

**Nematodes of grapes locally and worldwide**  
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The most important plant parasitic nematodes in Washington State grapevines are: root knot nematodes: *Meloidogyne hapla*; Dagger nematodes: *Xiphinema* spp.; lesion nematodes: *Pratylenchus* spp.; Citrus nematodes: *Tylenchulus semipenetrans*; and ring nematodes: *Criconebella xenoplax*.

In order to develop control strategies against plant parasitic nematodes, detailed soil sampling of grape fields is required. Below are the sampling guidelines:

**Sampling for Nematodes in a Pre-plant situation**

- 1) If a site for a new vineyard had perennial crops in the past 5 years or it was recently fallow, soil samples must be taken down to 3 feet.
- 2) Similar sampling strategy should be used when sampling a field that had an annual crop which is a good host for nematodes that affect grapes i.e. potatoes.
- 3) Always check crop and management record to determine if nematodes (that affect grapes) were found on any previous crops.
- 4) Soil samples must be taken from field areas where decline of the previous crop was noted
- 5) Samples should be taken from areas of the field where differences exist i.e. differences in cropping histories, soil textures, yield, or watering regimes.
- 6) A sample should consist of at least 20 sub-samples (cores) collected along a “w” pattern in each area. Composite sample should be 1 pint to 1 quart.
- 7) Soil or soil + roots must be placed in a plastic bag, carefully labeled, and stored away from sunlight, at 40 to 100C (or 400 to 500 F).

**Sampling for Nematodes / Established Vineyards:**

- 1) The majority of nematodes found around ‘feeder roots’, so soil and roots should be collected to a depth of 12 – 18” in the vine row (Do not sample from top 1” inch) )
- 3) At least 20 samples should be collected along and across vine rows per 5 acre area
- 4) Collect a composite sample of minimum 1 pint of soil
- 5) Nematodes are found in hot spots so label samples and sampling locations
- 6) When diagnosing vines of low vigor, take separate root and soil samples

**When to sample for nematodes:**

- 1) Best to sample when soil is moist - within 1 week after rainfall or irrigation
- 2) Densities of nematodes vary through the year. Root knot, ring and lesion nematode densities are greater in the fall; dagger peaks in the spring
- 3) Soil temperatures should be least 10<sup>0</sup> C (or 50<sup>0</sup> F) when sampling for nematodes.
- 4) Sampling in late summer or early fall allows time to plan and implement nematode management options, i.e. fall or spring fumigation