

FROM PHYTOPHAGY TO ZOOPHAGY:

Evaluation of *Lygus lineolaris* (Palisot de Beauvois) (Hemiptera: Miridae) trophic behavior under different IPM strategies in strawberry fields

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Introduction

The Tarnished plant bug (TPB), *Lygus lineolaris* (Palisot de Beauvois) (Hemiptera: Miridae), entails one of the most actual phytosanitary problems in North America because no efficient control strategy is available.

This omnivorous species shifts from phytophagy to zoophagy susceptible changing its population dynamics and distribution in the field while exerting variable crop damage.

Specific Objectives

1. Reveal the omnivorous behavior of TPB: from phytozoophagy to zoophytophagy.
2. Reveal the TPB response to the presence of predators.
3. Reveal the behavioral response of TPB in the presence of a parasitoid.
4. Evaluate the ecological interactions occurring among the natural enemies, TPB, trap crops and the target host under controlled arenas.
5. Perform a simulation model of the ecological interactions occurring in a strawberry field infested with TPB when a predator is included and alternative preys are present.

Methods

- Behavioural tests
- Realtime PCR
- Modelling
- Olfactometer
- NGS

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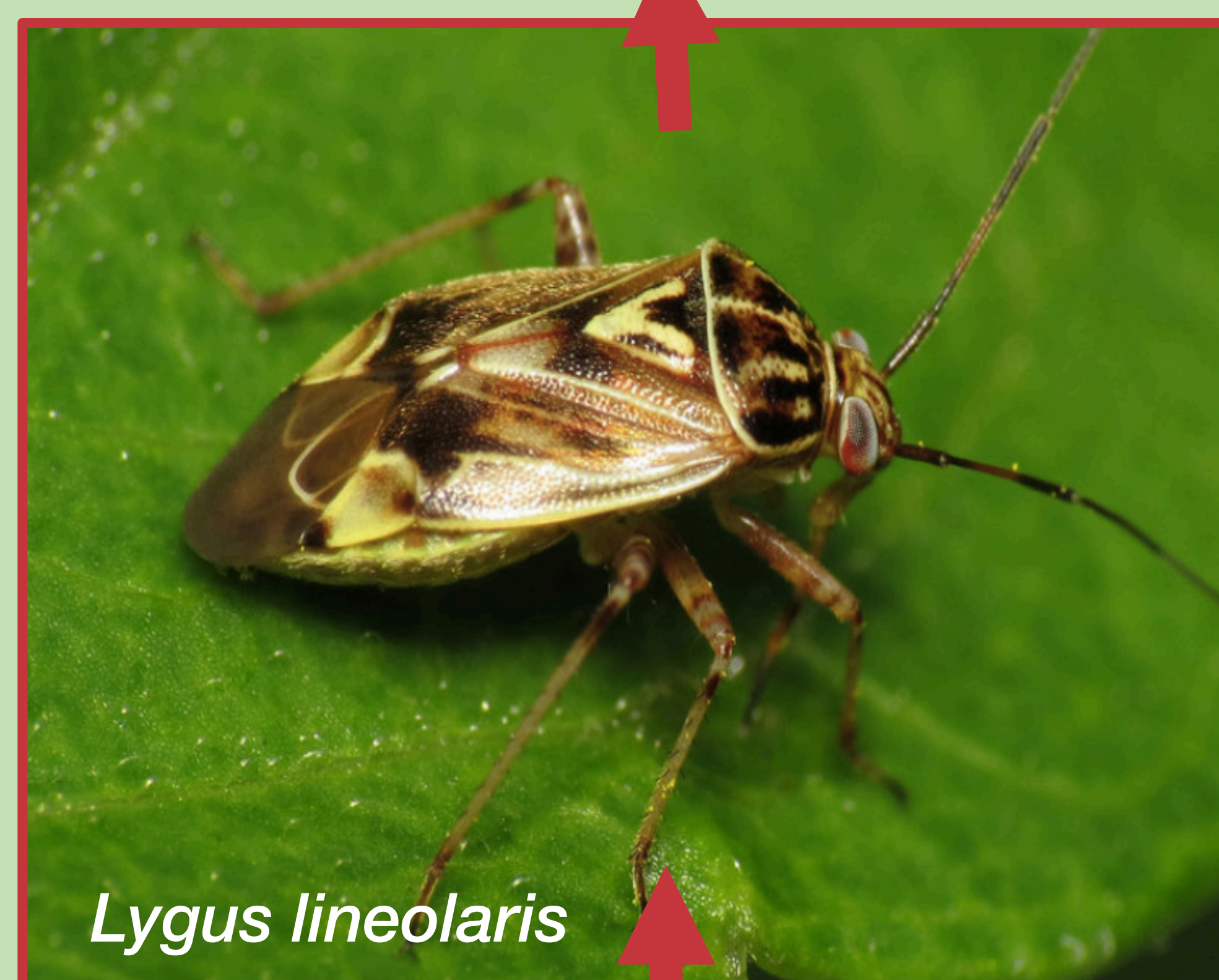
ZOOPHAGY



Chaetosiphon fragaefolii
(Cockerell)

Bemisia tabaci
(Gennadius)

ALTERNATIVE HOSTS



Lygus lineolaris

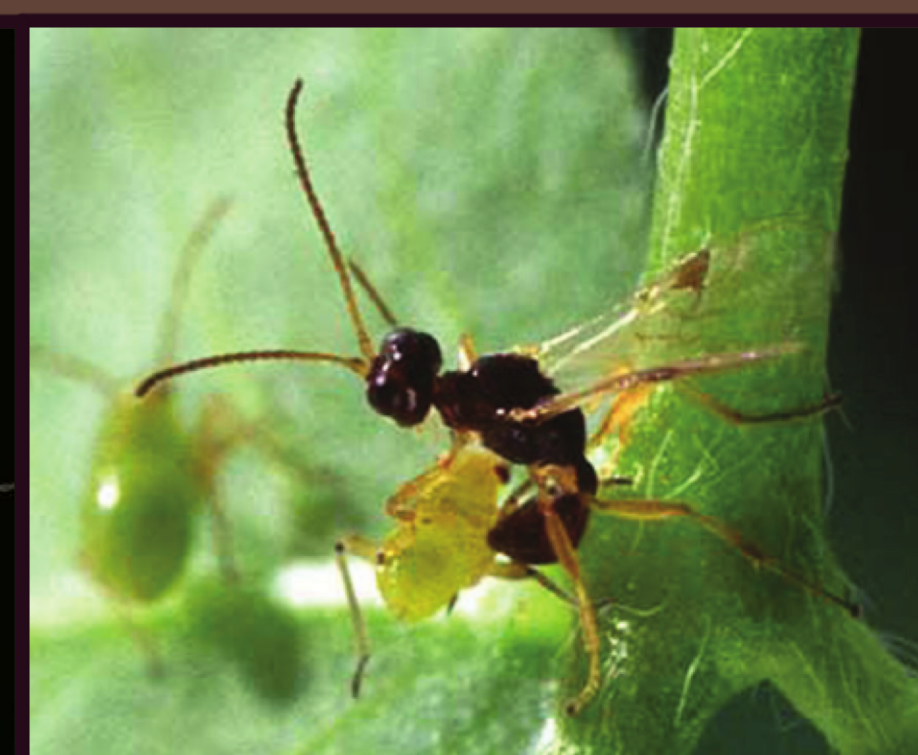
NATURAL ENEMIES

PREDATOR



Nabis americanoferus
(Carayon)

PARASITOID



Peristenus digoneutis
(Loan)

Project overview

- This is a 3 years project to reveal TPB trophic choices under simple & combined integrated pest management strategies (IPM) in organic strawberry fields.
- This project is focused on the ecological part of a larger project on the ecology and evolution of the TPB.

PHYTOPHAGY

TARGET
HOST



Fragaria x ananassa
(Duchesne)

TRAP CROPS



Fagopirum esculentum
(Moench)



Sinapis Alba (L.)

- Overall, the design of a complex IPM strategy in relation to TPB behavior is a new perspective of pest study that can completely change the way of managing TPB and may finally succeed controlling it.
- If you are interested in the evolutive part of the project, Visit the poster entitled: Population differences in male tarnished plant bug response to female pheromones of Laura Chouinard-Thuly.