



# The Swine Roundworm

(*Ascaris suum*)

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**W**hile several species of roundworms occur in hogs, the ascarid (*Ascaris suum*) is usually the one referred to when the term "swine roundworm" is used. This ascarid is the largest roundworm found in hogs, has universal distribution where pigs are kept, and is the most economically important roundworm to hog raisers. Much of the importance of swine ascarids is due to the life cycle of the organism, which makes it both highly infective and destructive to the tissues of the host.

## Life cycle

The eggs of the swine ascarid are deposited in the feces of the hog. The eggs are very resistant to most environmental conditions and can sometimes remain viable for several years in the soil. Since a mature female ascarid can deposit 200,000 eggs per day for several months, the eggs become very plentiful on ground where infected pigs are present. If conditions are favorable, the eggs will become infective 17 to 18 days after being dropped in the feces of the hog.

When a susceptible hog ingests an infective ascarid egg, ascarid larvae begin to migrate into the hog's liver in a few hours. It is at this time that the damage is done that produces the light colored "ascarid scars" on the liver. In a few days the larvae have migrated on to the lungs and established themselves there. A severe pneumonia may develop at this time that produces the "thumps" often seen in young pigs infected with ascarids. The pneumonia causes such difficult breathing that the respiratory motions are forced and carried out in a jerky motion.

In a few more days, when the larvae have developed to the proper stage, the larvae are coughed up and swallowed by the pig.

If the conditions are right after the larvae are swallowed, many of them will establish themselves

in the intestine of the pig and grow into the adult stage. Approximately two months after infection, eggs from the new generation of ascarids will begin to appear in the feces of the host.

## Pathology

The migrating larvae are usually the most damaging forms of the ascarids. Many hog livers are condemned at slaughter because of excessive ascarid scars. The scars usually disappear gradually if the hog is allowed to live long enough following exposure to the invading ascarids.

The lung damage generally is the most serious pathology produced by the ascarids. In heavy infections a large part of the lung tissue is damaged and congested with body fluids. Lung tissue damaged by ascarids is not only ineffective in oxygenating the blood of the host, but it sets up an ideal location for bacterial infections to develop. Heavily infected pigs will show the respiratory distress called "thumps" and will often die from the lung damage.

Adult ascarids in the intestine often irritate the mucosal lining of the intestine and will even occasionally cause ulcers in the intestinal wall. The ulcers sometimes erode completely through the intestinal wall and the hog dies of acute peritonitis due to the escape of gut bacteria into the abdominal cavity. When adult ascarids are plentiful, they sometimes cause blocking of the intestinal tract.

## Control

Control of ascarids depends on preventing young, susceptible pigs from coming in contact with infective eggs of ascarids. Certain characteristics of the ascarid egg make control difficult. The egg is very resistant to environmental conditions. It is resista: t

to almost all of the usual chemical disinfectants. The eggs are sticky and hard to wash away. One thing in favor of the swine raiser is the period of time of more than two weeks that is needed before the egg is infective to the hog.

Many methods have been devised to overcome the difficulties of preventing heavy infections of ascarids. Probably the most famous method is the McLean county system of swine sanitation. In that system, as in most others, the primary principles are cleanliness and the separation of susceptible pigs from adults as soon as possible.

Not only farrowing quarters, but the sow should be carefully cleaned before farrowing. All foreign material should be scrubbed off the sow to insure against infective eggs being carried into the farrowing quarters. The farrowing quarters should be scrubbed with a brush and lye solution to remove all organic matter.

Care should be taken to keep the lye solution off the skin and out of the eyes, because of its caustic nature.

After pigs are weaned they should be separated from the sow and put into clean rearing quarters or on clean pasture.

#### **Anthelmintics (Remedies for destroying or eliminating intestinal worms)**

There are two methods of medicating pigs to help control ascarids. One method utilizes an anthelmintic that is effective when given in a single dosage. This method is valuable only when the ascarids are already present and are in a stage of the life cycle that will be susceptible to the medication used. The most satisfactory group of anthelmintics for such use is the piperazines.

The piperazines have been proved effective in the field by several years of use. Some have been exceptionally effective against ascarids and they are some of the safest anthelmintics that are effective. They will kill only the adult ascarids, however, and will not control the migrating larvae. Some piperazines can be given in drinking water while others are more effective given in the feed. The dosage depends on the actual amount of the piperazine part of the molecule, so directions for the individual product should be followed.

A second method of medication is to put an anthelmintic in the feed of the pig over an extended period of time. Hygromycin B. is an antibiotic that has been used this way. For satisfactory results against the ascarids, the Hygromycin B. should be fed in the feed for at least a three week period. The use of this antibiotic should not exceed the manufacturer's recommendations because there is evidence that too long continued use might be detrimental to the pigs.

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#### **RURAL CIVIL DEFENSE TIP**

**Organized fire protection is vital to rural areas in peace and war.**