

Pest Management News

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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:

- 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.

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. 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.

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 material 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.

For additional information on pest issues and pesticide safety see EPA Publication 735-K-04-002 ["Citizen's Guide to Pest Control and Pesticide Safety" \(PDF\)](#) (54 pp, 2.4 MB)

What You Should Know Before Hiring a Pest Control Company

John D. Hopkins

What did you find.....ants, termites, cockroaches, spiders, bedbugs, fleas, flies, gnats, bees, wasps, ticks, clothes moths, carpet beetles, wood-destroying beetles, stored product pests, or something else??? Most pests encountered are merely a nuisance, while some are capable of causing serious damage to property. Others may, bite, sting or transmit disease-causing agents. After the initial shock of finding some type of insect or other pest in their home, many people suffer additional anxiety when trying to decide which pest control company to hire. This article is intended to help the average person with the information needed to make that decision.

Pest Management Professionals (PMPs) who are licensed in the state of Arkansas must take and pass an examination administered by the Arkansas State Plant Board (501-225-1598) and must attend training on a continual basis to maintain their license. When hiring a pest control company, always carefully read and understand the contract you sign. Ask the salesperson to clarify anything you do not understand or with which you do not feel comfortable. Check with the Better Business Bureau or a present customer of the company to satisfy yourself that the company you select has a good record. Pest control services can be separated into two different categories: general household pest control (also called "pest control" in the industry) and termite control.

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General Household Pest Control Service is the type of service provided for all pests with the exception of termites and wood destroying insects. When requiring this type of service, you should base your selection decision on two things: 1) an evaluation of the effectiveness of a company's pest management methods and 2) the company's customer service record.

1) Evaluating Pest Management Methods: Ask for specific steps that the PMP will, use in their pest management program. The University of Arkansas System, Division of Agriculture, Cooperative Extension Service recommends the use of an Integrated Pest Management (IPM) Strategy when developing a pest control program. IPM is a decision-making process that anticipates & prevents pest activity & infestation by combining several control tactics to achieve long term solutions. The pest control company should be responsible for providing the five basic steps in an "IPM Program". These include; inspection, target pest identification, establishing an action threshold (joint decision with the customer), employment of two or more control measures that are environmentally compatible & economically feasible, and a follow-up evaluation of effectiveness. With the IPM approach, there are also certain steps that the homeowner/customer is responsible for, that being sanitation and pest exclusion.

Customer Responsibilities for Sanitation:

- Keep the kitchen area clean.
- Wipe down countertops, stove, and cabinets with warm, soapy water.
- Keep food in sealed containers, including pet food that may be stored outside.
- Keep garbage cans covered.
- Take out the trash at least once a week.
- Do not leave water standing in the sink. Water is the most important factor for pest survival.
- Clean out cabinets. Beetles or moths found in the kitchen area may have come from food that is infested. Check foods such as cereals, rice, and grains to see if they are infested. Discard infested food. Vacuum cabinets thoroughly and wipe surfaces clean before the pest control operator arrives. Leave the cabinets empty so the PMP has a clear treatment area. Chemical treatment should be confined to the cracks and crevices of the cabinet because that is where the insect pests will hide. Do not replace cabinet items until the treatment is dry.
- Clean out closets. Beetles or moths found in the bedroom, hall, or closet areas may be coming from clothing or carpeting. Check woolen sweaters and rugs for moth cases or beetle larvae as well as the adult forms. Dry cleaning clothes before storing them will make clothes less attractive to these destructive insects. Dry cleaning after an infestation is discovered will also kill these destructive insects. Thoroughly brushing clothing or rugs outside will also help eliminate these insects. After inspecting and cleaning clothes or rugs, clean out closets and thoroughly vacuum the inside before the PMP arrives.
- Fix leaky pipes that can cause moisture problems. Moisture problems cause mold and fungi to grow. Mold and fungi are used as food by some beetles and other small nuisance insects such as psocids. Chemicals alone cannot effectively control these types of insects unless the moisture problem is solved.

Customer Responsibilities for Exclusion:

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- Repair window screens and doors to keep flying insects such as gnats, mosquitoes, and flies from entering.
- Repair door sweeps to exclude crawling pests such as cockroaches, millipedes, spiders or pillbugs.

2) Evaluating a Company's Customer Service Record: Customer satisfaction is mostly a matter of personal preference.

Ask neighbors/friends to recommend a pest control company they were satisfied with:

- Why did they select that company?
- Have they had bad experiences with other companies?

Ask the prospective company:

- To provide you with a list of references.
- Other things to observe about the company:
 - Does the PMP appear neat and professional?
 - Is your PMP on time?
 - Is the PMP able to answer your questions satisfactorily?

Things that you should be sure of:

- What is your chemical tolerance? Are you sensitive? Are you indifferent?
- Do the proposed techniques fit your lifestyle? If your PMP asked you to carry out all the suggestions for sanitation and pest exclusion listed above, would you be willing to do them? Some pest control companies will do minor repairs such as fixing leaky pipes, repairing window screens, and caulking cracks for an additional fee. Do you need to look for a pest control company that can offer you these additional services?
- Do you prefer monthly, quarterly, or yearly pest control? Some contracts will allow you to call the company only when you have a pest problem. Products have changed over the years so that monthly applications to non-harborage areas are not necessary. Even though most PMPs service monthly, homeowners can investigate other options. The trend is toward more extensive service with fewer trips. One advantage to monthly pest control is that someone is looking at your house regularly to identify pest problems or things that may lead to a future problem. One disadvantage of monthly pest control is that homeowners sometimes insist that PMPs apply a chemical treatment monthly whether there is a pest problem or not. Monthly chemical treatments may not be necessary and may cause undue exposure to the occupants. Would you be willing to have someone monitor your house monthly and apply a chemical treatment as needed? Sometimes it is not even necessary for the PMP to enter the home to take care of pest problems. Most insect pests originate outside the home. Servicing from the outside does not require you to be home when the servicing is done, which is convenient if you have a busy schedule. Outside treatments also reduce inside exposure to occupants. Ask about perimeter treatments.
- If you chose quarterly or yearly pest control, will you be charged if you call the PMP for a problem between scheduled visits? As a rule, materials that are registered for General Household Pest Control will not last for a whole year. However, you are buying the

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expertise of the PMP and that includes inspections of inaccessible voids where insects may occur, such as attics, soffits, eaves, wall voids, built-in furniture, and the like.

- Are the prospective company's prices and service comparable to that offered by competitors? Remember, the lowest price does not always mean the best deal when shopping for pest control service.
- Are you and the pest control company clear on the terms of your contract? Be sure the contract includes the name of the company, the length of service for the contract, what services are covered, and the price.
- Make sure to look for possible exclusion clauses in the contract. Exclusion clauses specify the things that can cause the contract to be canceled.
- Can either you or the pest control company cancel? Will there be penalties assessed if you cancel the contract?
- Is there an arbitration clause or other method to settle possible disputes?
- Ask to see a certificate of insurance. Does the company carry complete insurance coverage with adequate coverage including an "errors and omissions" clause? An "errors and omissions" clause covers things like inadvertent staining on carpets or accidental breakage of items.
- Be sure that the company is licensed by the Arkansas State Plant Board (501-225-1598).
- The contract should be signed by both parties.

Subterranean Termite Control Service. If you have a termite infestation in your home, it is recommended that you **DO NOT** attempt to do your own treatment. Contract the services of a pest management professional (PMP) that is licensed by the Arkansas State Plant Board for "Termite and Other Structural Pest Control." PMPs have training, specialized equipment that is not feasible for a homeowner to purchase, and control products not available to the homeowner. PMPs are trained in special application procedures to ensure the best protection for your home. These procedures include trench applications, drilling, rodding, application to voids that are beyond most homeowner's expertise, and installation of termite bait stations. To be performed correctly, these procedures should be done by a skilled professional.

If you need termite control service, consider the following, in addition to the evaluation criteria listed under General Household Pest Control:

- Ask if the company has experience in dealing with subterranean termites. If they do, ask for the number of years they have worked in termite control, and ask for the number of jobs completed.
- Ask for references to previous subterranean termite work that has been completed.
- Do not feel pressured by a company to buy a treatment on the spot. Take a few days to thoroughly research treatment options and different pest control companies. Termites work slowly and will do little additional damage in the time you take to select a reputable termite control company.
- Compare prices with contract coverage from different pest control companies and get their recommendations concerning the most effective method of treatment for you.
- Make sure that the pest control company makes a complete inspection of the entire building from crawl space to attic.

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- Make sure your crawl space or attic is accessible and does not contain so much clutter that the PMP cannot do a proper inspection. **It is your responsibility to remove any clutter that would impede a thorough inspection.** In order to do the inspection, the PMP should carry protective clothing for crawl space inspections, plus a flashlight, a probe, a moisture meter, and a clipboard to draw a graph of the inspection areas. The inspection should determine the point of termite entry into a structure and the extent of the infestation. The PMP cannot recommend the proper treatment for your structure without a thorough inspection.
- Be sure to get a written report that tells you the location(s) of the infestation(s) and the probable point(s) of entry into the structure. The report should include a graph indicating areas of termite activity. Understand that this is a visual inspection only. Additional damage may be found in concealed or hidden areas. The graph cannot guarantee that all damage is represented. Further inspection by a building expert or structural engineer may be required where extensive damage has occurred. It stands to reason that the older the home, the greater the probability of damage or concealed areas (areas that have been covered or repaired).

Contracts for Termite Control Service:

- Be aware that there are many different types of contracts for termite control. Contract wording will vary from company to company. Contracts also will vary with the type of construction that is being treated. Note that contracts for bait treatments will differ from contracts for soil termiticide treatments. In all cases, read the contract and know what you are getting.
- Termite contracts generally have two sides. Read both sides thoroughly.
- Some companies will offer a contract with a “retreatment only” clause. “Retreatment only” generally means that the company will come out and retreat your house if termites infest the structure after they have treated it. The company will not assume liability for damage done by the termites. There may be a number of exclusion clauses, so be sure to read and understand the contract you sign.
- Some contracts contain a “damage replacement” clause. “Damage replacement” clauses usually mean that the company will replace and pay for any damages incurred by the termites while you have been under contract with the company. There may be a number of exclusion clauses associated with this type of contract also, so be sure to read and understand the contract you sign.
- If your house is constructed with any Exterior Insulating Finishing System (EIFS), synthetic stucco, rigid foam board insulation, or any other decorative facade that is installed below the soil line (below grade), many pest control companies will not issue either a “retreatment only” or “damage replacement” type contract unless contact with the soil is cut off, leaving an inspection space of 6 to 8 inches. The inspection space is now a requirement in the Southern Building Code.
- Any type of construction that will create “conductive conditions,” or conditions that are favorable to termite infestation and survival, will disqualify many homeowners from receiving contracts with “retreatment only” or “damage replacement” clauses. Some conducive conditions are leaking roofs, landscape plants that are too close to the house,

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water sprinklers directed toward the house, and wood-to-ground contact. There are many more.

- Be aware that the contract for treatment of an existing subterranean termite infestation may not be the same as the contract for an annual inspection.
- Make sure you have a contract before any work begins.
- Contracts should contain the name and address of the pest control firm.
- Make sure you know the length of time for which the contract is good.
- Know which parties can cancel the contract and at what anniversary date.
- Look on the back for disclaimers. Look for “small print.”
- Look for an arbitration clause or other methods to settle disputes.
- Ask if the contract makes any distinction between the Formosan subterranean termite and native subterranean termite. Any company whose contract makes a distinction probably realizes the need for this separation. Research indicates that the Formosan subterranean termite is more aggressive and may cause significant damage in a shorter period of time compared to native subterranean termites. **BE AWARE THAT FORMOSAN SUBTERRANEAN TERMITES HAVE NOT BEEN FOUND IN ARKANSAS TO DATE.**
- Remember that the wording of the contract is only as strong as the parties involved. Make sure the company with which you contract has adequate coverage and the financial stability to perform all contractual obligations.

You can always call the Arkansas Agriculture Department / Arkansas State Plant Board, 501-225-1598, or <https://www.agriculture.arkansas.gov/plant-industries/> and ask if the company with whom you may contract has any outstanding complaints. If they do, ask for the nature of those complaints. The state law dealing with pest control in Arkansas is known as Circular 6 - ARKANSAS PEST CONTROL LAW, A.C.A. 17-37-101 through 17-37-107 and 17-37-201 through 17-37-221. The most recent revision (revised August 2, 2019) can be viewed online at [Circular 6 Arkansas Pest Control Law](#).

If you have other questions or if you want to verify the identity of an insect infesting your home, you may contact your local Cooperative Extension office (contact information is available at http://www.uaex.edu/findus/county_offices.htm).

By being familiar with the things discussed above, you can be confident in your choice of a pest management professional. Pay attention to the value and the service you expect for the price you pay. Also, remember that good pest control cannot be achieved without your cooperation and attention to things you are responsible for doing.

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Fall and Winter Pests of Livestock

Kelly M. Loftin

With this being the last issue of Pest Management News for 2020, I thought it would be worth mentioning potential pests concerns that could become a problem before our newsletter resumes next spring. A little bit of knowledge and planning now can prevent pest problems that we may face in the upcoming winter and spring.

Fall Treatment for Horse Bots

Killing frosts signals the best time to treat our horses for bots and some regions of the state have received at least one killing frost. Even those that diligently remove bot eggs throughout the summer and fall should treat their horses and mules for horse bots. Although the adults are free living and do no direct harm to horses, their immature stages (larvae) can cause damage to the stomach lining which can lead to major health issues including colic.

Horse Bot Flies (Family Gasterophilidae). Horse bot flies are in the family Gasterophilidae. 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 thus do not feed. Adult activity begins in warm weather and ceases at the first frost.



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



Figure 2a. Eggs of the bot fly, *Gasterophilus intestinalis* (DeGeer), deposited on the hairs of a horse's foreleg. (Kelly M. Loftin)

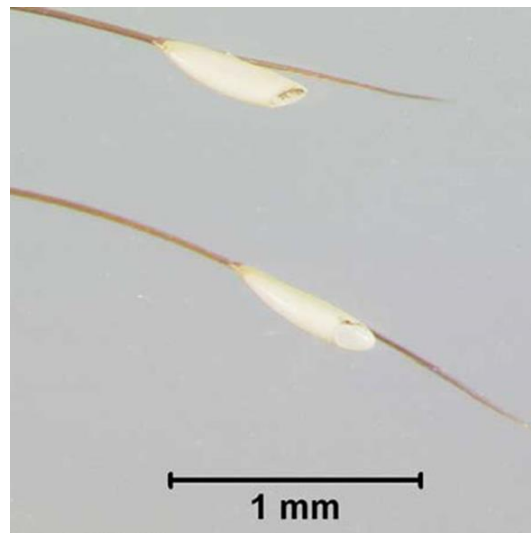


Figure 2b. Eggs of the bot fly, *Gasterophilus intestinalis* (DeGeer), deposited on the hairs of a horse's foreleg. (b. University of Florida)

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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 stalkless; 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 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 (Figure 3). In the spring larvae (Figure 4) detach from the stomach and are passed with feces and pupate (Figure 5) 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 larvae attach to the rectum near the anus; and the mature throat bot fly larvae attach in the duodenum (first section of small intestine) near the pylorus.



Figure 3. Bot fly larvae, *Gasterophilus nasalis* (L.), attached to the pyloric region of horse stomachs. (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)



Figure 4. Bot fly larva, *Gasterophilus intestinalis* (DeGeer). (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)



Figure 5. Pupa of bot fly, *Gasterophilus nasalis* (L.) (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)

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Chemical control of bot flies is aimed at the parasitic stage within the horse. Avermectin formulations containing products such as ivermectin or moxidectin are available for bot fly control in equines. These products are relatively easy to use, fall treatments should be administered after fly activity ceases (generally after the second killing frost). The “Insecticide Recommendations for Arkansas - 2020”(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.

Non-chemical bot fly control is aimed at the eggs. Equine owners can frequently sponge the horse with warm water or 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 can 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 should reduce the number of bot fly larvae ingested by the animal but will not control any larvae that were unaffected and ingested. Because of the seriousness of bot fly infestations, 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 that have bot fly eggs on their hair. 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.

Lice

Cattle, goat, sheep, and horse owners need to at least think about lice on their livestock this winter. In many cases, the potential for severe direct economic losses in cattle caused by biting or sucking lice is fairly low. However, heavy infestations add to the stress of cold weather, shipping, poor nutrition, and internal parasite load. Lice are generally most abundant on animals during the period of greatest winter stress and continue through early spring.

Why are lice a winter pest? Generally, lice do not survive well in the summer because hot temperatures are lethal to the insect. However, a small percentage of animals may serve as chronically infested “reservoir” animals. A few lice on the reservoir animals survive on cooler areas of the body such as the ear tips. As temperatures cool, louse abundance increase resulting in the movement onto louse-free animals. Crowded conditions that often occur at winter feed troughs exasperate this spread.

Lice are small ($\frac{1}{10}$ to $\frac{1}{8}$ inch), wingless, species-specific external parasites of livestock and poultry. Two species occasionally infest equines: the horse sucking louse (*Haematopinus asini*) (Figure 1) and the horse biting louse (*Bovicola equi*) (Figure 2). In cattle, one species of biting lice, the cattle biting louse (*Bovicola bovis*) and three species of sucking lice; the shortnosed cattle louse (*Haematopinus eurysternus*), the longnosed cattle louse (*Linognathus vitula*), cattle tail louse

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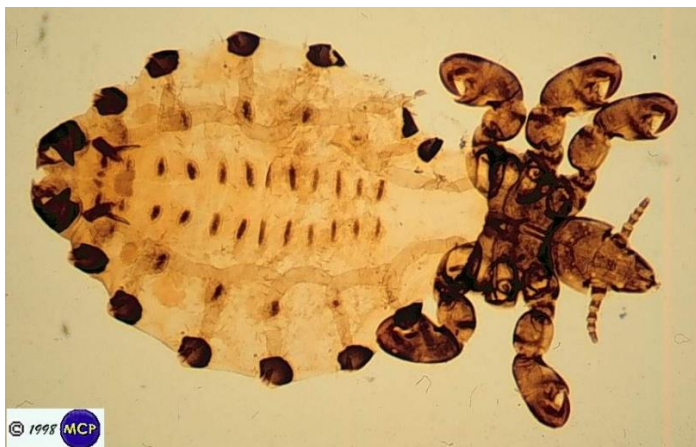


Figure 1. Sucking louse, *Haematopinus* sp. (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)

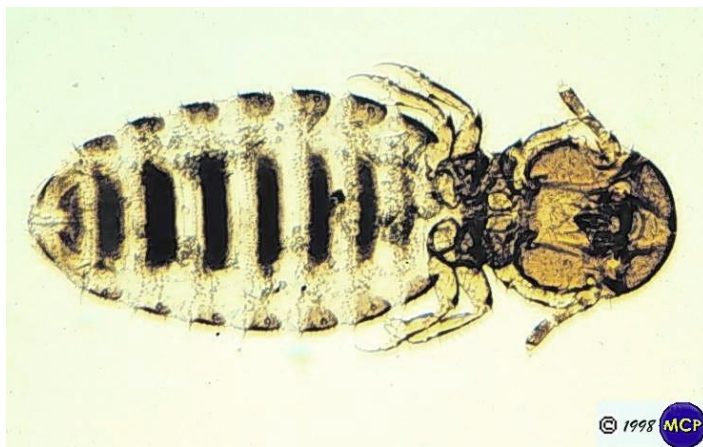


Figure 2. Horse Biting Louse, *Bovicola equi* (Denny). (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)

(*Haematopinus quadripertusus*) and the little blue cattle louse (*Solenoptes capillatus*) occur. Sucking lice pierce the skin and suck blood while the biting lice move about on the animal chewing hairs, skin, and secretions. Both types of lice are problems during the winter and early spring but as mentioned earlier reproduce year-round at least on some animals. Lice are spread from animal to animal by direct contact such as shipping or feeding. Animals infested with lice will have an unkempt coat, scaly skin, and possibly raw areas on the skin. Infested animals will scratch and rub to relieve the itching caused by lice. Often in heavy infestations, clumps of hair will fall off. Weight loss or reduced weight gain can occur with heavy louse infestations.

Lice can produce multiple generations per year, thus allowing numbers to become high if uncontrolled. All louse stages (egg, nymph, and adult) are found on the animal. Adult female lice glue eggs (called nits) to hairs (Figure 3), eggs hatch into nymphs in about 10 to 15 days, and after three molts, nymphs become adults. It requires about 1 month for an egg to develop into an adult.

In cattle, light louse infestations are easily overlooked. Heavier infestations are easier to recognize by animals' rubbing and loss of hair. A lice population on cattle can be estimated by examining five one-inch square areas on the face, face, dewlap, neck, back and base of the tail. Lice populations on cattle are usually categorized as very slight (less than 5 per square inch), slight (5-10 per square inch), moderate (10-20 per square inch), severe (20-50 per square inch) and very severe (over 50 per square inch).

Louse infestations are identified more quickly in horses because they are routinely groomed. Horses infested with lice will have an unkempt coat, scaly skin, and possibly raw areas on the skin. Infested



Figure 3. Louse eggs (nits) attached to horse hairs. (Marcelo de Campos Pereira, <http://www.icb.usp.br/~marcelcp/>)

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animals will scratch and rub to relieve the itching caused by lice. Weight loss or reduced weight gain can occur with heavy louse infestations.

Good nutrition that includes a high energy diet usually reduces the negative effects of lice infestations on livestock and is the foundation of a louse control program. Sufficient nutrition will allow the animal to better deal with blood loss and irritation. Another very important component of lice prevention is to assume that all purchased or “new” animals are infested. With this said, new animals should be isolated from the rest of the herd until a full course of louse treatment is completed.

Insecticides used for louse control are divided into two major groups; systemic products (includes some synthetic organophosphate insecticides and endectocides) and non-systemic products (primarily pyrethroids). For winter treatment of lice on cattle, selection of the right insecticide is crucial. Winter applications of endectocides containing doramectin, ivermectin, moxidectin; and systemic organophosphate insecticides such as phosmet may trigger an adverse host-parasite reaction if cattle grub larvae are in a critical stage of migration in the cattle. When lice infestations are detected during the winter months in **cattle that were not previously treated for cattle grubs before Oct. 15**, non-systemic products containing permethrin/diflubenzuron, cyfluthrin, permethrin, zeta-cypermethrin, gamma-cyhalothrin, and lambda-cyhalothrin are recommended. Also remember that products registered for use on beef cattle may or may not be approved for use on lactating dairy cattle so consult the label before purchase. In horses, synthetic pyrethroids such as permethrin and organophosphate insecticides such as coumaphos may be used to control louse infestations). Consult the animal section of the “Insecticide Recommendations for Arkansas - 2020” (MP 144 http://www.uaex.edu/Other_Areas/publications/PDF/MP144/MP-144.asp) for a listing of insecticides available for louse control.

Minimize Hay Wastage

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 damaging stable fly population. All these ingredients come together in areas where hay was wasted.

Practices 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.



A typical stable fly breeding site – hay ring feeder. (University of Missouri Extension Service).

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Fall and winter to-do List for Blackberry

Aaron Cato

After blackberries are harvested there are still many pests that need to be monitored and controlled throughout the fall and winter months to ensure that yields are not impacted in the following year. First, maximize on cultural control tactics to reduce pest numbers across insects, diseases, and weeds. Next, use the following specific recommendations for management of insects, diseases, and weeds during the fall-winter months, and consult the *Southeast Regional Caneberry Integrated Management Guide* - <https://smallfruits.org/files/2020/01/2020-Caneberry-Spray-Guide.pdf> for specific recommendations.

Cultural Control Tactics

1. Remove all harvested floricanes (second-year canes) and burn them outside of the planting. This will lower disease inoculum within plantings significantly.
2. Maximize efforts in weed management to help increase airflow between rows of blackberries. The base of first-year canes are generally hardened-off enough by August to not be injured by directed applications of paraquat.
3. Clean up field edges and hedgerows to maximize airflow into plantings and remove all nearby wild blackberries where possible.
4. Nitrogen should be avoided in early-Fall as it can lead to excessive foliage and overall decreased airflow around canes.
5. Overhead irrigation should be avoided if possible. Anthracnose infection is much more likely when canes and leaves stay wet for extended periods of time.
6. Remove all damaged or galled first-year canes. Prioritize keeping healthy canes when pruning, as damaged or galled canes will have reduced yield and will increase risk of damage from insects and disease.

Insect Management

After harvest there are still a few important insect pests to consider in blackberry through the dormant stages. First, scouting for broad mite should continue into the early-fall months. If damage is observed, control is warranted especially in early fall while canes are still growing. Second, if raspberry crown borer is known to be an issue or damage to crowns is observed, a soil drench of Brigade or Altacor in a 50 to 100-gallon solution should be applied late October-early November. This application will control newly hatched larvae as they move down to the base of plants to bore into the crown of the plant. Third, all first-year canes that have galls from red-necked cane borer should be pruned out during winter pruning. If greater than 5% of canes are galled, weekly foliar applications may be warranted during May-June to suppress the population.

Disease Management

Maximizing cultural control tactics will be key in preventing serious disease issues. Early-Fall disease risk can be lowered by immediately removing floricanes after harvest to reduce disease inoculum. This should be combined with heavy winter pruning to remove all heavily diseased canes, such as those with anthracnose lesions that have begun to crack. All pruned canes should be removed from the planting and burned. Any additional measures that can be done to increase airflow and decrease the amount of inoculum present should be prioritized during the Fall and Winter months before susceptible plant material emerges in the Spring.

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In addition to these cultural practices, regular fungicide applications should continue after harvest to lower the amount of inoculum present. Captan every 10-14 days (depending on rainfall) should be used as a baseline protectant program post-harvest until temperatures drop. An addition of Quilt Xcel with captan should be considered to enhance prevention of Anthracnose issues and cleanup both leaf spot diseases and cane and leaf rust. After dormancy is reached, fungicides will not be necessary until the delayed-dormant application of Lime-Sulfur or Sulforix once the green tip growth stage is reached. If diseases from nematodes are suspected, samples should be taken in the fall with county agents to determine the scale of the potential problem.

Weed Management

Starting off the new year with a host of weeds will only compound problems for next year, and early-fall is a good time to control many perennial weeds. Paraquat can be used to burn down weeds around the base of canes after berries are harvested but should only be used in plantings established for 1 or more years. The base of young/green canes can be injured by paraquat sprayed around the base of plants, but established plants in the fall months should be fine. Other herbicides such as a simazine can be added to paraquat to enhance control of many weed species.

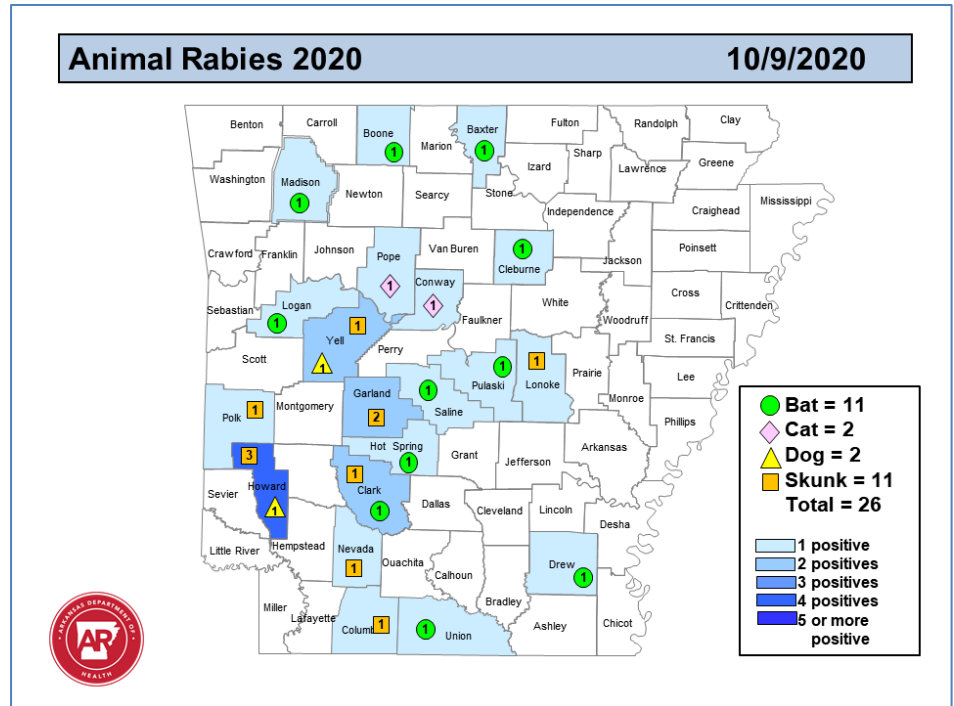
Tillage can be used to maintain weed-free strips when plants are dormant, generally around the same time as winter pruning. Tillage should be limited to a depth of 2-3 inches to prevent injury to the root systems of established blackberries. Pre-emergent herbicides should be used after any tillage event to prevent germination in freshly tilled soil, especially when soil temperatures are still conducive for weed emergence.

If you have any questions please feel free to call or email me, and follow my twitter account for updates: Mobile: 479-249-7352 Email: acato@uaex.edu Twitter: @aaronjcato

Rabies in Bats and Skunks

Becky McPeake

Rabies is a viral disease which can be transmitted between animals and people. Once someone is bitten, it is often fatal unless treatment is provided soon after exposure. A recent report from the Arkansas Department of Health shows a number of bats and skunks in the state testing positive for rabies. Additionally, a couple cats and dogs have tested positive. Presumably, most pet owners vaccinate their dogs and cats. Be cautious when approaching any unknown pet, but especially stray cats or dogs, as they are at higher risk of carrying the disease.



Normally it is illegal to kill bats and other non-game species in Arkansas. According to the Arkansas Game and Fish Commission, “Bats that have bitten or otherwise potentially exposed a human, pet or livestock to rabies may be killed, provided that they are submitted to the Arkansas Department of Health for rabies testing.” Most bats are healthy and provide a service by consuming insects at night. A bat found in daylight on the ground is not normal and could be a candidate for rabies. In this instance, do not attempt to capture or kill the bat to limit your exposure, and keep pets away from the bat. Contact a local animal control service or the Arkansas Game and Fish Commission (<https://www.agfc.com/en/>) for assistance.

The Game and Fish Commission allows taking striped skunks which are causing damage to personal property during daylight hours. Skunks are active at night, or early morning or late evening. A skunk acting abnormally any time, but especially wandering during daylight hours, is suspect. Contact a local animal control service or the Arkansas Game and Fish Commission for assistance. If assistance is unavailable when dispatching a suspect animal, avoid damaging the head where tissue is tested for the virus.

For more information, the UA Cooperative Extension Service has a fact sheet titled “Rabies,” FSA8018 (<https://www.uaex.edu/publications/pdf/FSA-8018.pdf>).

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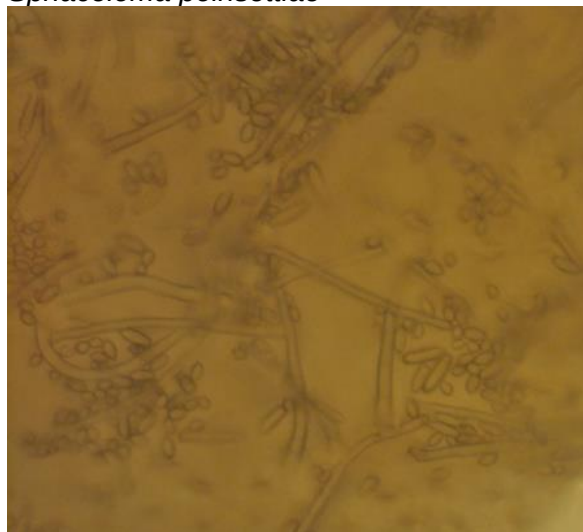
Poinsettia Scab

Sherrie Smith

Poinsettias remain our most popular holiday plant, with over 65 million sold each year in the United States. Poinsettia Scab caused by the fungus *Sphaceloma poinsettiae* can be a destructive disease in poinsettia production systems. Scab can infect both stems and leaves. Small round spots form on the leaf blade, most often on the mid-vein or lateral veins where they may coalesce. The spots develop whitish to brown centers, have a dark red to purple border, and often show a yellowish halo. A prominent feature of the spots is that they buckle out from the upper leaf surface. Sporulation causes the lesions to change from white to a velvety brown. Stem lesions are whitish in color, becoming brown with sporulation, and sometimes surrounded by red pigmentation. The fungus produces a growth regulating hormone that causes an affected shoot to super elongate. Infected plants may tower six inches or more above the rest of the crop. Disease is favored by high humidity and wet growing conditions. Diseased plants should be removed from the greenhouse and destroyed. Heritage, mancozeb, chlorothalonil, or chlorothalonil-thiophanate mixes have been found effective when applied protectively.

Poinsettia Scab 'fawcetti' conidia

Sphaceloma poinsettiae



Sherrie Smith, University of Arkansas Cooperative Extension

Poinsettia Scab shoot elongation

Sphaceloma poinsettiae



Sherrie Smith, University of Arkansas Cooperative Extension

Poinsettia Scab leaf lesions

Sphaceloma poinsettiae



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New Study Finds Some Mosquito Control Products Aren't Worth Their Salt

Jon Zawislak

Consumer mosquito traps have been promoted in recent years claiming to effectively kill mosquitos using a mixture of water, salt, sugar, and yeast. Manufacturers claim that the traps attract mosquitos using CO₂ produced by the yeast, but mosquitos die after they enter the trap and ingest the salt-water solution. This simple eco-friendly approach to pest control is attractive to the consumer, and widely marketed. But does it work?

New research from an international team of scientists, published in the [Journal of Medical Entomology](#), suggests that this method may not hold water. The study included nine different species of mosquitos in the genera *Aedes*, *Anopheles* and *Culex*, which are responsible for the majority of mosquito-vectored illnesses, including malaria, West Nile virus, Zika virus, and others.

In caged laboratory trials, mosquitos were offered their choice of water, salt water, sugar water, or a salt-sugar-water mixture based on the listed ingredients of popular mosquito control products. The researchers monitored mosquito mortality for 7 days and consistently found no adverse effects to the mosquitos from ingesting salt solutions.

Lead study author Dr. Donald Yee, a professor of biological sciences at the University of Southern Mississippi, was surprised by the findings. "We'd expect there to be a lot of variation in responses to the diets we offered, but broadly speaking, adding salt to plain water or sugar water didn't lead to increased mosquito death. Adults mosquitoes just don't die faster because they drink salt water," stated Yee in a press release.

Considering that blood from humans and other animals contains salt, it shouldn't be surprising that mosquitos are able to cope with salt in their diets. Human blood normally contains around 0.9% salt, while the slightly higher concentration used in the tests, 1.03%, was based on the labels and descriptions of commercially available products.

"If mosquitoes could not deal with salt, then they likely would have evolved away from blood feeding millions of years ago," said Yee.

Consumers can use this knowledge to spend their money wisely and protect their health. Purchasing mosquito-control products with unsubstantiated claims can give a false sense of security. A number of simple recommended practices and products have been repeatedly proven to reduce risk of exposure to mosquito-borne disease:

- Regularly dump outdoor standing water (from bird baths, flowerpots, tires, and toys) to eliminate locations where mosquitoes lay their eggs.
- Treat standing water with insecticides that kill mosquito larvae.



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- Wear long sleeves and pants when outdoors or avoid going out when mosquitoes are most active (dusk and dawn).
- Use repellent sprays with DEET or other EPA-approved chemicals.

Consult the publication [MP144 2020 Insecticide Recommendations for Arkansas](#) for currently recommended treatment/repellent options to avoid products with unsubstantiated claims. As with most things, if it sounds too good to be true, it probably is.

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ID the Weed Parts

Tommy Butts

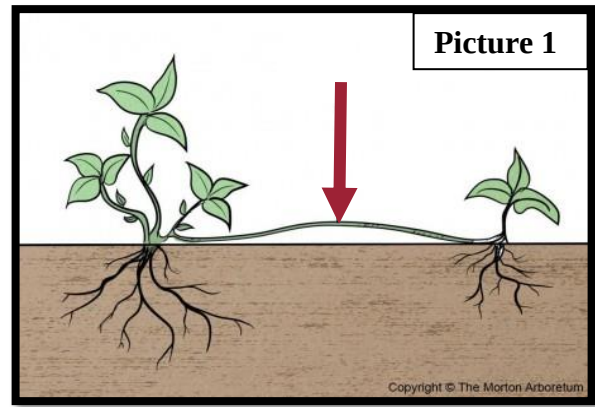


This month's weed science contest, "ID the weed parts," looks at a couple of plant structures that can help identify weed species and also complicate our management strategies.

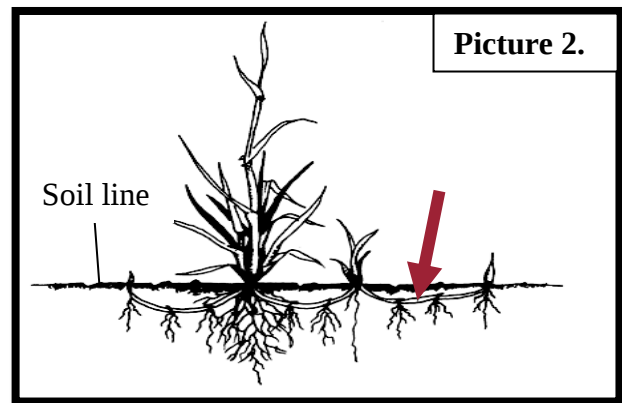
The first weed structure can be seen in Picture 1. It is a creeping horizontal plant stem above the soil surface that can take root and form new plants along its surface. The second weed structure can be seen in Picture 2. This weed part is an underground horizontal plant stem (yes, that's right, it's actually an underground stem!) that has the capability of producing new roots and shoots along its surface.

These structures make weeds highly invasive and difficult to control. Some traditional methods, such as tillage, are not effective at managing weed species with these attributes and can actually make the infestation worse by chopping and spreading plant parts capable of producing new plants. Timing of herbicide applications becomes critical to successfully kill these weed species. Oftentimes, a fall herbicide application may be the most successful at controlling these types of species as plants are taking food reserves and storing them in these plant structures to survive the winter. If a herbicide is applied at this time, more herbicide active ingredient will be translocated to these structures thereby increasing control.

Be the first to email me at tbutts@uaex.edu with ALL FOUR of the correct answers and win a prize!



1. What weed structure is the red arrow pointing to (Picture 1.)?
2. What is an example of a weed that has this structure? (Picture 1) (select one answer)
 - a. Pennsylvania smartweed
 - b. Centipedegrass
 - c. Rice flatsedge
 - d. Hemp dogbane



3. What weed structure is the red arrow pointing to (Picture 2.)?
4. What is an example of a weed that has this structure? (Picture 2) (select one answer)
 - a. Pennsylvania smartweed
 - b. Centipedegrass
 - c. Rice flatsedge
 - d. Hemp dogbane

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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