

Integrated Management Trial- Wheat
 IMT_W_RS_2023



Year	2023
Location	Russel E. Larson Agricultural Research Center at Rock Springs
Field	Kepler N-1W
GPS coordinates	40.720482, -77.922412
Soil type	Silt loam
Crop	wheat
Previous crop	NA
Variety	MAS #139(S), MAS # 86(MS), MAS# 67(MR)
Seeding rate	1.6 million
Row space (in)	7.5
Reps	4
Tillage/Residue	tilled
Trial type	split-plot
Plot dimensions	6.3'x14'
Herbicide	Harmony on 4/20/23
Foliar insecticide	n
Foliar fungicide	n
Fertilizer	Split-applied
Irrigation	n
Planting date	10/20/22
Artificial inoculations (y/n)	y
Inoculum type/density	Spray, 1*10 ⁵ spores/mL
Inoculation date	5/28/23
Rating 1 date	6/14/23
Rating 2 date	N/A
Rating 3 date	N/A
Harvest date	7/25/23

Map:

Wheat Integrated Management Trial (IMT- Wheat) Rock Springs - 2023 (162 feet x 85.1 feet)														
162		V1 T6	V2 T5	V1 T8	V2 T7	V3 T5	V1 T2	V2 T3	V1 T5	V2 T2	V3 T5	V1 T9	V3 T2	
144		1009	1010	1027	2009	2010	2027	3009	3010	3027	4009	4010	4027	
		V2 T6	V1 T5	V2 T8	V1 T7	V1 T5	V2 T2	V3 T3	V2 T5	V1 T2	V1 T5	V2 T9	V2 T2	
126		1008	1011	1026	2008	2011	2026	3008	3011	3026	4008	4011	4026	
		V3 T6	V3 T5	V3 T8	V3 T7	V2 T5	V3 T2	V1 T3	V3 T5	V3 T2	V2 T5	V3 T9	V1 T2	
108		1007	1012	1025	2007	2012	2025	3007	3012	3025	4007	4012	4025	
		V3 T4	V3 T3	V2 T1	V1 T9	V3 T4	V1 T6	V1 T6	V3 T1	V2 T8	V2 T6	V3 T3	V3 T4	
90		1006	1013	1024	2006	2013	2024	3006	3013	3024	4006	4013	4024	
		V2 T4	V2 T3	V3 T1	V2 T9	V2 T4	V3 T6	V2 T6	V2 T1	V1 T8	V3 T6	V2 T3	V1 T4	
72		1005	1014	1023	2005	2014	2023	3005	3014	3023	4005	4014	4023	
		V1 T4	V1 T3	V1 T1	V3 T9	V1 T4	V2 T6	V3 T6	V1 T1	V3 T8	V1 T6	V1 T3	V2 T4	
54		1004	1015	1022	2004	2015	2022	3004	3015	3022	4004	4015	4022	
		V2 T2	V1 T7	V2 T9	V3 T8	V2 T1	V2 T3	V1 T9	V3 T7	V2 T4	V3 T8	V1 T1	V2 T7	
36		1003	1016	1021	2003	2016	2021	3003	3016	3021	4003	4016	4021	
		V3 T2	V3 T7	V1 T9	V2 T8	V3 T1	V1 T3	V3 T9	V1 T7	V1 T4	V2 T8	V3 T1	V1 T7	
18		1002	1017	1020	2002	2017	2020	3002	3017	3020	4002	4017	4020	
		V1 T2	V2 T7	V3 T9	V1 T8	V1 T1	V3 T3	V2 T9	V2 T7	V3 T4	V1 T8	V2 T1	V3 T7	
0		1001	1018	1019	2001	2018	2019	3001	3018	3019	4001	4018	4019	
	3.2	9.5	15.8	22.1	28.4	34.7	41.0	47.3	53.6	59.9	66.2	72.5	78.8	85.1
		Block 1			Block 2			Block 3			Block 4			

Protocol:

Treat ment	Product	Rate (oz/a)	Application timing	Spray Date1	Spray Date2
1	Untreated check				
2	Untreated, non-inoculated				
3	Prosaro	6.5 fl oz/A	Feekes 10.5.1 (early anthesis)	5/27/2023	
4	Miravis Ace	13.7 fl oz/A	Feekes 10.5.1 (early anthesis)	5/27/2023	
5	Miravis Ace	13.7 fl oz/A	Feekes 10.3 (early heading)	5/20/2023	

6	Miravis Ace fb Tebuconazole	13.7 fl oz/4 fl oz	Early anthesis/4- 6 days after early anthesis	5/27/2023	5/31/202 3
7	BAS8400F (Sphaerex)	7.3 fl oz	Feekes 10.5.1 (early anthesis)	5/27/2023	
8	Prosaro Pro	10.3 fl oz	Feekes 10.5.1 (early anthesis)	5/27/2023	

Data by plot:

Var A= MAS #139

Var	Treat	Rep	FHB			DON ppm	FDK %	Yield Bu/Ac	Test wt Lb/Bu	100 Kernel wt (g)	total foliar disease (%)
			Incidence	Severity	Index						
A	1	1	2	100	2	0.2	3.333333	107.5292	55	3.666667	9.25
		2	12	34.16667	4.1	0.92	4	104.6523	55	3.75	18.75
		3	2	14	0.28	0.28	5.666667	104.5224	55.6	3.816667	23.75
		4	4	92	3.68	0.2	2.666667	105.3802	55.4	3.85	22.5
	2	1	0	0	0	0.12	4.5	104.1637	54.95	3.825	11.125
		2	0	0	0	0.07	5.166667	99.83859	54.85	3.583333	23.125
		3	1	14	0.28	0.06	5.666667	89.92669	54.65	3.6	26.875
		4	0	0	0	0.105	5.166667	99.19666	55.75	3.825	19.375
	3	1	2	100	2	0	5.333333	109.4047	54.2	4.116667	13
		2	4	7	0.28	0.11	4	110.7789	55.5	3.766667	22.5
		3	0	0	0	0.05	3.666667	109.0288	55.2	4.05	28.75
		4	0	0	0	0.06	5.333333	117.6759	55.6	4	13.75
	4	1	0	0	0	0.18	5.333333	106.6608	55.7	3.733333	12.5
		2	0	0	0	0.44	6.333333	114.7728	55.7	3.95	8.5
		3	0	0	0	0.17	4.333333	114.655	56	3.683333	10.5
		4	0	0	0	0.11	10.333333	97.90058	57.4	3.65	15
	5	1	0	0	0	0	5.666667	64.09039	54.4	3.75	21.25
		2	8	92.5	7.4	0.63	5.666667	104.5224	55.1	3.716667	21.25
		3	2	7	0.14	0.22	5.333333	111.0158	56	4.033333	10.5
		4	0	0	0	0.15	6	105.16	56.2	4	5.5
	6	1	0	0	0	0.15	7	126.7769	56.3	3.75	35
		2	6	14	0.84	0.29	4.333333	114.5083	56	3.933333	13.75
		3	0	0	0	0	5.666667	96.49673	55.2	3.316667	40
		4	2	42	0.84	0.17	3.666667	108.0288	56.3	4.183333	21.25
	7	1	0	0	0	0	4	105.8958	54.4	3.833333	9.25
		2	4	45.5	1.82	0.18	7	94.02457	54.5	3.616667	28.75
		3	0	0	0	0	7.333333	95.13418	55	3.633333	18.75
		4	0	0	0	0.07	5.666667	82.93191	55.1	3.966667	21.25
	8	1	0	0	0	0	7	99.265	54	3.833333	38.75
		2	2	100	2	0.19	4.666667	107.6531	55.2	3.9	23.75
		3	0	0	0	0.1	4.333333	106.3901	55.3	3.816667	26.25
		4	0	0	0	0.2	4.333333	109.2777	55.7	4	9.25

Var B= MAS#86

B	1	1	0	0	0	0.11	6	96.01041	54.7	3.916667	10.5
		2	8	53	4.24	0.34	5.666667	99.6073	54.7	3.85	17.5
		3	2	21	0.42	0.11	4.333333	119.8063	55.7	4	16.25
		4	0	0	0	0	6.666667	103.1243	55.7	3.966667	8.5
	2	1	0	0	0	0	6	114.4794	55.1	3.966667	8.875
		2	0	0	0	0	4.666667	108.9039	55.75	3.983333	8.625
		3	1	3.5	0.07	0	6	97.54419	54.8	3.816667	18.125
		4	1	3.5	0.07	0	6	82.76134	55.05	3.816667	15
	3	1	0	0	0	0	5.666667	121.0172	55.1	4.1	15.5
		2	0	0	0	0	5	111.154	55.8	4.133333	17.5
		3	2	70	1.4	0	4	102.6219	55.2	4.066667	25
		4	0	0	0	0		65.1626	54.6		13
	4	1	0	0	0	0.12	9.666667	112.125	56.1	4.183333	12.5
		2	2	7	0.14	0.23	5.666667	118.4956	55.8	4.1	12.5
		3	0	0	0	0	5.666667	108.7781	56.4	4.15	6.75
		4	0	0	0	0	5.666667	98.42373	56.9	4.083333	9.25
	5	1	0	0	0	0.07	5.333333	112.2431	56.7	4.4	18
		2	2	14	0.28	0.17	6.666667	126.6372	55.8	4	9.25
		3	0	0	0	0	4.666667	97.6872	56	4.016667	14.25
		4	0	0	0	0		126.4913	56.4		5.5
	6	1	0	0	0	0	3.666667	127.5454	56.6	4.333333	20
		2	2	7	0.14	0.14	5.666667	114.8739	56.8	4.233333	16.25
		3	2	7	0.14	0	4.333333	118.0415	55.8	4.016667	13.75
		4	0	0	0	0		115.647	56.5		16.25
	7	1	0	0	0	0	4.333333	106.5301	55.5	4.05	20
		2	0	0	0	0	6.666667	89.22815	53.8	3.55	33.75
		3	0	0	0	0	5	98.02561	55	3.983333	15
		4	0	0	0	0	7.333333	97.98763	55.7	4.183333	13.75
	8	1	0	0	0	0.24	5.333333	107.6518	55.1	3.666667	30
		2	0	0	0	0.09	4.333333	120.4892	55.3	4.266667	9.75
		3	0	0	0	0.05	5.666667	108.0248	55.5	3.783333	12.5
		4	2	100	2	0.05	5.333333	105.9057	56.2	4.25	6.75

Var C= MAS#67

C	1	1	0	0	0	0.1	4	99.35608	53.9	3.583333	10.5
		2	0	0	0	0.26	5.333333	86.92087	53.6	3.75	21.25
		3	2	7	0.14	0.09	5.333333	86.74231	54.2	3.833333	16.25
		4	2	7	0.14	0.16	6.333333	63.29013	54.5	3.766667	11.75
	2	1	0	0	0	0	5.666667	92.91776	53.6	3.8	8.875
		2	0	0	0	0	5.5	100.5388	54.5	3.908333	9.25
		3	1	10.5	0.21	0.025	4.5	87.55128	54.2	3.675	21.875
		4	0	0	0	0	5.5	86.18708	55.3	3.783333	12.5
	3	1	0	0	0	0	5	99.78614	54.9	3.916667	36.25
		2	2	7	0.14	0	3.666667	85.27113	53.5	3.616667	20
		3	0	0	0	0	4	79.87429	53.8	3.65	22.5
		4	0	0	0	0	5	96.60752	55.4	4.026667	11.25
	4	1	0	0	0	0	5.333333	101.6349	54.4	3.883333	13.75
		2	0	0	0	0.15	5	95.49417	54.7	3.966667	11.25
		3	0	0	0	0	2.666667	95.0854	55	4.016667	8
		4	0	0	0	0.07	8.333333	64.18579	55.4	3.7	9.25
	5	1	6	69	4.14	0.39	5	115.9843	55.5	3.95	16.25
		2	0	0	0	0.09	6.333333	94.43981	54.8	3.633333	23.75
		3	0	0	0	0.05	3.666667	102.1362	55.2	3.966667	10.5
		4	0	0	0	0.09	7	86.43585	54.2	3.9	8.5
	6	1	0	0	0	0	7	102.1441	54.2	3.85	23.75
		2	0	0	0	0	4.333333	109.4047	54.8	3.883333	25
		3	0	0	0	0.11	3.666667	91.38589	55.4	4.183333	11.75
		4	0	0	0	0		92.00476	55.4		17.5
	7	1	6	61.33333	3.68	0.15	5.666667	103.402	55.2	4.133333	22.5
		2	0	0	0	0	2.333333	107.8993	54.6	4.083333	8.5
		3	4	7	0.28	0.06	3.666667	90.41574	54.4	4	17.5
		4	0	0	0	0.09	7	62.38972	53.9	3.833333	15
	8	1	0	0	0	0	6	96.57759	53.2	3.95	27.5
		2	0	0	0	0	4.333333	108.2725	54.4	4.05	12.5
		3	0	0	0	0	3.333333	69.36867	54.3	3.866667	17.5
		4	0	0	0	0	6	88.97751	55.2	4.033333	15

Summary by treatment:

trt	severity	incidence	fhb_index	foliar_avg	don	yield_bu_a	tw	fdk_percent	seedwt_avg	ndvi_6.15
1	27.35	2.83	1.25	15.56	0.23	98.08	54.83	4.94	3.81	0.61
2	2.63	0.33	0.05	15.30	0.03	97.00	54.88	5.36	3.80	0.59
3	15.33	0.83	0.32	19.92	0.02	100.70	54.90	4.61	3.95	0.59
4	0.58	0.17	0.01	10.81	0.12	102.35	55.79	6.19	3.93	0.61
5	15.21	1.50	1.00	13.71	0.17	103.90	55.53	5.58	3.94	0.60
6	5.83	1.00	0.16	21.19	0.09	109.74	55.78	4.93	3.97	0.61
7	9.49	1.17	0.48	18.67	0.05	94.49	54.76	5.50	3.91	0.58
8	16.67	0.33	0.33	19.13	0.08	102.32	54.95	5.06	3.95	0.59

var	seedwt_avg	fdk_percent	severity	incidence	fhb_index	foliar_avg	yield_bu_a	tw	ndvi_6.15	don
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1	3.81	5.25	18.78	1.44	0.72	19.56	103.34	55.32	0.59	0.16
2	4.01	5.57	8.14	0.72	0.25	14.47	106.58	55.58	0.61	0.05
3	3.87	5.08	4.98	0.67	0.25	15.83	91.94	54.53	0.58	0.05

Discussion/Results:

This trial had very dry conditions in May. Due to the drought, there was low FHB pressure and relatively low DON levels detected in samples. Because of the low disease pressure, there were no significant differences in FHB index between the treatments. DON levels were significantly reduced by Prosaro, Sphaerex, and Prosaro Pro. No differences were found between the yields.

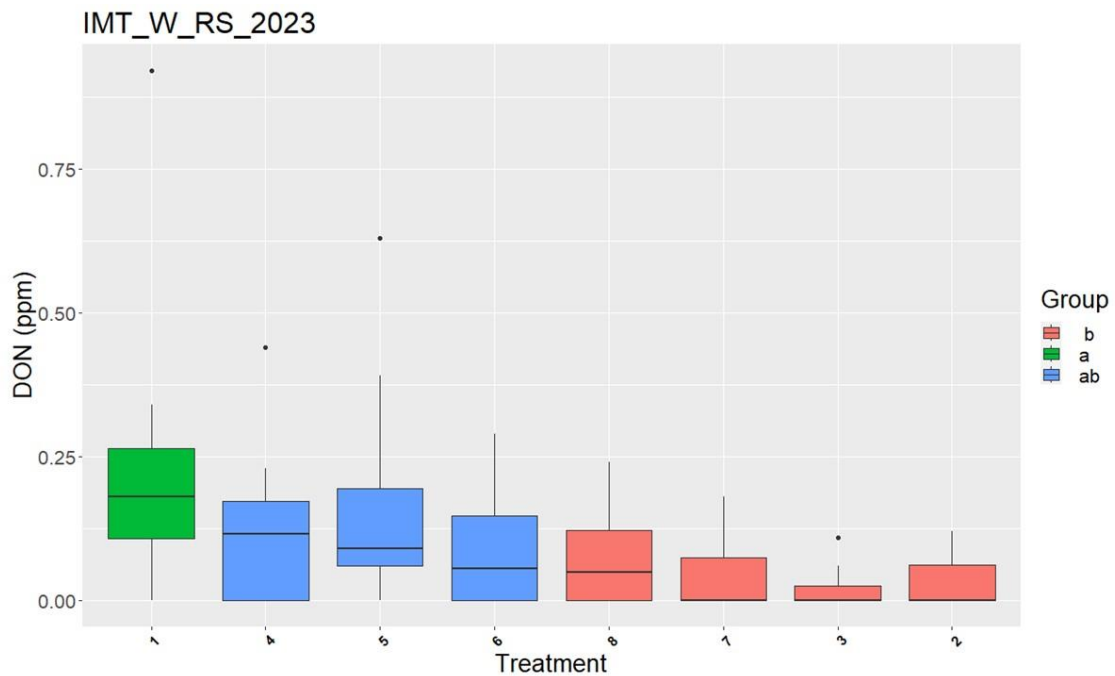


Figure 1. Graph showing mean foliar disease (percent of flag leaf infected) by treatment. No significant differences were observed, but the untreated check had the highest foliar disease severity. ($\alpha=0.05$)

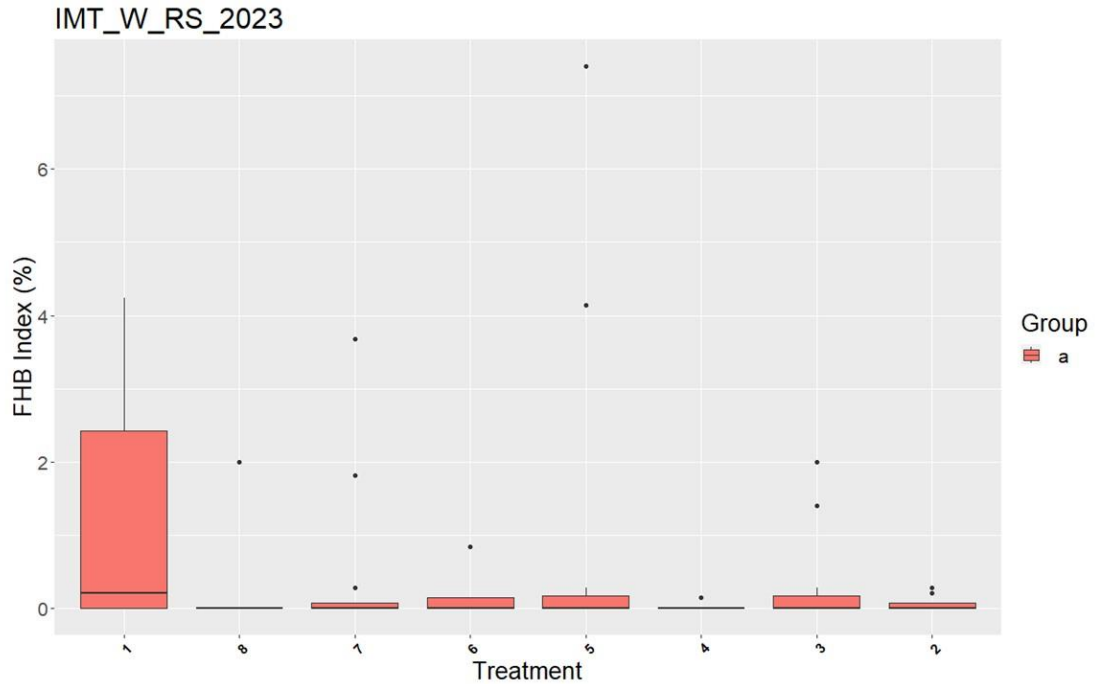


Figure 2. No significant yield differences were found between treatments for FHB index. However, all treatments lowered the mean FHB index compared to the untreated check. ($\alpha=0.05$)

Acknowledgements:

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