

External parasites of pigs

August 2017, Primefact 1148, second edition
Animal Biosecurity & Welfare

Introduction

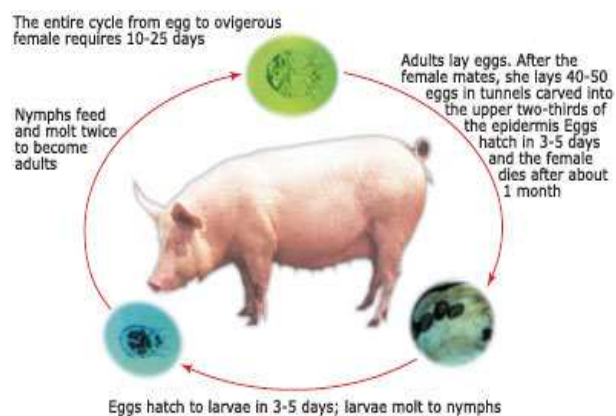
The importance of external parasites in pig production varies greatly among regions because of differences in climate and systems used to raise pigs. Sarcoptic mange caused by *Sarcoptes scabiei var suis* is the most important external parasite of pigs worldwide. Other external parasites include demodectic mites, lice, fungi, and ticks.

External parasites produce a range of clinical signs in pigs including rubbing, scratching, and skin lesions. Some parasites also cause significant economic effects due to reduced growth rate, reduced feed efficiency, and loss of carcass value at slaughter.

Sarcoptic mange

Two clinical forms of the disease are recognised: a hyperkeratotic form that most commonly affects multiparous sows and a pruritic or hypersensitive form that primarily affects growing pigs. The sarcoptes mite is a small, greyish-white, circular parasite about 0.5 mm in length and just visible to the naked eye when placed on a dark background.

Photo: Cargill & Davies 1999



Hyperkeratotic encrustations in the ears of multiparous sows are the main reservoir of mites within a herd.

The boar helps to maintain infection in the herd because he is constantly in direct skin contact with breeding females and he remains a chronic carrier. If pigs are housed in groups there is increased opportunity for spread. Piglets become infested during suckling.

Environmental spread is less important, but exposure for as little as 24 hours to pens that have been immediately vacated by previously infected pigs can result in infestation.

The mite dies quickly away from the pig; under most farm conditions in less than 5 days. This is an important factor in control. If a herd is free from sarcoptic mange, it is one of the easiest diseases to keep out because it can only be introduced by carrier pigs. However, once it is introduced it tends to become permanently endemic unless control measures are taken.

Acute disease

The common signs are ear shaking and severe rubbing of the skin against the sides of the pen. Approximately 3 to 8 weeks after initial infection the skin becomes sensitised to the mite protein and a severe allergy may develop with very small red pimples covering the whole of the skin.

These cause intense irritation and rubbing to the point where bleeding may occur.

Chronic disease

After the acute phase thick encrustations develop on the ear, along the sides of the neck, the elbows, the front parts of the hocks, and along the top of the neck.

Severe hypersensitive (allergic) sarcoptic mange in a sow: photo from the pignore.com



Diagnosis

Diagnosis of sarcoptic mange is confirmed by demonstrating the presence of the mite in the herd. The best method is to use a flashlight to examine the internal surface of the ears of breeding animals for encrusted lesions. A teaspoon is an ideal instrument to scarify material from the interior of the ear. This material can be spread onto a piece of black paper and left for 10 minutes. Turn the paper upside down to remove the material. Any mange mites present will be left adhering to the paper by the suckers on their feet. Mites can be observed directly or with a magnifying glass.

Establishment and maintenance of sarcoptic mange-free pig populations

The establishment and maintenance of sarcoptic mange-free herds is facilitated by three important facts:

- Piglets are born free of mites
- Mites are highly host-specific and don't survive long away from their host
- Modern treatments are very effective

Mange-free herds can be established with caesarean-derived piglets, by depopulation and repopulation from mange-free stock, by segregated rearing of treated pigs or by eradication using avermectins and other products registered for use in pigs.

Registered acaricides can be found at <https://portal.apvma.gov.au/pubcris>.

Biosecurity measures that focus on careful scrutiny of incoming pigs and sourcing pigs from a minimal number of herds with a similar health status are usually adequate to prevent re-introduction of the parasite.

Control

Sarcoptic mange control involves identification of pigs with chronic disease so that they can receive systematic and regular treatment to protect the younger pigs in the herd. All control programs must target the breeding herd.

Any sows with extensive hyperkeratotic lesions in the ears and over the body should be culled and the remainder of the sows treated simultaneously or alternatively in segregated groups prior to farrowing.

Contaminated bedding should be removed.

Treat all pigs regularly to prevent a build-up of numbers. Treat boars every 3 months. Treat pigs in the hospital pens regularly. Always treat pigs twice 10-15 days apart.

Leave pens empty for 3 days after infected pigs move out and spray the pen after cleaning with a sarcoptic mange dressing.

Demodectic Mange

In contrast to sarcoptic mange, demodectic mange is relatively unimportant in pigs. The mite is *Demodex phylloides* and it lives in hair follicles.

The response to treatment is poor, but the mite is sensitive to those acaricides used for sarcoptic mange control. Severely affected animals should be culled from the herd.

Lice

Lice in pigs are readily observed and often blamed for damage due to sarcoptic mange because both conditions cause irritation and rubbing.

Lice are relatively uncommon in herds today. Herds that are treated routinely to effectively control sarcoptic mange seldom carry significant lice populations.

The louse affecting pigs is *Haematopinus suis* and it has piercing and sucking mouthparts. It is greyish-brown in colour with black markings. The females are about 6 mm long and the males slightly smaller.

The whole life cycle from egg to adult takes 23-30 days. The pig louse is host-specific and cannot survive for more than 2-3 days away from pigs.

Lice are found on all parts of the body, but particularly in the folds of the skin around the neck, jowl, flanks, and on the inner surfaces of the legs. They often shelter inside the ears, where they are sometimes seen in 'nests'. The

method of spread is by direct contact during huddling, although clean pigs placed in a yard just vacated by lousy pigs can become infested.

Heavy infestations result in anaemia in young pigs and may affect growth rate and feed efficiency.

Treatment and Control

Treatment and control of lice can be readily achieved because the parasites live on the skin surface and can survive only a few days away from their host. Registered therapeutic agents may be applied to the pig in the form of sprays, pour-ons, injections, and as in-feed medications. Two doses 10 days apart will eliminate lice. All acaricides are ineffective against eggs hence the need to treat twice.

Control and eradication strategies listed for sarcoptic mange apply equally for lice. These include special attention to the ears, treatment of the boars, multiple treatment of sows prior to farrowing, segregation of clean and untreated pigs if the whole herd is not treated at one time, and treatment of all introduced pigs.

Ringworm

Fungal diseases are an uncommon zoonosis of pigs. They tend to be superficial mycoses involving the keratinised epithelial cells and hair only and are of little economic importance. Ringworm is found in both indoor and outdoor rearing systems.

All age groups can be affected and the incidence is higher in unhygienic environments where stocking rates are high and temperatures are moderate with high humidity. Bedding may be an important source of infection. Fungal spores can remain viable for many years in a dry and cool environment.

Microsporium nanum is the most common fungal infection in pigs. Lesions can be found on almost any part of the body. Typical lesions start as circumscribed spots that tend to enlarge in a circle, some to a very large size covering the complete side of the pig. The skin is reddish to light brown in colour, roughened but not raised. Dry crusts form around the periphery, the hair is usually not lost, and no pruritus (itching) develops. Chronic infections are often seen behind the ears of adult pigs and appear as thick, brown crusts that spread over the ear and neck.

Trichophyton mentagrophytes is the most common cause of trichophytosis in pigs. The size and shape of lesions vary; some measure up to 12.5 cm across and are roughly circular. Typical lesions are red or covered by a thin brownish dry crust. The disease tends to be self-limiting and lasts about 10 weeks.

Candidiasis in pigs is caused by the yeast *Candida albicans* and appears to cause disease when the pig's resistance is lowered.

Diagnosis is made by examining scrapings from suspicious areas under the microscope to look for fungal spores.

Treatment consists of removal of the crusts and local application of disinfectants or antiseptics.

Control is by maintaining good sanitation. Housing can be disinfected with phenolic disinfectant (2.5-5%) or sodium hypochlorite (0.25% solution).

Ticks

Ticks infest many species of mammals and birds and are generally not host-specific. Compared with grazing species, pigs are not commonly parasitised by ticks and ticks essentially do not occur on pigs raised in confinement.

Ticks are readily seen by gross visual examination. They can be found on any part of the body, but they are more often seen around the ears, neck, and flanks. The size and appearance vary according to the degree of blood engorgement.

The treatment and control of ticks in pigs are rarely necessary. If only a few ticks are present these can be removed manually and the pigs confined away from infested pasture.

Other Pests

Mosquitoes, although considered primarily pests of humans, also attack livestock causing discomfort and irritation. In severe cases, affected carcasses of pigs must be skinned at slaughter.

Lesions appear on several or all of the pigs in the form of raised oedematous weals on the legs and abdomen. Mosquito bites can irritate nursing sows enough to result in increased overlays.

Mosquitoes are important vectors in the transmission of Japanese encephalitis virus. Mosquitoes may also act as mechanical vectors in the transmission of *Eperythrozoon suis*.

Type III hypersensitivity reaction: photo courtesy of T. Holyoake



There are several control measures that can be implemented to decrease the number of mosquitoes. Local councils may use larvicides and in areas where there is a disease outbreak fogging may be considered as an option in order to kill the infected adult mosquito population.

At the farm level, care needs to be taken because very few products used to control biting insects are registered for use in pigs. Several products (Inca Ban Fly insecticidal spray for animals in 250mL and 500mL quantities; Musca Ban insecticidal spray in 125mL, 500mL and 5 L quantities; Value Plus fly spray in the same quantities; Flygon insecticidal and repellent spray in the same quantities and Ecovet Insect Repellent in 500mL quantities) contain a number of repellents and insecticides and are registered for direct application to pigs.

Baits/larvicides (such as cyromazine, thiamethoxam), knockdown sprays (such as dichlorvos), and residual insecticides applied to walls and surfaces where mosquitoes/flies rest (such as maldison, diazinon, trichlorfon or dichlorvos) can be utilised for pigs housed indoors.

'Knockdown' products can be sprayed into the pigs' environment with some success. Foggers, coils, and vaporisers may also be considered for use around the piggery. Where possible, the breeding ground of the mosquitoes should be identified. The larvae can be destroyed by either draining water reservoirs or covering the surface with oil.

Flies are a concern in pig production for several reasons and they tend to be used as a measure of hygiene by local health authorities. Some flies annoy animals by their vicious bite, while others act as a vehicle for transmission of infectious diseases.

Flies make contact with faeces, skin, and discharges of the pig. If the number of flies in the environment reaches a high enough level they can become major transmitters of disease organisms, not only within a building, but also between buildings and sometimes between pig herds. Such infections include pathogenic strains of *Escherichia coli*, *Brachyspira hyodysenteriae*, salmonellae, streptococci, and rotavirus.

Major outbreaks of greasy pig disease and coccidiosis can be maintained by very high fly populations. When sows are sick with mastitis, flies are attracted to the udder and skin surfaces in great numbers and they can be responsible for enhancing severe outbreaks.

Fly control in all piggeries must be continuous in summer months. The aim is to prevent flies from breeding and to destroy adult flies. Breeding of flies can be prevented by regular removal of dung. Insecticides are effective in the form of sprays and baits.

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PUB17/524