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Evaluation of Grape Rootstocks for Resistance to Crown Gall and Nematodes

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The ring nematode, *Criconenwlla xenoplax*, has been reported to depress the vigor and yields of grapevines in Europe, California, Washington, and Michigan. Population densities of 500 *C. xenoplax* per kg of soil have reported to reduce vine yield 10-25% in California. A survey of Oregon vineyards found *C. xenoplax* in 85% of the vineyard surveyed and nearly 40% of the vineyards had population densities of *C. xenoplax* > 500 per kg of soil. Vines of low vigor were association with population densities > 1000 nematodes per kg soil in some vineyards. At high population densities, *C. xenoplax* feeding causes destruction of the root tissue and a reduction of new feeder roots.

In regions of the world where grapes have been grown for centuries, plant-parasitic nematodes have become a major disease problem. In Oregon, the majority of vineyards are less than 20 years-old and nematode damage is not evident. In the future however, nematode damage may be expressed in older vineyards and when vines are replanted on old vineyard sites that are infested with high population densities of plant-parasitic nematodes. Since many Oregon vineyards will be replanted with vines on phylloxera, resistant roots, it is important to identify which rootstocks also have resistance or tolerance to *C. xenoplax*.

Results Last winter soil collected at Woodhall vineyard was processed to extract nematodes. Individual nematodes were hand-picked from the sample and inoculated to the soil around cherry seedlings. In July, green wood cuttings were collected from vines at the Lewis Brown Farm and rooted in a misting bed. By the fall, nematode populations had built up to the densities that were needed to start the screening of rootstocks. In December, 1996 individual vines were transplanted into four liter pots and 4000 *C. xenoplax* were inoculated around each root system. An equal number of plants were inoculated with the wash water from the nematode extraction process which had been centrifuged to remove all nematodes. These plants served as noninoculated controls. The experiment is a split block design with ten replications. The experiment will run six to eight months. Plant growth data will be collected during and at the end of the experiment, and nematode data only will be collected at the end of the experiment.