

Feeding ants with sugar control of rosy apple aphid

S. M. Kemp¹, G. W. Brouwer¹, P. J. Jansonius² & F. L. Wäckers³

Introduction

Rosy apple aphid and (*Dysaphis plantaginea* Pass.; RAA) and ants (*Lasius niger* L.) maintain a mutualistic relationship. Ants protect the honeydew producers against their natural enemies and facilitate migration of RAA to the shoots. Offering alternative sugar can break this mutualistic relationship. Consequently, RAA colony formation and related damage can be decreased. Here, we present sugar dispenser density effects on RAA infestation.

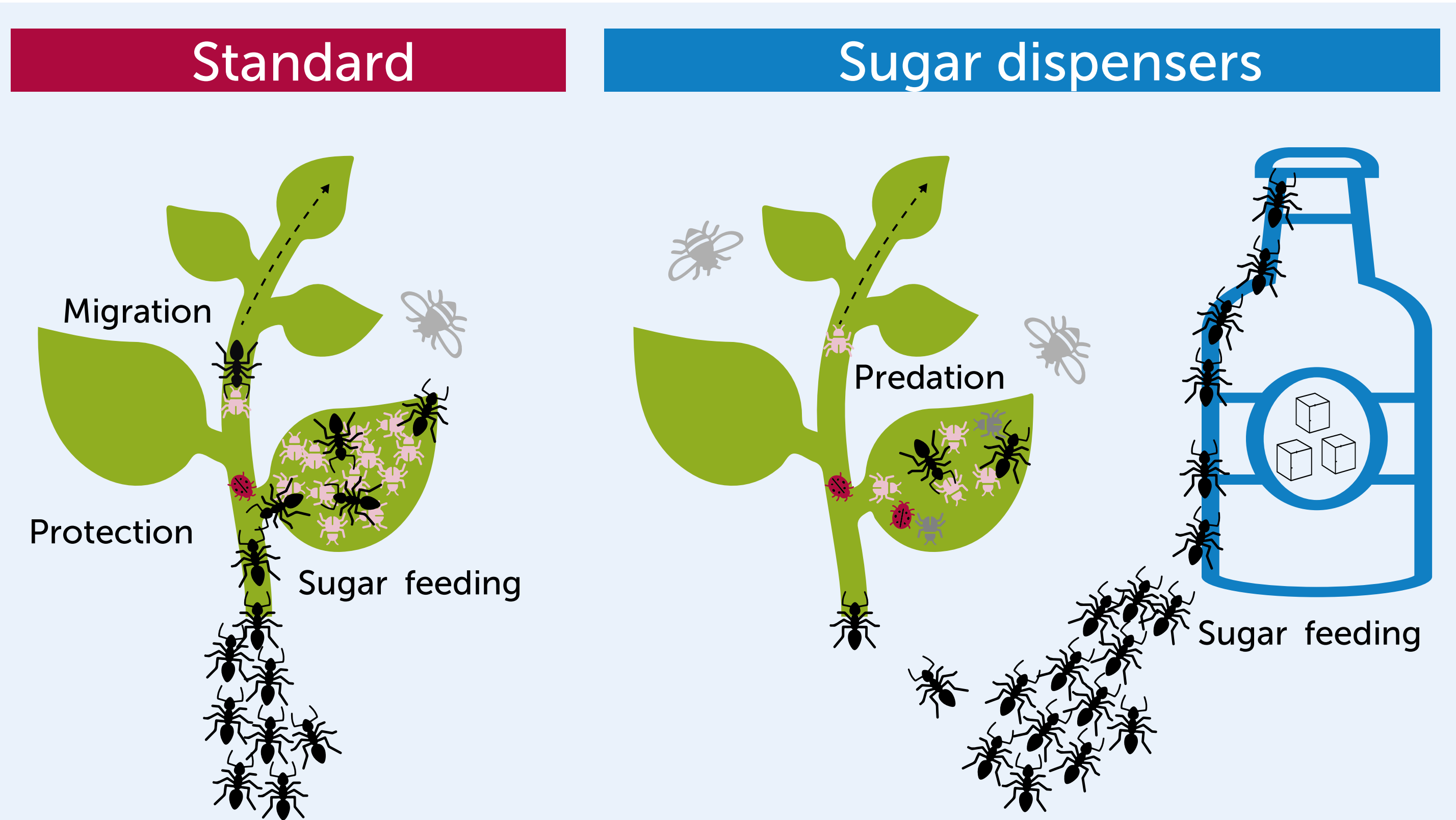


Figure 1 Offering alternative sugar reduces ant-tending of aphids, protection against natural enemies and migration of aphids to new shoots, whereas it increases predation of aphids by natural enemies and ants.

How does sugar dispenser density relate to rosy apple aphid damage by interfering in the mutualistic relationship between rosy apple aphid and ants?



Figure 2 Sugar dispenser fixed to tree.



Figure 3 Colony with rosy apple aphid.

Materials and Method

- Nieuwerkerk (NL) 1.25 m x 3.25 m (2462 trees/ha)
- Natyra NeemAzal-T/S: 21 April 2021 / 19 April 2023
- Standard 1-in-10 1-in-4 1-in-2
- Number of occupied and empty leaf clusters and young shoots

Results

- Sugar dispensers significantly reduced shoot infestation by rosy apple aphid at a density of 1231 dispensers/ha (1-in-2).
- Decreasing the density of the sugar dispensers (1-in-4; 1-in-10) still reduced shoot infestation, but reductions were smaller than for the 1-in-2 treatment.

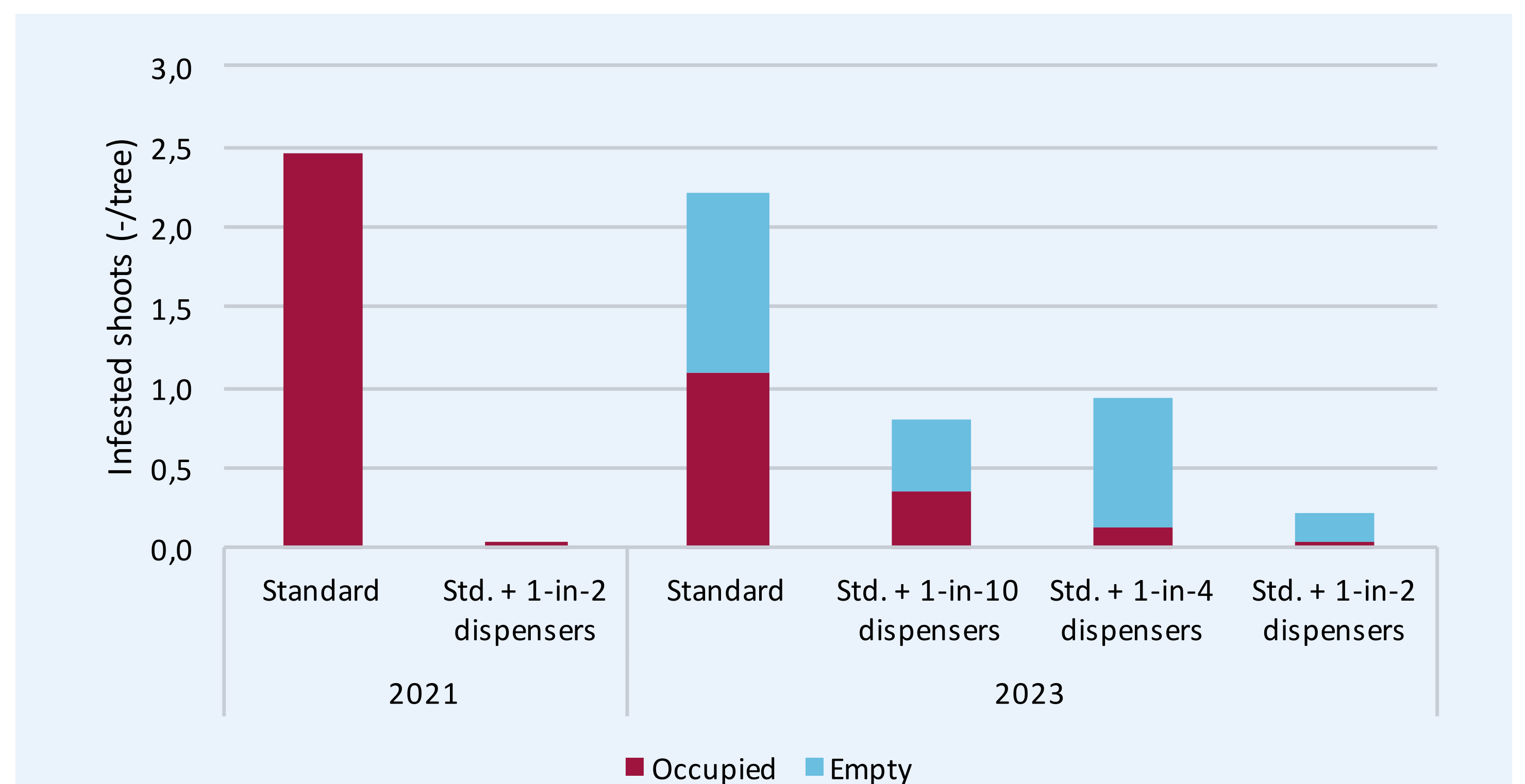


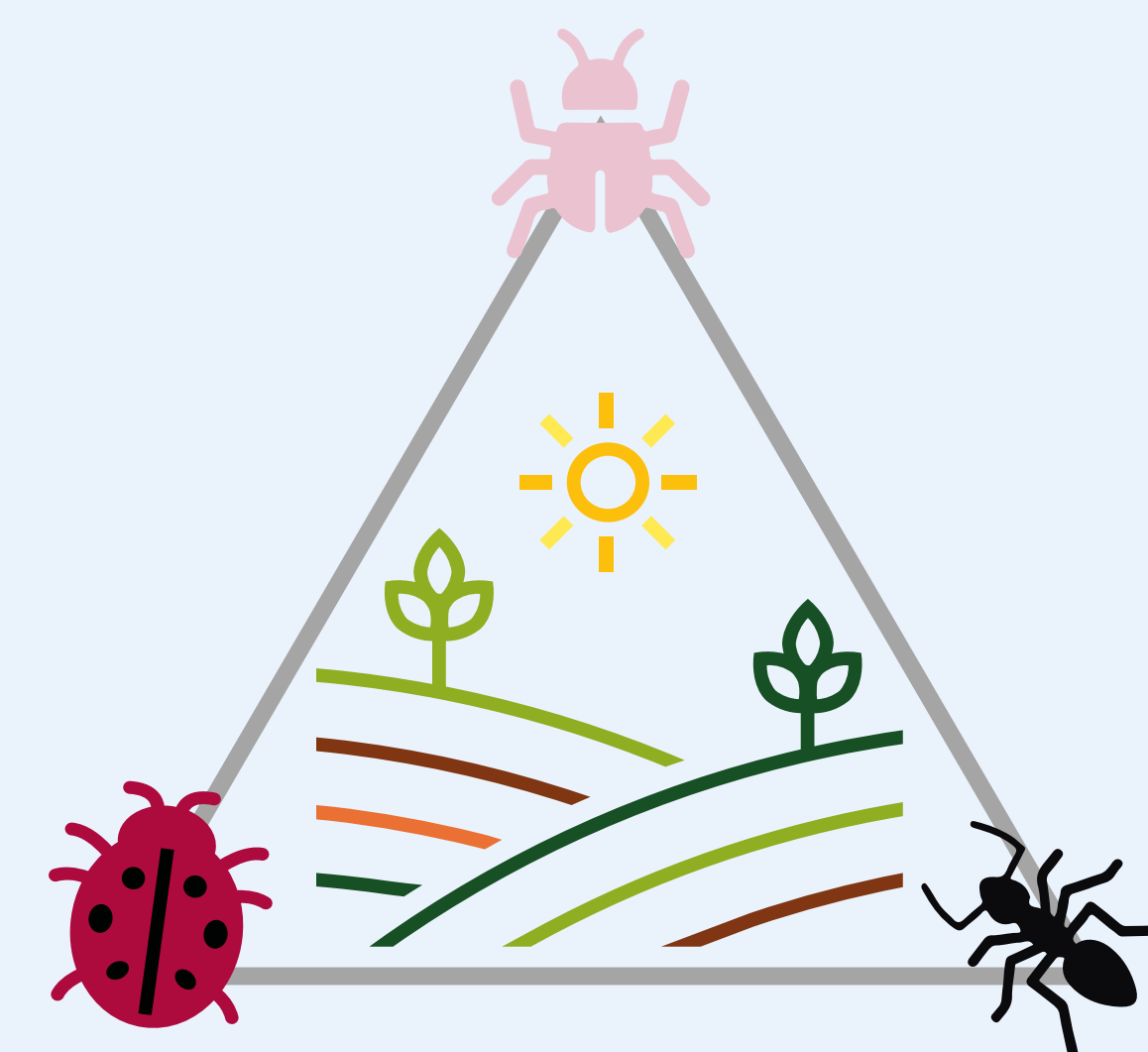
Figure 4 Infestation level of RAA on young shoots (spreading of RAA) for different sugar dispenser densities. In 2021, empty colonies in shoots were not assessed.

Discussion

- Practical solutions are needed for easy application of the sugar dispensers.
- Sugar dispenser density should be weighed against (labour) costs and efficacy.



- Relationships between aphids, ants and natural enemies should be addressed in the ecosystem context.



References

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¹ Delphy Advisory service, P.O. Box 7001, 6700 CA Wageningen, The Netherlands, s.kemp@delphy.nl and g.brouwer@delphy.nl

² Biodynamic fruit grower, De Muyehof, Platte Capelledijk 4, 4306 NE Nieuwerkerk, The Netherlands, pieterjans@xs4all.nl

³ Biobest, R&D Department, Ilse Velden 18, 2260 Westerlo, Belgium, felix.wackers@biobestgroup.com