

# Dung beetles helpful to livestock producer

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SPECIAL TO THE SUN

Dung has always been a problem, not only because of its odor but also because of health reasons.

The U.S. Department of Agriculture reported an increase in Arkansas' cattle industry by 2 percent from 1,710,000 in 2006 to 1,750,000 in 2007 which, confounded by an average cow producing 25 pounds of manure a day, can lead to an increase in dung.

This is problematic since dung pats that remain on the pasture surface provide breeding sites for pestiferous flies such as horn flies and face flies and parasitic nematodes. Horn flies are blood feeders and can reduce weight gain in cattle by 0.5 pounds per day and reduce milk production by 10 to 20 percent. Face flies are carriers of bovine pathogens such as pinkeye and are developmental hosts for several nematodes.

To minimize the stress on cattle caused by parasites found in dung, farmers use a popular drug called ivermectin (the same drug used by veterinarians to treat heartworm). Ivermectin is administered to the cattle and excreted mainly unchanged in the dung, inhibiting the development of parasites and pestiferous flies.

Unfortunately, around 450 other insects that are asso-



Tanja McKay/Special to The Sun

This photo shows *Phanaeus vindex*, a dung beetle found in Arkansas.

ciated with dung in North America are also susceptible to the drug. This is problematic because non-target insects, such as dung beetles, provide many benefits to animal and pasture health. Specifically, dung beetles compete with fly larvae for the same dung resource, enrich the soil through the burying of large quantities of nutrient-rich dung and effectively mix and aerate soil through tunneling.

As a result of using ivermectin, which is immediately profitable by reducing stress on cattle, reductions in decomposition rates from the loss of other non-target insects like dung beetles,

may adversely affect pasture quality.

Most dung beetles require dung as a food source at some stage in their life cycle.

Dung beetles have evolved different strategies in order to occupy and control their food source. The three most common strategies are: rollers that form a manure ball that gets rolled away, tunnelers that dig tunnels that connect from the dung pat down into the soil, and burrowers that stay within the dung pat. Since not all dung beetles utilize dung in the same manner, some species are more beneficial than others.

## QuickINFO |

The popular drug ivermectin, used by livestock producers to fight pest-carrying parasites, can wreak havoc on other insects, such as the dung beetle, which play an important role in animal and pasture health.

We have been researching dung beetles in Arkansas pastures. Since little is known about Arkansas dung beetles, one objective of our study is to assess the diversity of these insects on pastures in the state. Other objectives include examining the effects of ivermectin on dung beetle activity and the degradation of bovine dung in Northeast Arkansas. This project will help local farmers assess common agricultural practices and the natural processes being affected.

Conservation of this sort is geared toward promoting a more efficient use of natural resources while reducing the human impacts on non-target, beneficial insects like the dung beetle.

For more information contact the Arkansas State University Department of Biological Sciences at [biolgy@astate.edu](mailto:biolgy@astate.edu).

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