

THE ARBORETUM AT FLAGSTAFF

Winter Gardening Tips

Garden Maintenance (*October - February*)

Effect of Temperature:

Winter temperatures fluctuate dramatically at high elevations in northern Arizona. The temperature often varies daily by 30 degrees and can vary dramatically between different neighborhoods of the area. Daytime temperatures may be in the 40s and 50s, while nighttime temperatures are well below freezing.

During winter, surface cells in plants warm up in above-freezing daytime temperatures. Nighttime chills plunge significantly below 32 degrees and may freeze young tissue, which is especially prone to damage from alternating freezing and thawing. Sunscald may occur in late winter or early spring when the temperature of bark in direct sunlight may be higher than the surrounding air. After sunset, plummeting temperatures may quickly refreeze the water in cells, splitting bark and causing large wounds. During extended periods of intense cold, frost can penetrate into bark and deeper wood cells. Repetitive freezing and thawing of the soil can cause heaving of soil and plant roots, which exposes roots to desiccation and freezing. Once the soil and roots are frozen, the roots can no longer take up water for the rest of the plant.

Wind can cause problems for plants by damaging young tissue through cooling and drying. In spring, as the days grow longer and the air begins to warm, plants are induced into higher rates of transpiration, increasing the rate of moisture loss. However, cool winds and deep mulch may keep the soil from thawing, and the still-frozen roots are unable to replace the moisture lost from aboveground parts of the plant. Tops of shrubs or trees may die back, and it may take most of next growing season for them to recover from “wind burn” damage.

Here's what you can do to minimize winter stress on plants:

Mulching - Once soil has frozen in early winter, mulch around the base of shrubs and trees with an organic material to a depth of 6 to 8 inches. The insulating effect of the mulch will help prevent heaving and keep the plants in a state of dormancy during occasional periods of warmer weather. Snow acts as an insulator if it covers plants for long periods. For groundcover plants, use material that will allow air circulation and will not mat down. This prevents low-growing perennials from rotting underneath the mulch. Pine needles, wood shavings, and dry oak leaves work. Remove mulches early in the spring to allow soil to thaw before bud break so that the roots can take up water.

Pruning - Snow can present problems, particularly structural damage to shrubs and trees. Large branches with large surface area are the most susceptible to breakage from heavy snow or ice. Inspect plants for preventive pruning and complete pruning early in winter if possible. Otherwise, try to remove buildup of snow from branches or plants that may break under a heavy load. If branches break, prune off damaged material as soon as possible to minimize additional stress to the plant.

For other pruning, it is best to wait until late February or March, but before bud break. Pruning before or during the coldest part of the winter may increase stress on the plant from greater desiccation at cuts. Pruning in the fall before complete dormancy may stimulate new growth, which would be susceptible to freezing and desiccation.

Wind protection - Setting up wind blocks protects smaller shrubs and trees. Techniques include wrapping with burlap, placing cardboard or other stiff material around the plant, and setting up straw bales on windward sides of plants.

Watering- Another factor to keep in mind throughout the winter is moisture content of the soil. Even though dormant, plants continue to transpire through the winter (though at a lower rate). If little precipitation occurs, drought stress can kill plants as readily in winter as in summer. At the minimum, trees and shrubs should receive water about once a month. If there is no snow or rain (and if there is a point when the ground is not frozen) try to give plants a soak into the root zone every month or so during the winter.



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