

**Practical experience with
Steinernema feltiae
against WFT**

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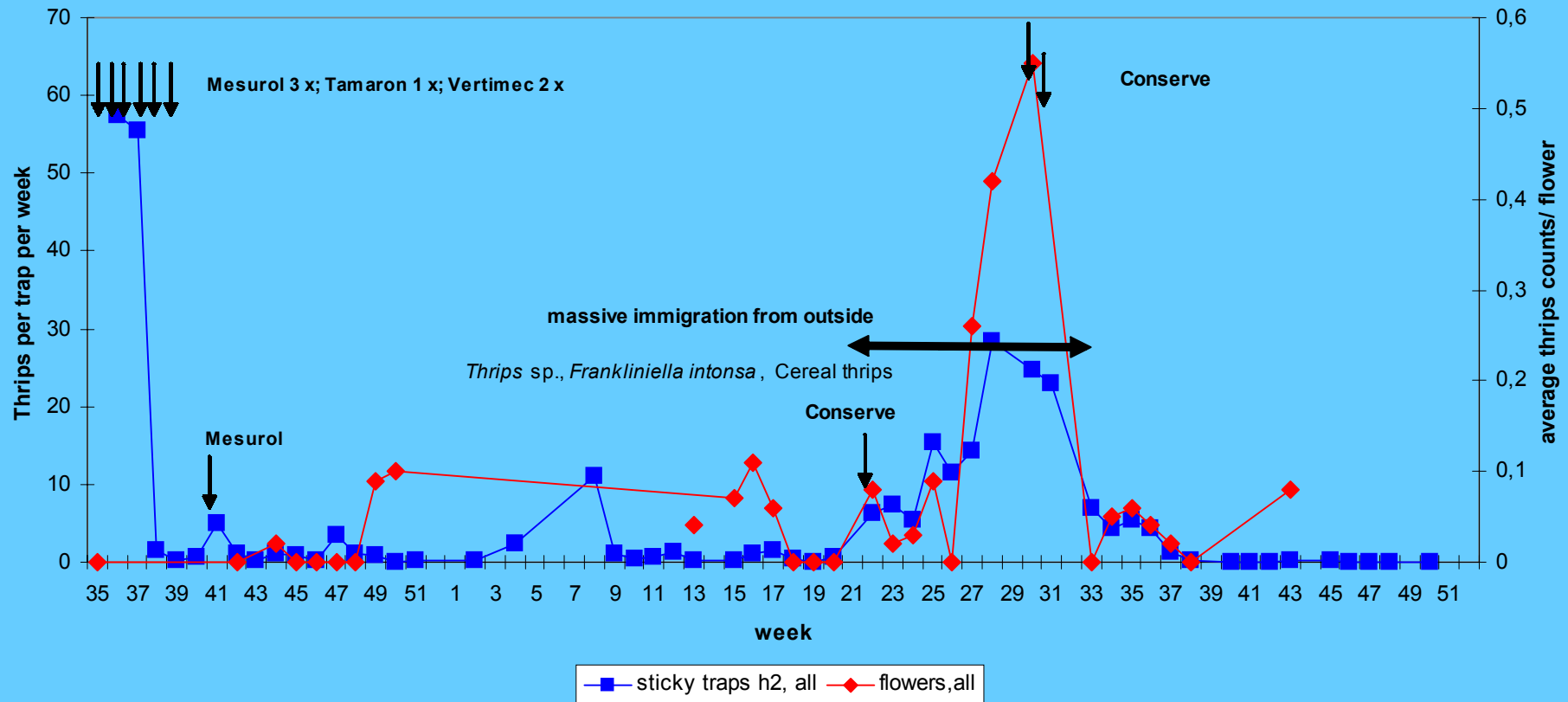
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Trials with nemaflor – *Steinernema feltiae*

- *Streptocarpus*-Hybrids
 - Plant Protection Service, LfP - Stuttgart,
Harald Schneller / Dr. Reinhard Albert
- Cut Roses
 - Plant Protection Service Hamburg,
Elisabeth Götte
- *Solanum diflorum*
 - Plant Protection Service NRW, Straelen
Marion Ruisinger
- *Chrysanthemum*
 - Plant Protection Service NRW, Bonn
Sabine Lindemann
 - Katz Biotech AG
Jana Pöhle

Results in *Streptocarpus-Hybrids*

Thrips development in house 2 (*Streptocarpus* -Propagation house)
August 2001 until December 2002



125, 000/*Steinernema feltiae* per week as a drench, 2 l water/m²

Streptocarpus

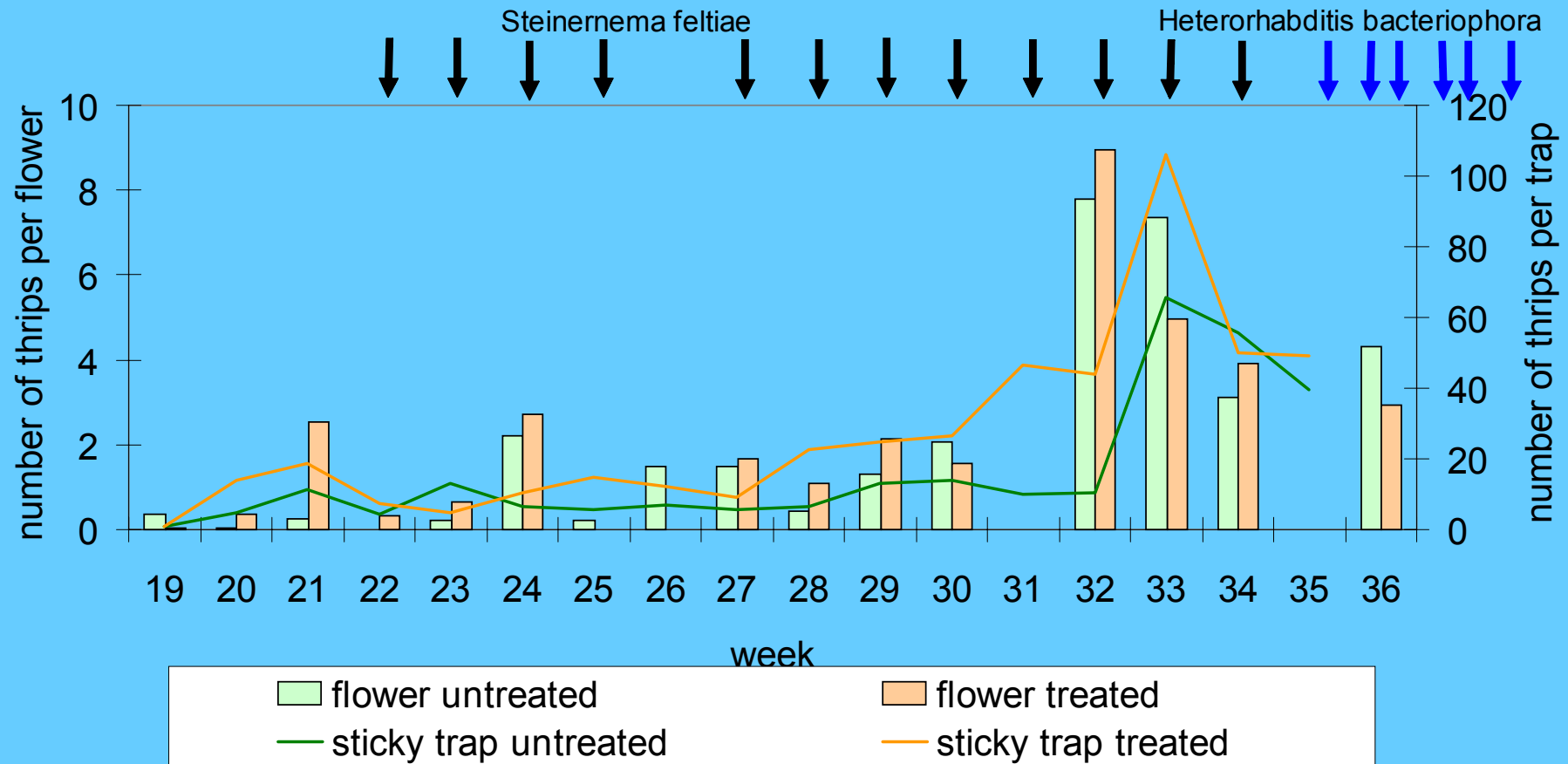
Accompanying measures

- Intensive chemical control of thrips at start of the trial
- Isolation of greenhouses
- Regular monitoring with blue sticky traps and direct thrips counts
- Low air humidity

Results

- Because of regular nematode application almost no insecticide-sprays necessary
- Insecticide applications mainly against immigrating thrips
- Additionally good control of sciarid larvae. Natural occurrence of parasitic wasp *Synacra* sp. and Hypoaspis-mites

Results cut roses



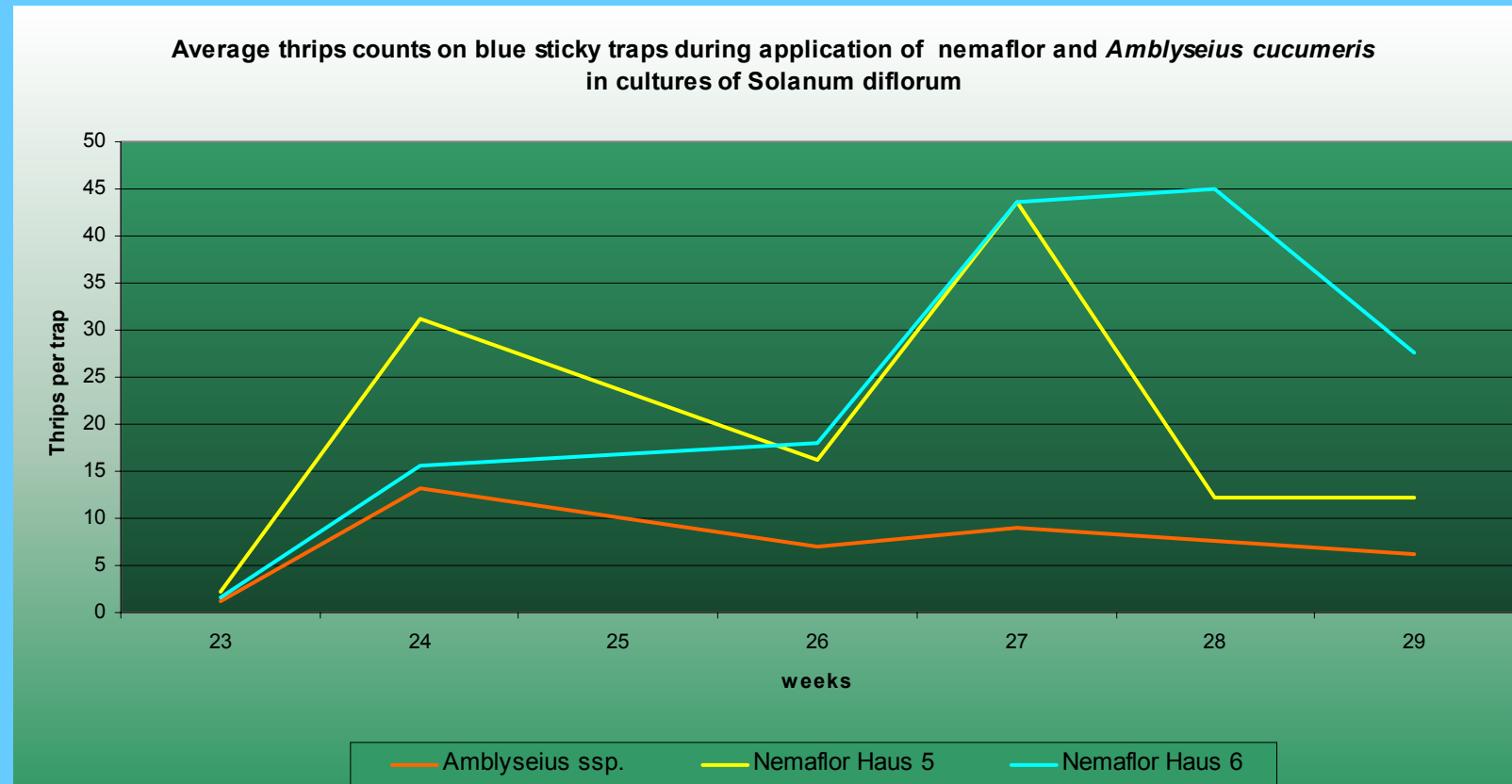
- *Frankliniella occidentalis, Thrips tabaci*
- Nematodes: 250,000/m² in 0.1 l water/m²,
- *Amblyseius* sp.: 150 /m² in week 17

Difficulties with foliar application on roses

- Smooth, wax-like leaves
⇒ Spray runs off quickly, nematodes can not stay on the leaf
- Low air humidity
⇒ rapid drying of the spray on the leaves (<3 h moist)
- Thrips are situated in flower buds and under the leaves
⇒ difficult to reach with nematode-suspension
- Danger of flower spots and Botrytis at high air humidity

Alternative: Soil application ?

Solanum diflorum (Jerusalem cherry)



- Various thrips species
- nemaflor: 250,000/m² in 0.15 litres of water/m², wetting agent Adhaesit, application together with fertilisation (Dosatron)
- *Amblyseius cucumeris*: 83/m² every 4 weeks

Solanum diflorum

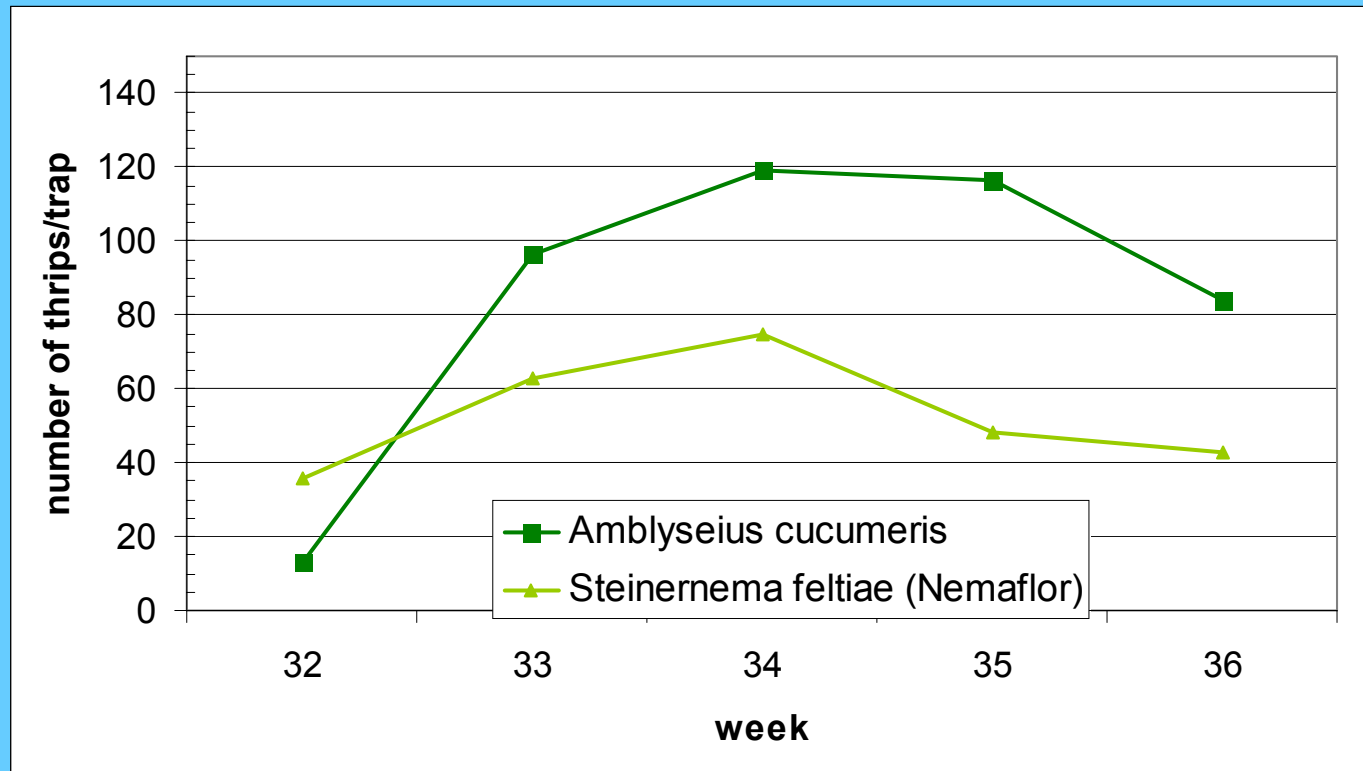
- Morning application, house 6 with artificial shade for 1-2 h after application, house 4 and 5 without.
 - ⇒ Rapid drying of leaves and fruits

- Main thrips damage: Yellow spots and stripes at otherwise orange-red fruits
 - ⇒ in house 4 (*Amblyseius*) and 5 (nemaflor) no visible damage
 - ⇒ in house 6 spray with Conserve necessary before sale

- Advantage nemaflor: simple and rapid application

2005: Application in propagation houses with more water (soil stages)

Results *Chrysanthemum-indicum*-hybrids / Sabine Lindemann



Frankliniella occidentalis

nemaflor: 320,000/m² in 1 l water /m², wetter Pro-Net Alpha,
applied as an overhead rain with Dosatron

Amblyseius cucumeris: 50 /m² , applied twice in 2 weeks interval

Results Chrysanthemum / Katz Biotech AG

Treatment

- Area: 1,500 m²
- Flower buds still closed, prior to sale
- Week 29/ 30: Application of *Amblyseius cucumeris*
- Week 32 (early august): 1 treatment with nemaflor: 0.25 million / m²
- Application as a thorough drench with plenty of water (Duration: 4-5 hours)

Results

- After one week almost no more thrips left according to sticky trap counts
- No further treatment with nemaflor necessary, as sale began in week 33/ 34
- No damage in flowers after opening of buds

Chrysanthemum

- Thrips situated in flowers and shoot tips
⇒ places, where nematodes can survive for some hours
- Drops remain on leaf-circle
⇒ Nematodes have time to penetrate
- Dense crop canopy
- Not sensitive for fungal diseases

Summary

- Morphology of plants determining for success
 - + ground near cultures, hairy leaves, high humidity after application
 - + Thrips prefer places that stay moist
- Main success factor: Moisture after application
- Not for 'fire fighting' at times of heavy thrips attack
 - ⇒ apply at an early stage, poss. with half dose
- Not effective against immigrating thrips
- Further trials in 2005
 - ⇒ other cultures, foliar or combined foliar- /soil application.