

Effect of Mach 2 (halofenozide) on Natural Parasitic Nematode in the Soil

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Objective

To determine whether the insecticide Mach 2 (halofenozide) interferes with the natural control of a parasitic nematode in the soil.

Rationale

Increased efforts in recent years have been focused on biological control using entomopathogenic nematodes. These nematodes are capable of parasitizing Japanese beetle as well as other grub species, providing significant control in some situations. Mach 2 is a novel compound that is a member of the class of insecticides referred to as 'ecdysone inhibitors' which interfere with the insect molting process. It is primarily effective against the larval stages of lepidopteran, coleopteran, and some homopteran species. The manufacturers claim little threat of toxicity to predators and other beneficial insects, mammals, birds and aquatic organisms. The effect of halofenozide on nematodes and their ability to infect and kill Japanese beetle grubs is unknown. It has been suggested that combining low-impact insecticides or reduced rates of insecticides with biological control could achieve the adequate control while reducing the adverse effects of insecticides.

How It Was Done

Laboratory treatments consisted of all combinations of two rates of halofenozide (1.0 and 2.0 lb ai per acre) with *H. marelatus* nematodes (0.5 and 1.0 billion per acre). Percent larval mortality was evaluated at 7, 14, and 21 days after treatment.

Results To Date

No deleterious effects were observed. The nematode treatments produced significantly greater 3rd instar grub mortality relative to the chemical treatments. This was as expected. What we learned was that no synergism or antagonism was detected in any of the combination treatments. Therefore Mach 2 appears to be completely compatible with the use of parasitic nematodes for the control of white grubs in turfgrass.