

Section VI
Biological and Cultural Controls

DEVELOPMENT OF A BIOLOGICAL CONTROL SYSTEM
FOR LEPIDOPTERAN PESTS OF CRUCIFERS

K. D. Biever

USDA, ARS, 3706 W. Nob Hill Blvd., Yakima, WA 98902

A special research project is being conducted to develop and validate a model system for the maximization of biological control agents in multipest management programs using 3 lepidopteran pest species and cole crops as the model system. This program emphasizes population monitoring and early season inoculative releases of parasitoids against the imported cabbage worm, cabbage looper, alfalfa looper, and the diamondback moth.

During the 1988 season we evaluated 4 treatments: pests only, 2 parasite release rates and parasites plus viruses. Plots were separated by at least 3/4 mile and consisted of 1,000 cabbage plants. Populations of pests and beneficials were monitored on a weekly basis. During the 1989 season 8 parasitoids were evaluated at 3 release rates: 150, 300, and 600 pairs/acre and plots were 1 acre in size. All three release rates reduced both pest population levels and insect damage at harvest. Improved rearing techniques have been developed for laboratory production of the parasitoids; currently 18 species are being maintained and evaluated for suitability in inoculative release management systems.