

# Lifespan and reproductive potential of *Nabis americoferus*: a native generalist biological control agent

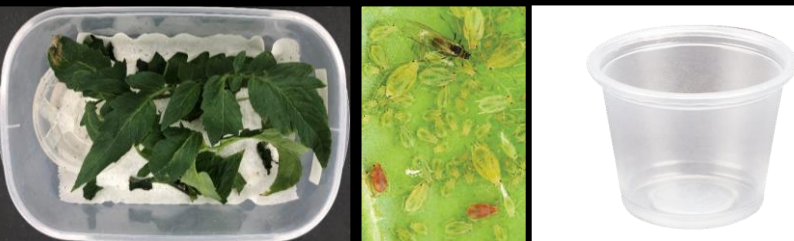
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## Introduction

Tomato crops represent a challenge for multiple biocontrol agents to establish, owing to their production of secondary plant defense compounds (Ghosh et al., 2014). In this study, we surveyed natural areas within SW Ontario for native hemipteran predators which could be developed for biological control of greenhouse tomato crops. This follows the commercial success of species such as *Dicyphus hesperus* (Hemiptera: Miridae) used to control tomato pests such as whitefly in the greenhouse environment (McGregor, 1999). Among predators we collected, *Nabis americoferus* (Hemiptera: Nabidae) was chosen as a candidate for biological control on tomato. Towards better understanding this predator's ability to overcome the hostile environment that tomato represents, we monitored and report here, the longevity and realized fecundity of *N. americoferus* on tomato.



## Methods

Adult *N. americoferus* mating pairs were isolated in tomato leaf arenas (2oz Solo cups) and monitored for their fecundity and longevity through performing daily survival checkups, and feeding predators every 3- 4 days with *Myzus persicae* Sulzer (Hemiptera: Aphididae) *ad libitum*.

- Tomato oviposition substrates changed weekly, and number of successful offspring recorded daily.
- All trials conducted at 24°C, 60% RH and L16:D8

## Results

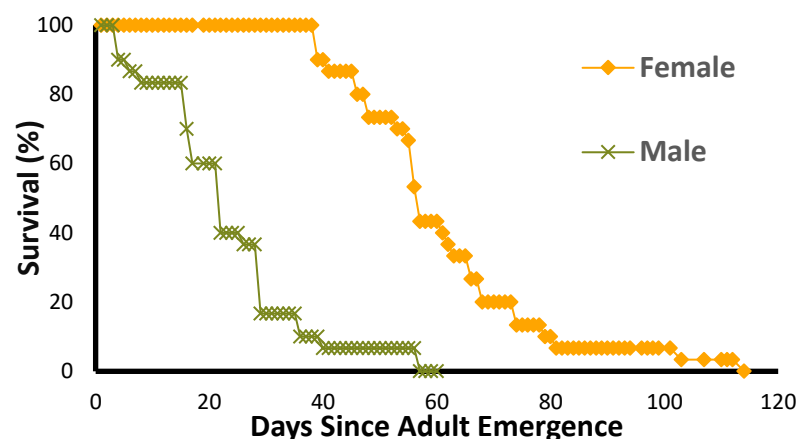


Figure 1: Total percentage of adult males (n = 30) and females (n=30) surviving over time since emergence

- *Nabis americoferus* is a long-lived and highly fecund species. On tomato as a host plant, Males survived an average of  $22.1 \pm 2.5$  days (mean  $\pm$ SE) in comparison to females who lived significantly longer at  $58.3 \pm 2.9$  days (Max = 112d) (log-rank  $\chi^2 = 16.07$  on 1 df  $p = 6e-05$ ).
- On tomato, females had a realized fecundity of  $43 \pm 9$  offspring/lifetime and a maximum of 157 nymphs each.

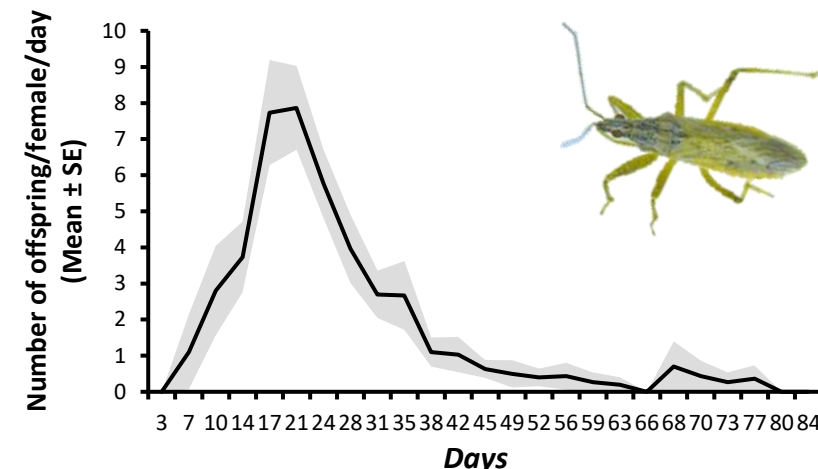


Figure 2: (n=30) Mean observed age-specific fecundity per *Nabis americoferus* female/day since the initiation of mating

## References

- Ghosh, B., T. C. Westbrook, and A. D. Jones. (2014). Comparative structural profiling of trichome specialized metabolites in tomato (*Solanum lycopersicum*) and *S. habrochaites*: Acylsugar profiles revealed by UHPLC/MS and NMR. *Metabolomics*, 10: 496–507.
- McGregor, R. R., Gillespie, D. R., Quiring, D. M. J., & Foisy, M. R. J. (1999). Potential use of *Dicyphus hesperus* Knight (Heteroptera: Miridae) for biological control of pests of greenhouse tomatoes. *Biological Control*, 16(1), 104–110.

## Acknowledgments



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## Conclusions

This study confirms that *N. americoferus* is well adapted to establishing populations on tomato as a host crop. **Further characterization of the predatory capacity of *N. americoferus* against various tomato pests will follow to evaluate its potential as a new native natural enemy for greenhouse crop protection in Canada.**