

ABUNDANCE AND ACTIVITY - DENSITY OF SOIL FAUNA IN DIFFERENT VEGETABLES, MONOCULTURE AND INTERCROPPING SYSTEMS

MARGUERITE A.RIZK*, MONA M. GHALLAB AND NADIA H. HABASHI

Plant Protection Research Institute, ARC, Dokki, Giza, Egypt.

Abstract

In Fayoum, Egypt, the influence of different intercropping systems on population of soil fauna was studied. For this reason, seven vegetations of monoculture and intercropping systems using clover, lettuce and cabbage were applied. Fauna were collected by means of pitfall trap methods and data were analyzed and interpreted. The captured surface soil fauna were listed according to the Ascending Hierarchic Classification (AHC) Roux (1985). Fauna were classified into the six main functional groups, herbivores (agricultural potential pests), detritivores (responsible for soil fertility), carnivores (predators of pests), parasitoids, pollen grain transmitters and vector diseases. The community composition in the period of study was determined using the Shannon-Wiener (1963) and Simpson (1949) Indices of diversity, slight difference in the species diversities among the seven cover of cultivation was observed.

Keywords : Diversity , Functional groups, Intercropping, Monoculture, Shannon-Wiener Index, Simpson Index , Soil fauna, vegetables.

INTRODUCTION

Soil, wherever found is recognized as habitats for much of the biospheres in described diversity. Soil biodiversity could be an indicator of soil health, hence soil productivity. A composite study has been made to investigate the influence of vegetation types on species composition of soil fauna. Arthropods, including insects, spiders, and mites, are integral to crop loss and soil health because they include both beneficial and pest species. The return of arthropods to mined area is influenced by a variety of factors, including plant cover, species richness (Majer *et al.* 1984) and litter cover (Majer *et al.* 1982).

Also, Ramert (2002) concluded that mixed species cropping, particularly row intercropping and strip intercropping, could be an important tool for pest and disease management in organic systems. These benefits are especially likely to include improved techniques for management of soil fertility. However, the benefit occurred from intercropping may vary according to the nature of intercrops and their population management.

In Egypt, many authors studied the effect of intercropping system throughout certain crops combinations such as Metwally (1978) and Shafshak *et al.* (1984). It is a