

Sunscald on Trees

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Sunscald is a fairly common physiological problem found most commonly on young, thin-barked ornamental and fruit trees. The problem has been reported in the literature for over 100 years. Although we recognize two subcategories of sunscald based on season (winter and summer), both are inherently caused by the same factor – death of bark tissues caused by high temperatures.



Fig. 1. Late stage summer sunscald damage on the trunk of maple (Acer).

Winter sunscald or frost cracking, which is less common in Arkansas, occurs during the winter. Death of cells in the bark is caused by rapid fluctuations in temperature. Researchers suggest that during the winter, frozen tissue on the south or southwest side of the trunk, which is also being heated by the sun, thaws and then rapidly refreezes. These rapid fluctuations in temperature most likely occur near sunset or during the day as clouds pass blocking the sun exposure on the trunk. Research at the University of Minnesota suggests that this tissue death is also related to moisture stress and associated biotic and abiotic factors.

Summer sunscald (Fig. 1) is likely the more common type in Arkansas and is related to death of bark tissue

as a result of lethal temperatures from sun exposure. Summer sunscald would rarely be encountered in undisturbed forests except for young trees on the edge. The remainder of this fact sheet will focus on summer sunscald.

Where do we see summer sunscald?

Summer sunscald is more common on fruit and ornamental trees such as maples (*Acer*; sugar, red, hybrids), sweetgum (*Liquidambar*), linden (*Tilia*), ash (*Fraxinus*), honeylocust (*Gleditsia*), Eastern white pine (*Pinus strobus*) and apple (*Malus*). The problem is common on the lower section of young trunks and the south or southwest side.

Symptoms

The initial death of trunk tissue is rarely seen. Early symptoms may be difficult to interpret as it will consist of discolored bark, similar to a canker, and some small vertical cracking in the bark (Fig. 2). In the spring there may also be 'bleeding' from the damaged



Fig. 2. Left: early symptoms of trunk injury may be discolored bark and small vertical cracks. Right: late stage sunscald is easy to identify and is characterized by a long vertical fissure with exfoliating bark.

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area. As time progresses, bark will begin to slough off. Late-stage sunscald is easier to identify as the classic vertical fissure down to the interior wood will be visible (Fig. 2). Margins of the vertical fissure may show healthy wound closure which will be further pushing dead bark off the tree. Loose pieces of bark can be removed but avoid cutting or tearing into healthy tissue. Pruning paints should not be applied to the wound area. It is not uncommon to see a variety of insects in the wound fissure, but these should not be of great concern. Very large sunscald wounds can contribute to tree death and is a likely area for future failure of the trunk (i.e. trunk breaks in this region).

Preventing sunscald

Understanding the underlying cause (i.e. lethal temperatures) of summer sunscald helps understand the typical treatments. The most common management strategy is to cover the lower trunk with light colored materials. A number of options are commercially available including rigid corrugated plastic tree guards, kraft paper tree wrap and breathable white fabric tree wrap (Fig. 3). Black or dark colored tree wrap should not be used (Fig. 4) because they intensify the temperature problem. Proper installation should ensure that materials do not girdle the trunk as the trunk expands. Trunk shading materials will need to be left in place for several years until the trunk achieves enough thick, textured bark to buffer the extreme temperatures, or the canopy is wide enough to provide natural shade for the trunk. While some of the wraps may result in elevated moisture or provide a hiding place for insects, research has not demonstrated these issues to result in increased problems for the tree. Besides wraps and guards/tubes, some suggest painting the lower trunk with white latex paint to reflect sunlight. Make sure the paint is not toxic to the plant tissue. Although it has been suggested that trees under water stress are more prone to sunscald, this has never been confirmed by research. Watering during prolonged periods of drought would still be recommended to reduce the overall stress on trees.



Fig. 3. Examples of recommended trunk wrap materials include kraft paper (left) and corrugated plastic tube (right).



Fig. 4. Black or dark colored trunk wrap materials should **NOT be used.**