

Developing strategies for controlling tarsonemid and eriophyoid mites with phytoseiid predatory mites in flower bulbs, Bromeliaceae, gerbera and blackberry

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Introduction

Small phytophagous mites are increasingly causing serious crop damage in various ornamental and fruit crops in the Netherlands. The reduced use of broad spectrum pesticides is probably one of the reasons for this observed increase. In a new 3-year project we attempt to enhance biological control of tarsonemid and eryophyoid mites in flower bulbs, Bromeliaceae, gerbera and blackberry with new strategies for using phytoseiid predatory mites.

Objective

- The aim of this study will be to enhance biological control of the phytophagous mites of the family Eriophyidae and Tarsonemidae with phytoseiid predatory mites which are better adapted to certain microhabitats.
- Develop methods to prevent hyperpredation or intraguild predation of small predatory mites by the larger ones.
- Enlarge our knowledge about migration behaviour of eriophyid and tarsonemid mites.

Target pests

The eriophyid mites: *Aceria tulipae* and *Acalitus essigi* and tarsonemid mites *Steneotarsonemus laticeps*, *S. ananas*, *Tarsonemus violae* and *Polyphagotarsonemus latus*.

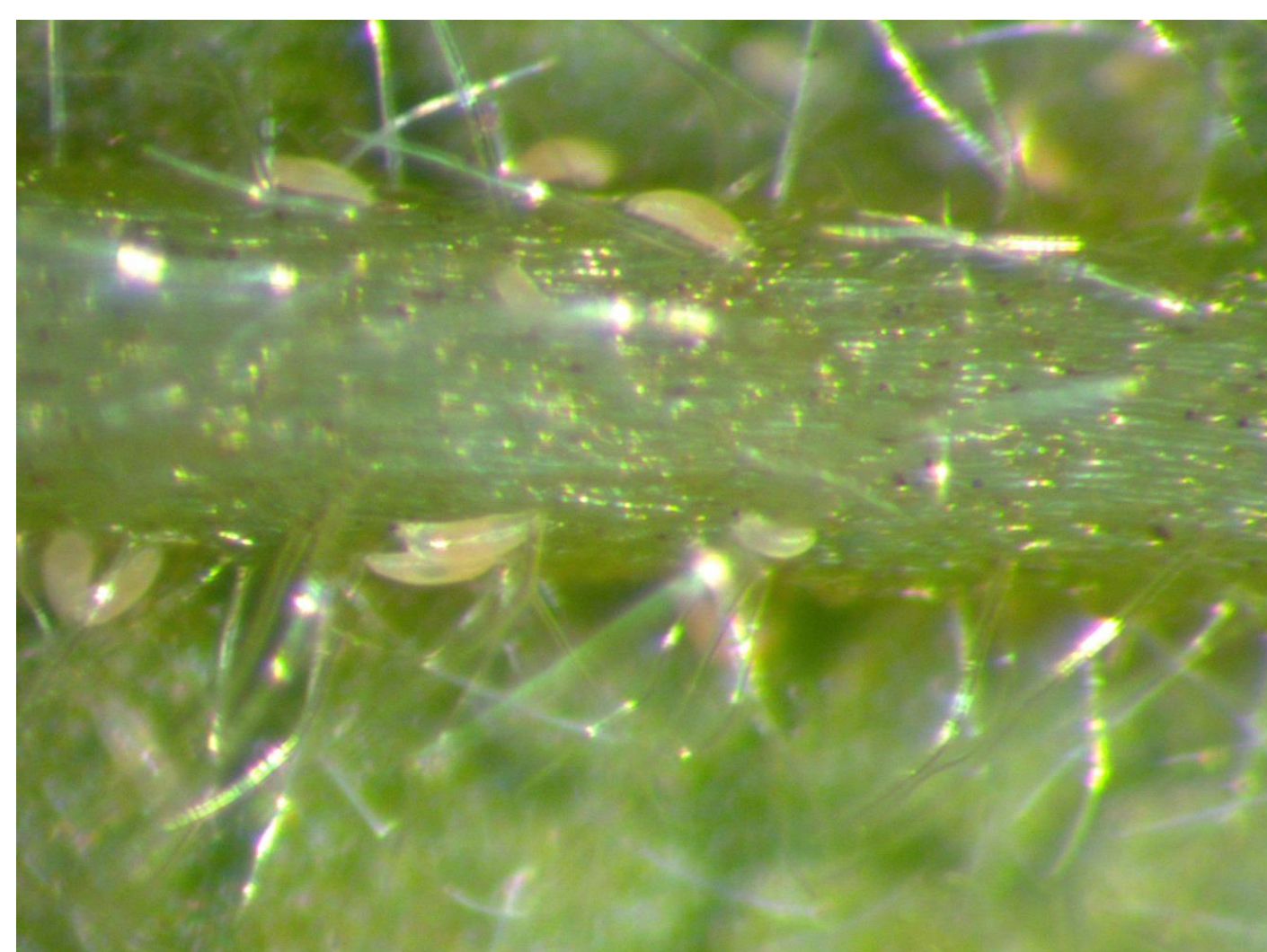


Figure 1. *A. essigi*, the blackberry mite.



Figure 2. *P. latus*, the broad mite.



Figure 3 and 4. Severe damages caused to the crop by *A. essigi* in blackberry (left) and *S. ananas* in bromelia (right).

Idea

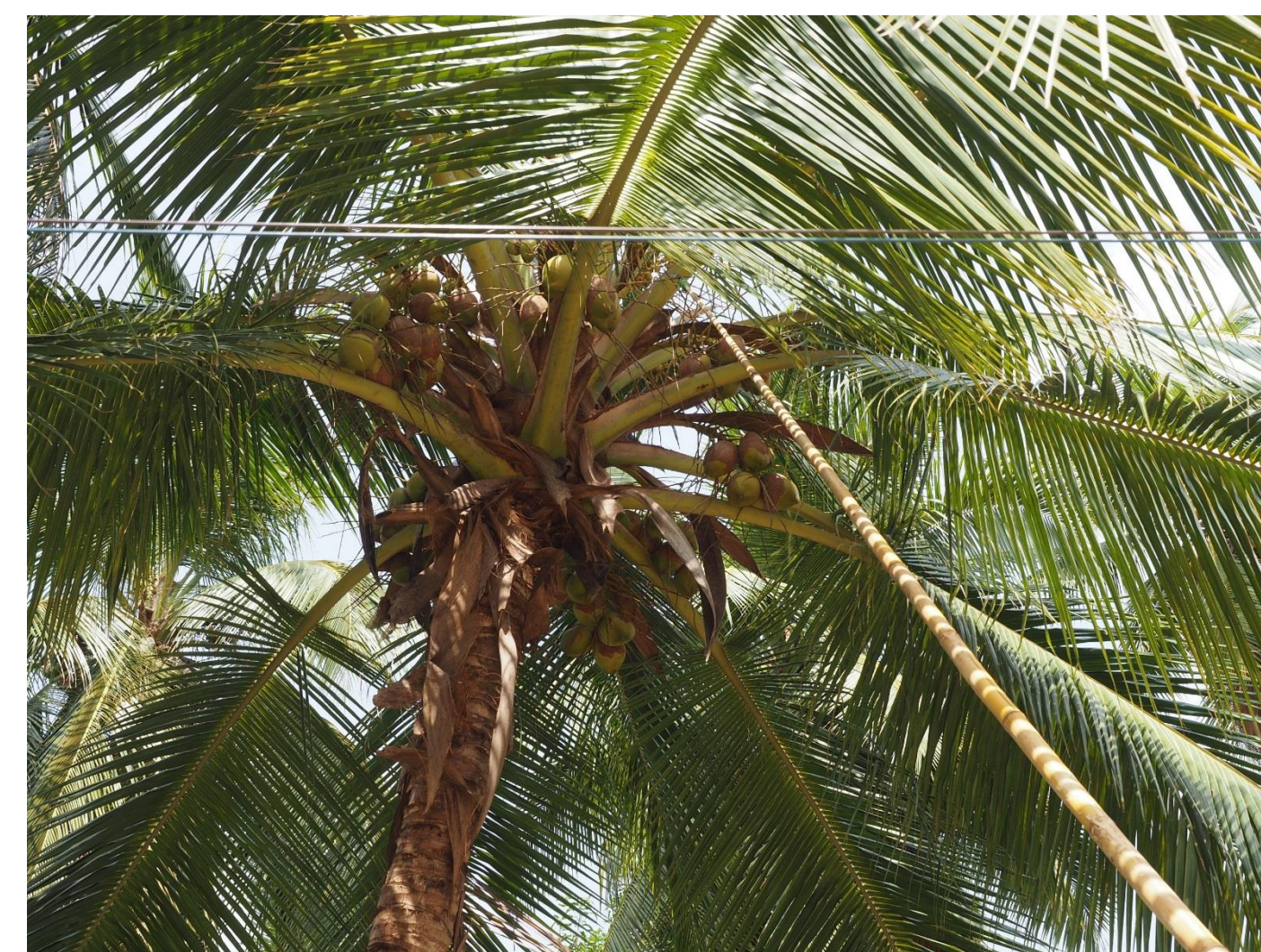


Figure 5 and 6. *Aceria guerreronis*, coconut mite damage in coconuts.

The phytoseiid predatory mites successful in suppressing of *A. guerreronis* in coconut palm trees

- Studies show that the small coconut predatory mite *Neoseiulus baraki* can successfully suppress the population of *A. guerreronis* (Fernando et al., 2009).
- Study of Lesna et al., 2014 achieved promising results with another coconut predatory mite *Neoseiulus paspalivorus* for control of a dry bulb mite in storage.



Figure 7 and 8. Small coconut predatory mite *N. baraki*.

Future activities

- Finding, rearing and testing of small predatory mites better adapted to the pest microhabitats.
- Developing methods to enhance predatory mites establishment in invaded crops by providing specific food sources.
- Developing methods that promote niche partitioning to prevent intraguild predation or hyperpredation.

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