

# **Armillaria Infection Following Drought in Forest Stands**

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At present forest enterprises experience unusual economic damage by *Armillaria* spp. on hundreds of hectares. In spruce stands especially in the middle Black Forest and in the Swabian-Frankish forest the specific mycelial fans of *Armillaria* invaded the cambial layer from the roots to the stem base. This invasion became evident for the first time in spring 2004 when bark was removed accidentally during logging damages. A previous infestation by bark beetles was not given. It could be shown, that the mycelial front invaded into the white healthy cambium. This indicates the aggressive character of the fungus. Before bud break, no symptoms in the crown were visible. At this time the infestation could be overlooked easily so far. But most the trees were already bound to die due to girdling by the fungal mycelium.

Regarding the reasons for this outbreak of *Armillaria* it can be stated, that the fungus may be present in most of the forest stands, probably due to some silvicultural aspects. The fungus can outlast on stumps over many years and spread from there with its rhizomorphs through the forest soil. Disposition to root infection was given by the extreme drought of the summer 2003. *Armillaria* rhizomorphs are able to grow in the cambial layer more than 2 m per year. Therefore, it can be concluded, that the root infection may have taken place after rewetting of the forest soil in autumn 2003.

Silver fir as well as Scots pine are at least as sensitive to *Armillaria* spp. as spruce. Also oaks are endangered by *Armillaria* after drought stress. For these tree species the infestation may become evident with delay. Some consequences of the fungal infection for the timber in terms of storage and decay will be discussed.