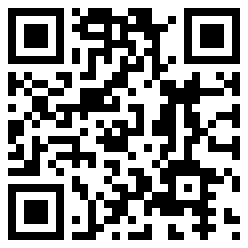
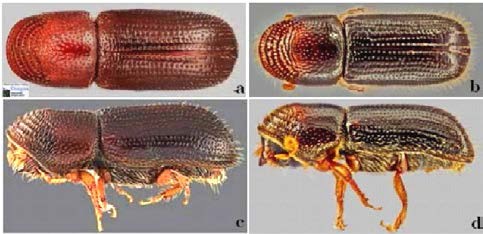
# THOUSAND CANKERS DISEASE and WALNUT TWIG BEETLE



***Identification Guide***

**Walnut twig beetle attacks only species of *Juglans;* the fungus, *Geosmithia morbida*, is transported by walnut twig beetle**

**Field diagnosis: Flagging/yellowing foliage, leaf wilt, canopy thinning, branch dieback, epicormic shoots**

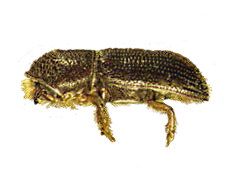


**Adult walnut twig beetle: a) female - dorsal view, b) male - dorsal view,**

**c) female - lateral view, and d) male - lateral view (Photos: S. Valley, Valley, Oregon Dept. Agric).**

**For more information visit:** [**www.tcdgroundzero.com**](http://www.tcdgroundzero.com/)

# Walnut twig beetle

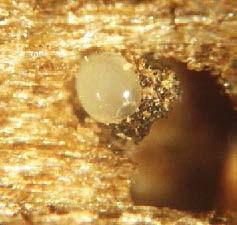


**(*Pityophthorus juglandis*)**

## Life cycle of walnut twig beetle

Adults emerge in spring; seek feeding sites on the bark, where they enter and form galleries as they feed. Beetles deposit conidia and the fungus grows within the galleries forming small cankers.

**Entrance hole Beetle galleries Egg in gallery Larva in gallery Pupa in gallery Teneral adult**



## Fungal development in black walnut



**Fungus in beetle gallery *Geosmithi*a conidia Fungal cankers**

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