

“WHAT’S HAPPENING?”

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RAIN CAUSES MOISTURE-ASSOCIATED PESTS TO INVADE HOMES

by Karen M. Vail

After several days of rain earlier this week, we have received inquiries regarding moisture-associated pests. For those of you in parched parts of the state, this is probably unbelievable. Here’s a quick summary of these types of pests to help with identification. Images can be found at <http://edis.ifas.ufl.edu/IN030>. Reducing moisture is the key to managing pests. A detailed description of millipede identification and management is given in another article in this newsletter issue.

Booklice. These are small, pale-brown to white insects shorter than 6 mm. Wings are usually absent, and they have a large swollen area above the mandibles (clypeus). Often they are found in books, on floor molding and in closets. They do not suck blood, but feed on molds and mildews.

Plaster beetles. These beetles are in the family Lathridiidae and are 1 mm to 3 mm long. They get their name from infesting newly plastered walls. They feed on molds growing on walls or in wet stored grain. They are elongate and are reddish-brown. The wings have six to eight rows of punctures.

Centipedes. They are often called "hundred-leggers" and have one pair of legs per segment. They are long (up to 6") and wormlike. The 40 to 50 body segments are flattened, and the head has one pair of antennae. Some species can bite and penetrate the skin with their mandibles. Centipedes are beneficial outdoors, feeding on insects and other arthropods.

Earwigs. They have forceps-like cerci that can be used to capture prey or to defend themselves against predators. Earwig adults are 1/4" to 1" long. Their bodies are flattened and are pale- to dark-brown. The antennae are threadlike and about half the length of the body. They are active at night and often crawl into homes under doorsills. They are attracted to light and are beneficial, eating insects and other pests.

Millipedes. They are often called "thousand-leggers" because they have many legs (two pairs per body segment). They have many cylindrical body segments and one pair of short antennae with seven segments. Millipedes feed on decaying organic matter and are found in decaying vegetation and mulched areas. They are nocturnal and are known to have mass migrations:

Pillbugs. They are often called "roly-polies" because they roll into a tight ball when disturbed. They are Crustacea in the order Isopoda and are about 5/8" long. Pillbugs have seven pairs of legs and two pairs of antennae, one of which is very tiny. They live in wet areas under logs, flower pots or mulch. They feed on decaying organic matter.

Sowbugs. These are similar in appearance to pillbugs but cannot roll into a tight ball. They also have seven pairs of legs and two pairs of antennae. Sowbugs have prominent tail-like appendages (uropoda) that project from the rear end of the body. They are active at night and often are found under debris, in mulch and under flower pots. They often enter homes by crawling under doors.

Fungus gnats. These small flies breed in damp soil or decaying vegetable matter. Often they are brought into houses in potted plants or are found in commercial buildings in planted areas. Fungus gnat adults are attracted to light and often are found around windows. Large numbers of larvae may be found crawling against walls or pavement.

Springtails. They are tiny insects about 1 mm to 2 mm long. They are in the order Collembola and are white to grayish, with no wings. They have a forked structure (furcula) on the rear of the body that enables jumping. Springtails live in mulch and wet soil, but can migrate into homes and swimming pools in large numbers. They feed on molds and decaying vegetation.

Modified from P.G. Koehler and J.L. Castner. 1997. Pests Associated with Mulch and Moisture
<http://edis.ifas.ufl.edu/IN030>

MILLIPEDES - THOSE LITTLE BROWN "WORMS"

by Karen Vail

Millipedes or "thousand-leggers" are not insects and belong to a class of arthropods called Diplopoda. Millipedes are worm-like, cylindrical animals with many body segments. Most of their body segments bear two pairs of legs, unlike centipedes which have only one pair of legs per body segment. Millipedes will coil up tightly when disturbed and some species secrete a foul-smelling fluid to protect themselves. Female millipedes can lay from 20 to 300 eggs singularly or in clusters in the soil. The eggs hatch in a few weeks, and the young molt seven to eight times before maturing to adults.

Millipedes feed on decaying vegetable matter and are often found under stones, flower pots, heavily mulched shrub or flower beds, rotting logs, boards or similar debris where there is abundant moisture. Occasionally after rains, or during hot and dry weather or prior to cold weather, large numbers of millipedes may migrate into buildings. They can climb foundation walls and enter houses through any small opening. These pests are generally more troublesome in wooded or newly developed areas where decaying vegetation provides excellent food and breeding conditions.

Management

Reducing Moisture and Removing Debris - A large indoor population usually indicates large numbers of millipedes or centipedes surrounding the structure. The most effective, long-term measure for reducing entry of millipedes and many other occasional invaders is to reduce moisture and hiding places near the foundation and to pest-proof the structure.

One study reported reducing millipede invasions into a structure by 93 percent using non-chemical procedures. Several techniques were used to reduce moisture levels in the lawn and areas surrounding the structure:

- lawns were dethatched,
- lawns were closely mowed and edged to allow it to dry more quickly,
- debris and mulch were pulled away from the structure to reduce hiding places, and
- grass was watered early in the morning to allow it to dry out later in the day.

There are other ways to reduce moisture and debris around structures.

- Move leaves, grass clippings and compost piles away from the structure because they provide food and habitat.
- Boards and rocks provide protection and moisture and should be moved away too.
- Prune tree limbs to increase air movement and sunlight penetration which dries their habitat.
- Make sure water drains away from the foundation and that down spouts and gutters are free of debris.
- Repair water spigots and prevent water from accumulating under drip lines from air-conditioning units.
- Reduce moisture in crawl spaces by adequately ventilating, and using polyethylene soil covers, dehumidifiers, drainage systems, sump pumps, etc.

Pest-Proofing

- Seal cracks and openings in foundation walls, doors and windows, especially basement windows.
- Install door sweeps on exterior entry doors, and apply caulk along the bottom outside edge and sides of door thresholds.
- Seal around pipe and utility penetrations into the structure.
- Other pest-proofing methods can be found in PB1303, *Managing Pests Around the Home* (<http://www.utextension.utk.edu/publications/pests/default.asp#home>)

Inside - Pest Removal

Remove individuals found indoors with a vacuum, or broom and dust pan. As with other pests requiring high moisture, millipedes should die after being indoors for several days.

Outside - Pesticide Applications May Reduce Indoor Invasions

Apply pesticides to the perimeter of the structure and around potential entry points such as doors, windows, vents, pipe and utility penetrations. After heavy rains, such as when an inch of rain falls within an hour, one has to wonder how much of the insecticide from the perimeter treatment is left in place. Pesticides should not be relied upon for primary control of millipedes, but rather used as a supplement to

pest-proofing and habitat manipulation. Wettable powders (WP) and microencapsulated (ME) products tend to have a longer residual on outside surfaces than emulsifiable concentrates or flowables. Most homeowners don't have access to MEs or WPs and thus may need to rely upon over-the-counter products that contain synthetic pyrethroids such as cyfluthrin (Bayer Advanced Home Indoor and Outdoor Insect Killer), bifenthrin (Ortho Home Defense Max Perimeter and Indoor Insect Killer) or lambda-cyhalothrin (Spectracide Bug Stop Indoor Plus Outdoor Insect Killer).

Modified from:

Vail, K.M., G. Burgess, R. Gerhardt and C. Harper [eds.]. 2001. PB 1673 General Pest and Rodent Control Pesticide Applicator Licensing Manual (GRC). pp. 130. The University of Tennessee Extension. (<http://eppserver.ag.utk.edu/psep/secondlevel/thirdlevel/GRC/GRCindex.htm>)

Oi, F. and A. Appel. 1998. ANR-1075 IPM Tactics for Millipede Control. Auburn University, Cooperative Extension Service.

Waldvogel, M. 2004. Controlling Millipedes in and Around Homes. Insect Note - ENT/rsc-18. North Carolina Cooperative Extension Service.

LICENSING TRAINING AND EXAMS

by Gene Burgess

The next licensing exams for potential Pest Control Operators will be held in Nashville on July 17 and 18, 2007. As usual we will conduct training seminars in Public Health Mosquito Control, PHMC, Horticulture, Lawn and Turf, HLT, General Pest and Rodent Control, GRC and Wood Destroying Organisms, WDO. The seminars are held the day before the respective licensing exams. The PHMC and HLT training will be held on July 16. And, the GRC and WDO training will be held on July 17. These will be held at the Extension District Office Conference Room in Nashville, 5201 Marchant Dr., Ellington Agriculture Center.

Anyone interested in the training needs to preregister at the Institute of Agriculture eMarketplace, <http://agriculture.tennessee.edu/emarketplace>. Preregistration is \$50. Registration on-site is \$75. After you get to the website, login and create an account. Then go to the shopping cart and order study materials or register for the classes.

CERTIFICATION OF PESTICIDE APPLICATORS

by Gene Burgess

This time of year questions increase concerning which type of certification is needed. For example, do I need a Private Applicator card or a Commercial Applicator card in a specific category? The Private Applicator cards are ONLY for farmers, greenhouse and nursery operators

who wish to obtain restricted-use pesticides for their own farm, greenhouse or nursery use. That does not include pesticides used for other types of work, for example, structural.

The Commercial Applicator certification categories are specific to which chemicals can be bought using those certifications. For example, someone with a category 3 certification is only able to buy horticulture/lawn products with that certification and not products that fall within another category.

If someone is doing research or demonstration plots, then they would need a category 10 certification. According to TDA guidelines, Category 10 does not qualify you to buy restricted-use pesticides for use in other certification categories.

NEW NATURAL REFUGE FOR COTTON INSECT RESISTANCE MANAGEMENT

by Darrell Hensley

The Environmental Protection Agency (EPA) recently approved natural refuge for insect resistance management in Bollgard II Cotton. The Agency has approved the use of alternative crop plants and weeds -- a natural refuge -- instead of a structured non-Bt cotton refuge for Bollgard II (Registered Trademark) cotton. This will help reduce the likelihood that insects will become resistant to Bt (*Bacillus thuringiensis*) plant-incorporated protectant (PIP). Careful scientific review has shown that insect resistance management can be accomplished by using only alternative crops and weeds in combination with plantings of Bollgard II cotton from Texas to the Mid-Atlantic. Previously, farmers planting this cotton were required to cultivate a certain percentage of non-Bt cotton and specifically deploy it relatively close to the Bt cotton fields to reduce the likelihood that Bt resistance would develop. Refuges are critical because non-Bt cotton will produce susceptible insects that can mate with any potential resistant insects to reduce resistance. The current structured refuge requirements for Bollgard II cotton will remain in place for pink bollworm resistance management in the trans-Pecos area of Texas, Arizona, New Mexico, and California. The Agency's approval comes after extensive analyses and peer review of Monsanto Company's 2006 natural refuge proposal for Bollgard II cotton. EPA concluded that scientific evidence showed using the natural refuge with Bollgard II cotton would be effective for areas where tobacco budworm and cotton bollworm were primary pests. The Agency will reassess the effectiveness of the natural refuge within five years. The Bollgard II cotton, a registered product of Monsanto Company, contains two different PIPs, Cry2Ab2 and Cry1Ac Bt proteins. These two insecticidal proteins are effective in controlling insect pests that include tobacco budworm, cotton bollworm, pink bollworm, loopers, and armyworms. Use of Bollgard II cotton, with its two distinct Bt proteins, in conjunction with the use of natural refuge, will enhance cotton insect resistance management. More on plant-incorporated protectants is available on EPA's Web site at: <http://www.epa.gov/oppbppd1/biopesticides/pips/index.htm>.

FIELD CROP UPDATE

by Russ Patrick

Corn

There appears to be a greater number of southwestern corn borers in the Northern tier of counties.

Catches in Jackson and Milan have been 1 or 2 per trap, but nothing significant. We will continue to list the number of moths caught in the trap line run by Kevin Knopp. We appreciate his help with this important information. Following moth counts are from several counties :

May 12-23, 2007.

Benton 16, Weakley 28, Henry 1, Obion 86 Crockett 6

Wheat Harvesting

Although some wheat is being harvested it is hoped that the bins were prepared earlier to receive the grain. Such as spraying down the walls and flooring with Tempo SC-Ultra At 16mm/gal rate. Treat around the perimeter of the bin from at least 10 feet away from the storage area. Protecting wheat from insects is much more difficult than corn because it is being harvested during the warmer periods of the year giving insects a start with ideal living conditions. Storcide II can be used to treat the grain as it is being binned. This gives extra protection from insects at the beginning of the storage time.

RE-EVALUATION OF SOME PESTICIDES BY EPA

by Darrell Hensley

The Environmental Protection Agency (EPA) is proposing to revoke, remove, modify, and establish specific tolerances for residues of the fungicides captan, dodine, and fenarimol; the herbicides 2,4-D, DCPA, endothall, propyzamide, ethofumesate, dimethipin and fomesafen; and the insecticide permethrin in or on the commodities listed at EPA's website. The EPA is proposing these tolerance actions to implement the tolerance recommendations made during the reregistration and tolerance reassessment processes (including follow-up on canceled or additional uses of pesticides). As part of these processes, EPA is required to determine whether each of the amended tolerances meets the safety standard of the Food Quality Protection Act (FQPA). The safety finding determination of "reasonable certainty of no harm" is discussed in detail in each Reregistration Eligibility Decision (RED) and Report of the Food Quality Protection Act (FQPA) Tolerance Reassessment Progress and Risk Management Decision (TRED) for the active ingredient. REDs and TREDs recommend the implementation of certain tolerance actions, including modifications to reflect current use patterns, meet safety findings, and change commodity names and groupings in accordance with new EPA policy. Printed copies of many REDs and TREDs may be obtained from EPA's National Service Center for Environmental Publications (EPA/ NSCEP), P.O. Box 42419, Cincinnati, OH 45242-2419; telephone 1 (800) 490-9198; fax 1 (513) 489-8695; internet at: <http://www.epa.gov/ncepihom> or from the National Technical Information Service (NTIS) at: <http://www.ntis.gov> or see the Federal Register at: <http://www.epa.gov/EPA-PEST/2007/June/Day-06/>.

OTHER UT NEWSLETTERS WITH PEST MANAGEMENT INFORMATION

Fruit Pest News

<http://web.utk.edu/~extepp/fpn/fpn.htm>

Tennessee Crop and Pest Management Newsletter

http://www.utextension.utk.edu/fieldCrops/cotton/cotton_insects/ipmnewsletters.htm

This and other "What's Happening" issues can be found at

<http://eppserver.ag.utk.edu/Whats/whatshap.htm>

Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone's responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label.

Disclaimer

This publication contains pesticide recommendations that are subject to change at any time. The recommendations in this publication are provided only as a guide. It is always the pesticide applicator's responsibility, by law, to read and follow all current label directions for the specific pesticide being used. The label always takes precedence over the recommendations found in this publication.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product. The author(s), the University of Tennessee Institute of Agriculture and University of Tennessee Extension assume no liability resulting from the use of these recommendations.

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