# Phylloxera Populations on Resistant Rootstocks

When phylloxera feed on young root tips, swellings or galls (nodosities) form, giving rootlets a characteristic clubbed appearance (Fig 1). Phylloxera also feed on larger roots of own-rooted *V. vinifera* and on rootstocks with *V. vinifera* in their parentage like AXR#1. Feeding on larger roots causes damaging swellings (tuberosities) that crack and decay, girdling large portions of the root system and leading to vine death. Tuberosities have not been found on rootstocks with pure American species parentage.

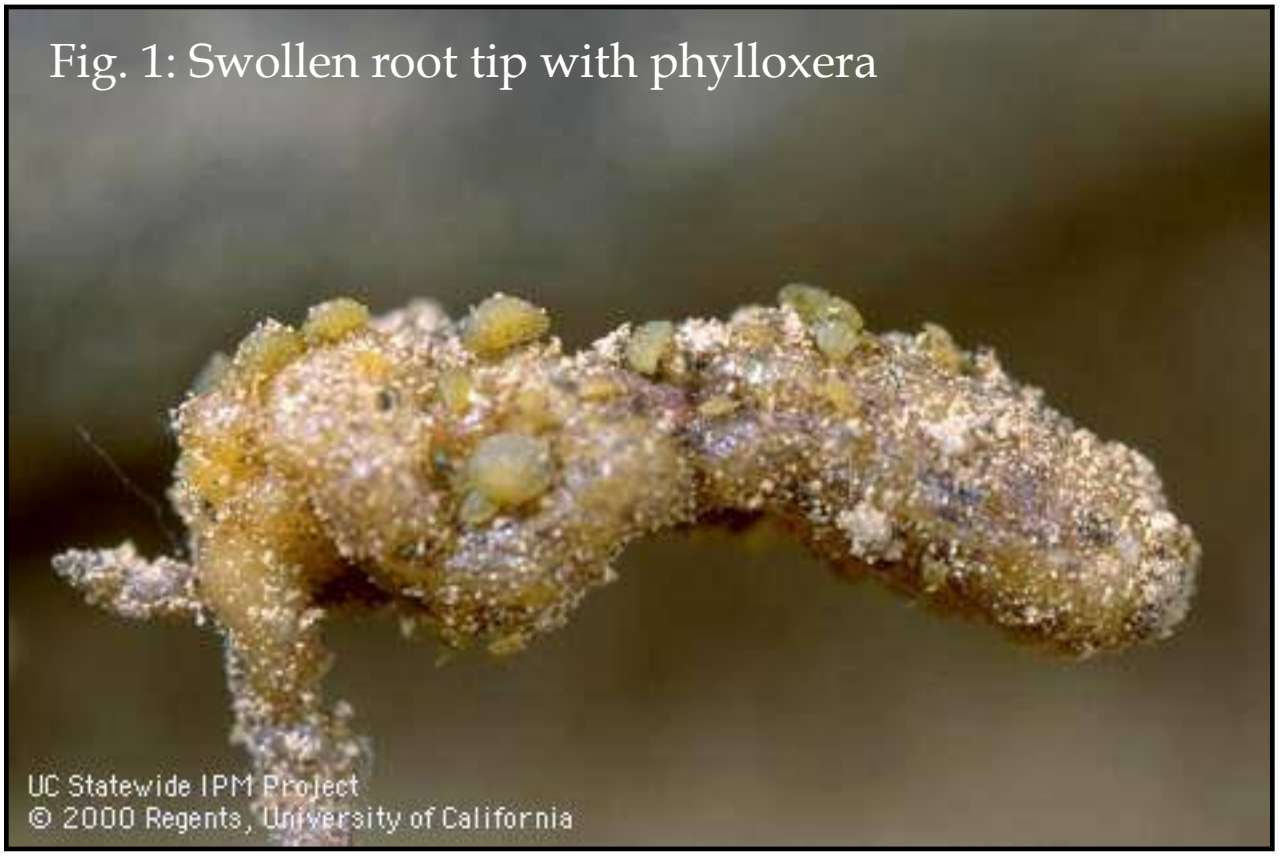


Fig. 1: Swollen root tip with phylloxera

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We have found populations of phylloxera forming nodosities on the young root tips of 101-14 rootstock, in multiple areas of Napa Valley, from Calistoga and Pope Valley to Carneros. These observations confirm what Drs. Jeffrey Granett and Andy Walker from UC Davis have seen on many rootstocks in California and in Europe. In a few of these cases, phylloxera seem to be damaging vineyards planted on 101-14.

The problem is not widespread and the most severely impacted blocks tend to be those planted on heavy clay soils that crack in the summer. According to Andy Walker, physical damage to 101-14's shallow, fibrous root system in heavy soils may be intensifying phylloxera's impact at these sites. Above-ground symptoms are typical of phylloxera damage: weakened vines with stunted shoots (**Figs 2, 3**). More study of these sites is needed to determine if the damage is spreading and whether soil fungi are contributing to vine decline on these heavy soils.

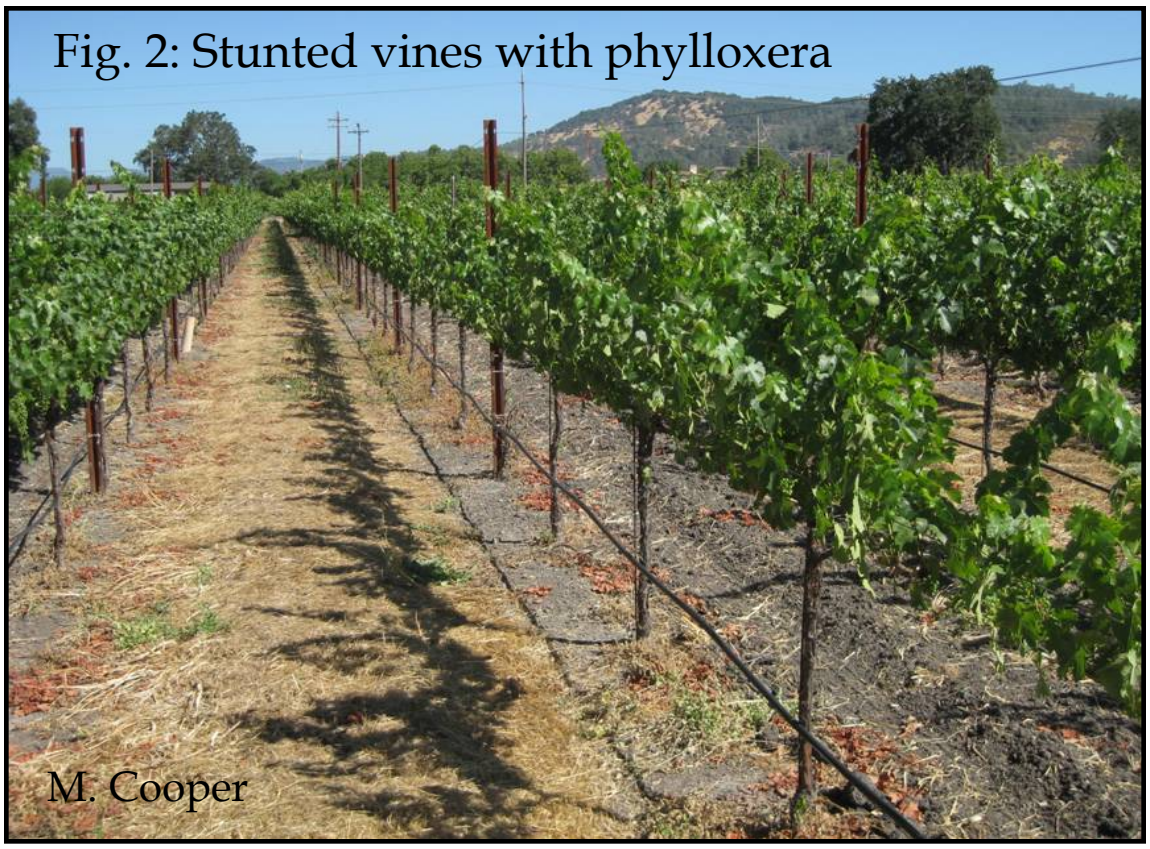


Fig. 2: Stunted vines with phylloxera

Fig. 3a: Stunted vines with phylloxera


Fig. 3b: Asymptomatic vines in the same block

Research in the Walker lab has identified scores of genetically distinct phylloxera strains. Some of these are associated with rootstocks like St. George, 110R, 1103P, 5C and 101-14. They are also studying an outbreak of leaf-galling strains in Yolo and Solano counties (**Fig 4**). These strains feed on grape rootstock leaves and are genetically distinct from other strains in California. Leaf galling strains are easily controlled with insecticides and are not a risk to vineyards. The galling is most severe when rootstocks are grown on the ground. Occasionally, we have found phylloxera leaf galls on rootstock plantings in Napa, but populations have not been economically damaging.

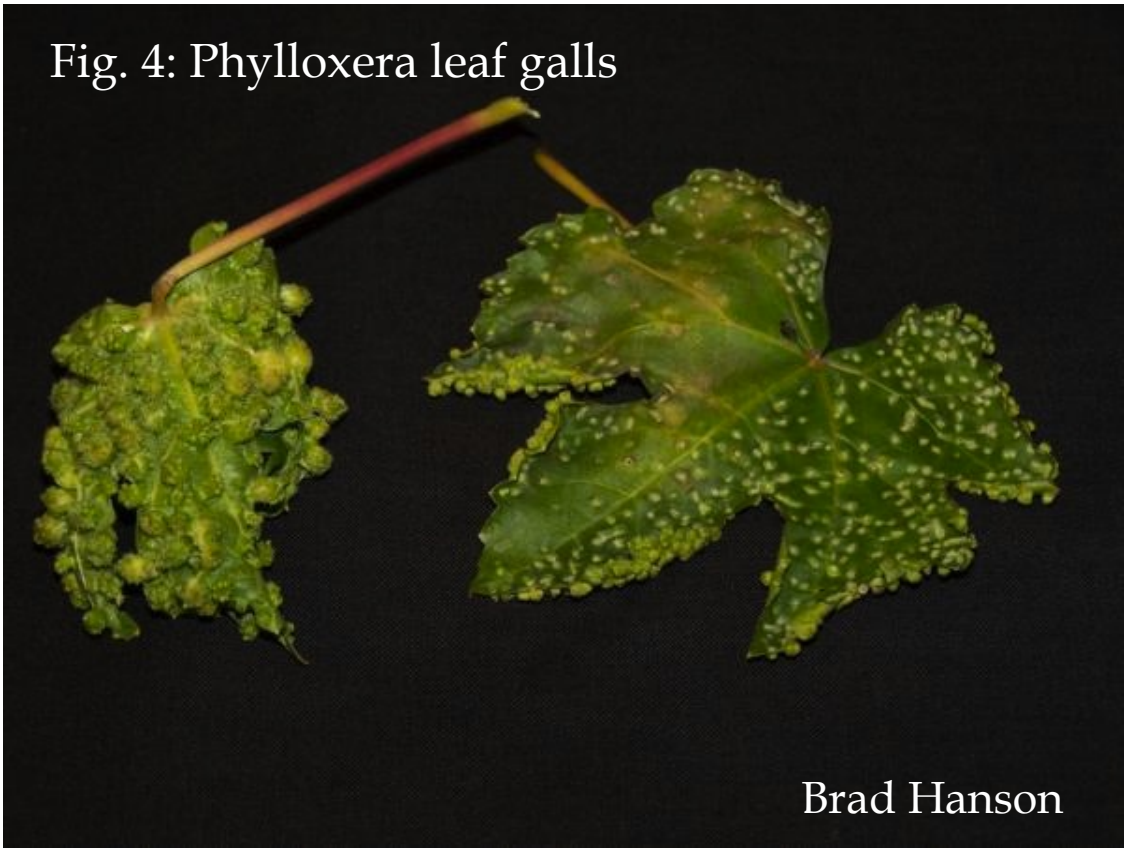


Fig. 4: Phylloxera leaf galls

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