ABSTRACT

Present investigations were carried out during rabi cropping seasons of 2003-04 and 2004-05 at Palampur (H.P). Three aphid species viz., Brevicoryne brassicae, Myzus persicae and Lipaphis erysimi were found infesting the cabbage crop. Cabbage aphid, B. brassicae was observed as a major aphid being active from December till May with a peak population in third week of May, during both the cropping seasons. It was also most abundant amongst all three aphids. Little regulatory effect of parasitoids and predators was observed under field conditions, owing to lack of synchronization with aphid life cycle. Correlation coefficients worked out during the course of study revealed that rainfall and humidity exerted negative impact on the aphid population, whereas temperatures (minimum and maximum) favoured population build-up of aphids under field condition. Parasitism and predation of aphids on cabbage crop was observed to increase with rise in ambient maximum and minimum temperature. Laboratory studies pertaining to the predation potential of Coccinella septempunctata and Chrysoperla carnea revealed that B. brassicae was the least preferred aphid out of the three species. Third instar C. carnea appeared to be the most voracious feeders on aphids. Screening of eleven cabbage varieties both under field and glasshouse conditions revealed that Red Cabbage, 83-6, Golden Acre and Pride of India held promise in terms of lesser aphid infestation, more parasitization, lesser settlement and delayed development of aphids. Laboratory evaluation of different insecticides revealed that imidacloprid, lambda cyhalothrin and methyl demeton proved to be highly effective against all three-aphid species causing more than 95 per cent mortality while biopesticides, V. lecanii and azadirachtin were safer towards D. rapae and C. carnea. Field evaluation of various aphid management modules revealed that module M1 [berseem +imidacloprid +C. carnea +lambda cyhalothrin] was not only most effective against aphid complex but also facilitated high parasitization of aphids under natural conditions.

Signature of Major Advisor

Countersigned

Signature of the Student

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