



PestAware Advice Sheet

Sick of Stored Product Insects (SPIs)?

British Pest Control Association 'Sick of Stored Product Insects?' pest awareness advice


BPCA is the trade association for the professional pest management sector. It's our role to help everyone understand the importance of proper pest control, provide pest

prevention advice, and help you find an appropriately trained and trusted pest management company. Our PestAware guides are designed for home and business owners

and are packed with practical advice and tips for getting to grips with British pest species.

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Sick of Stored Product Insects (SPIs)? Pest advice for controlling SPIs

Have you brought something home from the shop riddled with insects? Opened an old bag of flour to find it's tainted? Are you a manufacturer of food products and you want to keep them safe from infestation?

Stored product insects (SPIs) are one of the top pest concerns in food production and storage across the globe.

Whether you're thinking about doing some DIY flea pest control or you're looking to enlist the help of a professional pest management company, this guide is for you.



Broad-nosed weevil. Weevils are a type of beetle and are a common SPI in the UK.

Stored product insects are exactly what they sound like: insects that live and breed in stored products, like whole grains or processed foods, and even tobacco.

There are many types of SPI in the UK, with the two most common being beetles and moths.

Another type of SPI we come across in the UK are weevils, which

“The main reason we control SPIs is the incredible damage and contamination they cause to foodstuffs, raw materials and finished products.”

In this guide

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- How to prevent SPIs
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are a type of beetle that we'll also be covering in this A to Z.

The dangers: why we control SPIs

The main reason we control SPIs is the incredible damage and contamination they cause to foodstuffs, raw materials and finished products.

SPIs not only eat these products, they breed in them and can spread quickly, contaminating a huge amount of product which is then unfit for human consumption.

Contamination of foodstuffs is such

a huge concern that there is an entire branch of forensic entomology dedicated to studying it.

Unlike with most other pests, there is no significant health risk to humans from SPIs.

The biggest concern is contamination of food by the insect, its cast skins or pupal casing. That's an extra crunch in your cereal you don't want!

Psychological distress is also a factor that needs to be considered, as some people will find it hugely upsetting to find insects in their foodstuffs.



Home stored product entomology, the study of insects which infest food products stored at home, deals with the prevention, detection and eradication of SPIs.

Risk to businesses

The financial loss associated with SPIs is enormous. It's believed they are the world's 'most expensive pest', costing billions each year in additional operating costs and loss of product.

Businesses that handle any kind

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of cereal, grain or dried food products are at risk of infestation from stored product insects.

That includes supermarkets, restaurants, food processing facilities and food storage warehouses.

They can cause the recall of products and the expense involved in issuing a recall, plus

The range of stored product insects worldwide is pretty vast. In the UK, we have two common types of SPI:

- Beetle
- Moth.

Some SPIs, like the Khapra beetle, are considered invasive species worldwide.

- Larder beetle
- Mill moth.

Habitat: how SPIs choose a home

Stored product insects can enter the food chain at any point and they don't do this just to eat the products: they make their home in them too.



discarding infested or damaged products, is very high.

Environmental Health Officers can also issue enforcement notices to business owners who don't have adequate pest management procedures in place.

If not complied with, these can lead to fines or even a stint in jail and a criminal record.

DID YOU KNOW?

A fear of insects is known as 'entomophobia'.

And let's not forget: poor reviews of businesses or products are easily viewed and shared online, making reputation management a key consideration.

Types of SPI in the UK

Although it is not currently found in the UK, products that have a chance of containing Khapra beetles are subject to quarantine in places like the US.

Confusingly, weevils are actually a type of beetle and some stored product beetles can often be misidentified as weevils.

There are currently around 97,000 known species of weevil around the world.

Just a few stored product insects that are common in the UK include:

- Rice weevil
- Biscuit beetle
- Indian meal moth
- Grain weevil
- Confused flour beetle
- Saw toothed grain beetle



This is their harbourage, where they will breed and complete their full life cycle.

You may have noticed, many SPIs are named based on the type of product they usually infest; biscuit beetles, rice weevils, red rust flour beetles, booklice and so on.

The tell-tale signs that SPIs are about

The first sign of a stored product insect infestation is almost always the adult insect; moths flying around or small beetles in the cupboards.

Some people may unwittingly think that getting rid of these will solve the problem, however the other life cycle stages may still be alive and well in your pantry.

REMEMBER!
SPIs WILL INFEST
CLEAN HOMES
TOO

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These other stages (Egg, Larval and Pupal) aren't always that easy to spot.

Other signs are:

1. Damage to packaging and products is a red flag, for example, weevils leave visible exit holes in grains and moth larvae have chewing mouthparts, which they will use to cause damage to food and packaging
2. Moth larvae will also leave webbing, which they will spin as they feed and move through products
3. The webbing not only contaminates products but can also cause considerable damage to machinery and equipment
4. SPIs will cause food to 'taint', which is visible as discolouration
5. Grain that is infected tends to become warmer which can lead to damp, mould and even grain germination
6. Track marks in dust or flour from adult insects is also a giveaway
7. Frass is the excrement of insect larvae and is another common sign of an infestation.

DID YOU KNOW?

The larvae of the Indian meal moth have the ability to bite through plastic and cardboard.

SPI biology and behaviour

Appearance

There are so many different types of stored product insects, and so appearance varies.

Most common species of stored product beetle average around 3mm in length, with some

presenting as a reddish-brown colour and others brown-black.

The larder beetle is very distinctive - black with a white band across the middle.

The most common stored product moths in the UK are around 7-9mm in length and have a wingspan of between 15-20mm.

The exception is the Warehouse Moth, which has a slightly smaller wingspan.

Those weevils common to stored products can reach around 2-3mm in length.

They have indentations on their thorax which gives them a 'dotted' appearance.

Mating and lifespan

As there are so many different species of SPI, it's difficult to talk through the life cycle in specific terms.

However the following image shows an overview of the average life cycle of the most common forms of SPI.

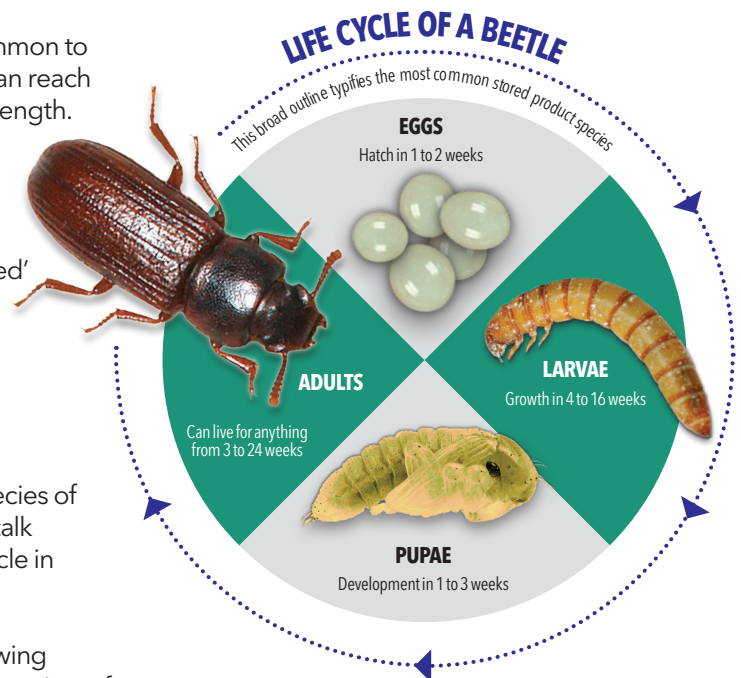
All common stored product insects go through a complete metamorphosis:

1. Adult
2. Egg
3. Larvae
4. Pupae.

What do SPIs eat?

Stored product insects will infest an incredibly wide variety of stored products; grains, flour, rice, oats, cereals, dried fruits, pasta, biscuits, nuts, dried herbs, spices, dry dog food, fish food, tobacco, and bird seed.

They also bore into whole grains and kernels, leaving distinctive holes in which they lay eggs.



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It is believed that 90% of all life forms on Earth could be insects.



The difference between SPIs and other pest species

Stored product insects are just a small array of the vast insect class, which is estimated to contain between six and ten million species.

Stored product beetles and weevils can usually be distinguished from other types of beetle by size, as well as habitat, as they are commonly much smaller.

Stored product moths are often identified incorrectly as other types of moth.

This causes control issues, as someone may kill or catch and release an adult moth without realising there is a larger infestation present.

How to prevent SPIs

It's not possible to prevent SPIs, as you won't know you've purchased an infested item until you bring it home and use it.

However you can help prevent future problems and the spread of any infestations, through good storage and hygiene practices.

Store all food products which come in flimsy packaging, such as cardboard or plastic bags (cereal, dry pet food etc), in tightly sealed

containers. This will ensure insects cannot get access to the food inside.

Regularly use a vacuum cleaner to get rid of food debris in cupboards, removing that tempting, easy-to-access food source.

What if you find an SPI in a product you've purchased from a shop?

If you believe that you have narrowed down the source of the infestation to a particular product, you should return it to the store you purchased it from.

Inform the management, so that they can investigate and implement their own control measures if necessary.

They will also need to inform suppliers so that it can be established where the insects entered the production process.

Getting rid of SPIs

DIY pest control

For any stored product insect infestation in a business, we would always recommend contacting a professional pest management company.

They are trained in SPI control and will have access to a range of professional use insecticides and tools, which are not available to the public.

Knowing how much, where, and when to deploy products is where professionals are able to take control of situations efficiently.

However, an infestation in the home is relatively simple to manage, providing it has been discovered early. Once in your home, stored product insects will spread

quickly through your property in search of other foods such as dried fruit, rice and cereals.

Usually the initial source of the infestation can be traced back to partially used products that have been forgotten in the backs of pantries and shelves.

That bag of flour you used for one cake and then didn't use again? Yeah, you know what I'm talking about.

The most effective step in eliminating an infestation is to throw away these infected products, preferably into an outside bin.

Then deep clean your cupboards, pantry or anywhere food has



Store products which come in flimsy packaging in sealed containers.

been stored, thoroughly cleaning up any spills or food debris.

Professional pest control

Qualified pest management professionals understand the habits and life cycles of stored product insects.

They will have the knowledge and experience needed to recommend effective and targeted treatments.

A technician will fully explain the treatment process to you before starting work.

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They will then leave a report, noting what pesticides have been used and where, plus any post-treatment advice needed.

They will arrange follow-up visits, if required. This will depend on the type of treatment used and the level of infestation.

Food businesses

It's important for businesses dealing with food, particularly in the early stages of production, to take preventative measures against SPIs.

There should be a professional pest control contract in place, which includes a monitoring programme for pests using traps, which indicate if and when to treat.

Other routine measures, such as treating empty grain stores between batches of grain, can help prevent infestation. Keeping temperatures cool (10°C or below) can reduce the rate of reproduction, while low



humidity reduces insect activity and stifles fungal development.

Fumigation

Fumigation is the process of releasing a gas to destroy pests which may be infesting a building, product, a vehicle or an item of furniture.

It's a job which requires a very specific qualification and skill set, only to be done by professionals.

Fumigation isn't a residual treatment so although it will kill the adult pests and their eggs, it does not leave a barrier to protect against re-infestation once other life cycle stages are complete.

If fumigation were chosen as a treatment option then it should be carried out as part of an integrated pest management (IPM) approach.

**BE PROTECTED.
PROFESSIONALLY.**
How do you know your
pest management contractor
is fit for the fight?



British Pest Control Association is the trade association for professional pest management companies in the UK.

By choosing an audited BPCA member you can be assured that the services you receive are from a trained and trusted company that meets our strict membership criteria.

Our member companies meet or exceed all legal and 'due diligence' requirements and comply with the most current legislation.

No other trade body gives you this security.

Make sure you stay safe.

Select a BPCA member.

**Stay protected.
Always look for
the logo.**



Find a pest controller

A BPCA member company will be able to treat infestations quickly and safely.

They can help minimise pest activity with a range of techniques and have the technical knowledge and experience to apply products in an efficient manner, while minimising risk to the environment and non target species.

You can find a BPCA member, local to you, using our Find a pest controller tool.

bpca.org.uk/find
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