Invinsa Evaluation in Wheat.

Trial ID: 09-ARC-18A 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:** 10-28-08

Objectives: Evaluate if A16087 can mitigate the effects of environmentally triggered stress ethylene on wheat yield and quality.

Crop 1: TRZAW Winter wheat **Variety:** AgriPro Branson
Planting Method: Seeded **Planting Date:** 10-28-08
Rate, Unit: 1.3 mil. S/A **Depth, Unit:** 1 IN
Row Spacing, Unit: 7.5 IN

Plot Width, Unit: 15 FT **Site Type:** FIELD
Plot Length, Unit: 40 FT **Tillage Type:** NO-TILL
Replications: 6 **Study Design:** Randomized Complete Block

Prior Crops, Year	
1. ZEAMD	2008

Field Prep./Maintenance: N 18 LB/A, P2O5 46 LB/A, K2O 120 LB/A on 10-27-08 and N 95 LB/A as 32% UAN on 3-4-09

% OM: 1.6 **Texture:** SILT LOAM
pH: 6.4 **Soil Name:** STOY/HOSMER
CEC: 7.7 **Fert. Level:** P1: 50 LB/A, K: 320 LB/A

Application Description

	A	B	C	D
Application Date:	04-27-09	05-05-09	05-15-09	05-01-09
Time of Day:	8:30	11:00	9:00	10:30
Application Method:	Spray	Spray	Spray	Spray
Application Timing:	FK9	FK10.5	10DA-B	DSSAT
Application Placement:	BROFOL	BROFOL	BROFOL	BROFOL
Applied By:	JLM	JLM	JLM	JLM
Air Temperature, Unit:	74 F	70 F	73 F	72 F
% Relative Humidity:	51	60	78	70
Wind Velocity, Unit:	3 MPH	2 MPH	4 MPH	3 MPH
Wind Direction:	S	S	SSW	S
Dew Presence (Y/N):	N	N	N	Y
Soil Temperature, Unit:	64 F	58 F	63 F	60 F
Soil Moisture:	NORMAL	ABONOR	ABONOR	ABONOR
% Cloud Cover:	15	0	60	50
	04-27-09	05-05-09	05-15-09	05-01-09
Crop stage at application:	10 FK	10.5 FK	10.51 FK	10.3 FK
Height Min, Max (inch):	24 26	28 32	28 32	26 30

Pest Stage At Each Application

Application Date:	04-27-09	05-05-09	05-15-09	05-01-09

Application Equipment

Appl. Equipment:	CO2 sprayer	CO2 sprayer	CO2 sprayer	CO2 sprayer
Operating Pressure:	27 PSI	27 PSI	27 PSI	27 PSI
Nozzle Type:	Flat fan	Flat fan	Flat fan	Flat fan
Nozzle Size:	XR 8003	XR 8003	XR 8003	XR 8003
Boom Length, Unit:	7.5 FT	7.5 FT	7.5 FT	7.5 FT
Spray Volume, Unit:	20 GPA	20 GPA	20 GPA	20 GPA

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Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code	TRZAW 06-22-09 Moisture Percent	TRZAW 06-22-09 Test wt. lb/bu	TRZAW 06-22-09 Yield bu/A	TRZAW Injury Percent 7 DAT	TRZAW 06-05-09 Senescence 1-10 21 DA-C	TRZAW 06-22-09 Height inch EOS	TRZAW 06-22-09 Lodging Percent EOS
1	NONTREATED									11.6 ab	52.5 ab	77 ab	0 a	6.2 a	35.7 a	0 a
2	SILWET L77	100	SL	0.035	% v/v	0.035	% v/v	FK9	A	11.5 ab	53.0 a	74 b	0 a	5.8 ab	35.6 a	0 a
2	A16087	3.8	WP	9.4	oz/a	25	g ai/ha	FK9	A							
3	NONTREATED									11.5 ab	53.1 a	73 b	0 a	4.7 b	35.0 ab	0 a
4	SILWET L77	100	SL	0.035	% v/v	0.035	% v/v	FK10.5	B	11.9 a	53.2 a	73 b	0 a	5.6 ab	35.3 ab	0 a
4	A16087	3.8	WP	9.4	oz/a	25	g ai/ha	FK10.5	B							
5	NONTREATED									11.6 ab	53.3 a	77 ab	0 a	5.4 ab	35.5 a	0 a
6	SILWET L77	100	SL	0.035	% v/v	0.035	% v/v	10DA-B	C	11.6 ab	53.2 a	75 ab	0 a	5.5 ab	35.6 a	0 a
6	A16087	3.8	WP	9.4	oz/a	25	g ai/ha	10DA-B	C							
7	NONTREATED									11.3 b	52.8 ab	75 ab	0 a	5.3 ab	35.8 a	0 a
8	SILWET L77	100	SL	0.035	% v/v	0.035	% v/v	FK9	A	11.4 ab	53.0 a	75 ab	0 a	5.1 ab	35.1 ab	0 a
8	A16087	3.8	WP	9.4	oz/a	25	g ai/ha	FK9	A							
8	SILWET L77	100	SL	0.035	% v/v	0.035	% v/v	10DA-B	C							
8	A16087	3.8	WP	9.4	oz/a	25	g ai/ha	10DA-B	C							
9	NONTREATED									11.5 ab	52.7 ab	75 ab	0 a	5.2 ab	35.4 ab	0 a
10	SILWET L77	100	SL	0.035	% v/v	0.035	% v/v	DSSAT	D	11.7 ab	53.1 a	74 b	0 a	5.1 ab	34.5 b	0 a
10	A16087	3.8	WP	9.4	oz/a	25	g ai/ha	DSSAT	D							
11	NONTREATED									11.5 ab	52.8 ab	76 ab	0 a	5.3 ab	35.8 a	0 a
12	QUADRIS	2.08	SC	4.23	fl oz/a	77	g ai/ha	FK9	A	11.4 ab	51.7 b	76 ab	0 a	5.6 ab	35.8 a	0 a
12	AGRIDEX	100	SL	1	% v/v	1	% v/v	FK9	A							
13	NONTREATED									11.6 ab	52.8 ab	78 a	0 a	5.8 ab	35.9 a	0 a
14	QUADRIS	2.08	SC	4.23	fl oz/a	77	g ai/ha	FK9	A	11.5 ab	53.0 a	77 ab	0 a	6.0 a	35.6 a	0 a
14	AGRIDEX	100	SL	1	% v/v	1	% v/v	FK9	A							
14	A16087	3.8	WP	9.4	oz/a	25	g ai/ha	FK9	A							
LSD (P=.05)										0.55	1.23	4.0	0.0	1.31	0.93	0.0
Replicate F										0.875	0.903	3.735	0.000	1.401	3.414	0.000
Replicate Prob(F)										0.5034	0.4853	0.0050	1.0000	0.2355	0.0084	1.0000
Treatment F										0.595	0.820	1.178	0.000	0.759	1.298	0.000
Treatment Prob(F)										0.8485	0.6375	0.3164	1.0000	0.6984	0.2375	1.0000

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

Trial Comments

1. Protocol: Syngenta (PMC151A3).
2. Observe and provide comments on mixing and application characteristics.
3. Ratings: CI 7 days after each application, describe the symptoms and continue evaluations until symptoms disappear.
   Height at harvest (overall is fine, no subsamples needed) from the top of the head to the ground.
   At every rating date, application date and any time an observation is made, record crop stage and height as ranges.
   Confirm crop density is as planted, if there is stand loss then count enough plots for an overall crop density.
   Record date of flowering (+/- 2-5 days) and physiological maturity (+/- 2-5 days).
   Record in the Application Timing Comment Section whether or not application "D" was triggered
   by the model or the default timing.
4. Crop yield as bu/A adjusted to 13.5% moisture, percent moisture, test weight, percent lodging (at harvest).
5. Assess flagleaf senescence (1-10 scale 1 = brown 10 = deepest green) and/or with spad meter at 14-21 da the "C" application, but before complete leaf senescence.
6. See original Syngenta protocol (attached) for details on mixing and spraying.

Application "D" DSSAT is to be determined based on computer modeling of stress following the FK9 application.
A. Begin tracking weather when crop reaches the specified developmental stage (Feekes 9)
B. Every other weekday (MWF), you should enter the daily high temperature forecast* (in ºF) for each of the next 10-15 days.
C. If the temperature stress conditions are appropriate for application (i.e. cell in column is green), plan to spray within the next 3 days.
D. If the daily high temperature on your selected spray date exceeds 85F, then delay spraying and re-assess forecast tomorrow.
* Use Accuweather.com and enter the nearest zip code for the research site.
Application "D" should be at least 3 days away from applications "A" and "B".
If model shows no stress by FK10.5 then apply at FK10.5 plus 5 days.

7. Blanket application of Harmony Extra (0.75 oz/A) + Warrior (2 floz/A) at FK5-6 was applied 4-9-09.
   If there is heavy disease early then blanket with Tilt (4 floz/A) early (FK8-9), not needed, not applied.
8. For all applications use XR 8003 tips and 50 mesh screens.
   Use (2) 2 liter bottles per treatment and a drop-tube header.
9. Crop is at 50% flowering in most plots on May 8, 2009.
   Crop is at 90% done flowering in most plots on May 15, 2009.
   Crop is physiologically mature (hard dough) in most plots on June 12, 2009.
10. DAT = Days after treatment. EOS = End of season.
    Ratings at 7 days after the FK9, FK10.5, 10DA-B, and DSSAT applications were on 5-4-09, 5-8-09, 5-12-09, and 5-22-09, respectively.
11. Harvested 6-22-09, (8) 7.5 inch rows by 30 ft.