

WIPING OUT WATER MOLDS

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Every greenhouse manager has one mysterious, unseen and unnamed worker who habitually over-waters. This real or imaginary individual is blamed when plants are droopy, when their lower leaves turn yellow, or when they just don't grow as fast as they should. A soggy growing medium can singlehandedly be responsible for plant disease, as it may have the effect of suffocating the root system by depriving it of oxygen. Often a situation such as this is compounded, however, by the addition of another disease factor: the Water Mold Fungi.

The water mold fungi prosper under just the conditions that heavy-handed watering practices generate. When a plant's root system is already suffering the ill effects of oxygen deprivation, it is weakened and has lost all of its native ability to resist infection by root-parasitic fungi. Not only is the plant more prone to infection, but the wet conditions are the ideal environment for the water mold fungi to grow, produce spores and spread within a pot or flat. The damage begun by overwatering can be greatly magnified by water mold fungi, such as *Pythium* and *Phytophthora*, which attack the vulnerable roots and feed upon their soft, outer cortex tissues.

Root systems rotted by water molds have a characteristic unhealthy appearance: the normal white root tips are converted to greyish or brownish softened tissue, which will slide right off of the harder central core of the root at a touch. Plants should be knocked out of their pots periodically to check for the vigor of the root system, so that early signs of infection may be responded to before the situation gets entirely out of hand.

Where do these destructive fungi come from, and what can be done to prevent their success? The theory of spontaneous generation was disproved by Louis Pasteur a century ago, so no grower should assume that he or she is powerless to keep water mold fungi out of the production area. Several things can be done to keep these fungi from gaining access to your plants' root system, and to reduce the chance of widespread disease.

1. **Choose a very well-drained soil mix:** Give the plant's roots the air they need, providing them with plenty of air-filled pore space rather than a soggy, poorly-structured medium in which water molds would have a heyday. After choosing appropriate mix components for good drainage, beware of overmixing them to the extent that the crucial structure is lost.

2. **Use an uncontaminated mix:** Use a packaged mix or soilless mix components that are virtually free of disease fungi, or control quality by doing your own steam, heat, or chemical fumigation treatment to kill disease organisms in soil-containing mixes (treatment not optional) or soilless mixes (treatment optional).

3. **Keep the mix uncontaminated:** Any contact between your carefully-treated mix and field soil will probably introduce disease fungi. Contamination often occurs as the result of poor storage practices. Store mix off the ground on a surface disinfested with Clorox (or other household bleach) diluted with water in a 1 to 9 ratio. If mix is stored in a pile on the floor, use a disinfested surface or a clean sheet of plastic—and place the pile so that it is well out of the way of foot traffic. Shoe soles carry soil particles that are likely to be well-laced with disease-causing fungi. Disinfest tools and watering hose nozzles and store them up off of the floor.

4. **Avoid overwatering:** Plants can best resist disease if they are not under stress. The water molds, in turn, are hampered in mix that is not continually saturated with water.

5. **Use fungicides, either preventively or in response to occasional problems with contamination.** If careful sanitation in your operation has conquered the problem of root rot caused by water molds, then there may be no need for chemical control on a regular basis. Should an instance of contamination arise, a corrective drench with an appropriate water mold-controlling fungicide may be applied. Not every fungicide works against this group of organisms. Benlate, for instance, when used alone, can make a water mold problem worse by eliminating competitive organisms. The materials Lesan 35% WP, Truban 30% WP & 5G, Banrot 40% WP and Subdue 2E all have many registered uses on ornamental greenhouse crops: these fungicides are especially designed to combat water mold fungi. Lesan, Truban and Subdue may be used with other compatible fungicides that will control *Rhizoctonia*, which is not a water mold and is affected by an entirely different range of chemicals. Banrot is a combination of two separate chemicals, Truban and Topsin M, which together give control of water molds and *Rhizoctonia*.

NOTE: To simplify information, trade names of products have been used. No endorsement of named products is intended, nor is criticism implied of similar products not mentioned. Mention of a chemical does not imply guarantee of effectiveness or safety, nor that the chemical is registered for use on all bedding plants.

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