Effects of Lygus-specific Bacillus thuringiensis Insecticidal Proteins on Lygus & Its Predators

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The use of genetically modified Bacillus thuringiensis (Bt) cotton has been prevalent over the last 2 decades to combat the effects many pest insect populations. The development of new varieties of Bt cotton has allowed for targeting of the insect Lygus hesperus. Bt cotton effective against Lygus can reduce sprays and enhance biological control if no negative non-target effects are present. Monitoring the effects of crystal proteins on key predators of Lygus such as Geocoris punctipes and Collops vittatus has offered insight into potential environmental consequences of the Bt toxin. Testing has concluded that the presence of the Bt protein adversely affected the development and survival of Lygus insects. In addition, Geocoris and Collops mortality and development do not seem to be hindered. This indicates that this line of Bt cotton is safe and effective toward cotton ecosystems, and these results may supplement future integrated pest management strategies and provide economical pest treatment plans.

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