The Plant Doctor's LANDSCAPE TIPS

By David L. Roberts, Ph.D., *Senior Academic Specialist, College of Agriculture and Natural Resources, Michigan State University*

Photo 1: This gall is known as Cooley Spruce Gall (adelgid) on Colorado blue spruce. Spruce trees vary significantly in their susceptibility. The insect infests Douglas fir as an alternate host.

Photo 2: The horned oak gall, caused by a wasp, may be quite serious; it has been reported to kill some oak trees.

Photo 3: This is the Oriental Chestnut Gall, caused by an introduced wasp. It may have serious implications for the chestnut industry. Photo Credit: Michele Warmund, Professor of Horticulture, University of Missouri.

Photo 4: The oak vein pocket gall is caused by a midge but is not considered that serious. Oak species contract many hundreds of different kinds of galls.

PLANT GALLS GALORE

INTRODUCTION:

Plants contract a variety of galls. Plant galls may be caused by insect pests and diseases, or by various other instigators or incidents. Most galls are plant tissue (cells) that has been stimulated to either reproduce excessively (hyperplasia) or enlarge in size (hypertrophy). In many instances, the tissue may serve as a source of nutrition for the instigator of the gall. In other cases, the gall may serve as the residence for the instigator.

Many individuals become very alarmed when galls "attack" their plants. The majority of galls do not cause serious harm to plants, despite their often objectionable if ugly appearance.

CAUSES OF PLANT GALLS:

Most plant galls are caused by a unique relationship developed between a plant host and a usually very specific causal factor. Following are some examples of plants galls and a brief explanation of the causal factors and relationship.

Insect/Arthropod Galls: Many galls on plants are caused by insects (Photos 1-5). Other galls are caused by other members of the critter world such as mites (Photo 6). Oaks, in particular, contract hundreds of insect galls; most are not that detrimental to oak trees.

Diseases: Many plant galls are caused by fungi. Many of these fungal galls are formed by a specific class of fungi known as rusts (Photos 7-9). Other fungal-incited galls are caused by other types of fungi (Photo 10). Some galls are caused by other pathogens such as bacteria (Photo 11) and nematodes.

Other Causes of Plant Galls: Other galls may be formed in response to external stimuli or chemicals (Photo 12 & 13). In some situations, the cause of gall formation is not understood, but may represent analogous symptoms with human tumors.

MANAGING PLANT GALLS:

As related, many plant galls do not seriously harm plants. Hence, attempting to control them is not recommended (Photo 4, 6). Attempts to control many plant galls may result in more harm to the plant or the environment than good, while achieving little actual success in eliminating the gall problem on the plant. Other galls may cause harm or economic loss to plants or their products (Photo 2, 7, 11). Following are some techniques that may be helpful in managing plant galls when necessary...

Sanitation: Some galls can readily be pruned from plants. This aspect of management may be particularly effective if the gall is excised from the plant before it produces spores or before the insects emerge. With reference to some gall problems such as cedar apple rust, eliminating one of the alternate host will usually minimize the gall problem.

Plant Resistance: If a particular problem with galls is prevalent on specific plants, the installation of different plants, even different varieties, may resolve the problem.

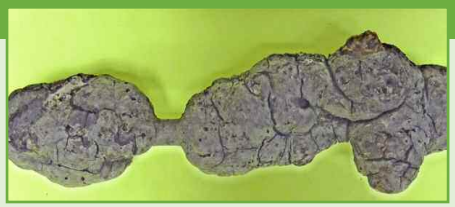

Photo 5: The exit holes on this gall likely identify it of insect instigation, possibly a wasp.

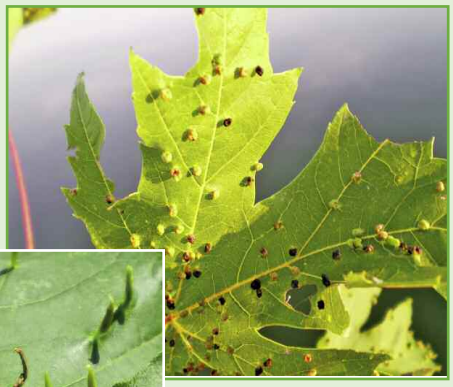

Photo 6: Two common galls on Maple include bladder gall and spindle gall (Inset). Both are caused by mites. Management attempts are not warranted.

Photo 7: These two stems from Scotts pine exhibit Eastern and Western Gall Rusts, caused by fungi.

Photo 8A: This cedar apple rust gall (fungus) on juniper is rather inconspicuous during its dormant state.

Photo 8B: With warm, rainy weather in the spring, the gall in Photo 8A undergoes dramatic transformation as "telial horns" emerge to release spores to infect its alternate host: apple, or hawthorn, or quince.

Photo 9: This elongated swelling is white pine blister rust, a potentially lethal disease on white pine.

Photo 10: This gall is known as its namesake, black knot, caused by a fungus. It occurs on species of Prunus.

Photo 11: This specimen is used in the author's workshops to test participants on plant identification. The presence of a gall with scale almost always identifies it as crown gall on Euonymus. Crown gall is caused by a bacterium that persists in the soil.

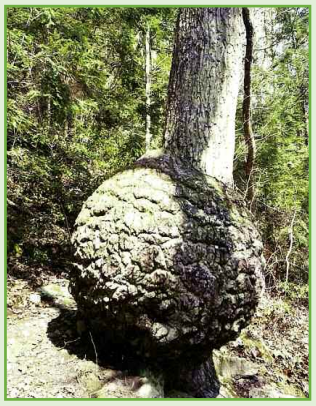

Photo 12: The cause of burls on trees is not well understood. Nevertheless, burls are highly prized by woodworkers.

Photo 13: Honeylocust trees may contract several galls. This gall was believed to be caused by herbicide injury (possibly Imprelis); the distorted foliage was also typical of herbicide.

Chemical: Most gall problems do not warrant chemical applications. In rare instances however, chemicals may be highly effective. Proper identification of the gall problem and a thorough understanding of the life/disease cycle are essential if chemical treatments are employed.

For more information, please feel free to email David Roberts at robertsd@msu.edu or contact a professional plant health care provider. The author, MSU and MGIA do not endorse any particular products. If using pesticides, be sure to read and follow label directions.

Development of Landscape Tips was sponsored by MSU and MGIA.

MICHIGAN GREEN INDUSTRY ASSOCIATION | MICHIGAN STATE UNIVERSITY