















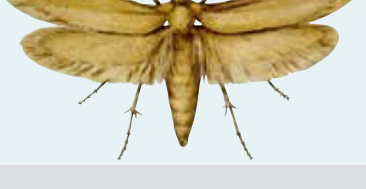














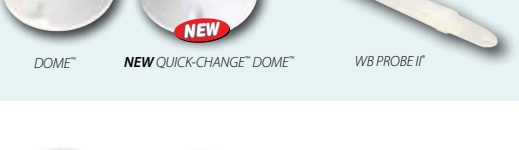




















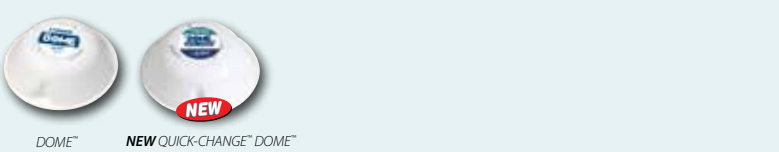


STORGARD® IPM PARTNER® INSECT IDENTIFICATION GUIDE

Name	Photo	Size (mm)	Color	Typical Life Cycle	Favorite Food	Attracted to Light	Geographic Distribution	Penetrate Packages	Comments	Product Recommendation
MOTHS										
Almond Moth <i>Cadra cautella</i>		14-20	Gray	25-30 days	Dried fruit and grain	Yes	General	Yes, larvae only	Serious pest of almonds in California.	
Angoumois Grain Moth <i>Sitotroga cerealella</i>		13-17	Buff	28-35 days	Whole grain	Yes	General	Yes, larvae only	Adult flies to field in spring and lays eggs in developing grain. Worst in South.	
Casemaking Clothes Moth <i>Tinea pellionella</i>		11	Brownish	30-60 days	Wool, natural fibers and hair	Yes	General	Yes, larvae only	Casemaking clothes moths construct a tube or bag.	
European Grain Moth <i>Nemapogon granellus</i>		13-17	White & brown	90-300 days	Grain	Yes	Northern	Yes, larvae only	Mottled wing pattern differs from Angoumois. Largely field infestation.	
Indianmeal Moth <i>Plodia interpunctella</i>		8-10	Copper red & silver gray	28-35 days	Broken or processed grain	Yes	General	Yes, larvae only	Easily recognized from wing pattern if recently emerged. Very common in processed cereals. Larvae leave webbing on surface of feeding area.	
Mediterranean Flour Moth <i>Ephestia kuehniella</i>		10-15	Gray & black	30-180 days	Flour and processed cereal grain	Yes	General	Yes, larvae only	Larvae webbing can clog equipment.	
Raisin Moth <i>Cadra figulilella</i>		12-20	Gray	32 days	Drying and dried fruits	Yes	General	Yes, larvae only	Found primarily in the Mediterranean and similar climates in the Americas and Australia.	
Tobacco Moth (Also known as Warehouse or Cacao Moth) <i>Ephestia elutella</i>		14-20	Tan to dark tan	82-206 days	Cocoa beans and tobacco, cereals, dried fruit and nuts.	Yes	General	Yes, larvae only	Most prevalent in tobacco industry as larvae can feed on tobacco leaves.	
Webbing Clothes Moth <i>Tineola bisselliella</i>		11	Golden brown	30-60 days	Wool, natural fibers and hair	Yes	General	Yes, larvae only	Webbing clothes moth infestations are often detected from damaged fabrics.	

BETLES, BORERS AND WEEVILS

Black Carpet Beetle <i>Attagenus unicolor</i>		3-5	Black	180-365 days	Adult: Pollen; Larvae: Cereal, and animal products	Yes	General	Yes	Larvae live in floor cracks and similar environments.	
Cadelle Beetle <i>Tenebroides mauritanicus</i>		6-10	Dark brown	65-135 days	Germ of grain and flour	Yes	General	Yes	May live one year or more. Larvae are 18 mm in size. Largest of stored product insects.	
Cigarette Beetle <i>Lasioderma serricorne</i>		2-3	Reddish brown	40-70 days	General, tobacco, and spices	Yes	General	Yes	Can fly into mill/plant.	
Confused Flour Beetle <i>Tribolium confusum</i>		3.5	Reddish brown	60-90 days	Flour, meal, and broken grain	Yes	Northern	Weak	Most common insect in flour mills.	
Drugstore Beetle <i>Stegobium paniceum</i>		2-3	Brown	60-120 days	Anything	Yes	General	Yes	Similar to Cigarette but wing covers have longitudinal lines.	
Flat Grain Beetle <i>Cryptolestes pusillus</i>		1.5	Reddish brown	21-28 days	Moldy grain	Yes	General	No	Has long antennae. There are several similar insects.	
Foreign Grain Beetle <i>Ahasverus advena</i>		2	Reddish brown	30 days	Moldy grain	Yes	General	Yes	Attacks out of condition grain. Good flier.	
Granary Weevil <i>Sitophilus granarius</i>		3-5	Dark brown to black	28-35 days	Whole grain	No	Northern	Yes, adults only	Larvae develop in grain.	
Lesser Grain Borer <i>Rhyzopertha dominica</i>		3	Reddish brown	30 days	Whole grain	Yes	Southern	Yes	Head turned under cylindrical body. Strong flier.	
Maize Weevil <i>Sitophilus zeamais</i>		2.5-4	Red brown black	35 days	Corn, rice, wheat, oats, barley, sorghum, rye and buckwheat.	Yes	General	Yes, adults only	Found in whole grain. Good flier. Small snout.	
Mealworm Beetle <i>Tenebrio molitor</i>		12	Black	Over 1 year	Moldy grain	No	Northern	Yes	Has only 4 tarsal segments. Ground beetles have 5.	
Merchant Grain Beetle <i>Oryzaephilus mercator</i>		3	Brown	30-40 days	Flour, meal, and oilseeds	Yes	Southern	Yes	Often confused with Sawtooth.	
Red Flour Beetle <i>Tribolium castaneum</i>		3.5	Reddish brown	60-90 days	Flour, meal, and broken grain	Yes	Southern	Weak	May be found in field. Good flier.	
Red Legged Ham Beetle <i>Necrobia rufipes</i>		3.5-7	Metallic bluish-green	30 days	Damaged meat or coconut	No	General	Yes	Breeds in dry or smoked meats and cheeses.	
Rice Weevil <i>Sitophilus oryzae</i>		2-3	Dark brown to black	28-56 days	Whole grain	Yes	Southern	Yes, adults only	Found in whole grain.	
Sawtoothed Grain Beetle <i>Oryzaephilus surinamensis</i>		2-3	Brown	21-28 days	Flour and meal	Yes	General	Yes	Larvae can enter package through very small hole.	
Varied Carpet Beetle <i>Anthrenus verbasci</i>		1.7-3.5	Varies	180-365 days	Pollen grazers and larvae feed on natural fibers	Yes	General	Yes, larvae only	Larvae line in cracks and similar environment. Good flier	
Warehouse Beetle <i>Trogoderma variabile</i>		3	Varies	40-50 days	Cereal and meat	Yes	General	Yes	Will feed on dead insects.	



For more information go to: www.treece.com

Note: Insect development can vary based on many factors including temperature, humidity and food source.
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