

Cattle Grubs¹

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Cattle grubs (Figure 1) are the immature stages of warble flies or heel flies (Figure 2). Two species of cattle grubs occur in the United States -- the common cattle grub, *Hypoderma lineatum*, and the northern cattle grub, *Hypoderma bovis*. The common cattle grub is found in Florida; however the northern cattle grub is usually found in cattle shipped to Florida from other states. Recent observations have indicated that the northern cattle grub may be becoming established in Florida.



Figure 1. Northern cattle grub.
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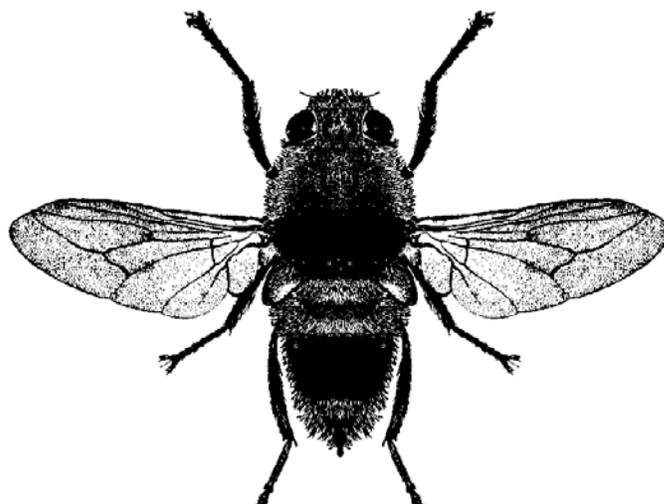


Figure 2. Cattle grub adult (heel fly).

Life Cycle

The common cattle grub lays its eggs on the hair of cattle, on the lower areas of the body. The common cattle grub may lay as many as 5-15 eggs on a single hair of the animal.

The northern cattle grub also lays eggs on the legs and belly region, however, only single eggs are deposited on individual hairs. Although there is no pain at the time of oviposition, the cattle become terrified when the northern cattle grub adult fly is flying about. The cattle react to the

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sound produced by the bee-like fly. Usually the adult fly is found from February through May when they cause the cattle to run across pastures (gadding).

The eggs will hatch within a week and the maggots burrow through the skin. The young maggots migrate through the connective tissue of the animal for much of the summer. In late summer, the first stage maggots move to the mucous membrane of the esophagus (common cattle grub) or to the spinal column (northern cattle grub). In Florida, the migrating first stage larvae reach the backs by early fall (October). Once there, they cut or digest a hole in the skin for air.

The first stage (Figure 3) larvae then molt into the second stage with the host producing a warble within 3-4 days. They grow rapidly, feeding on pus, necrotic cells, and secretions from the wall of the warble or cyst and molt to the third stage. One to two months are spent in the warble to complete larval growth. When the grub is mature, it squeezes through the breathing hole and drops to the ground to pupate. In 2-3 days the pupal stage forms. The insect remains as a pupa for 20-60 days, depending on the temperature and emerges as the non-feeding adult fly in the spring of the year. Only 1 generation of cattle grub is produced per year.

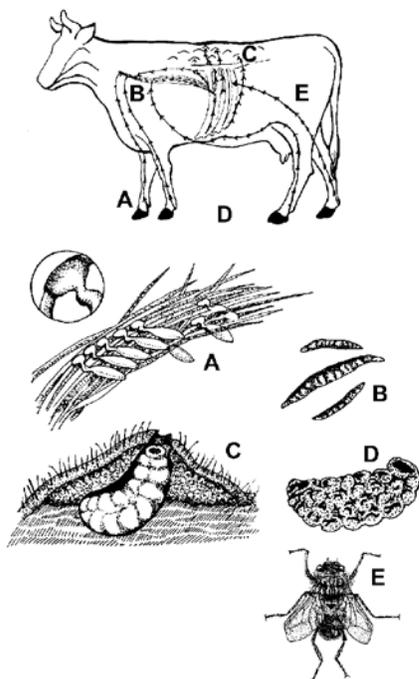


Figure 3. Life stages and migration of the cattle grub. A) eggs attached to hairs in rows, B) larvae, C) warble, D) pupa, E) adult.

Cattle Grub Damage

The larval and adult stages are responsible for economic damage to cattle. Loss of weight resulting from the wild efforts of the animals trying to escape adult flies may be considerable. Milk production may also be reduced as much as 20-30% from gadding, as well. Further damage may result from the cattle running into fences and other objects.

The larvae produce three types of damage. The first type is from ill-timed killing of the immature larvae migrating in the body of the host and subsequent adverse reactions (see control). The carcass depreciates because the flesh is greenish-yellow, jelly-like and unfit for consumption where the grubs were located. This second type of damage occurs only if an animal is slaughtered when grubs are still in the animals' back. The hide is also less valuable due to the holes that the larvae cut in the skin.

Control

Cattle grubs on beef and non-lactating dairy cattle may be controlled with the use of systemic insecticides. Be aware that systemic treatments usually have withdrawal periods before slaughter is allowed. Only one material is available for lactating dairy animals. The timing of insecticide applications is critical. The young larvae must be killed before they reach the esophagus (common cattle grub) or spinal column (northern cattle grub). Therefore, the treatment period includes that time after which egg hatch has ceased until the larvae have moved, up to but not into, the back or throat region. Cut-off dates have been established for grub treatment in the United States to prevent host-parasite toxic reactions. In Florida, the cut-off date for cattle grub control is set at August 31. Any time in the month of August is the proper time to apply insecticides for cattle grub control.

Sprays, dips, feed additives, and pour-ons (or spot-ons) are all labeled and recommended for cattle grub control, although pour-ons or spot-ons give the best results.

Proper timing of insecticide applications will also provide control of horn flies, ticks and lice. Do not treat animals that are under stress or are sick.

Toxic Reactions

Cattle treated with insecticides may respond with toxic reactions after application. These reactions result from: 1) dead or dying grubs in the esophagus or spinal column, 2) pesticide toxicity due to over dosage, or 3) grubs accidentally

broken in the backs of animals may produce anaphylactic reaction in sensitized animals.

Common cattle grub larvae dying in the esophagus will cause difficulty in breathing, excessive foamy salivation, vomiting, bloat, and suffocation. Death is quite common when this reaction is observed.

Northern cattle grub larvae dying in the spinal canal will cause paralysis or weakening of the back legs. Animals generally recover from this reaction.

To avoid the occurrence of a host-parasite toxic reaction, apply cattle grub insecticides before the August 31 cut-off date.

Pesticide toxicity in cattle may be observed when too much insecticide has been applied to the animal. Symptoms of pesticide toxicity include: excessive stringy salivation, diarrhea, weakness of the hind legs, and abdominal cramps. To avoid pesticide toxicity, follow label directions precisely and apply the proper amount of correctly formulated material to each animal.

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