



Examining the Success of Food-Grade Repellents on Overwintering BMSB

HAYLEY BUSH¹

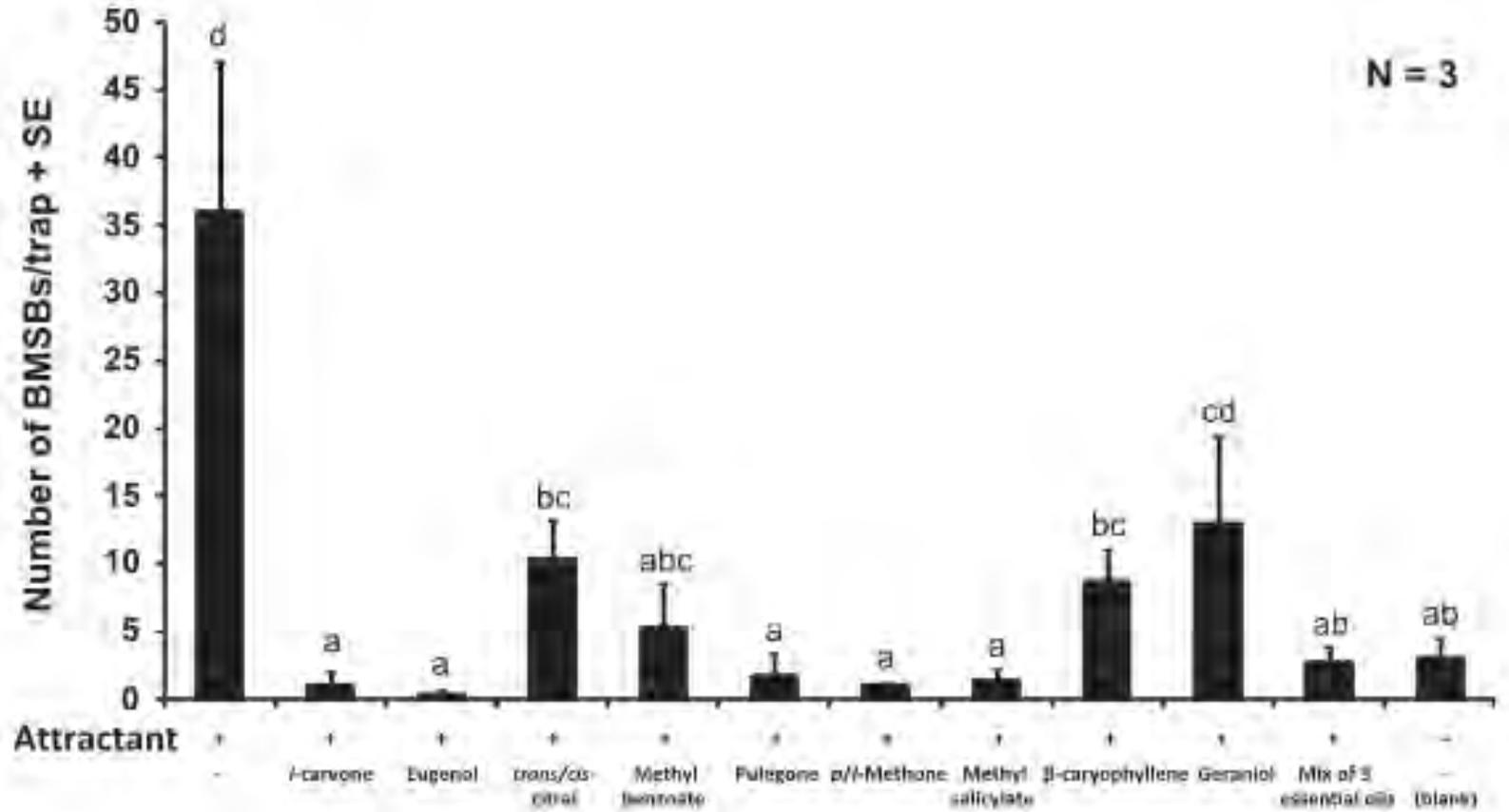
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Halyomorpha halys as a Structural Pest

- Current control tactics
 - Exclusion
 - Pesticide applications
- New control tactics
 - Long-lasting insecticidal netting
 - Repellents



BMSB Home Entry Points

Identifying, inspecting and sealing these eight hot spots before brown marmorated stink bugs seek shelter in the fall can help reduce your risk of an infestation.

Stink bugs stay indoors for warmth in the winter and remain relatively inactive until the spring, when they appear on your walls and windows, using the same entry points to exit your home and feed on plants, fruits and vegetables.



Attic

Protect vents in attics and crawl spaces with screens.



Chimney

Keep the damper closed when the chimney is not in use.



Window Screens

Repair or replace torn or damaged window screens.



Cracks & Crevices

Use caulking materials to seal any cracks and crevices around doors and windows.



Windows

Keep windows shut and seal any small openings around the frame.



Pipes

Check for gaps or openings around pipes and cover them.



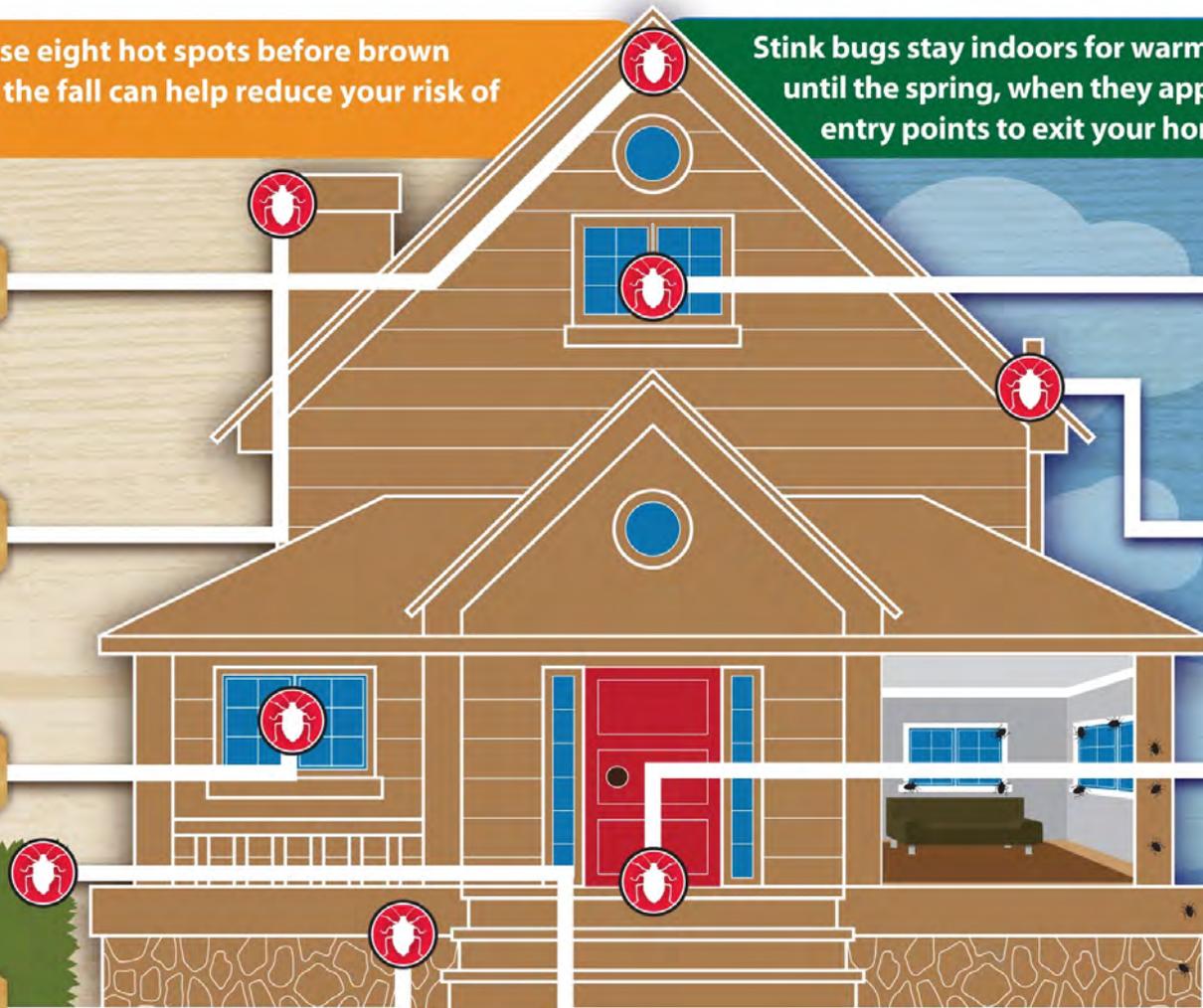
Doors

Install weather stripping under doorways that have gaps between the door and frame.



Shrubs

Remove excess vegetation around the exterior of the home.

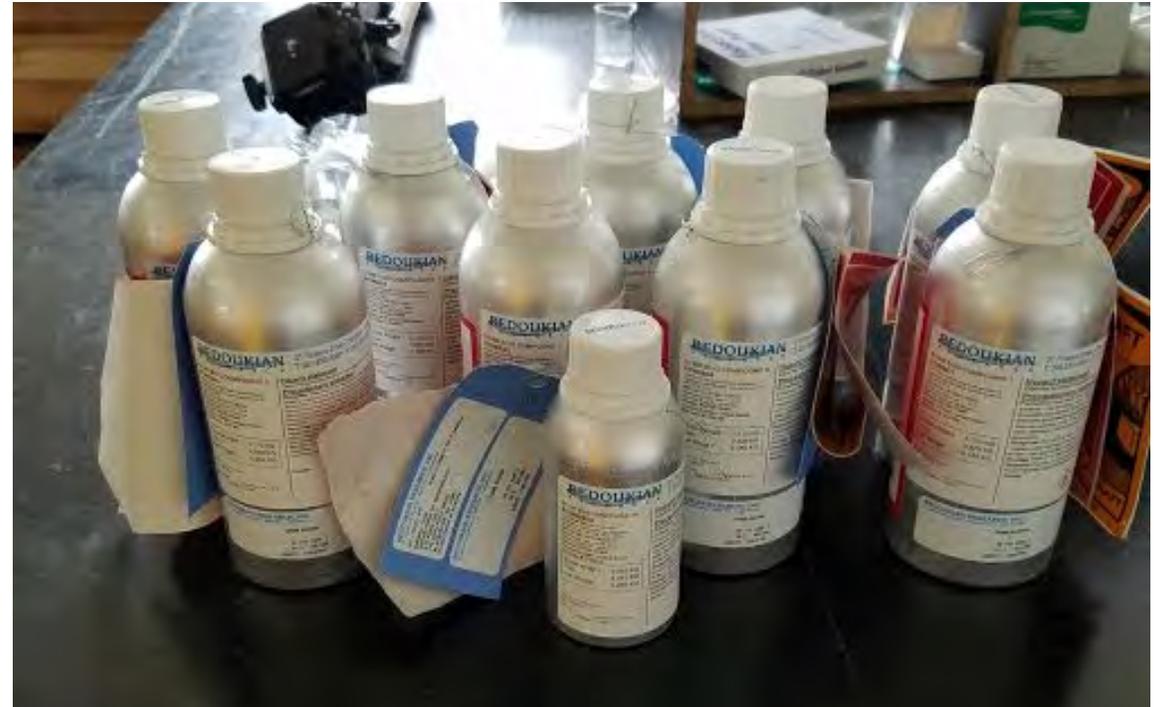




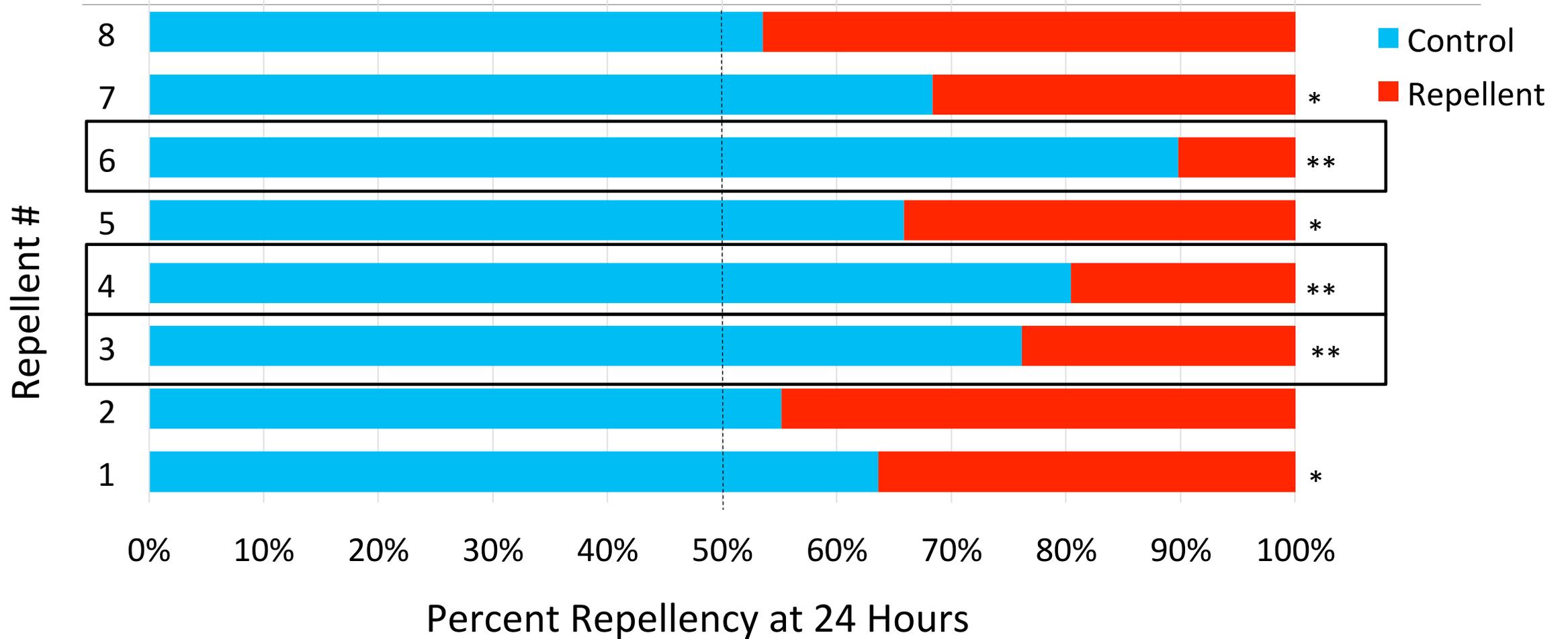
BEDOUKIAN

R E S E A R C H

- Started company to produce specialty aroma and flavor ingredients
- Expanded products to include insect pheromones
- Provided 8 candidate repellents to test on BMSB

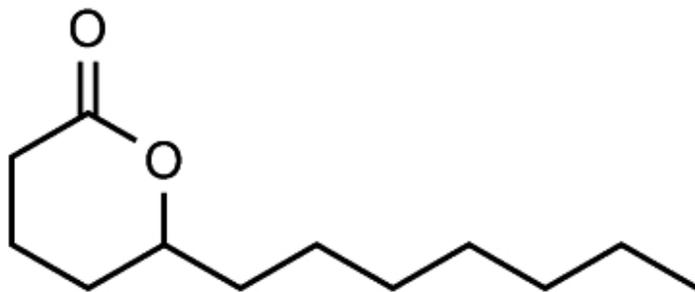


Preliminary Lab Testing

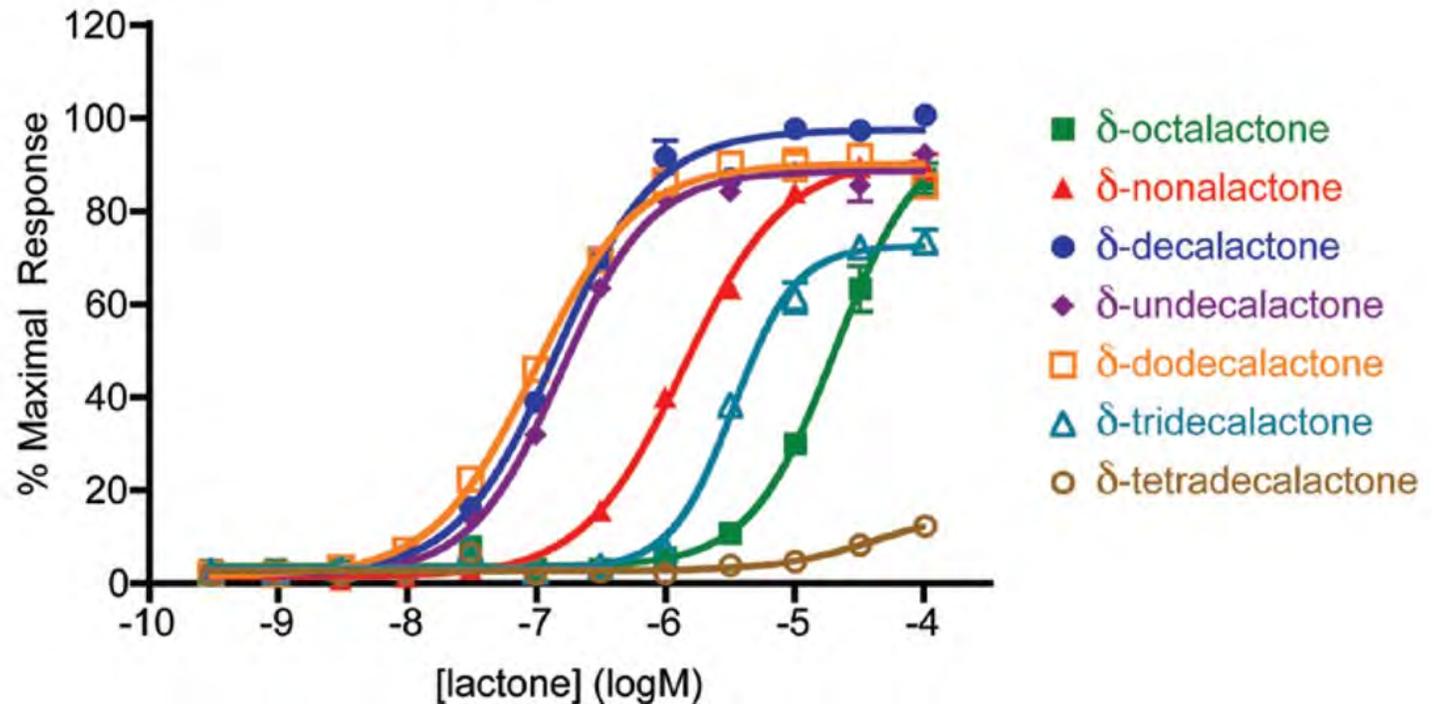


Delta-DODECALACTONE FCC Repellent 3

- Useful against *Anopheles gambiae*
- CAS #: 713-95-1
- Peach-like aroma and subtle cream flavor



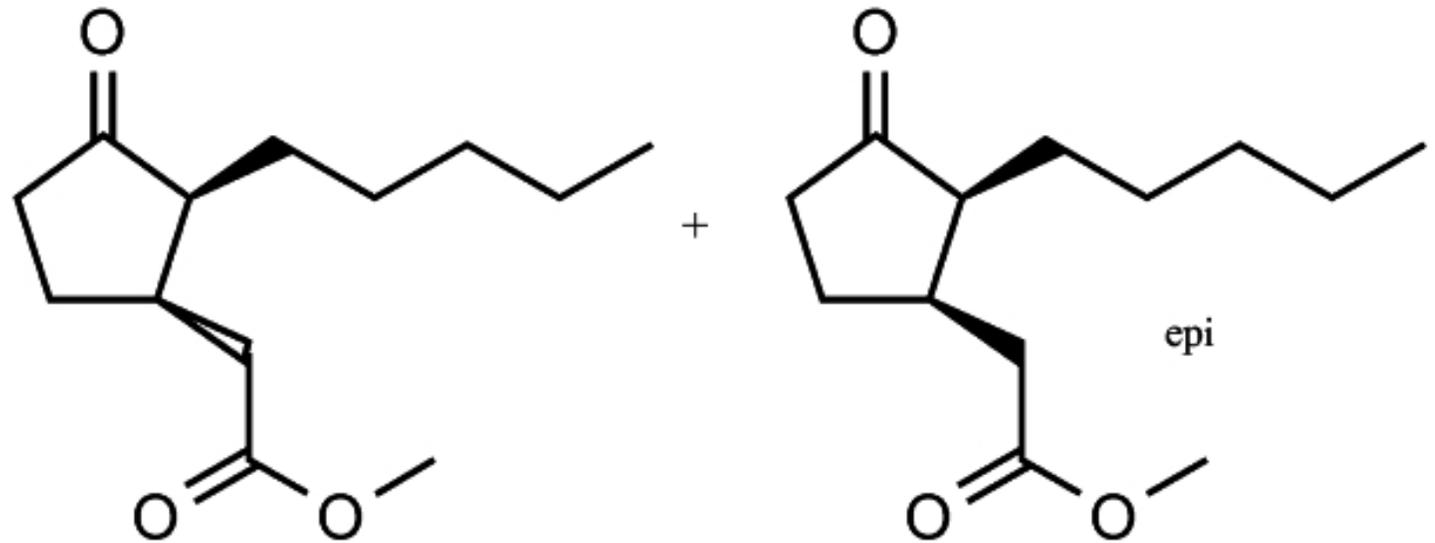
C₁₂H₂₂O₂



METHYL DIHYDRO JASMONATE (Jasmine)

Repellent 4

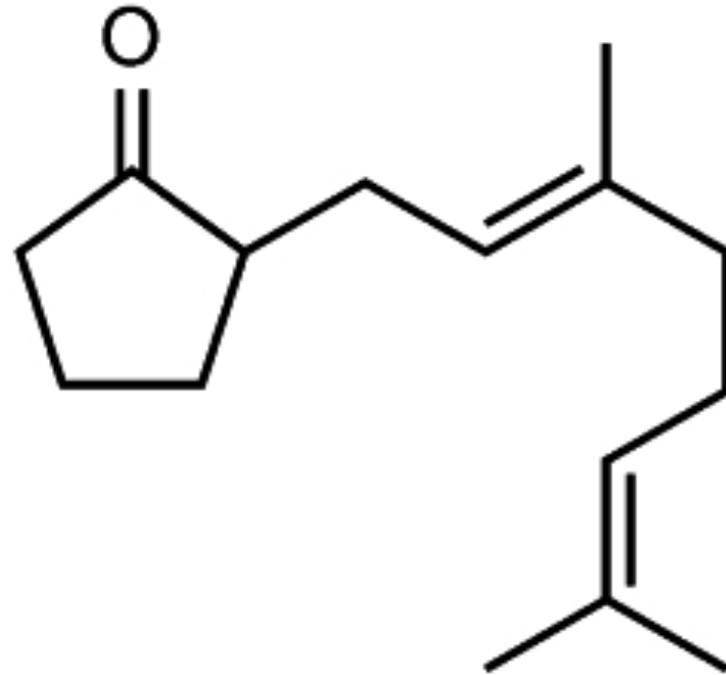
- Patent for a mosquito repellency (*WO 2013165477 A1*)
- CAS #: 24851-98-7
- Floral, jasmine fragrance



C₁₃H₂₂O₃

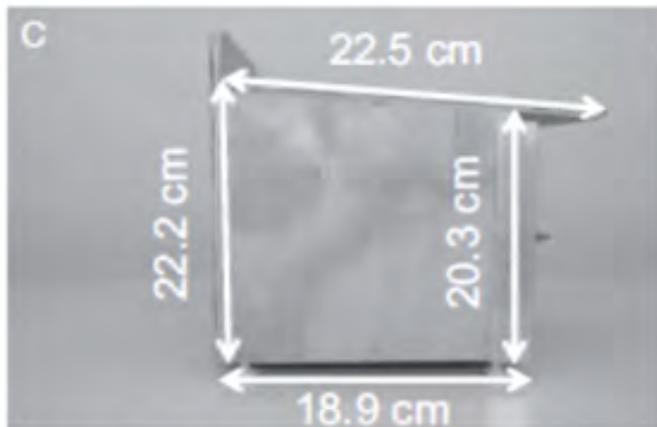
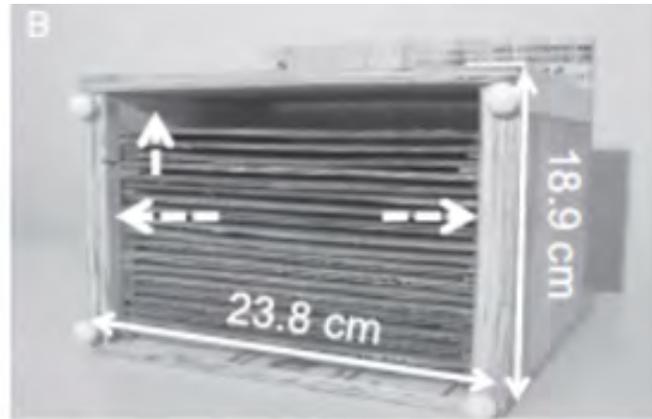
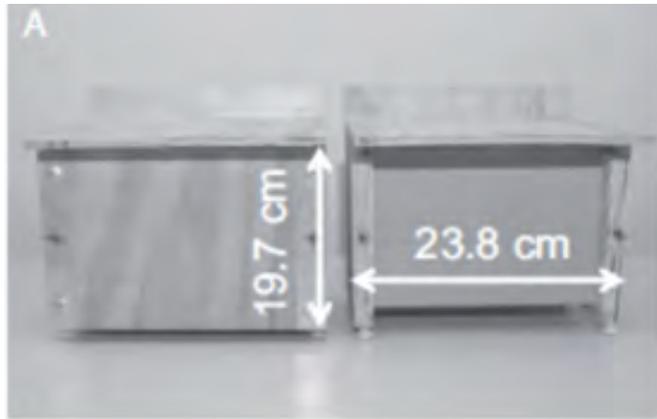
GERANYL CYCLOPENTANONE (Apritone) Repellent 6A

- Patent for bed bug repellency (Patent *WO2010126576 A1*)
- CAS #: 68133-79-9
- Ripe apricot aroma with jasmine undertones. Can also be used in skin care.



C₁₅H₂₄O

Overwintering BMSB Boxes



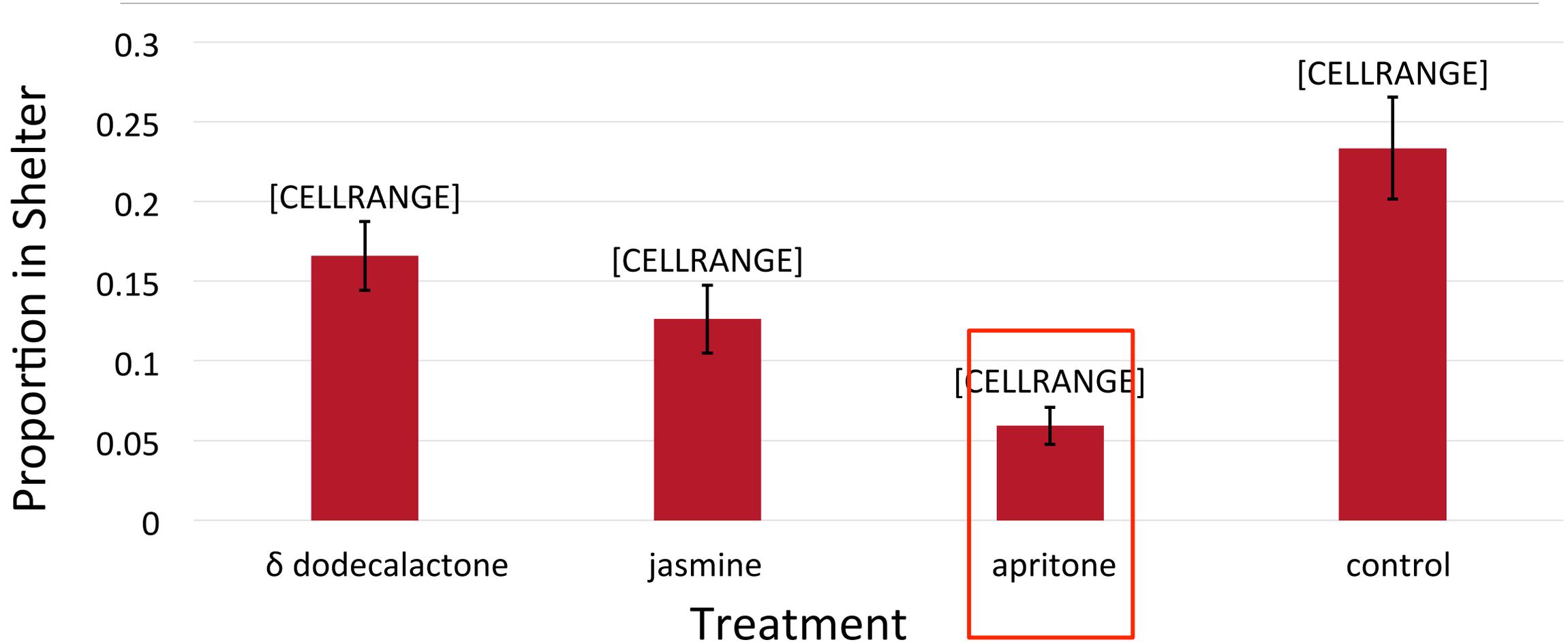
Testing Efficacy of Repellent on BMSB in Outdoor Cage Bioassay

Bugs were left in the cup and aimed toward the box when released



- 20 resettling BMSB were released in each cage.
- Treatments: δ dodecalactone, jasmine, apritone, and control solution
- BMSB were counted 24 hours after release.

Exclusion Efficacy of Repellents in Outdoor Cage Test

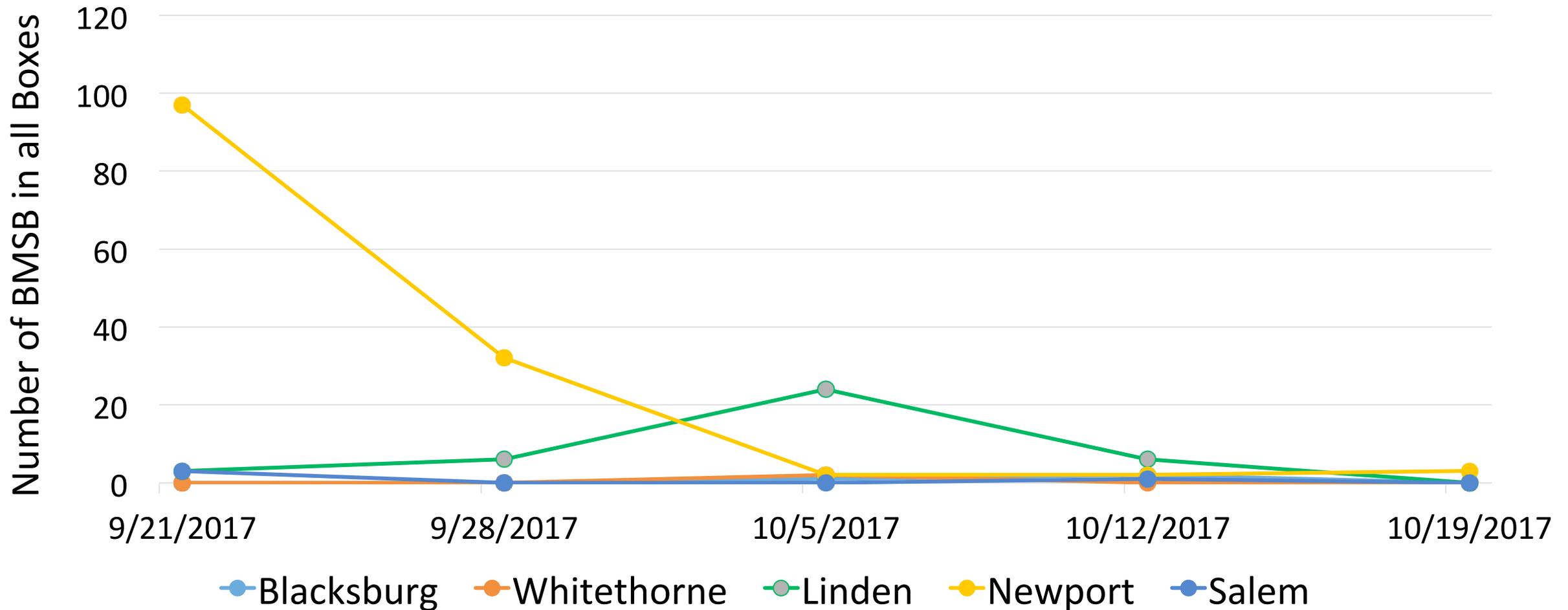


Testing Repellent Efficacy on Natural Overwintering BMSB

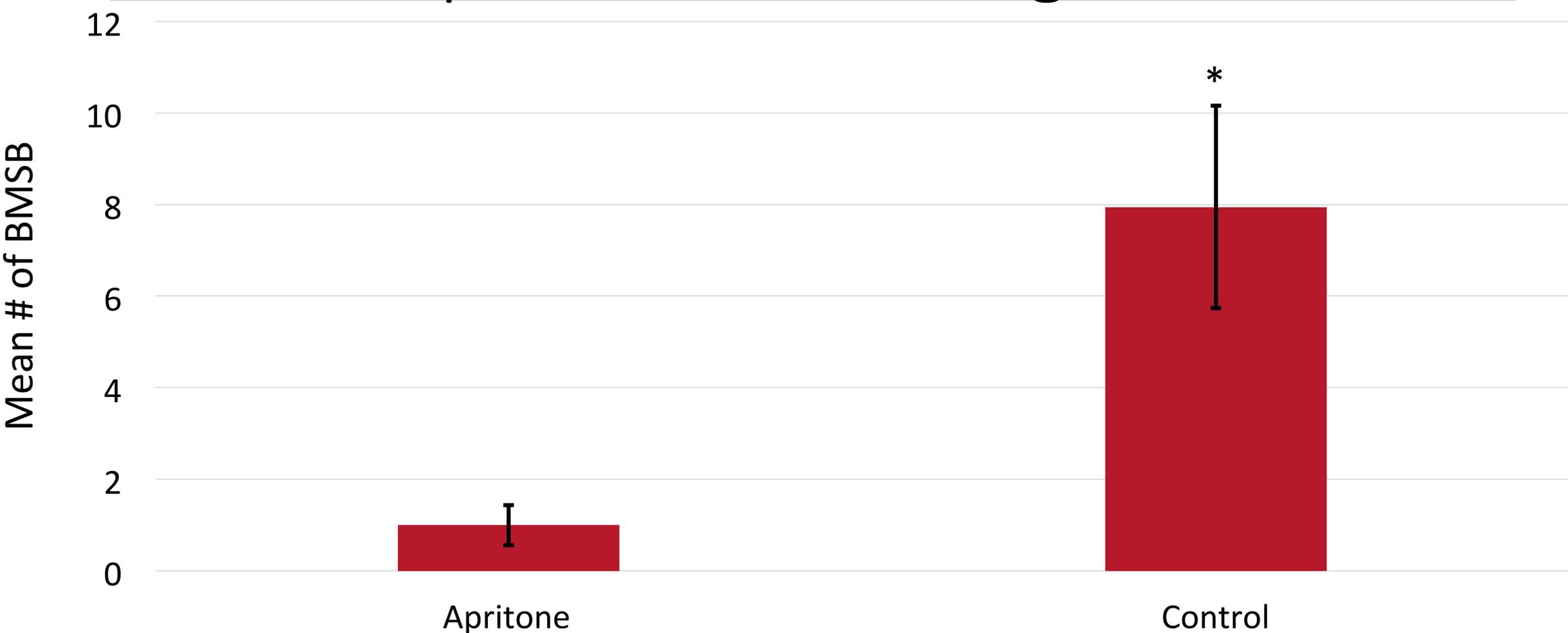
- A box applied with apritone was paired next to a box treated with the control substance
- 3 box pairs were placed at 5 different locations
- BMSB were counted weekly per box and the treatment was reapplied at the same time

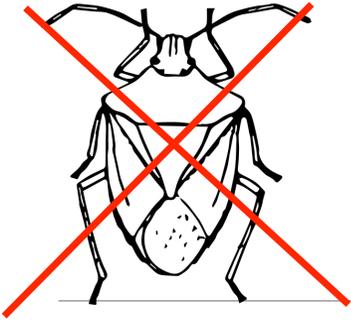


Total Box Catches per Sample Date



Average Number of BMSB Found per Overwintering Box





May Now Have an Answer for Homeowners!

- Using apritone gave an 8 fold decrease in BMSB entry.
- CAS #: 68133-79-9



Acknowledgements

Committee Members

Dr. Tom Kuhar

Dr. Tracy Leskey

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Lab Members

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