Walnut Thousand Cankers Disease – A Potential Threat
By John Hartman and Lee Townsend

Thousand Cankers Disease (TCD) is a recently recognized disease of walnuts (*Juglans* spp.). The disease results from the combined activity of the walnut twig beetle (*Pityophthorus juglandis*) and a canker producing fungus called *Geosmithia*. TCD has been active in the western United States for a decade but the cause was only recently described. TCD has been involved in several large scale die-offs of walnut, particularly black walnut (*Juglans nigra*), growing in the west. In the past few weeks, investigators in Tennessee may have found the first case of TCD in an eastern state. If TCD is present in Tennessee, it surely represents a threat to black walnut plantings in Kentucky.

(Fig 1) Walnut yellowing dieback caused by thousand cankers disease (Photo by W. Cranshaw, Colorado State University).

(Fig 2) Canker on walnut limb caused by the fungus *Geosmithia* (Photo by N. Tisserat, Colorado State University).

**Symptoms.** Trees infected with the causal fungus first develop yellow leaves and eventually twig and branch decline and dieback (Figure 1). The fungus causes a canker, visible by peeling back the bark, corresponding to the activity of the insect vector in the branch or limb (Figure 2). When multiple cankers develop on the limbs (Figure 3) the vascular system is so disrupted that the limb dies. The combination of disease-causing fungus and insect vector is a lethal combination for walnuts.
Disease vector. The walnut twig beetle (*Pityophthorus juglandis*), the vector of Thousand Cankers Disease (TCD), is native to New Mexico and Arizona where its distribution follows that of Arizona walnut, the likely native host. This 1.5 to 1.9 mm long yellow brown bark beetle aggressively attacks black walnut and carries the pathogens associated with TCD. Contrary to its common name, beetle attacks are not confined to twigs; tunneling is most commonly seen in branches greater than 0.7 inches in diameter and sometimes in trunks.

Dorsal and lateral views of the walnut twig beetle, the head is completely hidden from view, a characteristic of many bark beetles (Photo by J. LaBonte, Oregon Dept of Ag).

The adult female begins to tunnel in walnut by early May to form a nuptial chamber with 1 or more radiating egg galleries. The small, white legless larvae develop below bark. A generation from egg to adult takes a little less than 2 months. However, adults can be present from mid-April through early October.

Urban and parkland trees have been infected with TCD. Kentucky arborists, homeowners, and woodlot owners need to be alert to the possibility of TCD and report suspicious cases of walnut decline to local County Extension Agents and foresters.