

Oviposition, development, and mortality of *Encarsia pergandiella* Howard in the 4 instars of *Bemisia argentifolii* Bellows & Perring were evaluated under choice and nochoice conditions in the laboratory. *E. pergandiella* oviposited in all nymphal stages of *B. argentifolii*, but preferred 3rd and 4th instars. Regardless of host stage parasitized, adult wasps emerged from host pupae. The costs of oviposition in younger instars were delayed development, presumably to allow for growth and maturation of the host, and increased mortality of both parasitoid and host. Our results indicate that *E. pergandiella* can successfully exploit whitefly populations of both high and low densities by favoring large hosts of high quality when abundant, but shifting to, and successfully exploiting younger instar hosts of lower quality when necessary.