New York State Integrated Pest Management Program

Alternative Control Tactics for Black Cutworms in Turf

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Abstract:
I propose to evaluate four classes of control agents (entomopathogenic nematodes, Bt, insect growth regulators, and fungal pathogens) against black cutworm larvae under simulated field conditions in the laboratory and greenhouse.

Introduction

Black cutworms *Agrotis ipsilon* (Hufnagel) (BCW) are economically important pests of highly maintained turfgrass (both sod production and landscape turf) throughout the United States. Cutworms feed on grasses as one of their primary host plants, but most species are also serious pests of other agricultural crops, feeding principally on foliage at the soil surface or on any portion above ground. In some species larvae become subterranean, feeding in the crown and underground fleshy structures.

Small larvae (first through third instar) feed primarily on the turf surface, crawling over the grass blades, and remaining exposed while feeding. Larger larvae (fourth through sixth instar) feed on grass blades that they first cut at the crown and then drag into silken burrows constructed below the surface leading to a characteristic pockmark-like feeding damage. The popular name *cutworm* describe this larval habit. In many situations cutworms sever young plants at or near ground level, do no additional feeding on the plant, and proceed to the next plant to repeat the process. This feeding pattern contributes greatly to the highly destructive nature of these insects. The change in feeding behavior compounds the inherent differences in cutworm tolerance of most insecticides based on size alone, and must be reflected in laboratory bioassays.

Historically, cutworms were managed with a number of short-to-medium residual organophosphate and carbamate insecticides including isofenphos (Oftanol) and chlorphyrifos (Dursban). The impending review of organophosphates and carbamate insecticides under FQPA has put the use of these compounds in doubt for cutworm control. Additionally, the use of newer chemistry insecticides such as Imidacloprid for scarab grub control, which has appears to have less impact on BCW populations than traditional insecticides, suggests that BCW may be an increasingly important turf pest in the future. We propose to evaluate several alternative BCW agents in the laboratory to determine the relative activity of these agents for cutworm control.

Objectives: Evaluate alternative control agents (entomopathogenic nematodes, inorganic sulfur, insect growth regulators, and fungal pathogens) against black cutworm larvae in the laboratory and greenhouse. Products will be chosen based upon their likelihood of commercialization

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