

NABS Factsheet

Mealworms

Mealworms are not really worms at all. They are the larval form of the darkling beetle (*Tenebrio molitor*). They are a nutritious food supplement relished by bluebirds. They are clean and easy to keep. They do not carry human diseases. Mealworms can be offered to bluebirds to:

- Entice them to use a nestbox
- Help the incubating female find food quickly so she does not have to leave her eggs unattended for long periods of time
- Act as supplementary food for nestlings if food becomes scarce—e.g., when weather conditions prevent the parents from finding insects
- Help birds survive during spells of severe weather
- As supplemental food when one parent is attempting to raise young because the other parent is missing.



Barbara Baird

CARE OF LIVE MEALWORMS

Mealworms require a grain source such as wheat bran, cornmeal, chicken mash or oatmeal, or a piece of bread. Dry cat food can be added to the grain to enhance the protein value of the mealworms for the bluebirds. About once a week, provide moisture by adding a piece of potato, apple, carrot, or banana peel. Put it on a plastic lid or piece of paper towel or cardboard. Avoid letting the meal itself become too moist, or it will get moldy and the mealworms will die.

Mealworms can be kept in a shallow plastic container with a capacity of 2 to 5 gallons, is covered with a lid that provides air circulation (such as a screen or perforated top). Keep the container in the dark, because as the name *darkling beetle* implies, they prefer darkness. Do not keep them in hot or really cold locations. If you are not planning to raise mealworms, they can be kept in a dormant state in the refrigerator, in small containers with tops that allow some air to enter.

If you plan on raising mealworms, place a piece of cloth over a portion of the grain to provide a surface on which adult beetles can lay their eggs. The mealworms will undergo a series of molts. Their development is most rapid at the optimum temperature of 80°F (27°C). Mealworm metabolism can be slowed down by keeping them in the refrigerator for a few weeks, up to several months (remove the vegetable matter first). After the last molt, the larvae come to the surface and metamorphose into white pupae. After 6–18 days, they turn into beetles. Adult beetles have wings but do not fly. They start to lay eggs about 4–19 days after emergence, and then die after a couple of months. Egg incubation takes 4–19 days.

Eventually, waste products or “frass” will build up and a slight odor of ammonia will be detected. At this time, the grain needs to be sifted to separate the worms and adult beetles from the old grain; the container is washed and new grain added.

FEEDING MEALWORMS TO BLUEBIRDS

Perhaps the biggest challenge is to try to attract bluebirds to your yard with mealworms. If you already have bluebirds and just want to ensure they stay, mealworms can be an effective enticement. If you have never or rarely seen a bluebird in your yard, chances are they will not show up just because you put out mealworms. What will happen is that other birds in your yard will find them and quickly consume the entire offering. So unless you have bluebirds around, it could be a costly and unrewarding venture to offer mealworms in the hopes of attracting them. However, in cold climates, small



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overwintering songbirds like chickadees, nuthatches, etc. appreciate a small hanging tin cup of mealworms as much as bird watchers enjoy watching them come.

There are several types of feeders that can be used. If you put mealworms on the ground, they will burrow into the dirt, or other birds like robins will probably eat them all. The best type of feeder is a hopper style where the mealworms can be placed inside the feeder, with the bluebirds entering from a hole at either end. Naturally curious, bluebirds will readily explore this type of feeder and quickly recognize it as a food source. A 1½ inch or 1¾ inch hole at each end will effectively exclude larger birds. A cage-style feeder can also be used to exclude larger birds. Smaller birds will soon catch on, but an aggressive male bluebird will usually defend “his” feeder, especially if he and his mate are nesting nearby.

To prevent mealworm escape from a feeder, put them in a cat food can or a glass or ceramic dish with smooth sides. Some find that putting a flat saucer with a few worms in it on top of the feeder will help draw the bluebird’s attention to the location of the feeder. Once they become familiar with the routine, the saucer should be removed and mealworms placed inside the feeder. The location of the feeder can also be moved as the birds become familiar with it, and moved to a spot where it is easier for you to watch them feed. One of the highlights of feeding mealworms to bluebirds is watching the fledged young start coming down to the feeder, first begging to be fed and eventually figuring out for themselves how to get the tasty treats on their own.

Because they do not provide complete nutrition, mealworms should be used as a supplemental food only. They are calcium depleting, which can leave young birds with weak bones or cause egg binding in laying birds. To counter this, put the mealworms in a plastic bag with calcium carbonate or calcium citrate powder, and shake it gently to coat them. Both forms of calcium are available at health food stores or online. Offer mealworms in limited quantities just once or twice a day unless poor weather conditions dictate more frequent feeding. A hundred or so worms offered morning and evening would be more than adequate for a pair with a box of nestlings.

Alternatively, you could offer commercially available dried mealworms. They are maintenance-free and may last longer so are considered by some to be more cost effective. However, bluebirds may ignore the lifeless mealworms unless other options for food are limited (e.g., during poor weather). Rehydrating the worms with a little water or vegetable oil may make them more attractive to birds.

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The North American Bluebird Society, Inc. is a non-profit education, conservation, and research organization that promotes the recovery of bluebirds and other native cavity-nesting bird species in North America.

www.nabluebirdsociety.org

