



Pacific Northwest
Vegetable Extension Group

Identification & Management of Emerging Vegetable Problems in the Pacific Northwest

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Onion Smut

Affected plant species:

Most species of *Allium* are affected to varying degrees.

Common name:

Onion smut

Latin binomial:

Urocystis colchici or *U. cepulae*

Symptoms & key characteristics for identification:

After emergence, dark pustules form on the cotyledon. Pustules are lesions that contain masses of black spores called teliospores that can spread in the soil or air. Infection occurs during the seedling phase of plant growth. As the plant grows, so do the pustules. Infections cause stunting of plants, and may cause plant mortality. Bulbs infected in the field do not rot in storage, but are more susceptible to other diseases in storage.



Photos courtesy: Lindsey J. du Toit, WSU.

Biology/epidemiology:

The smut fungus overwinters as teliospores or chlamydospores in the soil; these spores may be viable for up to 15 years. Spores with soil can be moved easily by machinery, wind, or water. The pathogen can also be spread by sets or transplants although there is no evidence of seed transmission. Spores germinate prior to seed germination, and the cotyledon is susceptible for 12 to 15 days. New leaves are susceptible during the early stages of growth.

Management:

Some *Allium* spp. exhibit resistance to onion smut, though no resistance has been identified in onion. Movement of infested soil should be avoided and equipment that has been in contact with infested soil should be cleaned thoroughly. Practices that promote rapid emergence and growth of the cotyledon will help prevent prolonged exposure to the pathogen during the plant's susceptible phase of growth. Seed treatments and in-furrow fungicide applications can suppress infections by smut spores in soil. See the PNW Disease Management handbook for specific recommendations.

Selected references:

Pacific Northwest Disease Management Handbook: <http://pnwhandbooks.org/plantdisease/>
PNW VEG website at http://mtvernon.wsu.edu/path_team/vegpath_team.htm and Photo
Gallery at http://mtvernon.wsu.edu/path_team/diseasegallery.htm

Schwartz, H. F. and S. K. Mohan. 2008. Pages 44-45, in: Compendium of Onion and Garlic Diseases and Pests, Second Edition. American Phytopathological Society, St. Paul, MN.