

NABS Factsheet

Mealworms

Mealworms are actually not 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 the eggs unattended for long periods of time.
- They can serve as supplementary nutrition 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.
- To serve as a supplemental food when one of the parents is missing.



Carolyn Lind Hockman

SOURCES FOR MEALWORMS

Mealworms can be supplied as living organisms or in a freeze-dried condition. When they are to be used as a food source for bluebird nestlings however, **only live mealworms** should be used. **Never supply freeze-dried mealworms as a food source for nestlings!** Food items are the only source of water for nestlings and freeze-dried mealworms contain little moisture – a diet of mostly freeze-dried mealworms could be harmful to nestlings.

Live mealworms can be relatively easily raised and maintained at home using grain (e.g., wheat bran, corn meal, chicken mash or oatmeal) or a piece of bread. It is easy to find guidance on the internet (e.g., YouTube videos) on how to start and maintain a colony of mealworms.

Alternatively, both live and freeze-dried mealworms can be purchased from commercial suppliers. We recommend using a North American supplier where you can better ascertain the quality of the product and communicate directly with the laboratory supplying the worms if necessary. We recommend against purchasing mealworms sourced from other countries (e.g., China) because it is much harder to assure the quality of the worms supplied.

FEEDING MEALWORMS TO BLUEBIRDS

Perhaps the biggest challenge is to attract bluebirds with mealworms. Just plain luck might be the biggest factor here. However, 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 probably happen is that other birds in your yard will find them and quickly consume the mealworms. In summary, unless you already 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 overwintering songbirds like bluebirds, chickadees, nuthatches, etc. do appreciate a small hanging tin cup of mealworms as much as you enjoy watching them come to get them!

For bluebirds it is advisable to use a mealworm feeder and there are several types of feeders that can be used. If you put mealworms on the ground, they may 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 1 1/2 inch or 1 9/16 inch hole at each end will effectively exclude larger birds. A cage-style feeder (see picture) can also be used to exclude larger birds. Other small birds will soon catch on too, but an aggressive male bluebird will usually defend “his” feeder, especially if he and his mate are nesting nearby.



Fatbird.com



To prevent the mealworms escaping from the feeder, put them in a tuna or cat food can or in a dish (glass or ceramic) with smooth sides. Some find that putting a flat saucer with a few worms on top of the feeder will help draw the bluebird's attention to the location. Once they become familiar with the routine, the mealworms should be placed inside the feeder. The location of the feeder can also be varied. Initially one can place the feeder close (~25 feet) to the nestbox. Then incrementally move it farther away (to ~100 feet) as the bluebirds become familiar with it. Ideally it can be moved to a spot where it is easy 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.

Mealworms are an excellent food -- rich in fat and protein -- but it is important to realize that mealworms do not provide a complete diet. They are low in calcium and therefore should be used as a **supplemental** food source only. A diet of only mealworms could leave nestlings calcium deficient leading perhaps to weak bones or causing egg binding in laying birds. To counter this, put your mealworms in a plastic bag with calcium carbonate or calcium citrate powder, and shake it gently to coat them. Both of those calcium salts are available from health food stores or on-line. Other individuals sterilize eggshells, then dry and grind them to a powder to use as a calcium supplement with mealworms.

It is best to 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 per day (half in the morning, half in the afternoon) should be adequate for a pair of bluebirds with a box of nestlings.

Alternatively, **except for the nesting** season one could offer commercially available freeze-dried mealworms. They are mostly maintenance-free and may last longer so they are considered by some to be a more cost effective approach. However, bluebirds may ignore the lifeless freeze-dried 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. As noted earlier never offer freeze-dried mealworms to nestlings.

This document is about feeding mealworms, but we mention that the larvae of the **Black Soldier Fly** (*Hermetia illucens*), are another good food supplement and, unlike mealworms, these larvae are naturally high in calcium and protein making them a great supplemental food for nesting birds. There is a lot of information online about Black Soldier Fly larvae as a supplemental food for birds and pets. (*NOTE: these are not the same as Black Flies, i.e., family Simuliidae, aka "Buffalo Gnats" the biting flies from streams*).



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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.

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