

MONITORING GUIDELINES

Red and Confused Flour Beetles

Tribolium castaneum and *Tribolium confusum*

Description

Adult: These small beetles are reddish brown, and about 3.5 mm long. For Confused Flour Beetles, the last four segments of the antennae are gradually enlarged towards the tip. For Red Flour Beetles, the last three segments of the antennae are abruptly enlarged to form a club.

Larvae: The immature stage is approximately 4-5 mm long, white to yellowish in colour, and wiry in appearance. The last abdominal segment ends with two prominent points.

Damage and Detection

Heavy infestations of flour by this insect may cause the product to turn greyish or mould prematurely. This insect can also give a nauseous smell and taste from its scent glands to the material infested. They are extremely important pests of flour, but also feed on processed beans, nuts, spices, chocolate, and pharmaceuticals. Both adults and larvae cause damage.

Life Cycle

Female Red Flour beetles will deposit 200-500 eggs in food during a 1-2 year life span. Eggs hatch in 5-12 days, and the larvae can mature within 30 days or as long as 120 days depending on temperature. The life cycle of this species is shorter than the Confused Flour beetle. The reproductive rate, as a result, is usually higher as well. The Red Flour beetle is capable of flight but usually when temperatures are above 85°F.

Lure PANTRY PATROL[®] Pheromone /oil dispenser - Contains the aggregation pheromone to attract both male and female beetles, and food attractants for flour beetles. Pheromone is effective for 6-8 weeks, while the food attractant is effective for 12 weeks.

BULLET LURE and BIO-LURE[®] - Contain aggregation pheromone to attract both sexes. Effective duration of attraction is 6-8 wks.

PC FLOOR trap lures are food bait lures that attract adults and larvae of flour beetle and many other beetles.

Lure Storage

Keep unopened pheromone /oil dispensers in cool storage or in refrigeration. Keep unopened foil pouches with lures in cool storage (less than 60° F) or place in freezer for extended storage. Lures can remain frozen for up to 12 months to retain their full effectiveness for use afterwards. Shelf life of lures at room temperatures is 6 months.

Trap Designs used with Lure

PANTRY PATROL[®] "CORNER" pitfall traps contain a triangular pit to receive full dispenser of pheromone /oil.

Dust cover is incorporated into cardboard packaging.

PC Floor pitfall traps have a round plastic tray to receive food oil from a separate dispenser and filter papers placed in bottom of pit. Bullet lures and PC Floor Bait lures can be used as a "dry" set (no oils).

Trap Placement Techniques

Timing - Traps can be placed year round but should be in greater numbers during the warmer months.

Density - It is recommended that traps be placed near materials susceptible to attack at one per every 10-15 feet.

Location - Trapping along corners, walls and posts is most effective for these beetles and trap designs. In residences, place on shelving of cabinets near food products.

Trap and Lure Maintenance

Traps must be replaced when filled with beetles or become dusty. Traps may remain effective for many months if maintained. Lures must be replaced every 6-8 weeks. Pheromone/oil mix must be replaced every 12 weeks.

Oils will evaporate and change to a gel when outdated. The old lure should be removed from the trap. Trapped beetles should be recorded regularly on a separate monitoring Data Sheet to determine trapping trends.

Expectations and Interpretations

Threshold limits need to be established for each client where a trapping program is in place.

Important Notes:

Large numbers of beetles require other means of control and management to eradicate infestations.

The aggregation pheromones used with these trapping combinations cannot be successfully be used in a mass trapping program for control, but are excellent tools to help you locate infested products in the early stages.