
Abstract

Field margin plants around crops are postulated to increase natural enemy abundance to enhance pest management. A trial was conducted to determine the contribution of field margin vegetation and cropping systems to natural enemies of bean aphids (*Aphis fabae*) on *Lablab purpureus*, an orphan crop legume. Natural enemy populations were surveyed in plots with a combination of lablab monocrop or maize-lablab intercrop and with or without planted field margins comprising four plant species (*Chenopodium album*, *Bidens pilosa*, *Galinsoga parviflora* and *Tagetes minuta*), arranged in a randomized complete block design with four replicates. A cage experiment was also conducted to understand the extent to which these field margin plants supported the parasitoid wasp, *Aphidius colemani*, to parasitize bean aphids. A total of 2029 insects from 10 families were collected using sticky cards and pan traps. In comparison to plots with no field margin plants, the presence of plant-rich field margins increased abundance of natural enemies by 9.5% and supported higher populations of Braconidae (parasitoids) and damsel bugs (predators). The maize-lablab intercrop had 15.5% lower abundance of natural enemies than the lablab monocrop. Higher grain yield was recorded in plots with a field margin vegetation (300 kg ha⁻¹) compared to plots without field margin vegetation (210 kg ha⁻¹). The presence of a companion plant did not significantly affect the performance of parasitoids, in the cage experiment, indicating that parasitoids were not limited by access to food. In supporting aphid parasitization, *B. pilosa* was associated with the highest number of mummies (8.28). The lowest number of mummies were observed in cages with *T. minuta* (3.44). These results demonstrate the potential of plant-rich field margins to augment natural enemy populations and enhance conservation biocontrol of aphids.