P74 – Breeding of new phylloxera resistant rootstocks in Geisenheim

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Abstract

Phylloxera risk makes viticulture virtually impossible without grafted vines. Most rootstock varieties are sufficiently phylloxera tolerant but not resistant, allowing the formation of leaf galls and root nodosities. Genetic diversity of rootstocks is small worldwide. Rootstock cultivars of the *Vitis cinerea* genotype are highly resistant to phylloxera (e.g. Börner, Rici, Cina). The introduction of completely phylloxera resistant rootstocks is the chief goal of our breeding program at Geisenheim. New candidate varieties are evaluated for rooting and grafting capability comparing their performance in vineyard trials to commonly used rootstocks. The aim of this study is to gain information on some alternative rootstocks and new completely phylloxera resistant candidate varieties, which could help to enlarge the range of commercially used rootstocks.

Plants were bench-grafted with virus tested rootstock and Pinot Noir, Pinot Gris, Trollinger (Black Hamburg) and White Riesling as scion material, callused in a glasshouse and rooted in a field nursery. Rootstock trials were located in different wine growing regions in Germany representing a range of different soil types.

Rootstocks have a huge impact on the scion partner, its physiology and performance. Different yield levels are corresponding to the relative water holding capacities of the trial sites. While most rootstocks show variable results, SO4 is the most stable high-level performer at all sites. A number of new Geisenheim crosses show comparable performance characteristics on a medium to high level according to site specific soil conditions. Vigour, yield, berry size, concentration of minerals within berry juice, content of organic acids, pH and sugar concentration are affected by rootstocks considerably.

The introduction of new completely phylloxera resistant rootstocks will contribute to a larger biodiversity, which is a good protection measure against phylloxera and possible new root diseases. A number of new Geisenheim rootstock crosses show a good potential for commercial cultivation. In any case, an increase in rootstock biodiversity is crucial for the future development of viticulture. Two new rootstock varieties are already in the registration process.

Keywords: adaptation, phylloxera, rootstock