

# *Dermestes maculatus* infestation of swine barns.

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## *Dermestes maculatus*



Larval stage of *Dermestes maculatus* burrowing into wood in a finisher building.

*Dermestes maculatus* enters swine barns and other production animal facilities during the adult stage of its life cycle. The odors emitted from the facilities attract the hide beetle to the barn, and once inside it will begin to reproduce if enough food is present. The normal diet of the hide beetle is dead and decaying animals, but it will also eat dry animal products such as dead insects, readily found in swine barns. The adult state is not associated with the structural damage; rather it is the larval stage that causes the wood destruction. During the last ten days of the final larval instar, the larva seeks out a place of protection where it can pupate. Those that do not find protection will be cannibalized by adult beetles. In swine barns, it chooses to tunnel into the wooden support beams for its own protection, causing honeycombing and structural damage.

*Dermestes maculatus*, the hide beetle, infests and causes significant structural damage to swine barns. They tunnel out and decrease the structural integrity of wooden structures within the barns, significantly impairing their ability to maintain weight-bearing loads. Especially important in regions with heavy snowfall and damaging winds, affected barns are at a significant risk if left undiagnosed and untreated. This infestation threatens the safety of caretakers and their pigs and could be catastrophic for barn owners.

### Case description

The first reported case by AMVC was identified in June 2008. During a routine walk-through of a finishing facility in western Iowa, small holes, approximately 0.5 cm in diameter, were discovered along the 2"x 6" uprights and brace boards. The holes created a honeycombing of the wood and fine dust was seen on the sills. The structural damage was most severe at the curtained end of the building, and there was relatively little damage closer to the exhaust fans. Upon further inspection, the holes contained small, 1cm long brown larvae. After this first case was discovered, other finishing barns with the same management were inspected and many were found to have the similar structural damage and honeycomb pattern to the wood, as well as the larvae.



### Identification and prevalence

Larval samples and pictures of the structural damage were taken from the original barn and sent to Iowa State University's Department of Entomology for inspection and identification. The larvae were determined to be *Dermestes maculatus*, of which the adult beetle is a common outdoor insect that can easily fly, making it simple to spread from one location to another. Additionally, prevalence data was collected from barns in west central Iowa to determine extent of the problem. Sixty-one growing pig barns were randomly chosen for inspection. Of those 61 barns, 50 showed signs of tunneling by the hide beetles, indicating an 82% infestation rate of the barns sampled.

### Discussion

Based on the prevalence data, *Dermestes maculatus* infestation appears to be a problem in a number of barns, warranting further investigation into control and prevention methods. Once the beetles have infested a building, it is difficult, if not impossible to remove them. Control of the population is the best option. Sanitation is key. All dead animals, dead insects and spilled feed should be removed from the facility. Dropped ceilings in the offices attached to the building should be checked, as dead insects can accumulate here also. Limited spot-treatments of the most highly infested areas with residual insecticides such as the synthetic pyrethroids containing active ingredients like cyfluthrin, lambda-cyhalothrin, or promethrin need to be repeated every two to four weeks. Once veterinarians are aware of the significant issues associated with hide beetle infestation, they have the opportunity to impact producers. During regular barn visits they can monitor buildings for infestations, assist with attaining a diagnosis, and swiftly implement control measures. This will help extend the facility's life, significantly financially benefiting the producers. Infestation of *Dermestes maculatus* can be devastating financially to producers and poses a significant threat to both pig and producer safety.

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