Phytoseiid mites are bio-indicators of agricultural practice impact on the agroecosystem functioning: The case of weed management in citrus orchards

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Introduction

Evolution of phytoseiid mite density in ground cover vegetation under different weed managements

Slopping implantation of citrus orchards

High weed pressure

Tropical climate

Slope and stones

Need for indicators of weeding practices impact

‘Low’ or ‘Zero’ herbicide prototypes

Impacts on agroecosystem

Results

High weed pressure

Excessive use of herbicide

‘Low’ or ‘Zero’ herbicide prototypes

High disturbance

Low disturbance

High disturbance

Low disturbance

Phytoseiid mites are indirect indicators of habitat disturbance

Material and methods

Six different weed management prototypes:

- Spontaneous native vegetation
- Sown leguminous
- Neonotonia wightii
- Non-mechanized plots

Gly Low Low (1.5 mites) 4
AV Low Low (1.2 mites) 5
PV Low Low (1.4 mites) 5
LMV High High (6.9 mites) 1
ANeo High High (13.5 mites) 1
PN eo High High (13.4 mites) 0


Reciprocal Simpson’s diversity index (1/D)

According to density and diversity of Phytoseiidae, rank of prototypes by level of habitat disturbance (Mailloux et al., 2010)

Conclusions

- Phytoseiidae mites are indirect indicators of habitat disturbance

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Experimental device

XIth ESA Congress, AGRO 2010 Montpellier, 29 August-03 September 2010