

Litter Beetle (*Alphitobius diaperinus* [Panzer])

General Information

The litter beetle (also called the lesser mealworm beetle) is a common pest associated with commercial (and sometimes backyard) poultry where they can be abundant in the poultry litter or manure. Beetle populations can reach high levels in both caged and cage-free housing systems. Immature beetles can cause significant structural damage to poultry housing. Adult and immature beetles can also be a direct threat to bird health in cage-free systems because they can carry several pathogens of poultry.

Identification and Life History

Beetle eggs are laid in the litter or in cracks and crevices of poultry houses. Eggs hatch in 4-7 days from which emerges an elongate beetle larvae that is light brown-yellow in color. There are 5-9 larval stages each lasting 5-11 days depending on environmental factors, after which larvae move away from their food source to develop into the pupal stage. Adult beetles are dark brown and 6-7 mm long (Fig. 1), and can live up to 12 months or more. Beetles feed on spilled feed, manure and, if available to them, dead birds and cracked eggs.



Figure 1. Adult litter beetles. Image by Amy Murillo, UC Riverside.

Damage

Litter beetle larvae cause damage to poultry house insulation as they chew through the insulation to create harborage sites within which they pupate. Adult beetles may also lay

their eggs within these tunnels. This damage can be intensified by insect-seeking birds which enlarge the beetle-created holes as they dig out the pupating beetle. Both adult beetles and larvae can harbor various poultry pathogens, including bacteria like *Salmonella* and *Escherichia coli*, as well as viruses including the causative agents of both Newcastle and Marek's disease. Beetles are also intermediate hosts for the chicken tapeworm (*Choanotaenia infundibulum*) which can parasitize birds that feed on these beetles. Beetles can be nuisance pests at neighboring properties, especially when a large quantity of beetle-infested litter is removed from a poultry house and piled to dry. As the litter dries, adult beetles removed with the litter will disperse by flight throughout the surrounding environment

Integrated Pest Management

Monitoring:

The most common method for monitoring litter beetle activity in poultry facilities is the use of tube traps, made of short sections (about 4-6 inches) of PVC pipe filled with corrugated cardboard placed along house walls as a harborage for beetles. A weekly examination of these tubes can alert you to the presence of beetles and indicate relative abundance of the beetle population over time. The litter can also be directly examined for adults and immatures. Insulation within the poultry house should also be monitored for the presence of burrowing adult or immature beetles.

Management:

Some chemical pesticides or dusts are available for premise application to control litter beetles, however many of these pesticides cannot be used if birds are present. Completely removing manure or litter in between flocks (or regularly in smaller backyard flocks) can help to reduce the number of beetles in poultry facilities. Following clean out of the poultry house, application of appropriate insecticides to walls and structural components of the house can be particularly effective. Treated insulation or more beetle resistant insulation may be helpful to reduce damage to the insulation, though this will not reduce beetle numbers.

References for more information

Axtell, R.C. and J.J. Arends. 1990. Ecology and Management of Arthropod Pests of Poultry. *Annu. Rev. Entomol.* 35: 101-26.

Dunford, J.C. and P.E. Kaufman. 2006. Lesser Mealworm, Litter Beetle, *Alphitobius diaperinus* (Panzer) (Insecta: Coleoptera: Tenebrionidae). Univ. of Florida IFAS Extension. <edis.ifas.ufl.edu/in662>.

AUTHORS: A. Murillo and A. Gerry (UC Riverside)

PUBLICATION DATE: 8 August 2016