Confused Flour Beetle

Tribolium

Species: *confusum*
Genus: *Tribolium*
Family: Tenebrionidae
Order: Coleoptera
Class: Insecta
Phylum: Arthropoda
Kingdom: Animalia

Conditions for Customer Ownership

We are a USDA compliant facility and hold all necessary permits to transport our organisms. Each state is assisted by the USDA to determine which organisms can be transported across state lines. Some organisms may require end-user permits. Please contact your local regulatory authorities with questions or concerns. To access permit conditions, click here.

Never purchase living specimens without having a disposition strategy in place. Live specimens should not be released into the wild! Please dispose of any unwanted organisms using the guidelines below.

Primary Hazard Considerations

- Always wash your hands after handling these beetles.
- There are no health risks from the Confused Flour beetle (even if ingested!). They will not bite.
- They can become pests if released in households. They infest dry, stored foods such as cereal, grain, beans, dried fruit, nuts, flour, and even chocolate. Take care not to let any escape. The best way to prevent an infestation is to keep storage areas clean and free from any food debris.
- Avoid breathing residual dust.

Availability

- No seasonality. Confused Flour beetles are bred in our labs, so are generally available year around.
- The larvae, pupae, and adults can be found throughout the substrate.
- Beetles will arrive packed in a 4 oz. jar in flour with a damp paper towel. We over-pack each order of beetles. It is normal to have some deceased beetles in the container. You will receive at least the quantity of live beetles stated on the container. Healthy larvae and adults are very active, but they do not fly. Adults are about ⅛" long and reddish brown. They can live in the container they are shipped in for about 7–10 days before needing to be transferred to a habitat.

Captive Care

Habitat:

- We use a 12" x 6" plastic shoe box tote, with a cover that is not air tight, and add unbrominated whole wheat flour to a depth of about 2". Add the package of beetles to the flour. Place a folded paper towel on top of the flour and then place a slightly damp sponge on top of the towel. Never let the sponge get "soggy". The flour should remain dry, but you need to create humidity (60–70%) in the box. Keep beetles at room temperature (somewhere between 70–80°F) and away from direct heat and light.

Care:

- **Food:** The diet consists of the unbrominated whole wheat flour which is also the substrate. Potato flakes can be added to the flour, but is optional.
- **Water:** Lightly mist the sponge 1–2 times weekly, taking care not to wet the flour. Change the paper towel as needed.
- **Care:** Once a box is set up, it can be left as is for 2–3 months, unless the flour becomes wet and moldy. When a change is needed, take a clean box with new flour and either sift out some beetles (adults, pupae and/or larvae) with a fine sieve or transfer some of the drier flour from the old box to the new. Any left over flour and beetles should be put in a freezer and left for at least one week to dispose of the beetles.

Information

- **Method of Reproduction:** Sexual.
- **Sexing:** Sexing of the Confused Flour beetle is usually done during the pupal stage. Males and females are differentiated by comparing external genitalia under a stereomicroscope. Place a beetle pupa under the microscope with the ventral side up. Observe the tip of the abdomen—you will easily see two long projections called urogomphi. These are located in both males and females. Layered on top of the urogomphi, in females only, is another set of smaller projections or fingers called genital papillae. Male genital papillae are barely noticeable.

Life Cycle

Complete metamorphosis. The eggs, which appear as small red specks, will hatch in about 5–12 days. The larvae will molt 12 times in about 25–100 days before pupating and then emerging in about eight days as adults. Adults can live three years.

Wild Habitat

The Confused Flour beetle originated in Africa, but has spread to temperate climates worldwide. They are found in the northern United States. They are located near human habitations, having become a major pest of stored dry goods in homes, warehouses, grocery stores, and grain storage areas. They will eat almost any type of processed grain. The Confused Flour beetle is an intermediate host to a couple of types of tapeworms (*Hymenolepis* sp.) It becomes infected when it eats rodent droppings that are mixed in with grain products. The beetles are then eaten by the rodents and the cycle continues. These types of tapeworm rarely infect humans, unless the human eats an infected rodent.

Special Notes

- The Confused Flour beetle gets it name due to confusion with the Red Flour beetle, a close relative that is located more in the southern U.S. They can be differentiated by looking at the antennae. The Red Flour beetle's antennae become abruptly larger at the last three segments, while the Confused Flour beetle's antennae become larger gradually. Their pronotums also differ slightly in shape.
- The Confused Flour beetle cannot damage whole, healthy grain kernels; they can only eat from damaged pieces of processed grain products.
- The Confused Flour beetle is one of the worst stored-product pests in the world. They not only contaminate grain products with their feces, cast molts and dead bodies, but they also encourage the development of mold.
- Female beetles can lay 300–400 eggs and produce 6–7 generations in one year.
- Flour beetles are often used as experimental organisms because they are easy to rear and maintain in the laboratory.

Disposition

- We do not recommend releasing any laboratory animal into the wild, and especially not insects that are considered to be pests or not native to the environment.
- If the insects must be euthanized at the end of study, follow one of these procedures:
  - Put them into a container or bag and freeze for 48 hours.
  - Place the organism in 70% isopropyl alcohol for 24 hours.
  - Autoclave the organism @ 121°C for 15 minutes.
- A deceased specimen should be disposed of as soon as possible. Consult your school's recommended procedures for disposal. In general, dead insects should be handled as little as possible or with gloves, wrapped in an opaque plastic bag that is sealed (tied tightly) before being placed in a general garbage container away from students.

5100 West Henrietta Road • PO Box 92912 • Rochester, New York 14692-9012 • p: 800 962-2660 • wardsci.com