

Leaf Color

I recently had an interesting discussion with a young woman that had several questions. She made the comment that the leaves on many of the trees that she has viewed were not as colorful this year as in the past. She was aware that certain trees change color in the fall and stated just what a nice diversion it was from seeing green all summer. In addition, she was confused as to just how the change takes place stating the colors just seem to appear out of nowhere!

These comments and many more I have heard many times over the years, and I guess I have gotten good at answering them. Mother Nature does some wonderful things to be sure; leaf color change in my opinion is one of them! Working in the woods as a Forester, the fall grandeur of leaf color change is a direct benefit of the profession, one hard to beat!

To begin understanding leaf color change one has to recognize the grouping of trees that undertake the process! Just which trees undertake the process? The answer is deciduous. Deciduous, what is that? Well, like most things, we have to define the word so as to impart a good understanding of the words meaning. Deciduous is a botanical term meaning tending to or dropping/falling off at maturity usually in autumn. Another definition would be a plant that sheds or drops its leaves at the termination of the growing season.

Just what is the process? What causes leaf color change and eventually drop? During the growing season, leaves contain chlorophyll and as time moves on, gradually loose amounts of this important chemical. Chlorophyll is an essential ingredient in the process called photosynthesis. As fall approaches, the amount of sunlight also diminishes and the trees react by slowly shutting down the food making activity - photosynthesis. Sensitivity to sunlight is called photoperiodism and is an important factor for most plants.

It has been noted that when a plant (tree) is essentially green, its leaves contain chlorophyll which absorbs most of sunlight's various colors except for green. The color green is reflected back to us and is what we tend to see when the plant is growing. As fall or autumn approaches, diminishing sunlight is sensed

by the tree (photoperiodism) and chlorophyll breaks down allowing other leaf color pigments to become increasingly visible! Hence leaf color change! Pigments that are common are: carotenes for reds and oranges, xanthophylls for yellow.

Weather can impact leaf color brilliance! Summer to early autumn sunny and warm days and cool nights seem to encourage better color through production of more sugar than usual within the leaf. Excess moisture tends to be a negative factor together with other negatives such as drought conditions and early frost/freezing that affect vibrancy.

Leaf drop is also a byproduct of photoperiodism, as daylight slowly dwindles as autumn approaches the tree begins to cut off or eliminate circulation of sugar and water to the leaf. Each leaf is connected to the branch through a layer of highly specialized cells named the abscission layer. It is this layer that parts company with the leaf, essentially drying out and causing leaf drop.

So, yes leaves can exhibit different color vibrancy from year to year! You might confuse memory in comparison from year to year but leaf brilliancy does occur. Leaf natural color or pigmentation is present within the leaf when it emerges in spring but it is in fall that we are able to actually see it. Fall is an amazing time of year and our deciduous trees make it a colorful one!

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