

Biosecurity - Insect Infestation on Ships



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The risk of introducing harmful pests and diseases is an inherent hazard in the global movement of goods.

Insects are one of the major concerns for ships as they can cause significant damage to the cargo being transported, and a ship can face severe penalties and delays from the authorities for breaches of biosecurity protocols. In addition, introducing pests into new environments can have severe ecological and economic consequences. Therefore, implementing biosecurity protocols for ships to prevent insect infestation is essential to ensure the safe and efficient movement of goods across borders.

Unfortunately, the Club has experienced numerous incidents where entered ships' have failed to comply with biosecurity protocols resulting in the local authorities finding invasive insect species onboard, such as the Brown Marmorated Stink Bug (*Halyomorpha halys*), Asian Long-Horned Beetle (*Anoplophora glabripennis*), Khapra Beetle (*Trogoderma granarium*), Spotted lanternfly (*Lycorma delicatula*), etc.

Consequently, due to the importance for ships to avoid an insect infestation event, we will briefly discuss the measures and challenges in mitigating a breach of biosecurity protocols onboard and the actions to take when there has been a breach.



Identifying the Risks:

The first step in preventing an insect infestation on a ship is to identify the potential risks, which involves assessing the cargo that will be transported, the origin of the cargo, and the shipping route. Cargo that is being transported from areas known to have high levels of insect infestation should be subject to additional scrutiny. For example, cargo from tropical regions or countries with a history of insect infestation should be subject to strict biosecurity protocols.

Similarly, packaging materials that are known to be at high risk of carrying pests should also be subject to additional scrutiny with all wood packaging material meeting the mandatory criteria of the [International Standards for Phytosanitary Measures No. 15 \(ISPM15\)](#). Examples of high-risk packaging materials include wooden pallets, crates, dunnages etc.

In addition to assessing the cargo and packaging materials, the crew should also be educated on the risks and how to identify potential signs of an insect infestation. Crew members play a critical role in preventing the introduction and spread of pests onboard a ship. Therefore, they must be aware of the risks and understand their responsibilities in preventing the introduction and spread of pests.

Preventing the Introduction and Spread of Pests:

Once the potential risks are identified, the appropriate measures should be implemented to prevent the introduction and spread of pests. The most effective way to avoid introducing pests on board is through the fumigation of the cargo. Fumigation involves the use of chemicals to kill pests and their eggs. Only trained professionals must carry out the fumigation and the chemicals used must be approved by the relevant authorities. In addition, the cargo holds, and other areas of the ship should be inspected regularly for signs of insect activity through the use of traps and visual inspections.

Another critical aspect of preventing an insect infestation on a ship is to ensure that the proper cleaning and sanitation measures are in place, which involves regular cleaning and disinfection of all areas of the ship, including cargo holds, living quarters, stores and food preparation areas. In addition, all waste should be disposed of properly, and any areas where pests are detected should be thoroughly cleaned and disinfected. The crew must be trained on proper cleaning and disinfection techniques, and the cleaning equipment must be readily available onboard.

Effective communication is also essential for a ship's biosecurity protocol to prevent insect infestation. It involves ensuring the crew know the risks and understand their responsibilities in preventing the introduction and spread of pests. Furthermore, communication with port authorities and other stakeholders is critical to verify that the proper protocols are in place and any potential risks are identified and addressed. All crew members should be encouraged to report any signs of insect activity, and there should be clear procedures for dealing with potential infestations.

Challenges Associated with Implementing Biosecurity Protocols:

Implementing biosecurity protocols to prevent insect infestation on a ship comes with many challenges. One of the challenges is identifying all potential insect threats that could be present on the ship, as different insects may be attracted to different types of cargo, and ships may carry a wide variety of goods, making it challenging to identify all potential threats. Therefore, implementing effective insect prevention measures requires thorough knowledge of the types of insects that can infest different types of cargo.

Another challenge associated with implementing biosecurity protocols for ships to prevent the spread of pests is the absence of standardised guidelines and regulations and local pest control resources. Guidelines and regulations can vary widely between different countries, creating confusion, and the non-standardisation makes it more difficult to implement onboard biosecurity protocols effectively. In addition, many countries may not have the local resources necessary to enforce biosecurity protocols effectively. The local authorities may sometimes lack the training or equipment required to properly inspect and implement biosecurity measures, which is particularly challenging in developing countries with limited infrastructure and resources.

The last challenge is maintaining effective prevention measures over the long term. Insects can be hardy and may survive despite biosecurity measures put in place. Also, ships travel to many different locations, and each location may have various insect threats, making it challenging to maintain consistent prevention measures. Therefore, regular monitoring, training, and updating of prevention measures are crucial to preventing insect infestations over the long term.

Action to take for a breach of biosecurity for insect infestation:

If there has been a breach of biosecurity measures on ships with an insect infestation, it is essential to take immediate action to prevent the spread of the insects to other locations. The following steps should be taken:

- Isolate the infested area to prevent the insects from spreading to other areas of the ship or to other ships in the port. The infested area should be sealed off and inspected to determine the extent of the infestation.
- Conduct a thorough inspection of the ship to identify the source of the infestation and any other areas that may be at risk. This may involve using specialised equipment, such as pheromone traps or infrared cameras, to detect the presence of insects.
- Conduct follow-up inspections after the control measures have been implemented to ensure that the insects have been eliminated and that there are no further breaches in biosecurity measures.
- Notify the relevant port authorities and regulatory bodies about the breach in biosecurity and the presence of the insect infestation. They will provide guidance on the appropriate actions to take and may require the ship to undergo further inspections and treatments.
- Implement appropriate control measures once the extent of the infestation has been determined, appropriate control measures should be implemented to eliminate the insects. This may involve fumigation, insecticide treatments, or other methods depending on the type of insect and the severity of the infestation.
- Document the incident by recording all the observations through written, photographic and specimen sampling evidence, including the actions taken and the results of the inspections and treatments. This documentation will be required for regulatory compliance and may be necessary to demonstrate due diligence in preventing the spread of invasive insects.

Conclusion:

Implementing effective biosecurity protocols is essential to prevent insect infestations on ships. However, this process can be challenging due to various factors, such as cost, lack of standardisation, the ability to maintain consistent prevention measures onboard, and limited resources and access to information. Therefore, effective communication, training, correct documentation, and evidence collection are critical components of successful biosecurity protocols and in handling any breaches.