



Post Implementation Review

2014-15 Emergency Measures for Brown Marmorated Stink Bugs



EXECUTIVE SUMMARY

In mid December 2014, large populations of live, viable brown marmorated stink bugs (*Halyomorpha halys*), BMSB, began arriving on break bulk vessels arriving in Australia from the United States load port of Savannah. This pest, known to feed on over 300 plant species and with the capacity to affect a range of Australian horticulture industries, had never before been detected in such large numbers on cargo arriving into Australia.

These pests had infested cargo (new machinery) not normally impeded by the Department of Agriculture (the department). Once disturbed the stink bugs contaminated nearby cargo and the vessel itself.

The department implemented emergency biosecurity measures at all ports in Australia. These included chemical fogging of vessels, followed by inspection and fumigation of affected cargo onboard to ensure that stinkbugs were appropriately managed before any cargo was allowed to discharge to the wharf. The response evolved as the situation changed, the pathway was better understood and management strategies fine-tuned. As a result of these measures, there were no further viable stinkbug interceptions after January 2015. The final measures were lifted from 1 May this year.

This post implementation report outlines what was achieved and the learning that can be drawn during the emergency situation, and includes suggestions for what can be done more effectively next pest season. It highlights the need for early engagement with stakeholders to ensure measures are implemented appropriately for the next risk season and overarching policy for managing hitchhiker and seasonal pests in the long term.

The report also notes other activities underway including a BMSB risk assessment and the development of response and management plans in the event that the pest establishes in Australia and spreads.

BACKGROUND

The brown marmorated stink bug (*Halyomorpha halys*), BMSB, is a temperate pest native to China, Japan, Taiwan and Korea. It was introduced to the United States sometime in the mid 1990's and has now become an invasive pest in some areas of that country. In autumn pre-adult BSMB aggregate in large numbers on the sides of houses and other suitable structures, before moving inside to overwinter and undergo a period of reproductive diapause concealed in nooks and crannies. Bugs leave these sites in spring and begin feeding for a period of time before becoming sexually mature.

Overwintering bugs can potentially enter into and infest any goods that may be exposed to the outdoors or kept in unsecured storage areas such as sheds or attics. These goods may be infested with any number of BMSB adults. For example, up to 26,000 have been removed from one infested house in the USA. However, small aggregations of a few BMSB are much less likely to establish than large aggregations containing many overwintering BMSB. While live BMSB have been intercepted on goods from Asia and Europe, interception data shows that both new and used vehicles and machinery from the United States are the primary pathways for moderate and large BMSB infestations detected at the border. These goods are also being targeted by New Zealand.

The bugs do not usually move around in cold weather while in diapause but can re-emerge from their hiding places to search for host plants to continue their life cycle in response to warmer temperatures and longer day lengths.

What is the potential impact?

This pest's host range is extensive, with over 300 host species recorded. Its economic hosts are primarily many fruit and nut species grown in orchards (such as apples, cherries, pears, peaches, almonds). Feeding on these hosts damages fruit and can dramatically reduce harvests, for example BMSB was estimated to cause 37 million dollars damage to apple crops in the mid-Atlantic region of the USA in 2010 alone. The pest can also feed and reproduce on a wide range of amenity horticulture/landscape/weed plants found in most cities and gardens in Australia (tree of heaven (*Ailanthus altissima*) princess tree (*Paulownia tomentosa*), *Amaranthus spp.*). Hence the pest is considered a quarantine pest for Australia.

2014/15 SEASON

What happened?

From mid December 2014, vessels began arriving in New Zealand and Australia from the United States loading port of Savannah transporting new trucks infested with large populations of live, viable overwintering BSMB. This was a very different situation to the routine interceptions of the last decade with small numbers of BMSB contaminating diverse goods from a range of overseas countries.

BMSB were emerging from diapause/overwintering while still onboard and once disturbed they contaminated nearby cargo and the vessel. The main operational issues were that:

- the infestations were in new vehicles arriving as break bulk stacked into open vessel holds
- it was unclear how many of the break bulk goods were actually infested and/or were contaminated from primary infested cargo.

The department implemented emergency measures on **31 December 2014** which required all break bulk cargo loaded in the United States port of Savannah (one of the major break bulk loading ports on the East Coast) to be subject full inspection on arrival at an Australian port and treatment where required. The vessel inspection procedure included an initial assessment, followed by thermal fogging of the vessel to rouse any over-wintering BMSB, followed by fumigation (or other accepted treatment) of affected cargo and final inspection. This was to ensure that BMSB had been managed before any discharge of the cargo on the vessel to the wharf was allowed. From **15 January 2015**, the measures were extended to cargo from the US port of Baltimore.

On **22 January**, the department announced new emergency import requirements requiring mandatory offshore pre-shipment treatment of break bulk **and** containerised machinery and vehicle cargo sourced and/or shipped from all US East Coast ports and arriving in Australia on or after **23 February**. The announcement included interim arrangements for vessels in transit. The measures were in line with similar conditions imposed by the New Zealand Ministry for Primary Industries (MPI) and were necessary because of major treatment difficulties and logistic issues in the management of the risk onshore in both countries.

On **4 February**, the department provided advance notice to industry that the pre-shipment treatment requirements would apply to BMSB cargo arriving in Australia from all US ports on or after **9 March 2015**. This pest is widespread across most mid Atlantic states in the United States, and there was the possibility that exporters could switch load ports to avoid the emergency measures. Pre-shipment treatment timeframes were also expanded.

On **20 February**, following the cessation of *live* bug interceptions and further information on the pest, the department revised the measures to only apply to targeted break bulk and new, unused FCL containerised goods within revised tariffs. The intention was to focus on a smaller target list of commodities more likely to be infested such as vehicles with enclosed cabins, agricultural machinery and various vehicle parts.

The emergency measures ceased the end of April 2015.

What was detected?

During the season, the department identified 249 new trucks infested with concealed, viable BMSB, and these infestations then heavily contaminated nine vessels and their cargoes. No further viable BMSB were intercepted after January 2015.

Impact on industry

The financial impost on industry for the widely applied initial emergency measures was significant.

Eastern North America was suffering through one of the coldest and longest winters on record which led to difficulties for industry in finding treatment providers able to undertake the necessary treatments in the temperature ranges required. Hence the limited time frames initially imposed for offshore treatments for both break bulk and containerised goods were often unworkable in practice.

As there is no offshore accreditation system such as the Australian Fumigation Accreditation Scheme (AFAS) or even a simple registration process in place for treatment providers in the US, the treated goods required some verification inspections on arrival in Australia. Initially this further impeded the throughput of goods and increased demurrage charges. Some non-targeted goods were inadvertently caught up in the process.

Finally, West Coast ports were impacted by protracted industrial action which further affected the time frames for pre shipment treatments, as goods could not then meet their shipping schedules as cargo banked up on the wharves.

What worked well?

Industry cooperation

The BMSB emergency response was a good example of the department and industry (shipping lines, importers, brokers, stevedores, ports) working together to manage a significant biosecurity threat. While small numbers of dead BSMB continue to be intercepted on a range of goods since the measures ceased, these are being managed through existing measures at the border.

Communication

The establishment of a dedicated 1800 number for enquiries about BMSB, publication of industry notices and frequently asked questions (FAQs) on the department's website provided a single source of truth on:

- why and how the department was intervening
- changes to the measures as the situation evolved or new information on the pest's biology became available, and the department became more confident that the risk was being managed effectively.

Departmental officers across policy, operational and document assessment streams also made themselves available outside of business hours to assist industry work through issues as they arose. As a result, there were few complaints over the department's handling of this emergency.

Other activities been undertaken

While outside the scope of this review, it is noted that the department has commenced work on a risk based assessment of the potential for goods to be infested for BMSB, and preparation of onshore response and management plans in collaboration with affected industries in the event that this pest should establish here and spread.

What could be improved?

Ability to identify potentially infested goods

Not all BMSB goods are normally profiled in the Customs' managed Integrated Cargo System (ICS) for referral to the department (eg. new vehicles). As a result, the potential existed for vessels to be unloaded and infested cargo removed from the wharf before the department was able to intervene.

The ability to identify and hold high risk cargo for inspection was made more difficult by:

- lack of a direct causal link between the pest and the goods infested (BMSB have been found in goods ranging from toys to combine harvesters).
- BMSB can arrive by a variety of pathways and loading ports, although interception data supports sea cargo coming out of North America as the pathway of concern.

The department normally uses profiling and Full Import Declarations (FIDs) to identify cargo imports before they arrive. However, FIDs are often not lodged in the ICS until after the goods have been discharged from the vessel and moved off wharf.

To counter this, BMSB goods were identified through Sea Cargo Report profiles as these reports are usually lodged in the ICS at least 24 hours prior to arrival. However, this meant profiling and placing GAS holds on all break bulk cargo arriving from the United States, which was labour intensive and did not resolve the potential for leakage. When the pathway was managed with the implementation of pre-shipment treatment requirements, the department deactivated the S-Cargo profiles.

Determining the presence of potentially BMSB infested good on the vessel

Upon arrival, vessels underwent initial assessment using thermal fogging or PyFog as an inspection tool. This was undertaken at the first port of call and at subsequent ports if bugs (alive or dead) were found. The efficacy of early fumigation treatments were also tested in the process.

The process for ensuring a vessel was not carrying untreated BMSB break bulk cargo had to be undertaken manually and linked to vessel manifests, due to limitations of existing systems to differentiate BMSB treatment certificates from standard documents for assessment. While this process gave the department confidence that that potentially infested and exposed cargo would not be discharged from the wharf before the department was able to intervene, it was a very time-consuming task. Also, despite clear advice in industry notices and FAQs, industry did not submit treatment certificates to Container NCC before arrival, which further complicated the task. System work eventually enabled a streamlined

document assessment process, as per regular practice. This lessened the resourcing impact on the department and reduced industry confusion on where to send documents.

Overlap with other interventions

Most goods known to be a higher biosecurity risk are subject to interventions at the border to manage a very wide range of hazards. The additional interventions caused confusion for industry and the potential for overlap or duplication of effort. For example, there were instances where new vehicles were inspected for BMSB and subsequently checked for seed contamination.

Alignment with New Zealand

The lack of alignment with New Zealand on treatment regimes and season timeframes generated issues for industry in trying to meet differing requirements (in some cases only marginally different) and added to stakeholder confusion. While attempts were made to align measures, this was not always possible in the timeframe required due to differences in volumes of potential high risk goods received by each country and logistical issues. Clearer and better aligned requirements would improve management of the risk and issues at the ports, as well as lessen the administration and cost for all parties.

Contingency planning improvements

While previous contingency planning had focused on vessel infestations of hitchhiking insects, this did not extend to situations where the pest is concealed in types of cargo with the potential to contaminate other cargo on the vessel.

Communications

During the emergency, the department used more traditional mechanisms for communicating with industry (emails, industry notices, website updates, RRS feeds, magazine articles, telephone, face-to-face). However achieving a consistent message across all affected parties proved a constant challenge, particularly given the need to adapt the measures to respond to difficulties in applying treatments pre-shipment due to weather, and logistical, industrial and infrastructure issues in the US.

A compounding factor was that the industry communications were often developed by the same staff fielding constant enquiries on BMSB and a wide range of operational issues in addition to those for BMSB. Industry assisted the flow of information with some of the best communications on both the measures, and supporting rationale, being developed and distributed directly by affected industry bodies, shipping lines and broker associations. New Zealand also produced flyers for pests on ships and posters which could be adopted or adapted.

Further, the layout and design of the department's website made it difficult for industry to locate updates on the measures. For example, while a link to the latest industry notice was posted each time on the department's homepage under 'Latest News', the reader needed to scroll down the page to find the link. Otherwise, the reader had to drill several layers down to find the notices which are listed by year and number, not according to the subject

matter. The department produced a similar electronic flyer but this was difficult to locate on the site and was not linked to other material on BMSB.

Recommendations

The following recommendations for the next BMSB season are based on the above analysis and initial feedback from staff and industry.

1. Development of a seasonal management strategy for BMSB

This should include:

- development of suitable alternative strategies to mandatory treatment such as offshore safeguarding/pest management systems with some verification activity to occur on arrival.
- appropriate enforcement action for noncompliance.
- increased bait and trap monitoring on vessels to provide early warning of unexpected infestations.

2. Increased coordination with New Zealand

Better alignment between the countries where possible on major issues such as:

- the length and start and finish dates for the season risk period.
- treatment regimes.
- early warning systems such as bug traps on vessels and arrival ports.

3. Improved communication / dialogue with stakeholders

This should include:

- early engagement with stakeholders on measures for the next risk season and longer term management.
- production of material such as flyers and fact sheets.
- use of a wider range of mechanisms and delivery platforms (including social media, external agencies).
- improved accessibility of material on website.
- department attendance and presentations at industry forums as required.