swirskii (Athias-Henriot) (Acari: Phytoseiidae) under laboratory conditions.

Mª. M. Fernández[1], R. Saelices[1], P. Bengochea[1], A. Garzón[1], F. Amor[1], I. Morales[1,2]; P. Medina[1,2], F. Budia[1,2], A. Adán[1,2], P. Del Estal[1,2], A. Wanumen[1], G. Smagghe[3], E. Viñuela[1,2]

[1]Crop Protection Unit, School of Agricultural Sciences, Technical University of Madrid (UPM), E-28040, Madrid, Spain.
[2]Control of insect vectors in sustainable agriculture (IVAS). Associated Unit CSIC-UPM.
[3]Laboratory of Agrozoology, Department of Crop Protection, Faculty of Bioscience Engineering, Ghent University, Ghent, Belgium.
e-mail: mar.fernandez@upm.es

Introduction & Objectives

- One of the goals of Integrated Pest Management (IPM) is the study of the interactions between natural enemies and pests.
- Our objective was to study the compatibility of 11 modern pesticides under laboratory conditions on *A. swirskii*, a polyphagous predatory mite which feeds on small preys like whiteflies, thrips and mites.
- Evaluated parameters:
  - ✓ Mortality at 72 hours
  - ✓ Fecundity (eggs/ ♀ and week)
  - ✓ Fertility (% egg hatch)

Material & Methods

- Pesticides were tested according to IOBC guidelines, at their maximum field rates.

Compound	Trade Name	Company	Mode of action	Concentration (mg a.i/l)
Abamectin	Vertimec®	Syngenta	Cl^- channel activator	18
Deltamethrin	Decis®	Bayer	Neurotoxic pyrethroid	12.45
Emamectin	Affirm ®	Syngenta	Cl^- channel activator	12.83
Flonicamid	Teppeki®	Belchim	Feeding inhibitor	60
Flubendiamide	Fenos ®	Bayer	Modulator of the rhyanodin receptor	60
Metaflumizone	Alverde®	Basf	Voltage dependent Na+ channel blocker	240
Methoxifenozide	Runner®	Bayer	IGR moulting acceletator	96
Spinosad	Spintor®	Dow Agrosciences	Neurotoxic naturalyte	120
Spiromesifen	Oberon®	Bayer	Lipogenesis inhibitor	144
Spirotetramat	Movento®	Bayer	Lipogenesis inhibitor	75
Sulfoxaflor	-	Dow Agrosciences	Unknown mode of action	60

Evaluation of mortality

Glass plates were treated under the Potter´s Tower 50 kPa. 1 ml Pesticides

Adults were exposed to fresh residues during 72 hours.

20 Mites per replicate 5 Replicates per compound

Evaluation of reproduction parameters

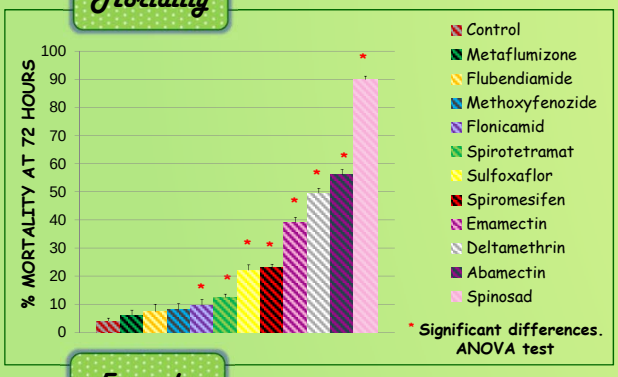
Surviving adults were used in non treated reproductive tests

3 ♀ and 1 ♂ per replicate were tested during 7 days

10 Replicates per compound

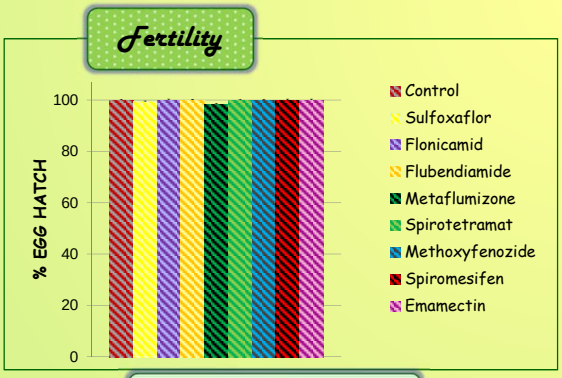
Results

Mortality



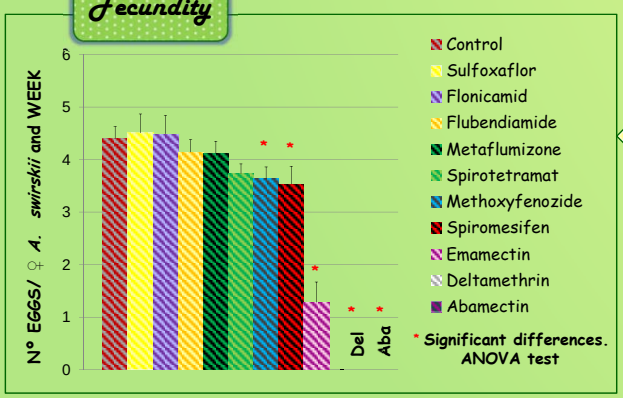
Emamectin, Deltamethrin and Abamectin were slightly harmful (2). Spinosad was moderately harmful (3).

Fertility



No effect on fertility

Fecundity



Emamectin was slightly harmful (2). Deltamethrin and Abamectin were harmful (4)

Conclusions

IOBC TOXICITY RATINGS
LAB. RESIDUAL CONTACT *A. swirskii* Adults

Treatments	Mortality at 72 hours	Fecundity	Fertility	Final IOBC Class*
Sulfoxaflor	1	1	1	1
Flonicamid	1	1	1	1
Flubendiamide	1	1	1	1
Metaflumizone	1	1	1	1
Spirotetramat	1	1	1	1
Methoxyfenozide	1	1	1	1
Spiromesifen	1	1	1	1
Emamectin	2	2	1	2
Deltamethrin	2	4	-	4
Abamectin	2	4	-	4
Spinosad	3	-	-	4

* Harmless (1): < 30% reduction
Slightly harmful (2): 31-79 %
Moderately harmful (3): 80-99%
Harmful (4): > 99%