

Frost Damage



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Frost can injure all types of landscape and garden plants. Plants are particularly susceptible to frost in spring or early fall. Plants that have been damaged by fall or spring frost exhibit wilting and darkening of plant surfaces and can lead to the death of shoots, buds, flowers, fruits, and leaves.

Frost in the spring or fall can occur several different ways. An intense cold front may move into the area, which is called an advective freeze. In mid continental areas polar air masses can move into an area causing a rapid drop in temperature. Low humidity and wind are usually associated with polar air masses, and there is no visible frost on the plant. When no visible frost occurs on the plant it is known as a black frost. Clear nights with little air movement can create conditions favorable for a radiation frost. A radiation frost occurs when exposed surfaces radiate energy back toward the sky cooling the air around these surfaces, it is a slow process and can result in the air near the ground being several degrees cooler than the air just above it causing damage to plants in the area. Frost pockets occur when cool air flows down a slope and collects in a basin displacing the warmer air above (Harris 67-70).

To prevent frost damage to plants, select species that begin shoot and flower growth late in spring. Avoid planting in frost pockets or use barriers such

as fence or tolerant shrubs to disrupt cold airflow down a slope. If conditions are favorable for a frost smaller plants can be covered, this will reduce the loss of long wave radiation. Using a fan to create air movement or using some type of heater can also protect plants from being frosted (Harris 71). Water can also be applied to the surface of leaves, as the water evaporates it will release some heat protecting plants from a mild frost. These methods can help protect valuable landscape plants and extend the life of a garden.

Works Cited

Harris, Richard W., James R. Clark, and Nelda P. Matheny. Arboriculture Integrated management of Landscape Trees, Shrubs, and Vines, 3rd ed. New Jersey: Prentice Hall, 1999.