Nasonia

Species: *vitripennis*
Genus: *Nasonia*
Family: Pteromalidae
Order: Hymenoptera
Class: Insecta
Phylum: Arthripoda
Kingdom: Animalia

Conditions for Customer Ownership

We hold permits allowing us to transport these organisms. To access permit conditions, click here.

Never purchase living specimens without having a disposition strategy in place.

- The USDA does not require any special permits to ship and/or receive *Nasonia*, however, in order to continue to protect our environment, you should house your *Nasonia* in an escape proof terrarium. Under no circumstances should you release your *Nasonia* into the wild.

Primary Hazard Considerations

Nasonia themselves are harmless to humans. You should always wash your hands thoroughly before and after you handle your *Nasonia*, its food, or anything it has touched.

Availability

Nasonia are available year round. *Nasonia* will arrive as pupae either encased in a *Sarcophaga* pupae host which is shipped in a plastic tube with cotton stopper, or sorted (sexed) in a plastic tube with cotton stopper. We over-pack each order of *Nasonia*. It is normal to have some deceased *Nasonia* in the container. You will receive at least the quantity of live *Nasonia* stated on the container. *Nasonia* can be kept in this shipping container to emerge from their pupae, or placed in separate containers to do so. Once emerged, adult *Nasonia* live for about 15 days. *Nasonia* are very small, and need to be observed under a stereoscope for proper sexing.

Captive Care

- Development of *Nasonia* can be slowed down by exposing them to lower temperatures, allowing time to carefully plan experiments. Placing them in the refrigerator (4°C) is ideal for slowing development. Do not store your *Nasonia* in the refrigerator longer than three weeks, as long periods of refrigeration lessen viability. (Diapause is the state that *Nasonia* enter into upon refriegration and can live for 1.5–2 years under the right temperature and humidity.)
- *Nasonia* can survive without food or water for a few days. If kept longer than this, provide them with a 4% sucrose solution by adding a drop or two to the cuture vial.

Care:

- Food: Larval stage—*Sarcophaga* pupae (hosts)

Information

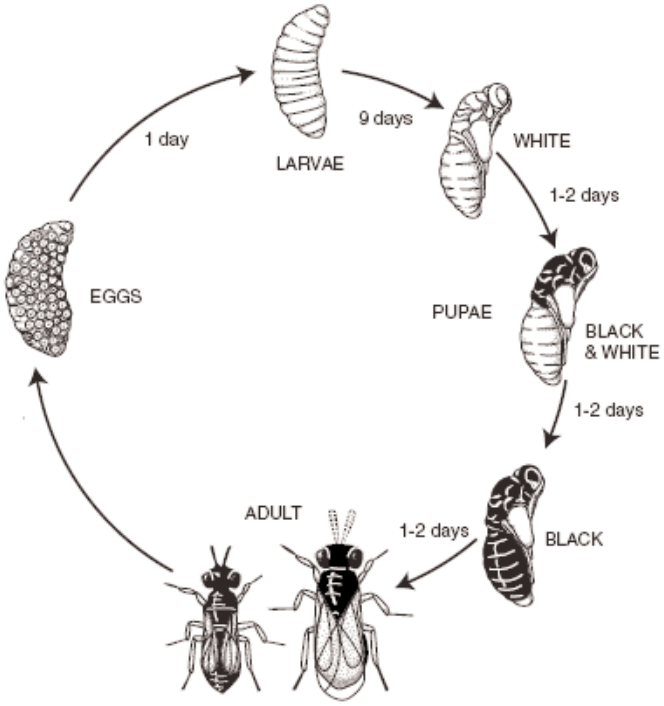
- Upon receipt, you may want to check the stage of the *Nasonia*. To do this, remove a parasitized host from the culture tube. Using your fingers or a pair of forceps, gently crack open the thin pupal casing of the host that contains the *Nasonia* pupae.
- Once the *Nasonia* pupae are exposed, note what stage most of the *Nasonia* are in. Place the cracked open host containing the *Nasonia* pupae back into the culture tube. If adults are present they can be used immediately for sub-culturing. Assume that these adults are non-virgins, so do not use them for experiments needing virgins.
- If you need virgin *Nasonia* for your experiments, they should be sexed in the pupal stage.
- Adult *Nasonia* will be needed for culturing, so you will need to incubate the pupae at room temperature until they become adults. Use the guidelines in the table below to plan accordingly. Ideally, while incubating, *Nasonia* should be exposed to cool, indirect light for 24 hours a day. Fluorescent light works well. Light that emits too much heat will harm the *Nasonia*.

If incubated at room temperature	
Pupal stage upon arrival	Days to adulthood
Whites	3–4
Black and Whites	2–3
Blacks	1–2

- Method of Reproduction: The unique reproductive strategy of *Nasonia* is known as haplodiploid inheritance and is also common to many other insects, such as bees. *Nasonia* exhibit a form of asexual reproduction, known as parthenogenesis, in which an organism is able to develop from an unfertilized egg. As a result, when the eggs are not fertilized, offspring will be haploid (n) and male. In turn, when the eggs are fertilized by a male, the chromosome number is restored to the diploid state (2n) and the offspring will be female. Once a female has copulated, she will store sperm until needed. She is able to "choose" when to fertilize her eggs.
- For example, the offspring from a non-virgin female are usually 95% female and 5% male. This occurs because the female chooses to fertilize 95% of her eggs with the sperm she has stored, resulting in diploid female offspring. The other 5% of her eggs remain unfertilized and therefore develop as haploid males.

Life Cycle

Eggs:	1 day
Larvae:	9 days
White:	1–2 days
Black & White:	1–2 days
Black:	1–2 days
Adult:	Up to 45 days



***Nasonia* Life Cycle**

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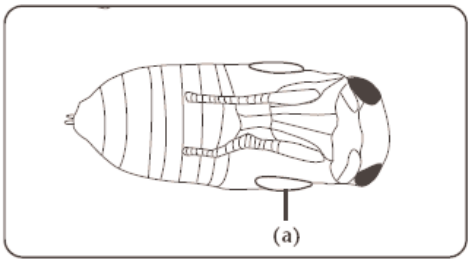
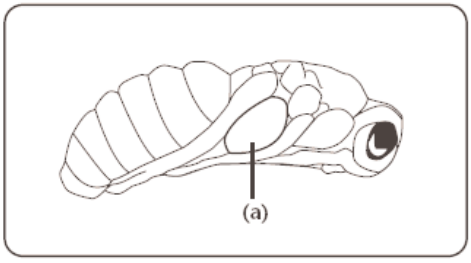
- Sexing: *Nasonia* can be sexed while they are still pupae (figures 3 and 4). Male pupae are smaller in body size and have short wings (a). Female pupae have a larger body size, long wings that wrap around the abdomen (b), and a visible ovipositor (c).

Abdominal View
Male and Female Pupae

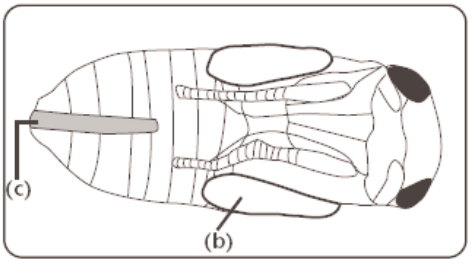


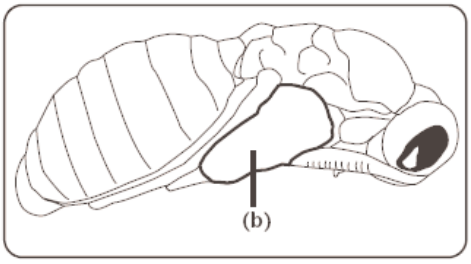
Male

Lateral View
Male and Female Pupae



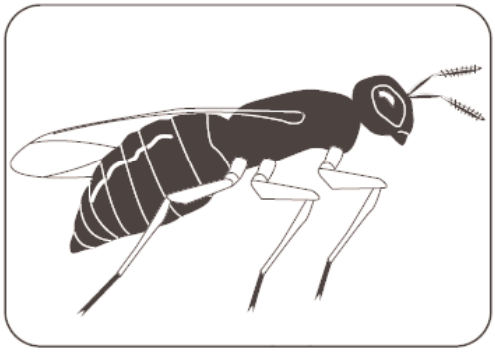
Male





Lateral View
Male and Female Adult

Male



Female

Wild Habitat

Nasonia have a wide distribution around the world and are found in dumpsters and around decaying animal carcasses. They parasitize the pupae of the flies that are also attracted to these areas.

Disposition

- Do one of the following:
  - Place *Nasonia* in a freezer for 48 hours.
  - Place *Nasonia* in 70% isopropyl alcohol for 24 hours.
  - Autoclave the *Nasonia* @ 121°C for 15 minutes.

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