

Integrated Management Trial- Barley
 IMT_B_LV_2023



Year	2023
Location	Southeast Agricultural Research and Extension Center
Field	D
GPS coordinates	40.120513, -76.426850
Soil type	Silt loam
Crop	barley
Previous crop	hemp
Variety	Violetta (S), Thoroughbred (MS), Calyspo (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
Foliar insecticide	n
Foliar fungicide	n
Fertilizer	Split-applied
Irrigation	n
Planting date	11/4/22
Artificial inoculations (y/n)	y
Inoculum type/density	Spray, 1*10 ⁵ spores/mL
Inoculation date	5/09/23
Rating 1 date	6/7/23
Rating 2 date	N/A
Rating 3 date	N/A
Harvest date	7/6/23

Data by plot:

Var A= Violetta

Var	Treat	Rep	FHB			DON ppm	FDK %	Yield Bu/Ac	Test wt Lb/Bu	100 Kernel wt (g)	Foliar Disease
			Incidence	Severity	Index						total foliar disease (%)
A	1	1	7	8.75	0.56	0	6.17	58.37	46.5	5.65	11.5
		2	7	8.75	0.7	0	5.17	92.80	47	5.45	24
		3	2	7	0.28	0	3.67	100.25	45.5	4.83	45
		4	10	7.875	0.77	0.03	4.67	73.75	44.5	5.50	39.375
	2	1	12	14	1.68	0	5.67	68.93	46	4.97	10
		2	4	7	0.28	0	3.33	112.69	48	5.63	33.75
		3	14	7	0.98	0	5.33	61.12	43	5.23	36.25
		4	8	8.75	0.7	0	3.67	102.69	44	5.57	60
	3	1	2	7	0.14	0	5.67	67.42	43	5.67	15.75
		2	4	7	0.28	NA	NA	75.77	42	NA	26.25
		3	10	7	0.7	NA	NA	660.85	46	NA	31.25
		4	8	12.25	0.98	0	4.33	59.24	43	5.27	47.5
	4	1	2	7	0.14	0	6.00	52.04	46	5.37	11.25
		2	6	9.33333333	0.56	0.06	3.67	69.23	41	4.73	43.75
		3	8	7	0.56	0	3.33	97.38	43	5.57	18
		4	12	11.666667	1.4	0	4.33	118.69	46	5.37	48.75
	5	1	8	7	0.56	0	4.33	66.02	46	6.00	30
		2	2	7	0.14	NA	NA	82.15	44	NA	30
		3	6	11.666667	0.7	0	3.33	65.36	40	5.23	56.25
		4	8	8.75	0.7	0	4.00	50.58	45	6.00	6.75
	6	1	2	7	0.14	0	7.33	49.04	45	5.67	12.75
		2	8	7	0.56	0	6.00	69.56	43	5.47	16.25
		3	6	7	0.42	0	3.67	64.23	43	5.67	36.25
		4	18	9.33333333	1.68	0	4.67	105.87	47	5.97	38.75
	7	1	4	7	0.28	0	5.33	80.44	49	5.43	16.75
		2	2	14	0.28	0	3.67	97.27	47	5.77	36.25
		3	14	10	1.4	0	6.00	76.90	50	5.53	38.75
		4	6	7	0.42	0.05	5.33	63.73	46	5.23	36.25
	8	1	4	7	0.28	0	5.67	81.36	46	5.47	15
		2	6	7	0.42	0.05	6.33	67.62	45	5.50	26.25
		3	4	7	0.28	0	4.00	66.72	39	5.37	33.75
		4	26	11.307692	2.94	NA	0.00	106.60	47	0.00	57.5

Var B= Thoroughbred

B	1	1	0	0	0	0	4.17	96.45	50.5	4.32	33.125
		2	1	7	0.14	0	3.50	119.75	50.5	4.27	65
		3	2	3.5	0.14	0	3.83	92.55	46	4.85	50.875
		4	0	0	0	0	4.50	111.29	50	4.83	35.25
	2	1	0	0	0	0	4.67	117.23	51	4.53	12
		2	0	0	0	0	3.00	109.51	50	4.30	36.25
		3	0	0	0	0	4.00	91.60	50	4.83	38.75
		4	0	0	0	0	3.00	108.38	50	4.13	81.25
	3	1	0	0	0	0	4.00	85.36	52	4.20	17
		2	0	0	0	0	2.67	110.68	50	4.27	28.75
		3	0	0	0	0	3.00	108.13	51	4.57	6.75
		4	0	0	0	0	3.67	110.37	52	4.27	10.5
	4	1	2	7	0.14	0	3.67	86.46	49	4.47	2.75
		2	0	0	0	0	2.33	106.35	50	4.23	4
		3	0	0	0	0	2.33	106.23	51	4.40	3
		4	0	0	0	0	3.00	135.39	51	4.80	1.5
	5	1	0	0	0	0	4.33	110.75	49	5.10	8.25
		2	0	0	0	0	3.00	122.64	50	4.67	8
		3	0	0	0	0	2.67	112.59	50	4.27	2.5
		4	0	0	0	0	3.00	144.29	51	4.37	12.5
	6	1	4	7	0.28	0	3.33	87.33	50	4.33	6.75
		2	0	0	0	0	3.00	144.45	51	4.27	2.5
		3	0	0	0	0	3.67	100.68	50	4.53	13
		4	0	0	0	0	3.67	88.10	51	4.47	21.25
	7	1	0	0	0	0	3.33	123.17	51	4.53	3.5
		2	0	0	0	0	3.33	97.00	51	4.33	5.5
		3	0	0	0	0	3.33	127.79	51	4.40	37.5
		4	0	0	0	0	3.33	117.31	51	4.93	38.75
	8	1	0	0	0	0	3.33	132.34	52	4.27	1
		2	0	0	0	NA	0.00	0.00	0	0.00	6.5
		3	2	7	0.14	0	2.33	76.84	51	4.50	17.5
		4	0	0	0	0	2.33	117.49	51	4.93	7.5

Var C= Calypso

C	1	1	0	0	0	0	5.00	80.92	49	4.85	30.75
		2	0	0	0	0	4.17	93.51	46.5	5.05	51.875
		3	0	0	0	0	3.67	106.47	46	4.80	19
		4	0	0	0	0	4.33	104.06	46.5	5.43	36.25
	2	1	0	0	0	0	2.67	102.81	50	5.43	13.75
		2	0	0	0	0	5.00	100.71	46	5.03	7.75
		3	0	0	0	0	5.00	82.06	45	4.97	42.5
		4	0	0	0	0	4.33	43.56	48	5.03	31.25
	3	1	0	0	0	0	3.67	89.27	50	5.00	65
		2	0	0	0	0	4.00	103.85	49	5.17	6.5
		3	0	0	0	0	4.00	102.41	49	5.17	32.5
		4	0	0	0	0	3.33	105.05	49	4.97	42.5
	4	1	0	0	0	0	4.33	75.56	46	4.67	31.25
		2	0	0	0	0	3.00	131.08	48	5.13	4
		3	0	0	0	0	4.00	116.61	47	5.63	32.5
		4	0	0	0	0	2.33	101.72	48	5.20	23.75
	5	1	0	0	0	0	3.00	112.85	52	4.60	1.5
		2	0	0	0	0	4.67	118.45	49	5.77	11.75
		3	0	0	0	0	4.00	97.26	50	5.07	50
		4	0	0	0	0	4.67	124.25	48	5.83	23.75
	6	1	4	7	0.28	0	3.00	77.31	47	4.93	26.25
		2	0	0	0	0	5.00	110.16	45	4.93	28.75
		3	0	0	0	0	3.67	107.04	47	4.77	13
		4	0	0	0	0	5.33	102.18	49	5.27	31.25
	7	1	0	0	0	0	2.33	118.89	50	5.17	3
		2	0	0	0	0	3.67	94.36	47	4.77	55
		3	0	0	0	0	4.00	107.45	49	5.23	41.25
		4	0	0	0	0	4.67	88.41	48	5.10	45
	8	1	0	0	0	0	4.67	105.51	49	4.97	26.75
		2	0	0	0	0	4.33	102.12	45	5.10	9.5
		3	0	0	0	0	4.00	94.30	47	5.07	50
		4	0	0	0	0	5.00	115.95	45	5.83	21.75

Summary by treatment:

trt	seedwt_avg	fdk_percent	severity	incidence	fhb_index	foliar_avg	yield_bu_a	tw	don
1	4.99	4.40	3.57	2.42	0.22	36.83	94.18	47.38	0.00
2	4.97	4.14	3.06	3.17	0.30	33.63	91.77	47.58	0.00
3	4.04	3.19	2.77	2.00	0.18	27.52	90.30	48.00	0.00
4	4.96	3.53	3.50	2.50	0.23	18.71	99.73	47.17	0.01
5	4.74	3.42	2.87	2.00	0.18	20.10	100.60	47.83	0.00
6	5.02	4.36	3.69	3.50	0.28	20.56	92.16	47.33	0.00
7	5.04	4.03	3.17	2.17	0.20	29.79	99.39	49.17	0.00
8	4.25	3.50	3.28	3.50	0.34	22.75	88.90	43.08	0.00

var	seedwt_avg	fdk_percent	severity	incidence	fhb_index	foliar_avg	yield_bu_a	tw	don
1	4.94	4.92	0.39	0.11	0.01	9.92	100.52	47.33	0.00
2	3.65	6.20	4.96	0.89	0.15	39.87	100.80	47.03	0.00
3	4.31	5.39	0.00	0.00	0.00	40.06	101.02	47.05	0.00

Discussion/Results:

This trial had a record dry May. Due to the drought, there were very low levels of FHB and almost no DON detected in samples. Because of the low disease pressure, there were no significant differences in Fusarium head blight severity, incidence, or FHB index. Foliar disease severity was significantly reduced by all foliar treatments, with Prosaro Pro and Miravis Ace performing the best. There was an issue with the Violetta variety planted in this trial. This may have been due to a mistake in using an old seed lot or winterkill damage. Yields for Violetta were significantly reduced (78 bu/a) compared to the other two varieties (>100 bu/a).

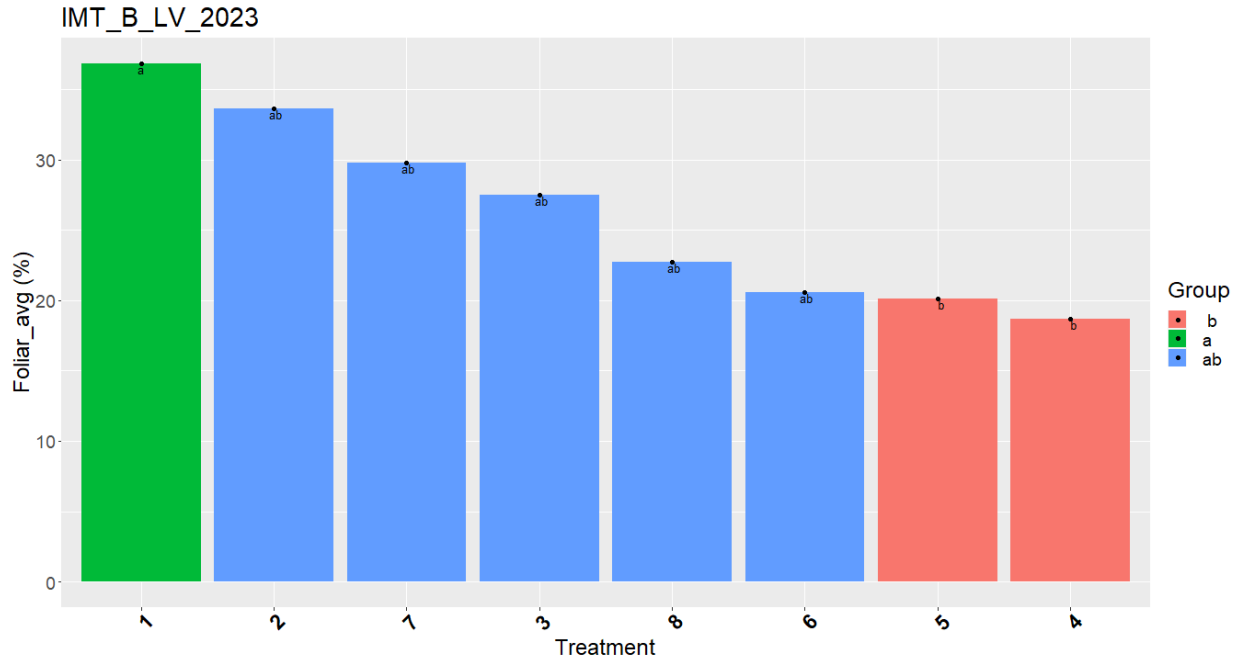


Figure 1. Graph showing mean foliar disease (percent of upper leaves infected) by treatment. The UTC had the highest mean foliar disease severity, with Miravis Ace and Prosaro Pro having significantly reducing foliar disease (group “a”). Sphaerex also reduced foliar disease best when applied at heading (group “ab”). ($\alpha=0.05$)

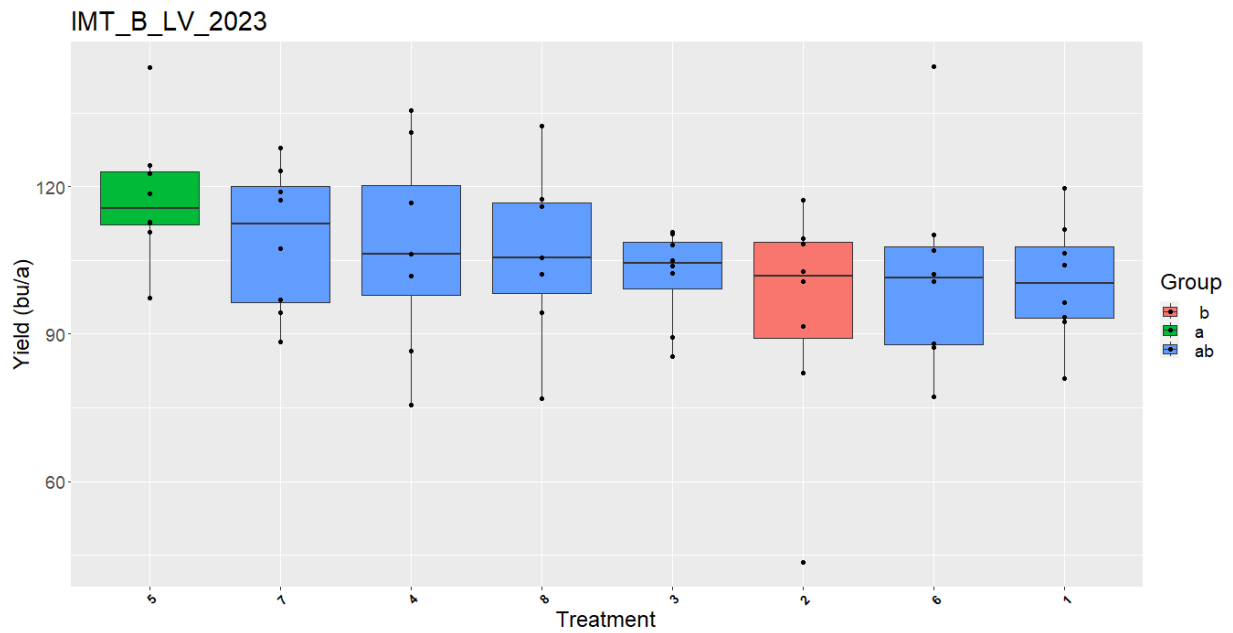


Figure 2. When Violetta yield data are removed, yield is significant, with Prosaro Pro (treatment 5) having a mean of 117.9 bu/a. ($\alpha=0.05$)

Acknowledgements:

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