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Technical Review: Fenazaquin
2011 IR-4 Food Use Workshop

Patti Turner – Gowan Company



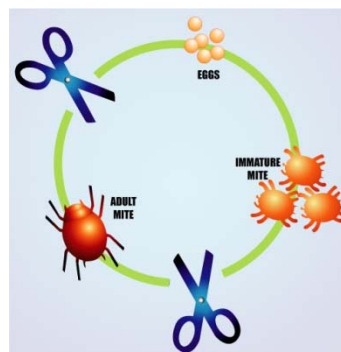
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Fenazaquin

Mode of Action (MOA)

- Mitochondrial Electron Transport Inhibitor (METI) (Group 21)
 - The electron transport chain is a series of cytochromes involved in the production of energy (ATP) from the oxidation of carbohydrate, lipid and protein molecules
- Biological Activity
 - Miticide larvo-adulticide with a good effect on summer eggs of Panonychus.
 - Knock down effect: after 4-6 hours
 - Long activity
 - Low residuality of the active
 - Good selectivity on Beneficial species

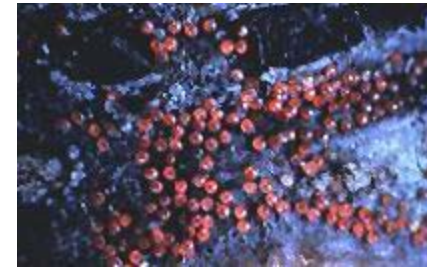
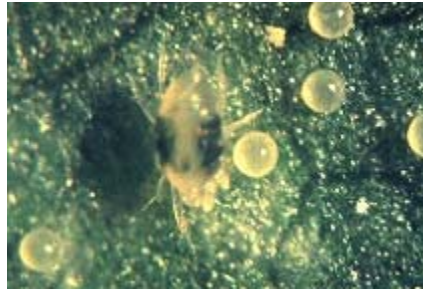


Product Overview

- Excellent contact activity and control of larval & adult mites
- True ovicidal activity on some mite eggs, reduces hatching of mite eggs (except winter eggs)
- Excellent efficacy on key mite species
- Mainly a miticide but does have activity on some soft bodied insect pests
- Low use rate in the field
- To be sold as 20% SC in USA
- Currently sold Globally in over 60 countries



Mites

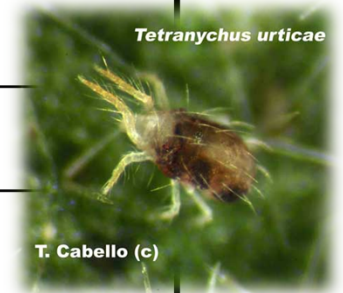


- Citrus Rust Mite
- Twospotted Spider Mite
- European Red Mite
- Pacific Spider Mite



Key Mites controlled

TETRANYCHID MITES	SPIDER MITES
<i>Tetranychus urticae</i>	Twospotted Spider Mite
<i>Tetranychus cinnabarinus</i>	Carmine spider mite
<i>Panonychus ulmi</i>	European Red Mite
<i>Panonychus citri</i>	Citrus Red Mite
<i>Oligonychus coffeae</i>	Red Spider Mite
<i>Eotetranychus carpini</i>	Yellow Spider Mite
<i>Tetranychus spp.</i>	Spider mite complex
<i>Tetranychus kanzawai</i>	Kanzawai Spider Mite



Key Mites controlled

<i>ERIOPHYID MITES</i>	RUST MITES
<i>Aculus schlechtendali</i>	Apple rust Mite
<i>Eriophyes pyri</i>	Pear Leaf BlisterMite
<i>Acaphyllisa theae</i>	Pink Tea Mite
<i>Acaphyllisa parindiae</i>	Pale Mite
<i>Calacarus carinatus</i>	Purple Mite
<i>Calepitrimerus vitis</i>	Grape Rust Mite
<i>Aculops pelekassi</i>	Pink Citrus Rust Mite



Key Mites controlled

<i>TARSONEMIDAE</i>	TARSONEMID MITES	
<i>Polyphagotarsonemus latus</i>	Yellow Mite	
<i>Polyphagotarsonemus pallidus</i>	Broad Mite	
<i>Phytonemus pallidus</i>	Cyclamen Mite	
<i>Steneotarsonemus spinki</i>	Rice Broad Mite	
<i>TENUIPALPIDAE</i>	FALSE SPIDER MITES	
<i>Brevipalpus australis</i>	Scarlet Mite	
<i>Brevipalpus phoenicis</i>	Scarlet Mite, Leprosis Mite	
<i>Brevipalpus obobatus</i>	Scarlet Mite	

Proposed Crops in USA

- Alfalfa
- Avocado
- Beans, dry & succulent
- Berry crop group
- Citrus crop group
- Field corn
- Sweet corn
- Cotton
- Cucurbits
- Fruiting vegetables
- Grapes
- Hops
- Mint
- Ornamentals
- Pome fruit
- Stone fruit
- Strawberreies
- Tree nuts
- Tea*

Field Use

- Magister is not systemic
- Rapid knockdown (24 hours)
- Active under all temperature conditions
- Complete leaf coverage will provide optimum Mite Control
- Best use timing when mite populations are low or starting to increase
- SC formulation has been found to be compatible with most common tank mix partners (see label for specifics). A compatibility jar test should be done if compatibility is unknown.
- Some foaming may be present with the SC formulation.

Ecotoxicology

- Safe to Bees when used according to label recommendations
- Safe to Earthworms
- Safe to Mammals and Birds
- Toxic to Fish
- Toxic to Daphnia

A photograph of a rural landscape. In the foreground, a person wearing a dark jacket and a cap stands by a metal gate. The gate is part of a wooden fence system. The background features a field of tall, dry grasses and a line of stone walls. The sky is filled with soft, white clouds, and a faint rainbow is visible in the distance. The overall scene is peaceful and rural.

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Beneficials

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Fenazaquin lab and field Selectivity vs. beneficials



Harmless

Coccinellidae – lady bugs
Coccinella septempunctata
Coleomegilla fuscilabris
Stethorus spp
Hippodamia convergens
Parasitic Wasps
Encarsia formosa
Cales noaki
Aphidius colemani
Trichogramma cacoeciae

Harmless

Predatory bugs
Nabis sp.
Orius sp.
Anthocoris sp.
Crysoperla carnea – lacewing
Catabomba pyrastris – syrphid fly
Pardosa spp. – wolf spider
Zetaellia mali – predatory mite
Eggs of predatory mites

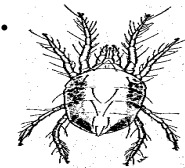
Fenazaquin Selectivity vs. beneficials



Moderately toxic at spray time, low toxicity after 24 hours

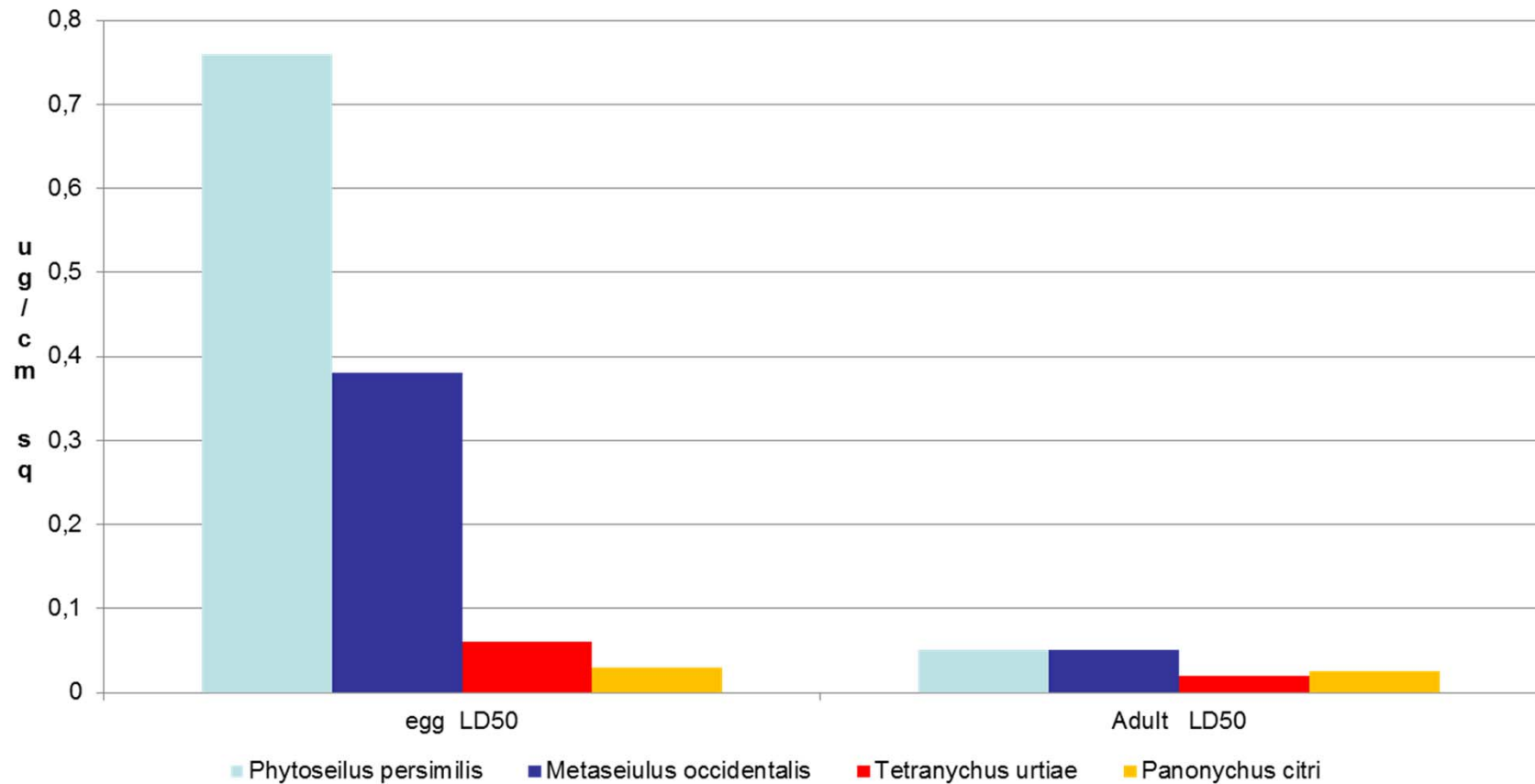
Phytoseilus persimilis
Neoseilus californicus
Euseius stipulatus
Amblyseius finlandicus
Amblyseius cucumeris
Amblyseius californicus
Amblyseius aberrans
Metasielus occindentalis
Neoseilus fallacis
Typhlodromus pyri

Initial applications of Fenazaquin are toxic to the motile forms of the predatory mites but not the eggs. The dried spray deposit is not toxic to the motile predatory mite forms so predatory mite populations recovery quickly in the field after a Fenazaquin application.



Effect on Egg and Adult Predatory & Pest Mites

Effect of Magister on Egg and Adult Predatory and Pest Mites



Effect of Fenazaquin of Beneficial species

- Direct Fenazaquin sprays are
 - safe to a wide range of beneficial insects
 - safe to bees in the field and glasshouse
 - toxic to most motile predatory mites as a wet deposit
 - are not toxic to predatory mite eggs
- Fenazaquin sprays when dry have low toxicity to motile stages of predatory mites and are not toxic to the predatory mite eggs
 - Predatory mites can be released after the application of fenazaquin once the spray deposit dries or give a margin of time between application and predatory mite release
- Fenazaquin sprays are more toxic to pest mite species than predatory mites
- Predatory mites populations tend to recovery quickly after a Fenazaquin spray to the crop.
- Fenazaquin can be a useful tool in IPM for mite control in both orchard and row crops
- Proper understanding of Fenazaquin spray timing and the predatory mite life cycle will reduce any impact of Fenazaquin on Predatory mite populations in the field.

Summary

- Active ON KEY MITE SPECIES
- Good ovicidal action on red mites
- Excellent control of larval and adult mites
- Up to 25 day control
- Works at all temperatures
- Good selectivity on field crops and ornamentals (Except roses)
- Excellent worker safety
- Favorable Toxicological profile



THANK – YOU!

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