FULFILL® (PYMETROZINE) EFFICACY TRIAL IN ALFALFA SEED

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Introduction

Small replicated plots were established to test the efficacy of Fulfill (pymetrozine) insecticide on an important secondary pest of alfalfa seed, the spotted alfalfa aphid (*Therioaphis maculata*). In addition, data was collected on the check of small nymphs (instars 1-5) of the western tarnished plant bug (*Lygus hesperus*), a primary pest in alfalfa seed. High populations of the minute pirate bug (*Orius tristicolor*), an important beneficial predator, were observed in the test plot area. The effects of pymetrozineon on the minute pirate bug were observed.

Methods

Small 0.012-acre plots (6.33 ft. x 82 ft.) in a complete block randomized design with five replicates were marked. Three treatments included Fulfill (pymetrozine) at two rates, 2.75 oz/acre (0.86 lb. ai/ac) and 4.00 oz/ac (0.125 lb. ai/ac) and Thiodan (endosulfan) at the rate of 1.33 qt/acre (1.0 lb. ai/acre) were applied. Untreated check plots were included in the trial. Applications were made using a CO_2 plot sprayer calibrated at 22 gal/acre and boom pressure at 35 psi. Pretreatment counts and the treatment applications were made July 6. Seven and 14-day posttreatment counts were made to evaluate insecticide performance. All insecticide treatment solutions included the adjuvant, SYL-TAC at 0.25 percent by volume. The alfalfa variety was 'Saranac'.

Insect samples were collected using a standard insect sweep net taking one 90-degree sweep per plot. At all sample dates, sweep samples were taken between 11a.m. to 1 p.m. Samples were preserved in canning jars containing ethanol solution, returned to the lab, and the average number of insects per sweep were recorded. Insect populations in the insecticide treatments were compared at each sampling date using Duncan's multiple range test.

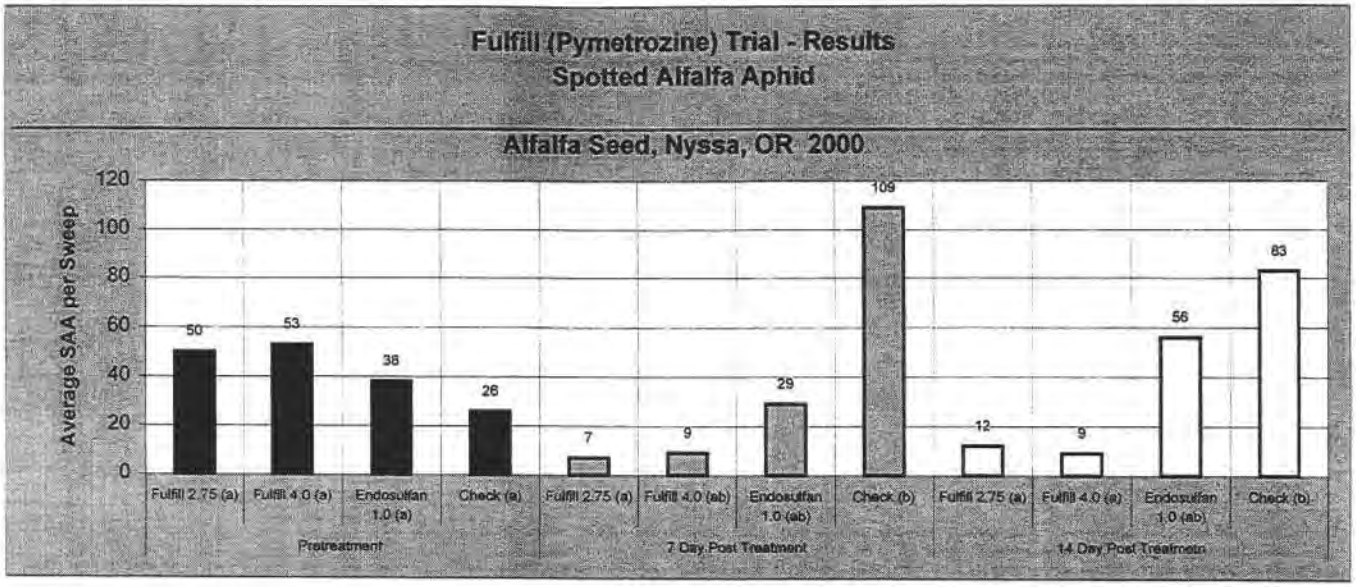
Results and Discussion

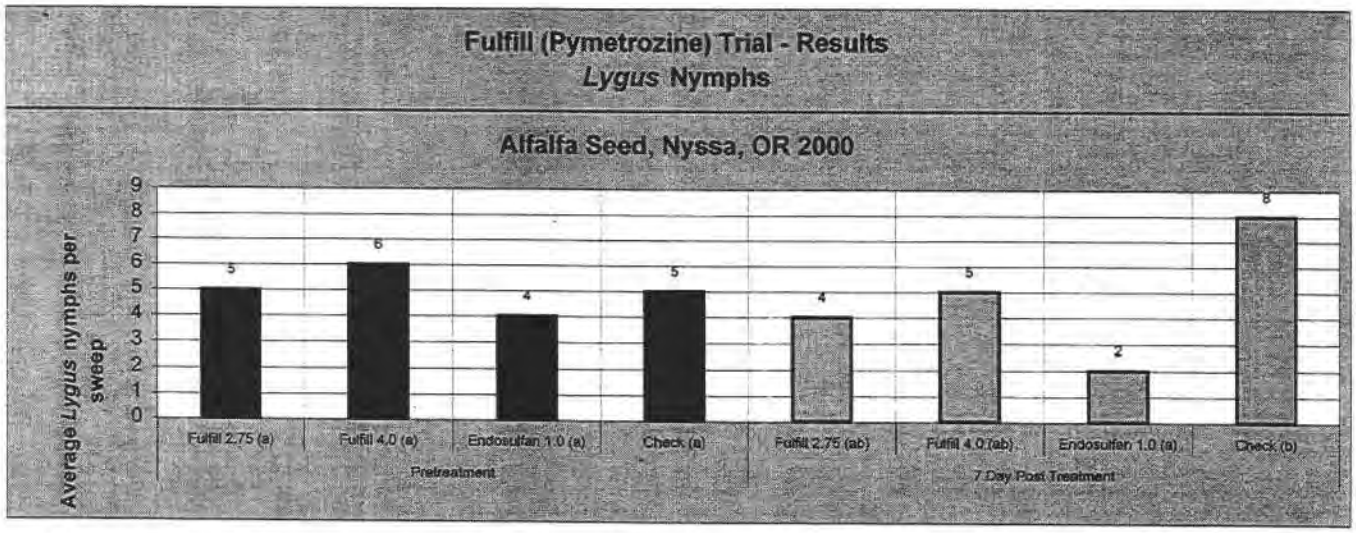
Lygus nymph numbers were low, averaging 5.1 nymphs per sweep prior to the insecticide applications (see graphs). At seven days posttreatment there were no significant differences in numbers of small lygus between the Fulfill treatment and the untreated check levels. Endosulfan did provide some suppression of small lygus. Spotted alfalfa aphid reached levels of over 100/sweep in the untreated check plots. At 7 and 14 days

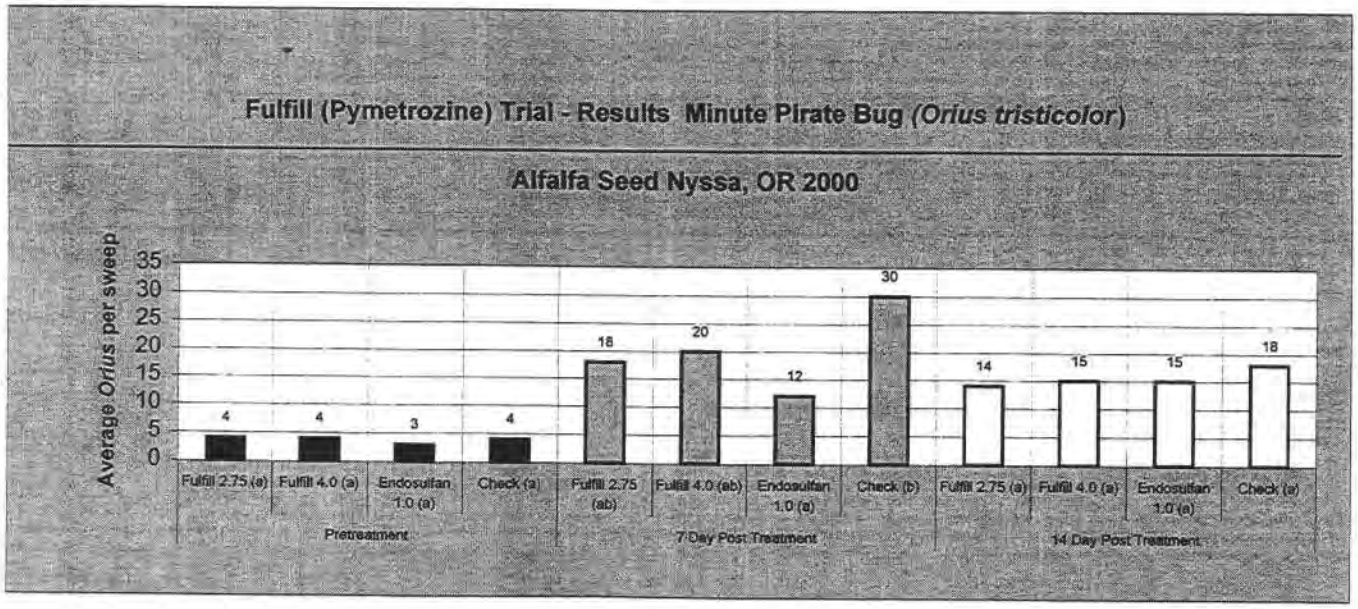
posttreatment, both rates of Fulfill gave significant control of spotted alfalfa aphid relative to the check. There was no statistically significant rate response observed between the Fulfill treatments. In the untreated check plots, the levels of minute pirate bug averaged 30/sweep 7 days post treatment. At 7 and 14 days posttreatment the levels of minute pirate bug did not vary significantly between the untreated check plots and plots treated with two rates of Fulfill. In summary, both rates of Fulfill provided good control of spotted alfalfa aphid but did not appear to affect populations of small lygus nymphs based on the conditions of this study. The product also appears to be relatively safe on the beneficial predator *Orius*, the minute pirate bug.

Cooperators: Andrews Seed Company, Ontario, OR and KLG Farms, Nyssa, OR

Figure 1. Fullfill® (pymetrzine) trial results on the spotted alfalfa aphid, lygus nymphs, and minute pirate bug in alfalfa seed fields, Nyssa, OR, 2000. (DPT = days posttreatment). (Figure 1 is on page 29.)







Means at each treatment date with the same letter are not significantly different (P=0.05; LSD)