ALTERNATIVES TO MANAGEMENT AND CONTROL OF TOBACCO BUDWORM, *HELIOTHIS VIRESCENS,* POPULATIONS

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Abstract

The management and control of the tobacco budworm is often difficult because of the development of resistance over the past few years. Pyrethroid insecticides are not controlling the insects as successfully as a result and expensive insecticide combinations are required to achieve the level of control necessary to produce a crop. The use of alternatives to manage the tobacco budworm requires an understanding of the population dynamics of the insect. The tobacco budworm is an insect that has limited host plants. The budworm has about 5 generations per year and the life cycle requires about 27 days to complete. During the spring and early summer the tobacco budworm reproduces primarily on wild host and cotton. After early June, the primary host is only cotton. Since cotton is the only host during the summer, the tobacco budworm larvae have been treated repeatedly with pyrethroids and other classes of insecticides. Consequently, the tobacco budworm has developed a high level of resistance to every class of insecticide used for its'control.

The alternative strategies for control involves a return to the basic principles of pest management and requires a substantial reduction in the use of early season insecticides. The reduction in the insecticides used early season will allow the natural enemies to build and aid in the suppression of the budworm populations. To aid in suppression of the tobacco budworm populations, growers must organize into management communities. Arkansas has used management communities to successfully manage the Heliothine complex . The population management of the tobacco budworm may be improved using strategies directed at the second field generation of budworms in cotton. Past observations and research indicate that the second field generation or the population occurring around July fourth is susceptible to population reduction. The supression of the overall population during this period of time may reduce subsequent population devepment and maintain it at a lower level. The second field generation would need to be reduced by about 70 to 80 percent to achieve suppression of the next generation.

The use of community management involves use of grower cooperation on a community basis. Furthermore, a comprehensive scouting and population monitoring system is required to detect the sub-economic population of tobacco budworm eggs and small larvae in cotton fields. The best control strategy would most likely involve the using formulations of *Bacillus thuringiensis* applied to reduce the second field generation. The successful employment of tobacco budworm population reduction strategies would be complemented by use of resistance management strategies currently recom-mended by many states. If successful, the program may significantly reduce production costs and the threat of infestations of tobacco budworm larvae.

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