

EUTYPA DIEBACK

Eutypa dieback, caused by the fungus *Eutypa tapa*, is an important disease of grape. Eutypa dieback is the name for the canker-and-shoot-dieback phase what was once known as “dying arm.” The disease occurs in the area with rainfalls. The pathogen has a wide host range. The most severely affected horticultural hosts are grapevine, apricot, and black currant.

Symptoms

The earliest symptom develops is a canker that generally forms around pruning wounds in older wood of the main canker (Figures 1 and 2). These cankers usually are difficult to see because they are covered with bark. One indication of a canker is flattened area on the trunk. Removal of bark over the canker reveals a sharply defined



Figure 1. Stunted shoots with shortened internodes of a grape vine with *Eutypa dieback*. (Courtesy APS; Moller and Kasimatis, 1981).

region of darkened or discolored wood bordered by white, healthy wood (Figure 2). Cankers may be up to three feet long and extend below the soil line. When the vine is cut in cross-section, the canker appears as darkened or discolored wood extending in a wedge shape to the center of the trunk (Figure 3).

The most obvious symptoms of Eutypa dieback are the leaf-end-shoot symptoms, which may not develop for two to four years after the vine was first infected. These symptoms are most obvious in spring, when healthy shoots are 12- to 24-inch long. Spring shoot growth on diseased canes is weak and stunted above the cankered area (Figure 1). Leaves are at first smaller than normal, cupped, distorted, and yellow. These leaf and shoot symptoms may not be as obvious later in the season (mid July). Leaf and shoot symptoms are more pronounced each year until the affected portion of the vine finally die.

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Disease cycle

The pathogen overwinters in infected trunks (Figure 4). Reproductive bodies (perithecia) of the pathogen reach maturity early in spring and spores (ascospores) are disseminated with each rainfall of more than three feet. By late fall, the perithecia are almost exhausted, but sufficient ascospores are available to infect vines pruned during the following winter. At temperatures below 32°F, dissemination of ascospores is greatest in late winter, and they are therefore in abundant supply at the time when grapevines are usually pruned.

Infections are initiated when ascospores enter freshly made wounds. Rain is a requisite for the release of ascospores and, after aerial transport and deposition, for their entry into the open end of vessels exposed by pruning. The susceptibility of wounds diminished markedly during the two weeks following pruning, and after four weeks the wounds are unlikely to be infected.

The disease develops slowly on grapes, and no symptoms are seen during the first one or two growing seasons after infection. By the third or fourth season, a canker is usually apparent, often accompanied by foliage symptoms. Several more years may elapse before the affected arm or trunk is killed. Because of the slow progress of the disease, its full economic impact is not likely to be felt until a vineyard reaches maturity.



Figure 2. Large canker of *Eutypa dieback* surrounding an old pruning wound on a trunk. (Courtesy APS; Moller and Kasimatis, 1981).

Disease management

The primary management method of *Eutypa dieback* is removal of infected trunks from the vineyard. The vine must be cut off below the cankered or discolored wood. If the canker extends below the soil line, the entire vine must be removed. If the canker does not go below the soil line, the stump can be left, and a new trunk formed. The best time to identify and remove infected vines is in early spring, when leaf and shoot symptoms are most obvious. In addition, wounds are less susceptible to infection at this time of year, and fewer ascospores are present to cause infection. If trunks cannot be removed in the spring, they should be marked for easy identification and removal later in the growing season.

Sanitation is critical. All woods from infected plants should be removed from the vineyard and destroyed as soon as possible. An old infected stump or trunk lying on the ground may continue to produce spores for several year.



Figure 3. Wedge-shaped zone of necrotic sapwood, exposed in cross section, indicating the extent of invasion by *Eutypa lata*. (Courtesy APS; Moller and Kasimatis, 1981).

The double trunk system of training, where each trunk is pruned to carry half the number of buds, may help reduce crop loss caused by Eutypa dieback. If a diseased trunk can be pruned to leave the full number of buds until a new second trunk can be established.

Currently, no effective fungicide recommendation is available for management of Eutypa dieback.

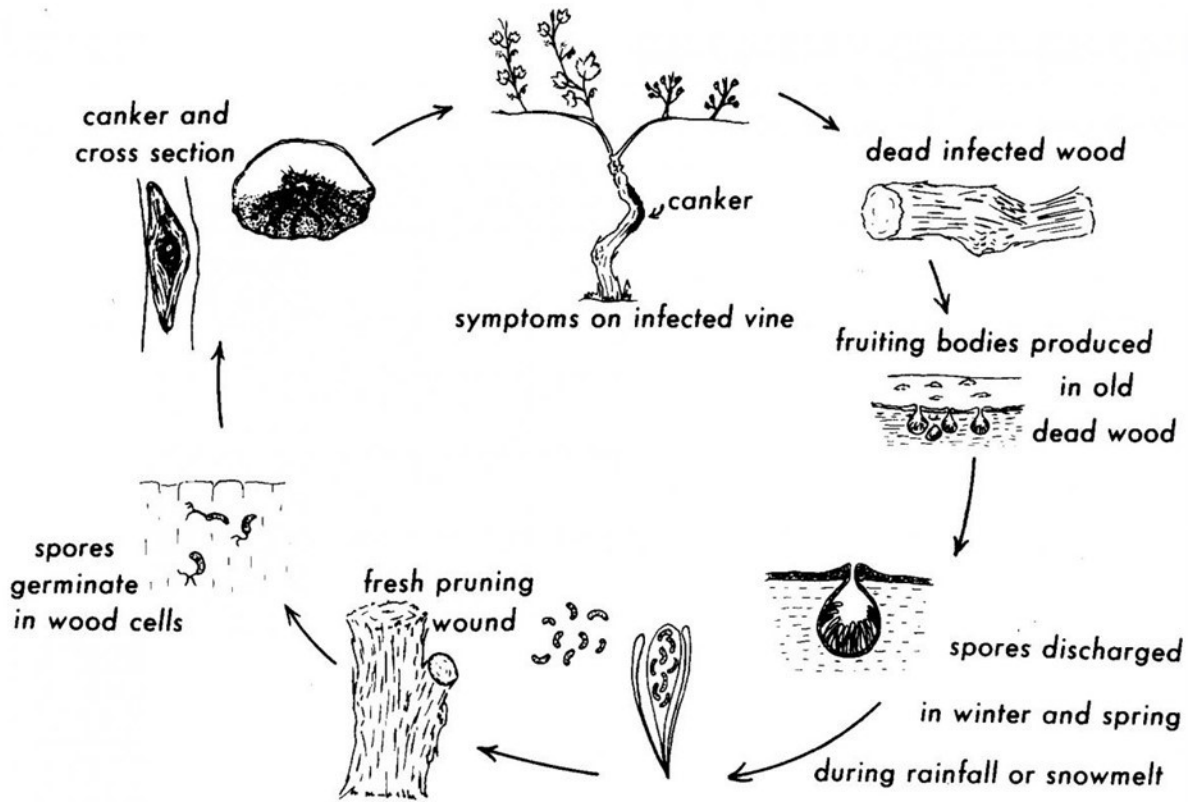


Figure 4. Disease cycle of Eutypa dieback of grape. (Courtesy New York State Agricultural Experiment Station).