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WINTER DAMAGE OF ORNAMENTALS

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Certain broadleaf evergreens and needle evergreens are vulnerable to winter injury. How serious a problem winter injury will be depends greatly on weather conditions. It is not always possible to prevent this damage, but some of the damage can be minimized if the steps outlined below are followed. It is also important for homeowners to understand the various reasons why plants may experience winter damage.

Symptoms of Winter Injury

Broadleaf evergreens and needle evergreens are susceptible to winter damage. The damaged plants may show the following symptoms:

- Scorched leaves
- Brown or reddish color of leaves
- Defoliation
- Split-bark
- Dead branches
- Dead flower and leaf buds
- Foliage completely brown or yellow

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These symptoms may appear immediately or they may not appear until spring when the plants begin to grow normally and then die.

Cause of Winter Damage

1. A sudden out-of-season freeze which hits plants when they are actively growing and are most vulnerable.
2. A sudden drop in temperature which may cause bark splitting and sun scald damage. This is most apt to happen when a warm sunny day is followed by a bitterly cold night. Damage will be more severe on the side of the plant exposed to the sun because the range of temperature experienced by the plant in that location will be greater.
3. A prolonged period of extremely low temperatures where the ground becomes deeply frozen.
4. Excessive moisture loss - high winds or temporary high temperatures.

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5. Heavy loads of snow and ice that cause stems to crack.
6. Gnawing rodents.
7. Lack of hardiness. Some plants may survive several seasons before they are killed by extreme low temperatures.
8. Failure of the plant to enter the fall dormant season in a healthy and vigorous condition makes them vulnerable to winter damage. However avoid fertilization after July 1 as late fertilization will encourage new growth that may not have a chance to harden off before cold weather occurs. If plants are fertilized in the fall, delay the application until late fall.

Measures to Prevent Damage

Some of these damages are beyond the control of the homeowner - but measures may be taken to modify their effects.

Water loss may cause severe damage or death of a plant. Water loss occurs in winter when high winds or temporary warm weather cause a plant to give off an unusually high amount of moisture. This coupled with frozen ground which prevents roots from taking up moisture for the plant causes the browning or burning frequently seen on evergreens or broadleaved evergreens in late February or March.

How to Combat Moisture Loss

1. Be sure the plant has plenty of water before it goes into the winter season.
2. Burlap or lath screens may be used to protect the plant from high winds or bright sunshine. Do not use plastic wrapped closely around a specimen plant because the temperature within the enclosure will be entirely too high when the sunlight strikes the plaster.
3. Use an anti-desiccant spray such as: Foli-Gard, Wilt-Pruf, Vapor-Gard. Spray on the foliage of needle evergreens and broadleaved evergreens. Normally around the end of November and February 1. Follow instructions on container.
4. A light mulch helps maintain a more even temperature in the upper layers of soil and is helpful in preserving soil moisture. This may also keep plants from starting into growth prematurely when a few nice days would warm exposed soil.

Good mulch materials are oak leaves, peat moss, bark mulch, straw and Christmas greens. Avoid maple leaves which tend to pack down and become moldy. Mulches are best applied after the ground freezes since their purpose is to keep the ground evenly cold, not warm.

A mulch which keeps the ground at an even temperature has the further advantage of preventing small plants, such as perennials and bulbs, from heaving out of the ground. When this happens after alternate freezing and thawing, roots may be exposed to the air. They will dry out and the plant may die as a result.

Growing Healthy and Vigorous Plants

During the spring growing season it is important to follow cultural practices that will help to develop strong and vigorous plants. Fertilize, water, and mulch as needed. Prune to develop a strong frame and to allow an adequate amount of light and air to reach the center of the plant.

Snow Protection

When a heavy snowfall occurs, damage to branches may be prevented by gently knocking snow off the plant with a broom or bamboo rake before it has time to turn to ice. Sometimes an inverted V frame is constructed to shelter plants vulnerable to roof snow slides. A lath frame or a piece of plywood with sturdy supports may also be used for this purpose. Snow fencing may be used to protect a row of prized plants from winter winds.

Breakage from winter storms and heavy snow loads may be minimized by pruning out dead wood and potential weak spots such as crisscrossing branches before the onset of winter. Some plants, such as upright junipers and arborvitae, may be given a better chance for intact survival by tying branches together.

Protection of Bark

Bark splitting, especially a danger on newly planted trees, may be prevented by wrapping trunks with 4" burlap strips or with commercial tree wrap.

Rodent Protection

Hungry rodents, particularly fond of the bark of crabapples, mountain ash, hawthorns and winged euonymus, may be frustrated by a collar of 1/2 inch wire mesh cloth surrounding the plant's trunk from below the soil line to a height of two or three feet.

Plants in Containers

Gardeners growing permanent plants in containers face special problems during cold periods. Roots do not develop cold hardiness to the same degree as the top of the same plant. For example, while American holly tops can survive temperatures down to -20° , roots of the same plant are killed at 20° degrees above zero. For plants grown in the ground where the temperature does not usually go below 30° degrees even when the ground is frozen, this astonishing difference of 40 degrees is no problem. However, it does become extremely significant in container gardening for in an exposed container, soil temperature may reach 0° .

The gardener is almost powerless in the face of extreme winter conditions but he can take some measures which may tip the balance in favor of plant survival under normal conditions. Beyond that he can hope for a moderate winter with good snow cover and no raging winds.

Winter Protection through Planning

1. Select ornamental plants that are either native or are known to be winter hardy in your area.
2. Careful landscape planning and planting practices are also effective in minimizing winter injury. This is especially important when planting broad leaved evergreens that are known to be easily injured, such as rhododendrons, azaleas, camellias by planting on the North, Northeast, or eastern side of a building or barrier (fence, hedge, etc.) where they will be protected from prevailing winds and intense winter sun. These exposures will also delay spring growth, thus preventing injury to new growth or flowers from late spring frost.

Since heavy snow and ice can cause much damage to branches and trunks, it is important that plants be placed away from eaves and other snow or ice collecting areas. Plant in locations where snow and ice will not slide or fall on the plants.

Salt Damage

When salt is used on sidewalks or driveways for ice control, there is the danger that excessive run off may harm near by plants.

Special Warning - Fall Planting

Broadleaf and needle evergreens that are planted in the fall are especially vulnerable to winter damage if dry periods or excessive high winds occur during the winter months. When these conditions occur, excessive transpiration may occur and the foliage may become desiccated. Therefore, it is often necessary to water fall planted shrubs throughout the winter.

Erecting a temporary screen of burlap or a section of snow fence will help to provide a protection against high winds when shrubs are planted in areas that are exposed to high winds.

Mulching fall planted shrubs is also beneficial as this helps to keep the soil moist, and provides some protection for the roots from freezing.

Recommended Cultural Practices

Keeping plants in a healthy condition is an effective way to reduce winter injury.

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| 1. Correct planting | 4. Correct watering policy |
| 2. Proper pruning | 5. Disease and insect free |
| 3. Sufficient nutrients | 6. Staking when needed |

If Winter Injury Occurs

When the foliage of broadleaf evergreens or needle evergreens show winter burning or browning in the spring be patient before doing drastic pruning. Very often the damaged leaves will fall and be replaced by new growth. However, if all the leaves fall off and no life is evident in the stems, prune back to live wood. A spring feeding and watering program may be needed to help the plant recover from winter damage.