

Mystery Seedling Disease

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What is mystery seedling disease? Mystery seedling disease (MSD) is a root disease that affects young (i.e., seedling) ginseng leading to plant death, or sparse, unthrifty stands. MSD is similar to rusty root (see University of Wisconsin Garden Facts X1061) and may be a seedling phase of this disease. Like rusty root, MSD is most important because it leads to roots that are unmarketable due to low quality.



Healthy ginseng seedlings (left) and those affected by MSD (right).

What does mystery seedling disease look like? Initial symptoms of MSD may simply be a lack of germination of ginseng seeds in seedling ginseng gardens. Plants that do emerge often have foliage with a red tinge. Roots of infected plants are often stunted and bulbous, with an intact crown and decayed taproot tip. Older infected plants (e.g., two-year-olds) are typically severely stunted.

Where does mystery seedling disease come from? Current research indicates that several fungi (either alone or in combination) may be involved in MSD. These include *Septonema*, *Cylindrocarpon destructans*, *Rhizoctonia*, *Pythium* and *Fusarium*. Because of the similarity of MSD and rusty root, nutrient deficiencies (e.g., a boron deficiency) might also be involved in the disease.

How do I save ginseng with mystery seedling disease? Once a ginseng plant has been affected by MSD, little can be done. There are currently no fungicide treatments available to control this disease.

How do I avoid problems with mystery seedling disease? Avoidance of MSD fungi is the only current means of disease control. Select a site not previously used for ginseng production. Be sure not to track soil or plant material from infested gardens into non-infested gardens. Clean equipment, hand tools and footwear after working in infested gardens. Use high-pressure water or a detergent solution to clean large equipment, and a 10% bleach solution or alcohol to clean hand tools and shoes. Soil fumigation has been used by some growers to successfully manage MSD, even in areas where ginseng has been produced in the past. However, other growers have found this technique ineffective.

For more information on mystery seedling disease: See the UW-Madison Ginseng Home Page (www.plantpath.wisc.edu/ginseng) or contact your county Extension agent.