

The Grape Phylloxera: What Lies Beneath & Results of the 2000/2001 Grapevine Virus Survey

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Native to the Southeast U.S., the grape phylloxera, *Daktulosphaira vitifoliae* is a renowned insect pest in many grape growing regions of the world. While the insect feeds on many grape varieties, phylloxera infestations have historically had the most devastating effect on vineyards planted with *Vitis vinifera*. This small soil-dwelling insect is both difficult to detect and to control through chemical means. The most effective management technique has been the development and planting of phylloxera-resistant *V. vinifera*. Many other grape species (including concord) display a natural tolerance to phylloxera. Although the mechanism for resistance is not well understood, by selectively grafting *V. vinifera* cultivars onto these resistant species, production could continue even in infested soil. The use of resistant varieties has been mostly successful; however, problems can occur. In the 1980's, Californian vineyards planted with a 100 year-old resistant variety (called AXR#1) began seeing highly damaging phylloxera populations. They soon discovered that through natural selection, some phylloxera had overcome the resistant qualities of the vine. With the identification of a new strain of phylloxera (biotype B) grape phylloxera reemerged as a significant agricultural pest, costing California vineyards more than \$1 billion.

In Washington State, anecdotal reports suggest that grape phylloxera has been present since 1910. The insect's presence was confirmed during a 1988 detection survey in eastern Washington, which identified eight positive vineyards (7 concord, 1 *vinifera*). Although it has remained a minor pest, proactive efforts to prevent widespread establishment of the insect are currently practiced. The best insurance continues to be the use of newer phylloxera-resistant varieties. While phylloxera tolerance appears to be the most effective protection against phylloxera populations, these varieties are not immune to the pest. Therefore phylloxera populations may be present in a vineyard, but remain at low population levels difficult to detect. To prevent spread of the pest from infested to non-infested fields, sanitation and monitoring are also necessary. The Washington State Department of Agriculture (WSDA) maintains an external quarantine and grapevine nursery certification program to limit the spread and reintroduction of the insect in the state.

The Survey

In 2002, the WSDA will conduct field surveys to review the phylloxera presence in the major grape growing regions of Washington. Over ten years have passed since the last WSDA survey for phylloxera, and in that time commercial vineyards have increased by approximately 20 thousand acres. Although grape phylloxera is only considered a minor pest in Washington, its actual distribution is currently unknown. Given the increasing importance of grapes in the state, the WSDA hopes to help growers find existing

populations, prevent dispersal of the insect, and identify new areas of concern (i.e., new resistance).

Grower Participation

The initial step of this survey relies on grower-provided information to attempt to determine vineyards that may be high risk for phylloxera infestations. To focus upcoming field survey efforts, a Survey Questionnaire is currently being distributed to grape growers to identify high priority sites. The questions focus on characteristics such as soil type, plant variety, rootstock history and any damage that may be observed. The results of the questionnaire will be used to focus field survey efforts in 2002.