



Powdery Mildew: Reproduction and Susceptibility

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DESCRIPTION

Powdery mildew is a fungal disease that disturbs a wide range of plants. Powdery mildew diseases are triggered by many different species of fungi in the order Erysiphales. Powdery mildew is one of the easier plant diseases to recognize, as its symptoms are quite distinctive. Infected plants show white powdery spots on the leaves and stems. The lower leaves are the most affected, but the mildew can be appeared on any above-ground part of the plant. As the disease develops, the spots get larger and denser as large numbers of asexual spores are formed, and the mildew may spread up and down the length of the plant.

Powdery mildew develops well in environments with high humidity and moderate temperatures. Greenhouses deliver an ideal moist, temperate environment for the spread of the disease. This roots harm to agricultural and horticultural practices where powdery mildew may thrive in a greenhouse setting. In an agricultural or horticultural setting, the pathogen can be controlled by chemical methods, bio-organic methods, and genetic resistance. It is vital to be aware of powdery mildew and its management as the resulting disease can significantly reduce important crop yields.

Powdery mildew fungi can merely reproduce on their living cell host and reproduce both sexually and asexually. Sexual reproduction is *via chasmothecia* (formerly *cleistothecium*), a type of ascocarp where the genetic material recombines. Powdery mildew fungi must be adjusted to their hosts to be able to infect them. Within each ascocarp are several asci.

Under optimal conditions, ascospores mature and are out to initiate new infections. Conditions required for spore maturation differ among species. Asexual reproduction is where the mother fungi and offspring are genetically alike. Powdery mildew fungi offspring of wheat and barley species are more

effective from asexual reproduction compared to sexual reproduction counterparts.

CONCLUSION

Powdery mildew does not require a vector for transmission. Spores are usually conceded by air currents from a proliferation site to a new infection site. In an agricultural setting, the pathogen can be controlled using chemical methods, genetic resistance, and careful farming methods.

Standard fungicides are an effective way to manage powdery mildew disease on plants. Spray programs of conventional fungicides are recommended to begin when powdery mildew symptoms and signs are first noticed. Conventional fungicides should be applied on a fixed basis for best results against the disease. Control is probable with triadimefon and propiconazole. It is also likely with hexaconazole, myclobutanil, and penconazole.

Dilute sprays comprising sodium bicarbonate (baking soda) and vegetable or mineral oils in water are often recommended for controlling powdery mildew, but such mixtures have limited and inconsistent efficacy. While sodium bicarbonate has been exposed to reduce the growth of mildews in lab tests, sprays containing only baking soda and water are not effective in controlling fungal diseases on infected plants, and high concentrations of sodium are harmful to plants.

Potassium bicarbonate is an effective low-toxicity fungicide in contradiction of powdery mildew and apple scab.

Another non-conventional chemical treatment comprises treating with a solution of calcium silicate. Silicon helps the plant cells defend against fungal attack by degrading haustoria and by producing callose and papilla. With silicon treatment, epidermal cells of wheat are less prone to powdery mildew.

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