Can we Effectively Control Scab and DON Levels in Large Scale Commercial Farming?

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Crop Consulting

Wheat Tech, Agronomy : Consulting

WTI is a consulting firm based in Russellville, KY. WTI was formed in 1995 and its employees have over 130 years of combined consulting experience.

WTI has 17 full time consultants and 3 full time R&D personnel.

WTI consultants operate in KY, TN, MO bootheel, IN, and OK.

WTI consultants works with 235 growers and consults on approx :

Wheat	:	160,000 acres
Corn	:	50,000 acres
Soybeans	:	80,000 acres

Research & Development

Wheat	:	5 locations in KY, TN, MO
Corn	:	6 locations in KY, TN
Soybeans	:	4 locations in KY, TN, MO


How do we avoid this?

Best and Worst performing Varieties Adairville , Ky 2010

Variety	FHB Index % *	FHB Incidence %	FHB Severity %	Non-Fung. Treated Yield bu/ac	TW lbs/bu	Heading Date *
Best						
Armor ARX 9304	10.88	72.5	15	81.18	56.32	5.3
Pioneer 25R32	26.25	87.5	30	74.91	57.15	5.6
Beck 137	36	90	40	73.94	58.3	5.2
Beck 113	9	45	20	73.02	55.27	5.1
Beck 135	20.63	82.5	25	71.82	54.56	5.5
KAS 1200	33	82.5	40	71.3	55.2	5.1
Pioneer 25R35	27.75	92.5	30	69.84	54.37	5.5
KAS 5058	14.25	47.5	30	69.15	57.41	5.3
Worst						
SS MPV 57	58.5	90	65	52.15	51.81	5.6
SS 8600	42.5	85	50	49.3	54.19	5.3
Pioneer 26R20	68.25	97.5	70	48.31	52.74	5.5
Renegade	65.63	87.5	75	46.24	52.54	5.4
Dixie 427	76	95	80	43.58	50.09	5.4
SS 8404	34	85	40	43.07	56	5.7
Dyna Gro Shirley	64.75	92.5	70	42.95	49.92	5.7
SS 8641	85.5	95	90	19.76	-	5.7
Mean				61.32	54.86	

Best and Worst performing Varieties Adairville , Ky 2011 Prosaro 6.5oz treated

Variety	Maturity	Trt Yield		TWt	Fung response	Scab Index	Scab Index	**Scab Reduction**
Best		bu./ac		Lb/bu	Bu/ac	Treated	Non Treated	**percent**
Southern States Exp 8340	E	120.0	a‡	55.3	20.5	1.25	6.25	80
Southern States 8700	L	116.0	ab	54.2	18.6	5	7.5	33.3
Progeny PGX 10-5	ME	115.7	ab	51.7	25.7	3.75	11.25	66.7
Dyna Gro 9911	E	114.0	abc	55.2	20.8	2.5	5	50
Dyna Gro 9171	M	113.9	a-d	51.7	20.7	5	15	66.7
KAS S1200	E	113.4	a-d	51.8	19.3	6.25	5	0
Beck 135	L	113.2	a-d	53.5	16.8	6.25	25	75
Dyna Gro 9012	M	112.8	a-d	54.9	12.4	0	8.75	100
Pioneer variety 26R20	M	112.7	a-e	55.0	21.2	7.5	18.75	60
Worst								
Terral Seeds TV8861	L	95.4	r-u	52.2	14.2	8.75	15	41.7
AgriPro W1377	ML	94.1	s-v	56.0	10.2	10	8.75	0
Ag Alumni Ex 1201	E	93.8	tuv	51.6	19.8	3.75	7.5	50
Terral Seeds TV8589	ML	86.8	vwx	51.4	15.3	5	18.75	73.3
OH Bromfield	M	84.4	x	53.3	8.8	1.25	3.75	66.7
OH Malabar	VL	82.0	x	53.8	9.8	3.75	5	25
Progeny PGX 10-2	ME	79.6	x	54.9	5.7	1.25	10	87.5
Ag Alumni Ex 0175	E	79.2	x	51.3	12	7.5	10	25
						.	Average	42.2
Mean		102.57		53.5				


CASE INTERNATIONAL
7140
Great Plains

Vertical tillage tools latest FAD!!

Uneven N due to poor application or poor corn = Uneven heading

Uneven drilling =
Uneven heading

2010 Kentucky Fungicide Trial Data : KAS 7700

Treatment	Rate	Rate Unit	Growth Stage	Yield	TW	Fusarium Head Blight			Don Levels
						Index 5/29/2010	Severity 5/29/2010	Incidence 5/29/2010	ppm
Stratego YLD	2	fl oz/a	6	87.81	57.43	7.92	30.30	25.83	4.3
Prosaro	6.5	fl oz/a	10.51						
Quadris	3	fl oz/a	6	83.51	55.68	10.42	31.29	33.33	5.1
Caramba	13.5	fl oz/a	10.51						
Stratego YLD	4	fl oz/a	10	76.00	54.50				7.1
Twinline	9	fl oz/a	10	73.58	54.30				8
Headline	3	fl oz/a	6	72.37	53.22				6.3
Twinline	9	fl oz/a	10						
Headline	3	fl oz/a	6	69.32	52.90				7.1
Headline	6	fl oz/a	10	68.97	53.60				8.6
Vertisan	16	fl oz/a	10	68.94	54.08				8.4
Untreated				65.70	53.18	22.08	34.89	63.33	6
LSD (P=.05)				4.111	1.2625	6.184	8.421	14.138	

* All Treatments excluding Untreated received 0.125 %v/v Induce

2010 Kentucky Head Blight Trial Data : Branson

Treatment	Rate	Rate Unit	Growth Stage	Yield	TW	Fusarium Head Blight Index 5/29/2010	Fusarium Head Blight Severity 5/29/2010	Fusarium Head Blight Incidence 5/29/2010	Don Levels ppm
Headline	3	fl oz/a	6	84.14	57.06	7.71	33.85	23.33	3.3
Caramba	13.5	fl oz/a	10.51						
Prosaro	6.5	fl oz/a	10.51	83.57	56.29	7.08	29.72	24.17	2
Caramba	13.5	fl oz/a	10.51	79.56	55.59	10.00	31.45	31.67	3.9
Headline	2	fl oz/a							
Caramba	10	fl oz/a	10.51	79.48	56.32	6.25	27.11	22.50	2.2
Twinline	5	fl oz/a							
Prosaro	6.5	fl oz/a	10.51	78.54	56.58	7.50	32.13	23.33	2.5
Headline	2	fl oz/a							
Caramba	13.5	fl oz/a	10.51	78.21	56.32	10.21	27.72	36.67	2
Folicur	4	fl oz/a	10.51	77.19	56.19	9.79	31.54	30.83	3.4
Headline	2	fl oz/a							
Vertisan	16	fl oz/a	10.51	67.52	54.15	13.96	37.30	36.67	4
Untreated				65.51	53.41	22.08	44.91	49.17	7.3
LSD (P=.05)				5.063	1.5196	5.367	7.566	13.137	

* All Treatments excluding Untreated received 0.125 %v/v Induce

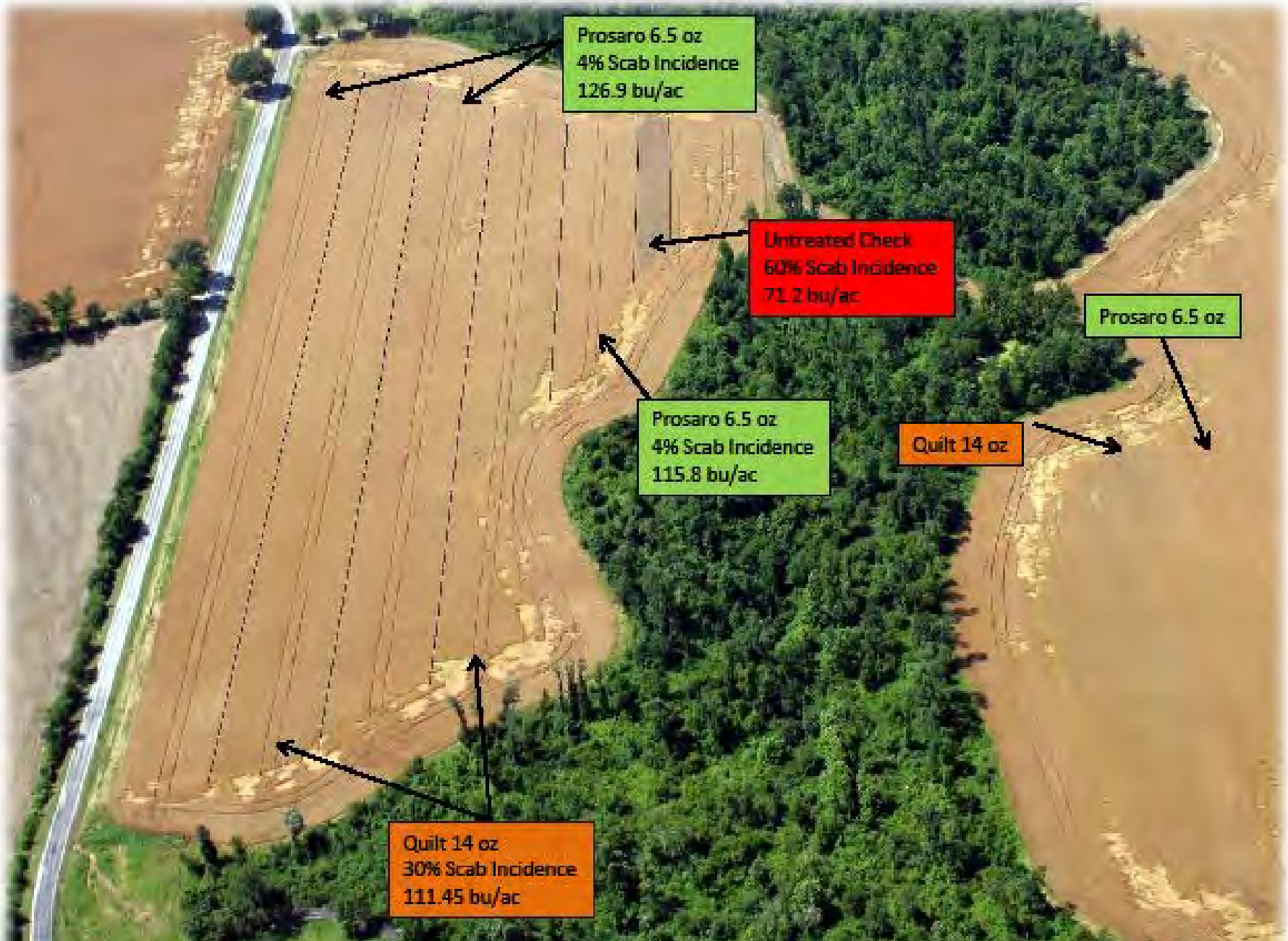
BASF Management Trial KY 2010

Headline 3oz GS3
FB Twinline 9oz GS10

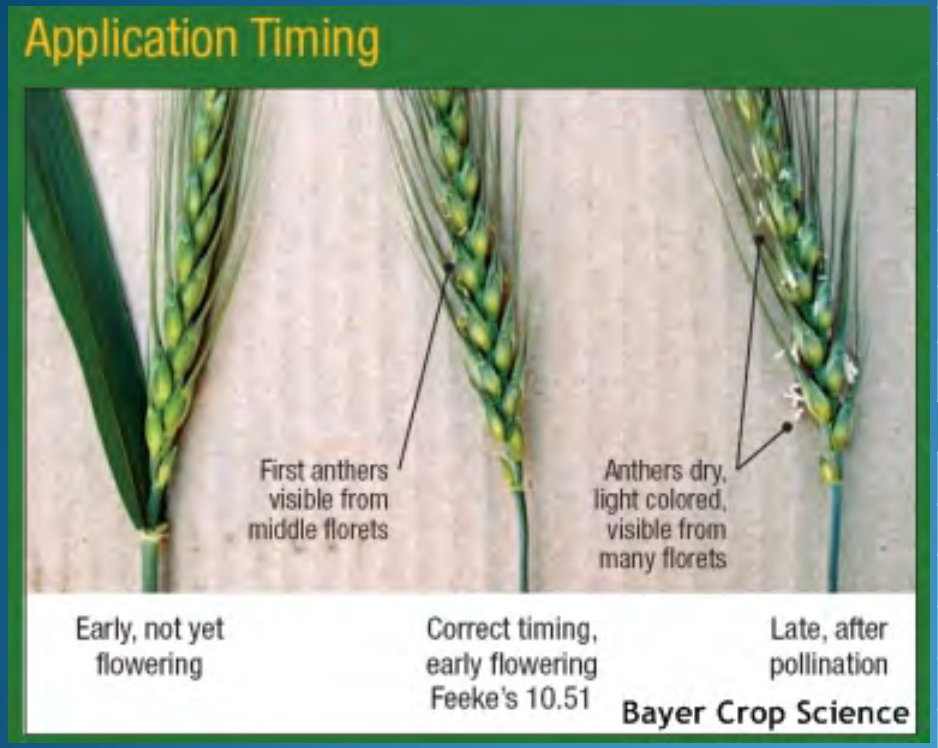
Headline 3oz GS3
FB Caramba 13.5oz +
Headline 2oz GS10.51

+25.9bu Low N, + 3.74 lb/bu, -43.5 Scab index
+28.34 high N, + 4.14lb/bu, --46.9 Scab index

Wheat Fungicide Strip Plot
Verell Farms 2009



Application timing easy?



April	Temp. (°F)	Humidity (%)	Wind (mph)	Precip
2009	high	high	high	(lin)
26	85	86	21	0
27	85	63	24	0
28	74	81	17	0.05
29	77	90	15	0.07
30	75	93	20	0.46
1	71	93	18	0.23
2	59	93	12	0.8
3	61	93	13	0.47
4	64	93	13	0.05
2010				
24	72	97	23	2.07
25	73	93	30	0.08
26	58	93	17	0.01
27	56	93	17	0.21
28	68	100	13	0
29	76	92	20	0
30	83	60	23	0
1	74	93	28	4.75
2	73	97	23	4.92
3	79	100	14	0

Grower Strip plots West KY, 2009

Grower	Treatment @ GS 10.51	TW.	Yield	Scab	Scab	Water	Nozzle	Don
G Cox	Caramba 14 oz.	55	91.42	10.0%	25.0%	15	Twin Caps	1.57
	Twinline 9oz	54.7	90.1	10.0%	25.0%	15	Twin Caps	3.35
	Proline 3 oz. Folicur 3 oz.	55.1	85.99	10.0%	25.0%	15	Twin Caps	1.35
	Caramba 14 oz.	55.2	90.28	10.0%	25.0%	15	Twin Caps	1.48
	Twinline 9oz	54.6	91.99	10.0%	25.0%	15	Twin Caps	3.8
	Proline 3 oz. Folicur 3 oz.	54.7	91.56	10.0%	25.0%	15	Twin Caps	1.66
Miller	Folicur 4 oz. Headline 2 oz.	54.7	65.72	40.0%	30.0%	12	Twin Caps	2.62
	Twinline 7 oz.	53	68.6	40.0%	30.0%	12	Twin Caps	3.86
	Prosaro 6.5 oz.	53.9	68.01	40.0%	30.0%	12	Twin Caps	2.73
	Prosaro 6.5 oz.	55.8	64.03	40.0%	30.0%	12	Twin Caps	1.65
	Folicur 4 oz. Headline 2 oz.	53.2	63.21	40.0%	30.0%	12	Twin Caps	0.8
	Folicur 4 oz. Headline 2 oz.	54.6	60.5	40.0%	30.0%	12	Twin Caps	4.89
	Twinline 7 oz.	52.6	60.68	40.0%	30.0%	12	Twin Caps	5.51
R Hall	Prosaro 6.5 oz.	50.8	79.95	30.0%	50.0%	15	Twin Caps	1.43
	Caramba 14 oz.	51.8	82.69	30.0%	50.0%	15	Twin Caps	2.4
	Twinline 9 oz.	53.5	85.03	30.0%	50.0%	15	Twin Caps	2.23
	Prosaro 6.5 oz.	51.9	82.51	30.0%	50.0%	15	Twin Caps	0.95
	Caramba 14 oz.	52.3	80.3	30.0%	50.0%	15	Twin Caps	1.23
	Twinline 9 oz.	54.6	83.86	30.0%	50.0%	15	Twin Caps	3.18
P Yoder	Caramba 14 oz.	53	80.07	30.0%	50.0%	15	Twin Caps	1.9
	Prosaro 6.5 oz.	55	74.96	30.0%	50.0%	15	Twin Caps	1.42
	Caramba 14 oz.	53	78.41	30.0%	50.0%	15	Twin Caps	3.83
	Prosaro 6.5 oz.	55	77.27	30.0%	50.0%	15	Twin Caps	1.48
Fox	Caramba 14 oz.	54		5.0%	25.0%	15	Twin Caps	1.5
	Prosaro 6.5 oz.	52.6		5.0%	25.0%	15	Twin Caps	2.3
	Caramba 14 oz.	52.2		5.0%	25.0%	15	Twin Caps	2.3
	Prosaro 6.5 oz.	51.9		5.0%	25.0%	15	Twin Caps	3.3
	Average	53.7	77.0					2.28

Field Averages Southern KY 2007

Variety	Tillage	% Residue	Scab incid	Scab severity	Fungicide	H20 volume	Nozzle type	Field avg	DON level
Clark	NT	95%	0.5%	75%	folicur 4 oz.	20	twin jet	85	0
P25R37	disc 2X	40%	10%	35%	folicur 4 oz.	15	twin turbo jet		0
P25R37	NT	95%	21%	30%	folicur 4 oz.	15	twin turbo jet		0
Clark	disc 2x	60%	6%	48%	F 3 oz./Quilt 7 oz.	15 gpa	twin jets	87	0
P25R35	disc 2x	60%	3%	38%	Headline 6 oz.	15 gpa	flat fans	101	0.5
P25R37	NT	90%	8%	49%	F 4 oz. /H 2 oz.	15 gpa	twin jets	98	0.5
P25R35	NT	90%	5%	25%	F 4 oz. /H 2 oz.	20 gpa	twin jets	91	0.5
P25R54	NT	90%	8%	37%	folicur 4 oz.	20 gal	twin jets	94	0.5
P25R37	NT	90%	14%	35%	Folicur 4 oz.	15-20 gpa	twin jet	93	2.7
P25R78	disc 2x	60%	19%	48%	Folicur 4 oz.	20 gal	twin caps		2.9
P25R35	NT	90%	6%	30%	F 3 oz./Quilt 7 oz.	15 gpa	twin jets	90	3.2
P25R23	No-till	90%	11%	37%	Folicur 4 oz.	15 gal	11004 turbo tips		3.4
P25R35	disc 3x	10%	4	31%	Quilt	20	twin jet	87	4.5
Average	122 fields		45.8%	38%					0.81

Average Variety Yields, TWT and Scab Index 2002-2011

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011
Fungicide	Quilt	Quilt	Quilt	Quilt	Quilt	Quilt	Quilt	Quilt	Prosaro	NT
high Yield	116	95.8	126.1	135	115.8	111	92.1	85	120	99.5
low yield	85.2	58.4	98.2	109.4	70.6	76	37	19	79.2	67.2
mean yield	103.5	77.7	111.4	122.2	98.4	95	68.4	63.5	102.6	86.1
mean TWT	58.1	51.2	61.7	59.5	57.7	60	52.6	55.1	53.5	52.3
Ave High TWT	58	53.1	61.4	59.6	58.7	60.2	54.3	57.3	53.7	52.2
Ave low TWT	58	50	61.5	59.5	57.3	60.4	51.8	53.1	52.9	52.1
scab index**	0-10	0- 37	0-5	0-5	0.5-25	0-0.5	2.5-46.3	3-85.5	0-11.25	3.73-18.75
scab index mean							19	37.3	4.38	11
Overall Area severity	low-mod	severe	V low	low	low-mod	V low	severe	severe	low-mod	Low-mod

** 2003 -2008 based on incidence ratings taken X average of 25% severity (estimated) except for 2004 where average severity of 50% was used

Grain Quality 2002-2012

Year	High Temp	Avg. Temp	Avg. High Humidity	Rain (In.)	# of Events	KY Yield	TW	Falling No.	Dmg.	Vom.
	Weather Data Ft. Campbell, Kentucky					Grain Quality Data 1,000 Loads				
2002	84°	64.8°	99.5	1.26	10	52	60.5	335	1.31	1.67
2003	84°	68.4°	99.5	6.57	9	62	59.3	243	6.33	3.95
2004	86°	64.9°	94.5	1.82	5	54	56.9	308	5.53	4.07
2005	80°	55.6°	97.8	2.22	4	68	61.9	350	1.29	<1.0
2006	73°	60.8°	97.3	2.40	10	71	59.8	362	2.30	1.1
2007	87°	70.3°	91.1	1.71	6	48	59.7	354	.60	.3
2008	79°	60.5°	92.6	.41	7	71	60.3	331	.90	<.5
2009	79°	63.9°	98.3	4.68	11	57	57.1	366	3.25	2.89
2010	85	65.6	86.8	7.6	4	66	58.8	333	1.61	1.37
2011	79	58.5	96.1	7.36	7	70	60.4	342	.94	0.42
2012	83	58.5	96.1	1.03	5	45?	60.4	351	1.55	0.24

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Major issues

Issue	Solution
Uneven drilling	No practical options
Uneven nitrogen/soil types	Possibly Greenseeker/variable N
Variety susceptibility	Improved Varieties Type 1 + 2 resistance
Poor Spray timing due to weather	No practical options.
Poor spray timing due to difficulty predicting flowering.	Growing degree day model for each variety to flowering.
Poor Chemical disease control	Improved chem choices, with early and late timing effectiveness. Better application options.
Vomitoxin	Better varieties/chemicals

Can we Effectively Control Scab and DON Levels in Large Scale Commercial Farming in KY/TN?

NO

In mod-severe scab years

Questions?