

## Ash Decline?

For several years we have seen ash trees (*Fraxinus* sp.) with unusual symptoms in Yavapai County. The symptoms include:

- dead and dying branches
- some new foliage trying to emerge from buds lower on the branches, but this new foliage was greatly reduced in size and never attained the size of normal ash tree foliage (these tufts of foliage are called “witches brooms”)
- the two or three year’s previous growth rates on affected trees were greatly reduced as indicated by bud scars (2 to 4 inches of new growth rather than a foot or more)
- tree death in some cases

Species known to be affected are Arizona ash (*Fraxinus velutina*) and Modesto ash (*F. velutin* ‘Modesto’). Raywood ash (*F. oxycarpa*) may also be affected. Arizona ash is native to Yavapai County and the other two are the primary ash species planted here.



“Witches boom” on Arizona Ash, *Fraxinus velutina*. Photo: Mary Barnes.

Because healthy trees of the same species are growing next to the affected trees, abiotic (environmental/non-living) causes are not suspected to be causing the problems. Chemical injury has been ruled out as many of the locations with affected trees do not use herbicides. Flooding the trees helped in some cases, not in other cases, so water (or lack of ) does not seem to be the cause.

We have not been able to confirm the diagnosis, but strongly believe we are seeing “ash yellows” also known as “ash decline”. Ash decline (AD) is caused by a phytoplasma, a bacterium that lives in the phloem (tissue that conducts the products of photosynthesis) and is transmitted (vectored) by phloem feeding insects such as leaf hoppers, spittlebugs, and psyllids. The AD pathogen is difficult to work with because it cannot be kept alive outside the plant in culture and diagnosis is done using molecular analysis. Some plant pathologists think that plant tissue used to produce grafted ash trees sold by nurseries may have been infected by the pathogen. Once an infected tree is fed upon by a suitable insect vector, it can transmit the disease to uninfected trees. The AD pathogen has been confirmed in Arizona.

Treatments for AD are not effective and it is recommended that seriously stunted trees be removed. Without confirmation of the disease, removal may not be warranted. The University of Arizona Cooperative Extension Plant Pathologist tested some trees in Yavapai County and was unable to confirm an ash decline diagnosis. If you notice the symptoms, inspect the irrigation system to make sure its functioning properly. If it seems under-irrigated, periodically irrigate the tree using a soaker hose or flooding a basin that extends outward from the trunk to the drip line of the canopy. This will ensure the problem is not caused by insufficient irrigation.

*July 17, 2024*

Adapted from original Backyard Gardener publications by Jeff Schalau, Agent, Agriculture & Natural Resources, University of Arizona Cooperative Extension, Yavapai County

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