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What Is A Mealworm?

Mealworms are an excellent part of a varied diet for many reptiles and amphibians and are probably one of the most commonly used prey item next to crickets. You can purchase mealworms from your local pet store or even bait shop, order them online or even raise your own colony. They are scientifically known as *Tenebrio molitor* and are the larval stage of this particular beetle. As with several other worm species, mealworms have four life stages:

Egg (about 1/20th of an inch in size)

Larva (this is the worm used as your food source)

Pupa (looks like an alien out of a science-fiction movie)

Beetles (these are what breed and lay the eggs)

Mealworms will reach a maximum length of roughly one inch after molting approximately 5 times.

What to Feed Mealworms

As with any feeder insect, it is critical that you provide your mealworms a high-quality diet. When you purchase your mealworms, they are often lacking in the vitamins, minerals and nutrients that your pet needs. Feeding your insects a high-quality diet is called gut-loading and is critical to the overall health your pet - you want to ensure that you providing the maximum nutrition possible. You are what you eat!

In our discussion about housing mealworms, you will have come across the substrate mixture that Dr. Gecko uses. With this method our mealworms are constantly gut-loaded. Some individuals though will want to raise their mealworms in a basic substrate and will want to gut-load small amounts separately. This works just as well and you can use the same substrate as we mentioned. You can also mix in with your basic substrate the Ultimate Feeder Insect Diet which we highly recommend. There are also many commercial diets available. Mealworms will eat the substrate that you house them in.

Providing moisture is also necessary. We like to provide moisture by using the fruits and veggies that can be found in the Ultimate Feeder Insect Diet. Some individuals choose to provide moisture with something as simple as a slice of carrot. Simply rest this slice of food on the surface of the substrate.

Be sure to remove and replace fresh fruits and veggies daily to prevent the harmful buildup of potentially dangerous pathogens. Do not offer water in small containers/dishes. Also be sure to replace and replenish your substrate regularly.

How To House Mealworms

Mealworms are one of the easiest feeder insect to house and can take up very little space. Many people opt to keep their mealworm colonies in:

Small glass aquariums

Plastic storage boxes

Plastic storage drawer systems

Plastic food containers

For your colony, you will want to use a container that:

Has smooth sides to prevent the worms from crawling out and escaping.

Is easy to disinfect periodically.

Allows ample ventilation and air to circulate freely to avoid the buildup of potentially harmful mold and bacteria.

For providing the necessary ventilation you can:

Use a screened lid for your aquarium.

Cut a large section out of a plastic lid (you can also cover this with mesh).

Or leave the lid off the container completely.

Its important to provide roughly 3 inches of high-quality and nutritious substrate for the worms to burrow in and eat. Many people keep their mealworms on a simple substrate of oat bran. We prefer to maximize the nutritional quality of the substrate since the mealworms actually eat it. We include a mix of: 12 grain cereal mix, baby rice cereal, rolled oats, white bran, wheat germ, red bran

We also sprinkle in the following items to boost the nutritional quality of the substrate even further: alfalfa flakes, dandelion flakes, spirulina flakes, bee pollen, dried sea kelp, tropical fish flakes

You can also keep some mealworms in the fridge if you wish for several weeks (be sure to provide ventilation holes in the storage container). When kept cooler they will not grow quickly and will be quite lethargic.

Otherwise, your mealworms can be kept at a range of temperatures between 75 and 80F (room temperature is often sufficient).

Its always a good idea to periodically replace and replenish the substrate as well as remove any fecal matter that has accumulated on the bottom. We do this at least every 2 months here. You should also remove on a daily basis, any dead mealworms/pupae/beetles that you might see.

How to Offer Mealworms

Mealworms are one of the easiest food sources to offer your gecko and make an excellent part of a well varied diet. Many people choose to offer their pet mealworms by using a small, shallow feeder dish (we like to use the small terra cotta plant saucers for this purpose). Others have used glass ash trays, jar lids etc...These methods will ensure that your gecko can see the food, prevent the food from escaping before they can be eaten and prevent your gecko from accidentally ingesting any substrate when hunting/eating is meal.

Other guidelines to keep in mind include:

Never feed more insects than your gecko can eat in a single sitting (typically within approximately 15 minutes). Always place a small piece of carrot in the enclosure in the event the mealworms escape before they can be eaten.

Ideally the width of the insect should be no more than 1/2 the width of the gecko's head. The length of the insect should ideally be no longer than the length of the gecko's head.

Try and offer more smaller prey items, than fewer larger ones. The smaller ones tend to be more nutritious and easier to digest. When possible, try and offer the freshly molted (white) mealworms - these are also easier for your gecko to digest. Be sure to use an appropriate vitamin/mineral supplementation schedule. Consult the vast amount of care information available regarding your pet's specific species. Make sure the mealworms that you offer have been properly gut-loaded for 24 hours before being used as food.

Do not offer dead mealworms as food to your gecko (although you can safely use the commercially available prepared and pre-killed mealworms). Do not overfeed your gecko! Obesity is commonly seen in geckos which can have detrimental effects on their health. Compound this with the fact that most captive geckos do not get the necessary exercise that they would in the wild and your gecko could develop health problems down the road. Do not feed worms to your gecko that have come from a colony that has been contaminated with mold. This can lead to serious health problems - even death.

Be sure to use mealworms as part of a varied diet to ensure the maximum nutritional benefit to your gecko! Never feed insects that have been exposed to any sort of chemical such as insecticides, herbicides or pesticides (to name but a few).

Mealworms and Nutrition

Mealworms make an excellent part of a varied diet for many geckos and amphibians. Other feeder insects to consider as prey items include appropriately sized: crickets, superworms, silkworms, hissing cockroaches, fruit flies, earthworms etc...Be sure to research your pet's diet very carefully when choosing the most appropriate diet! A vast majority of the nutritional imbalances often seen in geckos result from a poor and/or unbalanced diets.

Why feed a variety of insects?

Each insect, in terms of nutritional quality, is comprised of varying levels of:

minerals water enzymes protein

vitamins carbohydrates fats fiber

All of these work together to provide your gecko with energy, proper metabolic functioning, prevention of diseases and disorders, and much more. Each of these are required in varying amounts which can be achieved by offering a varied diet.

Not only does each different gecko species have different nutritional requirements, but there are other factors that one should take into consideration when creating a well-rounded diet for their pet. Things to take into consideration include: overall health and well-being age activity level , environmental conditions sex

For example, younger and still-growing geckos may have a higher protein requirement than already established adults.

It is also important that you maximize/enhance the nutritional quality of the mealworms by offering them a high quality diet - this process is called gut-loading. Here is a widely used and accepted gut-loading diet that can be used with several different insects. As with humans, you are what you eat!

Mealworms specifically have a poor calcium:phosphorous ratio which is why it is often recommended to offer them as part of a varied diet.

Breeding Mealworms

Breeding mealworms is actually a very simple process and its highly recommended if you have a lot of hungry mouths to feed. They practically breed themselves with no extra work on your behalf. Some people will choose to breed their mealworms in the same enclosure while others like to separate the various life stages (ie larvae, pupae and beetle). Dr. Gecko uses plastic drawer systems to raise the colonies and separate the various life cycles.

It is a good idea though to remove the pupae into their own container until they have turned into beetles at which point, you can move them in with the rest of the beetles. It is not uncommon for the worms and beetles to nibble on the pupae - thereby killing a potential breeder.

If you want to start breeding your own mealworms, we suggest you start with a culture of approximately 100 worms to get a good start at it. We keep our feeding colony separate from our breeding colony just to make sure we are not dipping into our food reserves.

As discussed earlier, the worms will turn into pupae (those little alien-like creatures). These pupae after approximately 10 to 15 days, they will emerge as beetles. It is these beetles that will breed and lay the eggs. The beetles start to mate and lay eggs within several days (roughly 1 week) of pupating and will continue to do so for approximately 4 months (after which they die).

The female beetles tend to be significantly larger than male beetles. These females can typically lay up to 500 eggs throughout their lifetime. Each egg is roughly 1/20th of an inch and sticks to the substrate so chances are, you will not see the eggs. The eggs hatch about 1 week after they were laid. These worms will achieve optimal growth rates when kept between 75 and 80F. Be careful when cleaning and replacing substrate that you do not accidentally throw out the eggs or baby worms!

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Frequently Asked Questions

Here's a list of the most commonly asked questions that people have regarding the keeping and raising of mealworms as a food source. If you have a question that you would like to ask and see here, please email it to us as we are always adding to this list!

Is it true that mealworms can eat their way out of a gecko's stomach?

No. This is just a myth and we have never been presented any scientific data yet to prove this has actually happened. Your gecko's stomach has digestive juices which will actually kill the mealworm quite quickly - if the teeth don't do it first!

Can mealworms hurt my gecko in any way?

Yes. It is possible for your gecko to be hurt by a mealworm but this rarely happens if you are careful. Loose mealworms can nibble on your gecko if it is weak/sick/sleeping. Be sure to include a fresh piece of carrot or something for the mealworm to nibble on in case it escapes the mouth of your hungry gecko!

Feeding too many mealworms or ones that are too large can also be harmful. Do not overfeed your gecko and try to offer freshly molted mealworms as they are softer and much easier to digest.

What can I do to slow down the rate of growth of my worms?

Unlike with superworms (*Zoophobas mario*), you can actually keep mealworms in the fridge for several weeks where their metabolism slows down. They will not eat or grow while you keep them in the fridge. You can also keep them at a lower room temperature if you wish as well.

What size mealworm should I offer my gecko?

It is far better for your gecko if you offer it more smaller prey items than fewer larger ones. The smaller ones tend to be more nutritious and much easier to digest. A good rule of thumb is to offer insects whose width is no more than 1/3rd the width of the gecko's head. The insects should also be no longer than 1 times the length of the gecko's head.

Why are some of my worms all white and squishy?

These are just mealworms (larvae) that have just molted - as with other insects, mealworms periodically shed their exoskeleton. They simply lack the brown chitinous rings that you see on mealworms that have not molted. These are much easier for geckos to chew and to digest which is why we always recommend offering these as food whenever possible. These are a great way to help tempt stubborn feeders to eat!

Can mealworms harbor any type of diseases?

As with any feeder insect, it is possible for mealworms to harbor a variety of diseases - although this rarely happens. For example, some mealworms may have come into contact with contaminated fecal matter or water if they have been fed to one gecko, removed uneaten and then placed in an enclosure with another.

It is also possible for mealworms to harbor things such as bacterial and viral infections as well. Bacterial problems often start when housed in a moldy/damp environment for example.



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