

Chapter 13 - RODENT AND PEST CONTROL

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A. Introduction

Both beetles and rodents can become a nuisance for neighbors, resulting in complaints to the grower and broiler integrator. Migration of darkling beetles from litter spread on fields has resulted in a number of lawsuits.

It should be easy enough to justify good beetle and rodent control with common sense alone. You don't need a laboratory study proving that they can carry XYZ virus or a pen study to show how many points of feed conversion are lost.

Table 13.1 - Impact of darkling beetle and rodent infestations in poultry houses

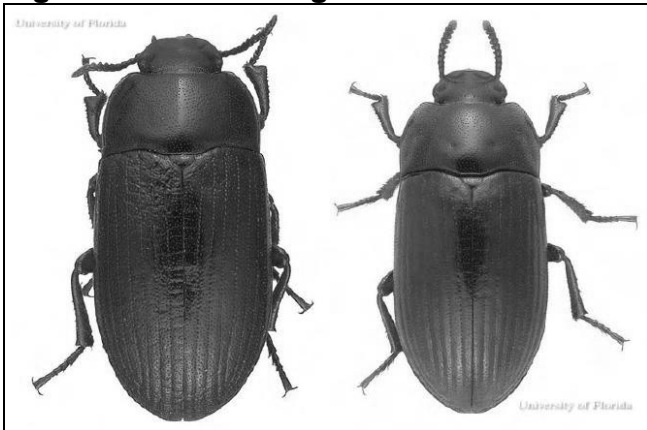
	Consume Poultry Feed	Transmit Disease	Damage Housing	Eat Chickens
Darkling beetles	✓	✓	✓	✓
Rodents	✓	✓	✓	✓

B. Darkling beetles

There can easily be two million **darkling beetles** (see Figure 13.1) **and larvae** (see Figure 13.2) in a broiler house. Taking the average beetle size (~6 mm long, 100 mg), and even assuming that beetles convert feed as well as broilers, the bug load could easily cost one point of feed conversion in stolen feed alone.

Chicks are happy to consume beetles instead of feed. Chicks have been documented to consume more than 400 beetles and/or larvae per day. This inhibits feed efficiency and may cause other intestinal problems (impaction, etc.). Beetles may pester broilers, causing unnecessary movement and again reducing feed efficiency. Heavy infestations can kill debilitated or weakened chicks, especially if the beetles are moisture starved. Moisture starved beetles may crawl onto chicks and chew at the skin at the base of the feathers. Such infestations can be mistaken for skin leukosis in the plant. Heavy loads may predispose to gangrenous dermatitis.

Figure 13.1 - Darkling beetles.



Source: University of Florida

Figure 13.2 - Life cycle of the darkling beetle from egg to adult.
(Scale bars = 1 mm)

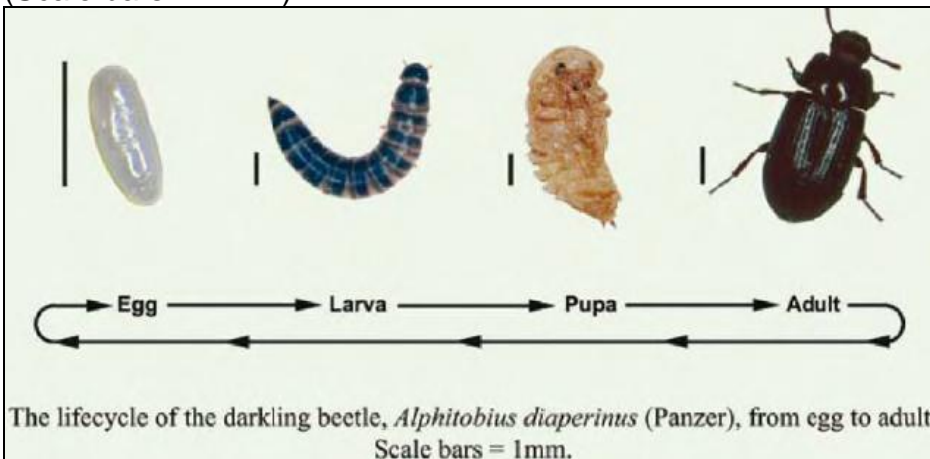
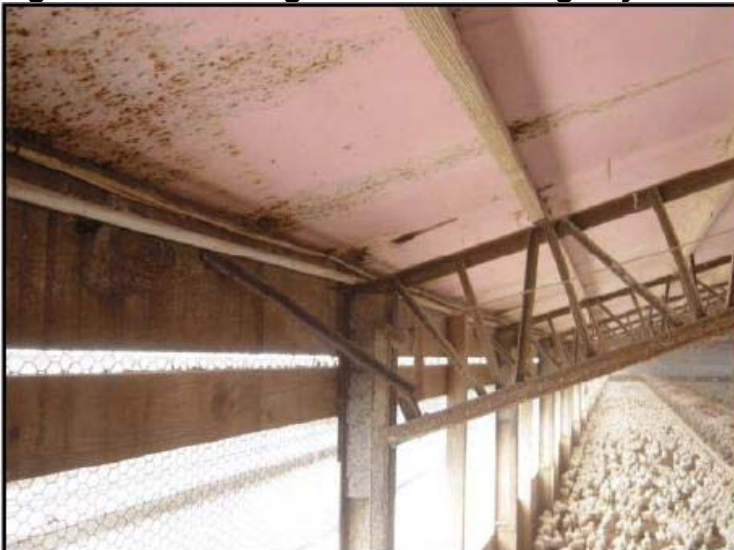


Figure 13.3 - Ceiling insulation damage by darkling beetles.



Source: University of Georgia/ Poultry Housing Tips/ Volume 17(12)

Darkling beetles can severely damage wood and insulation in a poultry house (see Figure 13.3). The annual economic loss per house per growout is estimated at \$150. Most of this is from loss of insulation and replacement/repair cost over the life of the house.

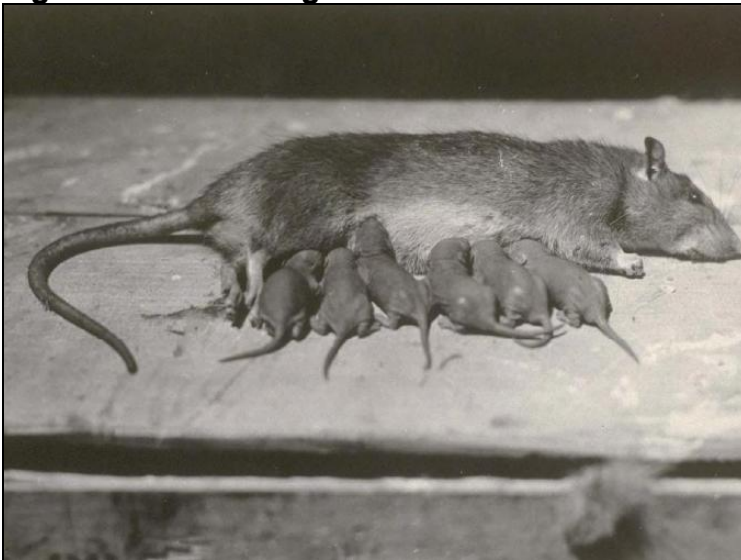
Darkling beetles have been shown to act as either biological or mechanical vector for a wide variety of poultry diseases. These include, but are not limited to, Gumboro disease, Marek's Disease, Salmonella, Campylobacter, Aspergillosis, Reoviruses, *E. coli*, and coccidial oocysts.

C. Rodents

Rodents can act as **biological or mechanical vectors** for a wide variety of poultry diseases. Rodent control is probably the single most important on-farm intervention against **food safety** related *Salmonella spp.*

Rodent activity disturbs the normal feeding activities of broilers and can cause avoidance activity which reduces feed efficiency. Rodents will eat chicks, dead or alive. At current feed prices [2007], a rat will consume about \$5 worth of broiler feed annually; a mouse about \$0.50.

Figure 13.4 - Nursing rat.



One of the main ways rodents interact with their environment is through gnawing. Their upper incisors never stop growing. If they didn't chew on things all the time, they'd get too long. Unless the thing they are gnawing on is tougher than tooth enamel, the rats/mice will eventually win. Figure 13.5 shows damage to ceiling insulation started by darkling beetles but continued by mice.

Figure 13.5 - Ceiling insulation damage by mice subsequent to darkling beetle damage.



Source: University of Georgia/ Poultry housing tips volume 17(12)