

Life table analysis for *Cactoblastis cactorum* immatures and female adults under five constant temperatures

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Laboratory life history studies were conducted at 18, 22, 26, 30 and 34 °C to understand its biology and develop strategies for control. Duration of immature stages was generally longest at 18, declining at 22 and shortest at 26, 30 and 34 °C. Total immature development time from eggs to pupae was about 180 days at 18, 116 at 22 and ranged from 65 to 72 days at 26 to 34 °C. Development rate for egg to pupal stages was estimated using the logisitic equation: $rate = 0.0165/(1 + (T/20.7093)^{-5.8823})$. Percentage survival of immatures was usually lowest at the temperature extremes tested (18 and 34 °C), but did not differ between the sexes. Estimated lower developmental threshold temperature was 13.3 °C, resulting in estimated degree days for development from about 845 at 18 °C to 1387 at 34 °C. In general, pupal weights declined with increasing temperature, and were always lower in males than in females. Female adult survivorship was longest at 18 °C, and shortest at 34 °C, with the other treatments clustered between the temperature extremes. The highest reproductive values were found at 30 °C, which indicates an approximate optimal temperature. Net reproductive rate (R_0), gross reproductive rate (GRR), generation time (T), intrinsic rate of increase (r), finite rate of increase (λ), and doubling time (DT) were 43.68 &/&, 44.02 &/&, 67.14 d, 0.0562 &/&/d, 1.058 &/&/d, and 12.33 d, respectively. An oviposition rate surface describing mean oviposition rate as a function of time and temperature was: $eggs = (-11.241 + 0.854T) d \exp(-0.020Td)$.