Extension
UNIVERSITY OF WISCONSIN-MADISON
IRON COUNTY

NORTHWOODS YARD & GARDEN

Weekly Column
September 23, 2024

Why Trees Change Color in Fall

One of the highlights in the northwoods each year is foliage of trees turning brilliant colors before dropping for winter. While often credited incorrectly to Jack Frost, this annual process involves several factors.

Green leaves on trees during the growing season have chlorophyll inside them, which is vital to use sunlight to produce stored energy. There are other color pigments in the leaves as well, but they are masked by abundant green chlorophyll. As the season ends, chlorophyll production in leaves fades, eventually stops, and trees go dormant.

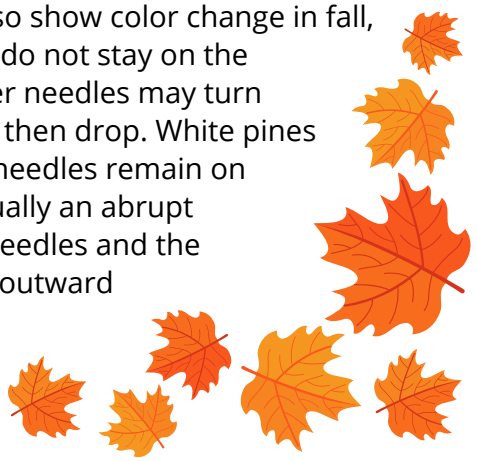
While fall weather can vary from year to year, the main factor to trigger this dormancy process in trees, thus the color change, is a constant each year. That factor is increasing darkness as our days shorten. This is why trees show fall color change about the same time each year. Tree color is genetic, although there is variation within species of trees. For example, some sugar maples are orange, some are more yellow, others more red.

Hormone levels in trees control this process as they react to increasing accumulating darkness as we advance from summer into early fall. Other factors may contribute, however, which can lead to variations in color intensity and exact timing each year. These include available moisture, temperatures, and overall tree vigor. Once production stops, chlorophyll breaks down in leaves and then other color pigments that were present all the time become visible.

Pigments carotene and xanthophyll give leaves orange and yellow colors. Red color is due to production of anthocyanins, which is favored by warm, sunny days and cool nights in fall. Eventually leaves will dry up and drop from trees as a wall-like layer is formed where the leaf stalk (petiole) joins the twig. This creates a characteristic leaf scar, which is helpful for identifying trees.

Good fall color is favored by sunny days and cool nights. Frost or early freeze are detrimental to the process and may cause early drop with poor color.

Pines and other evergreens can also show color change in fall, as despite widespread belief needles do not stay on the evergreens forever. All the inner, older needles may turn brilliant yellow or brown at once, and then drop. White pines in particular show this vividly. Green needles remain on the ends of branches and there is usually an abrupt break between the yellow or brown needles and the newer, green growth as you advance outward on the branch. This is a normal function of evergreens.



Interested in learning more about Horticulture in Iron County?
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