



\*Ashley Ketchum

## Hornworms (*Manduca spp.*)

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### **Introduction**

Hornworms, as they are commonly known as, are the larval or caterpillar life stage of a genus of moths from the family Sphingidae, which are also commonly known as the hawk moths or sphinx moths. Several species of hornworms are widely known and utilized in biological research (particularly neurobiology) as well as for pets and feeders for a variety of reptiles and amphibians. The most commonly known species include the Tobacco hornworm (*M. sexta*), and the Tomato hornworm (*M. quinquemaculatus*). As their common names imply, these hornworm larvae favor feeding on particular host plants such as tomato and/or tobacco plants.

They earn the name “hornworms” from the horn-like appendage on the posterior, which is harmless and not venomous. Although hornworms are still relatively new to the pet industry, and are thus still priced at more premium rates than other invertebrate feeders, they can serve as a substantial and nutritional food source or occasional treat for a variety of captive reptiles, amphibians, and other animals. Adult moths typically are not useful as feeders, but should not be released or improperly discarded per USDA regulations (they are crop and agricultural pests). Adult moths have a longevity of only several days, can be fed crushed fruits and vegetables such as watermelon, cantaloupe, and squash or be disposed of through freezing.

### **Taxonomy:**

**Life:** All living, physical, and animate entities

**Domain:** Eukaryota

**Kingdom:** Animalia

**Phylum:** Euarthropoda

**Class:** Insecta

**Order:** Lepidoptera

**Family:** Sphingidae

**Tribe:** Sphingini

**Genus:** *Manduca*

**Species:** *Manduca spp.*\*

\*Taxonomy subject to change and revision.

### **Experience Level Required**

Novice/Beginner.

### **Legal and Regulatory Status (\*Subject to Change)**

Consult your nearest United States Department of Agriculture (USDA) branch for any further,

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current federal regulatory or legal status. Also consult with your local, municipal, and state ordinances and regulations for any ownership restrictions.

### **Size**

Most hornworm larvae or caterpillars range from 3 to 6 inches in size.

### **Housing and Enclosure**

Housing hornworms is quite simple and inexpensive. They can be pre-purchased in a clear, tall deli-cup or plastic container known as a “pod” or one can be provided at home. The enclosure or container used should be fairly large and tall to allow for maximum movement; a minimum of a 6 quart tall container is recommended. A securely fitting lid is also recommended to prevent the hornworms from climbing or crawling out and escaping, and should create adequate ventilation. Ventilation can be created by punching a series of several small holes along the top, or by cutting out a section of the top and fastening a wire or screen mesh. A false bottom, or gutter guard can then be installed in the container to separate the hornworms from their wastes. No further substrate is required for hornworms. A plastic mesh or vertical and horizontal branches or perches can also be included in the container for climbing and movement. Frass (waste buildup) should be cleaned and removed every two to three days for cleaning procedures.

### **Temperature, Lighting, and Humidity**

Hornworms will do well at temperatures of 70 to 85 degrees F, with nighttime or overnight temperatures being allowed to drop to 70 to 75 degrees F. If additional heating is needed, a low wattage ceramic or radiant heat emitter, incandescent bulb, or under tank heating element (UTH) can also be provided. More specific lighting, heating, and humidity product suggestions and recommendations that can best suit one’s needs, as well as those of any feeder species can be given as well. No further special heating or lighting is required for hornworms. Be sure to keep humidity fairly low, as hornworms will not tolerate higher levels of humidity. Hornworms in captivity derive most of their water and hydration from commercially available diets for them.

### **Feeding, Diet, and Nutrition**

Hornworm larvae feed on various host plants and associated foliage from the plant family Solanaceae, which include the tomato and tobacco plants. Leaves and foliage from these plants can be given to hornworms, but can make them toxic to feed to other animals, and is thus not a recommended diet (unless the worms are simply to be kept as pets themselves). Oftentimes, hornworm pods which are available are provided with a supply of foods already, which can last the worms for at least some time before restocking. Some commercially available hornworm diets are also available, and recommended. These diets may be found at local reptile shows and expos, exotic pet specialty stores, or online. More specific dietary and supplementary product suggestions and recommendations that can best suit one’s needs, as well as those of one’s animals can be given as well.

### **Handling**

Hornworms can be handled, but may thrash, use their horns in defense, or try to bite. Most feeder larvae and other feeder insects can easily be handled, moved, or transferred from one container or enclosure to another if needed by gently shaking or tapping the egg carton, tube, or other hide that they are on or within, or scooping them up. It is recommended that they be dusted or supplemented with calcium and other vitamins prior to feeding to other animals as well.

Individuals can also be gently grasped and offered using forceps or tweezers as well.

\*\*It is possible for some people to develop allergies to feeder insects and/or their frass (droppings and waste products) as a result of too frequent of handling or constant exposure to thereof. Handling your feeder insects in a well ventilated room or other area, and using gloves

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are some ways to prevent any potential human health related issues. Also remember to be sure to practice basic cleanliness and hygiene associated with proper husbandry after touching or handling any animals or animal enclosures to prevent the possibility of contracting salmonellosis or any other zoonotic pathogens\*\*

### **Contact**

Authored by Eric Roscoe. For any additional questions, comments, and/or concerns regarding this animal, group of animals, or this care sheet, please email and contact the Madison Area Herpetological Society at [info@madisonherps.org](mailto:info@madisonherps.org)

*Disclaimer: Note that the information provided in these, or any care sheets, are not intended to be all-exhaustive, and further research and care should always be sought and provided when it comes to any species one may prospectively be interested in. These care sheets are also not intended to serve as substitutes for professional veterinary medical care and husbandry should any animal require it. Always seek proper and professional veterinary care for any animal should the need arise, and be prepared ahead of time for any and all husbandry costs and expenses that may occur with any animal beyond the initial purchase. Any animal owned is ultimately a matter of personal/individual care and responsibility. MAHS cannot make any claims or guarantees regarding any information in this care sheet therein. This care sheet may be reprinted or redistributed only in its entirety, including any and all MAHS logos and disclaimers.*

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