Tribolium castaneum (Herbst)

(Red flour beetle)

Fam. Tenebrionidae

General information: Secondary insect pest of grain processing factories (mills, bakeries); *T. castaneum* needs warmer temperatures and may occur in Germany together with *T. confusum*; may produce an off-(pungent) odor (i.a. benzoquinones) in the substrate.

Infested products: Cereal products (mainly flour), damaged cereals, oil seeds

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

Total development: 5 weeks at 25 °C and 65 % relative humidity, optimum development occurs in the range of 32 °C to 35 °C

Egg	**Larva**	**Pupa**	**Adult (beetle)**
			
5 to 12 days	~ 18 days	~ 6 days	up to 3 years
- long oval - 0.4 mm wide; 0.6 mm long, white - sticky surface, sticks to the flour - up to 1000 eggs laid per female	- up to 8 mm long - light brown, dark head - roundish - 3 pairs of legs	- 4 - 5 mm long - white-yellowish - free pupation in the substrate	- up to 4 mm long - reddish-brown - wings with fine longitudinal stripes, dotted in between - antennae end in a three segmented club

Damage: Unspecific food marks; clumping, pink or yellowish colouration of flour by benzoquinone secretion, giving the product an extremely pungent odour; contamination by dead bodies (larvae, pupae, adults), cast skins, feces

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

Early detection: Traces of larvae and adults in the flour (three parallel lines); sieving; special traps with lures based on aggregation pheromone and wheat germ oilControl: Sieving; impact (entoleter mills); heat treatment in empty rooms; freezing; use of authorized pesticides (see database www.bvl.bund.de)