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Control Cattle Grubs!

J. MYRON MAXWELL
Associate Extension Entomologist

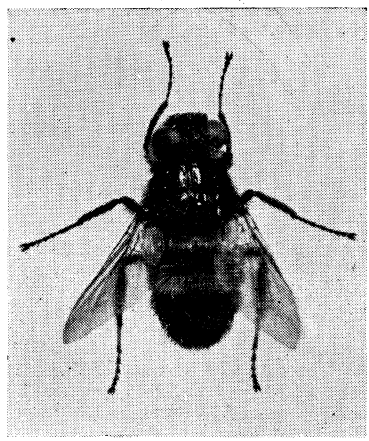

Fig. 1. The heel fly—Adult stage of the cattle grub.

The control of cattle grubs, commonly called "wolves," and their adult form the heel fly, is one of the most important insect problems confronting cattle owners throughout Oklahoma. The total loss caused by this insect in the United States is estimated at from $50,000,000 to $100,000,000 each year. This loss is borne by stockmen, dairymen, feeders, butchers, packers, hide dealers, tanners, and manufacturers of leather goods.

Do your part to reduce this great loss by treating your cattle to kill the cattle grubs. Dead grubs cannot produce flies to infest the animals and cause additional loss the following year.

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF OKLAHOMA

ERNEST E. SCHOLL, Director

OKLAHOMA AGRICULTURAL AND
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CATTLE GRUBS PREVALENT THROUGHOUT THE STATE

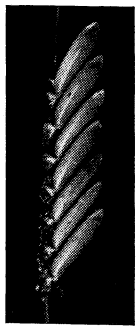
Cattle grubs occur throughout the state of Oklahoma but are generally more numerous in areas of less rainfall, especially when this shortage of moisture occurs during February, March, and April.

DESCRIPTION AND LIFE CYCLE

THE FLY.

The flies, which are commonly called heel flies, appear early in the spring, usually in March and April, although heel fly activity has been noticed as late as early June.

They attack cattle for the purpose of egg laying. In attempting to lay eggs on the cattle, the flies produce a buzzing sound and tickling sensation which cause the cattle to run for shelter, stay in barns all day, and may even cause stampedes. Ranchers and cattlemen are well aware of the losses, such as failure to gain normally, reduction in milk flow and, in some cases, even loss in weight, resulting from this activity of the heel fly.



The fly is about one-half inch in length, dark gray or black in color, with a marking of light yellow hairs across the abdomen. It has no sting or functional mouthparts. (See front.)

THE EGG.

The eggs are laid on the legs and lower parts of the body of the cattle, but usually just above the heels. Several small yellowish eggs may be found attached to a single hair.

Fig. 2. Eggs of the common heel fly attached to a hair—(much enlarged.)

THE LARVA.

The egg hatches within three or four days after being laid and the small grub moves down the hair and enters the skin at its base. After the young grubs penetrate the skin, they work their way upward between the muscles and a few months later may be found in the abdominal and chest cavities of the animal. During the following seven or eight months they constantly burrow about over the surface of the paunch, intestines, spleen, and other organs. Grubs are especially numerous between the muscular and mucous layers of the esophagus. The grubs in these situations are slender and their length ranges from about 1/10 to 2/3 of an inch.

Fig. 3. First-stage larva of the common cattle grub. (Six times natural size.)

In the fall, winter, and early spring the grubs migrate through the muscular tissues of the back and in a short time reach the under surface of the skin. During this last journey some of them enter the spinal canal and may burrow along the spinal cord for considerable distances. Soon after the skin is reached, the grubs cut minute holes through which to breathe. At this time the larvae are still slender, white, and about ⅔ of an inch long.

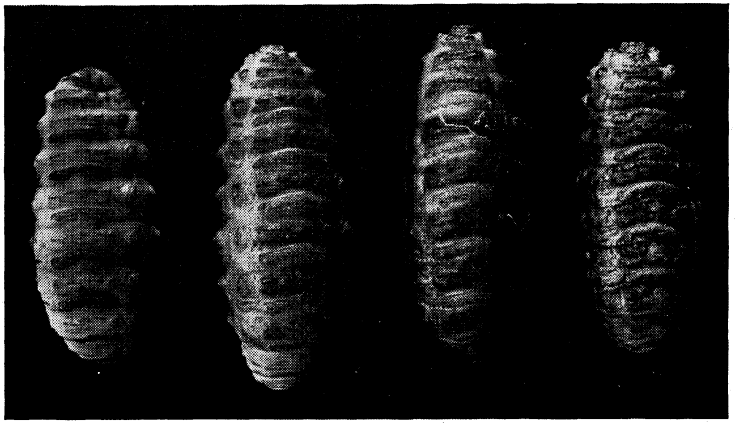


Fig. 4. Nearly full grown larvae of the common cattle grub. (Twice natural size.)

The grub remains under the skin on the back for from 1½ to 2½ months and finally becomes a dark brown or black larva about ¾ to 1 inch in length. After becoming fully mature, it works its way out through the enlarged hole and drops to the ground. There it burrows into the loose soil or into a crack in the soil and transforms to the pupa, or resting stage.

THE PUPA.

The pupal stage is very seldom seen but is dark brown or black in color and can be found in the soil from ½ to 2 inches deep. During the first few warm days of spring the mature heel fly emerges from the pupa, which it pushes open at one end. Its wings soon expand, and in a few days the female fly is busy depositing eggs on nearby cattle.

YOUNG CATTLE MOST SUSCEPTIBLE

From observations in several other states and in Oklahoma, it has been found that the younger cattle are the most heavily infested with cattle grubs. Calves that are born during March and April may be more accessible to the heel fly in that they do not attempt to run for shelter when attacked by the fly, which may explain why they show heavier infestation than older cattle.

CONTROL

FORMULA.

A recently developed method of control which is very effective and inexpensive consists of washing the backs of the animals with a material which kills the grubs before they mature and drop out of the backs.

This formula, which is recommended by the Oklahoma Extension Service and the U. S. Department of Agriculture, is:

12 ounces finely ground derris or cube dust (5% rotenone content)
2 ounces **neutral** soap
1 gallon of water (soft water preferred.)

This formula is sufficient to treat betwen 15 and 25 head of cattle, depending upon the size of the animal and the length of hair. Use approximately ½ pint for average size cattle.

Directions for Mixing Formula.

Heat one quart of water to near boiling, add soap flakes, and stir. When dissolved, add 12 ounces of derris or cube powder and stir into a smooth paste. Then add the remainder of the water (3 quarts) and stir. The mixture is then ready to be applied to the backs of the animals.

Method of Application.

Place the liquid in quart fruit jars which have lids well perforated with holes made with a 16-penny nail. Then douse the material on the backs of the animls and use a stiff bristled brush to scrub the material into the hair of the backs. Be sure that all bumps are well covered with the liquid.

Time of Applications.

Three or possibly four treatments at monthly intervals are necessary to kill all grubs in a particular animal, since the grubs keep appearing in the backs of the animals over a period of two or three months. In southern Oklahoma in 1939, grubs first appeared in considerable number November 1. In the northwestern part of the state, grubs first appeared about the middle or last of November. These dates may vary from year to year but the first application should be made when several very small bumps can be felt by running the hand over the backs of the animals. The second and third applications should follow at about 30-day intervals. The cattle should be checked 30 days following the third treatment and if any live grubs are found, a fourth application should be made.

Cost of Materials.

Derris or cube powder, containing 5% rotenone, can be purchased for 30 cents to 40 cents per pound. Therefore, one gallon of the mixture should cost between 25 cents and 33 cents, making the cost of materials per application slightly more than 1 cent per head.

Effect of Treatment.

With the derris or cube wash method, the grub is not broken but is killed within a few minutes after treatment and the healing process starts immediately. The contents of the grub's body are slowly absorbed by the animal and the healing process forces the foreign material and dead grub out through the hole in the skin. On examining treated animals, two or three weeks following application of the derris or cube wash, a small scab can be found over each of the grub exit holes. Upon lifting the scab, it will be found that the dead grub has been forced out and the hole practically healed.

SQUEEZING OUT GRUBS A DANGEROUS PRACTICE

The danger of extracting grubs by hand from the backs of animals has been realized for many years. If a grub is broken underneath the skin, its contents poison the animal almost immediately and, in many cases, anaphylactic shock may result and endanger the life of the animal.

RESULTS OF TREATMENT IN OKLAHOMA

From the 527 head of cattle treated in Oklahoma during 1939, under supervision of the Extension Division, not a single case of infection was observed following the treatment of cattle by the use of derris or cube wash. This checks with records in other parts of the United States. It is very evident, therefore, that this treatment does not endanger the animal in any way and is by far the safest procedure for controlling cattle grubs.

Illustrations by courtesy of the Bureau of Entomology and Plant Quarantine, U. S. D. A.