

Pink Bollworm - Laboratory Tests with Insecticides

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Laboratory tests were conducted with five synthetic pyrethroids, two organophosphates, and one carbamate insecticide to determine the effects of sub-lethal doses on mating, mortality, and fecundity of pink bollworm moths, *Pectinophora gossypiella* (Saunders). Male or female moths were treated when 24 hr old and crossed with similarly treated or untreated individuals of the opposite sex. The amount of insecticide applied to each treated moth was the approximate LD-10 or LD-50 dose as determined in previous studies. At 24 or 72 hr after treating, the females were dissected and spermatophores were counted to determine mating success. After a 24-hr mating period, mating was reduced up to 100% by the synthetic pyrethroids cyfluthrin (= Bayer FCR-1272), fenpropathrin (= Sumitomo S-3206), and flucythrinate (= Amer. Cyan. Pay-Off®). Reductions in mating after treating with fenvalerate and permethrin were not nearly as great. Reduced incidence of mating after treating with carbaryl, methyl parathion, or trichlorfon was usually associated with high mortality. After a 72-hr period, mating was greater than after the 24-hr period; reduced percentage mating was associated with high mortality. Treatment of males only showed a slightly greater reduction in mating than treatment of females only. However, the greatest reductions occurred when both sexes were treated. There was a greater reduction in mating when moths were treated with the LD-50 dose, but mortality was also greater. Fecundity was reduced by most treatments, but may be associated with high mortality of the treated sex. When males only were treated, the reduced fecundity of the untreated females was due to their unmated condition.

Methods for Efficient Use of the Delta Trap in the Capture of Pink Bollworm Moths

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Millions of Delta shaped traps have been used by cotton researchers, growers, and pest control advisors to monitor and survey populations of male pink bollworm, *Pectinophora gossypiella* Saunders. Although mostly satisfactory results have been obtained using methodology acquired by practice and word-of-mouth, we are unaware of any synthesis of information on methods for optimum use of Delta traps in the field. Research programs as well as pest control programs require consistency in trapping methodology in order to provide comparability of data and reproducibility of results. Thus, there is a need for a standard methodology.

Methods for optimum use of the Delta trap for capture of male pink bollworms were tested throughout the 1982 cotton growing season in the Phoenix, AZ, area. The standard trap, to which comparisons were made, was folded according to manufacturer's instructions, suspended free-swinging by a string, and contained a 1 mg bait centrally located on a pin inside the trap.

Tests indicated that the traps should be placed within 0.3 m of the tops of early season beds and just above the canopy later in the season. Stationary and free-swinging traps caught similar numbers of moths. Failure to fold the ends of the trap or contamination of the folded ends with Stickem® caused significant reductions in the catch of males. However, the open peaks at the folded ends of the trap did not reduce catch compared to traps stapled at the top. Three locations of the bait inside the trap, a) suspended from the side in the middle, b) in the middle of the floor of the trap, and c) just beneath the opening on the floor of the trap, were tested and had no significant effect on catch.

Consistent use of the methods shown to be most efficient in this study will aid in reproducibility and comparability of catch data obtained with Delta traps by both research and cotton industry personnel.