Oregon Wine Advisory Board Research Progress Report

1986

Phylloxera in Oregon - A Brief History

Steve Price Horticulture Department Oregon State University

Introduction

The recent establishment of the Oregon winegrape industry has been based on an important assumption that Oregon is phylloxera free. This assumption plus the attractiveness of planting a vineyard with inexpensive selfrooted plants has resulted in an industry particularly vulnerable to phylloxera. In fact, this assumption is only partially true. It is true that there are no widespread infestations in the state and there have been no phylloxera sitings in commercial vineyards; however, phylloxera is in the state, it is widely dispersed, and has been here for a long time.

Early grape growing

The first grapes were planted in Oregon in 1848 and there were commercial plantings by 1885 (5). Most of these early vineyards were planted with varieties of *Vitis labrusca* and other American species. The nursery stock was frequently shipped into Oregon from California or from the grape producing regions around the Great Lakes. This widespread importation of rooted plants was probably responsible for the introduction of phylloxera into Oregon and for its distribution throughout the state. An Oregon Agricultural College Bulletin on grape production published in 1915 suggested planting lower priced nursery plants from California or the East (1). Phylloxera is native to the eastern United States and was widespread in California by 1880 (3). It travels quite well on the roots of nursery plants and in addition, can survive and reproduce on the roots of some American species without seriously damaging the vine.

By 1915 there were commercial grape plantings in all of Oregon's current grape growing districts; Milton-Freewater, Umatilla, The Dalles, the northern and southern Willamette Valley, the Umpqua Valley, and the Rogue Valley. How many of these districts were phylloxerated is unclear but it is quite possible that they all were, to some degree. Interest in commercial grape growing in Oregon was gone by the 1950's but the remnants of these early plantings are still found scattered around the state in the form of abandoned vineyards, backyard vines, and vines escaped to the wild.

Phylloxera

The first mention of phylloxera in an Oregon Agricultural College publication was in a grape grower's guide published in 1923 which recommends that European grape varieties be planted on phylloxera resistant rootstocks 11 unless a district is absolutely sure that no infected stock is being brought in" (7). A 1936 circular suggests a hot water treatment for grapes received from infested districts (4). In 1948 a bulletin on insect pests of nursery stocks states "grape phylloxera has often been intercepted on grape stock shipped into Oregon" (6). Interest in phylloxera was revived in the late 1960's with the planting of

commercial *V. vinifera* vineyards. Phylloxera was officially recorded as occurring in Oregon in the Cooperative Economic Insect Report of the USDA in 1969 (2). Sitings were reported in Douglas, Josephine, Jackson, and Wasco counties. A note on the report from Jackson County says "not collected until now but present for many years". By late 1969, the Oregon Department of Agriculture had records of 14 phylloxerated sites (8).

Quarantine laws

In 1923, the Oregon State Board of Horticulture passed Quarantine Number 12 to "prevent further introduction of grape phylloxera . . . a pest not heretofore prevalent nor widely distributed throughout the State of Oregon". The quarantine prevented the entry of any grape material visibly infected with phylloxera; it allowed entry of plants and cuttings from noninfested states, and allowed entry of plant material from any state if it was destined for "infested areas" within the state. But, any plant material subjected to a hot water dip was admitted. In 1927 this law was superseded by Quarantine Order Number 9 which allowed entry of grape plants or cuttings only if certified from phylloxera-free states. In 1937, Quarantine Order Number 17 of the Oregon Department of Agriculture (filed as AD31) accepted no state as phylloxera-free and allowed entry only of material certified from "sections free from phylloxera". This was amended in 1941 to allow entry of vines or cuttings given a hot water treatment or an oil and nicotine dip. In 1969, the quarantine was rewritten and filed as AD 913. It allows entry of cuttings and plants grown in soilless media if they are certified free of fanleaf and leafroll virus and phylloxera. This is the law currently in effect.

Conclusion:

In the summer of 1984 the Oregon Wine Advisory Board asked me to investigate some of the options for a phylloxera detection program in Oregon. As part of that project we visited a site on the 1969 ODA list to confirm the presence of phylloxera in the state. The site was a 1/2 acre vineyard of American varieties planted sometime in the 1930's. In April 1985, we found phylloxera hibernating nymphs on the variety 'Secretary', a *V. cordifolia* x *V. vinifera* hybrid. The vines were reasonably healthy with adequate shoot growth and normal looking roots (no nodosities or tuberosities were seen). Phylloxera had been in the vineyard at least 15 years (from the 1969 ODA siting) and most likely had been there since the vines were planted. No further attempts to find phylloxera at other sites were made.

In light of this information, the 4,000 acres of susceptible *V. vinifera* vineyards in Oregon should be viewed as a fragile commodity. That these vineyards aren't infected with phylloxera can be attributed to the quarantine program, to the caution and prudence of Oregon growers, and to luck. There is no evidence that the phylloxera present in Oregon are benign or incapable of infecting commercial vineyards and there is strong evidence that phylloxera are able to survive in Oregon's climate and soils.

It is essential that Oregon winegrowers protect their selfrooted vineyards by being extremely careful about any activity that could move phylloxera into the vineyard. Growers should be wary of sites with old, abandoned vineyards, old backyard vines, and vines escaped to the wild. Rooted plant material and soil should not be moved from these sites. Sites being considered for new plantings should be checked for the presence of old vines. In addition, growers must continue to abide by the quarantine laws and are advised to avoid importing soil by other means. Picking boxes, bins, tractors, harvesters, and cultivating equipment from infected districts in other states are capable of carrying both soil and phylloxera. Be certain that they are free of soil before allowing them in your vineyard. Finally, growers should seriously think about putting future plantings on resistant rootstocks. Although the performance of the many available rootstocks hasn't been tested in Oregon, it may be worth it just for the peace of mind.

This article is a brief summary of some of the written reports on phylloxera in the state. There are other hearsay reports I didn't include and no doubt other written records I couldn't find, but the references mentioned here give a rough picture of phylloxera's introduction and dispersal in Oregon.

References

- 1. Allen, R.W. 1915. Grape culture, with special reference to commercial production under irrigation in Eastern Oregon. Ore. Ag. Exp. Sta. Bul. 126.
- 2. Anonymous. 1969. USDA ARS Coop. Econ. Insect Rpt. 19(45).
- 3. Davidson, W.M. and R.L. Nougaret. 1921. The grape phylloxera in California. USDA Bul. 903.
- 4. Duruz, W.P. 1936. Suggested standards and new varieties of grapes for planting in Oregon. Ore. Ag. Exp. Sta. Circ. 150.
- 5. Lake, E.R. 1901. The grape in Oregon. Part 1, Western Oregon. Ore. Ag. Exp. Sta. Bul. 66.
- 6. Schuh, J. 1948. Insect pests of nursery and ornamental trees and shrubs in Oregon. Ore. Ag. Exp. Sta. Bul. 449.
- 7. Schuster, C.E. 1923. Grape growing in Oregon. Ore. Ag. Exp. Sta. Circ. 43.
- 8. Westcott, R.L. 1984. Plant Div. ODA (personal communication).