

High Intensity Wheat Management - BASF

Trial ID: 10-ARC-N8-N85

Location: Agronomy Res. Center

Investigator: Bryan Young, Professor, Southern Illinois University, bgyoung@siu.edu
City State Zip Country: Carbondale IL 62901 USA
Trial Status: FINAL **Initiation Date:** 10-21-09

Objectives: To evaluate the effects of wheat management through combinations of seed treatment, nitrogen rate, and fungicide application on wheat growth and yield.

Crop 1: TRZAW Winter wheat **Variety:** Pioneer 25R62
Planting Method: SEEDED **Planting Date:** 10-21-09
Rate, Unit: 1.3 mil. S/A **Depth, Unit:** 1 IN
Row Spacing, Unit: 7.5 IN
Plot Width, Unit: 5 FT **Site Type:** FIELD
Plot Length, Unit: 24 FT **Tillage Type:** NO-TILL
Replications: 6 **Study Design:** Randomized Complete Block

Prior Crops, Year
 1. ZEAMD 2009

Field Prep./Maintenance: Fall: N 27 LB/A, P205 69 LB/A, K20 0 LB/A as DAP
 Spring: See treatment list

% OM: 2.1 **Texture:** SILT LOAM
pH: 6.4 **Soil Name:** WEIR
CEC: 7.6 **Fert. Level:** P1: 48 LB/A, K: 188 LB/A

	Application Description				
	A	B	C	D	E
Application Date:	10-21-09	03-18-10	04-08-10	04-09-10	04-23-10
Time of Day:			18:00	10:00	10:00
Application Method:			Spray	Spray	Spray
Application Timing:	SEEDTRT	SPGRNUP	21DA-B	FK5	FK9
Application Placement:			BROFOL	BROFOL	BROFOL
Applied By:			NRJ	NRJ	NRJ
Air Temperature, Unit:			58 F	58 F	71 F
% Relative Humidity:			46	55	69
Wind Velocity, Unit:			2 MPH	1 MPH	4 MPH
Wind Direction:			W	W	SW
Dew Presence (Y/N):			N	Y	N
Soil Temperature, Unit:			48 F	48 F	65 F
Soil Moisture:			NORMAL	NORMAL	BELNOR
% Cloud Cover:			0	0	80

	10-21-09	03-18-10	04-08-10	04-09-10	04-23-10
Crop stage at application:	NA	2	FK 5	FK 5	FK 9
Height Min, Max (inch):		2	4 6	10 6	10 18 22

	Pest Stage At Each Application				
	10-21-09	04-08-10	04-09-10	04-23-10	04-23-10
Stage Majority (leaves):	NA	NA	NA	NA	NA

	Application Equipment							
	SEEDTRT		CO2 sprayer		CO2 sprayer		CO2 sprayer	
Appl. Equipment:								
Operating Pressure:	25	PSI	25	PSI	30	PSI	30	PSI
Nozzle Type:	Streambar		Streambar		TwinFlFan		TwinFlFan	
Nozzle Size:					11001 VS		11001 VS	
Boom Length, Unit:	5	FT	5	FT	5	FT	5	FT
Spray Volume, Unit:	50	GPA	50	GPA	15	GPA	15	GPA

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Rating Date
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Rating Unit
Rating Timing
Trt-Eval Interval

TRZAW 06-14-10 Height inch	TRZAW 06-14-10 Heads 1 sqft	TRZAW 06-14-10 Lodging Percent	TRZAW 06-21-10 Moisture Percent	TRZAW 06-21-10 Test wt. lb/bu	TRZAW 06-21-10 Yield bu/A
EOS	EOS	EOS			

Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code	TRZAW 06-14-10 Height inch	TRZAW 06-14-10 Heads 1 sqft	TRZAW 06-14-10 Lodging Percent	TRZAW 06-21-10 Moisture Percent	TRZAW 06-21-10 Test wt. lb/bu	TRZAW 06-21-10 Yield bu/A
1	NO SEED TREATMENT								A						
1	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B	31.0 b	51.2 bc	0 a	10.1 bc	47.8 a-d	64 c
2	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	31.4 ab	58.6 ab	0 a	10.3 b	47.2 cd	80 b
2	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A						
2	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A						
2	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A						
2	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B						
2	HEADLINE	2.09	EC	0.049	lb ai/a	3	fl oz/a	FK5	D						
3	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	31.2 ab	57.8 ab	0 a	10.7 a	48.6 abc	90 a
3	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A						
3	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A						
3	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A						
3	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B						
3	TWINLINE	1.75	EC	0.123	lb ai/a	9	fl oz/a	FK9	E						
4	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	31.3 ab	54.1 abc	0 a	10.6 a	49.0 ab	90 a
4	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A						
4	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A						
4	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A						
4	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B						
4	HEADLINE	2.09	EC	0.049	lb ai/a	3	fl oz/a	FK5	D						
4	TWINLINE	1.75	EC	0.123	lb ai/a	9	fl oz/a	FK9	E						
5	NO SEED TREATMENT								A						
5	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B	30.8 b	49.8 c	0 a	9.9 c	46.5 d	63 c
5	32% UAN	3.54	SL			28.5	lb ai/a	21DA-B	C						
6	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	31.5 ab	57.8 ab	0 a	9.9 c	47.6 bcd	83 b
6	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A						
6	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A						
6	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A						
6	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B						
6	32% UAN	3.54	SL			28.5	lb ai/a	21DA-B	C						
6	HEADLINE	2.09	EC	0.049	lb ai/a	3	fl oz/a	FK5	D						
7	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	31.1 ab	55.8 abc	0 a	10.6 a	49.3 a	90 a
7	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A						
7	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A						
7	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A						
7	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B						
7	32% UAN	3.54	SL			28.5	lb ai/a	21DA-B	C						
7	TWINLINE	1.75	EC	0.123	lb ai/a	9	fl oz/a	FK9	E						
8	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	31.8 a	61.3 a	0 a	10.2 b	48.4 abc	90 a
8	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A						
8	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A						
8	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A						
8	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B						
8	32% UAN	3.54	SL			28.5	lb ai/a	21DA-B	C						
8	HEADLINE	2.09	EC	0.049	lb ai/a	3	fl oz/a	FK5	D						
8	TWINLINE	1.75	EC	0.123	lb ai/a	9	fl oz/a	FK9	E						
LSD (P=.05)										0.77	7.69	0.0	0.30	1.72	5.5
Replicate F										5.141	1.804	0.000	4.603	1.108	2.940
Replicate Prob(F)										0.0017	0.1434	1.0000	0.0033	0.3779	0.0289
Treatment F										1.406	2.149	0.000	9.414	2.634	36.757
Treatment Prob(F)										0.2406	0.0697	1.0000	0.0001	0.0309	0.0001

Means followed by same letter do not significantly differ (P=.05, LSD)

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Trt-Eval Interval

TRZAW 11-18-09 Vigor 1-9 28 DAP	TRZAW 11-18-09 Plants 1 sqft 28 DAP	TRZAW 03-22-10 Vigor 1-9 SGU	TRZAW 04-23-10 Injury Percent 0 DA-E 14 DA-D	TRZAW 05-07-10 Injury Percent 28 DA-D 14 DA-E
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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code							
1	NO SEED TREATMENT								A							
1	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B	6.0	b	19.8	b	5.8	bc	0 a
2	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	7.2	a	22.7	ab	7.2	a	0 a
2	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A							0 a
2	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A							
2	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A							
2	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B							
2	HEADLINE	2.09	EC	0.049	lb ai/a	3	fl oz/a	FK5	D							
3	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	7.2	a	21.4	ab	7.2	a	0 a
3	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A							
3	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A							
3	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A							
3	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B							
3	TWINLINE	1.75	EC	0.123	lb ai/a	9	fl oz/a	FK9	E							
4	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	7.2	a	21.6	ab	6.7	ab	0 a
4	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A							0 a
4	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A							
4	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A							
4	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B							
4	HEADLINE	2.09	EC	0.049	lb ai/a	3	fl oz/a	FK5	D							
4	TWINLINE	1.75	EC	0.123	lb ai/a	9	fl oz/a	FK9	E							
5	NO SEED TREATMENT								A							
5	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B	5.8	b	19.8	b	5.3	c	0 a
5	32% UAN	3.54	SL			28.5	lb ai/a	21DA-B	C							0 a
6	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	7.0	a	24.2	a	6.7	ab	0 a
6	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A							0 a
6	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A							
6	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A							
6	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B							
6	32% UAN	3.54	SL			28.5	lb ai/a	21DA-B	C							
6	HEADLINE	2.09	EC	0.049	lb ai/a	3	fl oz/a	FK5	D							
7	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	7.5	a	22.2	ab	7.2	a	0 a
7	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A							
7	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A							
7	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A							
7	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B							
7	32% UAN	3.54	SL			28.5	lb ai/a	21DA-B	C							
7	TWINLINE	1.75	EC	0.123	lb ai/a	9	fl oz/a	FK9	E							
8	CHARTER	25	FS	3.1	fl oz/cwt			SEEDTRT	A	7.2	a	20.4	ab	6.7	ab	0 a
8	STAMINA	500	FS	0.4	fl oz/cwt			SEEDTRT	A							0 a
8	ACQUIRE	318	FS	0.15	fl oz/cwt			SEEDTRT	A							
8	AXCESS	600	FS	0.8	fl oz/cwt			SEEDTRT	A							
8	32% UAN	3.54	SL			95	lb ai/a	SPGRNUP	B							
8	32% UAN	3.54	SL			28.5	lb ai/a	21DA-B	C							
8	HEADLINE	2.09	EC	0.049	lb ai/a	3	fl oz/a	FK5	D							
8	TWINLINE	1.75	EC	0.123	lb ai/a	9	fl oz/a	FK9	E							
LSD (P=.05)										0.71		3.96		0.99	0.0	0.0
Replicate F										0.553		1.182		1.108	0.000	0.000
Replicate Prob(F)										0.7352		0.3375		0.3740	1.0000	1.0000
Treatment F										6.151		1.217		3.838	0.000	0.000
Treatment Prob(F)										0.0001		0.3194		0.0034	1.0000	1.0000

Means followed by same letter do not significantly differ (P=.05, LSD)

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Trial ID: 10-ARC-N8-N85

Location: Agronomy Res. Center

Pest Code		RUST		RUST		SEPTORIA		SEPTORIA		HEADSCAB	
Crop Code		TRZAW		TRZAW		TRZAW		TRZAW		TRZAW	
Rating Date		05-26-10		05-26-10		05-26-10		05-26-10		05-26-10	
Rating Data Type		Incidence		Severity		Incidence		Severity		Incidence	
Rating Unit		Percent		Percent		Percent		Percent		Percent	
Rating Timing		33 DA-E		33 DA-E		33 DA-E		33 DA-E		33 DA-E	
Trt-Eval Interval		47 DA-D		47 DA-D		47 DA-D		47 DA-D		47 DA-D	
Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code			
1	NO SEED TREATMENT										
1	32% UAN	3.54	SL		95	lb ai/a	SPGRNUP	B	98 ab	54 ab	16 a
2	CHARTER	25	FS	3.1 fl oz/cwt			SEEDTRT	A			
2	STAMINA	500	FS	0.4 fl oz/cwt			SEEDTRT	A	89 b	45 b	15 a
2	ACQUIRE	318	FS	0.15 fl oz/cwt			SEEDTRT	A			8 abc
2	AXCESS	600	FS	0.8 fl oz/cwt			SEEDTRT	A			3 abc
2	32% UAN	3.54	SL		95	lb ai/a	SPGRNUP	B			
2	HEADLINE	2.09	EC	0.049 lb ai/a	3	fl oz/a	FK5	D			
3	CHARTER	25	FS	3.1 fl oz/cwt			SEEDTRT	A	33 c	21 c	13 a
3	STAMINA	500	FS	0.4 fl oz/cwt			SEEDTRT	A			9 abc
3	ACQUIRE	318	FS	0.15 fl oz/cwt			SEEDTRT	A			3 abc
3	AXCESS	600	FS	0.8 fl oz/cwt			SEEDTRT	A			
3	32% UAN	3.54	SL		95	lb ai/a	SPGRNUP	B			
3	TWINLINE	1.75	EC	0.123 lb ai/a	9	fl oz/a	FK9	E			
4	CHARTER	25	FS	3.1 fl oz/cwt			SEEDTRT	A	29 c	12 c	12 a
4	STAMINA	500	FS	0.4 fl oz/cwt			SEEDTRT	A			7 c
4	ACQUIRE	318	FS	0.15 fl oz/cwt			SEEDTRT	A			4 ab
4	AXCESS	600	FS	0.8 fl oz/cwt			SEEDTRT	A			
4	32% UAN	3.54	SL		95	lb ai/a	SPGRNUP	B			
4	HEADLINE	2.09	EC	0.049 lb ai/a	3	fl oz/a	FK5	D			
4	TWINLINE	1.75	EC	0.123 lb ai/a	9	fl oz/a	FK9	E			
5	NO SEED TREATMENT										
5	32% UAN	3.54	SL		95	lb ai/a	SPGRNUP	B	99 a	58 a	15 a
5	32% UAN	3.54	SL		28.5	lb ai/a	21DA-B	C			12 ab
6	CHARTER	25	FS	3.1 fl oz/cwt			SEEDTRT	A	89 b	49 ab	14 a
6	STAMINA	500	FS	0.4 fl oz/cwt			SEEDTRT	A			8 bc
6	ACQUIRE	318	FS	0.15 fl oz/cwt			SEEDTRT	A			4 ab
6	AXCESS	600	FS	0.8 fl oz/cwt			SEEDTRT	A			
6	32% UAN	3.54	SL		95	lb ai/a	SPGRNUP	B			
6	32% UAN	3.54	SL		28.5	lb ai/a	21DA-B	C			
6	HEADLINE	2.09	EC	0.049 lb ai/a	3	fl oz/a	FK5	D			
7	CHARTER	25	FS	3.1 fl oz/cwt			SEEDTRT	A	36 c	16 c	13 a
7	STAMINA	500	FS	0.4 fl oz/cwt			SEEDTRT	A			7 c
7	ACQUIRE	318	FS	0.15 fl oz/cwt			SEEDTRT	A			2 bc
7	AXCESS	600	FS	0.8 fl oz/cwt			SEEDTRT	A			
7	32% UAN	3.54	SL		95	lb ai/a	SPGRNUP	B			
7	32% UAN	3.54	SL		28.5	lb ai/a	21DA-B	C			
7	TWINLINE	1.75	EC	0.123 lb ai/a	9	fl oz/a	FK9	E			
8	CHARTER	25	FS	3.1 fl oz/cwt			SEEDTRT	A	32 c	17 c	12 a
8	STAMINA	500	FS	0.4 fl oz/cwt			SEEDTRT	A			9 abc
8	ACQUIRE	318	FS	0.15 fl oz/cwt			SEEDTRT	A			2 c
8	AXCESS	600	FS	0.8 fl oz/cwt			SEEDTRT	A			
8	32% UAN	3.54	SL		95	lb ai/a	SPGRNUP	B			
8	32% UAN	3.54	SL		28.5	lb ai/a	21DA-B	C			
8	HEADLINE	2.09	EC	0.049 lb ai/a	3	fl oz/a	FK5	D			
8	TWINLINE	1.75	EC	0.123 lb ai/a	9	fl oz/a	FK9	E			
LSD (P=.05)									9.2	9.6	4.9
Replicate F									0.422	4.042	1.065
Replicate Prob(F)									0.8296	0.0066	0.3999
Treatment F									106.624	34.527	0.799
Treatment Prob(F)									0.0001	0.0001	0.5945
											0.1422
											0.0638

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Trial Comments

1. Protocol: BASF.
2. Ratings:
 - Plant stand counts and visual vigor 21-28 days after planting, count (3) 19.2 inch of row, vigor 1 to 9, 9 = best, 1 = dead.
 - Visual vigor ratings at spring greenup
 - Crop injury from foliar applications at 14-21 DAT, and until no injury is present.
 - Disease incidence and severity when disease symptoms appear and again before leaf senescence.
 - Percent of plants lodged at harvest.
 - Height and head counts (2 per plot 19.2 inch row)
3. Yield.
4. Blanket application of fertilizer at planting was N 27 lb/A, P2O5 69 lb/A, K2O 0 lb/A as 18-46-0 DAP.
5. Blanket preemergence application of Roundup WeatherMax (32 fl oz/A) was applied on 10-28-09.
 The planned postemergence application of Harmony Extra (if needed) was not needed, not applied.
 The planned blanket application of Caramba (if needed for Fusarium head blight) was not needed, not applied.
6. Application timing C, 21DA-B = 21 days after the B application.
 Vigor 1 to 9, 9 = best, 1 = dead.
 Plants 1 sqft = Number of wheat plants per 1 square foot (19.2 by 7.5 inch).
 Heads 1 sqft = Number of wheat heads per 1 square foot (19.2 by 7.5 inch).
 DAP = Days after planting. SGU = Spring greenup. EOS = End of season.
 RUST = Stripe rust. SEPTORIA = Glume blotch. HEADSCAB = Fusarium head blight (low incidence, severity not rated).
7. Harvested 6-21-10 (6) 7.5 inch rows by 20 ft.