

Mating Disruption/SIR

Importance of Male Age for Mating and Population Growth of Codling Moth

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Abstract: Female sex pheromones used for mating disruption of codling moth likely increase the time required for males to locate females for mating. In this laboratory experiment, we evaluated effects of male mating delays on codling moth fecundity. Virgin colony-reared adult females aged 0-2 days were paired with males aged 0, 2, 4, or 6 days. Oviposition, eclosion, and adult mortality were monitored daily for the duration of adult female life. These data were used in a life table analysis. The results clearly demonstrate that the age of male moths is an important factor for mating success and population growth. At each incremental increase in male age, the proportion of females that did not produce any eggs increased, and reproductive rates decreased substantially from the control (0 delay) value. The proportion of females that produced only infertile eggs was constant across all male delays, suggesting that this result is attributable to the female (i.e., a constant proportion of mated females of the same age do not produce fertile eggs). Results from our previous life table research with female mating delays substantiate this observation. If we remove from the analysis the pairs where females failed to produce any eggs, as well as pairs that produced only infertile eggs, reproductive rates for the 2-, 4-, and 6-day mating delays were higher than the control value and were relatively constant. This result seems to suggest that it might take a day or two from emergence for the male reproductive system to develop to its full potential and, once developed, spermatophore quality did not diminish substantially over 6 days.