Forage Research Updates

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OHIO – Alfalfa Resistance to Potato Leafhopper and its Effect on Economic Threshold

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Alfalfa varieties with high levels of resistance to potato leafhopper (PLH) greatly reduce yield loss when this pest is not controlled; however, some yield loss is possible when PLH populations are high. How many PLH are necessary to cause economic damage to varieties with high levels of resistance (>50% resistant plants)? Field trials were conducted over 3 years in western Ohio to answer that question.

When no insecticide was applied to a variety with high PLH resistance (54H91), it averaged 0.27 tons/ac/year lower yield than the susceptible variety (54V54) treated with insecticide in a timely manner. The value of that yield loss was equivalent to the cost of insecticide treatment on the susceptible variety, so economic returns were equal for the untreated resistant and the insecticide-treated susceptible variety.

Economic yield loss occurred in the susceptible variety at 11 of the 14 summer harvests. In contrast, PLH populations were much lower in the resistant variety and economic yield loss occurred at only 4 of the 14 summer harvests, and only when PLH populations were 3-4 times higher than the normal economic threshold (ET) used for susceptible alfalfa.

Results showed that the ET for established stands of alfalfa with high levels of PLH resistance (>50%) is three times higher than the ET for susceptible alfalfa, and PLH populations rarely reach this level in highly resistant varieties. *(This study was reported at the AFGC conference, 11-15 June 2005, Bloomington, IL)*.