

Managing *Pythium* on Ginseng

Feb 2023

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Pythium spp. are soilborne oomycetes (fungal-like organism) that can be responsible for damping-off, and *Pythium* root rot.

Pythium spp. are part of the fungal complex responsible for preemergence damping-off and postemergence seedling root rot, especially in 1- and 2-year-old ginseng plants. Damping-off can occur early in production by causing a seed rot and attacking seedlings before they emerge from the soil. Postemergence damping-off is more readily recognized because the damping-off fungus attacks at the soil line after the seedling emerges from the soil. Discoloration of the seedling foliage occurs when roots are infected. Below ground symptoms include the root tip and fibrous roots appearing water soaked. *Pythium* spp. can produce spores on ginseng debris. *Pythium* spp. can be seed-disseminated.



Discoloration of ginseng seedlings resulting from *Pythium* infection.

Cultural strategies recommended for *Pythium* root rot management are summarized in the table below.

Cultural Management Strategies

- Choose sites with good soil drainage.
- Use treated seed produced in healthy gardens.
- Avoid working in the garden when soils is wet to avoid compaction which prevents drainage.
- Avoid standing water by digging trenches to drain water away from the garden.
- Do not allow water from older gardens to drain into younger gardens.
- Form plant beds with a flat top to allow water to run off and prevent pooling.
- Work in diseased gardens at the end of the day.
- Clean equipment used in a diseased garden with a power washer to remove soil and plant debris, then use a detergent.
- Use disposable, plastic boots over footwear before entering a garden with *Pythium*.
- Clean hand tools with a disinfectant such as bleach (10% solution) and rinse.

See table below for list of products. Monthly applications of Ridomil Gold GR are especially recommended.

Visit the IR-4 Project website (<http://www.ir4.rutgers.edu>) for updates on the registration of new products.

Product	A.I.	FRAC Group
<i>Pythium</i> 'A' Team		
Captan 80WDG	captan	M4
Elumin SC	ethaboxam	22
Ridomil Gold G (apply monthly)	mefenoxam	4
<i>Pythium</i> 'B' Team		
Fosphite/Phostrol/Rampart/etc.	phosphorous acid salts	33
Reason 500SC	fenamidone	11
Presidio SC	fluopicolide	43
Aliette WDG	aluminum tris	33

Remember that the pesticide label is the legal document on pesticide use. Read the label and follow all instructions closely. The use of a pesticide in a manner not consistent with the label can lead to the injury of crops, humans, animals, and the environment, and can also lead to civil or criminal fines and/or condemnation of the crop. Pesticides are good management tools for the control of pests on crops, but only when they are used in a safe, effective and prudent manner according to the label.