

Common Diseases of Florist Crops

Damping-off Disease

Damping-off of seedlings, which is caused mostly by fungi, can be a complex of several diseases occurring separately or simultaneously. Most commonly, either *Rhizoctonia* or *Pythium* is involved. *Botrytis*, *Sclerotinia*, and *Alternaria* are also occasionally responsible for damping-off.

Preemergence Infection

Seed decay before germination or rot of seedlings before emergence is commonly caused by a water mold, usually *Pythium* or sometimes *Phytophthora*.

Postemergence Infection

Rot developing at the soil line after emergence, which causes the seedling to topple, is most commonly caused by *Rhizoctonia*. This is the conspicuous type of damping-off most frequently reported by growers. Older seedlings may be infected at the soil surface and yet remain upright. Transplanted seedlings remain hard and stunted and eventually die. In some cases, water molds (such as *Pythium*) invade the rootlets at the tips and progress upward to the stem, whereupon the plant dies.

Cultural Control

For all practical purposes, *Rhizoctonia* and *Pythium* do not have an airborne stage. Therefore, spread of both fungi depends primarily on the mechanical transfer of mycelia, sclerotia, or resting spores in infested soil particles (on flats, tools, baskets, or in the end of the watering hose) or infected plant tissue. Thus, if soil or another medium is steamed or chemically treated and care is taken to prevent recontamination, damping-off should be of little significance. Sowing seed in a layer of screened sphagnum, vermiculite, perlite, peat-lite mix, or other sterilized material also helps. However, some peat moss used in peat-lite mixes may carry these pathogens, and the seed itself may occasionally carry damping-off pathogens. Fungus gnats and shore flies are also able to spread damping-off fungi within the greenhouse.

Chemical Control

Fungicide-treated seed is available for some crops. To avoid plant injury, it is best to rely on careful sanitation practices rather than on fungicide drenches to protect crops until after the seedlings emerge. Preplant mix incorporation of granular fungicide formulations may lead to phytotoxicity problems with some seedling species, particularly if ingredients are not well distributed through the soil mix. If experience has shown that particular plant species are plagued by damping-off, make spot applications of appropriate fungicides to just those species. If preventive fungicide treatments are made to all crops, pay careful attention to the appropriate dosage delivery for the size of the container and recognize that fungicides labeled for ornamentals are often not registered for use on vegetable seedlings.