2 SE multiple generics	10.5 - 14.0	E	VG	VG	30 days
	benzovindiflupyr 2.9% azoxystrobin 10.5% propiconazole 11.9%	Trivapro	13.7	E	G	E	30 days
	cyproconazole 7.17% picoxystrobin 17.94%	Aproach Prima 2.34 SC	3.4 - 6.8	E	VG	G-VG	30 days
	flutriafol 19.3% fluoxyastrobin 14.84%	Fortix 3.22 SC Preemptor 3.22 SC	4.0 - 6.0	E	VG-E	VG	R4 (dough)
	pyraclostrobin 28.58% fluxapyroxad 14.33%	Priaxor 4.17 SC	4.0 - 8.0	VG	U	G	21 days

LSU AgCenter Plant Disease Management Guide

https://www.lsuagcenter.com/portals/communications/publications/management_guides/plant_disease_guide/field-crops---corn

Cooperators



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Fred Collins

Vincent Doyle

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Rogers Leonard

Tashia Monaghan

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Myra Purvis

Trey Price

Hunter Pruitt

Chris Roider

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Brandi Woolam

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Thank YOU for Supporting Us!

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Josh Copes
Vinson Doyle
Darrell Franks & Crew
Steve Harrison
Donnie Miller
Tashia Monaghan
David Moseley
Randy Price
Trey Price
Myra Purvis
Hunter Pruitt
Warren Ratcliff & Crew
Daniel Stephenson
Scott Washam & Crew
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*Louisiana Soybean
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U.S. Wheat & Barley
Scab Initiative

See for Yourself
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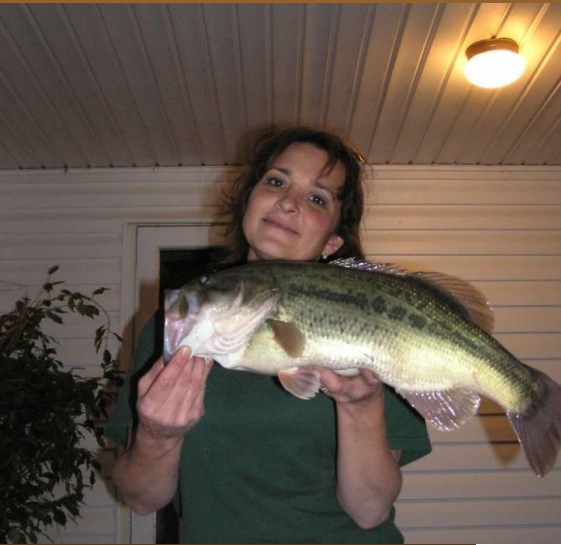












DLW1804

Treatment (fl oz/a) ¹	FHB % Inc ²	FHB %Sev	TW lb/bu	Yield bu/a
Non-treated	28.7	60.0	57.9	85.2
Caramba (13.5)	8.9	37.5	57.1	90.1
Prosaro (6.0)	8.6	48.8	57.6	94.5
Miravis Ace (13.7)	1.7	31.3	57.6	95.7
Approach Prime (6.8) + Proline (5.7)	8.3	38.8	57.6	92.1
Tukey's HSD P=0.05	17.8 - 23.1	34.4	1.9	14.9

Variety: Viper

¹All include NIS (0.125%)

² Ratings taken on 4/27/18

Barley Yellow Dwarf



N Gregory



- Seedling wheat is susceptible stage
- Aphids vector
- Manage aphids early (Arkansas data)
- Usually not a problem

Bacterial Streak or Black Chaff



- Seedborne
- Spread by rain/wind/equipment
- Aphids may spread
- Utilize resistant varieties
- **FUNGICIDES NOT EFFECTIVE!!!**



2017

BASF/Bayer/Dupont/Syngenta

Treatment (fl oz/a)	GS @ Appl	% Stripe/Leaf Rust		Test WT	Yield bu/A
		24-Mar	7-Apr		
Non-treated	--	33.7	79.9	48.1	31.7
Nexicor (7.0)	F8	0.9	34.9	50.8	46.1
Trivapro (13.7)	F8	0.5	5.5	59.0	47.4
Prosaro (6.5)	F8	1.7	41.5	51.4	43.3
Approach Prima (6.8)	F8	0.5	20.1	51.8	46.8
Caramba (13.5)	F10	0.4	1.0	51.7	52.2
Prosaro (6.5)	F10	0.7	1.7	51.3	54.6
HSD (P=0.05)	--	0.3	3.0	3.8	9.8

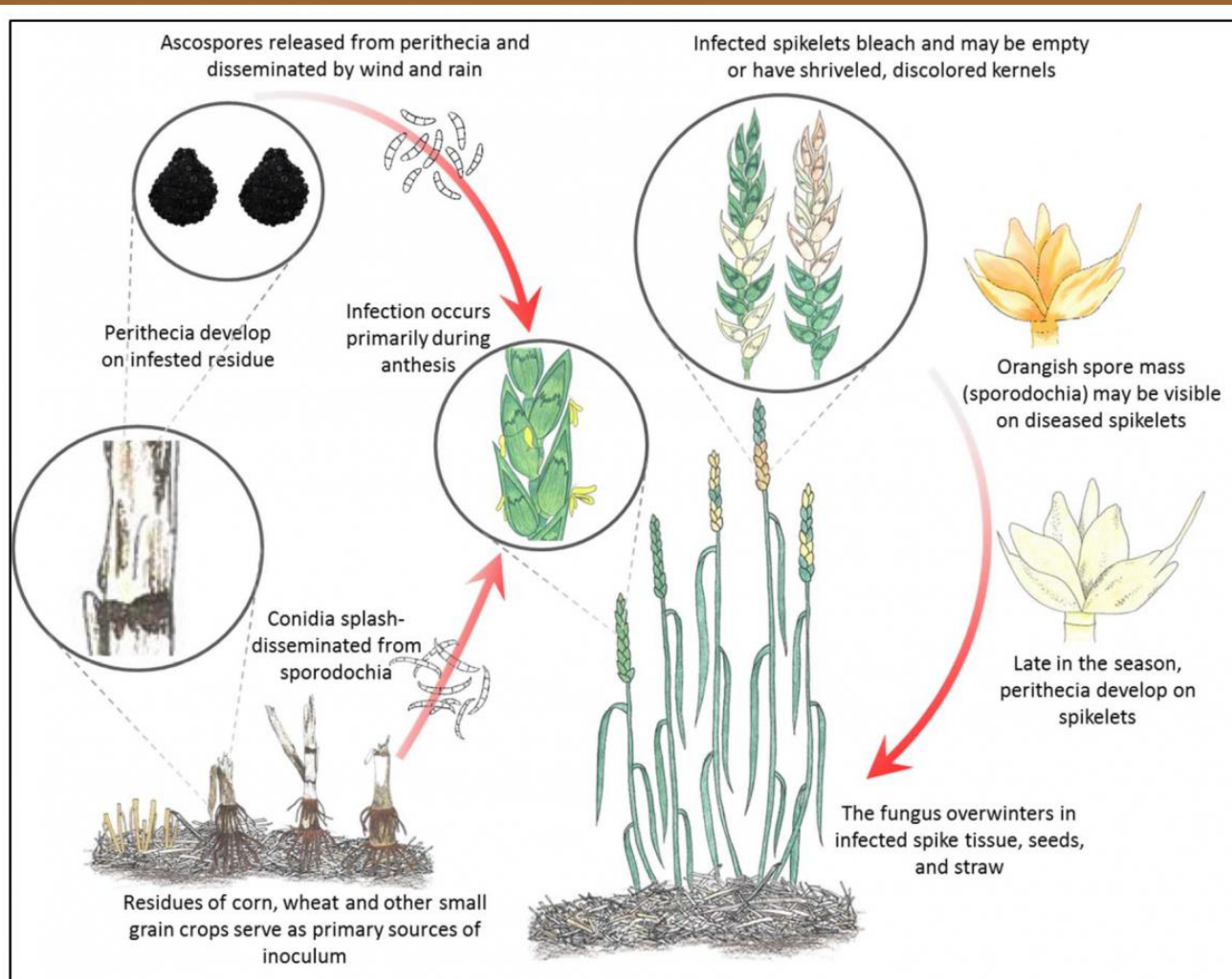
2021 Fungicide Timing Macon Ridge

Treatment (fl oz/a) ¹	GS @ Appl	Scab % Sev	TW (lb/bu)	Yld (bu/a)
Non-Treated	--	31.5	56.4	77.1
Prosaro (6.5)	Flowering (FLW)	20.1	57.3	82.4
Caramba (13.5)	Flowering	21.3	57.2	82.2
Miravis Ace (13.7)	Flowering	11.8	57.1	79.1
Miravis Ace (13.7)	Heading	19.1	56.4	75.3
Miravis Ace (13.7)	FLW, 6 DA FLW	11.7	57.0	74.4
Miravis Ace (13.7)	Flowering			
fb tebuconazole	6 DA Flowering	14.6	57.6	75.2
LSD (0.10)		8.6	1.0	8.7

Dr. Trey Price



U.S. Wheat & Barley
Scab Initiative



Fusarium head blight disease cycle

Source: <https://ohioline.osu.edu/factsheet/plpath-cer-06>



***PREMATURE
DEFOLIATION***



Mature Soybean in Northeast LA

Planting Date: Early to Mid-April



Field in NE LA – Planting Date: April 22



Maturing after the Rain in NE LA

Planting Date: April 29



Sprouting in the Pod



Wheat Fertilizer Strategies and Recommendations

In a normal year Nitrogen accounts for about 31% of wheat input costs

- 90 to 120 lb/acre of Nitrogen
- Split application with ~40 – 50% in winter during tillering (Jan 14 – Feb 14) and 50 – 60% at jointing (Feb 28 – March 14)
- Timing of the first application depends on plant color and tillering: does it appear to need N? Prior crop, rainfall pattern, planting date, soil type, and residual N influence rate and timing of nitrogen application

Mascagni et al found that 90 lb/acre is sufficient for max yield most years

For Louisiana:

- The optimum N rate is around 120 lb/acre in most fields
- This can range from 90 to 140 lb/acre depending on weather, residual N, field, and crop

Dr. Steve Harrison

Seeding Rate – Dean Lee

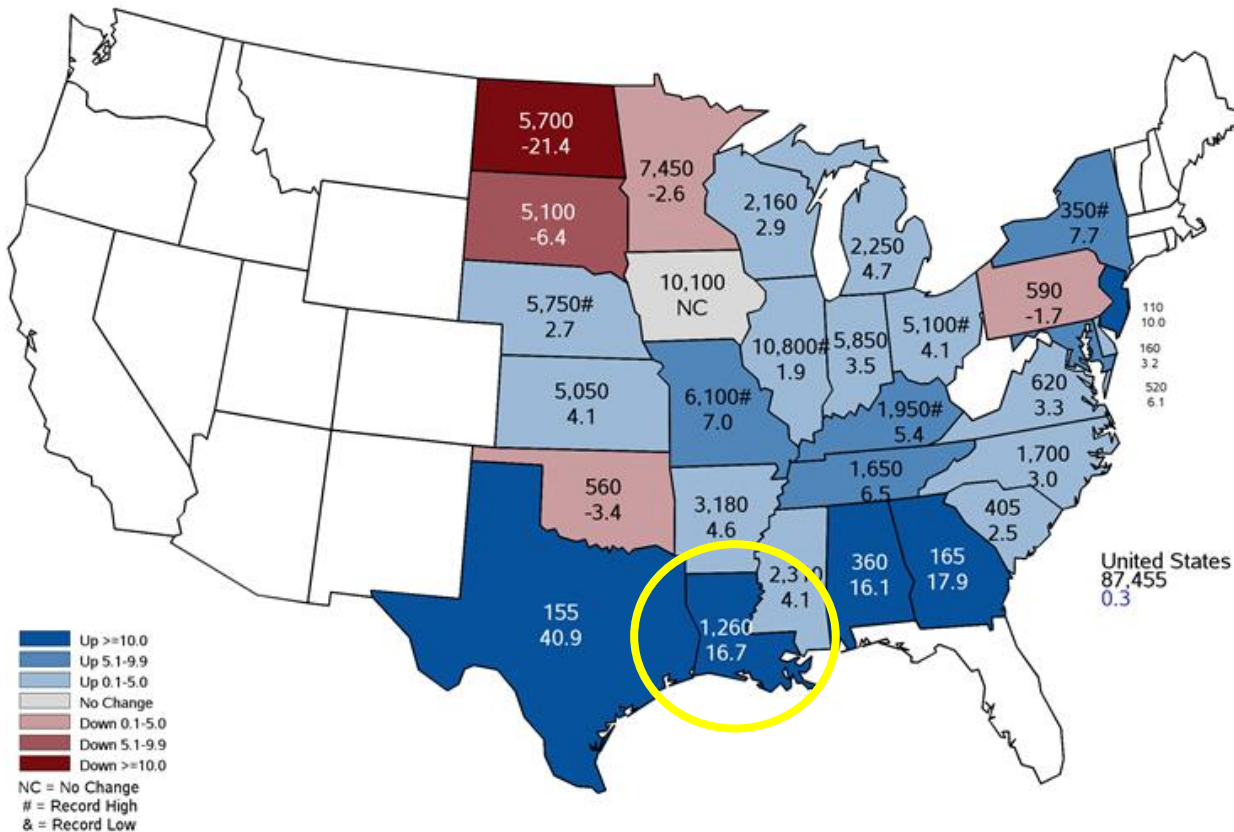
Treatment (lb/A)	Stand Count	Yield (bu/A)
60	11.8	74.6
80	16.2	70.9
ONLY ONE YEAR OF DATA!!!		
120	20.7	72.5
140	24.1	75.8
160	26.8	73.9
LSD (0.10)	1.7	3.8

A close-up, high-angle view of a lush green soybean field. The plants are densely packed, with their trifoliate leaves creating a textured, vibrant green surface. The lighting is bright, highlighting the natural colors and textures of the foliage.

Soybean Update



2022 Soybean Planted Area (000) Acres and Percent Change from Previous Year



United States Department of Agriculture
National Agricultural Statistics Service

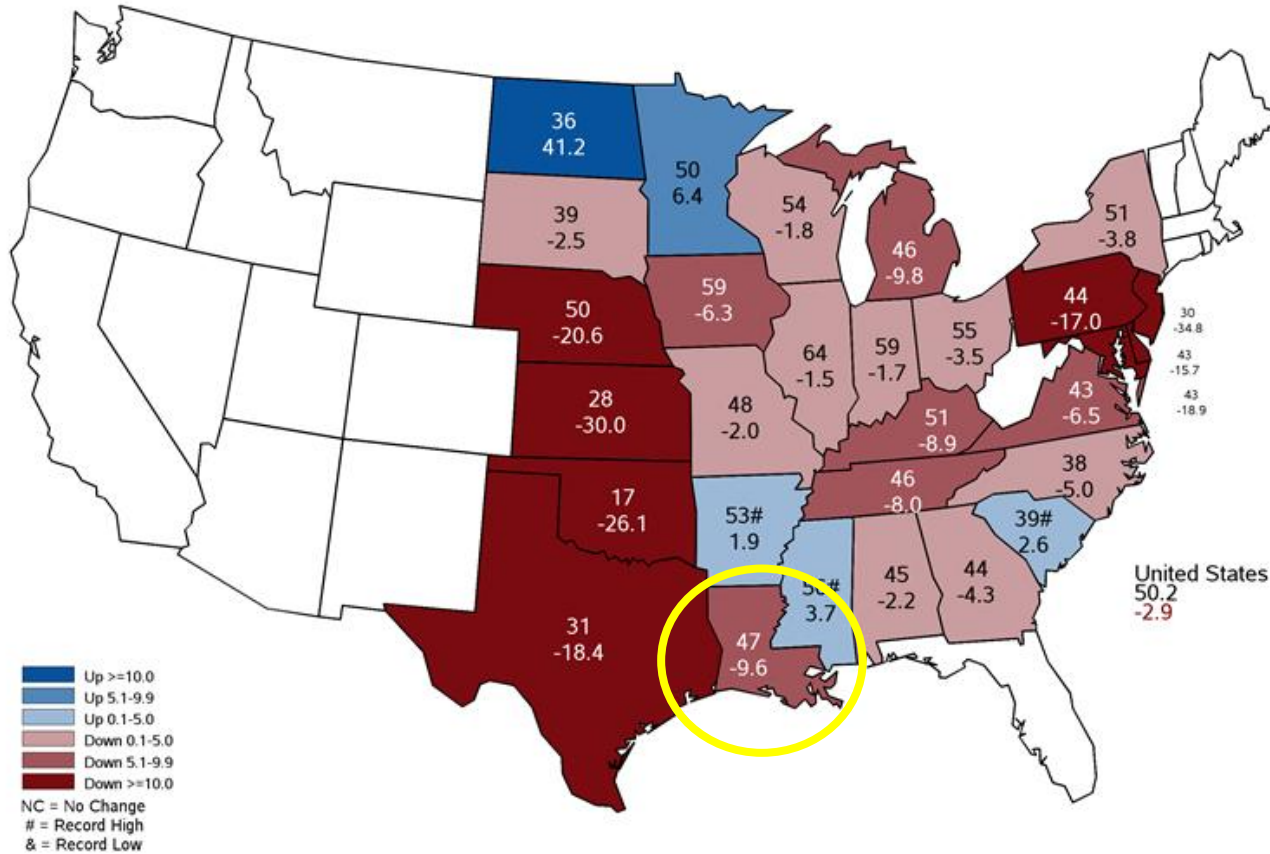
September 12, 2022



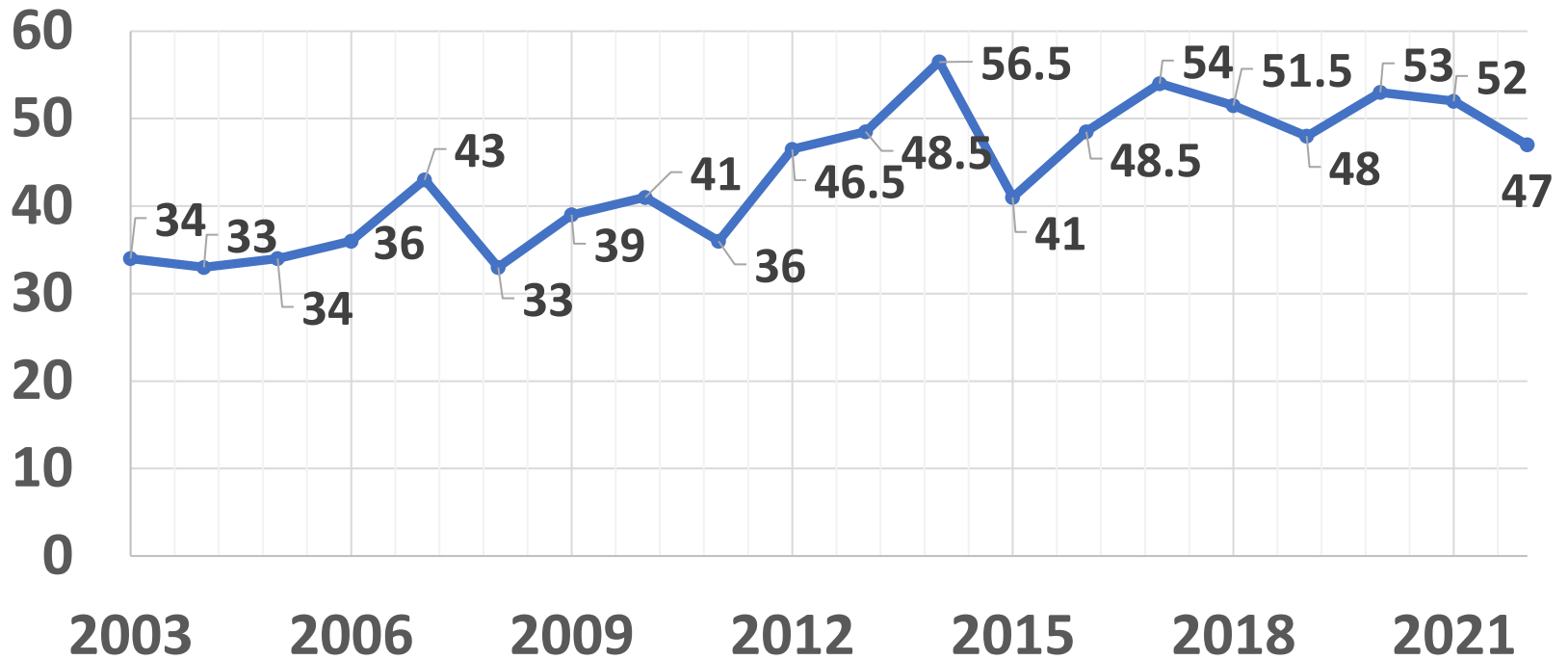


2022 Soybean Yield

Bushels and Percent Change from Previous Year



20 Year LA Soybean Yield History



2022 Heat and Drought Stress

Heat Stress:

- High and low average temperatures were approximately 4° F higher than normal in May and June.

Drought Stress:

- Rainfall in May and June 2022 (Chase, LA) totaled 5.38 inches versus a normal of 9.8 inches
- Soybeans require approximately 0.25 inches of water per day (7.5 inches a month)



Irrigated vs Dryland Soybean Acres



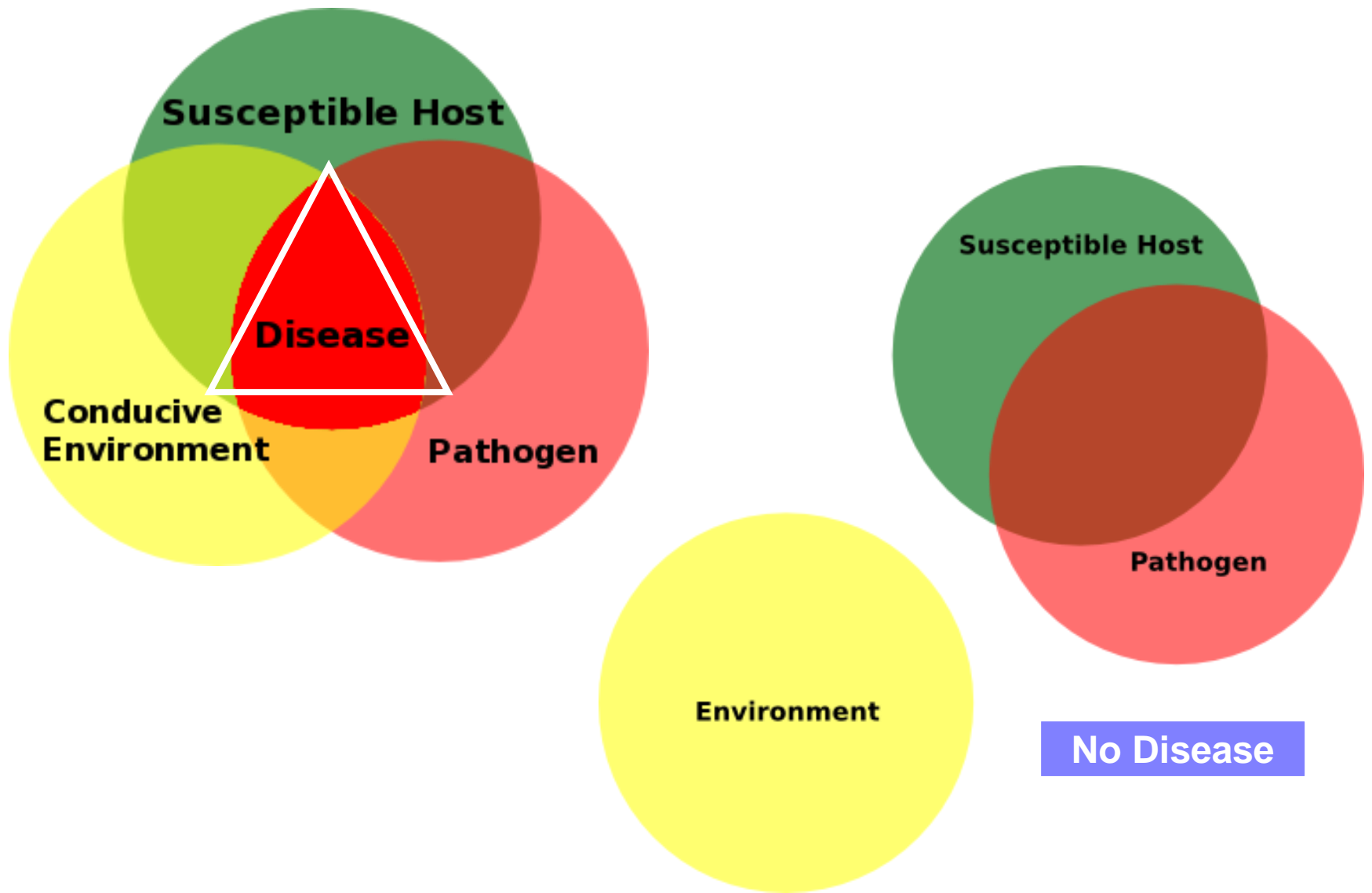
2022 LA Soybean Quality and Yield Loss

Commodity	Estimated Acres	Estimated Acres Abandoned	Acres Harvested with Adverse Impact
Corn	436,591	2,060	256,448
Cotton	187,032	100	141,643
Soybeans	1,248,713	30,758	820,415

2022 LA Soybean Quality and Yield Loss

Commodity	Yield Loss Impact	Quality Loss Impact	Impact at Harvest	Total Impact
Corn	\$60,052,235	\$9,207,576	\$60,884	\$69,320,695
Cotton	\$35,354,741	\$7,668,058	\$22,271	\$43,045,069
Soybeans	\$190,225,805	\$125,172,921	\$416,932	\$315,815,657

How Does Disease Occur?



Environmental Factors Usually Drive Epidemics

- **Air / Soil Temperature**
- **Leaf Wetness/RH**
- **Soil Moisture**
- **UV Light**
- **How Long Conditions Remain Favorable**



Disease Cycle – Pathogen Dispersal



Trey Price

Wheat Update



A close-up photograph of several green wheat heads on stalks. The wheat heads are in various stages of development, with some showing more defined grain structure than others. The background is a soft-focus field of green wheat leaves and stalks.

Winter wheat is triggered to become reproductive and head out based on three factors:

- 1. Vernalization accumulation**
- 2. Heat unit accumulation**
- 3. Photoperiod**

Dr. Steve Harrison

Vernalization: is the process where winter wheat develops the capacity to become a reproductive plant triggered by moisture and a period of cold temperatures



- Vernalization occurs between 32 F and 45 F with maximum accumulation around 40 F.
- Most of our wheat varieties require 3 - 6 weeks (21 – 42 days) of vernalization.
- **Seed was short this fall and some growers purchased and planted varieties adapted to more northern locations. Some of these may not fully head or head very late if vernalization is not completed.**

Dr. Steve Harrison



**Failure to vernalize
April 2012 Baton Rouge, LA**

Dr. Steve Harrison