A2508

Deciduous trees disorder: Springtime weather injury to foliage

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Late spring leaf scorch

Symptoms and effects

Late spring leaf scorch appears on rapidly growing leaf tissue in late spring. Damage occurs after a period of moist weather followed by bright sunshine and drying winds. Injury may appear suddenly as water-soaked portions between the veins of affected leaves. Spots are typically irregular in shape and vary greatly from leaf to leaf. Youngest leaves may collapse. Water-soaked wounds dry into tan-colored necrotic (dead) areas. Leaf scorch is often more severe on the upper, windward, or southern side of the tree. Individual trees will vary in susceptibility. Terrain affects vulnerability, with protected trees showing less damage.

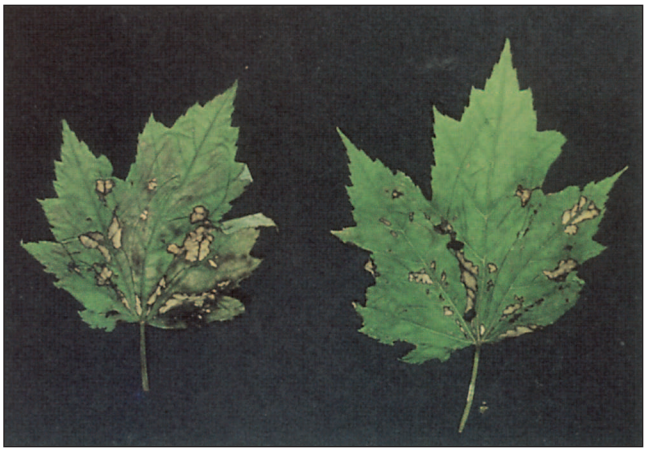
Injury due to late spring leaf scorch sometimes consists of parallel rows of irregularly shaped interveinal spots located on either side of the midvein. The symptoms resemble those of sulfur dioxide injury on trees such as poplar, but sugar maple is tolerant of this air pollutant. The condition should not be confused with common leaf scorch which causes browning or necrosis of leaf margins, usually later in the summer, and may signal more serious problems.

Late spring leaf scorch appears periodically in Wisconsin. Studies in southern Ontario have shown that red maple, silver maple, and sugar maple are more likely to be severely injured due to this condition than Norway maple. Beech also has shown extensive injury, with terminal portions of the leaves most severely affected.

Identification

Field identification should take into account recent weather patterns, how suddenly the symptoms appear, and the distribution of the condition both on the affected tree and other susceptible plants in the neighborhood. In most cases you can identify this disorder; but if in doubt, laboratory examination can help identify late spring leaf scorch by eliminating possible diseases. When submitting leaves for laboratory diagnosis, include weather information and distribution patterns of the condition.

These oak leaves were damaged by frost when they were just emerging.



Late spring leaf scorch occurs when bright sunshine and drying winds follow a period of moist weather.
Photo courtesy of Dr. S.N. Linzon, Ontario Department of Environment.

Control

No specific treatment is available. However, watering and fertilizing may be used effectively to minimize additional stresses. Late spring leaf scorch usually does not cause serious damage to the tree, except to large, recently transplanted trees. This is one reason why mulching and proper watering are recommended for such transplants.

Frost and wind injury

Symptoms and effects

Late spring frosts may cause considerable damage to young maples and new growth on older trees. The youngest leaves are most susceptible. Injured leaves suddenly turn brown or black a day or two after the frost, or they may have brown and curling edges.

In early spring, buds begin to swell and protective scales begin to loosen. Frost at this stage of leaf growth kills the exposed tissue. As a result, emerging leaves have jagged, open spaces between their major veins. On oak trees this condition is called tatters. Trees growing in frost pockets in low areas are more likely to have frost injury than those growing on hills or slopes.

Severe wind may dry out, tear or shred young foliage and tender twigs. Recently transplanted trees are particularly vulnerable to this type of injury because their root systems are not established so the water available to the leaves is limited.

Identification

Frost and wind injury may resemble symptoms of a fungus disease. To identify the problem correctly, study recent weather patterns and examine leaves for disease-causing fungi. Absolute identification of weather damage can only be made in the field; however, laboratory examination may be needed in some cases to eliminate possible fungal diseases.

If you are not sure whether tree injury is due to weather conditions, submit a specimen through your county Extension office.

Control

No treatment is usually needed or helpful following frost or wind injury. However, you can take steps to minimize the likelihood of such injuries by trying to eliminate other potential sources of plant stress.

Apply fertilizer in early spring or after autumn leaf drop. Do not apply during late summer or early fall, because this may delay onset of good dormancy. Prune out all dead branches. Spread mulch around the base of the tree to help prevent or reduce freezing injury to the roots. Mulch is especially recommended for young trees.

Prevent defoliation by insects or diseases to encourage maximum food storage to increase winter hardiness.

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