

Pest Management News

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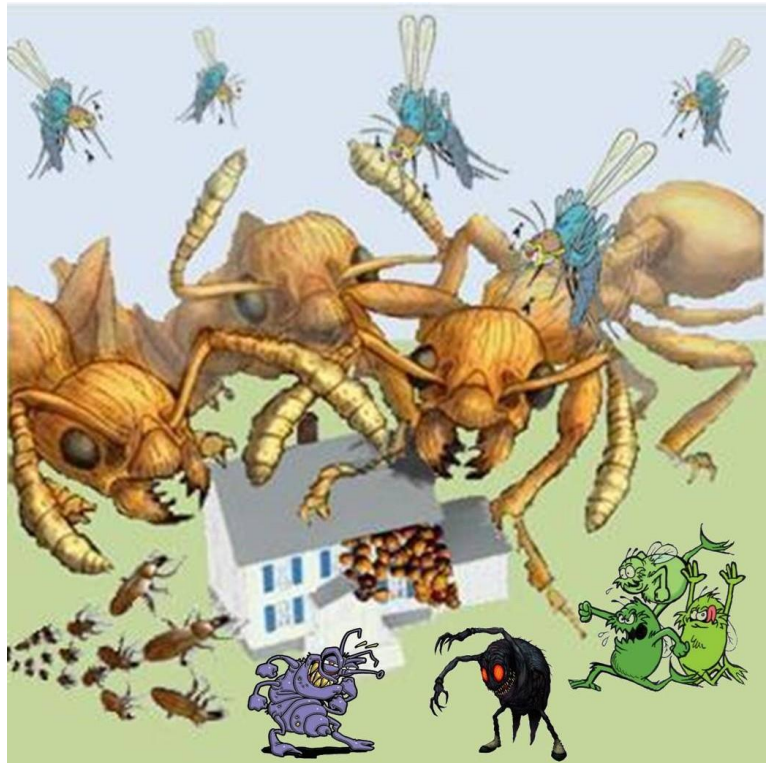
Letter #6

October 31, 2016

Preventing Insects, Spiders and Other Pest Invaders from Entering Your Home

John D. Hopkins

When the weather begins to change in the fall and things get cooler, arthropod pests like the multi-colored Asian lady beetle, the boxelder bug, crickets, various stink bugs, or spiders are just some of the pest problems that homeowners may have to deal with. The first thing most people think of when trying to prevent a pest problem is **WHAT INSECTICIDE DO I SPRAY?** However, there are other measures that should be taken that will help prevent these pests from entering your home and may even eliminate the need for an insecticide application. Pest proofing your home is the **BEST** way to prevent unwanted invaders at this time **or any other time of year**. Your goal is to prevent pest entry and eliminate conditions that are conducive to pest infestation. Here are the ABC's of pest proofing your home:



A. Ensure that screens on doors and windows are properly installed and maintained.

If you don't have screen doors on your home, install them. Any damaged screens should be repaired or replaced. Fine mesh screening will prevent all but the tiniest insects from entering your home.

B. Doors should seal properly. If air can pass through or light can be seen through cracks around doors then insects or spiders can get in. Install tight-fitting thresholds and door sweeps to the bottoms of exterior doors and use door seals to fill the gap around the sides and top of each door.

C. Cracks in the foundation, exterior walls, and fascia boards should be repaired. Arthropod invaders use these cracks in to gain entrance to your home. Carefully inspect the exterior of your home and use your favorite caulk or silicone sealant to fill any cracks that are found.

D. Gaps around utility lines entering the home and gaps around appliance vents should be eliminated. Just like cracks in the foundation, any gaps around dryer vents, gas lines, telephone lines, etc. should be filled. If gaps are too large for caulk, spray foam products may be helpful. Also, if holes are required for ventilation (weep holes in brick veneer) copper gauze may be used to block pest entry while still allowing for air flow. Steel wool is not recommended if conditions for rust exist.

E. Varmint-proof wire or metal mesh should be installed on attic vents and crawl space vents. Rats, mice, bats, skunks, raccoons, squirrels, birds and a myriad of other creatures may make themselves at home in attics or crawl spaces if you don't install barriers to keep them out. These animals may carry fleas, mites, or create conditions favorable for other pests that may then infest your home.

F. Moisture sources should be eliminated by fixing any leaks. Most insect pests require a certain amount of humidity to survive and any source of moisture can be attractive to them. Promptly repair all plumbing leaks and remember, even condensation on pipes can drip and create conducive conditions for infestation. Make use of dehumidifiers if necessary. Basements or crawl spaces that flood during heavy rains should be equipped with a proper ventilation and drainage system.

G. Sanitation is extremely important so keep the kitchen clean. Where food and water is readily available, certain types of pests will make themselves at home. Make every effort to keep your kitchen clean. Wipe, sweep, and vacuum surfaces as required, and clean up spills immediately. Don't leave dirty dishes in the sink overnight. Toasters and microwave ovens should be cleaned out regularly and be sure to scrub down your stovetop daily. Properly dispose of food scraps and packaging.

H. Sealable containers should be used for food storage. Sealed storage containers not only prevent pest entry, but also prevent cross contamination of other food stuffs if the original product happened to be already infested. Items like cereals, grains, dry beans, rice, and other pantry items should be disposed of immediately upon first sign of infestation. Non-perishable items should be stored in air tight containers while perishables should be stored under refrigeration or frozen.

I. Eliminate clutter. Cluttered home environments provide easily accessible sites for pests to hide and harbor. Dirty laundry should be kept in clothes hampers and laundered promptly. Floors should be kept clear of belongings and items should be properly put away when no longer in use (preferably in sealable plastic storage containers. Recyclable items should be rinsed and recycled promptly. Beverage cans and bottles, milk jugs, pet food cans, etc. will all attract insects if they are not rinsed out thoroughly.

J. Clean up after your pets. Some pests like dry pet food so store your pet's food in an air tight container. Do not leave extra pet food exposed and accessible except at feeding time and clean your pet's food dishes regularly. Other pests like flies are attracted to pet waste so clean your cat's litter box daily. Also, wash pet bedding on a regular basis.

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K. Frequent removal of household garbage is a necessity. Even before you can smell it, it is attractive to pests so remove household garbage often. Line waste bins with plastic garbage bags and secure the bags tightly before taking them to outdoor garbage containers. Outdoor containers should not be located near entryways and regular scheduled pick up and removal should be arranged.

L. Clean trash bins as needed. Sometimes plastic liners or garbage bags tear and spills occur inside garbage cans. At least several times a year, clean the inside of garbage containers with soap and water or a mild bleach solution to eliminate smells and sticky substances that may attract pests. As before, outdoor garbage containers should not be kept close to the house.

M. Do not allow trees and shrubs to contact the house. Trees and shrubs in contact with the roof or outside walls of your home can serve as a bridge to allow pests to gain access to your home. Keep shrubs and tree branches pruned away from the home.

If the above listed maintenance and sanitation guidelines are carried out, pests will be discouraged or prevented from invading in the first place.

However, if nuisance pests do get inside:

In large numbers,

1. They can be vacuumed up and the vacuum bag can be discarded outside.
2. Line vacuum hose with a stocking and insects will be conveniently bagged.
3. **NO INSECTICIDE RECOMMENDED!** If an insecticide is used, many insects will die in inaccessible places making clean up impossible and these dead insects will serve as a food source for other pest insects like dermestid beetles.

In low numbers or individually

1. Pests can be swept up and removed, or
2. Treated with an over the counter aerosol insecticide and removed.
3. Over the counter residual insecticides labeled for crack & crevice and/or surface treatment may also provide relief (Low numbers only)

The use of residual insecticides labeled for perimeter application can also help provide a barrier to prevent insect pest/spider entry.

Finally, pest proofing or preventing nuisance pests from gaining entry in the first place is the BEST strategy for stopping problem pests from invading your home whether it is in the fall or any other time of year.

Home Pest Control Safety

John D. Hopkins

The most effective way to reduce or eliminate pest problems and risks posed by pesticides is to first prevent pests from entering your home. Around the home, pest prevention measures include removing sources of food and water and eliminating pest shelters and breeding sites:

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- Store food in sealed plastic or glass containers. Make sure food and food scraps are tightly sealed and garbage is regularly removed from the home. Garbage containing food scraps should be placed in tightly covered trash cans.
- Fix leaky plumbing and do not let water accumulate anywhere in the structure. Don't let water accumulate in trays under houseplants or under the refrigerator.
- Don't leave pet food and water out overnight. Also, if you apply pesticides, pet food and water should be removed from the area.
- Clutter provides shelter for pests-places for roaches and mice to breed and hide-and makes it difficult to provide effective pest control. Keep the level of clutter down. Stacks of newspapers, magazines, or cardboard provide excellent shelter for roaches and other pests.
- Close off entryways and hiding places. For example, you can caulk cracks and crevices around cabinets or baseboards, and use wire mesh to fill holes around where pipes go through a wall, ceiling, or floor.
- Check for pests in packages or boxes before carrying them into the home.

Before purchasing or using any pesticide, always read and then carefully follow the directions on the container label. When using pesticides in the home, keep pets and children away from areas where pesticides have been applied until label instructions indicate reentry is allowed. After preventative steps have been taken, you can use baits as a first line of chemical defense against insects or rodents. These are often effective and can be used with low risk of exposure to the pesticide, as long as they are kept out of the reach of children and pets. Pesticides not contained in baits or traps should generally only be applied to targeted locations, not sprayed over the whole room. Only mix as much as you are going to use at one time if the pesticide must be mixed with water. Use fogging devices only when absolutely necessary. Use ready-to-use products (i.e., no mixing needed) whenever possible.



Before purchasing or using any pesticide, always read and then carefully follow the directions on the container label.

Only apply pesticides approved for use in homes; the label will list where the pesticide may be used. You should write down the name and EPA registration number of any pesticide used by someone you hire. You will need this information if you decide to look up more information on the pesticide. The pest control operator should be able to provide information about the materials used, such as the label and the safety data sheet.

When disposing of leftover pesticides and pesticide containers, do so properly. Read the label to find out how to dispose of the pesticide and the container. Many communities have household hazardous waste collections that will accept unwanted pesticides. Call your waste disposal authority for information about your community.

Never transfer pesticides to other containers. Pesticides should only be stored in their original containers. Poisonings have occurred when someone accidentally consumed a pesticide stored in food or beverage containers. Don't use empty pesticide containers to store anything else. No matter how well you wash the container, it could still contain remnants of the pesticide and could harm someone.

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Horse Bots

Kelly M. Loftin

Those of you with horses are probably seeing bot flies laying eggs on their horses. If not, you have at least noticed the eggs on their horse's legs. This serves as a good reminder to treat horses with a boticide fairly soon.



Figure 1. Adult horse bot fly, *Gasterophilus intestinalis* (DeGeer). (Kelly M. Loftin)

Even though we employ cultural control of bot eggs during routine grooming, we still need to administer a boticide after the second "killing frost". Adults are free living and cause no harm but their parasitic immature stages (larvae) may cause digestive system damage and severe illness.

Horse Bot Flies (Family Gasterophilidae). Horse bot flies are members of the Gasterophilidae family. The larval forms are important internal parasites of equines. The three species considered important in the U.S. are: *Gasterophilus intestinalis* (DeGeer), the horse bot fly; *Gasterophilus nasalis* (L.), the throat bot; and *Gasterophilus haemorrhoidalis* (L.), the nose bot. Adults resemble bees in that they are about the same size and hairy-bodied (Figure 1). Adult bot flies are short-lived, possess non-functional mouthparts and do not feed. Adult activity begins in warm weather and ceases at the first frost.

Adult female bot flies attach eggs to the hairs of the host's body similar to lice (Figure 2). The site of egg attachment is specific to the bot fly species. Horse bot flies attach eggs on the forelegs between the knee and hock; throat bot flies attach eggs under the jaw; and the nose bot flies attach eggs to the upper lip. Horse and throat bot fly eggs are stalk-less; and nose bot fly eggs are stalked. For the horse bot fly, egg hatching is stimulated by moisture and friction from the animal's licking. Larvae gain



Figure 2. Eggs of the bot fly, *Gasterophilus intestinalis* (DeGeer), deposited on the hairs of a horse's foreleg. (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)

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access to the host's mouth by this licking, and burrow into the tongue or gums. They remain there for about a month then pass to the stomach attaching to its mucous membrane where they remain for about 9 months. In the spring larvae (Figure 3) detach from the stomach and are passed with feces and pupate outside their host. Adults emerge from pupae in about a month to 6 weeks. Horse bot flies may cause significant damage to the stomach lining and possibly stomach rupture or colic if the passageway between the stomach and small intestine becomes blocked. The life cycle of the throat and nose bot flies are similar to the horse bot fly, except mature nose bot fly larva attaches to the rectum near the anus; and the mature throat bot fly larva attaches in the duodenum (first section of small intestine) near the pylorus.

Non-chemical bot fly control is aimed at the eggs. Horse owners can frequently sponge the horse with warm water to stimulate hatching of bot fly eggs. New hatched bot fly larvae quickly die especially if done on a cool day. For the horse bot fly, concentrate efforts on the animal's legs between the hock and knee. Also, applying insecticidal washes to egg laying sites will reduce the number of larvae ingested by the animal. Bot combs or pumice bot stones can also be used to scrape away the eggs. These remedies will reduce the number of bot fly larvae ingested by the animal, but will not control any larvae that escaped our efforts and were ingested. Because of the seriousness of horse bots, treatment with a boticide to control the parasitic stages is recommended.

Very rarely, horse bots fly can cause ocular myiasis in humans. Ocular myiasis is an invasion of the eye by first stage larvae. These cases are rare and can occur in individuals handling horses infested with bot fly eggs. On these rare occasions, bot fly larvae will enter the eye, possibly as a result of rubbing their eyes. In other rare instances, hatched larvae enter the human skin causing cutaneous myiasis which can result in visible, inflamed tracks, irritation and itching from the larva's burrowing. People working with horses during bot fly season should not rub eyes after combing or washing animals and thoroughly wash their hands.

Chemical control of bot flies is aimed at the parasitic stage within the horse. Several formulations containing ivermectin or moxidectin are available for bot fly control in equines. These products are relatively easy to use, effective and should be administered after fly activity ceases (generally after the second killing frost). The "Insecticide Recommendations for Arkansas - 2016" (MP 144 http://www.uaex.edu/Other_Areas/publications/PDF/MP144/MP-144.asp) provides a listing of products available for controlling bots in equines. "Arthropods Pests of Equines" (MP 484 http://www.uaex.edu/Other_Areas/publications/PDF/MP484.pdf) provides biology and control information on major arthropod pests of equines including horse bots. "Livestock Health Series: Internal Parasites of the Horse" (FSA 3096 http://www.uaex.edu/Other_Areas/publications/PDF/FSA-3096.pdf) is available for more information on other internal parasites of equines including bots.

Minimize Hay Wastage to Prevent Stable Fly Problems

Kelly M. Loftin

With winter just around the corner, we need to remember to minimize hay wastage now to prevent stable fly problems next year. Moisture, rotting hay, livestock manure and warm temperatures are the ingredients necessary for a healthy stable fly population. All these ingredients come together where hay is wasted.

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Ways to avoid a buildup of stable fly breeding material

1. Modify hay feeding techniques to prevent a stable fly problem.
 - a. Unroll hay (in large round bales) in a different location for each feeding.
 - b. Distribute “flakes” of small hay bales in different locations in the pasture
 - c. Feed hay only in well drained areas.
 - d. Do not feed more than the animals will clean up during a single feeding.
2. Clean up wasted hay around hay rings before stable flies become a problem.
3. If you cannot clean up around a hay ring, run a farm implement (disk, etc.) through the area. This will kill some stable fly larvae and pupae and dry out the breeding material to inhibit larval development.

Stable Flies - The stable fly, *Stomoxys calcitrans* (L.), is both a nuisance to companion livestock and an economic pest in traditional livestock production. This fly is a filth fly that breeds in decaying organic matter, manure, spilled feed, and wet hay or grass. The male and female are both blood feeders that can cause painful bites and irritation for pets, livestock, and humans. Stable flies are persistent feeders and will continue to take a blood meal even after being swatted at several times. Sunny outdoor areas are the preferred resting site for adult stable flies; however they will enter buildings such as in horse stables, dairy calf pens or poultry houses, often for breeding purposes. They also breed outside in decaying organic matter such as wasted hay mixed with urine and feces.



Adult stable fly, *Stomoxys calcitrans* (Linnaeus). (Whitney Cranshaw, Colorado State University, Bugwood.org)

Because a single stable fly will take multiple blood meals per day, stable flies become significant nuisance and economic pests. Feeding usually occurs on the lower regions of the body such as the lower half of the livestock’s legs. Stable fly feeding is readily apparent by the stomping of animal’s feet because of the painful bite being inflicted. Flies that do not move around on the animal, particularly the legs, are likely to be stable flies.

Stable flies are annoying and an economic concern. High stable fly populations on cattle can result in a potential 10-15% loss of body weight. This loss is from blood loss and the disturbance caused by the fly’s feeding. Loss in milk production resulting from extreme stable fly abundance has been reported to be 40% or more. Stable flies are also implicated in the transmission of livestock diseases such as equine infectious anemia, anthrax, and surra.

Life Cycle and Identification - Adult stable flies are about the same size as the adult house fly, *Musca domestica* L. The stable fly blood-feeding proboscis (resembles a bayonet) is very prominent and a good characteristic to distinguish it from the house fly with sponge-like mouth parts. The adult fly is

gray in color with four dark stripes on the thorax and three dark spots on the abdomen creating a “checkerboard pattern”.

The adult female can lay eggs after having several blood meals. The white eggs are usually laid in decaying vegetative matter such as wet hay or straw mixed with manure. The female stable fly lays eggs in batches of 25-50. The larvae hatch from the eggs in about 1-2 days. Larvae are typical white maggots that feed on the same type of material where the eggs were laid. The larvae stages last for 8-26 days and then develop into a brown pupa from which the adult emerges after about 5-26 days. The duration of the stable fly life cycle is temperature dependent, for example in warm weather (75-85°F) the cycle from egg to adult can be completed in 13-18 days. At cooler temperatures the stable fly can take several weeks to complete its life cycle.



Typical outdoor stable fly breeding site. (University of Missouri Extension Service)

Overwintering of stable flies is not completely known, but larvae likely develop slowly during winter months under the frost line and move toward the soil surface to pupate as temperatures rise.

Control Methods - The best method to reduce stable fly abundance is practicing good sanitation. Removing manure, spilled feed, and wet hay or straw at least once a week (preferably every 2 to 3 days) will help reduce the stable flies' breeding. Concentrate sanitation efforts around stables, feeding areas, corrals and barns. The aim of sanitation is to reduce and/or eliminate habitat for larval development. Accumulated manure and wasted feed should be removed and/or spread thinly. Vegetation management in areas where manure, hay and dead organic matter accumulate is also recommended. Excess moisture around the barnyard should be reduced or eliminated. Reduce or eliminate hay wastage as this becomes ideal breeding habitat when the hay becomes wet and soaked with manure and urine. A Kansas study indicated that almost 60,000 stable flies could be produced weekly from a typical round bale feeding site.

Insecticides applied directly onto the animal are often used to provide immediate relief for the animal. Animal insecticide treatments for stable flies are normally directed toward the lower regions of the body, primarily the legs. For cattle, stable fly counts should be carried out by counting the number of stable flies present on the legs of each animal. Application of the animal sprays should be considered when stable flies reach an average of 10 flies per animal.

Another chemical control method is application of residual sprays on surfaces where the flies rest (fences, walls and vegetation). These sprays may remain effective for 10 days when temperatures are not too high or rainfall is limited. When using residual sprays, do not allow runoff to create a puddle beneath the application site and do not contaminate feed or water.

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Area space sprays can also be used where flies are congregating in abundance. Remember space sprays offer little residual activity, thus direct contact is necessary to kill the fly. These types of sprays can be used in combination with residual sprays and may require 2-3 applications a week, when stable fly abundance is high.

Consult the Animal Section of the MP 144 "Insecticide Recommendations for Arkansas" for a listing of insecticides labeled to control stable flies on livestock or livestock premises. Addition information on stable flies and other pests of horses is available at:

http://www.uaex.edu/Other_Areas/publications/PDF/MP484.pdf.

Legal Aspects of Trapping Feral Hogs in the new CWD Management Zone

Becky McPeake

Feral hogs are a problem statewide, and using bait is recommended for successfully luring hogs into corral traps for removal. The most common bait is whole corn which attracts not only feral hogs, but a number of wildlife species. Recently, rules were changed about baiting wildlife in the 10-county Chronic Wasting Disease (CWD) Management Zone (Boone, Carroll, Johnson, Logan, Madison, Marion, Newton, Pope, Searcy and Yell) in an attempt to control the spread of this disease. In the CWD Management Zone, it is legal to bait deer and elk on private land only from September 1 to December 31. It is illegal to bait deer and elk the remainder of the year from January 1 to August 31. Baiting other wildlife, including nuisance wildlife, is illegal year round.



The first step when trapping feral hogs is using bait to train them to appear consistently at a location before setting up a corral trap. Photo taken in 2015 by Skip Armes, Searcy County Ag Agent.

J. P. Fairhead, feral hog coordinator with the Arkansas Game and Fish Commission, says feral hogs are not considered wildlife because they are domesticated animals. According to state law, "A feral hog is deemed to be a public nuisance," not nuisance wildlife. However, J.P. notes that someone could be breaking the law if deer or elk feed on corn used for trapping hogs outside of September 1 through December 31 in the CWD Management Zone. Additionally, attracting nuisance wildlife such as raccoons with corn is illegal any time of year in this zone.

Landowners and hunters who desire trapping feral hogs in the 10-county CWD Management Zone should contact their local wildlife officer in advance and communicate their intent to conduct feral hog control using bait. According to the Enforcement Division of the Arkansas Game and Fish Commission, avoid the appearance of hunting any wildlife species over bait when trapping feral hogs

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especially from January 1 through August 31 in the CWD Management Zone. Consider keeping your gun at home until ready to dispatch captured hogs.

An updated “Laws and Regulations Governing Feral Hogs in Arkansas” Extension fact sheet has been issued, <http://www.uaex.edu/publications/pdf/FSA-9106.pdf>. The fact sheet indicates in the 10-county CWD Management Zone, baiting nuisance wildlife anytime, and deer or elk from January 1 through August 31, is not allowed without prior approval of the Chief of Wildlife at the Arkansas Game and Fish Commission. This regulation is for baiting wildlife, not feral hogs. Since local wildlife officers will be the entity writing tickets for violations, the Arkansas Game and Fish Commission recommends communicating with your local wildlife officer when baiting for feral hog control in the 10-county CWD Management Zone.

Milkweed Bugs

Sherrie E. Smith

A milkweed bug infestation can be alarming to homeowners, but they are more of a nuisance than a threat to milkweed health. The large milkweed bug, *Oncopeltus fasciatus*, feeds on the seeds, flowers, leaves, and stems of milkweed species (*Asclepias*), but prefer the flower heads and seed pods. Milkweed bugs are easy to spot brightly colored orange-red and black insects. They have long piercing/sucking mouthparts which they use to pierce plant tissues. They may be found on milkweed plants from mid-late summer. Since they do little real damage, living with them is an option. However, removing leaf litter and plant debris cuts down on the number of overwintering adults. Insecticides such as carbaryl or malathion may be used as a last resort.

Bacterial Leaf Spot of Hydrangea

Sherrie E. Smith

Bacterial leaf spot of hydrangea, caused by *Xanthomonas campestris*, commonly affects *Hydrangea quercifolia* (Oakleaf hydrangea), *H. macrophylla*, and *H. arboreacens*. The pathogen mostly enters into the plant through stomata, other natural openings, and/or plant wounds. Symptoms begin as water-soaked spots that darken and develop an angular shape. Spots may coalesce and blight large sections of leaves. Eventually the entire leaf may turn brown, shrivel and die. Flower heads may also become infected and blighted. Disease development is favored by warm, wet conditions. Since the bacterium overwinters on plant debris, all diseased

Milkweed bug-*Oncopeltus fasciatus*



Sheila Whiteley, University of Arkansas Cooperative Extension

Hydrangea Bacterial Leaf Spot, *Xanthomonas campestris*



Sherrie Smith, University of Arkansas Cooperative Extension

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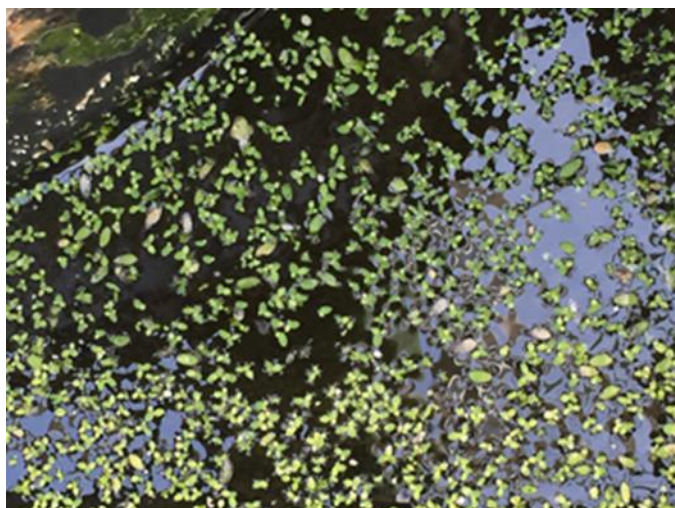
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leaves, flowers, and stems should be removed. Disinfect pruners with a 10% bleach solution between cuts (one cup bleach to 9 cups water). Don't leave pruners sitting in the bleach for long periods or they will be ruined. Working around the plant while foliage is wet should be avoided as you can move the bacterium onto unaffected parts of the plant or to nearby plants. Avoid overhead irrigation and water at ground level. Copper fungicides may be used in problem plantings preventatively, but care must be taken as phytotoxicity can occur.

Name That Weed

Bob Scott

This small floating aquatic finds strength in numbers! Although not a terrible problem this small weed can block waterways and effect aquaculture negatively. Be the first to email me the common name and win a prize! Bscott@uaex.edu



To The Readers

Please offer any suggestions for Urban or Livestock Integrated Pest Management topics (insect pests, plant diseases, weed problems, wildlife control problems) that you would like to see – **OR** – feel free to submit an article that you have prepared. Kelly and I will be glad to include it (subject to editing). Send feedback to jhopkins@uaex.edu or kloftin@uaex.edu

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