Section IV.
Biological and Cultural Control

TEMPERATURE DEPENDENT SURVIVOR OF *APHELINUS ASYCHIS* REARED ON GREEN PEACH APHIDS

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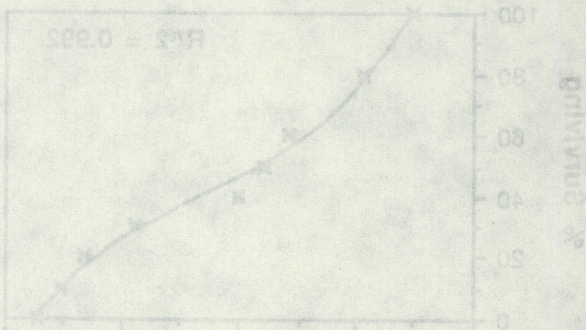
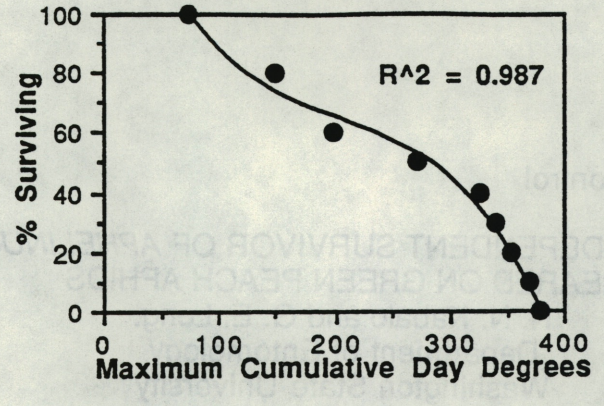
Aphelinus asychis (Walker) a solitary parasitoid of aphids was successfully adapted to the green peach aphid, *Myzus persicae* (Walker) on potatoes. This wasp was originally imported form France for possible use in the biological control of the Russian Wheat Aphid, *Diuraphis noxia* (Mordvilko). Little is known of the wasp's potential for biological control of the green peach aphid (GPA). Our laboratory is trying to develop biological control strategies which will involve timing of aphid flight into potato fields and timely use of pesticides, mass rearing, storing and release of the parasitoid wasps.

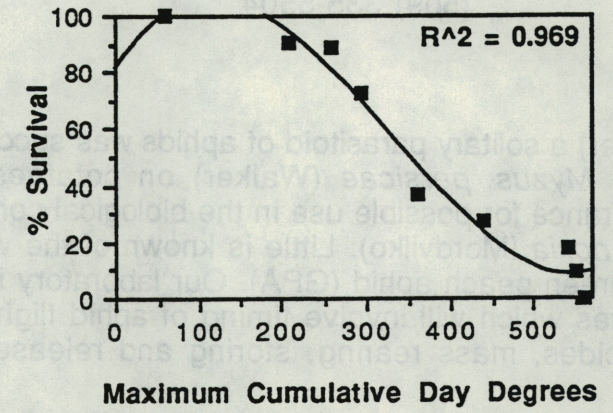
Presented here are some of the results obtained from rearing *A. asychis* at four different temperatures 15, 20, 25 and 32 ^{o}C. Longevity of the each cohort are presented as % survival. The number of females alive at the end of each % survival is plotted against maximum cumulative day degrees (dd) for the same survival period (see graphs). A three ordered polynomial curve was fitted to the data yielding r^2 values between 0.969 and 0.992. In general, longevity of the females decreased with increasing temperature. In terms of Julian days, at 15 ^{o}C, 50% survivorship occurred at 60 days, 33 at 20 ^{o}C, 32 at 25 ^{o}C, and 13 days at 32 ^{o}C. Lesser degree days were also accumulated for females kept at lower temperatures than at higher ones. Cumulative day degrees were calculated based on the determined developmental base temperature of 10.5 ^{o}C. One strategy that can be employed in rearing is mass production of the wasp at higher temperatures and store them at 15 ^{o}C.



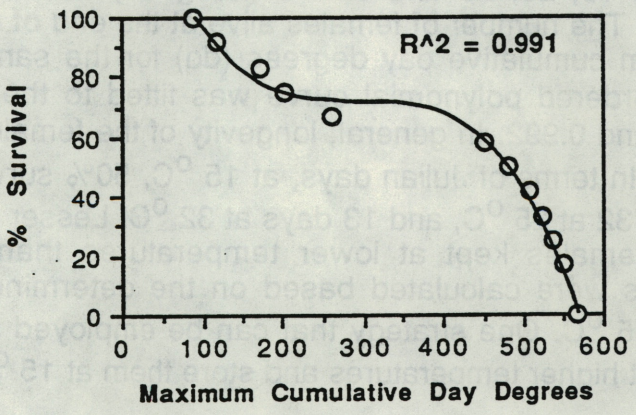
15 C



20 C



25 C



32 C