

# Mealworm & Darkling Beetle

**Species:** *molitor*  
**Genus:** *Tenebrio*  
**Family:** Tenebrionidae  
**Order:** Coleoptera  
**Class:** Insecta  
**Phylum:** Arthropoda  
**Kingdom:** Animalia



## **Conditions for Customer Ownership**

We hold permits allowing us to transport these organisms. To access permit conditions, [click here](#).

**Never purchase living specimens without having a disposition strategy in place.**

There are currently no USDA permits required for this organism. However, mealworms are a non-native species and a pest. While it is permitted to keep them for study and to raise them as a food source for other animals they should never be released into the wild.

## **Primary Hazard Considerations**

Wash your hands thoroughly after handling mealworms and/or beetles.

## **Availability**

Mealworms are farmed and are generally available year round.

## **Arrival**

Mealworms and/or beetles will arrive in a paper container that may contain bran. We over-pack each order of mealworms. It is normal to have some deceased mealworms in the container. You will receive at least the quantity of live mealworms stated on the container.

Mealworms eat bran and can live in the shipping container for up to a week. Adult beetles will remain healthier if immediately provided with moisture containing food. The larvae will be anywhere from ½ to 1 inch in length. The pupae are ½ inch long. The beetles are about ½ inch long. The larvae and beetles can move relatively quickly, but do not tend to escape because they hide in the bran.

## **Captive Care**

### **Habitat:**

- To observe the complete lifecycle, move worms or beetles to a larger escape proof container with at least 2 inches of bran (such as [Bran Meal 88 W 6000](#)) or oatmeal in the bottom. In a 1 x 2 foot container you can fit a couple thousand mealworms, or one thousand beetles. Floor space is more critical than height. Beetles will lay eggs in the bran or oatmeal and it provides a food source for newly hatched larvae. Once the bran becomes broken down into fine particles either replace or start a fresh container. A monthly cleaning of the container is recommended.

### **Care:**

- Provide apples or carrots for both mealworms and beetles as a source of food and water. Two large carrots or one large apple cut into large pieces and placed on top of the bran will be sufficient for a couple thousand mealworms or beetles for about three days. Once the food is dried out or has become mushy, throw it away.

## **Information**

- Method of reproduction: Sexual. Mealworm beetles (darkling beetles) are prolific breeders. During mating the male injects the female with a packet of semen. A few days after mating, the female will burrow into soft ground and lay between 70–100 eggs. To prevent reproduction, place the container with the beetles and larvae in the refrigerator. This halts the cycle of development until they are brought back up to room temperature.
- Determining sex: It is very difficult to determine the sex of a darkling beetle. On the underside of the rear end of the beetle there are segments of the body. The plates of these segments are called sternites. In the female there is little or no separation between the three most posterior sternites while in the male the intersegmental membranes are clearly visible with a lighter coloring. Also, the 5th visible sternite is quite round in the male and slightly pointed in the female. It is possible to observe the male beetle chasing the female during the courtship ritual prior to mating.

## **Life Cycle**

Metamorphic life cycle. After one week the mealworm eggs hatch and larvae emerge. During the larval stage, a mealworm will molt 10–14 times. During its last molt, it loses its carapace and changes into a curved pupa. The new pupa is a creamy white color and changes slowly to brown before emerging as an adult. The mealworm remains a pupa from 6 days to around 300 days depending on incubation temperature. A newly emerged mealworm beetle will sit still as its wings unfold and dry. It will appear a creamy color and will brown over a period of 2–7 days. Once the mealworm beetle has browned they are sexually mature and begin to look for a mate. Adults typically live 2–4 weeks or longer in captivity.

## **Wild Habitat**

The darkling or mealworm beetle is a native species of Africa but has become naturalized in North America. They are often found in cupboards, pantries, or wherever food is stored and are considered pests. In Africa the beetles and larvae eat decaying leaves, sticks, grasses, and occasionally new plant growth. As general decomposers, they also eat dead insects, feces, and stored grains. Mealworms live in areas surrounded by what they eat under rocks, and logs, in animal burrows and in stored grains. They clean up after plants and animals, and therefore can be found anywhere where “leftovers” occur. Many predators eat mealworms including rodents, lizards, predatory beetles, spiders, and birds. Mealworms prefer darkness and to have their body in contact with an object.

## **Special Notes**

Mealworms are typically used as a food source for pet reptiles and birds in North America. They are also provided to wild birds in bird feeders and are used for fishing bait.

## **Disposition**

- We do not recommend releasing any laboratory animal into the wild, and especially not insects that are considered to be pests.
- Adoption is the preferred disposition for any living animal.
- If the insects must be euthanized at the end of study, put them into a container or bag and freeze for 48 hours.
- A deceased specimen should be disposed of as soon as possible. Consult your school’s recommended procedures for disposal. In general, dead insects should be handled as little as possible or with gloves, wrapped in an opaque plastic bag that is sealed (tied tightly) before being placed in a general garbage container away from students.