

# Grain Mite Prevention and Eradication

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Prevention is best! Before using any grain for substrate / bedding in mealworm farm or other habitat, cook the grain in an oven at 200 degrees F for one hour or until the internal temperature reaches 140 degrees F for 10 minutes. Cool before using. Store excess in the freezer.

In order to completely kill mites by the freezer method only, it must be a sub-zero freezer, -13F for days, not normal for common households to have. However, some people say two weeks in a household freezer is enough. Your farm, your choice!

Mites love humidity, so, good ventilation is key to prevention. If you use lids on your containers, monitor humidity closely.

## 9 THINGS TO DO TO ERADICATE MITES Through Control and/or Quarantine

1. Remove lids, if you use them. Remove all moisture for 60 hours, then, put the containers or drawers in a tub of water, about two inches, overnight. [Removing moisture for 72 hours does not harm the larvae.] Hint: Test your tub to make sure water will stand in it at the correct depth all night without leaking out before you do this method!

2. Remove all moisture for 72 hours. After this time, wipe sides of containers with a clean, wet cloth, inside and out, as well as any holding structures. After returning dry containers or drawers to designated, cleaned location and adding small veggie, put one or more 3 to 5 oz. short cups of water [1/2 to 3/4 full] on top of the substrate near the corners. Wash, dry and refill daily. Mites are attracted to these cups, crawl in and drown, and are washed off the sides of the cups, as well as any eggs they lay on the cups. Over time, there will be less mites on these cups and you can go a few days between wash/dry/refill routine, until there are no mites to be found!

3. Apply a 2" line+ of petroleum jelly about 1" above the substrate. The mites get stuck on it and it also keeps them from traveling. [Olive or vegetable oil works just as well as petroleum jelly and is easier to wash off later!] This technique is also good as a preventative measure.

4. Put dog food lightly coated in coconut or olive oil on top of substrate, especially in corners. Mites stick to the oil. Though the protein in dog food is good for growing mealworms, too much oil in the substrate will cause some loss of larvae. Read ingredients label to make sure dog food does not contain DE, diatoms or silica.

5. Sift large larvae and put them in dry (baked and cooled) dog food\* and minimal substrate for a period of two weeks with only enough moisture to be consumed in two days. Do this after you have done #1 on this list. Relocate the

larvae to a mite free area. \*Make sure dog food does not contain DE, diatoms or silica.

6. I haven't done this, but, I read beetles and large larvae can be rinsed briefly with water without harm, dried, and returned to clean containers and bedding; clean set-up and relocate to another area. [See quote below.]\*

7. Bay leaves are suppose to deter pests and may prevent mites from travelling. [I put a few bay leaves loosely in a drawer, which holds a container of large larvae....see #5, and the drawer also has a 2-4" line of vegetable oil around it. I also put bay leaves under the drawer units.]

8. Change moisture/veggie daily. Dispose of mite-covered veggie in a plastic bag. A lettuce leaf is a good choice for this method. If you use carrots, potato, or other dense veggie, you may rinse and dry the veggie well and return it to the mealworm container.

9. In a different room, start a new mealworm farm beginning with clean pupae, which are kept in a clean container with no substrate. As the pupae morph, put these beetles in a clean drawer or container with sterilized substrate. [Important: Maintain bio-security from mite infested farm and control measures until the entire mite-infested farm ages out.] Any covering, such as a damp paper towel, should be changed daily.

## Testimonials:

\*"I had a bad mite infestation this past July during some unusually high humidity. #6 above - rinsing larger larvae, pupae and beetles does work. Pupae seem to tolerate only a short rinse but larvae and beetles easily take 10-15 seconds of rinsing. Use a mesh strainer with holes fine enough to prevent larvae from slipping through, place a bin below strainer to catch any escapees. It took a while for me to rinse and dry my setup but has worked quite well". -Brian

"I took baby wipes or a cloth (dipped in water with a drop dishwashing liquid in it) and wiped the container down thoroughly. I removed all the water sources (carrot and potato) and any large area of mites I could see. Then I placed the container outside on my porch (it was kinda chilly), check container a few times a day and wipe down if you see mites. After a few days my mites where gone! Never had them since"! -Xyala

"How do you get rid of mites in the boxes? It is impossible to totally remove all mites from a mealworm breeding room. It is impossible to prevent more mites entering a bug room. A mite build up is usually a hygiene and or humidity problem. The easiest way of reducing a mite problem is to vacuum the floor on a daily basis and to remove about 50% of the frass from the box. The established boxes that are mostly frass are the boxes that usually cause the mite problem, or are the origin of the problem. Removing most of the frass from each heavily infected box by carefully sieving, almost always removes the problem. After sieving out the frass, dispose of the frass carefully. Replace the box back into the

bug room and add some more food. The next action is to temporarily reduce the humidity to no more than about 50% R. H. and put the temperature to about 25C. The reduced humidity and correct temperature usually encourages the other mites to "disappear". Don't know where they go, but with regular vacuuming the problem quickly disappears. Ideal humidity level for an insect room is about 55% R. H." -Edited from birdcare.com.au

"You can alternatively just make some bran or in my case I had fine oat hull chaff that I put olive or vegetable oil onto. I carefully stirred and spread the oil evenly, or just use your hands to 'smoosh' it lightly over the material. Then once you have cleaned up as much as you can or separated the good worms and beetles to new (baked) substrate, spread the oiled material over the surface of the new bin to get the rest of the mites and prevent any more. Also swipe some oil or coconut oil on the sides of the container." -Facebook mealworm group member

"I coated the top edges of my bin with vegetable oil and put a tray in the center with pieces of dog food coated in vegetable oil in the center and swapped the dog food out daily and wiped down the edges with a paper towel, {then} reapplied the oil for about 2 weeks. In between, I'd periodically hand-pick out the worms, beetles or pupa and add to a second treated bin with a small amount of fresh substrate and leave in a lightly windy but sunny place. After a few weeks I was finally free of them. A lot of work and time and patience but I got rid of them all. Oh, I also semi starved my bugs that were being treated and didn't give them any

type of food or added moisture during the initial two weeks. I hardly lost any."

-Facebook mealworm group member

"I've endured a 2 week battle with grain mite and happy to report, I'M WINNING. I've been using the wipe method (wipe sides with a damp sponge daily) and it's working. I had millions and now I could maybe count 100 at the worst. Unfortunately, one of my beetle drop drawers had them as well and I'm slowly getting them under control. So in conclusion, you don't need to throw the whole lot out! Just have some patience and wipe them away." -Chris