

Aphid, Thrips, and Wheat Stem Maggot Control With Baythroid, 2010

The purpose of this study was to evaluate the efficacy of the insecticide Baythroid for the control of various insect pests on ‘Glenn’ and ‘Oklee’ hard red spring wheat varieties. The experiment was conducted at the North Central Experiment Station south of Minot, ND. In the fall of 2009, 217 lb/acre urea was spread and incorporated with chisel plow spikes. Seeds were treated with the fungicide Proceed MD prior to planting. Each variety was planted on April 23 at a rate of 1.3 million pure live seed/acre into minimum tillage wheat residue with an offset double disc drill. Plots were 5 ft by 18 ft. Treatments were replicated four times in a RCB design. The first Baythroid application was made on June 5 at the 4 to 5 leaf stage. The second Baythroid application was made on July 1 at the flowering stage. Aphids and thrips per plant were counted on 25 plants per plot on June 9th and 10th. The number of white heads per plot caused by wheat stem maggot (WSM) was determined on July 15. The herbicide, Wolverine, was applied at a rate of 27.4 oz/acre for weed control at the 4 to 5 leaf stage. The fungicides Stratego and Prostaro and the non-ionic surfactant, Induce, were applied with both Baythroid treatments at a rate of 4 oz/acre, 6.5 oz/acre, and 0.25% vol/vol, respectively. Pesticides were applied using a carbon dioxide propelled back pack sprayer and a hand boom with flat fan nozzles at a volume of approximately 10 gal/acre. Data were transformed log (x+1) prior to analysis. Data were analyzed with ANOVA and treatment means were separated using the Tukey’s honestly significant difference (HSD) test, P = 0.05.

Aphid populations were low in plots with and without Baythroid, and differences were not significant. The four to five leaf application of Baythroid significantly reduced thrips in the Glenn plots by 94%. The ‘Oklee’ check had significantly fewer thrips than the ‘Glenn’ check. Although the Baythroid treated ‘Oklee’ had fewer thrips than the ‘Oklee’ check, the differences were not statistically significant. The 4 to 5 leaf application of Baythroid had no WSM damage in the plots. The flowering application of Baythroid had approximately half the damage of the check plots. The early application of Baythroid was significantly more effective at reducing WSM damage than the check plots. However, the late application of Baythroid had WSM damage that was not significantly different than the check plots.

This research was supported by an industry gift from Bayer Crop Science.

Table 1.

Treatment	Rate/acre	Variety	Timing	Aphids/plant	Thrips/plant	Wheat Stem Maggot/plot
Check	--	Glenn	--	0.04a	0.97a	--
Baythroid XL 1EC ^a	1.6 fl oz	Glenn	4-5 Leaf	0.00a	0.06c	--
Check	--	Oklee	--	0.03a	0.38b	2.8a
Baythroid XL 1EC ^a	1.6 fl oz	Oklee	4-5 Leaf	0.02a	0.10b	0.0b
Baythroid XL 1EC ^a	1.6 fl oz	Oklee	Flowering	--	--	1.3ab

Data was transformed log (x+1). Untransformed means are listed.

Means within the same column followed by the same letter are not significantly different, Tukey's HSD (P = 0.05).

The herbicide, Wolverine, was applied to all treatments at the 4-5 leaf stage.

^aSeeds were treated with the fungicide Proceed MD; the fungicides Stratego and Prostaro + the non-ionic surfactant Induce were also applied with Baythroid