

Major Diseases of *Heliothis virescens* and *Helicoverpa zea* in Mississippi Fields and Insectaries

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Introduction

As more and more chemicals are eliminated from insecticidal registers, an increasing emphasis is being placed on developing biocides with selective ranges of activities. Rearing parasites and predators for mass release requires a highly mechanized, factory-type insectary with trained personnel and a large budget. Mass production of parasites and predators is very expensive and likely impractical for large Mississippi cotton plantations. However, development of insect pathogens as microbial insecticides has recently gained global interest for insect pest control and potential replacement of some chemicals. Control of insect pests with integration of insect-specific, disease-causing microbes has been practiced for many years with a limited number of successes. However, today's new generation of pesticides is being developed, based on the contributions from recent discoveries from many sciences such as virology, molecular biology, bioengineering, and genetics; and contributions of funds and interest from large chemical and pharmacological companies without whose inputs the progress would be dwarfed as in the past.

Disease (Gr. dis=from + aise=ease) is a morbid process having a characteristic train of signs and symptoms; it may affect the whole body or any of its parts, and its etiology, pathology, and prognosis may be known or unknown (Dorland, 1968). Modern studies of insect diseases began with Agostino Bassi and Louis Pasteur. Pasteur worked on pebrine (caused by the microsporidium *Nosema bombycis*) and flacherie diseases (noninfectious flacherie and viral flacherie) of the silkworm. Bassi demonstrated that a fungus (*Beauveria bassiana*) was a cause of silkworm disease. However, insect pathology was primarily recognized as a branch of pathobiology with the publication of *Principles of Insect Pathology* by Steinhaus (1949).

The purpose of this publication is to review briefly major diseases of *Heliothis virescens* and *Helicoverpa* (= *Heliothis*) *zea* in the larvae, pupae, and adults from field crops and insectaries in the state of Mississippi. Both species are serious pests of agricultural crops such as cotton, soybean, and tomato in Mississippi and other regions of the United States.

References

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