UNIVERSITY OF ILLINOIS EXTENSION
HOME, YARD & GARDEN PEST NEWSLETTER
College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana-Champaign
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Monthly Issues Start

This is the last biweekly issue for the year. Two more issues will appear in the second half of October and November. Thank you for your interest and support.

INSECTS

West Nile Virus Correction

The last issue stated that no vaccine against West Nile virus is available for horses. A vaccine for horses has recently been approved and is available. Unfortunately, sources used in the article said the vaccine was still in the experimental stage. *(Phil Nixon)*

Whitefly Swarms

Large numbers of adult whiteflies have been reported outdoors in the Champaign-Urbana and Bloomington areas. At this time of year, it is common to have adult banded-winged whiteflies in large numbers near rural areas of Illinois. However, this year many whiteflies are not that species.

Whiteflies are tiny, sap-sucking pests most commonly associated in Illinois with indoor plants. Adult whiteflies get their name from a white powder on their wings and body. They are 1/16-inch long or less, with wide, mothlike wings. Brushing the foliage of infested plants causes many adults to fly up into the air. On the leaves of host plants, adults lay eggs that hatch into oval, somewhat transparent, colorless to yellowish larvae. They transform into oval pupae before the adults emerge. Fully grown larvae and pupae are similar in size to the adults. Both the larvae and pupae are located mainly on leaf undersides, where larvae feed by sucking sap. Heavily infested leaves yellow prematurely and may curl at the edges, with a slightly cupped appearance. High populations over the entire plant result in reduced growth, premature leaf loss, and death of the plant.

Banded-winged whitefly adults are identifiable by wide, gray bands on their wings. In Illinois, these insects feed mainly on velvetleaf, a common weed in field crops; and each velvetleaf plant produces large numbers of banded-winged whiteflies by late summer. As these populations become very large, the velvetleaf plants have produced seed and are declining, which reduces this whitefly's food supply. It is common to find adult whiteflies on many kinds of plants. Fortunately, the larvae are restricted to velvetleaf and closely related plants, so serious injury to landscapes or greenhouse crops does not result.

This year, however, the whiteflies we are seeing do not have bands on their wings and by general appearance seem to be silverleaf whiteflies. Identification of silverleaf whitefly is based on pupal characteristics, so accurate identification of these adults is not practical. Silverleaf whiteflies are not known to overwinter in Illinois but may migrate from more southern states. They also have a high reproduction potential, making it likely that the currently high number of whiteflies is due to season-long migration and reproduction.

Greenhouse growers should be particularly watchful for movement into poinsettia and other crops. Sticky traps near vents, as well as plant inspection, should determine whether these whiteflies have invaded from outdoor populations. One may need to treat poinsettias for whiteflies earlier than usual to avoid damage. Imidacloprid, sold as Marathon, should be effective. However, treatment this early can make residual protection from whiteflies and other pests continuing through bract formation more tenuous. Outdoor ornamental plants are unlikely to be seriously harmed by whitefly infestation this late in the growing season. Treatment outdoors is probably not warranted. *(Phil Nixon, Raymond Cloyd, and Rick Weinzierl)*

Invasive Species: A Continuous Problem?

The continuous promotion to regulate pesticide use as a result of the Food Quality Protection Act (FQPA) and the widespread cultivation to implement integrated pest management (IPM) programs ignore the fact that the greatest economic and ecological threat to agriculture, particularly the ornamental industry, is the introduction of exotic (that is, invasive) species of insects, weeds, and diseases. Although several destructive diseases (Dutch elm disease and American chestnut blight) and exotic weeds (purple loosestrife and leafy spurge) have been introduced into this country, this article, for the sake of brevity, focuses mainly on the impact of exotic insects.

Many insect pests we see today did not originate here; this includes fire ants (Argentina), Africanized

honeybees (South America), Formosan termites (Asia), Mediterranean fruit fly (Tropics), Japanese beetle (Japan), Asian longhorned beetle (China), and Gypsy moth (Europe). When these insects entered the United States, they became a problem mainly because they had no natural enemies. In the country of origin, natural enemies "naturally" maintain populations at levels where they are not a significant concern or pest.

Some insect pests were introduced with good intentions. For example, Gypsy moth was brought from Europe by the French naturalist Leopold Trouvelot for silk production. However, during a storm in Massachusetts (1869), several caterpillars escaped. As a result, the Gypsy moth became established throughout the Northeast and the Midwest and has continued to migrate westward. In the past 20 years, Gypsy moth has destroyed over $16 million worth of trees.

Another example is the multicolored Asian lady beetle, introduced into the Southeast in the late 1980s to deal with plant-feeding insects such as aphids on fruit trees. Without its natural enemies, it quickly spread into other parts of the country. As a result, it is a seasonal nuisance pest in late summer through early fall, when the adult beetles enter buildings to overwinter, and again in spring, when the adults leave the indoors to search for food. Lady beetle adults feed on fruits, including apples, raspberries, and grapes.

An increase in wide-scale international trade and the impact of globalization will most likely lead to a greater probability of exotic or introduced insects making their way into the United States. Exotics may be introduced by tourists bringing in undeclared plants, fruits, and vegetables. Wide-scale international trade has also led to an increase in urban-type arthropod pests, such as bed bugs. As people travel, bed bugs can "hitch a ride" in luggage, especially on secondhand items bought in other countries. This is not the only reason for the increase, as bed bugs are also parasites of birds and often enter homes via birds nesting or roosting on houses.

Exotic or invasive species are a problem for various reasons. First, many are small, allowing them to go undetected at border checkpoints. Second, many (though not all) have a very high reproductive potential, giving them superior colonizing ability. Insects are opportunistic and once inside our borders they do whatever it takes to survive.

As a result of the concern regarding exotic pests, then-President Clinton established the Invasive Species Council. The 2001 federal budget included $28.8 million for programs to deal with exotic pests.

It has been estimated that invasive pests (including diseases and weeds) cost the country around $137 billion a year. However, it is hard to assess long-term costs. For example, it has been mentioned that if the Asian longhorned beetle were to become established and spread, it would cost about $500 million a year. Besides economic costs, there are ecological costs. The consequences of exotic insect pest introductions are that they can out-compete or displace native species, which may impact the length of time pests are a problem or result in degradation of wildlife habitats, thus impacting endangered species. For example, accidental introduction of the Argentine ant, mainly into California, may have been responsible for the decline or disappearance of native ant species there. Another ecological consequence of introducing exotic pests is the erosion of genetic integrity, where native species interbreed with exotics, which may impact the survivability or competitiveness of native species. In addition, exotic, plant-feeding insects may change the existing flora and fauna of an ecosystem over a short- or long-term period. Regardless, the consequences may be devastating and irreversible.

The best and primary strategy in dealing with exotic insect pests is *prevention.* This is accomplished by the USDA through the Animal and Plant Health Inspection Service (APHIS), with over 1,200 inspectors at entry ports across the country making an estimated 230,000 interceptions of exotic arthropods per year. Materials coming through entry ports are inspected and, if necessary, quarantined, which helps to prevent establishment of an insect pest.

If an exotic insect pest is discovered in the country, then the strategy is an elaborate system of scouting (monitoring) using traps and then control. If insect pests are detected in traps, then a plan to eradicate the insect pest is implemented. Another strategy used against exotic insects already established, such as the Gypsy moth, is to "slow the spread" (STS) by dealing with localized infestations that establish themselves in areas ahead of the main infestation front.

An alternative, long-term strategy being advocated by researchers for managing exotic pests is is biological control. This approach involves travelling to a pest's country of origin and locating natural enemies (parasitoids, predators, and/or pathogens), which are then brought back and released: Not, however, before being evaluated through strict quarantine procedures.

What can be done to "stem the tide" of invasive insect species? First, it is important to educate the public on the short- and long-term economic costs and ecological impacts of exotics establishing in the United States. Second, we must abide by regulations designed to prevent their entry. Finally, it is important to prevent free movement of plant species that may allow insect pest to enter—particularly plants with soil. The continuous increase in international trade

and globalization has increased the permeability of borders, which then leads to a greater probability of exotic or invasive insect species entering and becoming a problem. *(Raymond Cloyd)*

PLANT DISEASES

Miscanthus Mystery

We received an ornamental grass sample from the Decatur area this week that has me a little stumped, and I'd like your help in solving this mystery. Based on the sample and accompanying description, Tom Voigt tentatively identified the grass as *Miscanthus* 'Purpurascens'. The client says the grass planting was installed 6 years ago and the symptoms probably began in early August this year. From the dried-down sample, I observed minute, irregular, reddish lesions on the leaves. Several days in a humidity chamber revealed only fruiting bodies and spores of several common saprophytic fungi. Moreover, no fruiting bodies or spores were associated with lesions and the surrounding tissue.

A review of the literature and Internet content for diseases and abnormalities of *Miscanthus* revealed little. The University of Maryland's Diagnostic Web Site indicates that anthracnose is a common disease of *Miscanthus,* but the symptoms (dark, irregular lesions) and signs reported are not consistent with our sample. In 1991, researchers from Japan reported *(Journal of General Virology,* vol. 72) identifying Miscanthus streak virus on *Miscanthus sacchariflorus.* Again, the symptoms (chlorotic streaking) are not what I saw. Finally, in 1996, USDA researchers in Maryland reported *(Plant Disease,* vol 80:9) specific fruiting bodies and reddish brown spots to oval streaks on leaves and sheaths on several varieties of *Miscanthus sinensis.* They identified the causal fungus as *Leptosphaeria* (anamorph = *Stagonospora)* and called the disease Miscanthus blight. Although the symptoms on our sample are similar, preliminary culture did not reveal the fungus. To prove or disprove my initial findings, I intend to use the specific isolation/culture protocol used by the USDA researchers.

It is possible that this is not an infectious disease. With the localized temperature and moisture swings this growing season, I wonder if the some ornamental grass varieties might be reacting by flecking/spotting or simply shutting down prematurely. If you have observed similar or other abnormal symptoms on well-established ornamental grasses this year, please contact me, (217)244-9646 or **paulsrud@uiuc.edu.**

For more information about ornamental grasses, see these University of Illinois Extension Web sites: **www.urbanext.uiuc.edu/grasses** and **www.outreach.uiuc.edu/grassid.** *(Bruce Paulsrud)*

Wet Weather Fungus Revival

For sure, it's been a crazy growing season. Some areas hardly dried out, while others hardly had rain. I guess it has been said that there is no "normal" growing season. For those who have been keeping an umbrella handy, this article points out a couple of common landscape diseases you may be experiencing.

Gray Mold (Botrytis). We had several reports of gray mold *(Botrytis cinerea)* rearing its ugly spores again this fall on various herbaceous plants such as mums, yarrow, and petunias. This fungus and its many strains can infect and damage flower parts, leaves, buds, shoots, seedlings, and fruits. The pathogen can attack a wide range of herbaceous, woody, and vegetable plants; and the disease progresses rapidly under cool, wet conditions.

Symptoms may vary depending on the plants attacked, plant parts attacked, and growing conditions. Under moist, humid conditions, a tan to gray fuzzy mold (fungal hyphae and spores) develops. Poor air circulation adds to the survival and growth of the disease. With temperatures between 68° and 76° and humidity high, it takes about 20 hours to infect. Warm to hot, dry weather tends to reduce or stop the growth and spread of the disease. Botrytis is sometimes confused with old age or natural dieback of petals. But check the petals closely: Browning from old age should occur on the outer petals first and along the edges or at the tip of the petals. When inner petals or the middle of the petals develops brown lesions first, gray mold is probably the reason.

The pathogen often overwinters on infected dead plant material, so sanitation is important in reducing potential for future infections. However, spores can blow in from far away. Dying flowers and all infected plant tissue should be collected and burned, buried, or otherwise removed from the growing area. For future plantings, space the plants to provide maximum air circulation. Fungicide options are provided in the *2001 Illinois Commercial Landscape and Turfgrass Pest Management Handbook* or the *Home, Yard and Garden Pest Guide.* However, you might think twice about using a fungicide for Botrytis on annuals because we are at the end of the growing season.

Dollar Spot. With a return to cool nights and dew-laden mornings, you may see the revival of several turf diseases, including dollar spot. If you have received excessive rainfall, your soil may be short on nitrogen (from leaching or denitrification) and thus more susceptible. Moderate fertilizing of your turf now is an effective way to stop this disease. For com-

prehensive and easy-to-read guides, visit the University of Illinois Turfgrass Program Web site **(www.turf.uiuc.edu)** and click "Extension" and "Fertilization"; or visit University of Illinois Extension's "Lawn Talk" **(www.urbanext. uiuc.edu/lawntalk).**

The dollar spot fungus can infect creeping bentgrass, Kentucky bluegrass, annual bluegrass, and fineleaf fescues, even Bermuda grass and zoysia grasses. The disease appears as roundish, brown spots in the lawn. Initially, spots are silver-dollar size (thus the name) and later may enlarge to 4 to 8 inches. Merged spots could affect a larger area. The affected area turns straw colored and appears sunken in the lawn.

A quick and rather good diagnostic guide involves the appearance of the leaf lesions (dead areas). Look for these on plants at the edge of the sunken areas. The lesions girdle the blade, may be up to 1 inch long, and are usually bleached white to light tan, with a dark brown, reddish brown, or purplish border. When dew is present on the blades of grass, a white cobweb-like growth of mycelia may be seen on infected plants. The disease appears in warm (60˚F to 85˚F), wet, and humid weather, especially in lawns low in nitrogen. Control measures include maintaining balanced fertility, avoiding late-afternoon or evening watering, providing good air circulation by pruning surrounding plants, providing adequate surface drainage, and mowing at the maximal height. Fungicides can be used on a preventive basis but are generally used only on golf courses or high-visibility areas. Refer to the *2001 Illinois Commercial Landscape and Turfgrass Pest Management Handbook* or the *Home, Yard and Garden Pest Guide* for fungicide options. Also refer to *Report on Plant Disease* no. 407 for details on the disease, pathogen, and management options. *(Bruce Paulsrud, adapted from previous articles written by Jim Schuster [gray mold] and Nancy Pataky [dollar spot].)*

Home, Yard, and Garden Pest Newsletter is prepared by Extension specialists from the University of Illinois at Urbana-Champaign and the Illinois Natural History Survey. Information for this newsletter is gathered with the help of staff members, Extension field staff, and others. Karel Jacobs and Donna Danielson of The Morton Arboretum also provide information.

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