

**PROJECT SUMMARY: Sustainable Management of the Small Hive Beetle (*Aethina tumida*), an Emerging Pest of Honey Bees**

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With this joint research-extension project, we propose to develop and apply sustainable control practices for the ‘small hive beetle’ (SHB, *Aethina tumida*), which infests honey bee (*Apis mellifera*) colonies and vectors pathogens that may contribute to Colony Collapse Disorder. Honey bees – critical pollinators of a wide variety of fruit, nut and vegetable crops – are in protracted decline nationwide. The invasive SHB is rapidly expanding its range from the Southeast U.S., where it has been exceptionally destructive to colony health since 1998, into the mid-Atlantic and Northeast regions. Existing chemical controls are problematic for honey bee health because of exposure risks and associated costs. This project will develop, evaluate, and disseminate a multi-faceted, sustainable IPM strategy to disrupt the SHB life cycle. In functional hive experiments, we will evaluate two novel tactics – soil drenches of biopesticides and entomopathogenic nematodes to control wandering larvae – deployed in combination with in-hive trapping devices to capture invading adults (Objective 1). We will evaluate these IPM strategies through on-site demonstrations with cooperating master beekeepers and disseminate research results via eXtension education to help mid-Atlantic beekeeping associations rapidly implement recommendations (Objective 2). This project addresses thirteen NE-RIPM relevance criteria, three major priorities of the Northeast IPM center, and many specific directives from regional beekeeping organizations. Our approach will reduce environmental and human health risks by replacing hazardous pesticides with affordable traps, biorational organic-compatible pesticides, and augmentative biological control, and our demonstration and extension efforts will stimulate widespread adoption of IPM strategies across the region.