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Last Regular Issue

This is the last biweekly issue of the Home, Yard, and Garden Pest Newsletter for this year. In mid-October we will publish the last issue for this year containing the index of articles for this past year along with a few pest articles. We welcome your feedback concerning this newsletter. (*Phil Nixon*)

Sycamore Lacebug and Leafhoppers

Sycamore leaves are attacked by several piercing-sucking insects that cause stippling of the leaves. As the insect populations rise and fall and weather conditions vary, this aesthetic damage can be more or less noticeable. This year, the damage by these insects is quite noticeable.

Stippling appears as whitish dots on the leaf upperside due to the cell contents, including the green chlorophyll, being removed by the lacebug or leafhoppers on the underside. On sycamore, the damage is more noticeable along leaf veins, as both lacebug and leafhopper nymphs seem to prefer those areas. Heavier feeding results in elongated patches of collated stipples along vein, with the central 50% or more of the leaf turning whitish in years and areas with high infestations.

Sycamore lacebug, *Corythuca ciliate,* feeds on the underside of sycamore leaves. Their presence is easily recognized by the numerous tiny black spots, lacebug feces, on the leaf undersides. The 1/8-inch-long, flattened adults with white, lacy wings are on the underside near major veins, along with the smaller, blackish, diamond-shaped nymphs. Adults overwinter under loose bark, emerging in spring to lay eggs on the undersides of expanding leaves. It takes about 30 days for the bugs to progress from egg to adult, allowing several generations per year. Two to four generations per year apparently occur in Illinois.

At least three species of leafhoppers in the genus *Erythroneura* attack sycamore leaves. Green, white, and white and black banded adults along with nymphs can be found on leaf undersides, particularly along veins. Leafhopper nymphs and adults also suck out cell contents, causing additional stippling on the leaf uppersides. They do not produce the black, tar-like feces like lacebugs nor cause leaf distortion like potato leafhopper on red maple. They produce honeydew, resulting in leaves with glossy, sticky areas. If sycamore leaves have white stippling on the uppersides without black spots on the undersides, the damage was probably caused by leafhoppers. If leafhoppers are not present, look for their clear cast skins adhered to the leaf underside by honeydew. Adult leafhoppers overwinter as adults under leaves and loose bark, laying eggs in the

expanding leaves in the spring. There are usually two generations per year.

Damage is typically limited to stippling and black fecal spots. This aesthetic injury can usually be accepted without the need for control. Heavily attacked leaves appear to drop earlier in the fall, but unattacked leaves soon follow. If control is needed, a spray application of cyfluthrin (Tempo) or other labeled pyrethroid should be effective. However, sycamores are very large trees with drift likely during a spray application. A systemic insecticide such as clothianidin (Arena) or thiamethoxam (Meridian) should also be effective. (*Phil Nixon*)

New Pesticide Labeling for Bee Protection

The U.S. Environmental Protection Agency (EPA) instituted new pesticide labeling requirements on August 15, 2013 to better protect honey bees and other pollinators. Recent research on the honey bee, bumblebees, and other insect pollinators have shown that pesticide use is partially involved in colony collapse disorder (CCD) of honey bees and the decline of other pollinating insects. There have also been several off-label applications of the insecticide dinotefuran, particularly in Oregon, that have drawn attention to this issue.

The neonicotinoid insecticides imidacloprid, thiamethoxam, clothianidin, and dinotefuran, have received the most attention. Imidacloprid, thiamethoxam, and clothianidin move systemically through the plant and into the pollen. Pollen is collected by foraging honey bees, carried back to the hive, and fed to the larvae in the colony. This has been shown to cause severe hive reductions as well as affect the ability of the adult bees to function.

Other insecticides are important as well. Carbaryl dust, wettable powder, and liquid formulations have long been known to affect honey bee hives. In recent years, formulations containing more finely ground particles of this insecticide have greatly reduced this concern. Microencapsulated formulations of insecticides are also deleterious to honey bees. The microcapsules and the older carbaryl formualtions were the correct size to be confused as pollen by foraging honey bees. In recent years, the particle sizes of several microencapsulate formulations have been changed to reduce this problem.

Recently, research studies have shown links between some fungicide applications and honey bee reductions. Honey bees, like us and other animals, use microorganisms within their guts to help digest their food. Fungicide applications have been linked to a die-off of these beneficial microorganisms in the digestive systems of honey bees, resulting in reduced fitness and increased mortality.

Insect pollinators include not only the honey bee, but also many other species including bumblebees, carpenter bees, alkali bees, leafcutter bees, and other bees. In addition, wasps, many flies, butterflies, moths, and numerous beetles are important pollinators. Besides insects, hummingbirds and bats are important pollinators in the U.S.

The EPA has developed new pesticide labels that prohibit use of some neonicotinoid pesticide products where bees are present. The new labels will have a bee

advisory box and icon with information on routes of exposure and spray drift precautions. See the accompanying figure for the bee advisory box with explanation of its content. The label change affects products containing the neonicotinoids imidacloprid, dinotefuran, clothianidin and thiamethoxam. The EPA will work with pesticide manufacturers to change labels so that they will meet the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) safety standard.

In May, the U.S. Department of Agriculture (USDA) and EPA released a comprehensive scientific report on honey bee health, showing scientific consensus that there are a complex set of stressors associated with honey bee declines, including loss of habitat, parasites and disease, genetics, poor nutrition and pesticide exposure.

EPA continues to work with beekeepers, growers, pesticide applicators, pesticide and seed companies, and federal and state agencies to reduce pesticide drift dust and advance best management practices. The EPA recently released new enforcement guidance to federal, state and tribal enforcement officials to enhance investigations of beekill incidents. (*Phil Nixon with portions from an EPA news release*)

Neonicotinoids in Garden Centers

Friends of the Earth recently published a pilot study on neonicotinoid insecticides found in bedding plants purchased at Home Depot, Lowe's, and Orchard Supply Hardware in California, Minnesota, and Washington, D.C. The published 33 page report is at http://libcloud.s3.amazonaws.com/93/60/a/3130/Gardeners_beware_report_8-13-13_final_updated.pdf. The research results are presented in five pages with an additional five pages of materials and methods.

The research involved the analysis of 13 small, herbaceous plants for the presence of neonicotinoid insecticides in the ground-up plant material consisting of stems, leaves, and flowers. Various levels of the neonicotinoids acetamiprid, clothianidin, dinotefuran, imidacloprid, and thiamethoxam were found in the analyses. They are all labeled for use on bedding plants. The results and conclusions repeatedly state that this is a pilot study that cannot be used to make generalizations about the insecticide content in garden center plants in general. It is also stated that levels of these insecticides are typically lower in the nectar and pollen primarily consumed by pollinators.

However, much of the report suggests the use of consumer pressure to get retail outlets to sell only plants that were not treated with neonicotinoids and to stop selling neonicotinoid insecticides in order to save bees and other pollinators. The report also encourages the public to pressure EPA and other government agencies to put a moratorium on the use of all neonicotinoid insecticides on plants attractive to pollinators until further research is conducted. This portion has been picked up by various advocacy groups and is being promoted through various mass media.

There are research studies showing that clothianidin, imidacloprid, and thiamethoxam applied as seed treatments get into the pollen of some plants and affect honey bee and bumblebee colony

survival even at relatively low levels. Various research studies indicate that acetamiprid and dinotefuran apparently are not problematic in nectar or pollen when applied according to the label. The recent incidents in Oregon of bumblebee kills from dinotefuran applications were the result of off-label applications.

The new labeling to protect pollinators discussed in another article in this newsletter is an effort by EPA to reduce the impact on pollinators by neonicotinoid insecticides. (*Phil Nixon*)

Horsechestnut Leaf Blotch

Horsechestnut leaf blotch or Guignardia leaf blotch, can affect many different *Aesculus* species. In Illinois, this disease is commonly seen on common horsechestnut (*Aesculus hippocastanum*). Symptoms begin as rapidly enlarging, irregularly shaped, water-soaked areas. These will continue to enlarge and turn red-brown with a yellow halo that merges with the surrounding healthy green tissue. Small lesions will initially be limited by veins, but can enlarge, coalesce and lead to distortion and partial shriveling of leaflets. Tiny black fruiting bodies will appear on the lesions, which help to distinguish from environmental scorch. These black fruiting bodies produce spores which contribute to secondary infections. In more severe cases, premature defoliation can occur. Fortunately, severe symptoms do not develop until late in the season when annual growth has nearly finished, so tree health is not greatly impacted.

The horsechestnut leaf blotch pathogen overwinters as fruiting bodies in leaves infected during the previous season. In the springtime, fruiting structures will release spores into the air, some of which will land on developing *Aesculus* leaves. An extended period of leaf wetness following spore landing will initiate germination and infection. About 10-20 days after infection, infected leaves can produce new fruiting structures and initiate secondary infection cycles.

Damage from this disease is mostly aesthetic. Disease management should focus on cultural practices. Damage will be most severe when canopies remain wet for an extended period of time. Properly spacing trees as well as pruning a tree to maintain an open, well aerated canopy is an easy first step to managing this disease. In addition to this, fallen leaves should be collected and disposed of at the end of the season to help reduce available inoculum for the following season. Fungicide sprays can also be applied beginning at bud-break. They will help maintain the appearance of the tree, but are unnecessary to maintain tree health. Additionally, chemical controls may be cost prohibitive, due to the size of affected trees. (*Sean Mullahy & Travis Cleveland*)