Effects of different agroecosystems on prevalence of different species of pests and coccinellid predators

Abstract: This study was aimed at determining the effects of mixed and single cropping agroecosystems on the prevalence of different species of insect pests and coccinellids. It involved six growing crops: maize Zea mays L., beans Phaseolus vulgaris L. and cowpeas Vignaunguiculata L. Walp in single and mixed stands and sampling throughout the phenology of the crops. Eight insect pest species were recorded on maize grown alone, while thirty seven insect species were endemic on cowpea mono cropped and were of six orders whereas twenty two insect pest species occurred on beans. The predator population was most abundant in the mixed stands of maize and beans (2.33 predators per 30 aphids) as compared to their occurrence in pure stands of cowpeas (0.85 predators per 30 aphids) as there were numerous aphids on beans at pre-flowering phase that supported a higher population level of coccinellids. Also, predator population was at the peak during the tussling stage of maize as they fed on the pollen grains while aphids on cowpeas coexisted mutualistically with black ants that protected them against predation. The genus Cheilomenes spp. was the most ubiquitous predator with a mean of 4.00 individuals per 30 aphids while Hippodamiavariegata was the least abundant predator species with a mean of 0.92 individuals per 30 aphids in all the agroecosystems as the Cheilomenes spp. had a faster discovery rate, range of perception, effective capture efficiency and a shorter handling time of a prey. Key words: Phenology, stands, Zea mays L., Phaseolus vulgaris L., Vignaunguiculata L. Walp, agroecosystem.