



OUR WATER – OUR WORLD

Tips for Managing Powdery Mildew

Powdery mildew is a common fungal disease found on many different types of plants. It appears as a white or grayish, powdery growth that is most commonly found on leaf surfaces, but may also infect buds, shoots and even flowers and fruits. This ‘powder’ is actually the mycelium and spores of the fungi. Powdery mildew is rarely fatal, however on some plants, leaves may yellow and fall off, and leaves and shoots may distort.

There are many different types of powdery mildew fungi that can cause the disease, and spores can be spread to new plants by wind. But all of the spores need leaves free of water to germinate, so water on the plant surfaces can actually inhibit germination and kill the spores. Ideal conditions for powdery mildew are temperatures between 60° and 80° F, but it can be active in temperatures from 55° and 90° F. It is most common in shady conditions and dense plantings.

PREVENTION

The best way to manage powdery mildew is to prevent it through cultural practices.

- Place plants in full sun where possible, and provide good air circulation
- Avoid excess fertilizer that stimulates new growth that is more prone to the fungus. Use compost and organic fertilizers to prevent excessive tender, overgrown foliage that shades the leaves and provides the right conditions for the fungus.
- Prune out small infestations, but don't over-prune to avoid rapid growth.
- Irrigate plants by watering leaves mid-morning to kill the spores, and to allow leaves to dry quickly to avoid other fungal infections.
- Clean up dead plant material and fallen leaves so that spores don't spread and won't be able to overwinter in plant tissue.
- Choose plant varieties that are resistant to powdery mildew when possible.

USING FUNGICIDES

In case of severe infections, there are several environmentally-friendly products that can help to manage powdery mildew. Most of these products are best used to prevent powdery mildew, so apply them to plants susceptible to the disease before you see the powdery mildew or in the very beginning stages. Thoroughly cover all plant parts, including under the leaves. Additional applications may be needed as the plant grows.

In general, apply products in the late afternoon when the weather cools and beneficial insects are not present. As with all products, be sure to read the label and use as directed.

Oils

Horticultural oils that use petroleum distillates, and plant-based oils such as Neem or jojoba oil can help to manage moderate infections.

Biological Fungicides

Biological fungicides have beneficial microorganisms, such as *Bacillus subtilis* or *Bacillus amyloliquifaciens strain D747*, that can kill fungal pathogens. These products are best used as preventatives. In general, use these products no more than 6 times a season.

Potassium bicarbonate

Potassium bicarbonate (baking soda) can prevent and eradicate powdery mildew. Use at the first sign of powdery mildew and repeat at 7 to 10 day intervals.

Copper Fungicide

Copper fungicides can be used to protect plants against the development of powdery mildew, so they should be applied before or when you see the first signs of the disease. There are many different formulations. Don't apply on very hot days or combine with other chemicals.

Sulfur

Sulfur products are most effective when applied before the powdery mildew appears. Do not apply when temperatures are 85° or above. Some plants may be injured by the use of sulfur, so be sure to read the labels.

Powdery mildew resistant cultivars of common ornamental plants:

| Susceptible Plant | Resistant Cultivars |
|--------------------------|--|
| crape myrtle | those with Native American names, e.g., 'Catawba,' 'Cherokee,' 'Hopi' |
| euonymus | variegated varieties more resistant than nonvariegated types |
| London plane tree | 'Yarwood,' 'Columbia,' 'Liberty' |
| monarda | 'Marshall's Delight,' 'Blaustrumph,' 'Colrain Red' |
| phlox | <i>Phlox maculata</i> 'Natasha,' <i>P. glaberrima</i> 'MorrisBerd,' <i>P. paniculata</i> 'Robert Poore,' 'David' |
| rose | 'Simplicity' and 'Meidiland' roses, <i>Rosa rugosa</i> varieties |
| rhododendron | <i>R. yakushmanum</i> , <i>R. macrophyllum</i> , <i>R. 'Nova Zembla</i> ,' <i>R. 'Palestrina'</i> |
| zinnia | Pulcino and African zinnia |

(table from the UCIPM website)

For more information about powdery mildew, read the Powdery Mildew Pest Note on the UCIPM website: ipm.ucanr.edu/PMG/PESTNOTES/pn7494.html

Our Water Our World helps consumers find less-toxic products for use in their homes and gardens. For information on managing common garden pests, rats, yellowjackets and a wide variety of other pests, visit our web site at

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