

## IS MISTLETOE THE KISS OF DEATH?

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It's a Christmas tradition. A man has the privilege of kissing a lady who happens to be standing under a sprig of mistletoe, a plant which is said to symbolize peace and love. The danger associated with this tradition is that the lady may take offense at the man's affection! Have you ever given or received a kiss under the mistletoe? Even though mistletoe is a popular Yuletide decoration, all parts of the plant have poisonous properties and should never be eaten. Except for Christmas holidays, mistletoe is probably not a particularly popular plant, especially if it is growing in a valuable shade or ornamental tree in your yard.

Is mistletoe becoming a serious problem in East Texas? A definitive answer to that question is not possible because no surveys have been conducted to determine whether mistletoe incidence is increasing or decreasing. Generally speaking, mistletoe is not considered to be a serious pest of trees, so don't kiss your tree good-bye if it is infected with mistletoe. When heavy infection occurs, the mistletoe becomes an additional stress factor to the tree and may contribute to poor tree health. It is unlikely that mistletoe kills trees directly, but tree branches may die as a result of mistletoe infection. Effective control of mistletoe is difficult to achieve.

American mistletoe (genus *Phoradendron*) is a persistent, evergreen, photosynthetic, seed-producing plant that is parasitic on certain woody plants, primarily hardwood or broadleaf trees. It is particularly conspicuous on hardwoods after leaf fall. The mistletoe derives water and mineral nutrients from the sap of its host plant. Because the leaves of the mistletoe plant contain chlorophyll (green color), the plant can produce its own food through photosynthesis using water and minerals derived from the tree that supports it. The leaves are leathery and occur opposite each other on the mistletoe stem. The plant requires direct sunlight for best development which explains why it is usually found high in the crown of tall trees. Mistletoe may change from green to a greenish-yellow color during the winter months, but this is not an indication that the plant is unhealthy.

The best indication of mistletoe infection is the presence of dense clusters of vegetation in the crown of host trees. The evergreen mistletoe plant is most easily recognized in the winter months when deciduous trees have dropped their leaves. Trees vary in their susceptibility to mistletoe with water oak, hackberry, and elm being the most commonly infected. Ash, beech, cherry, dogwood, sweet gum, hickory, maple, Osage orange, persimmon, sassafras, walnut, sycamore, and willow also may be infected. It has been reported on 110 different species of trees in the eastern United States.

Mistletoe in East Texas is a dioecious plant -- that is, male and female flowers are borne on separate plants. The flowers are small and creamy-white in color. Only the female flowers produce seeds which are white and embedded in a sticky, gelatinous pulp enabling the seeds to adhere to the bark of trees. The seeds are commonly distributed by sticking to the beaks and feet of birds or by bird droppings after passing through the bird's digestive system. Under favorable temperature and moisture conditions, the seeds germinate almost anywhere, but trees will only become infected when seeds germinate on the thin bark of small branches. Successful infection of a host tree occurs when the mistletoe seed germinates and a root-like structure (called a haustoria) penetrates the bark through a lenticel or bud.

The aerial portion of the plant develops very slowly the first year, growing less than one-half inch. Under ideal conditions, mistletoe may develop an aerial spread of three feet in six to eight years. The longevity of mistletoe plants seems to be limited only to the life of the host tree with some plants living for more than 100 years. On the average, the aerial portion of a single mistletoe plant survives less than eight years, being easily broken off by storms. Destruction of the aerial portion of the plant usually stimulates the development of dormant buds and multiplies the presence of the plant on its host.

Mistletoe has few natural enemies, and effective control is very difficult to achieve. Where feasible, the homeowner can take steps to minimize mistletoe problems in trees. Mistletoe plants mature in two to three years, so mechanically removing the aerial portion of the plant before it matures and produces seeds can be of some benefit. Small, infested limbs can be removed by pruning, if they can be reached. Mechanical removal of the aerial portion of the plant on large limbs may also be helpful. Removing part of the wood where the mistletoe attaches to its host should be avoided as this usually causes more damage than the mistletoe itself. Keep in mind that mechanical removal must be done repeatedly because new sprouts will grow from the mistletoe imbedded in the wood of the host tree. Mechanical removal is suggested only if it can be done safely and economically.

In theory, covering the aerial portion of the plant with a black plastic bag would block sunlight and the plant would eventually die. However, in practice, covering the plant high in the top of a tree can be difficult and dangerous. In addition, plastic bags tend to deteriorate over time; and the bags would be unsightly, especially in the winter months when trees are bare. Also, applying a herbicide to the mistletoe during the winter when the host tree has no leaves has met with limited success. However, because it is so easy to damage the host tree and other nearby plants, using a herbicide is not recommended. A plant growth regulator called ethephon (Florel<sup>7</sup> Fruit Eliminator) is the only product registered in the USA for the control of mistletoe on deciduous trees. Local nurseries or "feed and seed" stores may handle Florel<sup>7</sup>.

So, what do you do with mistletoe? Enjoy it, because you probably won't be able to successfully eliminate it from your tree. Try to get your sweetheart to stand with you under a mistletoe-infected tree, and steal a kiss!