

# Trapping males of the rosy apple aphid *Dysaphis plantaginea*

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## Introduction

- Rosy apple aphid *Dysaphis plantaginea* (RAA) is an important pest of apple. It is a host alternating species that uses plantain (*Plantago* spp.) as a summer host.



Figure 1. Migratory behaviour of RAA in autumn. Winged females migrate to the apple trees in September, where they give birth to wingless sexual females, the oviparae (photograph). A few weeks later, winged males appear, and these will mate with the now adult oviparae, enabling these to produce fertile winter eggs.

- Migrating males of RAA are attracted by a mixture of the aphid's pheromone and female induced host-plant volatiles, (Van Tol et al., 2009)
- The proportion of the different compounds affects the attractiveness and selectiveness of the blend.
- Water traps that were used attracted too many other aphid species to allow practical use.
- In the work presented here, we tried to increase the selectivity of the pheromone trap by adapting the shape and colour of the trapping device.**

## Material and methods

- Six different trap types were tested in an apple orchard during three weeks in October 2006.
- Attractant used:
  - (4a*S*,7*S*,7a*R*)-nepetalactone and (1*R*,4a*S*,7*S*,7a*R*)-nepetalactol at a 1:8.3 ratio
  - with four esters (hexyl butyrate, (*E*)-2-hexenyl butyrate, (*Z*)-3-hexenyl 3-methylbutyrate and hexyl-2-methyl butyrate) at a 1:1:1:1 ratio.
- Dispensers: 1.5ml LDPE Pasteur pipettes. Trap reservoirs were filled with water with a slight amount of detergent. Trap locations were randomised weekly.

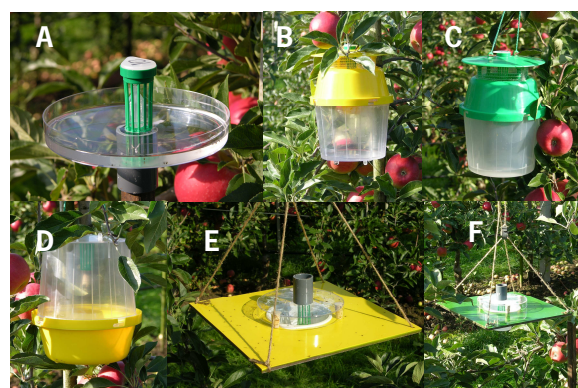


Figure 2. Trap types tested. A: Clear plastic Petri dish (14cm Ø) after Hardie (1991); B: Yellow Unitrap™ (Pherotec Inc, Canada) equipped with a gauze barrier between the roof top and the funnel (mesh 3x3mm). C: Green Unitrap™, as B. D: Wasp trap; E: Yellow platform trap; F: Green platform trap.

## Results

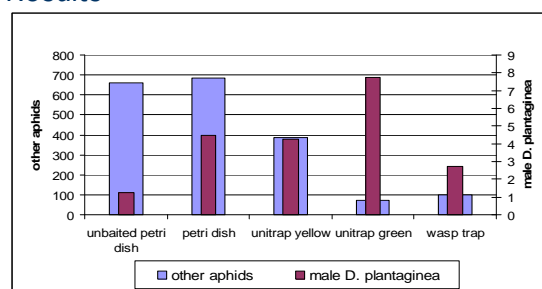


Figure 3. Number of RAA males and other aphids in different traps baited with a pheromone-ester lure during 3 weeks (n=4).

Platform trap E (not shown in graph) trapped extremely high numbers of non-target aphids. Trap F caught far less RAA than the unbaited Petri dish.

## Discussion

- Comparison of different trap types showed that colour and shape of the traps affected the number of non-target aphid species in the traps independently from the number of *D. plantaginea*.
- Trap types allowing aphids to walk to the pheromone-ester lure after landing before getting trapped, showed a substantial reduction in catch of non-target aphids. The proportion of males in the total catch increased from 0.6% (Petri-dish + lure) to 10% (Unitrap green + lure).
- By further optimizing odour composition and trap design selectivity and attractiveness have to increase substantially to allow practical use.

## References

- Hardie et al., 1991. Ent. Exp. et Appl. 61: 97-99.  
Van Tol et al., 2009. Bull. Ent. Res. DOI:10.1017/S0007485309006634