



*Everything you should
know about pantry, clothes
and carpet moths.*

Instructions

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The included product instructions and all contained information are the results of many years of our experience, research, and endless dialogues with customers. The knowledge cumulated in this document is commonly accessible.

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All tips and hints included in this document are applied at the user's own risk. MothOut owner is not responsible for any damage caused by the cleaning techniques, insect extermination methods provided in this document.

Table of contents:

1. Introduction – understanding difference between clothes and pantry moths
2. Where do clothes and carpet moths come from
3. Where do pantry moths come from
4. Life cycle
5. Understanding moth infestation - How to get rid of clothes and carpet moths
6. Understanding moth infestation - How to get rid of pantry moths
7. How MothOut traps work - **instructions**
8. Tips & hints to get rid of clothes and carpet moths infestation
9. Tips & hints to get rid of pantry infestation
10. Conclusions

Introduction

Thank you very much for selecting the MothOut product and downloading this guide. After many years of experience with moths, we've learned that correct identification, understanding moths nature and taking the right course of action is the key to succeeding in the uneven battle with both: pantry as well as clothes/carpet moths.

The biggest mistake many people make is the incorrect moth's identification. Clothes moths can be easily mistaken with pantry moths - similar colour, shape, size. This short guide will enable you to understand the difference between pantry and clothes moths, how they cause damage, and how to treat moth infestation.

What are clothes/carpet moths?

Common webbing moth, Case-bearing moth and Pale-Backed moth are the main species responsible for all the clothes and carpet damages. These pests can destroy fabric, especially wool, fur, silk, feathers, felt, and leather. These materials contain keratin, a fibrous protein that the clothes moth larvae can digest.

Tineola bisselliella, in the UK, is known as the **Common Webbing clothes moth**, is a species of fungus moth (family Tineidae, subfamily Tineinae).



Tineola bisselliella

These moths are small, 6 – 7 mm (0.24 – 0.28 in) body length and 9 – 16 mm (0.35 – 0.63 in) wingspan (usually 12 – 14 mm or 0.47 – 0.55 in). They have narrow wings that are fringed, with small hairs. Moth females lay about 50 - 200 eggs, which in turn, hatch into the fabric-eating little machines. Moths can stay

in the larvae stage for about a month, during which they eat and acquire all the nutrition they need to move to the next stage.

In lower temperatures and humidity, moths can stay in the larvae stage for even several years waiting for better conditions.

When caterpillars are ready, they spin webbing cocoons, of which it leaves as a tunnel or sheet of webbing across the attached material and pupates to an adult moth. These moth's adult form has a characteristic bright golden colour with no pattern on their wings.

Tinea Pellionella, is also known as **Case-bearing moth** or **Carpet moth** and same as a common webbing moth, belongs to the same family – Tineidae.



Tinea Pellionella

Their size is between 6 – 7 mm (0.24 – 0.28 in) body length, and 9 – 16 mm (0.35 – 0.63 in) wingspan, the same as the Webbing moth. The adult form is dark brown with two large and several small spots on their wings. Carpet moth females can lay 40 – 50 eggs, which hatch in 4 – 7 days and immediately start to eat, to acquire all necessary nutrition to move to the next stage of their life. Like the Common clothes moth, the larvae stage length depends on the temperature and humidity condition, also the access to the food, and it can take up to 3 months. Larvae then will spin a rice grain-sized cocoon in which transform into the adult form. The transformation process can take from 9 to even 19 days.

Monopis Crocicapitella, widely known as **Pale-Backed moth** also belongs to the same family as previous two species – Tineidae.



Monopis Crocicapitella

This moth recently spreading across the world faster and becoming more popular also in the UK. Their larvae pupate in a flattened cocoon of sand and fine debris, feeds on textiles, but also vegetable and animal refuse. They have been found in dead animals, bird's guano, bird's nests, and products of vegetable origin such as flour and corn. Wingspan 10 – 16 mm (0.39 – 0.63 in), which is in the same range as two previous moths.

Clothes/carpet moth adults do not feed, so they cause no damage to fabrics, but they are responsible for producing more and more destroying caterpillars. The only purpose of adult moths is reproduction, therefore they are so sensitive to pheromones. Females release the pheromones to inform males they are ready for mating. The larvae (caterpillars) of these moths are considered serious pests.

What are pantry moths?

In order to fight pantry moths, it's good to understand what they actually are, how they entered your house and why they like living in your kitchen. Before you begin a treatment process you need to learn what they look like and what to look for.

Pantry moths

Indian meal moths (*Plodia interpunctella*)



Indian Meal moths are also known as grain moths. These moths don't natively occur in India as the name would suggest, these were named after being noted for feeding on Indian meal. Adults are 8–10 millimetres (0.31–0.39 in) long with 16–20 millimetres (0.63–0.78 in) wingspans. They have bronze coloured heads, bronze shoulders and dark banding separating the beige top half of the wing from the reddish-brown on the bottom.

Their eggs are greyish white, length between 0.3 and 0.5 mm, and can be found directly on the food source. Females may lay between 100 and 300 eggs at the time, singly or in groups, in locations where grain is present, and temperature within a grain is above 10°C. The entire life cycle of this species ranges between 30 and 300 days and the typical life cycle is 50 days.

Indian meal moths feed on plant-based foods such as flour, bread, cereal, rice, pasta, dry pet food, soup mixes, birdseed, spices, dried fruits, nuts. The larvae of this moth can bite through plastic and cardboard, so even a sealed container isn't a barrier for them.

Tobacco Moths (*Ephestia elutella*)



Tobacco Moths are also known as warehouse moths or cocoa moths. Adults are smaller than Indian Meal moths and have 14-20 millimetres (0.55-0.78 in) wingspans. Eggs are oval, ivory and 2mm long. Females may lay 20-120 eggs singly or in groups. Eggs hatch faster in warmer months – from 3 to 5 days and up to 7 days in cooler months. Larvae feed and become mature in 25 to 64 days. That depends on humidity, temperature, and food quality.

These moths feed on dry plant products such as cocoa beans, tobacco, cereals, dried fruit and nuts, less usual dried meat, and dry wood.

Flour Moths (*Ephestia Kuehniella*)



Flour moths are pale grey with a black zigzag pattern on their wings. These are larger than Indian Meal moths, the wingspan of these moths ranges 15-26 millimetres. You can easily identify them because unlike other pantry moths these are known by the characteristic pose – the moth extends its forelegs while raising its head. Only the Flour moth does this.

Flour moths particularly enjoy inhabiting flour mills and bakeries because heat allows them to breed year-round. Female lay 100-600 eggs.

Flour moths feed on grain products, primarily infest flour, but they can be found in a variety of cereal grains.

Almond Moths



Almond moths are light brown and have smaller hind grey wings. These moths are 12-15 millimetres long, with a wingspan ranging from 14 to 22 millimetres. Almond moths feed on flour, bran, oats, and other grains, as well as dried fruits.

Pantry moths can be easily mistaken with clothes moths. Similar colour, shape, size it is not making the task easy. **We can help identify your moths** based on the photograph provided, then suggest the best course of action.

2

Where do clothes and carpet moths come from

Webbing clothes moths are widely spread across the globe. Their natural environment is western Palearctic, but due to our lifestyle and travelling, there is probably no place in the world with no clothes moths presents. Recently clothes moths were even found in Australia.

Case-bearing moths have been in the UK since at least Roman times. They probably travelled from South Africa in Victorian times when merchants started importing feathers, skin, and other organic materials.

Once people realise clothes moths are present in their house, they wonder what brought these pests indoors. Although clothes/carpet moths can get into our house through the open doors and windows, most likely they are introduced to a home by someone: on sweater from the shop, vintage blanket, antique fabrics, even new purchased clothes or on visitor clothing.

3

Where do pantry moths come from

Once you realise pantry moths are present in your house, you start wondering what brought these pests indoors. An infestation is not a sign of your poor housekeeping, in most cases it occurs at a commercial food processing and comes into your home from packaged foods. So unfortunately, it`s likely that you brought moths home yourself.



Life cycle

Clothes/carpet moths

Clothes/carpet moths like the warmth, they thrive in heated buildings and are usually unable to complete their life cycle outdoors in the UK.

Females lay between 30 and 200 eggs. They hatch and immediately begin to feed. Larvae are only about 1 millimetre long, burrow into clothes, carpets, and other items made of fabric such as furniture, so it is hard to see them until they get bigger. Caterpillars don't eat fast, but their large population can produce costly damage.

In ideal conditions (24 °C and 70 - 75% humidity), **hungry larvae will take three months to mature into moths, but it could take up to nine months.** That is a lot of munching time. Lower temperatures and humidity will only slow development.

At this point, the caterpillars spin cocoons and spend another approximately 10 (case-bearing moth) – 50 (webbing moth) days developing into adults. Adults can live for an additional 15 - 30 days, after which they die.

Moths adult form have only atrophied mouthparts and cannot feed. All feeding damage is done by the caterpillar (larval) form. Adult moths have only one goal **it is to reproduce.**

Heated buildings allow clothes moths to develop year-round. The overall **life cycle from egg to egg typically takes 3 - 6 months, two generations per year.**

Pantry moths

The whole pantry moth life cycle ranges between 30 and 300 days depending on the conditions, temperature, and food availability. The warmer the temperature, the faster the cycle completes. A typical life cycle is 50 days.

Like other moths, pantry moths have four following life stages:

- Egg stage
- Larvae stage
- Pupae stage
- Adult stage

Egg stage

The first sign of a pantry moth infestation is often the sight of adult moths flying around our kitchens. Females lay between 100 and 600 eggs directly on the food source that will be used by the larvae. This requires the female moth to be able to find a food source. If there is no food source, there are no larvae. The moth can lay eggs all at once or over 18 days. Those eggs begin to hatch in approximately two to fourteen days.

Larvae stage

The pantry moth larvae stage is the feeding stage when moths do the most damage. Depending on the conditions and food availability, the larval stage usually lasts for about 2 to 3 months. Larvae are about 12 mm long and have prolegs for movement. Fully-grown larvae can spin webs and leave silk threads in their path of travel. Pantry moth larvae have white colour, but that depends on the food source and can be light green, pale pink or even brown.

Pupae stage

The pantry moth pupae stage lasts from 15 to 20 days. During this time, the larvae can be found lying in the open but usually, they make cocoons around their bodies and start transforming into adult pantry moths. Moth pupae are around 1/4 – 1/3 of an inch long. Moth larvae don't always make cocoons near their food source. Sometimes the pupae can be found on pantry shelves or seams of doorways. In some cases, the pupae will be nearby wardrobes, around clothing, causing the pantry moth to be confused with clothes moths.

Adult stage

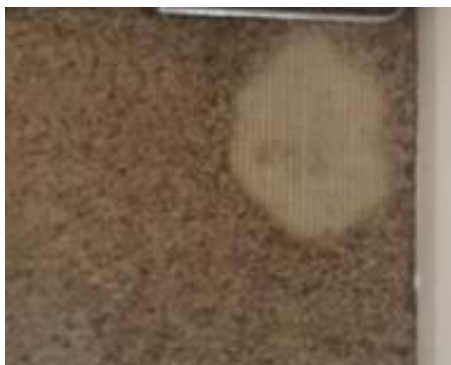
The adult stage is the final part of the pantry moth life cycle. It starts when the moth erupts from the cocoon and starts flying towards the light source. Pantry moth flying around has only one mission: to create more moths! They fly around looking for a mate. The female moth releases a pheromone scent helping male moths locate her. She then lay eggs and the entire life cycle begins again. Adult moths live 1 to 2 weeks because they don't have mouths and don't feed.

To summarize: the full life cycle of a pantry moth is from 30 to 300 days. 7 to 9 generations of pantry moths can be born and die in a single calendar year. Cold weather will greatly hinder this process. That is why moths are rarely seen when the temperature drops below 10 degrees C.



Understanding moth infestation - How to get rid of clothes and carpet moths

The first symptom indicating moth infestation is damage - holes in clothes or damaged carpet with bold places. The damage usually occurs in dark, peaceful places. Moths chose these areas as a safe place to build their nests to start their family and grow their population.



Moths prefer dirt such as spilt on carpets, pet's hairs, sweat on clothes which supply moth's larvae with nutrition and moisture.

Clothes / Carpet moths can be found:

- In drawers
- In wardrobes
- Under sofas
- Beneath rarely moved, heavy furniture
- Behind curtains

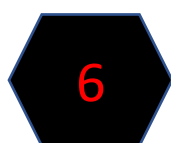
The extent of moth damage depends on the degree of infestation. Clothes moths infestation left without control can very fast evolve and cause very costly damages around the house.

If you noted holes in your clothes, inspect your cupboards and wardrobes. You will be looking for white webbing and frass. You may even find moth larvae.

Inspect carpets and rugs, especially around the edges, undersides and under bits of furniture. Check the backs of curtains, footstools or sofas that have fabric undersides. You may have to move some heavy furniture.

Once this work is complete, all you need to do is deploy MothOut Traps, which are designed to monitor their activity.

There are a lot of elimination and prevention techniques in section 6 “Tips & hints to get rid of moths infestation.”



Understanding moth infestation - How to get rid of pantry moths

Pantry moths can get into our house through the open doors and windows, but it's most likely they are introduced to the home as eggs or caterpillars in dried foods. If you have some unsealed containers full of food and your house is warm, it becomes an ideal place for female moths to lay eggs.

If you wonder if finding one single moth is worthy of concern, please know that even one adult pantry moth raises the chance of an infestation. When a pantry

moth arrives in your kitchen and starts through the pantry moth life cycle, you soon have hundreds of pantry moth larvae feeding on your foods.

The first step is identifying the moth type, and you have already learned this from the Introduction. Now we will tell you what to look for. Follow these steps to get rid of pantry moths:

1. Look for moths' activity and place where infestation began. Check inside food packaging for moth adults, larvae, skin shells, webbing, and weird odours.
2. Clean the areas where food goods are stored. This might sound excessive, but you should throw away all food from your shelves, drawers, cabinets, and pantry, especially the one which is not stored in hard plastic sealed containers. If you found one infested package it's more likely that moths are in other packaged foods. Remember to take the food outside to dispose of.
3. Once foods are gone, please vacuum, then clean tops, sides and bottoms of all shelves, cabinets, and pantries where foods are stored, including floor, walls, and corners. Do one section at a time using warm water and dish detergent. Remember to dispose of the contents of the vacuum as well as wipes outside your house.
4. Repackage untouched items within solid airtight containers. Do not use disposable containers because pantry moths can get inside them.
5. Once this work is complete, deploy Pantry MothOut Traps, which are designed to monitor their activity.

Repeat the process until the pantry moths are gone. Keep monitoring their activity.

How MothOut traps work - instructions

MothOut kit will monitor presence of both types of moths: pantry as well and cloths and carpet moths located in your pantry and wardrobes, drawers, rugs and carpets, fabric furniture, curtains or even loft insulation.

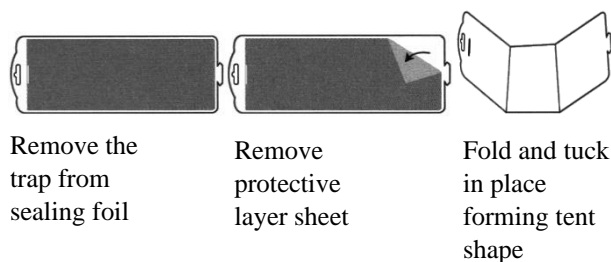
How does it work?

Traps

The inner side of the trap is covered with glue containing pheromones to attract and catch male moths.

Pantry traps contain a different blend of pheromones than clothes moth traps, as they are specifically designed to target food-infesting moths. Each pheromone is carefully formulated for specific type of male moth, ensuring effective monitoring of the infestation.

Traps are easy to build:



Each of our traps is individually sealed in foil to ensure maximum effectiveness. Once opened, each trap remains active for up to three months. For optimal results, use one trap per room or maintain a minimum distance of three meters between traps.

Light stickers



Moths are naturally drawn to light, as they rely on moonlight for navigation. The included stickers absorb light during the day and gradually release it at night, enhancing the trap's effectiveness.

Please note: Traps placed in consistently dark areas do not require light stickers.

Butterfly – yellow moths/insect traps



Butterfly monitoring traps are poison-free and have one role – monitor bugs flying in your kitchen and around plants, such as Fungus gnats, Aphids, Houseflies, Whiteflies, Fruit flies, Ants, Wasps, Leaf miners, Mosquitos, Leafhoppers, Thripidae, Melon Flies.

Traps are UV resistant and waterproof and are suitable for both indoor and outdoor use in your home and garden. When placed on a window or in a plant pot, they help monitor pests trying to enter your home, protecting your plants and food.



Tips & hints to get rid of clothes and carpet moths infestation

Steps to take to speed up moth extermination and prevent future infestations.

When it comes to clothes and carpet moths, prevention is very important. Here are several things you can do to remove and keep these winged pests away:

- **Change hoover bags often** - to make sure you remove larvae and eggs from your property. Hoover carpets, rugs, even furniture (also underneath) frequently and empty your hoover bag outside, preferably after each hoovering.
- **Wash all newly purchased clothes** – clothes shops and warehouses are the perfect places for the moths. Full of food! Wash all the new clothes before mixing them with the rest of the collection.
- **Keep clothes clean** – female moths like to lay eggs on fabrics stained with sweat as the larvae gain more nutrients from these. Wash clothes before putting them back in your wardrobe to prevent it.
- **Keep furniture clean** – regularly vacuum around the bottom and edges of wardrobes, cupboards, and drawers, where moth eggs can be hidden out of sight. Keep wardrobe ventilated to prevent damp and musty conditions which clothes moths like.
- **Store away clothes you won't be wearing** – store freshly laundered clothes in a vacuum bag, especially made of wool.
- **Take out items hanging up** – shake them at least once a month, moths hate being disturbed.
- **Clean storage boxes and suitcases** – these might be hiding eggs or larvae.

- **Check vintage purchases** – antique items, vintage clothes, should be cleaned before being placed with the existing fabric.
- **Wash clothes at the highest temperature** – moths don't like too high temperatures. Temperature above 55°C – 60°C will kill larvae and eggs. Make sure to read labels on clothes before, as too high temperatures may damage clothes, especially wool.
- **Iron clothes before storing them in the wardrobe** – it's a good practice to iron clothes before putting them away for long-term storage. The high heat from ironing will help eliminate larvae and eggs. For delicate items, iron through a cloth or towel to protect the fabric. Always check the care labels on your clothes to ensure proper treatment.
- **Heat carpets and rugs** – another way to kill larvae and eggs in carpets with high temperatures is to use a hairdryer. Set up the high temperature and heat the carpet slowly moving from one edge to the other. Test it first in the hidden, unexposed place as some types of carpets may be damaged with high temperature. You may also iron through the cloth. Ironing, however, is more dangerous to the carpet as it produces a higher temperature.
- **Use the weather** – on a hot day, lay clothes, carpets, rugs outside to let the sun fry the eggs and larvae. Brush it thoroughly to remove shells and survived insects.
- **Freeze clothes that cannot be exposed to high temperature** – put clothes in the bag and freeze the pack for a couple of days. The low temperature will kill moths, eggs, and larvae.
- **Clean bottom of wardrobes and drawers with vinegar** – use the water-vinegar mix to clean clothes storage.
- **Use MothOut Monitoring Clothes traps regularly** – place traps in corners, behind curtains, under furniture, in wardrobes, on the carpet, behind the TV stand. These are the places where clothes moths love to

build their nests. Moth traps will enable you to detect the first signs of infestation at an early stage.



Tips & hints to get rid of pantry moths infestation

As with clothes moths, prevention is key to keeping your home free from pantry moths. Here are several steps you can take to eliminate and prevent pantry moth infestations:

- **Keep your food sealed** – place your food in airtight packaging, glass or plastic containers are the best. Pantry moths can chew through plastic or paper bags.
- **Regularly vacuum** and empty your vacuum bag outside, preferably after each vacuuming to make sure you remove larvae and eggs from your property.
- **Wipe all newly purchased food bags and cans** – shops and warehouses are the perfect places for the moths, full of food! Inspect foods for possible infestation before purchase. Look for small holes and webbing on the packaging.
- **Clean your cupboards and drawers with vinegar** – use the water and vinegar mix to clean foods storage.
- **Clean food containers before refill** – to prevent moth's eggs and larvae to be missed and transferred to the newly purchased food.
- **Freeze dry food** – seal dried food in the container and put them in the freezer for at least a week to kill eggs and larvae.

- **Control and protect pet food and birds seeds** – pantry moths like munching on pet food or birds seed too. Please be vigilant whilst shopping for those as it's easy to bring moths home from garden centres as well as grocery shops. Store pet food and birds seeds in sealed plastic containers. These also can be frozen before use to eliminate the risk.
- **Repel moths from your kitchen** – use cloves or bay leaves to drive away moths, they have an aroma that is disliked by moths. Place these in drawers and kitchen shelves. It's an unexpensive and natural way to repel moths from the pantry.
- **Use MothOut Monitoring Pantry Moth Traps regularly** – be vigilant and as soon as you see any signs of moths, react immediately.
- **For the best results, use one MothOut trap per room or keep at least 3 meters gap between them.** Too many pheromone sources in the small area may confuse moths.
- **Empty your rubbish bin regularly** – it is important not to leave any leftover food at home.

Pantry moths are not harmful if eaten so don't panic if you accidentally munch on one - they'll pass through without causing any physical harm. That said, even with that reassurance, it's still pretty gross to think about!

Conclusions

Our home should be a warm, safe, and inviting space, a place where we can relax, enjoy time with family and friends, and create cherished memories. Unfortunately, this sense of comfort can be disrupted by unwelcome invaders that settle in uninvited and damage our belongings.

A clothes moth infestation can be both distressing and costly. However, by taking swift action and following the right steps, you can reclaim your home and restore peace and harmony.

Eliminating clothes moths is not a simple task, it requires time, effort, and persistence, especially in more severe infestations. That's why we've created this guide to help you understand the nature of clothes moths and how to effectively control them. By following these steps, you'll make the extermination process more manageable and significantly increase your chances of success.

Remember: Prevention is always better than cure.

Using MothOut moth traps all year round will help monitor if moths are present around us.

This guide will help you to take steps preventing from clothes moths being introduced to your home.

Once again, thank you very much for choosing MothOut product.

Best of luck!

MothOut Team