

# Eutypa Dieback of Grape

Michael A. Ellis

Department of Plant Pathology

For more than 60 years the eastern grape industry recognized a disease called “dead-arm” thought to be caused by the fungus *Phomopsis viticola*. In 1976, researchers demonstrated that the “dead-arm” disease was actually two different diseases that often occur simultaneously: Eutypa dieback and *Phomopsis* cane and leaf spot. Eutypa dieback is the new name for the trunk and arm phase of what was once known as “dead-arm.”

Scientists now propose that the name “dead-arm” be dropped. It is important that Eutypa dieback and *Phomopsis* cane and leaf spot be considered as two distinctly different diseases because the control recommendation for each are quite different.



Figure 1. Leaf and shoot symptoms of Eutypa dieback.

## Symptoms

The earliest symptom is a canker that generally forms around pruning wounds in older wood of the main trunk. These cankers are usually difficult to see because they are covered with bark. One indication of a canker is a flattened area on the trunk. Removal of bark over the canker reveals a sharply defined region of darkened or discolored wood. These cankers may be up to 3 feet long, but do not enter one- or two-year wood and seldom go below ground line. When the trunk is cut in cross-section, the canker appears as darkened or discolored wood extending in a wedge shape to the center of the trunk.

The most striking and obvious symptoms of Eutypa dieback are the leaf and shoot symptoms, which may not develop for up to three years after infection of the vine has occurred. These symptoms are most obvious in spring (May and June). Spring shoot growth is weak and stunted above the cankered area. Leaves are at first smaller than normal, cupped, misshapen, and yellowed. Later in the season (mid-July), these leaf and shoot symptoms may disappear from all but the basal leaves of affected shoots. The vines may appear to have recovered. However, the infected trunk and all growth above it will eventually die.

## Causal Organism

Eutypa dieback is caused by the fungus *Eutypa lata*. The fungus survives in infected trunks for long periods of time, whether they remain as part of the in-place vine or as prunings in the vineyard. Eventually, the fungus produces reproductive structures (perithecia) on the surface of infected wood. Spores (ascospore) are produced in these structures and are discharged into the air. Ascospore discharge is initiated by the presence of free water (either

rainfall or snow melt). Most spores appear to be released during winter or early spring, with relatively few being released during the summer months. Unfortunately, most spores are released at the same time pruning is being conducted. The ascospore can be carried considerable distances by air currents to recent wounds on the trunk. Pruning wounds are by far the most important points of infection. When the ascospore come in contact with newly cut wood, they germinate and a new infection is initiated.

### Control

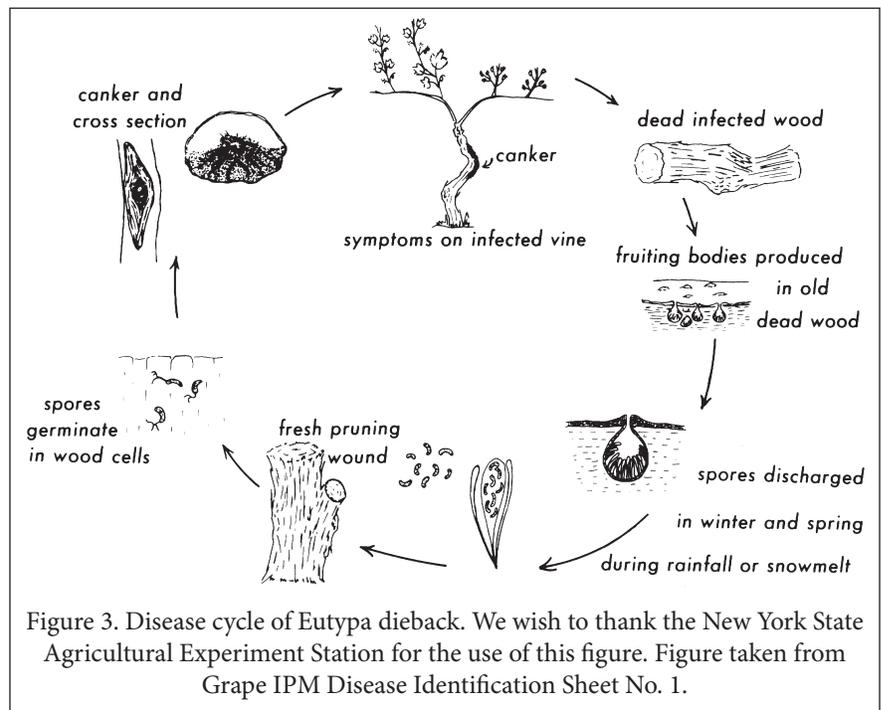
1. At present the primary control method is removing infected trunks from the vineyard. The vine must be cut off below the cankered or discolored wood. If the canker extends below the soil line, the stump can be left and a new trunk formed. It is important to remember that the best time to identify infected vines is spring (May and June) and when the leaf and shoot symptoms

are most obvious. If trunks cannot be removed in the spring, they should at least be marked so they can be removed after harvest, but before the next spring.

2. Sanitation is critical. All wood from infected plants must be removed from the vineyard and destroyed (either buried or burned). An old infected trunk lying on the ground may continue to produce spores for several years.
3. At present, no fungicide recommendations are available for control of this disease in Ohio. However, research has indicated that painting large pruning wounds with a solution of fungicide has provided some level of control in California and New York. As chemical control recommendations for Eutypa dieback becomes established in Ohio, they will be made available to commercial growers through Bulletin 506-B2, *Midwest Commercial Small Fruit and Grape Spray Guide*, and your county Extension educator.



Figure 2. Cross section from an infected trunk. Note the wedge-shaped area of discolored wood caused by a Eutypa canker.



## EMPOWERMENT THROUGH EDUCATION

Visit Ohio State University Extension's web site "Ohioline" at: <http://ohioline.osu.edu>

Ohio State University Extension embraces human diversity and is committed to ensuring that all research and related educational programs are available to clientele on a nondiscriminatory basis without regard to race, color, religion, sex, age, national origin, sexual orientation, gender identity or expression, disability, or veteran status. This statement is in accordance with United States Civil Rights Laws and the USDA.

Keith L. Smith, Ph.D., Associate Vice President for Agricultural Administration and Director, Ohio State University Extension

TDD No. 800-589-8292 (Ohio only) or 614-292-1868