

Larger Black Flour Beetle in Southern High Plains Homes



Patrick Porter and Nancy E. McIntyre*

Larger black flour beetles are not really large, not always black and not just found in flour. They are only about $\frac{1}{4}$ inch long, are dark brown to black and can enter homes through cracks, crevices, chimneys, vents and many other places.

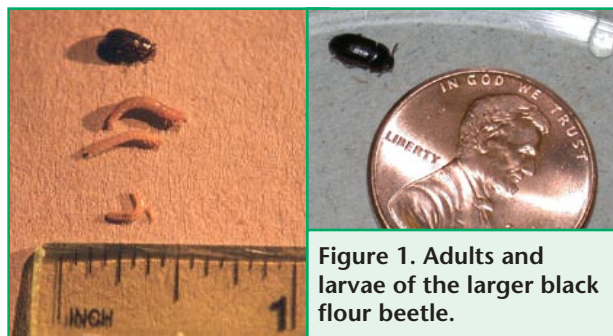


Figure 1. Adults and larvae of the larger black flour beetle.

Sometimes large numbers of these beetles enter homes at night, and they are occasionally a considerable nuisance for rural and some urban residents of the Southern High Plains of Texas.

Although the larger black flour beetle (LBFB) is normally thought of as a pest of stored grain in the Midwest, it can develop large populations in cotton gin trash in some Southern High Plains counties. Not much is known about the LBFB and its development in cotton gin trash, but the cotton industry and cotton ginners of Texas are working with Texas Tech University,

*Associate Professor and Extension Entomologist, Texas AgriLife Extension, The Texas A&M University System; and Associate Professor, Texas Tech University

Texas A&M University and the Texas Department of Agriculture to learn more about it.

During the ginning process, cotton fibers and seeds are separated from other plant parts such as the stems, bark and bracts that comprise the cotton boll. Collectively, these non-lint and non-seed parts are called “gin trash.” The first reports of LBFB infestations in homes started in the late 1970s, shortly after Texas federal and state laws were changed to forbid cotton ginners from burning gin trash. Before the change, gin trash did not accumulate in large piles and the LBFB was not a significant pest.

Although gin trash does have some uses, mostly as cattle feed or as a composting agent, it is usually thought of as a waste product of cotton production. A fraction of each year’s gin trash can be returned to the field and applied as a soil amendment, but most growers are reluctant to use much of it because it can contain weed seeds and plant diseases.

Cotton ginners are in a difficult situation because in most years gin trash has no economic value and they have few options for its disposal. They cannot burn the trash and there is no insecticide that is legal to apply to it to keep beetle numbers in check.

Some gin trash is sold to local farmers and ranchers who stockpile it for feeding to cattle. Other gin trash is put in playa lakes or spread on fields where it may or may not be tilled into the soil. Still other gin trash is left in piles. Almost any pile of gin trash more than a few inches deep can be colonized by LBFB adults.

The beetles and larvae feed on mold or fungus that grows in gin trash piles. They are not thought to feed on gin trash itself, but this aspect of their biology is not well understood. Eventually the beetles reproduce in the piles. This process usually takes about a month but occurs more rapidly under warm conditions.

Gin trash is a very accommodating environment for the beetles because they are insulated from extreme hot and cold conditions. Larger piles of gin trash may even stay warm enough to allow the population to keep reproducing throughout the winter.

Eventually, the beetles leave the gin trash piles and take flight. This usually occurs in mid to late summer in the first 1 to 3 years after the piles are built. When summer heat causes the piles to heat up and dry down to unacceptable levels, the beetles often leave in very large numbers, usually flying at dusk or during the night.

The actual distance that these beetles can fly is unknown, but one scientific study found that a mile is possible. Our experience suggests that the beetles may be able to fly more than 2 miles from their source location. Prevailing winds may determine the direction of movement out of gin trash.

Many beetles eventually arrive in houses, barns and other structures. The beetles are believed to be attracted to night lighting. Because of their small size, they can enter through any crack larger than about $\frac{1}{16}$ inch and can be found in large numbers in attics. They also enter the living spaces of homes, usually through fireplaces, open windows, cracks under doors or entryways from the attic.

What to do if you have a problem

If you think larger black flour beetles have invaded your home or another structure on your property, take these steps to eliminate them:

1. Confirm the insect identification.

A few beetles on the Southern High Plains look like the LBFB and occasionally accumulate in large numbers. Compare any captured beetles to the photograph in this fact sheet, but remember that Texas AgriLife Extension can positively identify the beetles for you. For help in identifying the beetle, contact your local Extension office. This usually takes from a few minutes to a few days.

2. Find and eliminate the source.

The most effective methods of dealing with an LBFB problem are eliminating the gin trash source of the infestation and sealing the house to prevent beetle entry.

Look for small or large areas of gin trash stored within a 2-mile radius of the infested home. Such areas could be only a few inches deep, or they could be recognizable piles or playa lakes. Some people find a gin trash pile down the road and think it must be the source of the problem. However, in many cases, careful investigation may reveal that small concentrations of gin trash are nearer to the infested home. A large pile of gin trash does not necessarily produce more beetles than does a small pile, and small playa lakes filled with gin trash can generate large numbers of beetles.

If you find gin trash that you suspect might be a source, contact the owner of the pile or land. To check for the presence of beetles, go with the landowner and dig into the pile at the soil level from the outside of the pile toward the center for at least 12 to 18 inches. Check each pile in several places. In playa lakes, dig down to the soil surface.

It will usually do little good to dig near the outer surface or in the middle of a pile in mid to late summer because the beetles and their larvae will have moved closer to the soil surface deeper inside the pile where there is still moisture available and the temperature is somewhat lower.

If the gin trash is infested, it can be moved and spread over the soil in a thin layer less than 1 inch deep. It is best to till this layer of gin trash into the soil. If tillage is impractical, leave the thin layer of gin trash to dry out and heat up in the sun. The beetles will either die or leave and will be unable to reproduce in such a thin zone of material.

It is important to give the owner of the pile or source of the beetles an opportunity to take care of the situation. Remember that most cotton ginners do not know gin trash produces LBFB and are unaware that their gin trash may be causing a problem. The owner may be able to grind the pile for cattle feed, move it or spread it out. All of these options cost money and may take some time.

Limited insecticide trials have not shown that treating the exterior of field-stored gin trash will reduce beetle populations. Also, no insecticides are

currently approved for use on gin trash, and any such use is illegal.

3. Exclude the insects from the house.

Because the LBFB enters through openings larger than $\frac{1}{16}$ inch, it has many routes of entry into most homes. To keep them out:

- Screen attic vents and windows.
- Use insulation to plug holes for pipe or plumbing access from the attic into the living spaces.
- Caulk exterior gaps around windows.
- Install tight-fitting weather seals on doors.

Chimneys can be a problem because they cannot be screened safely if they are to be used. Close the dampers when the chimney is not in use, but remember that the beetles will accumulate on the top of the damper. Some of these will find a way into the fireplace and the rest will die and fall in when the damper is opened.

Like many insects, the LBFB are thought to be attracted to light, so you might limit the use of exterior lighting.

Insecticide use

Insecticides applied in the attic may kill some beetles before they move into the inhabited part of a house. Although using insecticide inside the house will not reduce the total infestation, it will kill the beetles once they are inside. Even if you do not use insecticide, most of the beetles will die in a few days anyway.

If you decide to use insecticides inside the house, consider treating only certain areas in which the beetles congregate but which are away from most human activity. These areas include baseboards, behind furniture and a few inches of floor space in corners. Because the beetles congregate on floors and horizontal surfaces, there is no benefit to treating walls, vertical surfaces or ceilings.

LBFB can be bothersome when they get into packaged cereal and other foodstuffs in pantries. They are not known to carry any diseases that affect humans.

Of the different pesticides available, the most fast-acting and effective on LBFB are synthetic pyrethroids or pyrethrins. They provide quick knock-down and fast kill and may be used in many areas of the home. Read the label for specific use instructions.

Some formulations of pyrethroids or pyrethrins can be used in kitchens. Pest-control operators have access to many more types of insecticides than do homeowners, and it might be a good idea to consult a professional to deal with this problem.

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