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Insec(tc)ure*:
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A UT Urban IPM Lab Newsletter for the Pest Management Industry

Face flies, *Musca autumnalis* De Geer: Another Fall Home Invader

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You'll remember last year, about this time, my newsletter article discussed an uncommon fly, *Muscina pascuorum* (Meigen), invading cabins in East Tennessee. This year, we'll address a more common fly, the face fly, *Musca autumnalis* De Geer. On November 10, 2023, I received an email with images (Figs. 1 and 2) from an East Tennessee acquaintance stating, "I have a problem at my home that I have been dealing with for almost the entire 20 years I have lived here." They noticed insects about the size of house flies in the home's interior. Sometimes hundreds would be visible daily, with this more common on warm days with cool nights.

Figure 1. Lateral view of a male face fly The upper surface of the abdomen is yellow starting with second segment. The black stripe down the middle of the abdomen is not visible in this image. Image submitted via email.

Figure 2. Dorsal view of male face fly with eyes nearly touching at the top. Strongly bent 4th wing vein indicated by arrow. Image submitted via email

A week earlier, I had received an inquiry about many flies gathered in and around debris under a walnut tree (Fig. 3 and 4.).

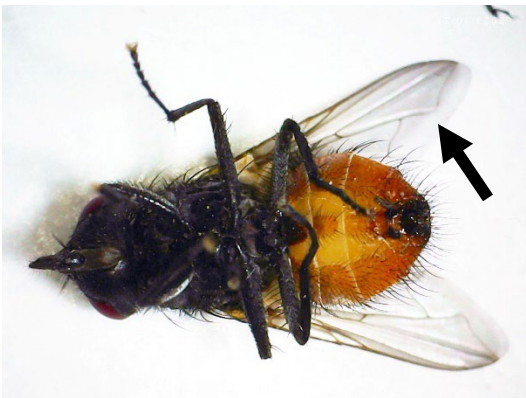

Figure 3. Bright yellow/orange ventral surface of male face fly. Note the sponging mouthparts are bent under the head. Image submitted through PClinic.

Figure 4. The female face fly (seen here) look very similar to female house flies with the eyes widely separated. The four black lines on a grey thorax are often more obvious on these female flies than the males. Image submitted through PClinic.

Both of these submissions were face flies, *Musca autumnalis* De Geer. Face flies look very similar to house flies, *Musca domestica* L. Face flies (6-10 mm) are about the same size or slightly larger than house flies, and both have a grey thorax with four black stripes and a strongly bent fourth wing vein (Fig. 2, 3). Both house fly and face fly adults have sponging mouthparts, so do not bite. Distinguishing characteristics of the male face fly include compound eyes that touch at the top and a yellow abdomen with a black stripe down the middle of the upper surface. The thorax of the face fly male may appear all black (Fig. 2) rather than grey with black stripes. The female face fly's eyes are more widely separated than the males (Fig. 4) and are more difficult to differentiate from those of the female house fly. The calypters (membranous flap at the wing base) of face flies have tufts of hairs near the attachment to the thorax. House flies lack these bristles or hairs. My colleague at the University of Tennessee, Rebecca Trout Fryxell, co-authored an excellent summary of the face fly biology and pest status related to veterinary entomology (Fryxell et al. 2021). This publication has impressive male and female face fly images by Matt Bertone and is well worth investigating.

Figure 5. Face fly eggs are laid in fresh cow manure.

Female face flies feed on nose, eye and other secretions of cattle and horses. Feeding closely to the eyes, they may spread the bacteria that cause pink eye. During the warmer months, females lay batches of eggs into fresh (less than 1 day old) cow manure. Larvae feed on bacteria, yeast and other organic matter in the manure liquids. The full-grown, yellow third instar wanders away from the pile, burrows into the ground nearby, pupariates, and turns white. The emerging adults feed on nectar and dung, and the female may also feed on animal secretions. Three to 12 generations may occur per year, depending on the weather and region of the US. Upon returning the face fly identification to my East Tennessee acquaintance, he informed me that a cattle pasture was "about 60 yards from the side of the house where we continuously have the problem."

The species name of *Musca autumnalis* refers to the adult fly's habit of seeking overwintering sites in the autumn. Other flies, such as the blue bottle fly, cluster fly and *Muscina pascuorum* may also overwinter as adults in structures. After entry into the home or other protected location, the flies are attracted to light or windows on warm winter days, disturbing residents and causing them to seek the flies' removal.

So how do we solve this pest problem?

Several options can help prevent or reduce the number of this and other overwintering insects inside structures in the future.

1. Seal entry points before any insects start overwintering, i.e, before September. This year, face fly movement indoors didn't begin until November, probably due to the freezing temperatures we experienced at the end of October/beginning of November. But why take a chance on when the cold temperatures will hit? Pest-proof in September before any insects start their overwintering movement

indoors. Details on pest-proofing a home can be found at https://utia.tennessee.edu/publications/wp-content/uploads/sites/269/2023/10/pb1303.pdf. In short:

   a. Indoors – seal around window and door frames, switch boxes, vents, etc.
   b. Outdoors - seal around window and door frames, and cracks in the exterior walls, and add screening behind all vents.

2. Spray potential entry points with an insecticide before the insects enter (W658).
3. Don't leave doors and windows open for long periods; or use screen doors and screens on windows.
4. Usually, we suggest removing the larval food source when discussing fly control, but this doesn't seem feasible. Maybe the cattle could be moved further away from the home.
5. Diplomatically suggest the cattle producer discuss face fly management with your local county Extension agent.

After the flies have entered the structure,

1. Locate the overwintering clusters of flies and vacuum them. Overwintering locations may be found on walls near windows, and in false ceilings, attics, crawlspaces and many other places. Clusters may be found on the house's warmer southern and western sides.
2. Install insect light traps in false ceilings or attics to capture the flies when warmer temperatures increase fly movement.
3. If the flies are inaccessible with a vacuum, treat the resting space void with insecticidal dust and other formulations labeled for the site and pest.

References:

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