UNIVERSITY OF ARKANSAS
DIVISION OF AGRICULTURE
Cooperative Extension Service

Pest Management News

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Letter #1 **May 31, 2008**

How to Submit an Insect Sample for Identification

John D. Hopkins

If you or your clients encounter an insect that you suspect is causing a problem and you do not know what it is, send a sample in for identification. However, a specimen that arrives in poor condition (taped to a piece of paper, smashed and rotting in a plastic bag or envelope, or with little or no information concerning the circumstances of capture (when, where, description of damage or problem, or host plant if a plant pest) may prevent you from finding out the information you need. In addition, a good, in-focus digital photo may get you an instant ID, but if the specimen cannot be identified by photo, then you need to follow the procedures listed below.

The first step in insect identification is to **collect** a proper sample. Some collection equipment that you will find useful includes:

- Sweep or beating net-heavy cloth bag used to beat or sweep foliage to collect insects
- Aerial or butterfly net—used to catch flying/jumping insects, flies, wasps, bees, butterflies, moths or grasshoppers
- Q-tip or a camel's hair brush dipped in alcohol – used to collect small insects

Be sure to record facts about the specimens when collected. Always send more than one specimen (If at all possible). Don't jam-pack the insects into the shipping container. If the specimen is mutilated, don't send it. Find a better sample.

The second step in getting your specimen identified is to be sure you **preserve** it properly.

- After collection, the specimen should be quickly killed to avoid damage.
- Most insects like **beetles, true bugs, bees, wasps, ants, aquatic insects and spiders**, may be killed by placing them in a vial containing 70 percent alcohol (common rubbing alcohol).
- **Larvae**, especially white grubs and caterpillars should be killed through a special process that will prevent darkening of the tissues after they are placed in alcohol.
  - ✓ You should drop the living larvae into water that has just reached the boiling point.
  - ✓ Remove the water from the heat source and let the larvae remain in the water until the water cools.
  - ✓ Remove the specimen from water and pat dry with a paper towel.
  - ✓ Then transfer the larvae into alcohol.
- **Moths** and **butterflies** are best identified from dry specimens.
  - ✓ Kill by freezing.
  - ✓ Carefully place dead moths or butterflies between wax paper to protect the scale-covered wings.
  - ✓ Place these specimens (including wax paper) into an envelope (do not crush).
  - ✓ Put envelope inside a mailing tube or crush-proof box
- **Galls, damaged plant material, and plant material with scales, mealybugs and aphids** can be carefully wrapped in soft tissue, boxed and submitted.

Do not apply scotch tape directly to a specimen or crush the insect and mail it in an envelope or plastic bag.

The third step in getting your specimen identified is to **properly package** it for shipment.

- Make sure the container holding the specimen is leak proof.
- Wrap the container holding the specimen securely in bubble wrap or other packing material to prevent breakage during shipping.
- If necessary, cushion the container with additional packing material when shipping.
- If dry specimens are to be shipped, insure that they remain dry and are not crushed.
- Carefully package dry specimens in a crush proof container.
- Ship insect specimens to arrive Monday through Thursday.
- Mail to appropriate Extension Entomologist.
  - ✓ John Hopkins, Extension Entomologist, 2301 S. University Ave., Little Rock, AR 72203, 501-671-2217, jhopkins@uaex.edu
  - ✓ Kelly Loftin, Extension Entomologist, Cralley-Warren Research Center, 2601 North Young Avenue, Rm 6, Fayetteville, AR 72704, 479-575-3462, kloftin@uaex.edu
  - ✓ Gus Lorenz, Extension Entomologist/IPM Coordinator, 2001 Hwy 70 E, Box 357, Lonoke AR 72086, 501-676-3124, glorenz@uaex.edu
  - ✓ Glenn Studebaker, Extension Entomologist, Box 48 NEREC Keiser AR 72351, 870-526-2199 Ext. 108, gstudebaker@uaex.edu
  - ✓ Scott Akin, Extension Entomologist, P.O. Box 3508 Univ. of Ark. at Monticello, Monticello, AR 71656, 870-460-1091, akin@uamont.edu

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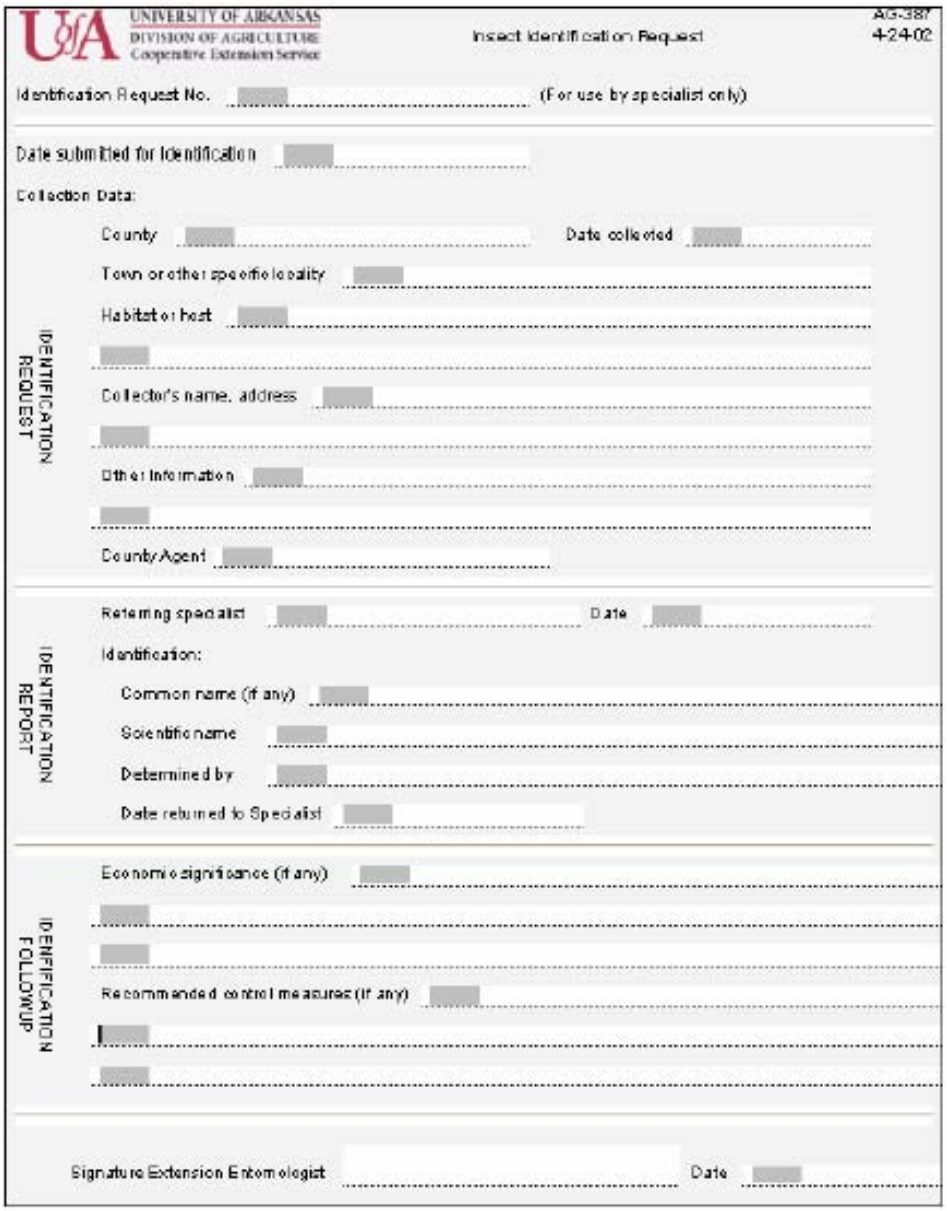
- Enclose a properly filled-out Form AG-387 “Insect Identification Request” – See next Page.



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Insect Identification Request

AG-387
4-24-02

Identification Request No. _____ (For use by specialist only)

Date submitted for Identification _____

Collection Data:

IDENTIFICATION REQUEST

County _____ Date collected _____

Town or other specific locality _____

Habitat or host _____

Collector's name, address _____

Other Information _____

County Agent _____

IDENTIFICATION REPORT

Returning specialist _____ Date _____

Identification:

Common name (if any) _____

Scientific name _____

Determined by _____

Date returned to Specialist _____

IDENFIFICATION FOLLOWUP

Economic significance (if any) _____

Recommended control measures (if any) _____

Signature Extension Entomologist _____ Date _____

Horn Flies Reaching Treatment Levels

Kelly M. Loftin

Horn fly, *Haematobia irritans*, populations on cattle have reached treatment levels in several Arkansas locations. This blood feeder is the most economically important pest of cattle in Arkansas. The U.S. losses are greatest to lactating cows and growing calves. High populations cause both significant blood loss and annoyance. Annoyance results in energy losses associated with combating the flies or changes in grazing behavior. Horn flies reduced milk production, which led to a significant

reduction in calf weaning weights. This effect on calf weaning rates is well documented. Studies have shown that effective horn fly management can easily result in a 12 – 30 pound increase in calf weaning weights. Significant losses in stocker cattle have also been reported.

A horn fly is about half the size of a house fly and spends most of its time on the back, head and shoulder of its host. However, during very hot or rainy weather they often move to the belly. In addition to being smaller than the house fly, horn flies can be differentiated by its piercing mouthparts that resemble a beak. Horn flies only leave the animal for laying eggs on fresh cattle manure (less than 10 minutes old). Both sexes feed on cattle and take 20 to 40 blood meals per day. Although rare, populations of up to 10,000 per animal have been documented, but normally this extreme is not reached. Development from egg to adult requires from nine to 12 days. Larva hatch and develop within the manure. Mature larvae migrate to the lower portion of the manure pat or in the soil to pupate. Adults immerge from pupa after about five or six days. After the adult emerges, it seeks a host to begin blood feeding and mates as early as two days following emergence. An adult female may begin laying eggs three days after emergence and may lay up to 400 eggs during her lifetime. With such a short development cycle, many generations per year are possible, making it a very good candidate to develop insecticide resistance, especially in the southern areas of the U.S.

Horn flies survive the winter as pupae in the soil. In the spring, overwintering pupae emerge into adults. In Arkansas, two seasonal population peaks occur, one in the spring and one in the late summer or early fall. Because horn fly development favors warm moist climates, populations decline in the hot dry months of summer.

Complete elimination of horn flies from cattle is not practical. Most research suggests that economic damage occurs in beef cattle when 150 to 200 horn flies per animals are present. For lactating dairy cattle, this threshold is about half (75 – 100) that number. Initiation of control strategies once 175 flies per beef cow will prevent flies from reaching a level where losses occur.

Monitoring horn fly populations is a very important component in managing this pest. Populations are monitored by counting the number of horn flies on the heads, shoulders, backs, bellies and legs of at least 10 cows. Average counts approaching 200 horn flies per animal (beef) indicate flies are causing an economic loss, and that control measures are necessary. If the cattle are wary when approached, try taking counts from a vehicle that the animals are accustomed to seeing. Oftentimes, binoculars are necessary to obtain accurate counts.

Horn fly control methods vary widely. Insecticide-impregnated ear tags, self-treatment devices such as back rubbers and dust bags, pour-on insecticides and sprays are the most common method of applying contact insecticides. Other methods include: feed additives or boluses containing insect growth regulators and walk-through traps. The walk-through trap is a non-chemical method that traps flies that are brushed off the animal as it passes through the trap. Arkansas demonstrations have shown that under specific management systems, this trap can subdue horn flies levels below the treatment threshold and is valuable in managing insecticide resistance.

Insecticide-impregnated ear tags are economical, easy-to-use and can provide long-term control. As a result of these attributes, ear tags are often overused or misused, resulting in insecticide-resistant horn flies, especially in the South. Insecticide misuse and other factors such as the short generation

time (two weeks) and multiple generations per season (~ 10) have contributed to the resistance problem. The active ingredients of insecticide-impregnated ear tags fall into three broad chemical categories: pyrethroids, organophosphates and organochlorines. In addition, some insecticide ear tags are mixtures of two insecticides. Some ear tags also include piperonyl butoxide that acts as a synergist, making the insecticide more toxic to the horn fly.

If ear tags are going to be used, a few suggestions should be followed to delay insecticide resistance. Page 31 of the “Insecticide Recommendations for Arkansas” (MP144) lists insecticide-impregnated ear tags and their chemistry.

1. Base ear tag application on horn fly population. If ear tags are applied too early, they may fail late in the season because of normal loss of insecticide activity or possibly resistance.

2. Target control to get the most of your application. For example, treating lactating animals will help maintain calf weaning weights.

3. Rotate the insecticide chemistry. Do not use the same insecticide class year after year. Instead rotate pyrethroid, organophosphate and organochlorines ear tags.

4. Remove insecticide ear tags when they are no longer effective, in the fall or according to the label recommendations.

5. Read the label. Different brand names of tags may have the same active ingredient. The label will tell you how many tags to use (one or two) and when to remove the tags. Also remember, not all tags are labeled to use on lactating dairy cattle.

6. Consider alternating application methods such as self treatment devices, sprays, mechanical trapping, feed additives, pour-on insecticides, etc.

Close-up of horn flies on bull and below horn flies on belly of Hereford.

Horn flies on belly of Hereford.

Dairy cattle passing through a walk-through horn fly trap.

Anthracnose Diseases of Landscape Trees

Stephen R. Vann

Anthracnoses are plant diseases that usually affect the foliage and stems of our landscape ornamentals. The anthracnose diseases of our common landscape trees and shrubs may be actually caused by several unique fungal microorganisms. The most common fungi include members of the genera such as *Discula*, *Kabatiella* and *Apiognomonia*. These microscopic organisms produce thousands of spores on infected plant tissues during wet weather. These spores are responsible for the rapid spread of the disease during the early spring months on our maple, sycamore, dogwood and ash trees. Cooler temperatures in conjunction with excessive rainfall during April of this year have lead to quite a bit of anthracnose on these shade trees.

The fungal microorganisms which cause anthracnose diseases on most trees usually affect the above-ground portions of the plant. The most common symptoms are found on the stems and/or leaves. After the fungus gains entry into the leaves or stems through either wounds or by direct penetration, death of the surrounding tissue often develops quickly. If relative humidity or moisture is high in the plants' environment, twig dieback and defoliation often result. Thus, anthracnose diseases are most devastating during the spring when rainfall is common and temperatures are cool (60 – 65 F).

Selective pruning in conjunction with sanitation is the most effective tool in managing the anthracnose diseases. Dead twigs should be pruned and destroyed. Pruning is most effective when done during the dormant season when the fungal organisms are least active. Pruning cuts should be made four – six inches below the area where dead and living tissues meet on the stems or twigs. The dead wood (canker) is important in the survival of the fungus from one season to the next. Since the anthracnose fungi may survive on dead leaf tissue, leaves should be raked and burned if allowed in the community. If burning is not permitted, leaves should be removed from the area.

Sycamore Anthracnose

Maple Anthracnose

Trees and shrubs considered to be "high value" specimens can be sprayed with a protectant fungicide. The best time to apply a protectant fungicide is the fall, before leaves fall. Complete

coverage of the tree or shrub during the fall is important for chemical control to be effective. Spraying taller trees may not be economical in some cases.

Landscape trees and shrubs should be watered and fertilized properly to maximize vigor. Fertilization should be based on regular soil tests. In many instances, a stressed plant is often more susceptible to anthracnose and other infectious diseases. Promoting good plant growth is an integral part of disease management.

What's Digging In My Yard?

Becky McPeake

Have you ever wondered what's making this hole in my yard? It's time to put on your detective hat. Sometimes it can be a matter of curiosity. Or it could be an indicator of a problem that needs to be addressed. As with any weed or pest, identification is key before appropriate strategies and options can be determined.

Oftentimes, the first clue is the diameter of the hole and whether dirt has been thrown from the hole. Small dime-size holes could be made by insects such as burrowing wasps, yellow jackets, or cicadas that emerge when the weather becomes hot. During peak cicada years, these holes can be quite numerous.

Small holes with a surrounding chimney of dirt is evidence of crayfish, particularly in yards where water is present or the water table lies just beneath the soil surface. There is no remedy for crayfish tunnels in yards other than draining water from the yard or physically removing each crayfish. Insecticides cannot be used, since they are not labeled for crayfish and can contaminate groundwater.

Hole sizes of one inch to one and three-eighths of an inch, without surrounding dirt, indicate a mouse-sized critter. If surface trails of one to two inches are visible in the grass, the culprit is probably a vole, also called field mouse. The safest method is to use mouse snap traps (baited with peanut butter), particularly if neighborhood pets are present.

Vole photo by Joe Kosack, Pennsylvania Game Commission.

Because voles are in the rodent family, using toxicants labeled for mice control can be used, but there are risks involved. Keep the bait covered and remove dead specimens immediately to prevent non-target species from ingesting the toxicant.

Subsurface tunneling with mounding activity is most likely pocket gophers, though occasionally, moles create mounds. Surface holes are typically one to one and three-eights of an inch in diameter and are plugged with dirt. Newly-formed mounds of pocket gophers are crescent or kidney shaped, whereas moles create volcano-shaped mounds. Both create subsurface tunnels which can kill grass when roots become separated from soil. Pocket gophers consume roots and plant material, while moles seek primarily grubs and earthworms for their meals. Both can be controlled with lethal traps (of different designs) purchased at farmer co-ops or local home and garden centers.

Holes of one and one-half to two inches in diameter with no throw dirt present at the opening could indicate Eastern chipmunks. They only eat seeds and nuts, so plant damage typically isn't a problem. Sometimes their tunneling causes damage to foundations and decks. Live traps are an option for removing and relocating them.

Norway rats use existing holes or occasionally dig their own burrows for nesting. Hole sizes rage from two inches to three and one-fourth inches in diameter. Typically, these are next to buildings, under loose boards or other covering. Live traps, snap traps or toxicants can be used to lethally remove Norway rats.

Chipmunk photo by Jacob Dingel, Pennsylvania Game Commission.

Armadillos live in larger burrows of seven to eight inches in diameter with substantial throw dirt, though the throw dirt may become less evident with use. Tracks and trails should be visible. They can be live-trapped and relocated.

Groundhogs (also called woodchucks) also have large burrow entries from five and one-fourth to six and one-fourths inches tall and six to 11 inches wide or larger. They have very visible throw mounds with anywhere from two to ten entrances. Removing habitat and live trapping are two options.

In northeastern Arkansas, badger sightings are being reported. Their burrows can be from six inches to 10 and one-half inches tall and seven inches to 10 and one-half inches wide. They have characteristic throw mounds which fan out from their entrances. Arkansas Game & Fish Commission is keeping track of badger sightings. Contact the Jonesboro Regional Office, if

Woodchuck photo by Pennsylvania Game Commission.

you find one on your property (877-972-5438).

Because many wildlife species use tunnels constructed by other critters, it is wise to use all available clues to verify the inhabitant. One trick is to place flour at entryways and check for tracks. Another is to use a wildlife camera to take a photo of the culprit. Once known, the proper removal method can be applied. Information about these options can be found in the "Prevention and Control of Wildlife Damage" handbook or online at the Internet Center for Wildlife Damage Management at http://icwdm.org/.

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Name That Weed

Bob Scott

The weed of the week this week is considered a flower by many; however, it can be quite invasive. It blooms in early spring in ditch banks and other moderately-disturbed wet areas in early May all around Arkansas. There are several species that are often referred to as one common name. This plant is in a genus of an estimated 71 species of perennial plants in the family Commelinaceae, native to the New World from southern Canada south to northern Argentina. They are weakly upright to scrambling plants, growing to 30 – 60 cm tall, and are commonly found individually or in clumps in wooded areas and fields.

Be the first to respond to me at bscott@uaex.edu with the correct common name and win a prize.

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.
