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Tarnished plant bug *Lygus lineolaris* control in strawberries by predation from *Nabis americoferus* and repellent

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Lygus lineolaris

Nabis americoferus

Introduction

The tarnished plant bug, *Lygus lineolaris* (Palisot de Beauvois) (Hemiptera: Miridae), causes significant economic losses in several fruit and vegetable crops. The incidence of tarnished plant bugs on strawberries depends on their abundance and spatial distribution in fields. The spatial distribution of tarnished plant bugs can be modulated by the presence of natural enemies [1], the presence of trap crops [2], and the use of attractive and repellent olfactory stimuli [3]. The effectiveness of these strategies is related to the movements of the tarnished bug between their different hosts and their egg-laying choices.

Objectives

Test the effect of repellent and the indigenous predator *Nabis americoferus* on :

- TPB nymph's density
- TPB adult's density
- % of damaged fruit by TPB

Methods

Design

- 5 blocks
  - 4 plots per blocks
  - Each plot was 5 meters long by 1 m large
    - 32 strawberry plants
  - 10 m between plots
  - 20 m between blocks

Treatments

- Control
- Repellent
  - Hexyl butyrate (HB)
- Predator
  - 8 adult *Nabis*
  - Every two weeks
  - 7 releases
- Repellent + Predator

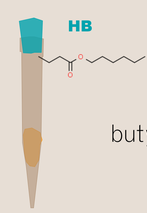
Monitoring

- Every week from July 9th to September 17th
- Monitoring by beating
  - Three plants per plot
- Counting TPB
  - Adults
  - Nymphs

Yield & damage

- Three time a week from end of July to ###DÉTAILS
- Counting the total of strawberry damaged by TPB

The repellent



Hexyl butyrate (HB)

Results and conclusion

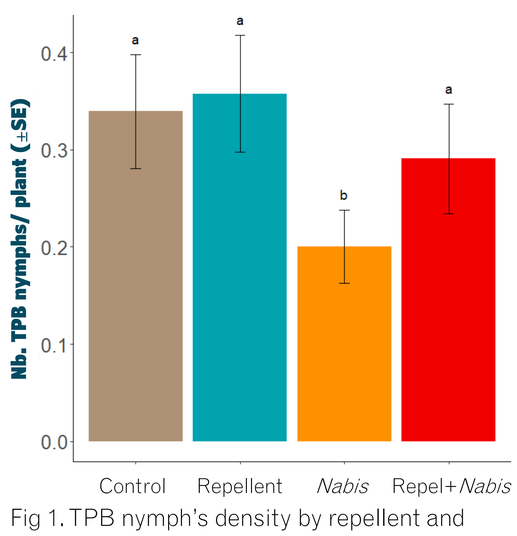


Fig 1. TPB nymph's density by repellent and predator treatments.

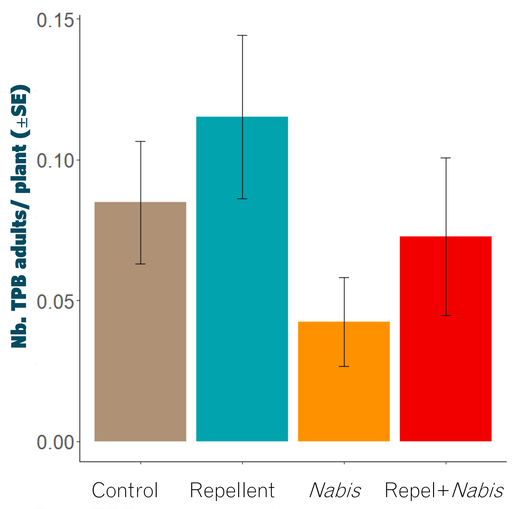


Fig 2. TPB adult's density by repellent and predator treatments.

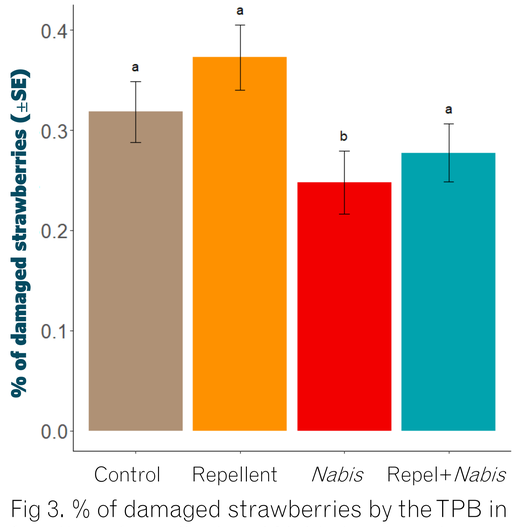


Fig 3. % of damaged strawberries by the TPB in function of repellent and Nabis treatments.

- *Nabis* negatively impacted on TPB nymph's density ($p = 0.03$) (Fig. 1)
  - The repellent had no effect either without ($p = 0.68$) or with *Nabis* ($p = 0.43$).
- None of the repellent ($p = 0.47$) and *Nabis* ($p = 0.14$) had a significative effect on TPB adult's density (Fig. 2).
  - However, the trend is similar to the effect of *Nabis* on nymph's density.
- TPB damage on strawberry was slightly but significantly reduced by *Nabis* alone ($p = 0.002$) (Fig. 3)

References

[1] Hagler & al. (2018). Journal of Insect Science, 18(4), 12.
[2] Dumont & Provost (2019). The Canadian Entomologist, 151(2), 251-259.
[3] Fountain & al. (2021). Pest Management Science, 77(6), 2747-2755.

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CANADIAN AGRICULTURAL PARTNERSHIP

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