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Insec(tc)ure*:
Are you insecure about your insect cures?

A UT Urban IPM Lab Newsletter for the Pest Management Industry

Fire Ants Inside Structures in the Winter?

Karen Vail, UT Entomology & Plant Pathology

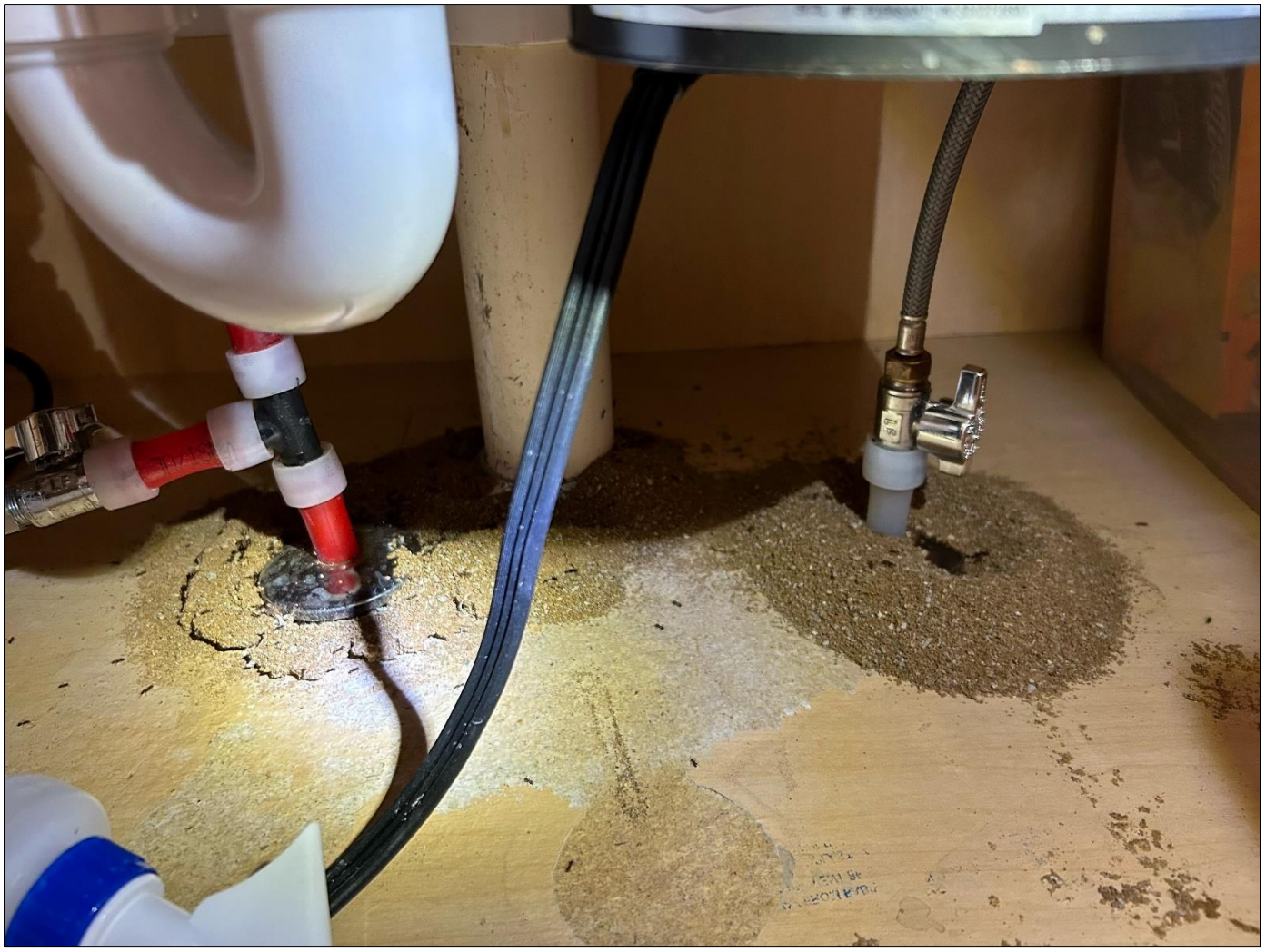

Figure 1. Fire ants have accessed the area under a sink by following the pipe penetration. Note the soil they've brought through the gap. Credit: email submission.

During the week of January 22, 2024, I received several inquiries about managing fire ants indoors. One inquirer described fire ants in homes (Figure 1) and the other described an occurrence in a greenhouse.

Imported fire ants, *Solenopsis* spp., are invasive ants best known for their fiery sting to people and animals. The pain and itching resulting from the sting are disturbing enough for some, but others may be hypersensitive to the sting's venom and can go into anaphylactic shock if not treated for their allergic response. Fire ants are problematic in other ways, including dulling cutting bars and jamming harvesting equipment, reducing hay yield when avoiding mounds, destroying young plants when they forage for moisture, and raising the cost of nursery production to meet federal quarantine requirements, to name a few. Heavily infested properties could even reduce the sale price of a home.

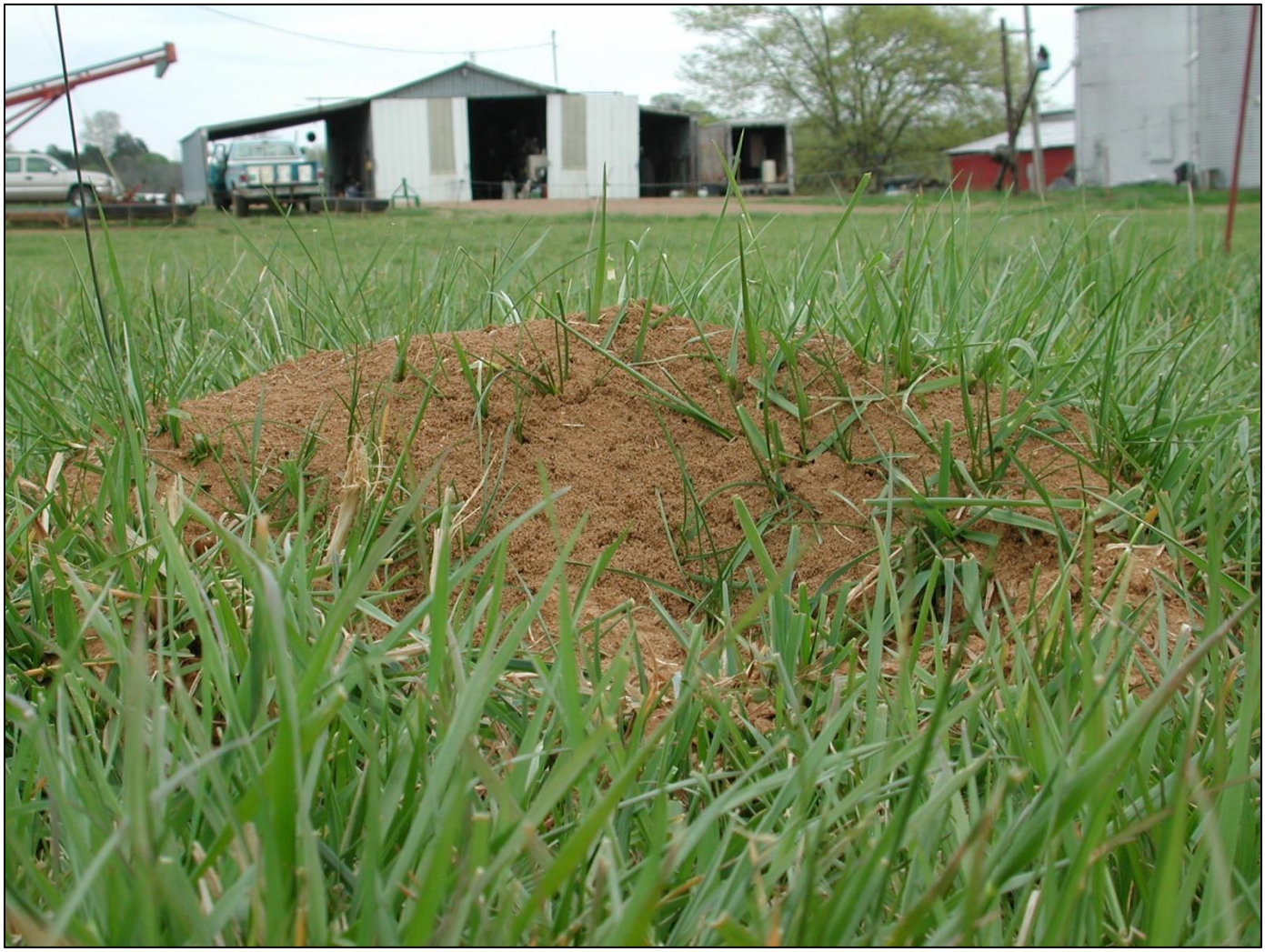

Figure 2. Fire ant mounds are typically found in exposed areas as seen here in a pasture. Credit: K. Vail

Fire ant mounds are found in open areas where the mound is exposed to the sun (Figure 2). Beneath the surface of often domed-shaped mounds is a labyrinth of galleries allowing workers to move the brood or immatures up or down within the galleries, seeking an optimal temperature for brood development. On cool mornings when the sun is shining, the brood and queen may be just below the surface as it warms. On hot afternoons when the temperature exceeds 90 degrees F, the workers move the brood deeper below the mound towards more moderate temperatures. On cold winter days, the fire ants will keep the brood deep into the mound to avoid the frigid temperatures. This movement of the brood to optimize temperature exposure is called thermoregulation. In the fall, fire ants often move their mound towards heat sinks to help them survive the winter (Figure 3).

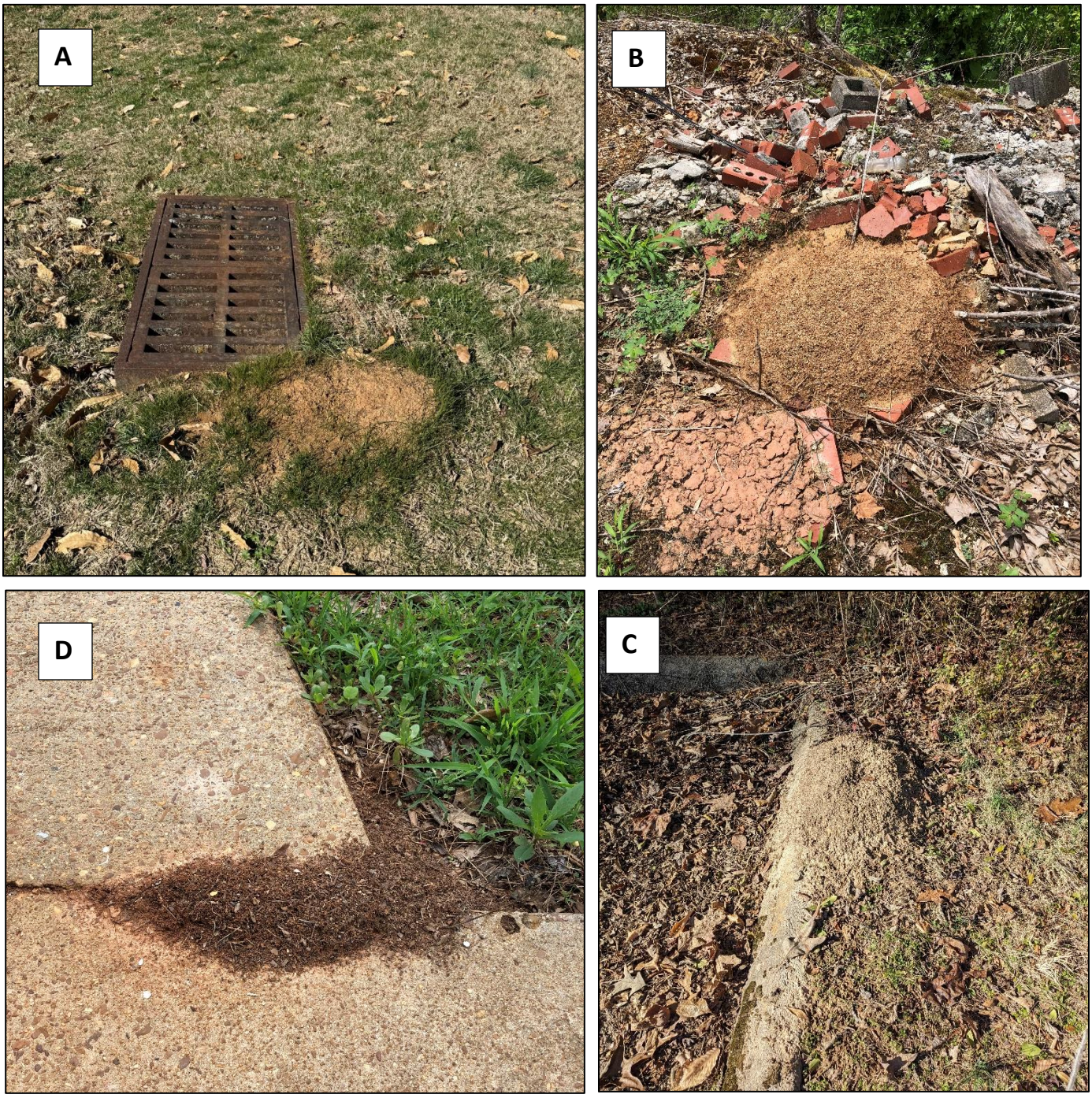

Figure 3. Fire ants often move their mounds towards heat sinks (A= drain cover, B=pile of bricks, C=curb and D= crack in sidewalk) in the fall to help them survive the winter. Credit: A, B, D= K. Vail, C=J. Chandler

Fire ants may also nest under concrete to take advantage of a cooler thermal shadow in warmer times of the year. Unfortunately, that heat sink or protection they seek may sometimes be the foundation wall of a home (Figure 4). When nests are close to a structure's base, the worker ants may follow this guideline (Figure 5) and find an entry (Figure 6). Fire ants from colonies located near homes sometimes forage indoors for food or water, especially when the outdoor environment is hot and dry or flooded. Other times, entire colonies may actually move indoors into wall voids, behind large appliances, along edges of walls and elsewhere during floods or drought. The preponderance of indoor fire ant activity in January indicates the warmth of the structure allowed the ants to remain active when outside temperatures were too cool to do so. The mound from Figure 1 was probably nesting

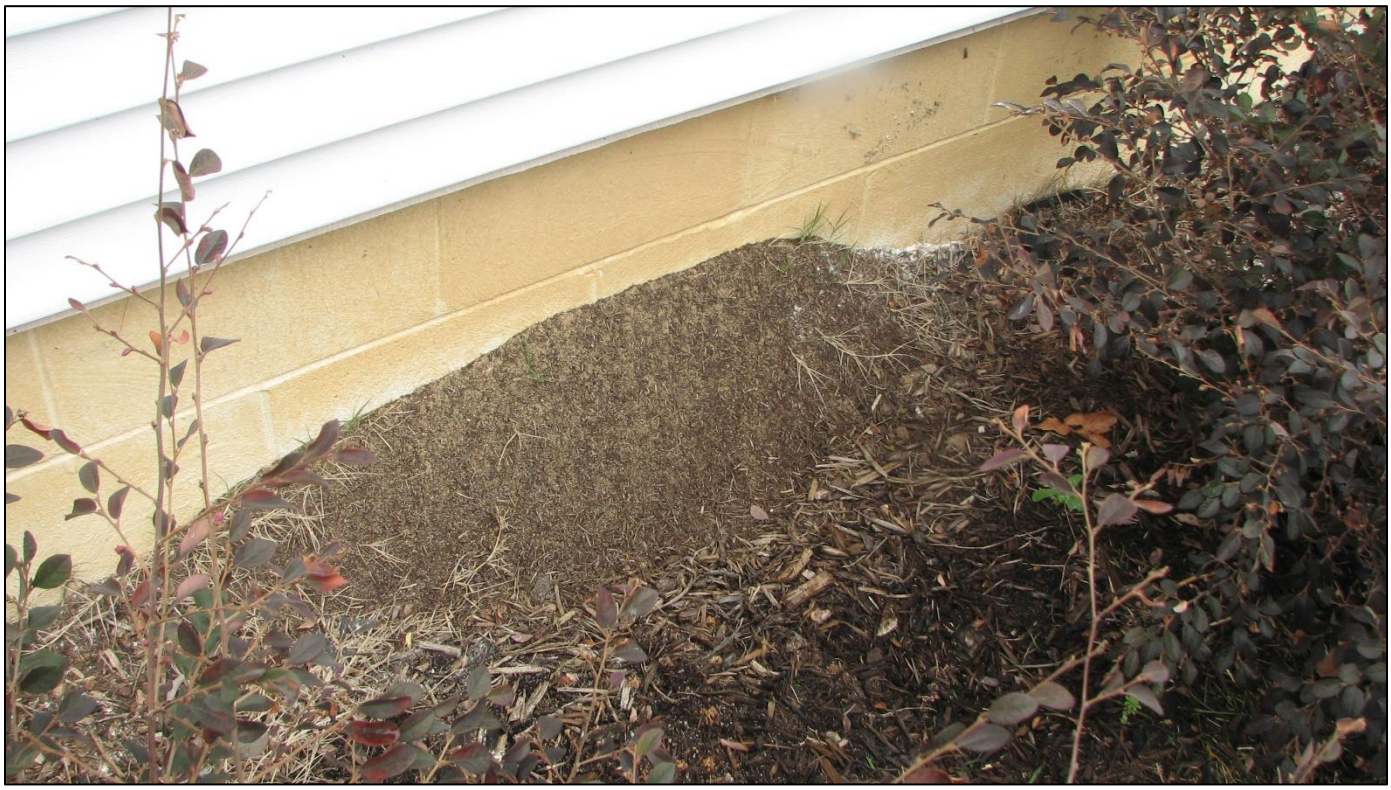

Figure 4. Fire ant mound against the foundation wall of a home. Credit: L. Mobley

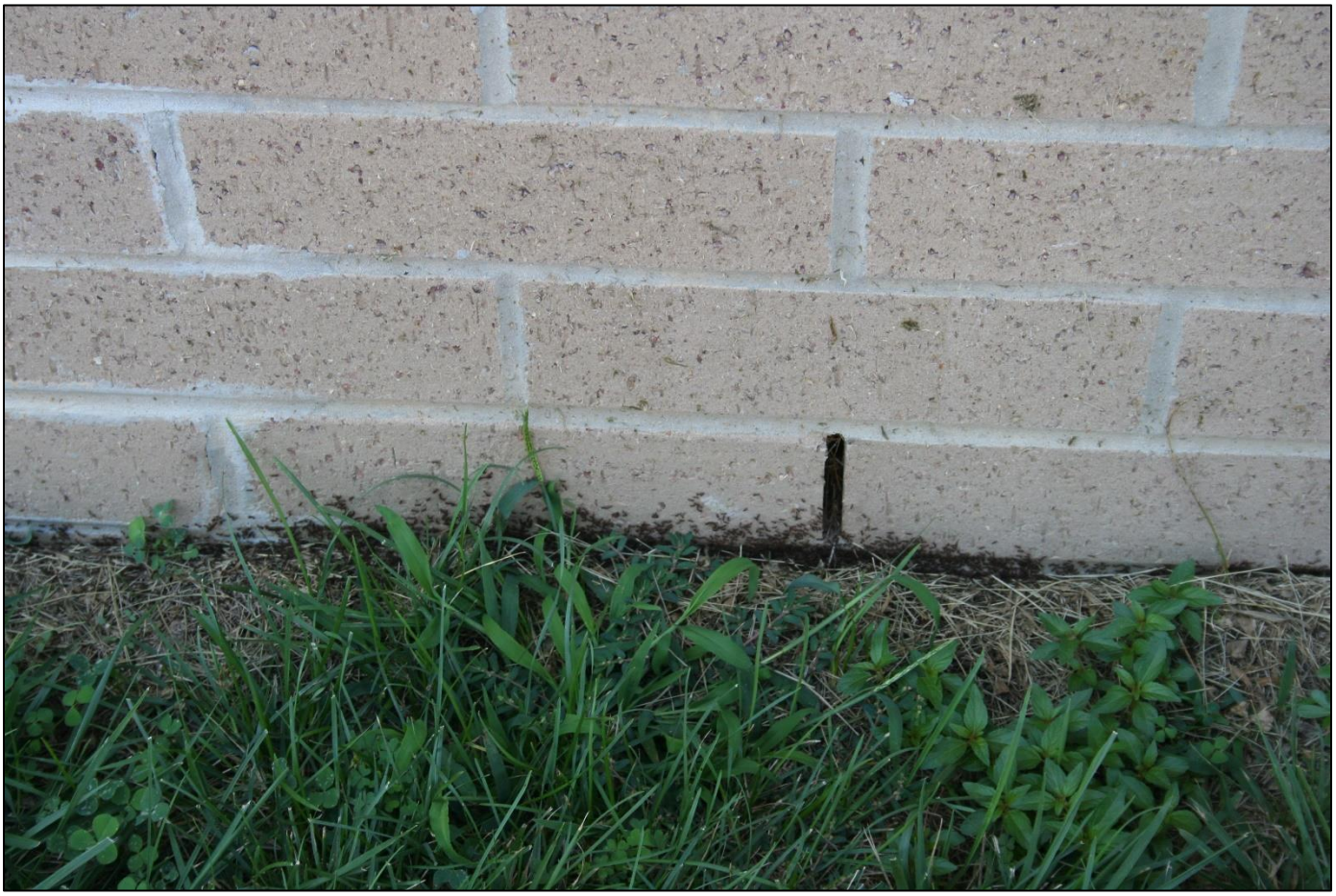

Figure 5. Fire ants foraging along a foundation wall. Credit: UT EPP

under the slab and protected from the extremely cold air temperatures outdoors. When warm interior temperatures were detected along the pipes, the ants followed this warm guideline into the home. Once fire ants are inside a structure, management of this pest is crucial to preventing the building's occupants from being stung which can be serious if someone is hypersensitive to the venom or if they are bed-ridden or otherwise unable to remove the ants as they sting.

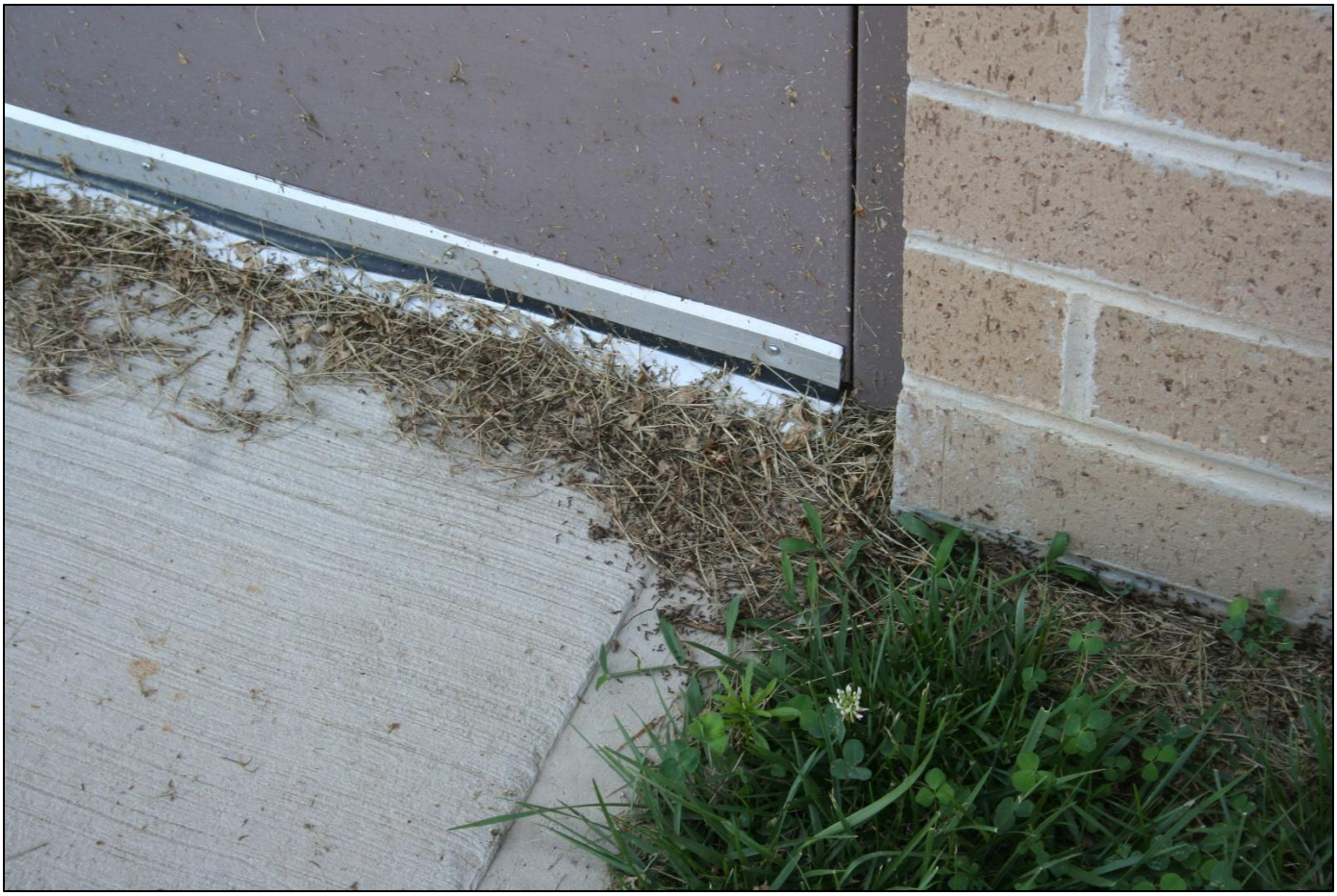

Figure 6. Ants using the foundation base as a guideline can easily follow the edge and enter the structure under the door. Because of their small size, it's difficult to seal ants out of a structure.

So what are the options for managing fire ants once they are inside a structure?

In warmer times of the year when the ants are actively foraging outdoors and foraging ants are entering from the outdoors:

1. Use one of the three fire ant management programs for home lawns https://fireants.tennessee.edu/Treatment%20Programs/ - the two-step method, individual mound treatments or broadcast residual applications.
    - In addition, caulk or otherwise seal openings or cracks and crevices larger than 5 mm that are potential ant entryways
    - Apply a perimeter treatment to potential entryways. Be careful. If the ants are nesting indoors, a fast-acting insecticidal perimeter treatment may stop the ants from exiting the home
    - Keep plants from touching the building and providing a bridge to foraging ants

2. Fire ant baits labeled for indoor use such as Maxforce Complete Insect Granular Bait (hydramethylnon), AmdroPro Fire Ant Bait (hydramethylnon), and Extingush Plus (hydramethylnon and s-methoprene), can be used in cracks and crevices where the ants are active indoors and children and pets can't access them. If using an indoor granular bait, it can be placed in a bait station thus creating a crack and crevice or void. Baits not listed for fire ants may not work.
3. If you can follow the foraging ants back to an interior nest, the nest can be treated with a pyrethroid or similar fast-acting insecticidal dust or foam; follow the label carefully and do not apply water to any electrical components. Just treating foraging ants with a fast-acting spray will not eliminate a colony and may adversely affect the distribution of bait to the rest of the colony members. A slower-acting insecticide may allow better distribution of the active ingredient within the colony and may be more compatible with bait but may not be labeled for fire ants.
4. Exposed nests could also be vacuumed, but this could get messy. If you use a wet-dry vac with a water solution and soap/surfactant, any soil removed will make a mud slurry and will need to be carefully disposed of outdoors without spilling it inside. A dry vacuum could also be used but seal the vacuum bag in a plastic bag soon after use and dispose of it in the outdoor trash. Fire ants could possibly chew through a plastic bag.

What are the options to manage indoor fire ants in the winter?

This is a little more challenging since broadcast baiting outdoors is not an option, although individual mound baiting may work if the temperatures are in the high 50s to 60s degrees F and the ants are active near the mound. Typically, we suggest baiting when temperatures are 70 – 86 degrees F for peak fire ant foraging. Many outdoor nests will be protected under slabs or other objects, and it's difficult for a drench to reach the entire colony, including the queen, when it's under a slab. So, outdoor options are limited.

1. **Steps 2, 3 and 4 above should still be effective.**

In Figure 1, the ants are bringing soil through the gap around the pipes or tubing. Applying a fast-acting insecticide to this gap and then sealing it could prevent the ants from entering this location again, but it may not eliminate the colony and the ants could find another entry. A bait or other slow-acting insecticide is more likely to be spread through the colony and should reduce the fire ant activity throughout the home. Remember, depending on the bait chosen, colony mortality could take days, weeks, or months. More information on bait activity can be found at https://fireants.tennessee.edu/treatment-products/ and more information on fire ants at https://fireants.tennessee.edu/.

After reading this article, one thing should be obvious. It's easier to eliminate a fire ant colony when the ants are actively foraging. That means you need to scout your client's property during the warmer times of the year and treat the ants before they move under any heat sinks and while they can still retrieve bait! May and September often have the right temperatures for peak foraging, but keep an eye on the rain forecast. Soggy baits are not retrieved very well.

Managing fire ants in greenhouses during the winter is another story to be saved for a later discussion.

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Insec(tc)ure is produced by:

Karen Vail, Ph.D., Professor,
Extension Urban Entomologist
Entomology and Plant Pathology
370 Plant Biotechnology Bldg.
2505 E J Chapman Drive
Knoxville, TN 37996-4560
ph: (865) 974-7138
email: kvail@utk.edu
http://epp.tennessee.edu/people/directory/dr-karen-vail/
https://epp.tennessee.edu/urban-ipm/

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