

Tribolium confusum (du Val)


(Confused flour beetle)

Fam. Tenebrionidae

General information: Secondary insect pest; widespread in Central Europe especially in grain processing facilities (e.g. mills, bakeries); tolerates cooler temperatures than *T. castaneum*; may produce an off-(pungent) odor (i.a. benzoquinones) in the substrate. Infested products: (damaged) cereals/cereal products (mainly flour),

Related species: *T. destructor*, *T. castaneum*, *T. madens*

Total development: 27 days at 32 °C and 75 % relative humidity

Egg	Larva	Pupa	Adult (beetle)
			
5 to 12 days	~ 18 days	~ 6 days	up to 3 years
<ul style="list-style-type: none"> - 0.4 mm wide; 0.6 mm long - white - long oval - sticky surface, sticks to the flour - up to 1000 eggs per female 	<ul style="list-style-type: none"> - approx. 6 mm long - light brown, dark head - roundish - 3 pairs of legs 	<ul style="list-style-type: none"> - 3 - 4 mm long - white-yellowish - free pupation in the substrate 	<ul style="list-style-type: none"> - up to 4 mm long - brown - head and neck shield usually darker - antennae filiform, may gently thicken towards the tip - adults active at night (in the dark)

Damage: Unspecific food marks; clumping, pink to yellowish taints in white flour due to benzoquinone secretion; contamination by feces, food remains, insect skins, larvae and pupae; pungent smell in the infested commodity renders milled products unsuitable for consumption

Prevention: Thorough cleaning and cleanliness in the warehouse; short storage time; cold, tight and dry storage conditions

Early detection: Traces of larvae and adults (three parallel lines) in flour; sieving; special traps, lures based on aggregation pheromone and wheat germ oil

Control: Sieving; impact (entoleter mills); heat treatment in empty rooms;; freezing of substrates;; fumigations with phosphine and sulfuryl fluoride containing agents; use of authorized pesticides (see database www.bvl.bund.de)