



Agriculture and Land

2020 PEI SMALL HIVE BEETLE RESPONSE PLAN

The Canadian Food Inspection Agency designates small hive beetle (*Aethina tumida*) as an immediately notifiable disease (i.e. a disease exotic to Canada for which there are no national control or eradication programs) under the federal *Health of Animals Act*. Fruit crop growers in Prince Edward Island temporarily import hives of honey bees from out-of-province (i.e. Ontario) for the purposes of pollination. Particular areas of Ontario are known to have an established presence of small hive beetle (SHB), an insect pest that has the potential to cause damage to hives of western honey bees (*Apis mellifera*). The exotic pest is therefore named a Class A Disease in Schedule 1 of the PEI Bee Health Regulations of the *Animal Health Act*, to which prevention measures apply.

The purpose of this plan is to outline initial responses of the PEI Department of Agriculture and Land (DAL) in the event of SHB detection on PEI and the orders that may be issued to producers or renters as a result.

To summarize the response to a SHB would include the following steps which will overlap:

- Investigation (including sample collection)
- Detainment (hive sealed) or removal (hive sealed)
- Lab confirmation
- Depopulation and destruction
- Enhanced biosecurity
- Enhanced surveillance

*Please note that some steps may not be applicable in all scenarios

Stage I: Suspicion of SHB Introduction

Actions taken by beekeeper

- Contact the Provincial Veterinarian or Provincial Apiarist immediately and provide a complete description of the finding including time of finding
- Contact PEI Beekeeper's Association (PEIBA) office
- Enhance biosecurity measures, which includes voluntary self-quarantine
 - o Ensure that a visitor log is in place
 - o Service unaffected colonies first or dedicate a specific employee to the affected area(s)
 - o Inform ALL employees or individuals potentially visiting an infested site of the situation
 - o Request confidentiality until diagnosis is confirmed
 - o Suspend all unnecessary traffic

- If required to leave the contaminated area, change clothing and footwear; use exit protocol as per your situation
- Restrict the movement of equipment and personnel from area to area, and between colonies
- Do not move bees (i.e. voluntary quarantine)

Actions Taken by Provincial Apiarist, Apiary Veterinarian, or Provincial Veterinarian

- Visit the area and inspect the colony as soon as possible
- Gather pertinent information by interviewing the colony owner including:
 - Other colonies in area
 - Recent visitations
 - Movement of bees, products, equipment and personnel onto and off the area in the past 10 days
- Collect samples to confirm life stages
- Mark/identify suspect hive and other hives from same pallet
- Seal the suspect hive to prevent potential SHB life stages from further spread
- Send a portion of samples to lab for diagnosis and inform lab that samples are coming
- Provide the owner or renter of the potentially infested hive(s) the following options:
 - Remove all hives on the same pallet from which the suspected SHB was detected out of the province prior to lab confirmation (this would typically occur within 48 hours)
 - Issue the owner or renter of the potentially infested hive(s) an order as per section 3.2(iv) of the *Animal Health Act* to move the hives out of the province

OR

- Retain in place all hives on the same pallet from which the suspected SHB was detected in the event of a SHB positive diagnosis
 - Issue the owner or renter of the potentially infested hive(s) an order as per section 3.2(ii) of the *Animal Health Act* to keep the potentially infested hives in place
 - Note: if lab confirms presence of SHB, infested hive and all hives from the same pallet will be ordered destroyed
- Advise the producer to enhance biosecurity

Stage II: Positive Diagnosis of SHB

Actions taken by Provincial Apiarist, Provincial Inspector, or Provincial Veterinarian

- Notify the producer of the positive SHB test results
- Notify the PEIBA of the result in terms of geographical location of finding
- Notify other Provincial Apiarists

Actions taken by the Provincial Veterinarian

- Issue the owner or renter of the infested hive(s) an order as per section 3.2(iii) of the *Animal Health Act* to destroy and dispose of infested hives

- Issue a written order that declares a particular area surrounding the affected hive(s) restricted, as per section 3.3 of the *Animal Health Act*. In this event, no person shall transport any honey bee hive in or out of the restricted area unless the hive has been inspected by the Provincial Apiarist or Provincial Inspector and is deemed to be SHB free
- Notify the PEIBA the geographical boundaries of the restricted zone so that they can communicate this with their membership
- Note: The restricted zone and enhanced surveillance activities will be determined based on the investigation. Removal of the restricted zone status will be determined by the results of surveillance within the restricted zone over a course of time.

Stage III: Eradication

Actions taken by the Provincial Apiarist

Monitor, advise and assist as needed in the depopulation and destruction of the impacted hives.

Actions taken by the beekeeper

- Follow the depopulation and destruction protocol listed below

1. Depopulation

- a) Kill the bees by pouring 300-500 millilitres of diesel fuel for one-two story hive; or one litre of diesel fuel for three-four story hives. Diesel fuel is used to kill the bees in a heavily infested hive. Diesel is not used to facilitate the burn; the wax in the hive facilitates this event. Do not use more than the recommended volume of fuel.
- b) Open the hive lid when bees are not flying and sprinkle the diesel fuel over the entire cluster of bees in the colony. It may be necessary to split the supers and add diesel to the lower boxes as well.
- c) Close the hive and wait ten (10) minutes.
- d) Check to see if all the adult bees are immobilized. If additional treatment is necessary, repeat with sufficient diesel fuel to wet the remaining adult bees.

2. Destruction

- a) Inform and obtain a fire permit from the Department of Justice and Public Safety.
- b) Block the hive entrance and any cracks in the hive boxes using dirt, crumpled newspaper, or burlap.
- c) Burn the equipment only when the bees are not flying, in the evenings or in poor weather days.
- d) Use a fire pit of at least one (1) m in diameter and 30 cm deep so that the burn process takes place above ground. The burn should be far enough away from healthy hives and fences or buildings to avoid accidents, since hives may burn very vigorously and flames can reach two-three times the height of the stack. Windy conditions should also be avoided and especially

swirling winds around sheltered apiaries. It is also very important to clear the surrounding area of any combustible material, since the fire, once under way, may become very intense.

- e) The affected hive should then be carried to a position nearby the fire pit, about 3 (three) metres (nine feet), but far enough away so that the hive does not ignite once the fire gets under way. Care should be taken to avoid dropping dead bees or honey on the ground.
- f) It is also very important to take safety precautions should the fire begin to get out of hand. A fire extinguisher is recommended, and a shovel and water should always be within easy reach.
- g) The frames, especially the brood frames, need to be destroyed. Burning plastic frames is only allowed in the event of a SHB encounter.
- h) To start the fire, it is best to use rolled up newspaper and a few dried twigs to create a small blaze. Once this is under way, two frames should be chosen that are relatively free of honey. These are propped up against each other in an A-shaped frame over the blaze. The fire will begin to melt and then ignite the beeswax in the frames, and the flames and heat will intensify. The fire can then be fed several frames at a time, taking care to ensure that the fire does not become too intense.
- i) It is important not to put whole boxes of frames onto the fire. If the frames are still soaked with diesel fuel, an explosion can occur, with the potential to cause both injury and accidental fires. **Diesel fuel should never be used to accelerate the fire.**
- j) Burn all wax foundation combs (including combs with honey) in the colonies identified with disease.
- k) Frames with honey should not be put onto the fire all at once, and should be put around the edge of the fire rather than on top of it. Full frames of honey can sometimes douse the flames. As well, the honey may not completely burn unless there is sufficient other material to fuel the fire.
- l) Burn all bottom boards.
- m) Lids and bottom boards can be angled into the pile on the edge of the hole. A wind tunnel should be left to assist burning.

It is very important to supervise the fire as long as it continues to burn. This may take two-three hours for a one-two box hive and four-five hours for a three-four box hive. When the fire has burned down to embers, the remains should be placed in heavy duty garbage bags and disposed as ashes accordingly.

All other parts that do not have diesel fuel on them (boxes, inner covers, hive lids and queen excluders) must be well flamed with an open flame (propane torch) before allowing exposure to honey bees again.

Treatment of ground beneath and around a hive with small hive beetle after destruction

The use of commercial PCP is permitted to individuals in possession of valid pesticide applicator license. Read and follow the label at all times.

Perm-up (permethrin) is a pest control product registered to suppress small hive beetle. Follow the label instructions when applying this product.

Stage IV: Enhanced Biosecurity and Management

In the event of SHB introduction to PEI, the Provincial Apiarist will recommend that beekeepers on PEI enhance their biosecurity measures and remind them of the following Best Management Practices:

- Monitor colonies regularly
 - Scan underneath inner cover, under pollen patties, on frames, on bottom boards, and in SHB traps
- Maintain strong and healthy colonies
 - Requeen when necessary
 - Cull weak colonies
 - Monitor and treat when necessary for other pests and diseases
 - Ensure nucleus colonies are above three frames of strength
- Maintain a clean operation
 - Minimize excess unprotected comb on hives – do not over super hives
 - Remove exposed dead bees, wax debris and unused equipment from yard
- Promptly extract honey supers and do not bring more supers to the extraction facility that can be extracted in a few days
 - Keep extraction facilities clean
 - Remove unprotected comb, wax cappings and slumgum, or store them in beetle-tight containers
 - Store honey comb, extracted frames, and unused honey supers in a freezer or cold room (< 10°C) and/ or a room with low humidity (< 50% RH)