

Efficacy of spring-applied foliar insecticide treatments for Hessian fly (*Mayetiola destructor*) control in winter wheat for the Tidewater region of North Carolina.

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Both wheat seasons, 2009-2010 and 2010-2011, offered very high Hessian fly pressure. Spring foliar applications of insecticides showed no differences in yield in either year even though an extremely susceptible variety (Coker 9553) was used in 2009-2010 as compared to a moderately susceptible variety (Southern States 8302) in 2010-2011. In 2009-2010 no differences in control and yield were noticed between the untreated control and treatments containing beta-cyfluthrin, lambda-cyhalothrin, lambda-cyhalothrin + thiamethoxam, and gamma-cyhalothrin + chlorpyrifos (Table 1). In 2010-2011, no differences were observed in efficacy and final yield between the untreated control and treatments containing thiamethoxam + lambda-cyhalothrin, lambda-cyhalothrin alone, thiamethoxam alone, beta-cyfluthrin, and zeta-cypermethrin (Table 2).

Table 1. Mean number of Hessian fly pupae, infested plants and bushel yields in a field trial to evaluate the efficacy of spring insecticide foliar treatments, 2009-2010, 3B Farms Beaufort County, NC. The plot plan was modified to include thiamethoxam + lambda-cyhalothrin and gamma-cyhalothrin + chlorpyrifos after the Nov. 17 ratings (see footnote 1). Foliar treatments were applied on March 25, 2010.

Trt	Product	Rate (lb ai/acre)	Hessian fly pupae per plant ²	Percent infested plants	Bushels per acre
			Feb 17	Feb 17	Jun 9
1	beta-cyfluthrin ³	0.008	1.10	45	32.65
2	beta-cyfluthrin	0.014	1.35	50	34.03
3	beta-cyfluthrin	0.019	0.65	30	34.34
4	lambda-cyhalothrin ⁴	0.031	0.95	30	37.98
5	thiamethoxam + lambda-cyhalothrin ⁵	0.072	1.40	55	38.63
6	gamma-cyhalothrin + chlorpyrifos ⁶	0.259	0.80	35	37.63
7	Untreated	---	2.05	75	32.90
	LSD		NS	NS	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).

¹Pre-treatment counts on Nov. 17 (based on sampling 100 plants) indicated a mean of 3.16 Hessian fly larvae per plant and 73% infested plants.

Stand counts on Nov. 17 (based on forty 1-ft samples) indicated a mean of 15.6 plants per row foot.

²Based on sampling five plants per plot.

³Formulated as Baythroid XL ISC and contains 1 lb/gal beta-cyfluthrin.

⁴Formulated as Karate Z 2.08CS and contains 2.08 lb/gal lambda-cyhalothrin.

⁵Formulated as Endigo 2.06SC and contains 1.18 lb/gal thiamethoxam and .88 lb/gal lambda-cyhalothrin.

⁶Formulated as Cobalt 2.55SC and contains 0.045 lb/gal gamma-cyhalothrin and 2.5 lb/gal chlorpyrifos.

Table 2. Mean number of Hessian fly pupae, eggs, infested plants and bushel yields in a field trial to evaluate the efficacy of spring insecticide foliar treatments, 2010-2011, 3B Farms, Beaufort County, NC. Foliar treatments were applied on March 4, 2011.

Trt	Product	Rate (lb ai/acre)	Pupae per plant ¹	Percent in- fested Plants	Eggs per tiller ²	Percent in- fested plants	Bushels per acre
			Feb 23	Feb 23	Mar 17	Mar 17	Jun 7
1	Untreated	---	0.45	25.0	1.15	35.0	82.73
2	thiamethoxam + lambda-cyhalothrin ³ Crop oil concentrate 1% v/v	0.064	0.40	30.0	1.10	25.0	85.53
3	thiamethoxam + lambda-cyhalothrin ⁴ Crop oil concentrate 1% v/v	0.085	0.50	30.0	0.95	30.0	83.85
4	lambda-cyhalothrin ⁵ Crop oil concentrate 1% v/v	0.031	0.05	5.0	0.80	25.0	85.58
5	thiamethoxam ⁶ Crop oil concentrate 1% v/v	0.086	0.20	20.0	1.65	30.0	83.28
6	beta-cyfluthrin ⁷ Crop oil concentrate 1% v/v	0.018	0.35	30.0	1.20	35.0	87.03
7	zeta-cypermethrin ⁸ Crop oil concentrate 1% v/v	0.025	0.40	20.0	0.10	10.0	81.55
	LSD		NS	NS	NS	NS	NS

Means within a column followed by the same letter(s) are not significantly different (Protected LSD, P=0.05).

¹Based on sampling five plants per plot.

²Based on sampling five tillers per plot.

³Formulated as Endigo ZC 2.06SC and contains 1.18 lb/gal thiamethoxam and 0.88 lb/gal lambda-cyhalothrin.

⁴Formulated as Endigo ZCX 2.71SC and contains 1.83 lb/gal thiamethoxam and 0.88 lb/gal lambda-cyhalothrin.

⁵Formulated as Warrior II Z 2.08SC and contains 2.08 lb/gal lambda-cyhalothrin.

⁶Formulated as Actara 25WG and contains 25 percent by weight thiamethoxam.

⁷Formulated as Baythroid XL 1SC and contains 1 lb/gal beta-cyfluthrin.

⁸Formulated as Mustang Max 0.8SC and contains 0.8 lb/gal zeta-cypermethrin.