

# Fumigants & Pheromones

Digital Newsletter Delivered by Insects Limited, Inc.

Issue 171

## The Red-Legged Ham Beetle, No friend of hams, and even worse friend of pet food



James Feston, BCE  
Director of Product Research and  
Development, Insects Limited

When a deer falls dead in the forest does it make a sound? Yes, and it is that of insects, who are quick to the scene.

Decomposition in vertebrates is a complex process involving several (pretty gross) stages. A dead deer starts off as fresh for a while, depending on temperature, but as bacteria in the gut start to turn on their former host, the body starts to bloat and break down from the inside. It's not long after this that the insects really get to work breaking down tissue, and consuming fluids, all while being pretty gross about the whole thing.



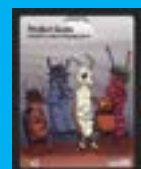
Deer and other animal carcasses, are the RLHB's natural food sources. Note: No deer were harmed (recently) for this photo

It's wet and smelly work but someone has to do it. Over time, as the process advances, the wetness begins to dry, the maggots turn into flies who leave for more rotten pastures, and the "good bits," so to speak, are all gone. What's left is a mostly dry, partially skeletonized, carcass with some jerky-like bits left over. This is the point where the [Red-legged ham beetle](#) (*Necrobia rufipes*) makes its entrance.

Red-legged ham beetle (RLHB for short) is about a quarter of an inch long, and has iridescent green wings, and dark orange legs. Apparently, orange-legged ham beetle didn't have the same ring...

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The adults of these insects are quick on their feet as well as very capable fliers. Effective flight is a necessity when scouting out ephemeral food sources like dead animals. What's more, these insects are also good competitors of other insect larvae. Adult RLHB will happily eat the larvae of other species that compete for the same resources such as Dermestid beetles or left-over fly larvae still trying to feed on any wet bits that remain. While the name "[red-legged ham beetle](#)" suggests that they are primarily a pest of hams, they are in fact, currently emerging as far more problematic in the pet food industry. Their natural habitat and food source equips them with the right tools to be a real headache in pet food manufacturing, distribution, and retail settings. Most pet food items are meat-based. Some are even exact analogs for their natural food source. Think about the aisle at the pet food store containing open boxes of meaty bones for dogs and meat-based dried food. These "treats" and food products replicate the exact stage of decay that these beetles thrive on. What more could they want? In fact, pet food retail stores do one better for these beetles. In the wild, these beetles will pupate in fur, cracks, and crevices in or around an animal carcass. Pet food retail stores have an abundance of cracks and crevices as well as fuzzy, "fur-simulating" objects like tennis balls and other dog and cat toys.



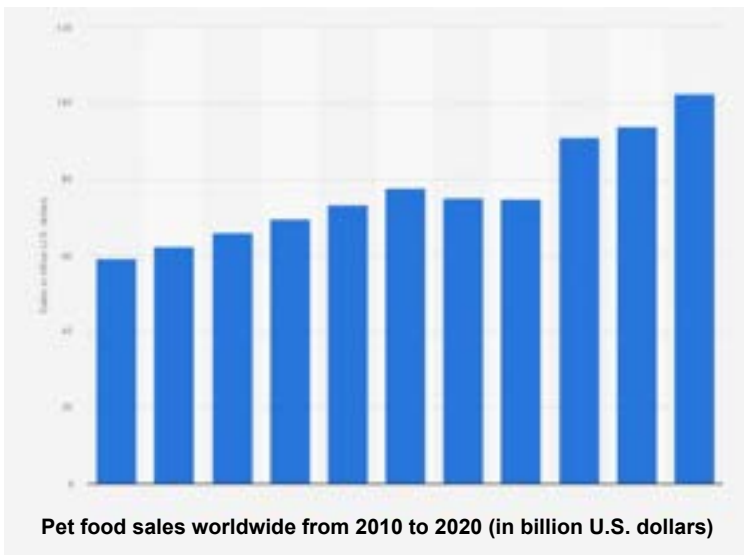
Fuzzy tennis balls are one of the RLHB favorite spots to pupate in a pet store. Fun Fact: Like Butterflies, RLHB are one of the only beetles to pupate inside a silk cocoon they make themselves!

Their excellent flight capabilities help them find and colonize pet food items.

Their competitively predatory nature helps them kill their competition, and their ability to hide and pupate in unexpected places can help them avoid treatment.

It is no wonder at this point why they are becoming a real hassle. The pet food industry continues to grow.

From 2010-2020 pet food sales rose 43.3 billion dollars from 59.3 billion in 2010 to 102.6 in 2020.



Some expectations are that global pet food sales could reach over 160 billion dollars by 2029.

This increase in sales and pet food manufacturing demand will mean more food for RLHB and more opportunities to spread through ever-widening supply chains. We should expect in the coming years that even more attention to be given to this damaging pest in the form of additional research, monitoring, and treatment options.

That being said, it's about time for me to get back to the lab and do just that!

### Pheromone Traps for Red-Legged Ham Beetle

Red-Legged Ham Beetle Kits feature Insect Limited's signature pheromone lures that use a pheromone mixed into a food attractant to draw in Red-Legged Ham Beetle, *Necrobia rufipes* over a 3-month period.





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## Implementing a Pheromone Monitoring Program



Ethan Estabrook, BCE  
Research Entomologist and Product Support, Insects Limited

Grain storage, food processing, warehousing, retail facilities, and residential houses are far too diverse to expect a single set of pheromone monitoring recommendations to be adequate.

Here are 4 fundamental questions to ask when developing a pheromone monitoring program:

1. What type of pheromone monitor should I use?
2. How many pheromone monitors are necessary?
3. Where should pheromone monitors be placed?
4. How often should pheromone monitors be serviced?

### What type of pheromone monitor should I use?

It is important to [Start with the Insect First!](#)

Identifying the insect and understanding their biology is the first step to an effective integrated pest management and pheromone monitoring program. Insect species have specific pheromones so using the correct pheromone lure for your target species is especially important.

For example, [cigarette beetles](#) and [drugstore beetles](#) look very similar but require different pheromone lures to monitor. Knowing the species also helps determine what style of trap to use.

[Hanging pheromone traps](#) work well with strong flying insects like the [Indian meal moth](#) or [Mediterranean flour moth](#).

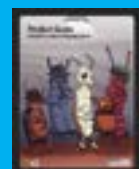
[Pitfall traps](#) placed on the ground, work well with crawling insects like many of the beetle species but are more vulnerable to getting lost or damaged.

As for the best [pheromone traps](#) - test them for yourselves and see which works best for you.



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### How many pheromone monitors are necessary?

Typically, there is a positive correlation between food product value and the number of pheromone monitors deployed. A 10,000-square-foot seed warehouse will probably have fewer pheromone monitors than a 10,000-square-foot warehouse storing baby formula. Many quality control managers and pest control operators place pheromone monitors 50 – 150 feet apart in food processing facilities. The facility size, number of floors, complexity of the trapping environment, and temperatures are all conditions that can influence how many pheromone monitors are necessary. The number of pheromone monitors at a facility ultimately depends on the overall objective of the pheromone monitoring program.

### Where should pheromone monitors be placed?

Place one or two pheromone monitors per area in areas such as a pantry or home. In commercial areas, such as warehouses or retail stores, place hanging pheromone monitors every 50 – 150 feet apart for strong-flying insects and floor pheromone monitors every 25 – 50 feet apart for crawling insects. Pheromone monitor density can be increased or decreased based on insect activity and how closely you want to monitor for insects. Hang pheromone monitors at eye level, where they will not be damaged, that allows easy access to inspect for insect captures. Ventilation, open doors, machinery producing heat, and air currents will affect the shape and size of pheromone plumes being emitted from the pheromone monitor. Keep pheromone monitors 15 -25 feet away from exterior doors to help prevent the attraction of outdoor insects into the facility.

### How often should pheromone monitors be serviced?

Generally, pheromone monitors should be serviced on a 7 or 14-day schedule. Many stored product insects complete their life cycle within a month, so a monthly service visit only collects one data set per generation. Many things can change within a facility over long service intervals such as turnover of food products, changes in weather, and sanitation conditions. Service all traps and lures on the same day to help enable direct comparisons of capture among pheromone monitors. How often lures should be changed depends on the type of pheromone lure and the manufactures guidelines. Most pheromone lures should be changed out every 2 – 3 months.



Implementing pheromone monitors into an IPM program can identify valuable information about insect activity, such as the detection of insects, insect species, population trends, and locations of infestations. [Pheromone monitors](#) are meant to be used as a monitoring tool as part of an integrated approach to pest management. By themselves, pheromone monitors do not eliminate an insect outbreak. With the information from pheromone monitoring, inspection, increased sanitation, and removal of infested material, control of stored product insects can be achieved. If you have any stored product insect or pheromone monitor questions, contact me at [E.Estabrook@InsectsLimited.com](mailto:E.Estabrook@InsectsLimited.com).

