

July 1, 2010

**A LITTLE BIT COUNTRY  
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**No Insecticide Solution for Wheat Sawflies**

For some wheat growers, the wheat stem sawfly has moved from the category of a nuisance pest to a more serious category of causing severe economic losses. In this area of the state, producer reports indicate sawfly populations are gradually increasing.

Sawfly damage to a wheat crop is threefold. First, they substantially reduce grain yields by their tunneling activity in the infested stems. Additional loss occurs when the sawfly-cut stems fall to the ground and become unharvestable. Another effect is reduced protein content of the harvested grain.

Producers of food crops have relied on insecticides to reduce damage by numerous other pests. Although there has been research to identify the use of insecticides to eliminate the impact of sawfly damage the industry still does not have a good insecticidal approach.

In 2009, NDSU Extension Entomology conducted a large plot (25 acre) insecticide trial near Mott where we sprayed three times with a pyrethroid for sawfly control. Those conducting the research found that three applications of a pyrethroid insecticide timed for the beginning, peak and end of sawfly flight reduced infested stems by half compared with the untreated check. However, the yield gain was not significant and only a 3.3 bushels per acre in the insecticide-treated plot versus the untreated check. The estimated cost of the insecticides was \$30 per acre (or \$10 per acre per insecticide application). If wheat is valued at \$5 per bushel, the gross revenue increase due to yield is \$16.50 per acre. This results in a net loss of \$13.50 per acre (\$16.50 minus \$30), in spite of the three applications of insecticides!

NDSU Extension Entomology also studied insecticides and spray timings for control of wheat stem sawfly at Hettinger and Makoti in 2009. The following treatments were evaluated: 1) untreated check, 2) foliar insecticide at the 4-6 leaf stage 3) foliar insecticide at flag leaf stage, 4) low rate of insecticide seed treatment, 5) high rate of insecticide seed treatment, and 6) low rate of insecticide seed treatment + foliar spray at the 4-6 leaf stage. Cruiser 5FS was used as the insecticide seed treatment and Warrior II (pyrethroid) was used for all foliar insecticide applications. All seed treatments were applied commercially.

For percent infested stems, all of the insecticide treatments were comparable except for the low and high rate of Cruiser has a significantly higher percent infested stems than the low rate of Cruiser + Warrior II at the 4-6 leaf stage. Infested stems of the insecticide treatments were not different from the untreated check. As expected, there were significant yield differences among the different insecticide treatments or between insecticide treatments and the untreated check. The untreated check had the lowest yield, which was probably due to root rot diseases because no fungicide seed treatment was used.

Insecticides generally have not been effective against the wheat stem sawfly. The egg, larval and pupal stages are well-protected inside the plant stem. Spraying for adults has not been successful because newly emerged adults can migrate into a field that was sprayed, the sawfly emergence window is so long and adults that emerge after spraying have reduced exposure to insecticide. The adult has no mouthparts and does not feed or drink water, which minimizes exposure to insecticides. Overall, insecticides are relatively costly for a low-value, large-acreage crop such as wheat: ineffective in controlling wheat stem sawfly; and damaging to beneficial parasitoid populations.