Project Title: Effect of Methoprene on Orange Wheat Blossom Midge Densities

Objective: To determine if methoprene would prevent larval development

Materials and Methods:

This study was established in a field which had been in spring wheat for the previous five years and had a history of moderate to high midge densities. The study was conducted using conventional tillage and was fertilized with 97-30-120-24 lb/A of N-P-K-S. Hank hard red spring wheat was seeded at a rate of 75 lb/A in seven inch wide rows, to a depth of two inches on May 11, 2010.

Methoprene was applied at seven rates ranging from 0.06 to 4.0 lb ai/A (Table 1). Treatments included a non-ionic surfactant (NIS) at 0.25 % v/v and were applied in 20 GPA of water using a backpack sprayer equipped with 11002 Tee Jet nozzles. The experimental design was a randomized complete block with three replications with each plot measuring 10 by 15 feet. Treatments were applied on July 16 at 9:00 pm when the crop growth ranged from 80% anthesis to the watery ripe stage. Three spikes were sampled from each plot on August 6. Each spike was dissected and the number of larvae and seeds counted. Plots were harvested on September 13 to measure grain yield and quality.

Results:

Methoprene had no effect on larval populations (Table 1). Similarly, methoprene had no effect on grain yield or quality. Perhaps the most important observation from this study is that methoprene did not cause any damage to spring wheat, even at rates as high as 4.0 lb/A.

Table 1. Effect of methoprene rate on orange wheat blossom midge densities and grain yield.

Treatment	Rate lb ai/a	Yield Bu/A	TWT lb/Bu	Protein %	PPO	FN sec	OWBM no/spike
Check		50.1	56.7	15.1	0.7918	320.0	76.44
Methoprene	0.06	51.0	56.9	15.2	0.6323	326.7	46.33
Methoprene	0.12	50.8	57.6	14.3	0.7628	339.3	35.66
Methoprene	0.25	47.7	57.2	14.1	0.7582	329.0	43.00
Methoprene	0.50	45.4	57.0	14.5	0.8987	322.0	56.66
Methoprene	1.00	49.5	56.8	15.0	0.8192	349.7	52.77
Methoprene	2.00	44.7	56.9	13.7	0.8002	334.7	74.00
Methoprene	4.00	54.8	57.5	14.2	0.8958	351.0	33.33
MIN		44.7	56.7	13.7	0.6323	320.0	33.33
MAX		54.8	57.6	15.2	0.8987	351.0	76.44
MEAN		49.3	57.1	14.5	0.7949	334.1	52.27
LSD (P=.05)		NA	NA	NA	NA	NA	NA
CV		10.83	0.90	5.37	15.71	9.9	38.42
Trt (Pr>F)		0.4002	0.4086	0.2530	0.2877	0.8961	0.1370