Pheromone Traps Help Control Pests

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Pheromones are natural chemicals produced in the body of an animal that help it communicate with other members of its species. Many animals make use of chemical cues to some extent, but insects raise chemical communication to an art form. Scientists have identified pheromones in more than 200 species of at least six orders of insects (cockroaches, scale insects, butterflies and moths, beetles, flies, and bees).

The most common type of pheromone is a sex attractant is released by a female when she is receptive and ready to mate. Even though we cannot detect the odor, males of the species can smell a receptive female from long distances, even miles. To do this, males need specialized antennae with many receptors that can detect the specific "odor" of the pheromone molecule. Males of species that rely on pheromones for mate location often have antennae that are more elaborate than females. Scientists call this *sexual dimorphism*. Many moth species have sexually dimorphic antennae—indicating chemical cues are used to locate mates. It makes sense for moths to rely on chemical cues because they are active at night and cannot rely on sight for locating mates.

Male insects are not always just the pursuer, however. Once the male gets close to a female, he may produce a short range pheromone of his own, a sort of pheromone aphrodisiac, acceptable to the female and is part of the courtship process. After mating successfully, males or females may produce an anti-aphrodisiac pheromones to discourage additional suitors.

Scientists have isolated pheromone compounds from pest species in the laboratory and, depending on the species, have devised strategies to help control populations. Sometimes pheromones are used in conjunction with sticky traps as a monitoring tool to detect the presence of the pest. Knowing when the first insects are present can be helpful in timing insecticide applications more accurately. Pheromones have also been used to disrupt mating by "dumping" so much sex attractant the males cannot find the "real" females. Another type of pheromone that some insects release is called an *aggregation pheromone* and attracts large numbers of the same species. Sticky traps baited with aggregation pheromones will attract both sexes and can be used as a direct control method.

The advantages of pheromones are they are species specific and non-toxic to non-target species. This makes them ideal as a least-toxic control method. Right now, the most common uses for pheromone traps in homes are Indian meal moths and German cockroaches.

Indian meal moths (IMM) are often called "millers" and can be seen flying around the house. They are only about 1/2 inch long, but, if you look closely, you will notice they are bicolored (copper-colored and tan). Larvae are yellowish-white worms, with a dark head capsule, and feed on grain products, flour, nuts, bird seed, and dry dog food. IMM pheromone sticky traps will only capture males because the pheromone is the female sex attractant, but they can be useful in detecting early infestations before they get out of control. Traps will be effective for two months and can be purchased at many hardware stores, discount stores, and pest control supply companies.

The German cockroach is the most difficult cockroach to control, but the development of pheromone sticky traps, baited with an aggregation pheromone, can be helpful in a cockroach control program. Because it is baited with an aggregation pheromone, the sticky trap attracts both males and females. It may not completely control a German cockroach infestation, but can be useful when used in conjunction with other controls.

For more information about Indian meal moths, German cockroach or pheromone traps, call the extension office at 402-441-7180. (BPO)

Environmental Focus

"Green" Gifts

You can promote environmentally sound activities through thoughtful gifts you give. Consider the following:

- Purchase an aluminum can crusher.
- Give a bird feeder or nest box.
- Give a compost bin or set up a vermicomposting bin for someone who has just about everything.
- Buy yourself a garbage disposal (what goes down the sewer eventually gets recycled).
- Buy recycling bins for glass, aluminum, plastic, newspaper.
- Subscription to Nebraskaland magazine.
- Buy your honey thermal underwear (turn your house down a few degrees and save money, too).
- Purchase garden tools or kneepads (kneepads were Barb's favorite gift from last year...find kneepads at the hardware store).
- Make a "coupon" to clean house for a family member.
- Volunteer to run errands for a family member.
- Assist a relative with home repair.
- Purchase a gift certificate for a relaxing massage.
- Take your family on a camping or fishing trip.
- Purchase a certificate for skating, art, or gymnastics lessons.
- Bake or make something or frame a favorite photo.
- Give tickets to a play, concert, or sporting event or a membership to a favorite organization.
- Give a state park sticker.
- Make a donation to a friend or family member's favorite cause or charity.

Before you buy anything, consider the following questions:

Is your gift something that can be used more than once?

If your gift breaks, can it be fixed? Or will it just be thrown away?

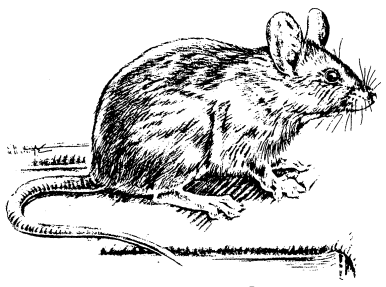
Is it made out of recycled materials?

Does the gift come with a lot of packaging? Can the packaging be recycled?

Could you give a gift that isn't a "thing"? For example, could you promise to do someone's chores for a week? Or teach someone about your favorite hobby? (Source: Ranger Rick)

And finally, did you know 82 percent of Americans would rather receive a photo album of times shared growing up than a store-bought gift? (Source: Center for a New American Dream-Commissioned Holiday Poll, November, 1998) (BPO/SC)

Sneaky Rodents can be Tough to Catch



In nature, rats and mice are among the most important sources of prey for many animals. Over the past 7,000 years, humans have become the primary predators of some domestic rodents. Rodents, in turn, have evolved anti-predator behaviors which increase their survival. There are several innate characteristics of rodents that help them to avoid danger.

- Secretiveness. By their very nature, rodents are secretive — nesting, feeding, and hiding in areas that are quiet and undisturbed. They are active at night when people are quiet. Inside buildings, as in the wild, they like to move in contact with surfaces, running along walls, squeezing into holes and between objects, and darting beneath pallets and appliances. They also eat in corners and tight spaces rather than open areas.
- Quickness. To escape their natural predators, the rodent has evolved to run quickly or jump explosively within a split second. The house mouse has been clocked moving at an unbelievable speed of 12 feet per second. Rodents also jump to avoid danger. Studies have shown, when frightened, young mice often react by "explosive" or "popcorn" jumping. This last minute jump may propel the rodent out of the clutches of a predator.
- Cautiousness. Rodents explore and re-explore their surroundings on a daily basis. These explorations may pay off in the discovery of new food sources and hiding spots. However, rodents are very cautious when new objects, surfaces, and foods are found in their explorations. This means that new objects are investigated very slowly and cautiously. This characteristic is why a mouse approaches a snap trap for the first time and stretches over and removes the bait without setting off the trap.

Management of rodents may be easier (or at least less frustrating) if one understands these behaviors and characteristics. Here are some tips which may help:

1. If you have a serious rodent problem, use several types of traps even in the same area. Consider snap traps, glue boards, and mechanical live traps. What catches one mouse, might not catch another. Also, try several types of baits: peanut butter, a raisin, small piece of bacon, tied with thread or dental floss. A cotton ball may be attractive to female mice looking for nesting materials.

2. Look for evidence of rodents in quiet, dark areas. These are often good places to place baits and traps.

3. Remove food sources in areas where you are attempting control efforts. Without easy access to foods, rodents will investigate traps and baits much faster.

4. Whenever possible, eliminate as much of the rodents harborage (clutter, junk, etc) as possible. This stresses the rodent and decreases their fear of new foods and harborages making trapping and baiting more successful.

5. You may be more successful if you place unbaited, unset traps for a couple days before you bait and set them.

6. Set traps along walls or appliances — not in the middle of open areas.

7. Try using "double sets" of traps with approximately two to three inches spacing between the traps. This will help decrease the popcorn response and escape of the mouse. (BPO)

Give a Gift of Knowledge

Children are fascinated by all the creatures living in our environment. Looking to encourage this curiosity? Give your family the gift of nature. Field guides are wonderfully illustrated, pocket-sized guides to the natural world. You can find guides on identifying beetles, spiders, butterflies, moths, snakes, birds, fish, wildflowers, trees, and much more.

There are many different series of guides that can be used. Golden Guides and Peterson's First Field Guides are kid friendly; however, they may not have everything you find. In that instance, you may need to use a more comprehensive guide, such as, the Peterson, National Geographic, or Audubon Society Field Guides. You can find field guides for just about anything you would like to identify at your local library or bookstore. (SC)

Winter Activities for Kids

- Make a snowman or snowwoman, and dress him/her for the birds. Make a necklace out of birdseed, popcorn, dried fruit. Use raisins for the eyes. For arms, insert sturdy branches so the birds will have a place to perch.
- Make snow angels. Listen to the sounds of falling snow.
- Put a piece of black construction paper in the freezer. Take it outside and catch snow flakes, and, using a magnifying glass, check out the different patterns.
- Make your own icicles (this is an outside activity). Puncture a very small hole into a hanging container, fill it with water, then leave it slowly dripping outdoors over night. The next day you should have your own icicle.
- Take your parents ice fishing! Look for water-borne insects suspended in the ice.
- Look for animal tracks in the snow. Follow the tracks to see if you can find food sources such as chewed branches or resting places in the snow. Source: *National Wildlife Foundation* (SC)