

## Fall Color Fact Sheet

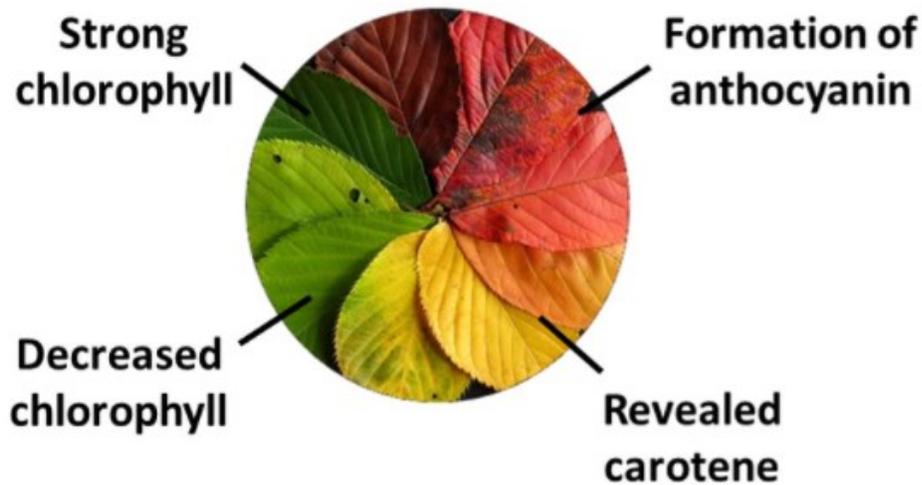
- Most leaf colors come from three pigments: chlorophyll (green), carotenoid (yellow, orange, brown), and anthocyanin (red).
- Leaves are green because they contain a substance called chlorophyll that helps absorb energy and get nutrients from sunlight for trees.
- In the fall, fewer hours of sunlight tell the tree to get ready for winter. The tree needs little food so the leaves stop making chlorophyll and separate from the tree.
- Without chlorophyll the green pigment starts to fade. Yellow and orange pigments start to show on birches, poplars, and elms. These pigments were always there, but hidden by the green.
- Other pigments like red and purple are made when extra sugars stored inside leaves react with sunlight. These colors are often seen on maples and dogwoods.
- Bright days and cool nights tend to bring the best fall colors because more sugars are available inside the leaves.
- Conifer trees like pines, spruces, firs, hemlocks, and cedars have a heavy, waxy coating on their leaves as well as chemicals inside their cells that resist freezing. They can keep their leaves all year.



Source: Why Do Leaves Change Color? Book by Betsy Maestro



Hoyt  
Arboretum  
Friends



Source: <https://www.purdue.edu/fnr/extension/fall-color-development/>

## Why Leaves Change Color in the Fall

Leaves change color in response to shorter days and lower temperatures.

### GREEN



- Chlorophyll

### YELLOW ORANGE



- Xanthophyll
- Flavone
- Carotene

### RED PURPLE



- Lycopene
- Anthocyanin

### BROWN



- Cell wall (dead leaf)

sciencenotes.org



Hoyt  
Arboretum  
Friends