

GEHR Watershed Minute #26

Fall Colors: (219 words)

Every fall, the leaves on the trees change from shades of green to shades of red, orange, gold, and brown. These color changes are complex chemical processes in the leaves caused mainly by shorter days and longer nights.

During the growing season, chlorophyll is continually being produced and broken down and leaves appear green. As night length increases in the autumn, chlorophyll production slows down and then stops and eventually all the chlorophyll is destroyed.

Other natural substances present in the leaves, called carotenoids (**ca·rot·en·oid**) and anthocyanins (**an·tho·cy·a·nins**), are blocked by the chlorophyll in summer but are then unmasked and show their colors when the chlorophyll is gone. The amount and brilliance of the colors that develop in any particular autumn season are related to weather conditions that occur before and during the time the chlorophyll in the leaves is dwindling.

Carotenoids, which produce yellow, orange, and brown colors in such things as corn, carrots, and daffodils, are always present in leaves, so the yellow and gold colors remain fairly constant from year to year.

But the Anthocyanins, which give color to such familiar things as cranberries, red apples, concord grapes, blueberries, cherries, strawberries, and plums, are temperature and moisture sensitive. A succession of warm, sunny days and cool, crisp but not freezing nights seems to bring about the most spectacular color displays.