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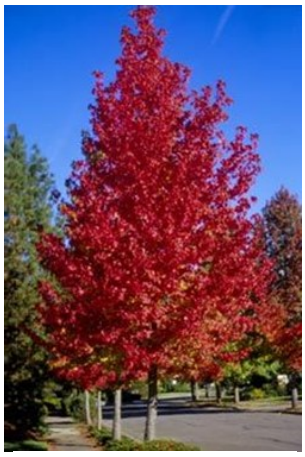
The Beauty of Tree Foliage in the Fall

Every fall we see a mixture of red, purple, orange and yellow leaves. This is the result of chemical processes that take place in the tree as the seasons change from summer to winter. During the spring and summer, the leaves serve as food manufacturers necessary for the tree's growth. This food-making process takes place in the leaf in numerous cells containing chlorophyll, which gives the leaf its green color. Chlorophyll absorbs the energy from sunlight that is used in transforming carbon dioxide and water to carbohydrates, such as sugars and starch. This is the process we know as photosynthesis.

The brilliant orange fall color of Sugar Maple

But in the fall, the leaves stop their food-making process and the leaves' work ends. This is because of changes in the length of daylight and changes in temperature. The chlorophyll breaks down, the green color disappears, and the yellow to orange colors become visible. Often there is too much sugar in leaves to transfer back to the tree. In this situation, the chemical combination of these sugars with other substances produces many color shades. Some mixtures of various amounts of chlorophyll and other pigments produce the brilliant red of the dogwood to the darker red-browns of oaks or the yellows and purples of sweetgum, while others give the sugar maple its brilliant orange.



Fall color of Sweetgum

While the leaf is changing, other important processes are taking place. At the point where the stem of a leaf is attached, a special layer of cells develops and gradually cuts tissues supporting the leaf. The leaf falls leaving a scar where it grew on the twig. Shedding leaves is another provision for winter. After broadleaf trees shed their leaves, branches can more easily support snow and ice accumulations which is particularly useful in areas more north.

Temperature, light, and water supply have an influence on the degree and the duration of fall color. Low temperatures above freezing will favor the bright reds in maples. However, early frost will weaken the brilliant red color. Rainy and/or overcast days tend to increase the intensity of fall colors. The best time to enjoy fall color would be on a clear, dry, and cool day. So, enjoy it while it lasts, even for such a short time.

The fall brings out the most vibrant colors in trees.

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Scale Insects on Camellias

Scale insects are one of the most common problems encountered on Camellia plants. Several scale insects can be found on camellia plants, usually on the underside of leaves. Both sasanqua and japonica camellias are affected, and scale insects may also be found on hollies. Almost all camellias will have a small number of scale insects, and plants can perform well despite this. However, large infestations can cause plants to be unattractive, as well as lose leaves and produce fewer blooms.

Plants with heavy infestations of scale insects can show yellowing of the upper surface of the leaf. The underside of the leaf will often be covered with white material that can be easily wiped off. Underneath this white material the scale insect can be seen. The scale insects found on camellia are armored scale and are between 1/12 and 1/8th of an inch. They are dark brown, oyster shaped, and very tightly adhered to the surface of the leaf. Adult female scales on the plant are immobile and well protected against control measures by their hard covering.

Newly hatched scales are called crawlers and are able to move on the plant to find new growth. Crawlers can also move from plant to plant by wind. Insecticide treatments are far more effective when they target this mobile stage of the scale's life cycle. Several generations of scale insects can overlap in one year.

Control of crawlers can be achieved by application of foliar insecticides. Acephate is very effective but should be applied at least twice, ten days apart, in order to ensure your spray application eliminates the crawlers. Horticultural oil can also be used for crawler control, but it is very important when applying these products that you get very thorough spray coverage of the underside of leaves.

Soil-applied systemic insecticides can also be used to manage scale populations. Products containing dinotefuran are available as both granules and liquid concentrates. Use of these systemic products takes time to eliminate scale insect populations but has the benefit of providing long term control. As with using any landscape chemical, it is important to carefully follow label directions. As the insects are very tightly adhered to the plants, even following effective control, the insects may remain on the plant. They will slowly wear away, and new growth can be checked to ensure that the scale are not continuing to spread on the plant. Proper plant spacing and pruning can also improve management of scale insects by opening them up to increase air circulation.

The Hancock County Extension office has moved to a new location. We are now located at:
17304 Highway 603, Kiln, MS.
We look forward to continuing to serve Hancock County at this new location.

Garden Calendar: November

Plant

- Plant shrubs and trees after soil cools.
- Plant summer blooming perennials: Iris, Daylily, and Daisies. Plant winter and spring annuals: Pansy, Pinks, Flowering Cabbage, and Kale.
- Root Rose cuttings.

Water

- Water all newly planted trees and plants regularly.

Prune

- Remove dead limbs and prune evergreen shrubs.
- Cut off tops of brown perennials, leave roots in the soil.

Do Not Prune

- Do not prune spring flowering shrubs such as Azaleas, Hydrangeas, Mock Orange, Spirea, and Flowering Quince because flower buds are already forming.
- Delay pruning of most trees and shrubs until February since any new growth stimulated by pruning may be killed by a sudden freeze.

Miscellaneous

- Put leaves and spent annuals into compost bin.
- Add mulch to your garden and all ornamental beds for winter protection.
- Repair and sharpen garden tools, store with light coat of oil to prevent rusting.
- Build bird feeders and houses.

In Bloom

- Impatiens, Cannas, Roses, Witch Hazel, Gerbera Daisies, Sweet Olive, Camellias, Sasanquas,

  Japanese Plum, and Poinsettias.

Eddie Smith, Ph.D., C.A., Co. Coordinator & Extension Agent
MSU-ES Pearl River County

Fall Webworms

A common site in the southern part of the state this time of the year is fall webworms. We are seeing a large infestation this year. Although these caterpillars will feed on many other hardwood trees, pecan and persimmon are by far their most preferred species here.

Commercial pecan producers can easily control webworms by spraying appropriate insecticides with high volume air blast sprayers, but it is seldom safe or practical to apply foliar sprays to large trees in home and urban settings. Although the webs are unsightly, mature hardwood trees are able to survive heavy, or even complete, defoliation without suffering long-term adverse effects, other than to nut production.

Photo by: Blake Layton, Extension Entomology Specialist, Mississippi State University Extension Service.

Doing nothing is the most common, and usually the most practical approach to dealing with fall webworms on large landscape trees. Pecan trees and other deciduous trees are already loosing their leaves this time of the year anyway, so the worms eating the leaves off of a tree this time of the year will not kill the tree. One mechanical control method that is somewhat helpful is to use a hook fastened to a long pole to tear the webs apart, thus exposing the caterpillars to mortality by predation. Trees that are still small enough to be safely and properly sprayed with some type of hand-held sprayer, or a "tree-and-shrub" hose-end sprayer can be sprayed with spinosad (Fertilome, Bonide, Monterey, and Greenlight sell products containing spinosad), taking care to get good coverage of the web, as well as nearby leaves. See the fall webworm section of MSU-ES Publication 2369, Insect Pests of Ornamental Plants in the Home Landscape, as well as the section on "Insecticides in the Home Landscape, for more information.

Online Private Applicator Certification Program

A *private applicator* is a certified applicator who uses or supervises the use of restricted-use pesticides to produce an agricultural commodity on his or her own land, leased land, or rented land or on the lands of his or her employer. Private applicators must be at least 18 years old.

In response to limited face-to-face training during the COVID-19 situation, the Mississippi Department of Agriculture–Bureau of Plant Industry has approved an online private applicator certification program developed by the MSU Extension Service. Persons needing to obtain or renew their private applicator certification can complete the online training (two video training modules and a competency exam) by using the following link: http://extension.msstate.edu/content/online-private-applicator-certification-program. The fee for training and testing is $20, payable online by credit card, debit card, or eCheck.