

# *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

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

**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](http://www.bvl.bund.de))