

## Fall Color in the Carolinas

Jaime Pohlman, Extension Agent, Stephen K. Nodine, Former Extension Forester, Ansel Miller, Former Professor of Forest Resources, Larry R. Nelson, Former Extension Forester and Associate Professor

Every fall, many people look forward to the colorful display of trees changing color. Although everyone looks for a “peak” when the colors are at their best, there is a long season for enjoying the colors. Typically, from the last week in September through the middle of November, you can find bright red, yellow, and scarlet foliage somewhere in the Carolinas. Folklore has attributed this colorful display to visits from Jack Frost, but a series of chemical processes in the leaves create the palette of colors that we see. These processes are triggered by the shorter periods of daylight as fall approaches, and by the cooler temperatures. The weather of the preceding summer usually has minimal effects on the type of fall colors we have. The only “bad” weather for fall color is an early killing frost, which can shorten the season, or a warm, wet fall, which reduces the red-forming pigments due to a lack of bright sunlight and cool temperatures.



Anyone making travel plans to see the fall colors can begin visiting the higher elevations of the Carolinas in late September. If your travel schedule can be flexible, watch the weather reports for an approaching cold front. After these pass through our area, the haze is cleared away and visibility is ideal. So if you can, keep your bags packed and watch the weather reports for your best leaf-watching trips. And if you have to plan ahead, anytime in October can be a treat as the color changes spread from the mountains to the coast.

Here is a listing (next page) of some native South Carolina trees and shrubs especially noted for their colorful autumn foliage. Some of them are also attractive for the color of their fruit. The common and scientific names are listed. Colors indicated are of autumn foliage; fruits are mentioned only if conspicuous.

### Questions and Answers About Fall Leaf Color

Do all parts of the world enjoy the fall leaf colors that we do in the Carolinas? No, there are only a few areas of the world where this yearly display occurs. In the Northern Hemisphere, the colored leaves are seen only in Eastern North America, England, Western Europe, China, and parts of Japan. Only three small areas in the Southern Hemisphere show the beautiful autumn leaf colors.

#### What causes the colors?

Certain naturally occurring pigments cause the colors. As days become shorter and nights cooler in the autumn, the trees start to shut down and the production of the green chlorophyll in the leaves slows. Pigments, called carotenoids, that are responsible for the yellow to brown colors (as in hickories) are then exposed. As the leaves become older, tannins accumulate in the leaves of some species such as beech, giving bronze tones. In other species, such as dogwood and sweetgum, the anthocyanin pigments develop. Anthocyanin is responsible for colors ranging from red through maroon to purple. Intermediate colors, such as orange tones, may occur when leaves contain a mixture of two or more of the pigments. The specific pigments and mixtures are largely a species characteristic.

#### Does frost cause the colors to form?

Why do we have more brilliant colors some years than others?

Actually, heavy early frost prevents good color development by causing the leaves to fall early in the season. The best color development seems to take place when a dry summer is followed by crisp, cool (not cold) autumn nights. Weather patterns during the fall have the greatest impact, both in controlling color change and in enhancing our view of the colors. Clear, sunlit days show colors off to their best advantage, especially in the early morning or late in the afternoon when the sunlight passing through the leaves seems almost to make them “glow.”



**Why do the leaves finally fall off?**

A layer of abscission cells forms at the base of the leaf petiole where it joins the twig. This cuts off movement of water and nutrients into and out of the leaf, causing it to drop off at the abscission layer, leaving a sealed scar.

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<b>Trees</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Color</b>
<b>Reds</b>		
Blackgum	<i>Nyssa sylvatica</i>	Brilliant orange to scarlet
Black Cherry	<i>Prunus serotina</i>	Orange to pink
Flowering Dogwood	<i>Cornus florida</i>	Scarlet, bright red fruit in fall
Downy Serviceberry	<i>Amelanchier canadensis</i>	Yellow to red
Hornbeam/Ironwood	<i>Carpinus caroliniana</i>	Orange to red
Red Maple	<i>Acer rubrum</i>	Pink to bright red
Northern Red Oak	<i>Quercus rubra</i>	Red
Scarlet Oak	<i>Quercus coccinea</i>	Brilliant scarlet
White Oak	<i>Quercus alba</i>	Red to purple
Persimmon	<i>Diospyros virginiana</i>	Orange to red
Sassafras	<i>Sassafras albidum</i>	Orange to scarlet
Sourwood	<i>Oxydendrum arboreum</i>	Brilliant scarlet
Sweetgum	<i>Liquidambar styraciflua</i>	Yellow to scarlet/maroon, variable
<b>Yellows</b>		
American Beech	<i>Fagus grandifolia</i>	Yellow to golden bronze
River Birch	<i>Betula nigra</i>	Yellow
Mockernut Hickory	<i>Carya tomentosa</i>	Golden brown
Shagbark Hickory	<i>Carya ovata</i>	Yellow
Pignut Hickory	<i>Carya glabra</i>	Yellow
Red Mulberry	<i>Morus rubra</i>	Yellow
Eastern Redbud	<i>Cercis canadensis</i>	Yellow
Serviceberry	<i>Amelanchier arborea</i>	Yellow
Sycamore	<i>Platanus occidentalis</i>	Yellow
Yellow-poplar	<i>Liriodendron tulipifera</i>	Yellow
<b>Shrubs</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Color</b>
Blackhaw	<i>Viburnum prunifolium</i>	Shining red
Fringetree	<i>Chionanthus virginicus</i>	Bright yellow
Spicebush	<i>Lindera benzoin</i>	Golden yellow with red fruit in fall
Shining Sumac	<i>Rhus copallina</i>	Scarlet with crimson fruit in fall
Smooth Sumac	<i>Rhus glabra</i>	Bright red with scarlet fruit in fall
Sweet pepperbush	<i>Clethra acuminata</i>	Yellow to orange
Strawberry bush	<i>Euonymus americanus</i>	Light yellow with purple fruit in fall
Witch-hazel	<i>Hamamelis virginiana</i>	Yellow with yellow flowers in early fall