



Bio-stimulation of Nursery Plants

Rick Davies

IPPS March 2018



Aims of Real IPM

- To assist management in decision making
- To manage the resistance to chemicals
- To **integrate biological control agents into chemical spray programs**
- To reduce the use of Red label chemicals
- To **conserve parasitoids and predators.**
- To improve soil health/ human health



Customer/ Grower needs

- Disease free
- Virus free
- Minimum insect infection
- Consistent size
- Good root system



Nursery challenges

1. Consumer/ retail nursery pressure
2. Commercial farmer pressure



1. Consumer pressure – Toxic Garden of Eden, Greenpeace April 2014



GIFTIGER GARTEN EDEN

**EINE ANALYSE DER BIENENSCHÄDLICHEN PESTIZIDE
IN GARTENPFLANZEN AUF DEM EUROPÄISCHEN MARKT**

April 2014

GREENPEACE



A TOXIC EDEN: POISONS IN YOUR GARDEN

AN ANALYSIS OF BEE-HARMING PESTICIDES IN ORNAMENTAL PLANTS SOLD IN EUROPE

Table 1: Overview of bee-harming pesticides found in ornamental plants.

Country	No. of samples analyzed	No. of samples with pesticide residues	Samples with bee-harming pesticides	Key pesticides found (Partially banned neonicotinoids % other bee-killing pesticides*); (No. of samples in which found) [concentration range in µg/kg]
Austria	10	10	7 (70%)	Chlorpyrifos (-methyl) (1) [211] Deltamethrin (2) [46 – 118] Imidacloprid (4) [11,5 – 1116]
France	3	3	3 (100%)	Deltamethrin (1) [21] Imidacloprid (1) [2936]
Germany	19	19	17 (89%)	Clothianidin (2) [73,4 – 107,8] Imidacloprid (9) [1,6 - 4018] Thiamethoxam (1) [542]

Bye bye bees



The bees die and the risks
for the agriculture
in Europe



2. Commercial farmer pressure

- 1. Water management
- 2. Disease free
- 3. Insect free
- 4. Good root development



Real IPM Tools for substrate/ soil improvement

- Real Metarhizium 69
- Real Trichoderma
- Real Bacillus
- Fulvic acid
- Humic acid
- SeaBrix



1. Water management tools

1. Real Trichoderma asperellum

- Stimulates root growth
- Enhances plant's immune system
- Strong bio-fertiliser effect



Water management tools cont.

2. Humic acid

- Increases water holding capacity (7x own weight)
- Chelates fertilizer
- Fungal food - lunch box

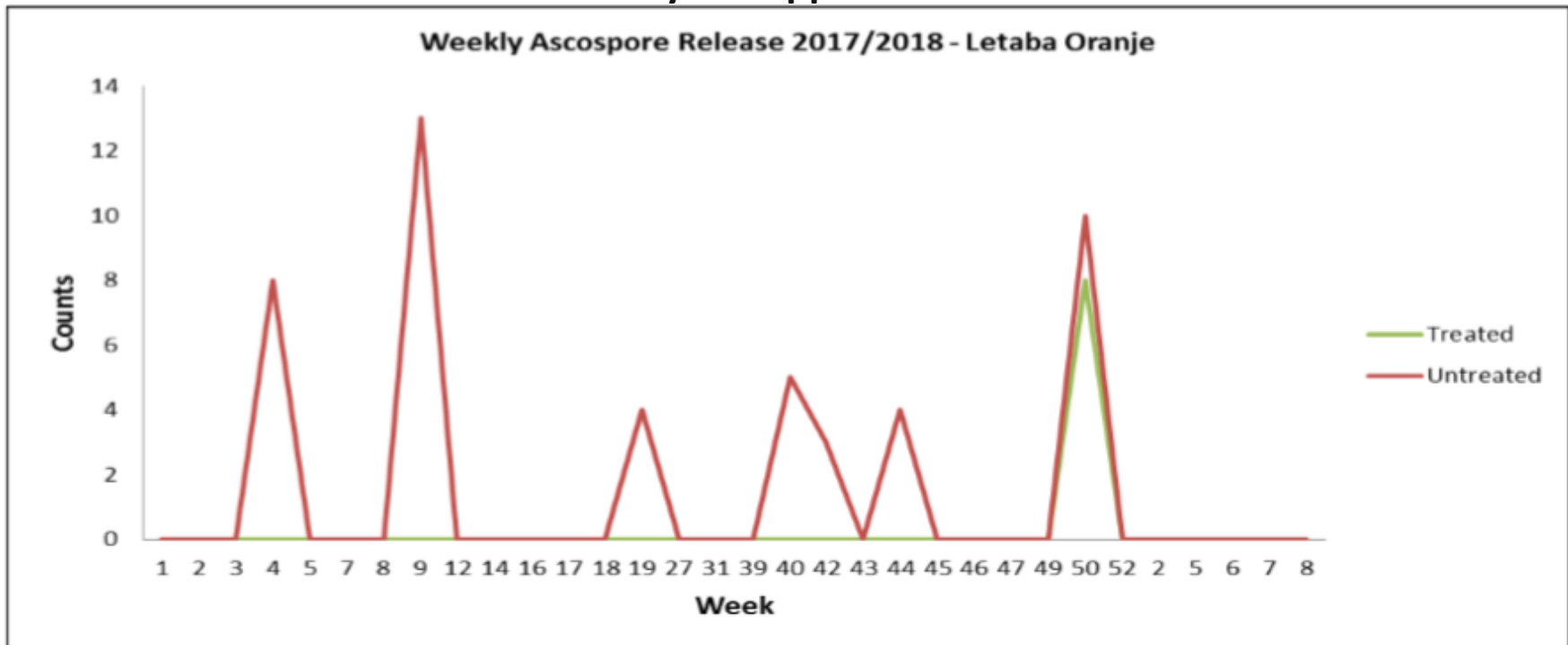


Treated with Real Trichoderma and Humic acid

2. Disease management - Real Trichoderma asperellum

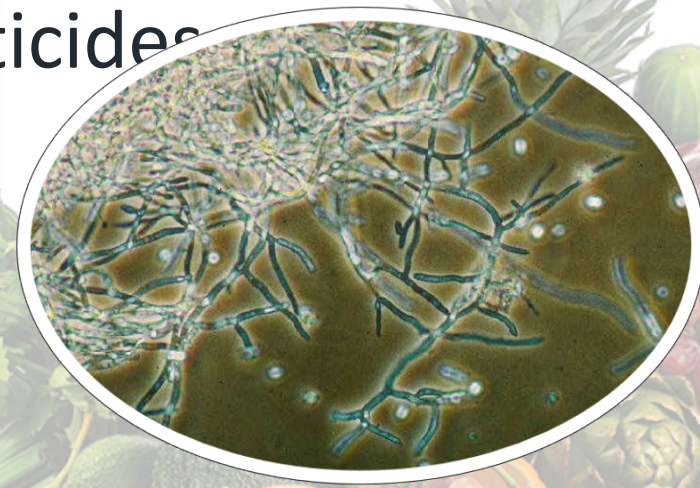
- Contact and systemic fungicide
- Helps control nematodes (produces chitinase)

Control of CBS with monthly soil application of Real Trichoderma



3. Control of insects - Real Metarhizium

- Entomopathogenic fungus
- 'Contact' insecticide
- **Conserves predators and parasitoids - Bee friendly (no toxic Garden of Eden)**
- Not stable in UV-light
- Can be tank-mixed with insecticides and fungicides
- Zero PHI's and MRL's

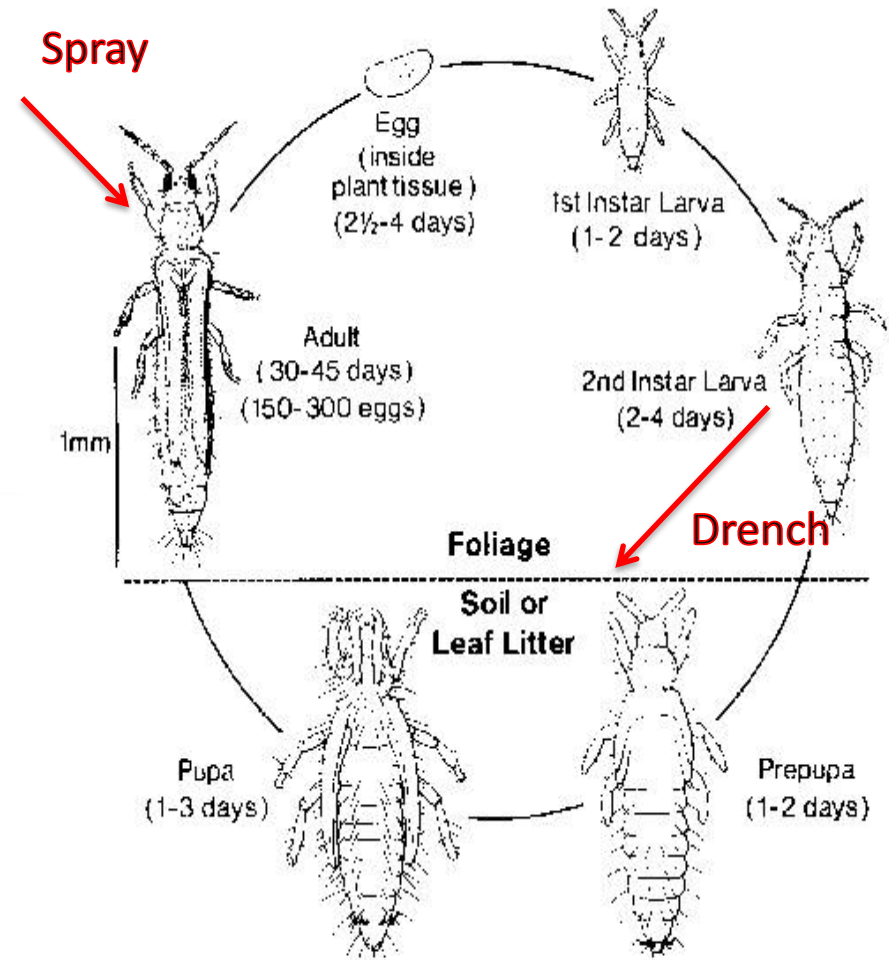


Real Metarhizium 69

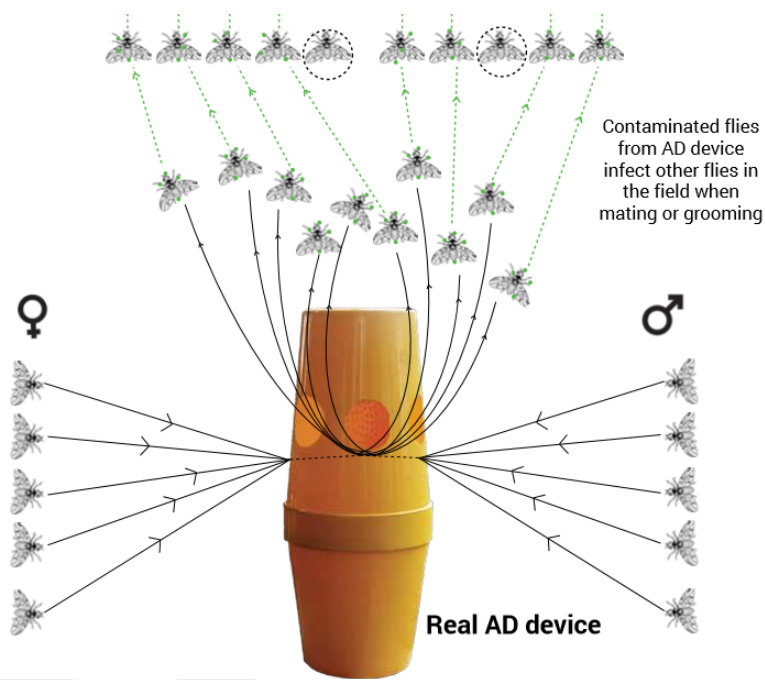
- Thrips
- Caterpillars (Bollworm, FCM)
- Mealybug
- Fruit fly
- Scale
- Ants



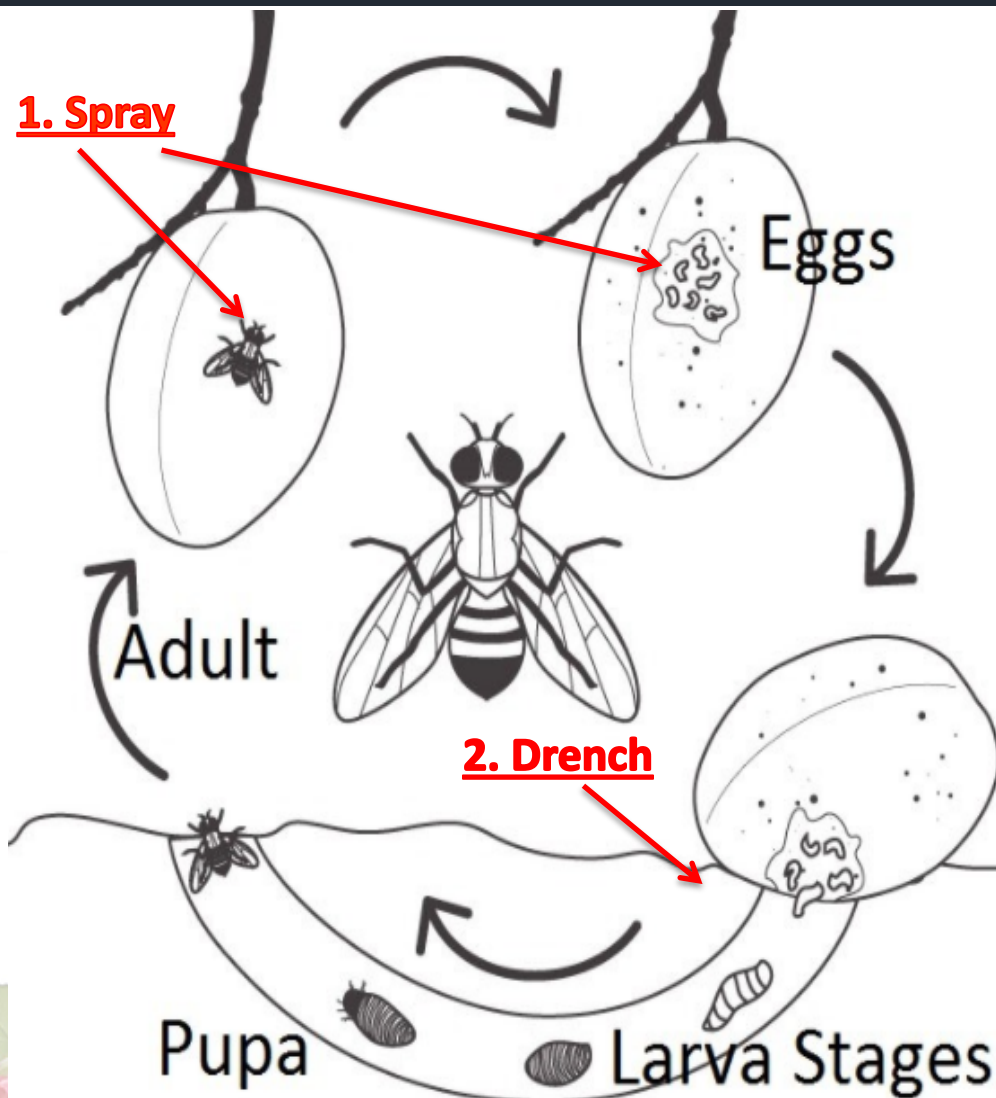
Real Metarhizium program: drench and spray – attacks adult and larval phase of life-cycle

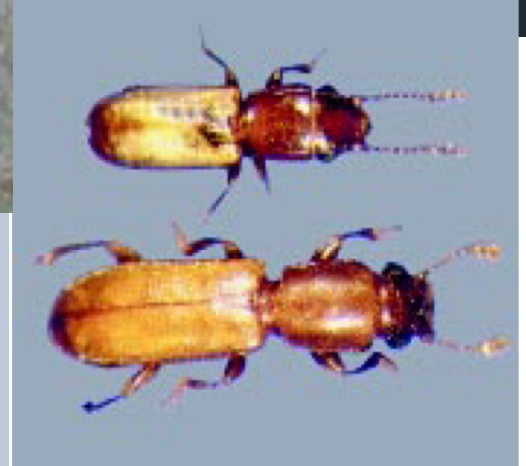


Control of Moths (Bollworm, FCM)

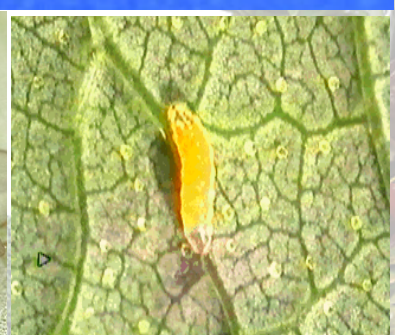
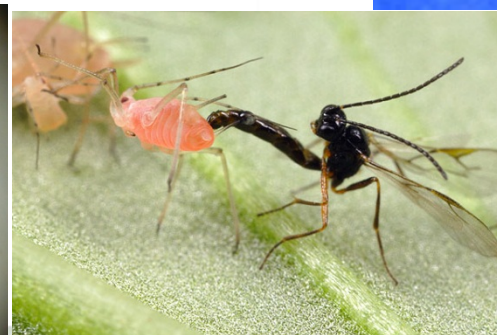


3. Auto-dissemination





Real *Metarhizium* does
NOT KILL
Natural Pest Enemies



4. Root development

1. **Real Trichoderma** – stimulates root growth
2. **Humic acid** – feeds fungi, increases water holding capacity
3. **SeaBrix** – essential micro-elements, auxins, cytokinins



Real IPM Program – root growth

5 August 2017



6 September 2017



2 March 2018



Apple trees

12 months old



4 months old



Take home tips

- Apply **Real Trichoderma** to the **soil monthly** to stimulate root growth and control fungal diseases
- Apply **Real Metarhizium** to the **soil monthly** to control soil phase of insect life cycle
- Apply **Humic acid** to the **soil monthly** to feed the fungi and improve water holding capacity.
- Apply **SeaBrix** to the **soil monthly** to feed roots



Thank you

Contacts:

Rick Davies

082 268 7828

mail: rick@realipm.co.za

Jean Kuiper

083 302 8911

mail: jean@realipm.co.za

