

NEWS RELEASE  
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## EXPLAINING FALL COLORS

### BACKYARD HORTICULTURE

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Autumn has truly come to the foothills. You can feel it in the cool air and see it in the early morning mists that rise over the hills. But mostly, you can see it in the changing colors of our many deciduous trees.

The question often arises as to what causes fall colors, and why the colors vary in intensity from year to year. Certain chemical processes that take place in the leaves as the season slowly moves from summer to fall cause this yearly change. During spring and summer, leaves contain the green pigment chlorophyll, which makes foods required by trees for growth. Leaves do this by using energy from sunlight to convert carbon dioxide and water into sugar and starch, a process known as photosynthesis.

Along with chlorophyll, leaves also contain red and yellow pigments called carotenoids. You can't see these colors most of the year because they are hidden by the strong green color of chlorophyll. In fall however, the orange and yellow pigments predominate as the food making process of the leaves ends and chlorophyll begins to break down.

The scarlet, lavender, and purple hues are produced by another group of pigments called anthocyanins. These pigments are not present during summer but are produced in fall when sugar accumulates in leaves. A brown pigment called tannin is also present in some leaves.

For the most part, the tree species determines how these various pigments will combine to produce a characteristic color. Golds and yellows tend to be the dominant hues of poplar, birch, ginkgo, tulip and ash trees. Chinese pistache trees turn a mixture of brilliant scarlet, crimson, orange and sometimes yellow tones. The American sweetgum, or liquidambar, is a favorite fall color tree that turns purple, yellow or red. Certain named varieties of liquidambar

are selected in part for their fall color. The variety ‘Burgundy’ has leaves that turn deep red purple. Leaves of the variety ‘Festival’ turn yellow, peach, pink, orange and red. And ‘Palo Alto’ leaves turn red to bright red. Some of the oaks, both native and introduced, also have beautiful fall colors. The pin oak turns yellow, red and finally russet brown. The red oak has dark red, ruddy brown or orange fall colors. The California black oak, a native tree, turns yellow or yellow-orange in fall.

Soil and weather conditions also affect fall color. For example, liquidambar leaves color best when the trees are growing in full sun and in well-drained soil. And fall colors are much less effective in very mild climates or in mild, late autumns. The best autumn colors show up when we have a moderate rainfall in late September or early October, allowing the trees a last bit of soil moisture before cool weather settles in. Then color is improved by clear, dry and cool, but not freezing weather. We’ve had many of these conditions this year.

Fall colors are something that you must enjoy quickly, because it ends all too soon. Before long, winter winds and cold rains will strip branches clean of their bright foliage, leaving only the structure for next years canopy.

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