



Assessing the Establishment Risk of the Invasive Brown Marmorated Stink Bug (*Halyomorpha halys*) in the UK

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Niab Fruit Agronomists' Day

Niab, East Malling, 30 September 2025

Identification & damage

Global spread of BMSB

Potential UK Establishment

Update on current UK Situation

BMSB Options for Monitoring & Control

Ongoing Research at Niab

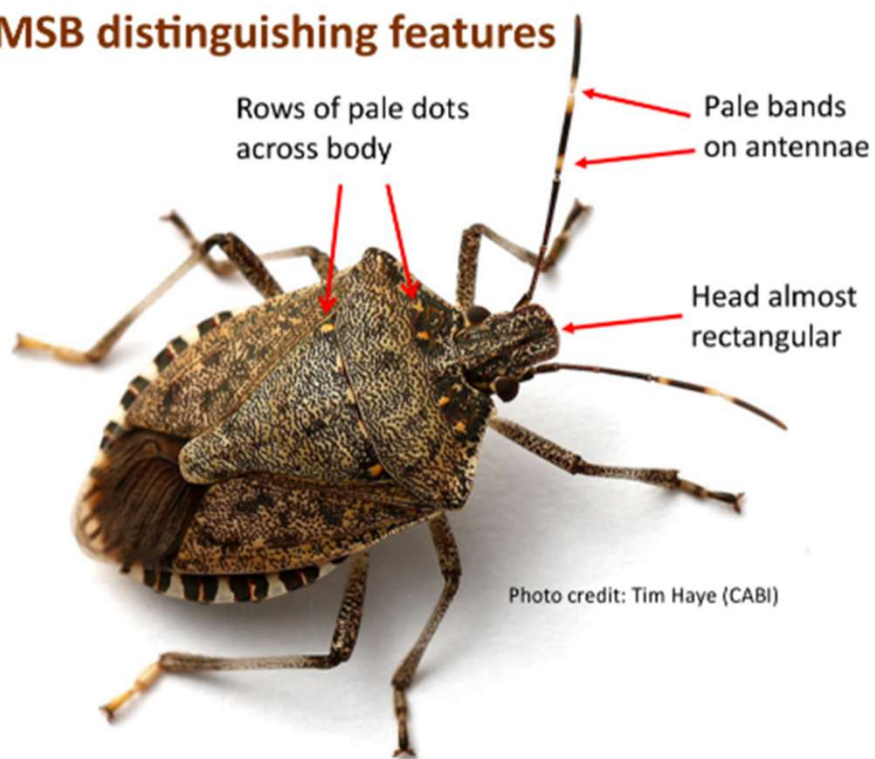
Questions



a) Adults; b) last immature stage (fifth-instar nymphs); c) mid-instar nymph; d) first-instar nymphs; e) feeding damage to apple

Alert email : bmsb@niab.com

BMSB distinguishing features



Adult Male



Adult Female

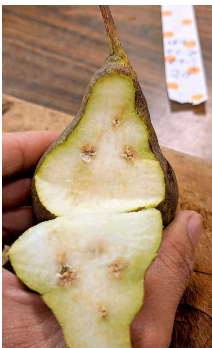
Updated Defra BMSB 2025 Factsheet at:

https://planthealthportal.defra.gov.uk/assets/factsheets/BMSB_2025_update.pdf

BMSB is highly polyphagous



BMSB damage on pear deformities
(Picture: Rick Hilton)



BMSB damage on apple.
(Picture: D. Pfeiffer, Virginia Tech)



BMSB damage on grapes
(Pictures: Michigan State University)



Damage on Vegetables



Sweet/ bell pepper



Tomato



Okra



Sweet corn



Eggplant



Green bean

Pictures courtesy: Zobel et al. (2016) DOI:[10.1093/jee/tow055](https://doi.org/10.1093/jee/tow055)



BMSB is highly polyphagous



BMSB feeding on golden raspberry, red raspberry, and blackberry (photo of blackberry: B. Strik).



BMSB on Blueberry. The cluster at right was subject to BMSB feeding and is showing premature ripening. Photo: Stop BMSB



Feeding damage to blackberry caused by BMSB adults and nymphs. (photo: B. Strik).



(A)



(B)



(C)

Figure: Control strawberry (A); *H. halys*-infested strawberry (B); and indirectly *H. halys*-infested strawberry (C).

BMSB attack induces a metabolic response in Strawberry (*Fragaria × ananassa* Duch.) fruit.
<https://doi.org/10.3390/horticulturae7120561>

- The BMSB-infested strawberry was dark red, and the tissue was swollen-looking.
- Fruit characterised by a distinct odour, caused by the stink bug and associated with defence chemicals
- Strawberries with this scent cannot be sold to consumers





BMSB Can Also Be a Significant Nuisance



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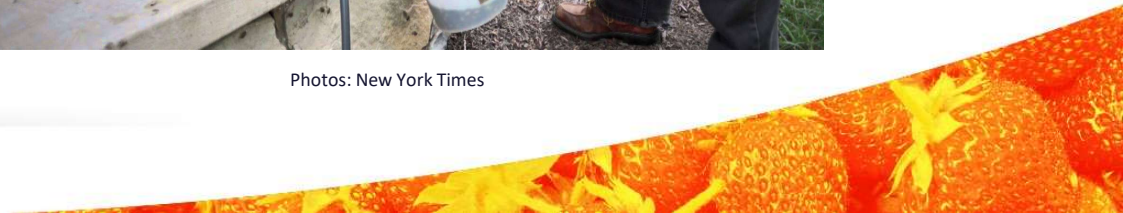
Overwintering aggregation and entry to housing causes additional problems



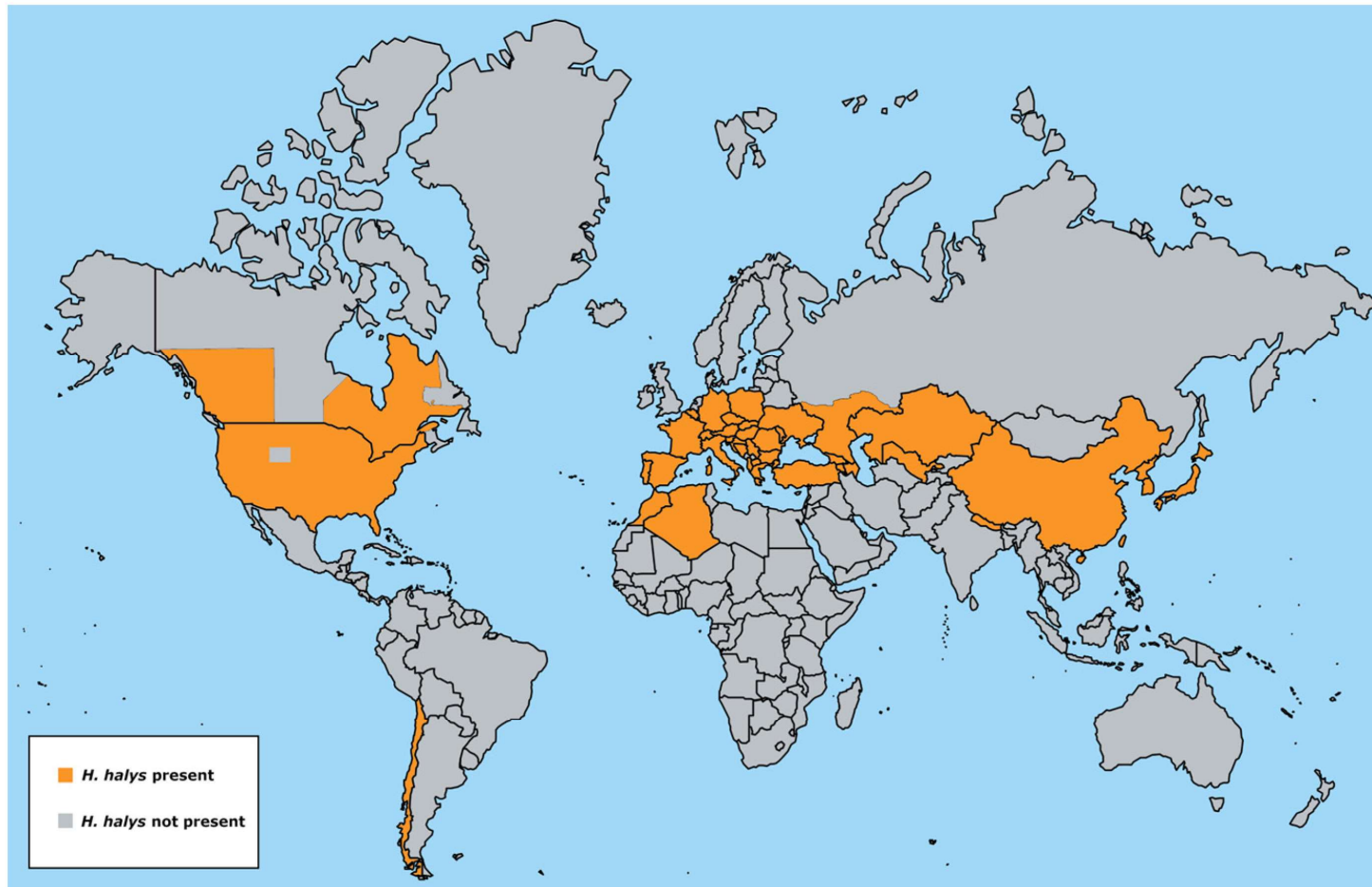
Photos: New York Times



world-class experience, skills and resources



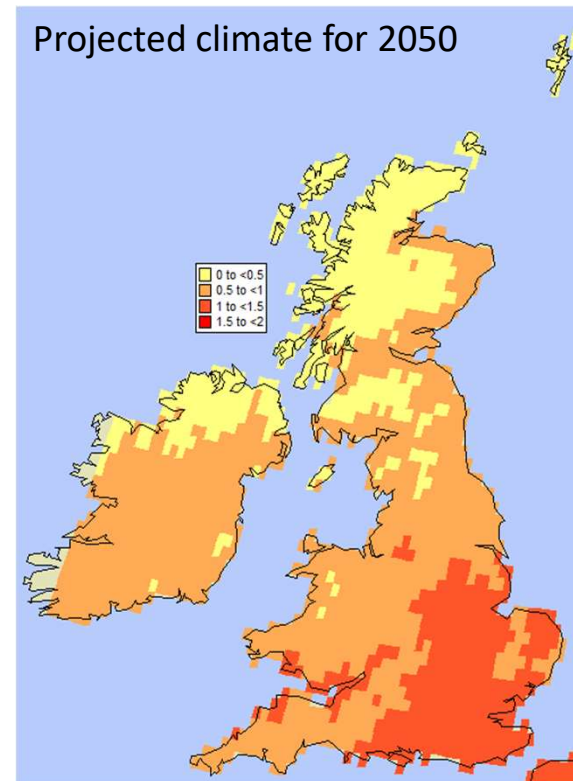
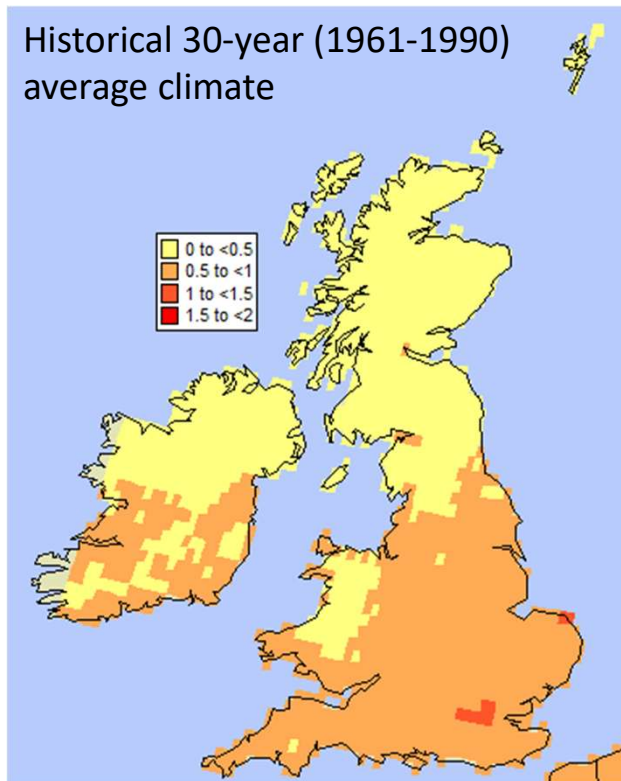
Global Spread of BMSB



Intercepted
but not
established
in the UK

UK Establishment Potential

CLIMEX modelling indicates that a larger area of South East and Eastern England will be suited to establishment by 2050



Powell, G., Barclay, M.V.L., Couch, Y. and Evans, A. (2021). Current invasion status for UK establishment of the Brown marmorated stink bug *Halyomorpha halys* (Hemiptera: Pentatomidae). *British Journal of Natural History*, 34:2021



Spread and Establishment of BMSB in Europe and UK



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- **Origin and Expansion:** Native to Asia, BMSB has significantly expanded globally over the last three decades
- **First European Presence:** 2004 in Liechtenstein and Switzerland
- **UK Situation:**
 - BMSB interceptions at UK ports since 2010
 - NIAB has monitored adult BMSB sightings (from 2018) – mostly males
 - 2021 First female BMSB in the UK
 - 2023/24 small increase of numbers have recorded
 - 2024 First reports of juvenile forms in UK

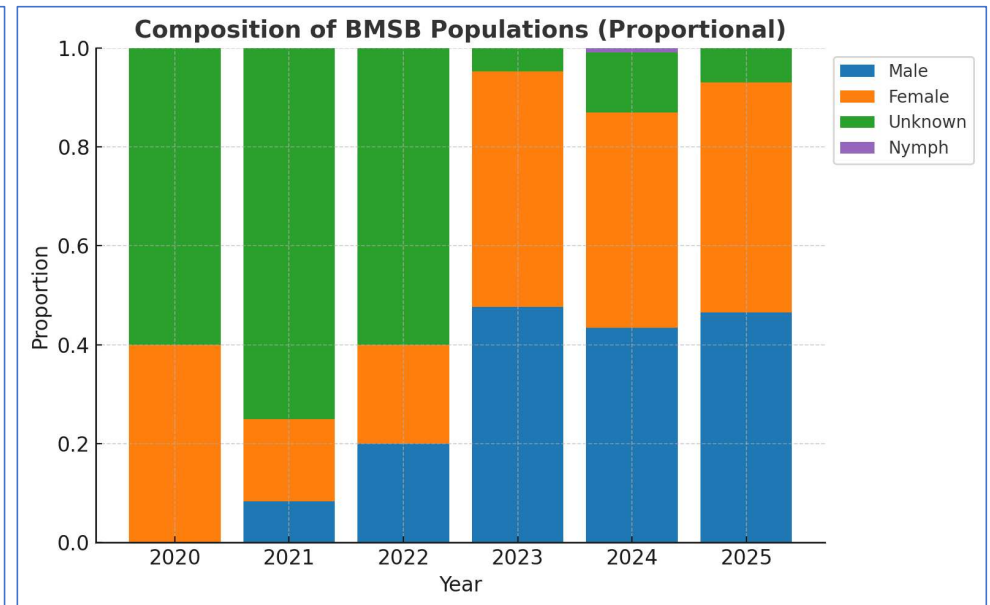
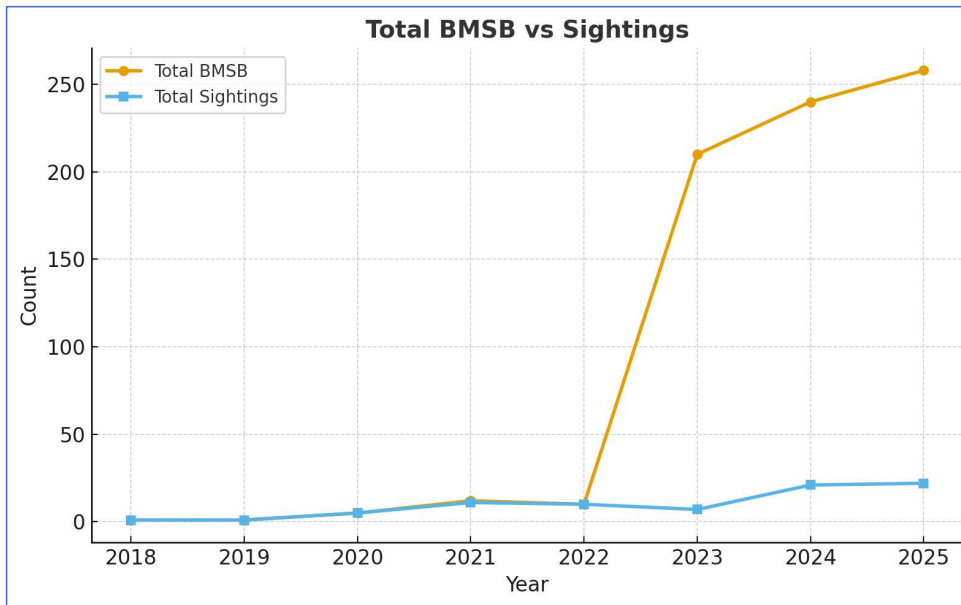


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The number of sightings has been increasing with a corresponding increase in insects per sighting

Nymph forms reported in 2024



Reports of possibly 200+ insects at a site were reported from 2023

Three reports of multiple insects (from 22 so far) in 2025, all of which were travel/ trade related

BMSB Options for Monitoring & Control

Pheromone-Based Methods for BMSB Monitoring can be enhanced for attract and kill



Pheromone trap deployed and with BMSB trapped

Picture: Dr Glen Powell

- **Enhancing Trap Attraction:** Utilising a combination of visual cues (LED lights) and olfactory stimuli (pheromones) to significantly increase BMSB capture
- **Biotremology:** vibrational cues
- **New Trap Designs:** Exploring new designs like wind vane-based traps and Nazgûl traps for higher efficiency



Nazgul Trap

Picture: Suckling, DM, et al (2019). <https://doi.org/10.3390/insects10120433>

Classical Biological Control Strategies for BMSB

The samurai wasp (*Trissolcus japonicus*)- a highly effective parasitoid against BMSB

- Native to Asia, but..
- **Adventive populations** have been found in Europe (Switzerland, Italy, Germany, France and Serbia) and in North America (USA and Canada)
- *T. japonicus* deployed in Switzerland and Italy - proven to be highly effective in controlling BMSB
- **New Zealand has pre-approved the release of *T. japonicus* in the event of BMSB incursion**
- Work is underway by the BMSB WG to explore the licensing of the non-native samurai wasp for BMSB control



The samurai wasp (*Trissolcus japonicus*)

Picture: <https://extension.usu.edu/pests/>



Ongoing Niab Research

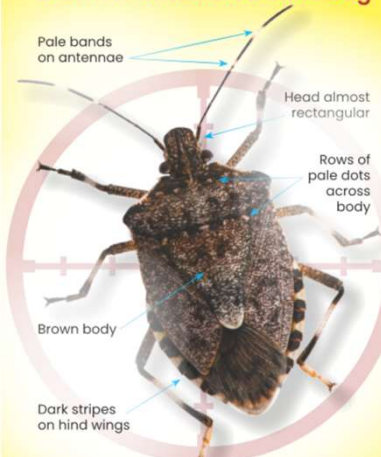


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- **Ongoing:** BMSB Monitoring and Infographic targeting campervan, motorhome and commercial transport sector
- Last year, over 700K reached via online and print 😊!
- **Ongoing:** Screening UK habitat for the presence of Forest bug (*Pentatoma rufipes*) and BMSB (*H. halys*) parasitoids
 - Aims to investigate UK native egg parasitoids and frequency
 - Rearing insects and deploying sentinel eggs

Stink bug in your campervan or motorhome?

Brown marmorated stink bug



Brown marmorated stink bug (*Halyomorpha halys*) is a threat to UK crops and homes.

If you find this insect, take a photograph and email to: bmsb@niab.com and we will reply.

Scan here for further information:



Invasive pest native to Asia
Spreading rapidly across the world
Hitchhiking in campervans from mainland Europe
Now arriving in the UK
A pest in the home which smells
Pest of food crops

Ongoing NIAB Research

Screening UK habitats for Forest bug (*Pentatoma rufipes*) and **Brown marmorated stink bug (BMSB; *Halyomorpha halys*)** parasitoids

Worshipful Company of the Fruiterers, 2025 & 2026

Research Update

- Overwintering BMSB obtained from monitoring
- Cultures obtained from research partners in Italy
- Rearing protocol optimised
- Egg batches stored at -80 before deployment
- Eggs will be deployed to be exposed to parasitoids
- Incubated for the emergence of parasitoids
- Parasitoids to be identified using morphological and molecular tools



Rearing BMSB at Niab



Egg masses collected from Niab



Early instar forms in containment at Niab

