

Project Title: The Effects of Cerone and Lorsban on the Control of the Orange Wheat Blossom Midge in Susceptible and Resistant Spring Wheat -2013

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Objective: To evaluate the interactive effects of combining Cerone with Lorsban on grain yield and quality in Orange Wheat Blossom Midge (OWBM) susceptible and resistant spring wheat cultivars.

Results:

This study was conducted to compare the treatment effects of Cerone 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. Cerone treatments were applied at a rate of 0.75 pt/A, at early boot, on June 26. There was heavy dew present and a light drizzle occurred 6 hours later for a total precipitation of 0.03". Lorsban treatments were applied at a rate of 1 pt/A, at heading, on July 2.

The main effect of PGR and insecticide treatments had a significant effect on heading date, yield and thousand kernel weights (Table 2). Cerone applied alone or in combination with Lorsban, delayed heading by two days and resulted in lower thousand kernel weights. Yields were the highest with the combination of Cerone with Lorsban.

Significant differences were observed with the main effect of cultivar (Table 3). CAP 400-1 afforded complete control of OWBM, and resulted in higher test weight and falling number values than Solano. Solano had higher thousand kernel weights. Although Solano had significantly greater owbm numbers, Solano and CAP 400-1 had similar yields when averaged over PGR and insecticide inputs. However, Interactions were observed for yield (Table 4).

Overall, Cerone plus Lorsban afforded the greatest yield increase for both CAP 400-1 and Solano. However, Solano also benefitted from lorsban applied alone. These results indicate that there could be a synergistic effect to yield by applying lorsban plus cerone, regardless of the variety.

Table 1. Materials and Methods - Effect of Cerone and Lorsban on the control of the OWBM in susceptible and resistant spring wheat - 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:	9/5/13
Soil Test:	136-10-100	Julian Date:	248

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

Input	SR %	HD Julian	Quack-		LOD %	OWBM no/spk	YLD bu/A	PRO %	TWT lb/bu	TKW g	FN sec	MC %
			grass %	HT in								
Check	3.0	184	1.3	35.5	0	12.2	84.1	15.0	61.6	37.3	376.0	15.0
Cerone	6.2	186	8.5	35.8	0	8.4	83.6	15.2	61.5	36.4	367.3	14.8
Lorsban	4.8	184	7.5	37.3	0	5.7	92.6	14.1	62.3	37.9	361.3	15.2
Cerone & Lorsban	5.3	186	1.5	34.9	0	4.8	100.9	14.9	62.3	36.8	387.5	14.8
LSD	2.4	0.9	14.8	1.9	0	6.1	13.3	1.7	0.8	0.5	54.1	0.3
Pr>F	0.0826	0.0019	0.5403	0.0881	1.0000	0.0895	0.0555	0.4898	0.0837	0.0009	0.6792	0.0585

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

CAP 400-1	1.4	185	2.1	34.9	0	0.0	89.8	14.8	62.4	34.6	413.7	14.6
Solano	8.3	185	7.3	36.8	0	15.5	90.8	14.8	61.5	39.6	332.4	15.3
LSD	1.7	1	8.2	2.2	0	4	4.2	0.6	0.4	0.4	27.3	0.1
Pr>F	0.0001	0.7200	0.1764	0.0799	1.0000	0.0001	0.6260	0.9287	0.0011	0.0001	0.0001	0.0001

Table 4. Effect of Cerone and Lorsban on agronomic performance of spring wheat . 2013

Input	SR %	HD Julian	Quack- grass %	HT in	LOD %	OWBM no/spk	YLD bu/A	PRO %	TWT lb/bu	TKW g	FN sec	MC %
Check	2.0	184	0.3	35.1	0	0.0	83.0	15.0	62.1	34.5	429.7	14.7
Cerone	2.3	186	3.0	34.2	0	0.0	88.6	15.1	62.2	34.2	410.7	14.4
Lorsban	0.7	184	3.3	36.6	0	0.0	88.8	14.2	62.7	35.4	391.7	14.8
Cerone & Lorsban	0.7	186	1.7	33.7	0	0.0	99.0	15.0	62.6	34.4	422.7	14.5
Solano												
Check	4.0	184	2.3	35.8	0	24.3	85.3	15.0	61.0	40.1	322.3	15.4
Cerone	10.0	186	14.0	37.4	0	16.8	78.7	15.2	60.8	38.5	324.0	15.1
Lorsban	9.0	184	11.7	38.1	0	11.4	96.4	14.1	62.0	40.4	331.0	15.6
Cerone & Lorsban	10.0	186	1.3	36.1	0	9.6	102.7	14.8	62.1	39.2	352.3	15.2
LSD	3.4	2.1	16.3	4.4	0	7.9	8.4	1.2	0.8	0.8	54.7	0.3
Pr>F	0.0304	0.9860	0.6559	0.8167	1.0000	0.0618	0.0429	0.9799	0.3647	0.1474	0.5560	0.7890

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