

# FEEDER INSECT CARE GUIDE

DRIVE SALES WITH QUALITY CARE  
PROCEDURES

*Timberline*  
Nature. Nurture. Nutrition.



# Insect Care Instructions

## CalciWorms (*Hermeia illucens*)

CalciWorms are the larvae of the black soldier fly. They are naturally high in calcium making them an ideal live feeder solution for calcium supplementation in reptiles and other insectivores. CalciWorms should be considered a supplement to a cricket, superworm, hornworm and/or mealworm staple diet and NOT a sole ration by itself. CalciWorms are generally a creamy white grub but turn darker and even black the closer they get to pupating. BLACK CALCIWORMS ARE NOT DEAD. Customers often mistake black CalciWorms for dead ones because of their experience with waxworms. We recommend to customers to remove CalciWorms from the refrigerator and allow them to warm up before feeding. Once warm they will become much more active and attractive to hunting reptiles.

### Care Points of Emphasis:

- CalciWorms are best kept by refrigerating at temperatures between 42°F - 55°F.
- CalciWorms are packed in their food source that will have a slight vinegar odor.

## Crickets (*Acheta domestica*)

*Acheta domestica* crickets, also known as the House Cricket, or Brown Cricket are the preferred species of cricket for reptile food. Crickets are an excellent staple diet for all insectivores. Live crickets activate the hunting mechanism for reptiles keeping them active and interested in their food source.

### Care Points of Emphasis:

- Provide a clean, high quality, well ventilated vessel for housing your crickets.
  - Cricket storage container surfaces should be wiped down between deliveries with a very mild bleach and water solution, and thoroughly rinsed.
  - Crickets storage containers should contain clean egg crates or other surface area increasing media to allow the crickets to spread out, but no bedding
- Remove delivered crickets from their shipping boxes as soon as possible.
- Provide a two-day supply of clean food and watering method.
  - Timberline's Cricket Power Food is the best cricket food to maintain the high nutrient level in crickets, and to keep them healthy and long-lasting in your store.
  - Crickets need a watering method that makes it impossible for them to drown, such as Timberline's Easy Water gel – a pure and safe water source.
- Optimal Temperature: 70-75 degrees, with LOW humidity
  - Be sure you aren't storing the crickets where a thermostat allows significant temperature irregularities throughout the day and night.
  - Be sure that your storage unit has excellent ventilation, but do not use a fan or other forced air methods.
- Maintain the cricket case.
  - Sweep our cricket sheds and dead crickets daily

- Clean the case between each delivery
- Never let your display case get damp or wet – NEVER place produce inside a cricket storage unit
- Smelly cricket display cases are the result of dead crickets, and the mixing of cricket food and water. Cricket keepers should smell like dry cricket food if cared for correctly.

### **Housing Crickets:**

When additional space is required to house large volumes, or different size crickets you can replicate the critical elements of a retail display case for back-of-house inventory storage using the following guidelines:

1. Use plastic storage containers that are at least 15” tall with slick sides.
2. If you intend to utilize the lid – some of it must be removed for ventilation. The voids or holes should be covered with an aluminum mesh hot-glued to the lid to keep the crickets from escaping.
3. We strongly recommend cutting at least one vent hole in each side of the container and cover with aluminum mesh to promote quality airflow.

### **When they arrive:**

Promptly empty your crickets and box contents into your clean storage bin. Discard the potato that was included in the box. Sweep up any sheds or waste and discard it. Provide the crickets with enough Cricket Power Food and Easy Water for approximately two days in clean, shallow dishes.

### **Cold Weather Shipping:**

When shipping during cold weather crickets may arrive cold. In the event your crickets arrive and are dry but motionless they are very likely in what we call “diapause”. Diapause is a condition that crickets can easily recover from. Cold temperatures prevent crickets from maintaining a water to potassium balance that allows them to use their muscles. In almost all circumstances crickets that have been too cold for several hours will recover once they are brought back up to room temperature. To speed their recovery, you should empty the contents into a separate bin and remove the potato and egg crates to provide as much **room temperature** airflow to the crickets as possible. **DO NOT** warm them with any additional heat source except room temperature air. It may take a few hours for them to revive.

## Flightless Fruit Flies (*Drosophila melanogaster* & *hydei*)

Flightless fruit flies from Timberline are the gift that keeps on giving. Timberline packages vials with approximately 50-100 adult fruit flies with their food and water source in the vial. When cared for properly the flightless fruit flies will continue to reproduce for multiple generations.

### Care Points of Emphasis:

- Fruit Flies should be kept at room temperature with the foam plug in place.
  - If left open, other fruit flies (the flying kind) will find their way into the vile and reproduce.
- When dispensing fruit flies into animal enclosures, recommend to your customers that they leave 50% of the flies in the vials so reproduction can still occur.
- *Melanogaster* fruit flies reproduce much quicker than their *Hydei* counterparts.

## Hornworms (*Manduca sexta*)

Hornworms are the larvae of the Sphynx Moth. They grow very quickly and should be stored with the food on the top so the waste can remain separated from the food source. Hornworms are an excellent source of moisture and can be used as a staple feeder for most reptiles.

### Care Points of Emphasis:

- Hornworms are best stored at room temperature and will grow much quicker at temperatures exceeding room temperature and slow down slightly when cooled into the 60s.
- Hornworm cups should be stored inverted, so the food is on top. It's also important to prop the edge of the cup up to ensure good airflow.

## Standard and Giant Mealworms (*Tenebrio molitor*)

Another excellent choice as a staple live feeder insect for insectivores are the standard and giant mealworms.

### Care Points of Emphasis:

#### *Retail Cups:*

- Mealworm cups are best kept by refrigerating them in a mini fridge between 42°F - 55°F. Often refrigerators are set at a much lower temperature, so use a thermometer to insure proper settings. Keeping mealworms for extended periods of time below 42° will kill them.
- Mealworms require food and water about every three weeks for optimal quality.
  - Retail cup worms are packed in bedding that serves as their food source, but will need to be brought to room temperature for a 24-hour period after three weeks to allow the worms to become active and eat. Dropping a small amount of easy water or cricket aid in each cup for that 24-hour period is very beneficial. Remove any moisture before putting the product back in the refrigerator.
  - Although mealworms can remain alive longer than three weeks with proper care, it is our strong recommendation that cupped mealworm inventory should be rotated after three weeks in the store. Any product remaining after three weeks should be fed to your in-store reptiles.
  - Maintain a low humidity environment in the refrigerator to extend product life.

## Superworms (*Zophobas morio*)

### Care Points of Emphasis:

#### *Bulk Quantities:*

- **DO NOT REFRIGERATE SUPERWORMS** – superworms should be kept at room temperature.

#### *Retail Cups:*

- Superworms cups require just a little maintenance to significantly extend their shelf life.
  - Superworms are voracious eaters, and are packed in mealworm bedding that satisfies their food needs. They will require some small amount of moisture every few weeks to maintain high quality. Dropping a few pieces of cricket aid, or Easy Water into the cups ever few weeks will satisfy that need. Without added moisture, Superworms will consume one another – leading to bigger worms, but smaller numbers of them in the cups.
  - Although superworms can survive significantly longer with proper care, it is our strong recommendation that cupped superworm inventory be rotated after three weeks in the store. Any product remaining after three weeks should be fed to your in-store reptiles.

## Waxworms (*Galleria mellonella*)

Often used by reptile owners and keepers as a treat, waxworms are high in fat and very desirable for insectivores. Waxworms should NOT be used as a staple diet. Waxworms can be used as a much-needed energy source for pregnant female reptiles and those recovering from pregnancy or illness.

### Care Points of Emphasis:

- Waxworms should also be kept in the refrigerator and can maintain high their high quality for up to three weeks at 55°F.
  - When stored in the same refrigerator as your mealworms you may find that the door of your refrigerator is the best place for Waxworms because it typically maintains a slightly warmer temperature than the racks.
- Waxworms don't eat at this stage of their life, so over time they will consume their stored up fat supplies within their bodies and reduce their overall mass.
  - Again, Timberline recommends rotating your stock within three weeks' maximum and feeding remaining stock to in-store reptiles.
  - Maintain a low humidity environment for your waxworm cups. DO NOT store produce of other items in your feeder insect refrigerator that will elevate the humidity level.

## Cup Rotation Recommendations

### Reptile Lunch Boxes - Prepackaged Crickets:

#### 10 Days

Reptile lunch boxes have a date stamped on the bottom of the sleeve indicating the day the bugs were harvested from their growing environment and packed in their cup. There is a green cube of complete nutrition and moisture for the crickets that will sustain them for more than a week. Over time, the crickets will shed and produce waste, making the packaging progressively less attractive. It is our recommendation that products in the store more than 10 days should be rotated out of stock, and the bugs fed to reptiles in the store.



### Cupped CalciWorms:

#### 3 weeks

CalciWorms are packed in a moist bedding that is their food source. CalciWorms can also be stored in the refrigerator between 42F and 55F. Over time, as the food is consumed and becomes drier, CalciWorms will slowly regress in size. It's important to note that CalciWorms turn black the closer they become to pupating – black ones are NOT dead. CalciWorms are also quite content at room temperature – but produce an unappealing waste smell like ammonia. Refrigerating slows their metabolism, limiting their waste generation. It is recommended that cups that have been in the store for more than 3 weeks, or are 4 weeks from their packed date get rotated out of stock and fed to store animals.



### Cupped Hornworms:

#### 10 Days

Hornworms grow rapidly at temperatures that exceed room temperature and can become fully grown in 10-12 days. The food should be kept at the top of the cup so the waste can remain separated from the food. It is important to remove the lid and dispose of the waste daily. It is our recommendation that products in the store more than 10 days should be rotated out of stock, and the worms fed to reptiles in the store.



## Cupped Mealworms:

### 3 Weeks

Mealworm cups are packed in mealworm bedding that is the food source for the worms. They are perfectly healthy at room temperature but they eat, grow and produce waste at a much higher rate, decreasing their shelf life significantly. It is recommended that mealworms be kept in a refrigerator on its warmest setting, between 42F and 55F. The cooler temperatures slow the worms' metabolism significantly, extending their shelf life up to three weeks with almost no quality degradation. It is recommended that cups that have been in the store for more than 3 weeks, or are 4 weeks from their packed date get rotated out of stock and fed to store animals.



## Cupped Superworms:

### 3 weeks, some maintenance recommended

Superworms are also packed in mealworm bedding that serves as their food source. Unlike mealworms, they must be kept at room temperature. Superworms cups can maintain shelf lives of up to three weeks in the store without dramatic quality decline. Superworms do require some form of moisture every week or so. It is best practice to drop a small piece of Cricket Aid or Easy Water into each superworm cup each week. Without an additional source of moisture, superworms become quite cannibalistic. Superworm cups that go untended for several weeks are likely to have significantly fewer live worms because of cannibalism. It is recommended that cups that have been in the store for more than 3 weeks, or are 4 weeks from their packed date get rotated out of stock and fed to store animals.



## Cupped Waxworms:

### 3 weeks

Waxworms are packed in aspen chips that serve as their bedding. Waxworms are at a stage in their lives where they no longer eat, and survive on their body mass. To slow their metabolism, it is best to keep them in a refrigerator between 50F and 55F. Typical refrigerator settings are much colder than 55F so we recommend turning the fridge to the warmest setting, and storing waxworms in the door where it stays a bit warmer. We recommend that cups that have been in the store for more than 3 weeks, or are 4 weeks from their packed date get rotated out of stock and fed to store animals.



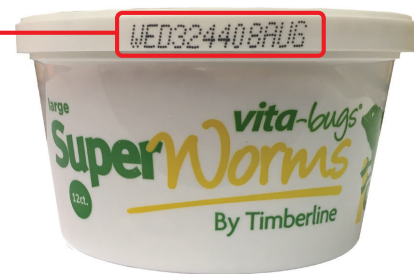
## Cricket Aid:

### Indefinite

Cricket Aid is a complete diet and moisture source designed for crickets. Cricket Aid is also a great source of food and water for superworms and mealworms when used along with proper bedding. For Cricket Aid to retain its nutrients, it must remain refrigerated. When kept cool, and properly sealed, Cricket Aid remains a high-quality diet indefinitely.

## CUP CODE:

Proper cup rotation is a critical step to control product quality. Each one of our pre-packaged products have a "born-on-date" code printed on it. Our cupped products retain high quality for 2-3 weeks. Use this guide when determining the age of each product. Never write the date of arrival on the cups which allows customers to self-rotate, violating the typical first in, first out practice of product rotation.



**WED324408AUG**

day of week

day of week  
(1 = Sunday)

day of year

month

month