

Showy Plants for the Late Season Garden



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Color Sells. Period.

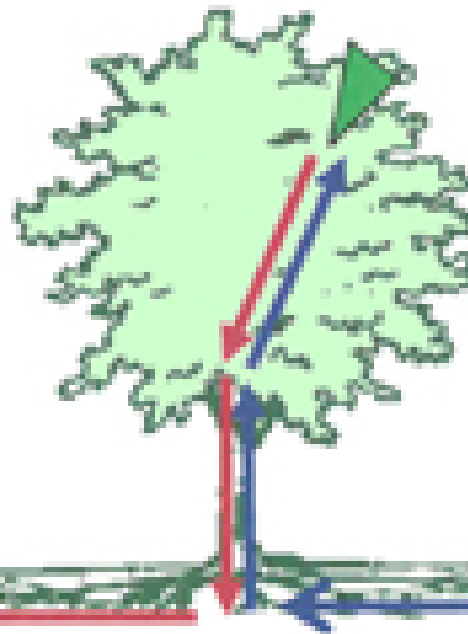


The Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA's Terra satellite captured these views of fall colors around the Great Lakes (September 26) and New England (September 27, 2014).



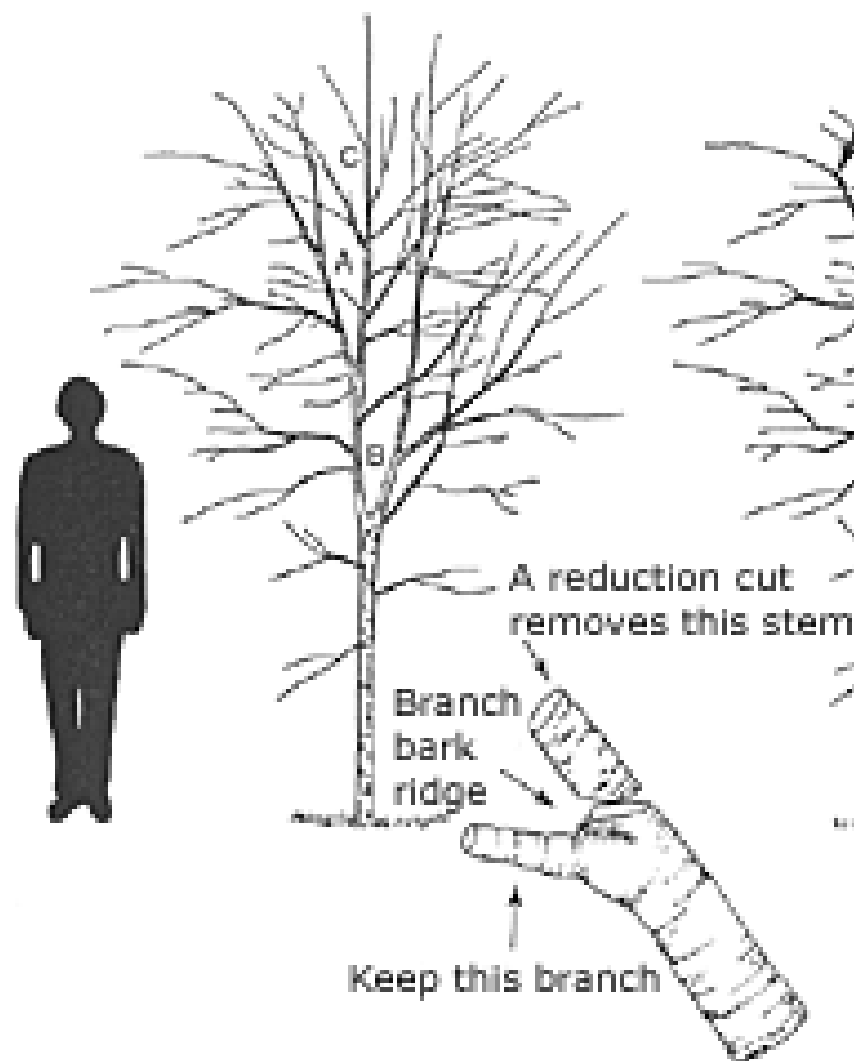


**Auxins produced
in the canopy
growing tips
stimulate root
growth.**

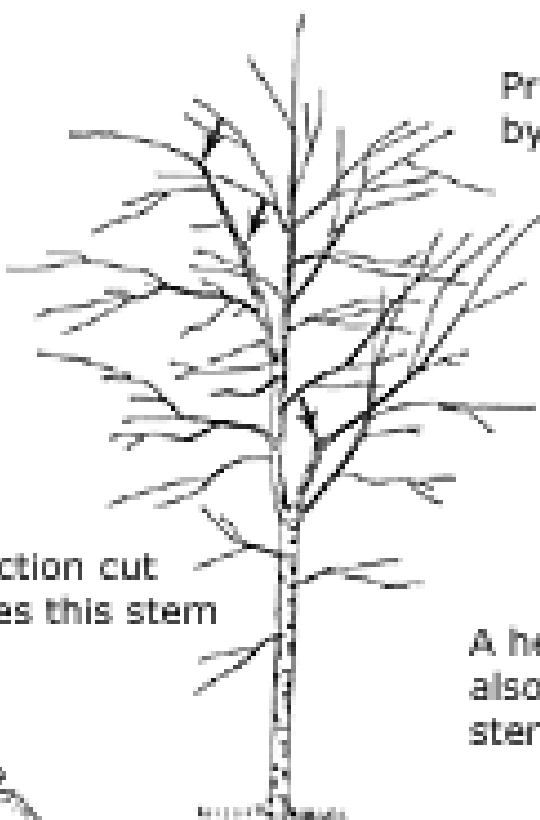


**Gibberellins
produced in the root
growing tips
stimulate canopy
growth.**

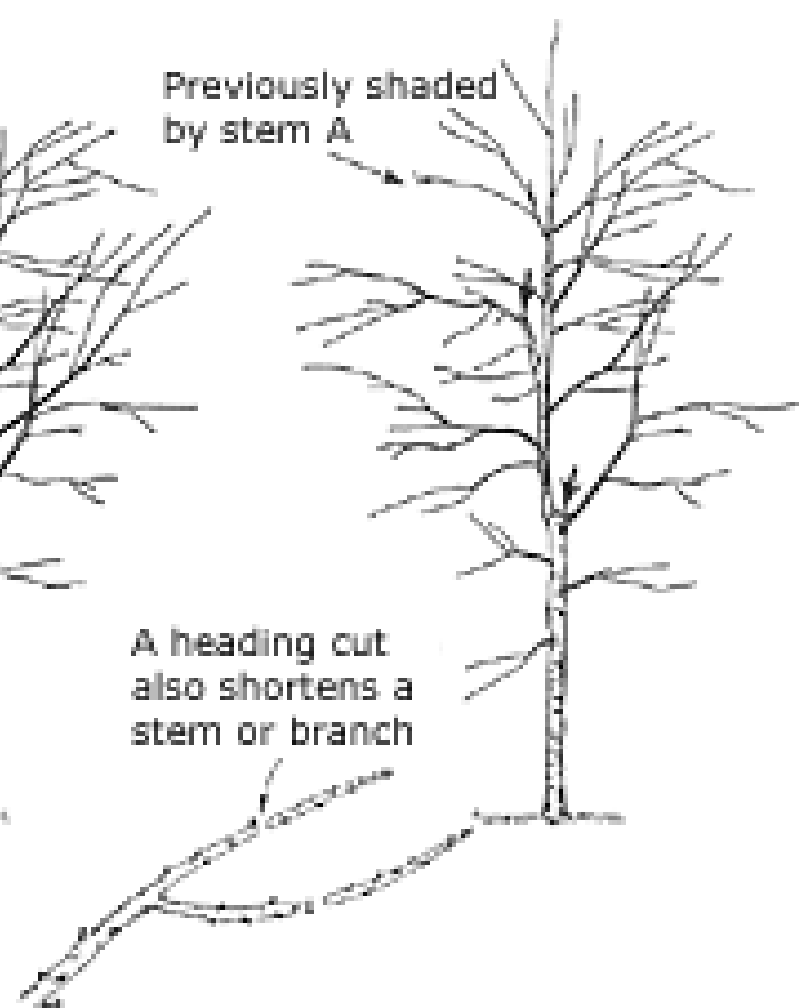
Before pruning



Light pruning



Moderate pruning



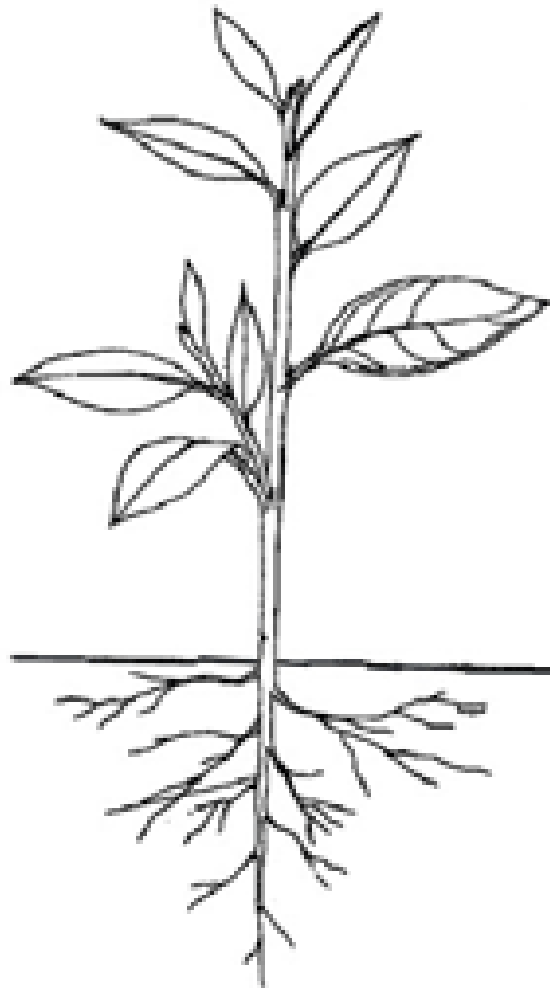
Auxins

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Opposed to
development
of axillary
buds

Favour
the rooting
{adventitious}



Favour the
development
of axillary
buds
{adventitious}

T
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Opposed
to roots
development

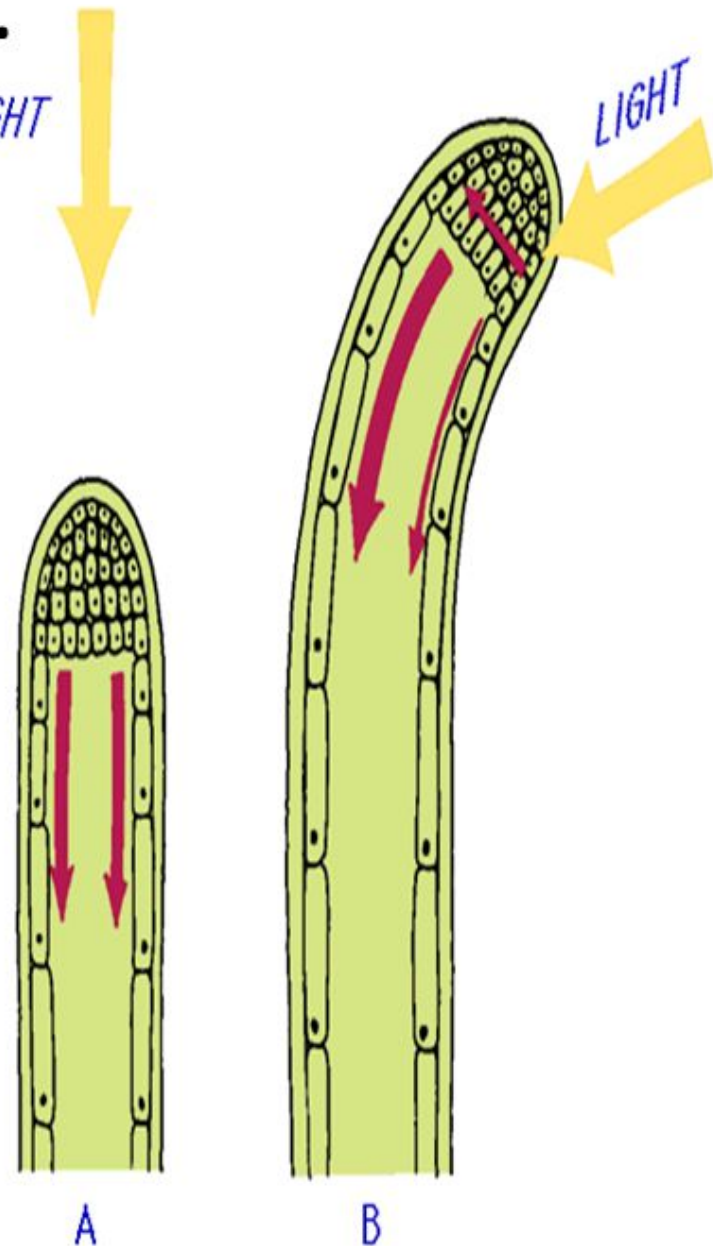
Cytokinins

Phototropism in Coleoptiles....

- Tip of shoot detects light stimulus, auxin is produced
- Auxin causes cell elongation in the stem

If light comes from an angle:

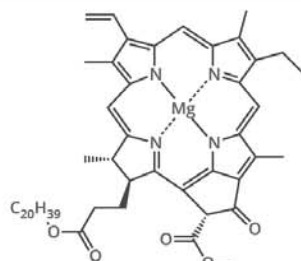
- Auxin moves to shaded side of stem, cells elongate
- Shoot bends towards light



THE CHEMISTRY OF THE COLOURS OF AUTUMN LEAVES



CHLOROPHYLL

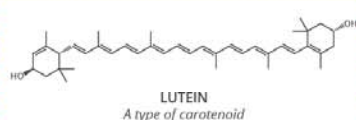


CHLOROPHYLL A
A type of porphyrin

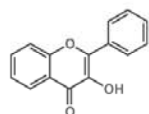
Chlorophyll is the chemical that gives plant leaves their green colour. Plants require warm temperatures and sunlight to produce chlorophyll - in autumn, the amount produced begins to decrease, and the existing chlorophyll is slowly broken down, diminishing the green colour of the leaves.



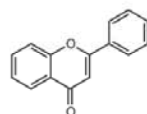
CAROTENOIDS & FLAVONOIDS



Carotenoids and flavonoid pigments are always present in leaves, but as chlorophyll is broken down in the autumn their colours come to the fore. Xanthophylls, a subclass of carotenoids, are responsible for the yellows of autumn leaves. One of the major xanthophylls, lutein, is also the compound that contributes towards the yellow colour of egg yolks.



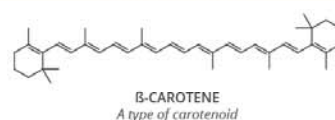
FLAVONOL
(general structure)



FLAVONE
(general structure)

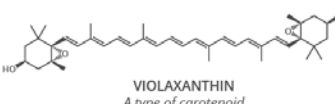


CAROTENOIDS

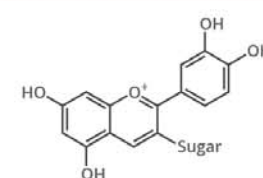


Carotenoids can also contribute orange colours. Beta-carotene is one of the most common carotenoids in plants, and absorbs green and blue light strongly, reflecting red and yellow light and causing its orange appearance. It is also responsible for the orange colouration of carrots.

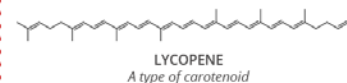
Carotenoids in leaves start degrading at the same time as chlorophyll, but they do so at a much slower rate; beta-carotene is amongst the most stable, and some fallen leaves can still contain measurable amounts.



ANTHOCYANINS & CAROTENOIDS



Unlike the carotenoids, anthocyanin synthesis is kick-started by the onset of autumn - as sugar concentration in the leaves increases, sunlight initiates anthocyanin production. The purpose they serve isn't clear, but it's been suggested that they help protect the leaves from excess light, prolonging the amount of time before they fall.





Black Gum (tupelo)



Chinese Wingnut



Goldenrain Tree

Koelreuteria paniculata





The season begins with such promise!



Then this happens!



Friends don't let friends resort to this
for adding color to their landscape!



Native Plants



Liatris spp.
Gayfeather



Rudbeckia 'Goldsturm'

Rudbeckia subtomentosa
'Henry Eilers'





Vernonia, Ironweed





Chelone lyonii
Turtlehead



Heliopsis 'Prairie Sunset'



Ratibida pinnata
Gray-headed Coneflower

Daylilies



Hemerocallis (Daylily)



'Yuma'



'Regale Finale'



'Jen Melon'



'Chicago Apache'



'Mighty Chestnut'



'Autumn Oddity'



'Pumpkin
Time'



‘Wee Twinkle’



‘Autumn Minaret’

‘Tiny Trumpet’



‘Time Marches On’



Other interesting plants:



Patrinia 'Nagoya'



Conoclinium, Mistflower



Kalimeris 'Blue Star'



Anemones



'Pretty Lady Diana'



'Maria'



'Lady Julia'

Shrubs



Hydrangea 'Tardiva'



Hydrangea 'Limelight'

Grasses



Sporobolus heterolepis,
Prairie Dropseed



Spodiopogon sibiricus,
Frost Grass



Bouteloua gracilis,
'Blonde Ambition'

Observing Nature's Seasonal Changes

- Regional
- Look for subtlety, not just the garish
- Attracting pollinators adds another dimension to the late season garden
- Plants with good manners
- Flowers are nice but so are foliage and fruit

Flowering Plants for the Late Summer Garden

<http://www.extension.iastate.edu/Publications/PM2079.pdf>



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