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The Lowly Dung Beetle

There are many things to focus on in a livestock operation, manure and the insects that help to break down manure may be way down on the list of priority concerns, but should they be? My first exposure to really looking differently at the dung beetle came from Steve Kenyon at the Nebraska Grazing Conference. Recently Dr. Cassandra Olds, K-State Entomologist, spoke at a grasslands event in Holton on the importance of this insect in fly control, moving into the future. Even more recently, South Dakota State put out information on this important insect in a newsletter and that serves as the base of this article today. So, today let's dig into dung and the beetle that does the same.

One of the most important resources grass-based operations have is the range/grasslands itself. A key contributor of maintaining a healthy rangeland is the presence of a healthy insect community. Much like the plant diversity of rangeland gives it productivity and sustainability, the insect diversity is important as well. This community consists of many beneficial insects including pollinators, predators, and decomposers. One of the most influential of these beneficial insects are the dung beetles.

Dung beetles are coprophagous (dung feeding) insects that play a vital role in the decomposition process of animal waste. Across the world a wide variety of dung beetle species help regulate rangeland health through dung dispersal. They work to rapidly remove dung from the surface and bury it underground to feed their offspring. By burying dung, the beetles contribute to increasing organic matter content and overall soil fertility. These nutrients become available to grassland vegetation, which helps to boost forage production.

Breaking down dung piles also assists with the suppression of dung-breeding livestock pests. These pests include flies, parasitic nematodes, and protozoa that can infest or prey upon livestock, which eventually results in economic losses. Through their daily activity, dung beetles help speed up dung decomposition and disrupt the life cycles of any developing pests. Much is invested annually trying to control flies on grazing livestock, a biological control defiantly has a place in the balanced ecosystem.

Three major categories of dung beetles are: dwellers (those living in manure), tunnellers (those living under manure piles) and rollers (those that roll and move manure). Supporting healthy dung beetle populations on rangeland comes down to management. In terms of grazing management, certain grazing practices can help promote dung beetles. Rotational grazing has been shown to favor dung beetle abundance as well as species variety. Grazing cattle at higher stocking densities increases the concentration and dispersal of dung piles, which is very influential for attracting dung beetles.

Another factor affecting dung beetles is the non-target impacts from treating pasture and livestock pests with insecticides. The application of broad-spectrum insecticides, pour-ons, and avermectins should be used sparingly or avoided unless absolutely necessary on rangeland settings. These chemicals have long residuals that can be detrimental to the development and survival of dung beetles. Products like insecticidal ear tags or short-residual "knockdown" sprays are more target-specific and have a smaller risk of impacting dung beetles through contact.

Keep in mind that dung beetle populations grow relatively slowly in comparison with many other insects. Dung beetles exhibit a great amount of parental care and do not brood very many offspring each season. Any setbacks caused by insecticide misuse or overuse will take some time to recover. In most cases, it will take years to rebuild a diminished dung beetle population back up to substantial levels. However, this can eventually be achieved with appropriate management.

Very little research has been done on this insect in Kansas. A good University reference can be found to the east at West Virginia in a publication called ["Dung Beetles in West Virginia Pastures"](#) if you want to learn more. I challenge you to give dung beetles consideration if you haven't before.