

Easy Reference Sheet

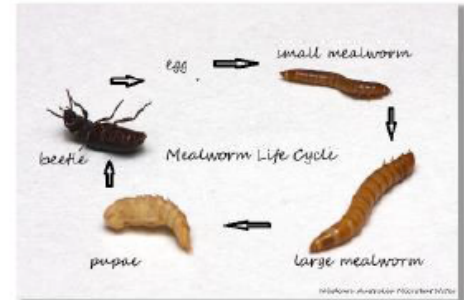
Breeding Mealworms

The following is a guide to one method of farming and preparing mealworms prior to coating and feeding to wildlife. Mealworms are extraordinarily expensive to buy and are often difficult to source, so establishing your own mealworm farm is a very good idea.

Breeding Process

The mealworm lifecycle is as followed:

- Eggs (1-2 weeks)
- Mealworm (10 weeks)
- Pupa (1-2 weeks)
- Beetle (2-3 months)



Equipment

Equipment/ Materials needed:

- 4-5 Tubs or a set of 4-5 drawers used to store mealworms at different developmental stages. The base of the top draw should be carefully cut out with a Stanley knife and a fine mesh (e.g. fly screen mesh) glued in its place with a glue gun or equivalent.
- Sieves / sifter
- Tweezers
- Medium – see below for the different mediums for the different drawers.

Start with a handful of mealworms, leave them in wheat bran / pollard medium for a few weeks and allow them to develop into pupae and then beetles. Once pupae and then beetles have developed you can commence the breeding program.

Drawer Set-up

In the 4-5 drawer unit, the top drawer with the mesh base is where the beetles are stored. The beetles lay eggs in the medium which then fall into the second draw. The third draw is to grow up small mealworms and the fourth drawer is for further growing up and prepping mealworm for consumption. The fifth draw if you have one, is for storing mealworms to allow them to turn to pupae and then to beetles, after which they are transferred into the top draw. Alternately you can just leave a handful of mealworms aside in a small container which will eventually turn to pupae then beetles

DRAWER 1 - Beetle Drawer - The beetle drawer is the top drawer. It needs to have the base cut out carefully with a Stanley knife and then a layer of mesh (insect screen) heat glued across the base. The beetle draw medium is natural whole rolled oats with vegetables (see list below) placed on a plastic dish for extra nutrients. The beetle eggs fall through the mesh into the second drawer. A container of water that is tall and inaccessible to the beetles can be placed into the drawer in times of very dry weather. More eggs will be laid when there is some humidity in the drawer. In the event that you are using tubs as opposed to drawers, the beetles can be placed in wheat bran / pollard mix and after a month or so rotated to a new tub to allow the initial tubs egg harvest to hatch and grow on.

DRAWER 2 - Egg Hatching Drawer – The egg hatching / baby mealworm drawer medium can be either pollard (preferred) or wheat bran with vegetables placed on a plastic dish. Once tiny baby mealworms are visible (about a month) move the drawer or the contents of the drawer to the level below (growing up drawers). Set up the drawer again to catch the next batch of eggs.

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Breeding Mealworms (continued)

DRAWER 3 - Small Mealworm Growing up Drawers – Medium can be either pollard (preferred) or wheat bran with vegetables placed on a plastic dish. Food must be available constantly to grow the worms up quickly. Once the mealworms are of medium size, move them to the next drawer for final prepping and gut loading.

DRAWER 4 - Medium to Large Mealworm Prepping / Gut loading Drawer – The mealworms spend their last two weeks (minimum) acquiring the most amount of nutrients as possible so that they are as healthy as possible for the wildlife that consume them. This can either be done by adding extra vegetables in addition to blended chick starter granules (60% by volume), Wheat Bran (38.5% by volume) and Calcium Carbonate Powder (Balanced Calcium®) (1.5% by volume) **OR** Wheat Bran (50% by volume) and the new *Passwell* Product 'Insect Booster'® (50% by volume).

DRAWER 5 - Pupae Development Drawer or Container – ¼ inch wheat bran or pollard is all that is required. No food needs to be provided as you want the mealworms to pupate quickly. Transfer the beetles to the beetle drawer as soon as they appear.



Photo Right:
A mealworm farm utilising plastic drawers,
one of the many methods of mealworm husbandry.

Other pointers:

- Generally the warmer the temperature, the faster the lifecycle of the mealworm. Excess mealworms can be stored in the fridge to slow their metabolism so that they do not develop quickly. If storing in the fridge remove every two weeks for a couple of days, to allow them to rehydrate and feed.
- Foods that can be added: potato, pumpkin, carrots, cabbage, lettuce, sweet potato, wholegrain bread. Most fruits create mould too quickly and should be avoided. Make sure the food does not touch the bedding or it will cause the bedding to rot and/or get mouldy. Put it on a plastic lid.
- Mealworms prefer the dark and should be kept out of direct sunlight. However, studies have shown that mealworms develop faster when provided with some light. You can leave the mealworm growing up drawers permanently half pulled out.
- Check your farm every few days and remove any dead beetles/pupae/worms. Replace the bedding once it begins to look grainy (this is mealworm excrement), if it gets mouldy or if it smells.



Photo Left:
Sieving mealworms from the medium to prepare to feed to wildlife.

References: *Introduction to the Care and Rehabilitation of Microbats* (R Lyons & T Wimberley – Wildcare Australia Inc). Photos: R. Lyons