

Project Title: Effects of Chitosan and Lorsban on the Control of Orange Wheat Blossom Midge (OWBM) in Susceptible and Resistant Spring Wheat – 2013

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Objective: To evaluate the effect of Chitosan and Lorsban on the control of OWBM in susceptible and resistant spring wheat.

Results:

This study was conducted to compare the treatment effects of Chitosan and Lorsban when applied to CAP 400-1, an experimental cultivar with resistance to the OWBM, and Solano, a non-resistant cultivar. The study was planted as a split-plot design with three replications. Chitosan treatments were applied at a rate of 0.5% v/v, at early boot, on June 26. Lorsban treatments were applied at a rate of 1 pt/A, at heading, on July 2.

Cap 400-1 afforded complete control of OWBM. Solano experienced OWBM pressure and a higher rate of stripe rust infection. Chitosan and Lorsban had no effect on yield among the two cultivars and little effect on test weight, protein and thousand kernel weight (Tables 2, 4).

Summary:

Significant differences in agronomic traits varied mostly between cultivars rather than the treatments imposed, with CAP 400-1 outperforming Solano (Table 3).

Table 1. Materials and Methods - Effect of Chitosan and Lorsban - 2013

Seeding Date:	5/6/13	Fertilizer:	150-40-110-20
Julian Date:	126	Herbicide:	5/31/13
Seeding Rate:	80 lb/A		Affinity TankMix 0.6 OZ/A, MCPE
Previous Crop:	Canola		0.5 PT/A, Axial 16.4 FL OZ/A
Tillage:	Conventional	Fungicide:	6/21/13
Irrigation:	None		Headline 9 FL OZ/A
Soil Type:	Creston Sil	Harvest Date:	9/4/13
Soil Test:	136-10-100	Julian Date:	247

Table 2. Main effect of Chitosan and Lorsban inputs on agronomic performance of spring wheat – 2013

	SR %	HD Julian	HT in	OWBM no/spk	YLD bu/A	PRO %	TWT lb/bu	TKW g	FN sec	MC %
Check	3.7	186	33.2	8.2	91.5	15.4	61.1	30.6	351.4	13.3
Chitosan	3.8	186	33.4	8.0	90.5	14.9	61.2	29.6	367.1	13.3
Lorsban	4.0	187	33.9	4.3	101.5	15.2	61.6	30.2	367.5	13.2
Chitosan + Lorsban	3.5	187	33.7	6.3	98.3	15.2	61.5	30.4	364.2	13.2
LSD	2.7	2.2	2.1	5.0	9.0	1.3	0.4	2.5	19.6	0.2
Pr>F	0.9707	0.8327	0.8622	0.3063	0.0633	0.7925	0.0476	0.7947	0.2504	0.4602

Table 3. Main effect of cultivar on agronomic performance of spring wheat – 2013

Cap 400	1.3	188	37.6	0.0	104.1	15.2	61.7	30.4	412.3	13.3
Solano	6.2	186	29.5	13.4	86.8	15.1	61.0	30.0	312.8	13.3
LSD	1.9	1.8	0.7	7.7	4.6	0.3	0.4	0.7	17.2	0.2
Pr>F	0.0004	0.0416	0.0001	0.0039	0.0001	0.2714	0.0021	0.2798	0.0001	0.8103

Table 4. Effect of Chitosan and Lorsban inputs on agronomic performance on spring wheat – 2013

	CAP 400-1									
Check	1.3	188	37.7	0.0	100.5	15.4	61.7	30.6	406.7	13.4
Chitosan	2.0	188	37.4	0.0	99.6	14.5	61.7	29.0	421.8	13.3
Lorsban	0.7	188	37.5	0.0	105.9	15.6	61.7	31.2	407.7	13.2
Chitosan + Lorsban	1.3	187	37.8	0.0	110.4	15.4	61.8	30.7	413.1	13.2
	Solano									
Check	6.0	185	28.7	16.3	82.4	15.3	60.4	30.6	296.2	13.3
Chitosan	5.7	185	29.4	16.0	81.3	15.2	60.8	30.2	312.4	13.3
Lorsban	7.3	186	30.2	8.7	97.1	14.7	61.5	29.3	327.2	13.2
Chitosan + Lorsban	5.7	187	29.6	12.7	86.3	15.1	61.2	30.0	315.3	13.3
LSD	3.8	3.6	1.4	15.5	9.3	0.7	0.7	1.4	34.5	0.3
Pr>F	0.6223	0.7019	0.3756	0.8355	0.1331	0.0301	0.1451	0.0353	0.4961	0.7637

SR: stripe rust, HD: heading HT: height, OWBM: orange wheat blossom midge, YLD: Yield, PRO: protein, TWT: test weight, TKW: thousand kernel weight, FN: falling number, MC: moisture content