



# Oedema

## Introduction

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Oedema occurs when roots take up water faster than it can be used by the plant or transpired through the leaves. Water pressure then builds up in the mesophyll or internal cells of the leaf causing them to enlarge and form tiny swollen blister-like areas.

## Symptoms and Signs

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Oedema appears as small, sometimes corky blisters which form on the lower surface of leaves or needles (Fig. 1). These blisters may eventually harden to form white, tan, or brown wart-like corky bumps on the lower leaf surface. In severely affected plants these corky growths also form on petals (Fig. 2), petioles, and stems. As injury continues, leaves turn yellow, droop, and fall off. Plants become spindly and growth ceases.



Figure 1: Blisters on spruce needles.

Oedema is most prevalent in the late winter especially during extended periods of cool, cloudy weather. It is likely to develop when the soil is warm and moist and the air is cool and moist. This environment results in rapid water absorption from the soil and slow water loss from the leaves. These conditions are most frequently encountered in greenhouses or indoor situations rather than outdoors. Geraniums, rhododendrons, begonias, pansies, violets, and certain fleshy-leaved plants such as jade and peperomia are particularly sensitive to conditions which lead to the development of oedema, although almost any broadleaved plant may be affected. Vegetables such as cabbage and tomato can also be affected.



Figure 2: Blisters on the petals of orchid.

## Management Strategies

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Overwatering, high humidity, and low light intensities are factors which favor the development of oedema. Avoid overwatering susceptible plants especially during the winter months when they should be kept slightly on the dry side. Keep the

relative humidity below 70% in the winter. Improve the flow of air over the leaves by spacing plants farther apart and increasing ventilation. Affected plants often recover from oedema with the return of more favorable growing conditions in spring and early summer. Gradually increasing the exposure to sunlight is beneficial and will help avoid sun-scorch when plants are moved outdoors.

Last updated SLJ 2/15

**READ THE LABEL BEFORE APPLYING ANY PESTICIDE!** Changes in pesticide regulations occur constantly. All pesticides distributed, sold, and/or applied in New York State must be registered with the New York State Department of Environmental Conservation (DEC). Questions concerning the legality and/or registration status for pesticide use in New York State should be directed to the appropriate Cornell Cooperative Extension Specialist or your regional DEC office.

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