



The Colors of Autumn

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*Left: The leaves of a hickory are always yellow.
Opposite Page: Black gum is one of the first trees to change colors in the fall and one of the most beautiful.*

Below: This white oak is going through the process of changing color. When complete, the entire tree will be red.



Left: This pretty maple shows off its colorful leaves.

Photos by Coleen Vansant

Below: The bright yellow leaves of a sawtooth oak.



Ask ten people and you'll get ten different answers about what makes leaves change color. Jack Frost is usually given the credit for the brilliant autumn spectacle – but then there's the dilemma of whether it is an early frost or a late frost that paints the pretty picture. Others will tell you it has everything to do with rainfall – some say a little, while others say a lot.

But in reality the secret is in the sap. The chemical composition of each tree's sap provides the palette and brush to the fall color its leaves should turn.

(Continued on page 18)

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(Continued from page 17)

The amount of iron, magnesium, phosphorus, or sodium in the tree and the acidity of the chemicals in the leaves determines whether the tree turns amber, gold, red, orange, purple, or just fades from green to brown. For example, scarlet oaks, red maples, and sumacs have a slightly acidic sap which causes their leaves to turn bright red. Leaves of some varieties of ash, growing in areas where limestone (alkaline) is present, will turn a regal purplish-blue.

What triggers the change? The answer lies in the shifting rhythm of day and night. As the days grow shorter and the nights longer, a chemical clock inside the trees starts up, releasing hormones which restrict the flow of sap to each leaf. As autumn progresses, the sap flow slows and chlorophyll, the chemical that gives leaves their green color in the spring and summer, disappears. The residual sap becomes more concentrated as it dries, creating the colors of fall.

The longer time leaves stay on a tree in the fall determines the quality of color. Rain showers, hot days, and dry spells during the summer dictate how long a leaf will hang onto its green, yellow, or gem tones in the fall. The longer the leaf stays attached, the brighter the color. According to one U.S. Forest Service study, weather can affect the color of leaves. The green and yellow pigments are always present in leaves and are fairly stable. Although the red pigments are found naturally in some trees such as red maple and dogwood, the red doesn't occur naturally at such great amounts in all trees. Stress, such as drought, tends to produce more red pig-

ment in leaves than what normally occurs.

Autumn colors can be seen in many areas throughout the United States. Certain areas of the country including the Northeast corridor, the Southeast along the Appalachian mountain chain, and much of the Midwest produce the most striking and vibrant colors. The most intense fall color occurs in New England, with almost pure stands of a few types of trees, such as maples and

birches, that all turn color at the same time during the short fall season. The most varied as well as the longest lasting autumn color occurs in the southern Appalachians, where a dozen or more kinds of trees may change color at slightly different times over the longer fall season.

In Alabama, fall color usually starts in September and ends in November. Frost and freezing temperatures will stop the

PRESERVING LEAVES

Although fall lasts for only a few short weeks, you can preserve that beautiful fall color by drying leaves. Below are two methods to capture autumn for the rest of the year. The most important thing is to remove the moisture from the leaf as soon as possible.

By Microwave

Lay the leaves you have selected between two paper towels. Microwave the leaves on 50 percent power for 30 to 120 seconds, depending on the dryness of the leaves (less time for drier leaves, more for those with more moisture). The heat will remove the moisture from the leaves, allowing the colors to remain as they are.

In a Book

Before you begin, make sure you choose a book you are not attached to – with this method there is a chance of staining the pages. (Large telephone books work well.) Place the leaves (don't overlap) between paper towels or blotting paper. This helps to absorb the moisture from the leaves. Allow at least 20 pages between the leaves for best results. Keep the leaves in the book for about a week, replacing the paper towels on the second day. This method not only dries the leaves, but keeps them flat as well.

Store the leaves in an airtight container between layers of paper towels. They will keep until you are ready to use them. 🍂

Visit the AFC Web Site:
www.forestry.state.al.us

FACTS ABOUT FALL COLOR

-  The fall leaves of a few trees including sugar maple, dogwood, sweet gum, black gum, and sourwood are usually red but may also be yellow. Leaves of some trees such as birch, tulip poplar, redbud, and hickory, are always yellow in the fall, never red.
-  The change in day length that causes the chemical change in the trees leading to the bright colors of autumn starts June 21, the longest day of the year, as the sun starts to move south and the days become shorter.
-  Believe it or not, leaves have just as much yellow pigment (xanthophyll) in July when they are green as they do in October when they are yellow. In July the darker green pigment (chlorophyll) masks the yellow color.
-  Bright sunlight is necessary for the production of red (anthocyanin) pigment in fall leaves. Try this simple test: place a black mask on part of a leaf before it turns red. The part of the leaf under the mask will turn yellow while the exposed part will turn red. 🍂

coloration process and blacken the leaves.

In many areas of the country, the fall season is one of the biggest tourists attractions of the year. There are several web sites that monitor fall color changes across the U.S. on a week-to-week basis. If you would like to plan a cross country autumn-color vacation or just a short regional get-away, you might want

to try one of the following web sites:
<http://www.foliagenetwork.com/> and/or
<http://www.fs.fed.us/news/fallcolors/>.

For children there are several sites where you can download coloring and activity sheets. Find these at
http://www.first-school.ws/theme/cpseasons_autumn.htm or
http://abcbabysit.com/directory/color_pages/seasonal/. 🍂

Resources:

- <http://ncnatural.com/wildflwr/fall/fallfact.html>
 - <http://www.weather.com/activities/recreation/fallfoliage/whyleaveschange.html>
 - http://www.foliagenetwork.com/about/leaves_change/index.html
 - <http://www.foliagenetwork.com/about/preserving/index/.html>
 - <http://www.urbanext.uiuc.edu/fallcolor/about.html>
- The Secret of Fall Colors*, Alabama Forestry Commission.

Whether you are planting new trees in your yard and around your property or if you are managing a mature forest, below are a few trees you may want to plant or keep that will provide vibrant and long-lasting fall color.

YELLOW

- Beech
- Birch
- Chestnut Oak
- Elm
- Ginkgo
- Hackberry
- Hickory
- Locust
- Pecan
- Persimmon
- Sawtooth Oak
- Sycamore
- Willow

ORANGE

- Northern Red Oak
- Sassafras
- Southern Red Oak

GOLD

- Ash
- Buckeye
- Willow Oak
- Yellow Poplar

RED

- Black Cherry
- Black Gum
- Dogwood
- Red Maple
- Scarlet Oak
- Sourwood
- Sweetgum
- White Oak

