

Ash Dieback*

by James A. Fizzell & Associates, Ltd.
P. O. Box 46, Park Ridge, IL 60068

Dieback of white and green ash is typical of dieback and decline diseases. It is most often initiated by the stress of water shortage. Especially severe outbreaks were associated with periods of low rainfall in the 1930's, from 1950 to the early 1960's, and more recently during the late 1980's and early 1990's.

The onset of ash dieback is signaled by the reduced growth of stems and twigs. This is followed successively by the death of terminal buds and branches and by the production, often at nodes, of small, sparse and chlorotic leaves. Affected crowns appear thin and tufted.

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Soon after the onset of symptoms, reddish-brown to orange-yellow cankers develop on the branches and on smooth bark of the main stem. When these cankers girdle twigs or stems, they contribute markedly to the dieback process. At least two canker fungi, *Cytospora pruinosa* and a *Fusicoccum* species, attack bark tissues made susceptible by water shortages. These fungi, common inhabitants of bark of shaded, lower crown branches, are thought to contribute under normal conditions to the death and "self-pruning" of the lower branches so characteristic of forest-growth ash trees.

Ash dieback can be thought of as a "system" for which word equations can be stated:

Healthy ash trees + water deficit = altered ash tree (growth reduced)

Altered ash tree + continued water deficit = ash tree altered further (dieback begins)

Altered ash tree + canker fungi = ash branches and stems invaded (trees dieback, decline, die)

Other factors may be involved in ash dieback. Ash trees are hosts for viruses and mycoplasmas, and they are highly susceptible to injury from air pollution. How much these factors may contribute to ash dieback is uncertain.

It may be significant that while the abatement of the disease generally has coincided with abatement of drought periods, the dieback and decline of ash has continued in some areas where they are viruses, mycoplasmas, and high levels of air pollution.

*Stress Triggered Tree Diseases, Houston, D.R. and Carrol, D.M., USDA Forest Service, 1981.

AUGUST 16 — Turnberry C.C.

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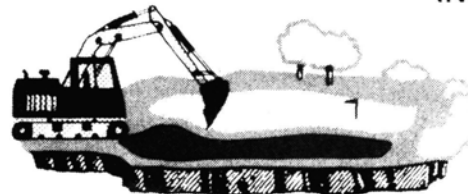
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